NEW CENTURY BOOK OF FACTS

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The NEW CENTURY BOOK of FACTS

A HANDBOOK OF READY REFERENCE

Embracing

LANGUAGE - GRAMMAR - HISTORY - MATHEMATICS - GEOGRAPHY
ATLAS - KINDERGARTEN - PHYSIOLOGY - LITERATURE - SCIENCE
GOVERNMENT - LAW - ECONOMICS - BIOGRAPHY - FINE ARTS

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CARROLL D. WRIGHT, A.M., Ph.D., LL.D., Deceased

REVISORY EDITOR

HENRY ADELBERT WHITE, Ph.D.

AUTHENTIC *COMPREHENSIVE*
UP-TO-DATE

THE CONTINENTAL PUBLISHING COMPANY
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PREFACE.

ORIGIN. The publication of the *New Century Book of Facts* has been brought about by the constant demand of the American people for a reliable book of reference. Such a reference work requires constant revision to hold place with inventions, discoveries, events and political changes, and in keeping up with this progress lies its great usefulness. Without question the *Century Book of Facts* published in 1900 supplied a definite need, and was the most popular single-volume facts book of its time. The 1908 revision of the *Century Book of Facts* was so complete that it practically changed the identity of the book. Continual demand on the part of the public, which is witnessed by the thousands of letters desiring a later revision of the *New Century Book of Facts,* has resulted in the latest edition, which is without question the most practical single-volume reference book being sold at the present time, having behind it the prestige of a quarter of a century. The present edition will be found greatly enlarged, more adapted to practical reference and more fully illustrated than any of the previous editions of the *Century* or *New Century Book of Facts.*

PURPOSE. Consequently, as the publishers have foreseen, the decided change in the school curriculum has made it necessary to make an entirely new book, in the preparation of which there has been one supreme object; namely, the production of the best single-volume reference work in the English Language, surpassing all others in scope, quality, and adaptation to present day needs in the same degree that a modern locomotive excels the first models.

PREPARATION. Even though three years were spent in the selection, condensing and arrangement of the last revision of the *New Century Book of Facts,* again, two years have been spent in bringing it up to date and adding to it those particular subjects which experience has shown are demanded and most used by the book referring public. This has been largely accomplished by those actively engaged in the teaching profession, also, by hundreds of solicitors in the field, who are in position from daily contact to know exactly the particular kind of reference material needed in the individual home.

EDITORSHIP. This vast array of facts was brought into order, verified, and made available for instant use under the direction of Hon. Carroll D. Wright, late president of Clark College, recognized throughout the world as a statistician and economist of the first order, and eminently qualified to shape a facts book along the lines of highest usefulness. In order to maintain a uniformly high standard throughout the several departments, he personally selected a board of sixteen associate editors, composed of specialists of the foremost rank, for the most part connected with our leading universities and colleges, and representing an average of editorial competency and scholarship, not only higher than that of any other single-volume reference work, but also exceeding that of our largest encyclopedias.

In making the present edition, the publishers have kept in mind, the excellency and high standard of the previous editions of the *New Century Book of Facts.* Therefore, in the making of a new department or the revision and expansion of a department, only those qualified by experience in teaching or practicing have been employed. Consequently, the work will be found free from padding and of the utmost practical value to the user.

ARRANGEMENT. The entire work has been divided into fifteen departments, and these again are arranged in the order which experience has shown will enable the work to be of the greatest use not only to children and students but also for general reference. Each of the fifteen departments consists of one and only one general subject. By this method the great educational advantage of proper correlation of matter is gained and the unnecessary and disorderly miscellany so generally confusing in works of reference is avoided. The classification of the matter has proceeded on the basis of the Dewey decimal system for libraries, except that the large general division of sociology was divided into Government, Law and Economics. The topical arrangement of the subject matter was chosen with full realization that it imposed upon the editorial staff the necessity of a fuller and better balanced treatment of each department than would either the alphabetical arrangement or the grouping of several departments into one.

SPECIAL FEATURES. Among the special features we mention the appearance and style of type page throughout the entire volume; outstanding facts have been been placed in heavy type or italics, enabling the user to grasp important facts instantly. We mention the World's History in Graphic Outline, World War, Pictorial History and Presidents' Administrations, Pictorial Geography and facts concerning the states, line drawings illustrating the practical application of Everyday Physics, Physical Terms and Laws and a Dictionary of Chemical Terms and Elements. Parents will find in the beginning of the department of Grammar a most helpful treatise, assisting them to lay the foundation of Good English in the Home. Technical Grammar is most thoroughly covered and will be of inestimable help to the student taking Latin, Greek or the Modern Languages. The Anatomy and Physiology of the Human Body is not only covered in detail but also helpfully illustrated. The volume includes more than fifty special dictionaries, each arranged alphabetically, enabling the user to get the greatest amount of information in the shortest possible time. The Synopsis of the World's best classics in the department of Literature will be found interesting and helpful to all students. Among other special features we mention, the department of Mathematics. This includes Primary Number Work, Formal Arithmetic, Algebra and Geometry, with special emphasis upon Commercial Arithmetic, Practical Measurements and the Correlation of Arithmetic and Algebra.

TO USERS OF THE CENTURY BOOK OF FACTS. Nearly a million homes possess the *Century Book of Facts,* the forerunner of this work. This is incontrovertible proof of the popularity of the single volume facts book. The rapid growth of such organizations as The Parent-Teacher Association makes it vitally necessary that not only the students but the parents have at their disposal a volume such as this for quick reference. The true foundation of an education is acquired in the home and can only be properly fostered when parents teach and show their children how to use reference books.

INTERMEDIATE BETWEEN ENCYCLOPEDIA AND DICTIONARY. While in wealth of pertinent facts this volume fulfills the office of an encyclopedia, nevertheless, by virtue of topical arrangement, special tabulations and pictorial work, it avoids cumbrous but necessary repetition of encyclopedias, and gives relief from grouping totally unrelated subjects in alphabetical order. On the other hand, it is not merely a collection of definitions, but presents related facts in a systematic way, giving the essentials of numerous text-books or treatises on its varied subjects, and in range of available information exceeds the resources of all except the largest libraries.

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HOW TO USE

THE NEW CENTURY BOOK OF FACTS.

Benjamin Franklin says: "Empty your purse into your head and no one can take it from you." A little town in Massachusetts once wrote him asking for a contribution toward a church bell. Franklin characteristically replied that he was sending a contribution, but not to be used in purchasing a church bell, rather he desired it to be used in purchasing books for the town library, since he would prefer filling their heads with *sense* than *sound*. In later years a poor boy studied those books. They revolutionized his life. That boy was Horace Mann, the founder of our free school system.

Statistics show that only six per cent. of a child's life on the average, is spent in the school room. Ninety-four per cent. is, therefore, spent outside of the school-room influence, and more or less under the direct supervision of the parent. Ordinary judgment should convince any parent that the greater responsibility for the child's proper training and education is dependent upon the home influence. Proper education today must be fostered, created and developed in the home.

Imitation is a most important factor in the developing of every child's life, and should the youth seldom see the parent use a reference book, look up facts, it must follow that the old adage, "Like begets Like" will hold true. The natural tendency of the child is to ask questions, and when he is repeatedly side-tracked or refused by the parent, it is but natural, that he should develop other tendencies and capacities, in many instances harmful. On the other hand let the thoughtful parent surround the child with the proper literary environment (Food for mind as well as body), and he will find that child eventually obtaining an education, regardless of the obstacles that confront him. "A man can not leave a better legacy to the world, than a well-educated family."—Scott.

First, we call attention, to the manner in which the book has been titled throughout. On the top of each page is found the page title, showing the most important subjects treated on that page. When several subjects appear on a page, the page titles will enable you to know the first and last topics treated on that page.

Secondly, the divisional leaves, enable you instantly to realize that you have passed from one department to another. On the back of each divisional leaf can be found the most important topics treated in that department. Should more definite information be desired, as to any division of the topic, it will be found in the running titles at the beginning of each department.

Third, Each department is alphabetically arranged. Again each department includes one or more specific dictionaries which in turn are alphabetically arranged.

Fourth, Each subject is treated individually. For example, every subject pertaining to Language is treated, in that department. Suppose the question arose, as to the proper use of the comma. Turning to the index under "C," one finds "Comma," on page twenty-five. On the other hand, suppose your first thought would be the word "Punctuation." Turn to "P" in the index and you find the word "Punctuation" on page twenty-five. This is a special feature termed "Cross-Index," and enables the user to find information under more than one heading.

The *New Century Book of Facts* is built to be used. Keep it on the reading table or on the desk. Only by using it can its value be appreciated. No finer tribute can be paid any good book than for it to be scarred and worn through constant use. Learn to use the table of contents. Become familiar with the splendid index. Johnson says—"Books that you may carry to the fire side, and hold readily in your hand, are the most useful after all."

While the index to the *New Century Book of Facts*, is indeed most exhausting and thorough, it is to be remembered that every single word and minor sub-topic cannot be indexed, else the index would be a book unto itself. We call attention as an example to the word synonyms, not only is it found in the index on page forty-three, under the word synonyms, but it is also found in the index under the term Dictionaries, as on page forty-three. More particularly, we wish to emphasize that the Dictionary of Synonyms is in itself alphabetically arranged. To render the Dictionary of Synonyms of the most possible value to the user, there is immediately following it an—Index to Synonymous terms, making the list of more than double value to the user.

The Word "Use" means act of using, the application of anything to a particular purpose and it is the hope of the authors of the *New Century Book of Facts* that this volume will be used daily by the thousands with whom it will come in contact, as the means of developing that breadth of education, that will give the user the ability to converse intelligently with folks in all walks of life and make him more appreciative of the worth while things of life. It will assist him to increase his earning power and thus enable him to compete successfully in more than one limited line of endeavor in earning his daily livelihood.

LANGUAGE OF THE NATIONS
AMERICANISMS
COMPOSITION
PUNCTUATION
CORRESPONDENCE
MISUSE OF WORDS
SYNONYMS
ANTONYMS
PREFIXES AND SUFFIXES
LIST OF LATIN WORDS
CORRECT SPELLING
PRONUNCIATION
DICTIONARY OF ABBREVIATIONS
COMMON WORDS AND PHRASES
PEDAGOGICAL AND PSYCHOLOGICAL TERMS

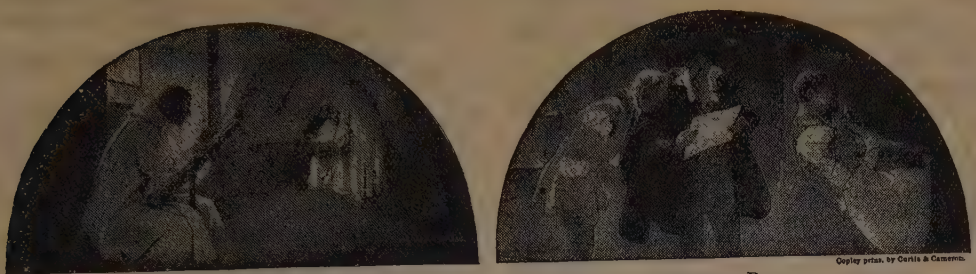
Photos 1, 2 and 4 from Brown Bros.: 3 by Underwood & Underwood; 5 by Burton Holmes from Ewing Galloway; 6 and 7 from Keystone View Co.

AMERICAN COLLEGES AND UNIVERSITIES

1 Hiram Smith Hall, first building erected in America for dairy education, Univ. of Wisconsin. 2 Bryn Mawr (Penn.). 3 Daisy Chain, Vassar College (N. Y.). 4 Univ. of California. 5 Univ. of Chicago. 6 Georgia School of Technology. 7 Vanderbilt University (Tenn.).

BOOK I.

LANGUAGE.



MANUSCRIPT BOOK. PRINTED BOOK.

Mural Paintings in the Congressional Library, Washington.
By J. W. ALEXANDER.

LANGUAGES OF ALL NATIONS. ENGLISH LANGUAGE. AMERICA'S CONTRIBUTION TO THE ENGLISH LANGUAGE. AIDS TO SPELLING. HOW TO PUNCTUATE SENTENCES. WHEN TO USE CAPITAL LETTERS. WORDS FREQUENTLY MISPRONOUNCED. WRONG FORMS OF SPEECH AND WRITING. EXACT USE OF SYNONYMOUS WORDS; THEIR SHADES OF MEANING DISTINGUISHED AND ILLUSTRATED. FORMS OF LITERARY EXPRESSION, STRUCTURE OF SENTENCES, AND PARAGRAPHS. LETTER WRITING. ABBREVIATIONS AND CONTRACTIONS. WORDS, PHRASES, AND QUOTATIONS FROM CLASSICAL AND FOREIGN LANGUAGES.

LANGUAGES OF THE NATIONS.

The several languages and dialects spoken in the world number about 1,000. These are classified according to their grammatical construction into (1) the monosyllabic or isolating languages, (2) the agglutinative or affixal languages, and (3) the inflectional languages.

The monosyllabic or isolating languages are those in which the words, all of one syllable, are each an integral sign and used to express the root idea. The best example of this class is the Chinese language.

Agglutinative or affixal languages are those in which the roots of the words do not change, but modifications of the meanings of these words are indicated by inflection or change of the terminations or affixes.

Inflectional languages are those which, as in the Latin, consist largely of stems which change the termination or suffixes to indicate case, tense, number, etc.

Historical Classification of Languages.—Languages are classified according to their origin, history, or nationality into eight large groups and one unclassified group as follows:—

A. Indo-European Languages, spoken by about 830 millions of people, first recorded in the Sanskrit, and used by the nations of Europe and their descendants in other parts of the world, as well as by the people of India, Persia, Afghanistan, the Kurds, Nepaulese, Caucasians, and others. These languages are subdivided into:—

1. The Teutonic Languages, spoken by about 238 millions.

(*a*) **English,** spoken by 130 millions all over the world.

(*b*) **German,** spoken by 84 millions in Germany (except on the northern borders), the Alpine countries of Austria, parts of Bohemia, Moravia, Silesia, Hungary, Transylvania, Bukowina, north of Switzerland, some of the Baltic provinces of Russia, in Luxemburg, United States of America, Brazil, Australia, and German colonies.

(*c*) **Swedish,** spoken by over 5½ millions in Sweden and in the towns of Finland.

(*d*) **Danish,** spoken by nearly 5 millions in Denmark and Iceland.

(*e*) **Norwegian,** spoken in Norway.

(*f*) **Dutch,** spoken by 6½ millions in Holland and the Dutch colonies.

(*g*) **Frisian,** in North Holland and on the islands in the North Sea, spoken by 1 million.

(*h*) **Flemish,** spoken by 3¾ millions in Belgium (Brabant and Flanders) and on the Netherland borders.

2. Romanic-Greek or Romance Languages, spoken by 177 millions.

(*a*) **French or the Langue d'oil,** spoken by 52 millions in France, the west of Switzerland, Belgium, Canada, Algiers, and the French colonies.

(*b*) **Provençal or the Langue d'oc.** spoken by 12 millions in the south of France.

(*c*) **Walloon,** spoken by 2½ millions in the south Netherlands, Belgium, Luxemburg, and the north of France.

(*d*) **Spanish,** spoken by 46 millions in Spain, Central and South America (excepting Brazil), the West Indies, and other Spanish colonies.

(*e*) **Portuguese,** spoken by 15 millions in Portugal, Brazil, and Portuguese colonies.

(*f*) **Italian,** spoken by 34 millions in Italy, Corsica, south Tyrol, Görz, and the coasts of Istria and Dalmatia.

(*g*) **Rhaeto-Romanic** and **Ladin,** spoken by 100,000 in Grisons, the Engadine, and south Tyrol.

(*h*) **Furlanish,** spoken by 400,000 in Friuli (north and east Italy).

(*i*) **Roumanian,** spoken by 10 millions in Roumania, Bessarabia, east Servia, Bukowina, southeast Hungary, Transylvania, and (a dialect) in Greece.

(*j*) **New Greek,** spoken by 5 millions in Greece, European Turkey, Crete, Cyprus, adjacent islands, and on the coast of Asia Minor.

3. **Slavonic Languages,** spoken by 134 millions, of which the North Slavs number nearly 117 millions.

(*a*) **Russian,** spoken by 85 millions in Russia.

(*b*) **Ruthenian,** spoken by about 4 millions in east Galicia and north Hungary.

(*c*) **Polish, Mazurish,** and **Kassubish,** spoken by 17 millions in Poland, Galicia, and the borders of Posen, Silesia, Pomerania, and of East and West Prussia.

(*d*) **Czechish** or **Tcheckish, Moravian,** and **Slovak,** spoken by 10 millions in Bohemia, Moravia, Silesia, and north Hungary.

(*e*) **Wendish,** spoken by 100,000 in Saxony and Lusatia.

(*f*) **Servo-Croatian,** spoken in Servia, Bosnia, south Hungary, Istria, Montenegro, and Dalmatia, by 7¼ millions.

(*g*) **Slovene,** in south Styria, Carinthia, Carniola, Istria, and parts of Görz and Gradiska.

(*h*) **Bulgarian,** in Bulgaria and Turkey.

(*i*) **Albanian,** spoken by 1½ millions in Albania (north of Greece).

(*j*) **Lithuanian** and **Lettish,** spoken by 4 millions in Lithuania and East Prussia.

4. **Keltic Languages,** spoken by 3¼ millions, including: (1) Irish, (2) Gaelic in the Highlands of Scotland, (3) Welsh, (4) Manx, (5) Bas-Breton or Armorican, and (6) Cornish, which died out about the beginning of last century.

5. **Iranian Languages,** spoken by about 22 millions in southwestern Asia and the Caucasus, including New Persian, Afghan, Lesghian, Grusian, Kurdish, Pushtu, Ossetian, and others.

6. **Armenian,** spoken by about 3 millions in Armenia and in parts of Turkey, Hungary, Russia, and Persia.

7. **Indian Languages,** spoken by about 255 millions in all of the East Indies except parts of the Dekkan, Burma, and the Malay Peninsula.

The chief dialects are the Hindi, Hindustani or Urdu, Punjabi, Bengali, Mahrati, Sindhi, Gujarati, Uriya, Assamese, Nepauli, Kashmiri, Kafir, and others.

B. Ural-Altaic Languages.

1. Languages of the Finns, Esthonians, Livonians, Permians, Mordvidians, Samoyeds, Voguls, and Lapps of northern Europe, spoken by over 7 millions.

2. **Magyar** of Hungary and the language of the Szeklers in Transylvania, spoken by 8¾ millions.

3. **Turko-Tataric Languages** of the Osmanlis or Turks, Nogays, Kalmuks, Turcomans, or Turkmen, Kirghiz, Uzbeks, Yakuts, and others of Turkey and northern Asia, spoken by 23¼ millions.

4. **Languages of the Mongols,** Manchus, Samoyeds, Buryats, Tunguses, and others in northern Asia, spoken by 18 millions.

C. Caucasian Languages, spoken by the Georgians, Mingrelians, Lazisians, Circassians, Tchetchentses, Avars, and others, to the number of about 8 millions.

D. Malay-Polynesian Languages, spoken by about 35 millions.

1. **Malay** proper, spoken by the Sundanese, Tagalians, Dyaks, Alfurus, Kawis, Battaks, and others of the Malay Peninsula, the Sunda Islands, and the eastern part of Madagascar.

2. **Melanesian** and **Polynesian** or **Maori** of New Zealand and adjacent islands.

E. The Monosyllabic or **Isolated Languages,** spoken by about 450 millions of Chinese, Anamese, Tonkinese, Siamese, Cambodians, Shans, Tibetans, Talaings, Burmese, and others of southeastern Asia.

F. The Japanese-Korean Languages, spoken by about 48 millions of Japanese and 10 millions of Koreans.

G. The Hamitic-Semitic Languages, spoken by over 50 millions.

1. **Hamitic,** spoken by over 20 millions in north Africa, including the Berbers, Kabyles, Tuaregs, Copts, Gallas, Somalis, Sahos, Bejas, and others.

2. **Semitic,** spoken by 30 millions. It includes the Arabic, Ethiopic or Geez with its dialects Tigré and Tigriña, the Amharic, Harari, in Arabia, northern Africa, and some parts of Abyssinia; and the Hebrew, spoken all over the world. The descendants (around Palestine and in parts of Asia Minor) of the ancient Chaldeans, Syrians, Phœnicians, Babylonians, and Assyrians speak both Hebrew and Aramaic.

H. Bantu Languages, spoken by 27 millions in central and south Africa, including the Kaffirs, Zulus, Swahilis, Hereros, Bechuanas, Marutses, Bundas, Congos, Basutos, Matongas, and others.

I. Languages of the Interior of Africa.

1. Several **Negro** tongues, spoken by over 70 millions of Wolofs, Hausas, Bornus, Baghirmis, Nube, Fulbe, and others.

2. **The Clicking Languages** of the Hottentots and other south African races.

J. Dravidian Languages, spoken by over 60 millions in the Dekkan, southern India, and the west of Ceylon, including the Tamil, Telugu, Kanarese, and Malayālam.

K. American Indian Languages, spoken by about 10 millions.

1. **In North America** the languages of the Apaches, Iroquois, Pawnees, Sioux, Delawares, Crees, Dakotas, and others.

2. **In Central America** the Maya language, Otomi, Aztec, Zapotec, and others.

3. **In South America** the Quichua, Yunca, and other languages of the Peruvian group; the languages of the Araucanians, Obohuds, and others.

L. Unclassified Languages.

1. **The Basque,** spoken by 600,000 in the Pyrenees and around the shores of the Bay of Biscay.

2. The languages of such inhabitants of northern Asia and America as the **Kamtchadales,** Aleutians, Yakuts, Ostyaks, and Eskimos.

ENGLISH LANGUAGE.

Historically, English belongs to the western branch of the Teutonic languages, is in the Low German subdivision of that branch, and is most closely allied to the Frisian. Its growth is divided into three leading periods:—

1. The Anglo-Saxon Period (449-1100).
2. The Middle English Period (c. 1100-1500).
3. The Modern English Period (1500-the present time).

The English language was introduced into Britain (as the country was then called) in 449 by the Teutonic invaders, who came under the leadership of Hengist and Horsa to help the Britons or Celts to drive out the Picts and Scots who had descended from the north upon the lowlands. Very few words were borrowed by these Teutons from the Celts or Britons whom they drove into Wales and other parts of the island. Skeat gives only ten nouns (in his *Principles of English Etymology*) as being derived from this source. Among them are *bannock, mattock, down,* and *cart.* A few Latin words which the Celts had borrowed from their Roman conquerors came in in the same way: *street, mount, lake, castra* (as seen in *caster, cester,* and *chester*) a camp. But when Christianity was introduced by St. Augustine in 597, many ecclesiastical and general terms came in from the Latin; in all about 140 words, according to Skeat's estimate. Among them are *altar, mass, priest, psalm, temple.* Many words of Scandinavian origin were contributed by the Danish invaders of England. For example, *earl, husband, knife, take,* and *window.*

Middle English Period (1100-1500).—The early part of this period is known as Semi-Saxon. It is marked by a period of transition or breaking up of the language, to which process the Norman conquerors greatly contributed. The most noticeable change was the gradual dropping of inflections or changes in the terminations of words. Nouns and adjectives, that in the old Saxon had a distinct termination to indicate several cases and numbers, gradually but surely lost these, partly by the unwillingness of the Norman-French conqueror to observe or even to learn the inflections of the conquered Saxon, upon whom the Norman thought he conferred a sufficient favor by learning the root of the word. The introduction of an immense number of Latin words that had come through the French was another marked feature of this period. French became the language of the court, the camp, and the chase. We observe the French influence in the poems of Chaucer and Gower. The Renaissance added many Latin words.

Modern Period (1500-the present day).—The most distinctive feature of this last period of English is the remarkable enriching of the vocabulary by the introduction of words from nearly every language in the world. In the development of the mercantile and colonial policies of the empire, the language levied tribute upon all of the peoples with whom the sailors and merchants came in contact. We accordingly find in the language traces of the English contact with the Dutch in the carrying trade of the world; of the conquest of India; of contact with the Maoris of Australasia; with the Indians in Canada; with the Boers in South Africa; and of commercial relations with China, Spain, Portugal, and other nations. The ease and rapidity with which words of foreign origin are assimilated and incorporated into the English language are remarkable. The advances of science and its application to the useful arts have greatly increased the vocabulary by the introduction of scientific names and technical terms.

Richness of the Language.—Our dictionaries contain from 100,000 to 450,000 words, but it is not to be supposed that all of these are by any means in common or frequent use. While Milton used but about 7,000 words in his poetical and prose writings, Shakespeare used over 25,000 words. In our daily intercourse it is possible that the vocabulary of the average educated person seldom exceeds 2,500 words; and that of the uneducated person contains less than 800 different words. Yet the extent of one's vocabulary may be regarded as a fair measure of one's education.

GERMAN LANGUAGE.

The German language ranks third among the great languages of Europe,—English first, Russian second, and French fourth. It is spoken by about 84 millions. The area in which the German language is spoken is not at all identical with the area of Germany, where there are about 56,000,000 people. Of these 4,200,000 are returned in the census as speaking foreign languages (mostly Polish). Outside of the empire German is the common language of nearly all of Luxemburg, the greater part of Switzerland, and parts of Austria-Hungary and Russia. Outside of Europe the greatest number of German-speaking people is to be found in the United States, whose population of German parentage exceeds 3,000,000, of which New York City returns 786,435, while the number of Pennsylvania Germans or "Pennsylvania Dutch" has never been accurately determined.

From the seventh century, the German language followed along two main divisions: the High German or Hoch-Deutsch and Low German or Platt-Deutsch. High German is the language of upper or southern Germany. In its development there may be traced three main periods:—

1. Old High German, from 700 to about 1100.
2. Middle High German, from about 1100 to about 1500.
3. Modern German, from about 1500 to the present time.

Low German or Platt-Deutsch is the language of lower or northern Germany and the Netherlands. It included, besides Platt-Deutsch, the Friesic; Anglo-Saxon or Saxon; Old Saxon; Dutch or Low Dutch with Flemish.

Modern or New High German.—The chief influence in determining the form of modern literary German was the translation of the Bible by Luther between the years 1522 and 1534. He chose the language of the Saxon Chancery for his translation. The diction prescribed by the several administrative chanceries or chancelleries determined the form of the language within the several jurisdictions. In the reign of Emperor Louis the Bavarian (1314-1347), the Imperial Chancery ordered its official documents to be written in German instead of Latin. While, therefore, the Midland German became a

literary language very early in the sixteenth century, it was not until after 1750 that the present form of the literary language became a national language.

SWEDISH LANGUAGE.

This language belongs to the northern branch of the Germanic family. It developed from the old Danish, which was spoken throughout the whole of Scandinavia up to the year 900. Then began a movement which slowly divided the old Danish into an eastern division of Danish and Swedish and a western division of Norwegian and Icelandic. The language between the years 900 and 1500 is known as Old Swedish. Until somewhat later than the year 1200, Swedish was written in the old Scandinavian characters known as runes. In the thirteenth century the use of the Roman alphabet began. The great difficulty which Swedish presents to a foreigner who attempts to learn it lies in the fact that the printed language abounds in silent letters. Another difficulty is the peculiar musical modulation of the voice upon which not only correct pronunciation but the very meaning of the word depends.

DANISH LANGUAGE.

The development of modern Danish dates from the year 1000, when wide dialectic differences in the common language of Scandinavia caused the formation of several languages. The Danes used Latin so extensively that their language was much affected by it in both syntax and vocabulary. The great agency in fixing the Danish vocabulary was the first literal translation of the Bible into Danish in 1550 under Christian III. By the Union of Kalmar in 1397, by which Norwegian independence was lost, the Danish language was substituted in literature and in the transaction of public business, though Norwegian was spoken in the country districts. This accounts for the slight differences between the languages of the two countries. The Danish itself underwent many changes, and that spoken in Norway is often called Dano-Norwegian and has been described as Danish with a Swedish accent. In 1537 Danish became the official language of Norway. The standard of Danish literary form was erected by Holberg (1684-1754). From 1750 until 1800 German and Danish were used in common just as in earlier days Danish and Latin were used, and German had a marked influence upon the Danish syntax and vocabulary. But in the last few years, because of the war with Germany, the German element is being rapidly eradicated and a purer Danish style obtains. The Danish and Swedish languages have much in common. The fundamental principles of these languages are the same, but the essential differences are in pronunciation. Danish pronunciation calls for the use of a peculiar closing of the glottis in some sounds which suggests to the foreigner the sound of a hiccough. Danish also lacks that peculiar musical modulation which is so marked in the Swedish. The language of the Danes in the United States is different from that of the mother country, especially in the vocabulary and in some of the syntactical forms. These are caused by the American influence.

DUTCH LANGUAGE.

This language is classified in the Low Frankish division of the Low German. It is so closely related to the Flemish language that the printed form of these two languages is practically identical. It is the language of the Netherlands. The Boer language of South Africa is a dialect of it. The Dutch call their language Nederlandsch; the Germans call it Holländisch. In its history and development the Dutch language has passed through nearly the same changes as the English language has experienced. There are three main periods:—

1. Old Dutch (to about 1100).
2. Middle Dutch (1100-1550).
3. Modern Dutch (1550-the present day).

The standard of Dutch vocabulary and spelling was erected by the publication between the years 1619 and 1637 of the *Statenbibel* or authorized version of the Scriptures. Its spread among the people did much to fix the form of the Dutch language in its written form. In inflection and grammar the language corresponds closely to the German; the use of capitals, however, is the same as in English, and the Roman alphabet is used.

FLEMISH LANGUAGE.

The name given to the Low German language and literature of Belgium (French being also largely used in that country). It is especially spoken by the people of Flanders, Brabant, and of the provinces bordering on the Netherlands. Like the Dutch, the Flemish language is a dialect of the Old Low Franconian division of the Low German. The Dutch and Flemish spoken languages were so closely related that there was a great effort made in the sixteenth century to unite the two in one common written form. But when, in 1581, the northern provinces threw off their allegiance to the crown of Spain, declared their independence, and formed the Dutch republic, this hope was fruitless. The southern provinces, after the taking of Antwerp in 1585 by the duke of Parma, were separated from Holland, held by Spain until 1714, when they were given to Austria. Then in 1794 they were taken by France and held by her until 1815, when Belgium was united with Holland. When, by the revolution of 1830, Belgium was separated from Holland and made an independent state, French was made the official language, and all possibility of making the Low German a literary language in Belgium was apparently ended. But the "Flemish movement," begun in 1830 by Jan Frans Willems, has been successful in restoring the Low German as both a literary and official language in Belgium, where, by the laws of 1873, 1878, 1883, and 1886, it holds an equal position with the French tongue. In 1886, the Koninklijke Vlaamsche Academie was founded, which has advanced the cause of the Flemish language. It is not surprising that the Flemish language of to-day contains very many more words of French origin than does the Dutch.

FRENCH LANGUAGE.

When, in the first century B. C., Julius Cæsar conquered Gaul, the Latin language was imposed upon the Gauls or Celts, who spoke a language

similar to that of Brittany and of Wales. During the four centuries of Roman rule in Gaul, the use of the Latin language became universal. When, in the fifth century, the Visigoths, Burgundians, and Franks conquered Gaul, and the Franks ultimately ruled all of the country, the conquerors adopted the language of the people. It is remarkable that the Franks contributed only about 400 words of German origin to the common speech. After a transitional period of six centuries the language spoken in Gaul differed sufficiently from that of Rome to be distinguished by the name Romanic.

A marked difference was noticeable between the speech of the people in the north of France and that of the people in the south. The dividing line between the two peoples may be drawn from La Rochelle through Limoges to Grenoble. The word for *yes* in the north was *oïl;* in the south *oc.* The form of speech used in the north was called the *langue d'oïl,* the parent of the French of to-day; and that in the south, *langue d'oc,* the parent of what is now called Provençal, spoken by 12,000,000 people in the south of France.

Attempts to fix the language began in the sixteenth century, after the reduction of endings and of inflections which had occurred during the Middle Ages. The influence of Catherine de' Medici caused the adoption of many Italian customs at the French court, and the war with Italy caused the adoption of many terms pertaining to warfare. These two influences brought over 500 words of Italian origin into the language. In the seventeenth century about 100 words of Spanish origin were incorporated. The Académie Française was founded in 1635, and in 1694 published a dictionary which had a marked influence in limiting the language. A number of new words came in as a direct result of the Revolution; and in the nineteenth century a very considerable number of English words were introduced and naturalized. In 1878 the Académie published an edition of the *Dictionnaire* in which 2,200 new words obtained from other languages were incorporated. This came about as a direct result of the cosmopolitan influence upon the language, which has always been regarded as the most refined among the languages of the world, though English is now the most practical. This disturbance of the purity of the language is deplored by many who have followed in the ways of Voltaire in the refinement of the French language.

SPANISH LANGUAGE.

Spanish is a Romanic language that has grown out of the Latin which was imposed by Roman conquerors upon the Iberian peninsula. There are now more Spanish-speaking people in the New World than there are in Spain. There are five leading dialects in Spanish: (1) Asturian, (2) Leonese, (3) Aragonese, (4) Andalusian, and (5) Castilian. The standard literary speech is the Castilian. Of the foreign elements in the language, the words of Arabic origin are most noticeable. They were infused into Spanish during the occupation of the country by the Arabs. The majority of such words have the characteristic Arabic article *al* before them.

PORTUGUESE LANGUAGE.

A Romanic tongue derived from the Latin of the Roman soldiers. It most closely resembles the Spanish language. The influence of both Spain and France is to be seen in the vocabulary and the grammar of the language.

ITALIAN LANGUAGE.

The Italian language is a Romanic language, one of the several descendants of the Latin. Its chief characteristic is that it does not depart so far from the original Latin as do the other languages of this group. Between the spoken languages or dialects of the Italian peninsula and the written language there is a wide difference. There are to be found several hundred patois and dialects spoken in Italy, and these are in some cases so widely different that one born in the south of Italy makes himself understood only with the greatest difficulty by those in the north. The Italian of culture and of literature is based upon the Tuscan dialect, for it was in this form that Dante, the founder of the literary language, wrote his works. The Tuscan dialect has become the fixed standard of literature used by most of the great writers since Dante's time. The Accademia della Crusca published a dictionary of Tuscan in 1612 as the standard of purity of the national language.

ROUMANIAN LANGUAGE.

A Romanic language founded upon the Latin, and now spoken in three dialects:—

1. **Daco-Roumanian** by 9,000,000 people in Roumania, Transylvania, Bessarabia, the Hungarian Banat, and Bukowina.
2. **Macedo-Roumanian** by several hundred thousand people in Macedonia, Albania, Thessaly, and Epirus.
3. **Istro-Roumanian** by 3,000 people in Istria.

Owing to the Slavonic influence, the language has acquired more words of Slavonic origin (about 3,800) than there are words from the original Latin (about 2,600). It is only within the last fifty years that the language has been freed from the use of the Slavonic alphabet.

NEW-GREEK LANGUAGE.

The language of ancient Greece comprised a number of dialects. After the conquest of the world by Alexander the Great (330 B. C.) and the spread of the language, a "common dialect" based upon the Attic was generally adopted as the Greek language. It is the Greek of the New Testament, of Aristotle, Plutarch, and Lucian. This "common dialect" gradually underwent changes as a spoken language, and from it the New-Greek now spoken has descended. The differences between ancient and modern Greek are not so great as are supposed by many. Naturally there have been great additions to the vocabulary in order to keep pace with inventions, improvements, and the onward march of civilization. The alphabet is the same. The rough breathing is still written but is never used. Accents are still written, but they are now indications of stress as in English. The dual number is no longer used. Only a few verbs have the middle voice. The dative case is nearly always replaced by the genitive or

accusative with a preposition. There is no optative mood, the subjunctive taking its place. There is a strong movement to purify the language and to strive for a stricter conformity to ancient usage.

RUSSIAN LANGUAGE.

This most important of the Slavonic languages is spoken by over 90,000,000 people in Russia and by nearly 4,000,000 Ruthenians in east Galicia and in north Hungary. The alphabet now used was introduced by Peter the Great, and the present form of the language was practically settled in the sixteenth century, though Russian, as a literary language, dates only from the middle of the eighteenth century.

The three dialects are:—

1. **Great Russian,** spoken by 60,000,000 people in the north, the center, and the east of Russia, but in its greatest purity around Moscow. It is the basis of literary Russian.
2. **Little Russian,** spoken by over 20,000,000 people in the south and the southwest of Russia, and by the Ruthenians in Austria-Hungary.
3. **White Russian,** spoken by about 5,000,000 people in the west of Russia, and around Lithuania.

POLISH LANGUAGE.

The second in importance among the Slavic languages, is spoken by about 16,000,000 people in the parts of Russia which at one time formed the kingdom of Poland, and by over 1,000,000 persons in the United States. The language, like the people, has suffered many vicissitudes. When Christianity was introduced, about 965, Latin predominated. The large number of German settlers in Poland brought many of their common words into the language. The literary classes added many French words, and Russian technical and other terms have been freely incorporated. But all of this has recently been strongly and successfully opposed by the Romanticists and a greater purity in the literary standard has resulted. There are many dialects, of which the most important are: **Great Polish,** in Posen; **Little Polish,** an extremely euphonious dialect spoken in Galicia; **Mazurish** or **Masurian,** spoken in the northeast around Warsaw; **Lithuanian Polish,** used by Mickiewicz and other writers; **Prussian** and **Silesian Polish.** The alphabet is Latin, slightly modified.

CZECH OR BOHEMIAN LANGUAGE.

The Czech (chĕk) or Tcheck language belongs to the Slavic group. Of the 6,000,000 who speak the Czech language, 3,650,000 are found in Bohemia; 1,500,000 in Moravia; 130,000 in Austrian Silesia; 300,000 in other parts of Austria-Hungary; 100,000 in Germany; and 250,000 in the United States. At first the Slavic alphabets were employed by the Czechs, but when Roman Catholicism replaced the Greek Church the Latin alphabet was used. As this could not express all of the sounds of the language, *c*, *s*, and *z* were made additional letters by adding diacritical marks to them, and they then took the sounds of *ch*, *sh*, and *zh* respectively.

SLOVAKIAN LANGUAGE.

This is spoken by 2,500,000 in northwest Hungary and the United States. It is very closely related to the Czech language in form, vocabulary, and syntax.

SERVO-CROATIAN LANGUAGE.

One of the Southern Slavic languages. The Servo-Croatian language is spoken by about 8,000,000 persons in Servia, Montenegro, Bosnia, the Herzegovina, Old Servia, Croatia, Slavonia, southern Hungary, Istria, and Dalmatia. Among the Croatian Catholics the Roman alphabet is used; the greater part of the Servians, who belong to the Greek Orthodox Church, use the Kirillitsa or Cyrillic alphabet, a form of the Russian introduced by Cyril. The language differs in minor phonetic peculiarities from the Northern Slavonic, and is one of the most musical and expressive among the Slavonic group.

BULGARIAN LANGUAGE.

One of the Southern Slavonic languages and spoken by about 5,000,000 persons. It has fewer inflections of words than have the other languages of the group. Its vocabulary has drawn from the Turkish, Albanian, Serbian, and Roumanian languages. Among the dialects are the South Thracian, Rhodopian, and West Macedonian. "Old Bulgarian" is the ancient church language, which was the written language. Middle Bulgarian dates from the twelfth century, but Turkish influence interfered with its development until well into the nineteenth century. The Danubian dialect now prevails as a literary language. The Cyrillic alphabet is most generally used. From the tenth to the middle of the eighteenth century, Old Bulgarian was the literary language of Russia.

NEW PERSIAN LANGUAGE.

The Iranian language now spoken in Persia. It dates from the ninth century. The Middle Persian is called Pahlavi, from which the New Persian differs but slightly. The invasions by the Mohammedans enriched the Persian vocabulary by a great number of words which have not only gained a permanent place in the language but whose use marks elegance of style. The dialects are divided into three groups: Pamir, Caspian, and Central.

ARMENIAN LANGUAGE.

The Armenian language was for a long time regarded as one of the Iranian languages; and this belief was supported by the great number of Iranian words which the language had borrowed. But, mainly through the investigations of Heinrich Hübschmann, it has been made clear that the Armenian is an independent language and is one of the great members of the Indo-European group. The language is divided into the Old or Classical Armenian, which is remarkably pure; and the Modern Armenian, of which there are many dialects. The alphabet consists of thirty-six original letters, to which two more were added in the twelfth century. The alphabet was devised and introduced by Mesrob, a bishop of the Armenian Church, in the fifth century, and it is probable that he made free use

of the Greek sources. The spoken language is marked by harsh-sounding consonantal combinations and its general effect upon a stranger's ears is guttural.

HINDUSTANI LANGUAGE.

The name given to the language of northern India. It is a dialectic form of the ancient Sanskrit much changed through the Prakrit of the middle periods. It is divided into about sixty subdialects; the standard of correct speech is the dialect spoken in Delhi, Agra, and Mathura. The language has borrowed freely from the Turkish, Arabic, Persian, and Dravidian languages. This corrupt form is the "Urdu"; the purer form is called "Hindi." The latter is written in the Devanagari alphabet, like Sanskrit and Mahrati; "Urdu" is written in Perso-Arabic script. It is estimated that the Hindustani in some form is spoken by about 100,000,000 persons within an area of 248,000 square miles.

PUNJABI LANGUAGE.

The modern language of the Punjab. It has been regarded as an archaic form of the Hindi, corrupted by many words of Arabic and Persian. It does not contain so large a proportion of Sanskrit words as do the Bengali and Uriya languages. Punjabi contains many dialects, the chief of which are the Multani in the south, Jathki in the center, and Chibhali-Dogri in the north. The official alphabet of the government is the Arabic, while there are several alphabets in popular use.

BENGALI LANGUAGE.

This modern Indian dialect is closely related to the Hindustani and to the Uriya. It is spoken by about 42,000,000 persons. Among the many dialects the Calcutta is the standard. There are more words of Sanskrit origin in the Bengali than in any other modern Indian language. The Bengali alphabet is a beautiful form of writing derived from the Sanskrit or Devanagari.

MAHRATI LANGUAGE

The language of western India, spoken by nearly 20,000,000 people. Of the many dialects, the Dakhani and the Konkani are the chief. The standard of correct speech is the Deshi, spoken near Poona, in the Dekkan. Around Goa there is to be found a large incorporation of Portuguese words. The Mahrati in form very closely adheres to the ancient Sanskrit. The alphabet is the Devanagari in which Sanskrit is written.

SINDHI LANGUAGE.

The language of Sindh is noted for the large number of Prakrit elements which it contains. It was the first of the languages of India to come under Mohammedan influence and contains a great many Persian and Arabic words. It also contains probably the fewest number of Sanskrit words. It has many dialects, of which the Sirai, near Haidarabad, is the standard. The two alphabets in use are the Arabic and the Devanagari.

GUJARATI LANGUAGE.

The language of Gujarat, in western India, is spoken by about 11,000,000 persons. It is of Prakrit origin and contains many words of Sanskrit, Arabic, and Persian origin. The alphabet is derived from the Devanagari or Sanskrit script but the bar above the letters is omitted.

FINNISH LANGUAGE.

The Finnish language, or Suomi, as the natives call themselves, is spoken by the Finns at home in Finland, in Lapland, the Baltic provinces, on the banks of the Volga, and in West Siberia. It and the Magyar, the language of Hungary, are the most highly developed of the Finno-Ugric branch of the Great Ural-Altaic family. Over 2,000,000 people speak Finnish. There are three important dialects:—

1. East Finnish or Karelian,
2. South Finnish,
3. West Finnish.

The East Finnish or Karelian is the oldest and most imperfectly developed; the South Finnish is the chief medium of the mass of Finnish literature. Though there is no article used with nouns, and gender is not indicated, yet there are fifteen cases whereby the noun expresses relations which in English are expressed by prepositions; only the present and past tenses of verbs are found, the future tense being expressed in a roundabout way. Despite the limitations which have been noted, the language is capable of expressing the finest shades of meaning.

HUNGARIAN LANGUAGE.

This language is called by the people who use it, Magyar. It is one of the Ural-Altaic languages and is one of the few European languages which do not belong to the Indo-European group. For a long time, Hungarian was thought to be related to the Turkish language, but it is now clearly decided that it belongs to the Finno-Ugric group. The roots are monosyllabic and affixes are added to the unchanged roots, though the affixes are changed to conform to very decided laws of euphony. This process of upbuilding of words may be carried to an almost incredible degree, and, though the roots are of one syllable, some of the words made from them are of very many syllables. The verb is the chief word in the sentence and is capable of being made to express the finest shades of meaning. All of which is most surprising when it is considered that there is no grammatical gender and no verb "to have" in the language.

TURKISH LANGUAGE.

The Turkish is the most important of the Finnish-Ugrian group of languages. In ancient times the Turks had alphabets of their own, but since their conversion to Mohammedanism they have used the Arabic alphabet. They have increased the 28 letters of the Arabic alphabet to 33 by adding dots to five of the characters. The root of every word is unchangeable, but prefixes and suffixes are lavishly used. Each Turkish verb is capable of over 25,000 changes to indicate all of the moods, tenses, numbers, and persons; and all of this seemingly appalling complexity is brought about by memorizing some forty-four syllables or enclitics with which singly and in combination the building is done.

The vicissitudes to which the Turks have been subjected have brought about a great number of dialects among the people who speak Turkish, so much so that while any Turk might be able to satisfy his simplest needs in any part of the empire, an inhabitant of Bokhara, beyond the Caspian Sea, would require the services of an interpreter in Constantinople.

MONGOLIAN LANGUAGE.

The language of the Mongols is one of the Ural-Altaic group, very similar to both the Manchu and the Korean. It is remarkably free from dialectic variations. The alphabet was introduced in the time of Genghis Khan, having been borrowed from the Uighur Turks who had, in their turn, derived it from the Syriac. It consists of seventeen consonants, seven vowels, and five diphthongs. The book language differs from the spoken language.

GEORGIAN, IBERIAN, OR GRUSINIAN LANGUAGE.

This is the chief of the Caucasian group of languages. The chief characteristics of the entire group are the few vowels and the difficult combinations of consonant sounds, gutturals, and sibilants. The language as written is a modified form of the Armenian alphabet, a translation of the Bible dating back to the eighth century.

CHINESE LANGUAGE.

One of few very rudimentary forms of speech that have maintained a lengthy endurance is the language of the Chinese. It is a monosyllabic language. Each word is uttered by a single effort of the organs of speech and conveys a complete idea. It has no inflections and no parts of speech. Case, gender, number, and person are indicated not by any change in the word but by the addition of another word to the sentence. Shades and changes of meaning in the one word are made by a change of tone, and some words have as many as seven separate tones. It is one of the most difficult languages in the world to learn for that reason and also because one must learn the two or three different forms of the book language and the spoken languages in their many dialects. There is a vocabulary of 24,235 separate words, and the addition of rare and obsolete forms brings the total in Kang-hi's dictionary up to 44,449. The vocabulary of daily life, however, does not exceed 3,000 words. To learn the written language the first step is to learn the 214 signs. There are only 400 sounds in the language, but these are increased to the desired number by using different tones and by the aspirates or breathings in the case of vowels. The word forms employed in the written language are not in any way an alphabet of the language for there is none; they form rather a dictionary. Two forms of writing are in general use,—the "pattern" and the "running" hands.

JAPANESE LANGUAGE.

The Japanese is not at all related to the Chinese language or the Aino language of the aboriginal inhabitants of the Japanese Archipelago. It is most nearly related to the Korean language in structure, but less in etymology. The languages of the people of Loo-choo and other islands around Japan are its nearest neighbors and closest relatives. The spoken and the written forms of the language differ so much that two sets of grammars and dictionaries are needed. Since the ninth century the learned people have spoken Chinese, just as in some other countries Latin was the language of the learned. But the Chinese spoken in Japan is based upon an obscure and rather traditionary dialect, so that it is unintelligible to both the common people of Japan and even to the Chinese themselves. Previous to the introduction of Chinese into Japan there was no writing. The Japanese use the Chinese characters in writing, but as these are representations of monosyllabic words in Chinese, their use by the Japanese in representing the polysyllabic words which their language contains only adds to the already too great confusion of both speech and writing. Among the many grammatical peculiarities which the language presents may be noted that nouns do not distinguish gender, number, or case; there are no personal or relative pronouns, or article; prepositions are placed after and not before the words with which they are connected by sense; the verb has only three tenses, present, past, and future, but an almost endless number of moods; the verb has neither number nor person; adjectives have only the one form of the positive degree, other degrees of comparison being indicated by added words; the native Japanese numerals extend only to ten, the Chinese are used as well and for the higher numbers. Every Japanese word ends with a vowel sound.

KOREAN LANGUAGE.

The Korean language occupies a place midway between the Japanese and the Mongol-Tatar. Chinese is the literary and official language but not the language of the common people. The Korean and the Chinese languages are entirely distinct, though it is inevitable that many words of Chinese origin and form should be found in the Korean language. There are eleven vowels and fourteen consonants in the Korean alphabet, which goes by the name of Onmun or the "vulgar characters." There is no indication of gender; no plural terminations; no grammatical means of distinguishing animate or inanimate objects; but the variety of form and the expressiveness of the Korean verb are almost unequaled in any other language. Over one fifth of the words in the language are verbs and they take on a variety of forms. Words may end with either a vowel or a consonant.

ARABIC LANGUAGE.

Of the Semitic group, the Arabic and some Aramaic dialects spoken in Palestine, Mesopotamia, Kurdistan, and Armenia are the only languages which may in any sense be regarded as living languages. Arabic is divided into:—

1. Old Arabic,
2. Modern Arabic of
   - (*a*) Syria,
   - (*b*) Mesopotamia,
   - (*c*) Egypt,
   - (*d*) Tunis,
   - (*e*) Malta, and
   - (*f*) Oman and Zanzibar.

3. South Arabic.
   (*a*) The Minean and Sabæan inscriptions.
   (*b*) Some dialects of southern Arabia.

The alphabet consists of 28 characters, being distinguished by 11 diacritical marks. Writing is from right to left as in Hebrew and Aramaic and the opposite of our method. The language has an exceedingly extensive vocabulary and the verbal forms are very complicated. The Arabic is the common language to-day in Palestine, Syria, Mesopotamia, Arabia, Egypt, northern Africa, and Malta.

ARAMAIC LANGUAGE.

The Aramaic, the language which Jesus spoke in his daily life, is one of the divisions of the Semitic. It was spoken over the whole range of Semitic influence, except in southern Arabia and Abyssinia. Aramaic encroached upon the Hebrew in Jerusalem as early as the return of the Jews from the Babylonian captivity, and became the popular language; while Hebrew became more and more the sacred and literary language. There is to-day a great Christian literature in Aramaic dialects produced by missionaries in the Holy Land.

AFRICAN LANGUAGES.

1. **Semitic,** Arabic and Abyssinian.
2. **Hamitic,** Libyan.
3. **Hottentot,** Bushman.
4. **Bantu Languages,** embracing nearly all of Africa south of the equator. The type is the language of the Zulu Kaffirs.
5. The **Negro Languages,** spoken by the negroes between the equator and the Sahara, present a remarkable complication of linguistic difficulties which have not yet been solved.

The only one negro dialect which has risen to the development of a writing and an alphabet of its own is the Vei, on the west coast near Cape Mount. It was invented in 1834 by a native, Doalu Bukere, and several books have been written in it. Missionaries, however, decline to use it, and it is lapsing. Elsewhere throughout Africa writing is almost exclusively confined to the white race, who use the Semitic or European characters.

UNIVERSAL LANGUAGES.

Several attempts have been made to build up an artificial language which can be most readily acquired by persons of all nations, with a view to easy and rapid communication. In the several systems which have been presented, the avowed purpose has been to facilitate business, travel, and correspondence, rather than to obtain a medium for literary expression.

In political use the French language has approached universality. In commerce, trade, and in diplomatic use English has gained ground rapidly.

As far back as 1688, Bishop Wilkins published his *Essay toward a Real Character and a Philosophical Language,* in which, by a system of characters much resembling modern shorthand, he sought to provide a common medium of communication.

Volapuk.—Johann Martin Schleyer, a German priest, in 1879, published his "world-speech," Volapük. He chose elements which were common to several languages, reduced them to their simplest forms (which often rendered them unrecognizable), and adopted an alphabet of 27 letters, to which he gave their Latin, German, or French values. A system of upbuilding upon the roots required the frequent use of grammar and dictionary. The plan attracted world-wide attention. Societies to promote it sprang up everywhere, and the language spread widely for a time. But defects, limitations, and faults were recognized by its students. The board of directors opposed radical changes proposed, and amid dissensions the scheme nearly collapsed. Reorganization gave the plan new life. Changes were made, and under the directors, Woldemar Rosenberg (1893-1898) and Rev. M. A. F. Holmes (1898-1903), practically a new language was adopted,—*Lingu international* or *Idiom neutral,* "the neutral language."

Esperanto.—An artificial language invented by a Russian scholar, Dr. L. L. Zamenhof, of Warsaw, in 1887. The essential difference between it and Volapük lies in the fact that the elements of the words are common to all of the European languages. Upon this is based the hope that it will be most easily acquired by all. The pronunciation is invariably phonetic. There are only 2,500 root words, and yet the language is wonderfully rich in power of expression, a quality which is secured by numerous affixes and by facility of combination. There are no exceptions to grammatical rules. The system was practically unknown in the United States before 1905. Since then the study has been enthusiastically taken up by several societies, and its spread has been both marked and rapid.

The Esperanto movement in New York is supported by the Society for the study of Esperanto with 2,000 members, and 2,000 others belong to the *North American Review* Society. There are probably 6,000 other Esperantists throughout the United States.

But in the latter part of 1908 a strong reaction took place in the United States against Esperanto. It was stated by many of its former strong adherents that the language inadequately met the requirements of a universal speech. In consequence many fell away in their support. Then followed the criticism that the device in no way met the requirements of a literary language, that nicety of expression could not be conveyed by it, and that it did not fulfill the demands of the best vehicle for conveying thought.

Ido.—This system, sometimes called Esperanto Simplified, or Internacione Linguo, is spoken of as the quintessence of European languages. It has been adopted by the New York Society for the Study of Esperanto as a substitute for Esperanto. In Ido all arbitrary roots and words are thrown aside and the choice of roots is in every case decided by a resemblance to the greatest number of European roots. This resemblance is called the "maximum internationality." Simplicity and regularity are aimed at; and there are no exceptions and no unnecessary rules. Already much literature has appeared in Ido and the accomplishment of its purpose is confidently predicted by its enthusiastic supporters.

AMERICANISMS.

Americanisms are not barbarisms or vulgarisms. America has made important and valuable additions to the English language. In America the English language has grown, expanding in certain directions, contracting in others, and sharing in the great process of evolution which every language undergoes. The language in America to-day is by no means the same as that brought by our forefathers from England. At the same time it must be remembered that the language in England to-day is by no means the same as it was when our forefathers left England. In the minds of some the term "Americanisms" implies undesirable, inelegant, or even vulgar additions made to the English language by Americans. This is by no means true either in fact or in definition. By Americanisms are meant those different meanings and uses of the words common to both countries which prevail in America; and also the words new to the language which Americans have introduced. Among the classes of words which are regarded by students of the language as being more or less peculiar to America are:—

1. Archaisms, obsolete meanings in England.
2. Words used in a different sense in America from that in England.
3. Words which in America retain their old meaning but have taken on a new meaning in England.
4. English colloquial or provincial or dialectic words which have been incorporated into the language in America.
5. Words which the new conditions or new products in America have required to be newly coined.
6. Contributions from the French, Spanish, and Dutch languages, which America has received but England has not, chiefly because she has neither need nor use for them.
7. Words of American Indian origin.
8. Peculiarities of negro dialect and of African words used by negroes.

It is not at all strange that there are some differences between the language of the people of England and those of the United States. The most remarkable thing is that there are so few. In the narrow limits of England, dialects exist so different from each other that it is with difficulty that some of the people are understood by others. Three hundred years of separation from England, all of the time geographically and part of the time politically, is of itself enough to account for many of the changes. Among these is the retention by Americans of the older meanings of many English words, which have become obsolete or archaic in England. Americans continue to use many words as their forefathers learned them in England in the olden time. The large influx of foreigners into America is responsible for the introduction of many words which have become naturalized in this country but are unknown in England. The settlement of new regions, the introduction of new arts, and the new political and social conditions under which Americans live are also responsible for many changes.

Literary and commercial intercourse are large and powerful factors in preserving the similarity of language. Despite these, some radical changes in the language have been brought about in America.

A List of Words or Meanings Peculiar to America, with Their Sources.

ADOBE. Sun-dried brick used in Mexico and other countries having small rainfall. Introduced directly from the Spanish.

BACKWOODS. A newly coined word used freely in the United States and Canada to designate any thinly populated or remote districts away from cities.

BAGASSE. A plantation term to describe the refuse of sugar cane after crushing and extraction of the juice. Derived from the Spanish *bagazo* and the French *bagasse*. Contributed by the planters.

BARN. An American use of this word is a stable for horses. The English use the word stable in that sense, and restrict the use of barn to a place in which to store grain, hay, etc.

BAYOU. Used in the southern United States to denote the outlet of a lake, a member of a delta of a river, or a sluggish water course. Derived from the French *boyau*.

BEAD, TO DRAW A. A phrase of western American origin meaning to take deliberate aim. Draw in the West is a mining term indicating lifting or raising; the bead is the round or globular sight on the fore part or muzzle of the barrel of a rifle or revolver.

BED ROCK. A mining term used to describe solid rock underlying loose detrital masses such as sand and gravel.

BLAZE. A white spot made on a tree to show a boundary, trail, or path in the woods.

BLOODY SHIRT. A political contribution signifying to arouse indignation or resentment by referring in a demagogic manner to murders and outrages committed by political partisans, especially by members of the Kuklux Klan during the period of reconstruction in the South. The bloody shirt is the symbol of murder or outrage.

BOARDS. In America, boards are more than 4½ inches wide and less than 2 inches thick. The English use the word deals where we use boards.

BOGUS. A trade contribution originally used to describe counterfeit money; gradually extended to apply to anything based on sham or false pretense. Much conjecture has been indulged in tracing the origin of the word, some suggesting bagasse, others tantrabogus. It was used in 1827 in the Painesville (Ohio) *Telegraph* to describe a counterfeit money apparatus.

BONANZA. A mining term denoting a rich mass of ore; hence a profitable enterprise, good luck. Derived from the Spanish *bonanza*, meaning good weather at sea, prosperity, success. To strike a bonanza.

BOODLE. A political contribution referring to the fraudulent obtaining of money in public service. Derived from the Dutch *buidel*, property, estate, etc. Largely replaced by the modern word graft.

BOSS. A Dutch contribution from *bass*, signifying an overseer or superior.

BROOM CORN. The *Sorghum vulgare* grown extensively in the United States. From its panicles brooms and brushes are largely made. A plantation contribution.

BROTTUS. A word used by the negroes of Georgia to denote a small gift. It is also used to denote a quantity added or thrown in as a gratuity or "for good measure." Often spelled brotus. The word is of Anglo-Saxon origin.

BUCCRA, BUCKRA, or **BOCKRA.** A word, supposed to be of African origin, used by the negroes of the southern United States, the West Indies, and elsewhere to denote a white man.

BUGGY. In England, a one-horse, two-wheeled vehicle without a top. In America, a light, one-horse, four-wheeled vehicle, usually with one seat, either with or without a top or hood. The word is of Anglo-Indian origin.

BUMMER. A German contribution from *bummler*, a braggart or wanderer. The word is both colloquial and slang, especially in its contraction, bum, which signifies a drunken loafer.

BUNCOMBE. A political contribution signifying empty or meaningless talk; pointless speech-making. Wheeler's *History of North Carolina* says that a member for Buncombe in North Carolina tired out the members of Congress with an unentertaining speech which he admitted was only for Buncombe. Sometimes spelled bunkum.

BUTTE. A term used on the upper Missouri and west to the Pacific to denote a hill or mountain which is so conspicuous that it may be used as a landmark. The word is taken directly from the French, and its use is in a great measure a relic of the former occupancy of the Northwest by the French.

CACHE. A word introduced by the Canadian voyageurs around Hudson Bay. It means to conceal or a place of concealment, and relates to stores of provisions.

CALICO. In England, this is white or unprinted cotton; in the United States, it is printed or figured, never plain. First imported into England from Calicut, India, whence the name.

CANYON. The use of this word is peculiar to the United States; very rarely used in Mexico; and not at all in Spanish South America. A gorge or narrow valley with precipitous sides throughout the Cordilleras.

CARPETBAGGER. A political contribution describing those Northerners who, during the reconstruction in the South, sought for political office there and to influence the negro voters for unworthy purposes. An opprobrious epithet applied to any unpopular Northerner in the South.

CAUCUS. A political contribution describing the meeting of the members of a political party for conference. The word appears in the diary of John Adams under date of February, 1763. It originated in Boston, Mass., and some have conjectured that it is a corruption of *Calker's meeting*; others think this improbable.

CHINQUAPIN. A word of American Indian origin denoting a kind of dwarf chestnut (*Castanea pumila*) ranging from Pennsylvania to Texas; also the *Castanopsis chrysophylla* of the Sierra Nevada and Cascade mountains.

CHOWDER. A dish in which the chief ingredient is clams or other fish. Supposed to be derived from French *chaudière*, a caldron.

CLEARING. A word of American origin indicating a tract of land cleared for cultivation.

CLEVER. An American use of this word is in the sense of charitable, hospitable, or good-natured. In England it is now restricted to skillful or intelligent.

COLD SLAW (properly *Cole Slaw*, or *Cabbage Slaw*). A Dutch contribution from *kool slaa*.

CONDUCTOR. This official on an American railway train is not known in England. The officer who most nearly takes his place there is called the guard; but his duties and authority are not nearly so extensive.

COPPERHEAD. A political contribution descriptive of a Northern sympathizer with the South. Derived from the venomous serpent of that name.

CORN. In the United States the word is restricted to mean maize or Indian corn; in England it is generally applied to wheat, rye, oats, and barley; in Scotland, to oats; in Ireland, to barley.

CORN SONGS. Used by the negroes in Maryland for harvest songs.

CORRAL. A term contributed by Western ranch life in America. It is the pen or inclosure into which horses or cattle are driven. A colloquial use of the verb to corral is to express the idea of capturing, making a prisoner of. The word is of Spanish origin and is accented on the last syllable.

COWBOY. A term contributed by American ranch life, indicating a man employed to care for grazing cattle and generally doing his work on horseback.

CRACKER. Used in the United States to denote the lower class of white hill dwellers of Georgia, Florida, and other Southern States. It is supposed to signify that his diet is chiefly cracked corn.

CRACKER. In the United States this is a hard, thin, crisp biscuit. A purely American use of the word.

CRACKLING. In the United States this word is used to denote the crisp residue from hog's fat after the lard has been tried out.

CRACKLINGS. A word used by negroes in the Southern States to denote a sort of bread containing roasted pork rinds.

CREOLE. A native of Louisiana of French or Spanish descent. Derived from the Spanish *criollo*.

CROW, TO EAT. A political contribution signifying doing something distasteful or humiliating; swallowing one's words; to be particularly mortified.

CRULLER. A Dutch contribution from *kruller*, to twist. It is a twisted doughnut.

DARK HORSE. A political contribution derived from horse racing, where a horse whose former performances are not known and little information can be obtained concerning it is called a dark horse. A candidate unexpectedly brought forward at a political convention about whose past career little is known.

DEPOT. An American use of this word in connection with railways was recently general in speaking of the passenger depot and the freight depot. The word station, commonly used in England, in this connection, is becoming more general in America; and freight house is also growing in use.

DIGGINGS. A mining term originally descriptive of a place where mining is carried on; but, in a colloquial sense in the western United States and in Australia, used for region, place, or locality generally.

DOUGHFACE. A political contribution describing a Northern politician who was inclined to accede to the demands of the South just before the war.

DRESS. American use of dress is often restricted to the garment worn by women which the English call a gown or robe.

DRUMMER. A trade contribution applied to a traveling salesman or commercial traveler; one who drums up trade.

EDITORIALS. The opening articles of a newspaper are called in America editorials; in England they are leaders; and in France they are *chroniques*.

ELEVATOR. In England this passenger and freight hoisting apparatus is called a lift.

FALL. Used when the English would use autumn. An old English use. It is the English people that have changed the use of this word.

FAVORITE SONS. A political contribution describing possible presidential candidates from the several states.

FENCE-RIDING or **TO BE ON THE FENCE.** A political contribution indicating a state of indecision or of neutrality concerning parties, persons, or questions.

F. F. V'S. An abbreviation for "first families of Virginia." A humorous allusion to the highest social class in the South.

FILIBUSTER. A political contribution to denote a member of the minority who resorts to obstructive or irregular tactics to prevent the adoption of a measure favored by the majority.

FIRE-EATER. A political contribution denoting a violent, bitter, Southern partisan before the war.

FIRE, TO FIGHT. An American contribution alluding to the desperate efforts of frontier settlers to prevent the spread of forest or of prairie fires.

FLESHY. The old English sense of stout, no longer prevailing in England, is preserved in America.

FOREHANDED. An old English sense of being well circumstanced regarding property or money has survived in America. The English use is now limited to the sense of early, timely, or seasonable.

FRESHET. The English use flood. An old English word, which the English themselves have changed.

GARROTE. To put to death by the garrote. Taken directly from the Spanish.

GERRYMANDER. A political contribution denoting an arbitrary arrangement or rearrangement of the political divisions of a state without regard to natural or proper boundaries, for the purpose of changing the political aspect or vote of the district. So called from such redistricting of Massachusetts in 1811 when Elbridge Gerry was governor.

GONE COON. A slang expression current in the United States and indicating one in a very bad way or in a hopeless condition or situation. Coon is an abbreviation of raccoon.

GOOBER. A term in the southern United States for the peanut; supposed to be of African origin.

GREENBACKER. A political contribution denoting a member of the party which demanded the suppression of banks of issue (1874), the confinement of currency to greenbacks, and the total or partial payment of the national debt in that currency.

HACK. In America, applied to a coach, or hackney-coach; in England a hack is a hired horse.

HALF-BREED. A political contribution denoting a member of the Republican party in New York state that in 1881 and succeeding years opposed the "stalwarts" of the party, who controlled the organization. Such was considered only half a Republican.

HATCHET, TO BURY THE. An expression denoting a cessation of hostilities or the end of a quarrel; founded on the ceremony of burying the tomahawk by North American Indians as a signal of friendship.

HEFT. In America heft means to estimate the weight of an object by lifting in the hand; in England the old sense of lifting has been retained.

HESSIAN FLY. A destructive insect, injurious to wheat; supposed to have been introduced into the United States during the War of Independence by the Hessian troops. The *Cecidomyia destructor.*

HOG-WALLOW. An American contribution to describe a peculiar kind of irregular surface upon which the clayey soil is broken up into a succession of hillocks and hollows like "cups and saucers turned topsy-turvy."

HOMELY. In America, plain-featured, not handsome; in England, homelike or unadorned.

HOMINY. A word of American Indian origin denoting hulled and ground or broken maize.

HOOK. A Dutch contribution from *hoek*, a corner; it is applied to a point of land turned landward at its outer end. Common in proper names on the New York and other coasts early settled by the Dutch.

HORSE CAR. The English speak of this conveyance as a tram.

HUNKER. A political contribution denoting a conservative in the Democratic party of New York state in 1845 who opposed the Barnburners or radical section.

INDIAN MEAL. A plantation contribution describing the meal made from maize or Indian corn.

JAYHAWKER. A political contribution denoting one who carried on irregular war in eastern Kansas in the early days of the Civil War.

JERKED BEEF. Beef cut into long, thin strips and dried in the sun. Derived from the Chilian *charqui.*

JEW. In America, to haggle or dispute in selling; in England, to cheat. An American might speak of trying to jew one down in price; an Englishman might declare that one tried to jew him out of a thing.

KEY. A low island near the coast. Used especially in regions where Spanish is or was formerly spoken. Derived from the Spanish *cayo.*

KILL. A Dutch contribution; signifies a small stream.

KOTOW. A word of Chinese origin indicating obsequious politeness.

KUKLUX KLAN. A political contribution; the name of a secret oath-bound society in the Southern States after the close of the Civil War whose members sympathized with secession and perpetrated outrages upon negroes and Northern sympathizers. The name is derived from the Greek *ku'klos*, a circle.

LAGNIAPPE. A word commonly used by the negroes of the Southern States to denote a gift from tradesmen when buying; good measure; a brottus.

LAM. To beat or to thrash. Of old English origin. No longer used in England, except, perhaps, provincially.

LASSO. A rope of hide from 60 to 100 feet in length, with a sliding noose, used in catching cattle and wild horses. Derived from the Spanish *lazo*, a snare.

LEVEE. A term in use in southern and western United States to denote an embankment along a river to confine it in its channel and also a landing place for vessels. Derived directly from the French.

LIKELY. An American use of the English word promising. An American may speak of a likely-looking colt, where an Englishman would call it a promising colt.

LOCOFOCO. A political contribution denoting one of the equal rights section of the Democratic party in 1835.

LOGGING CAMP. An American contribution to indicate the headquarters for men and horses while carrying on lumbering.

LOG ROLLING. A political contribution denoting the exchange of services to secure the passage of schemes or measures by politicians. Neighbors joined in helping one another to roll their logs; so politicians who assisted one another in their respective interests were engaged in log rolling.

LUMBER. An American speaks of lumber where an Englishman calls it timber. The English use of lumber is in the sense of something which encumbers or is heaped together in disorder, as, to lumber up a room.

LYNCH LAW. The administration of penalties by unauthorized persons to anticipate legal delays. The kind of law exercised by Charles Lynch (1736-1796), a Virginia planter who, with his neighbors, Robert Adams and Thomas Calloway, outraged and maltreated lawless or disaffected persons in his neighborhood, especially Tories and those opposed to the Revolutionary party.

MAIL. In America a letter is mailed; while in England it is posted. In America a package comes by mail; while in England it is received by post.

MESA. Commonly used throughout the southwestern United States to denote a table-land, a broad and flat river terrace, or a level or gently-sloping region. Taken directly from the Spanish.

METIF. An Indian half-breed or the offspring of a white person and a quadroon. From the French *métif.*

MOCCASIN. A word of American Indian origin denoting their peculiar foot gear.

MOONACK. A name of the woodchuck in southern United States. The negroes also use the word to denote a mythical animal. Supposed to be of American Indian origin.

MUGWUMP. A political contribution denoting one of the independent members of the Republican party who refused to vote with the party in 1884, but voted Democrat, Prohibitionist, or abstained from voting.

MUSTANG. A wild horse of the pampas and prairies of America. Derived from the Spanish *mesteño.*

NOODLES. A Dutch contribution from *noodlejes*, an imitation of macaroni; made from wheat flour and used in soups, etc.

NOTIFY. In America notify means to give notice; in England, to make known. The word is also used in America, where inform would be preferred in England.

OFFAL. Literally that part which *falls off.* An English term for those parts of a slaughtered animal not fit for food; also used in America. In the vicinity of Chesapeake Bay, "offal" is the small fish taken in nets and used for fertilizer because they are unfit for food.

OMNIBUS BILL. A political contribution applied to a bill embracing several distinct objects; it was the popular name for the Compromise of 1850 in which Clay combined several different objects. The bill was broken up into several individual bills and passed separately.

OPOSSUM. The name of this well-known animal is of American Indian origin (*opassom*).

OVERSLAUGH. A Dutch contribution from *overslaag*, to skip or pretermit. The word is peculiar to the United States and denotes to pass over in favor of another; to hinder or obstruct; to oppress or keep down.

PAN OUT. A mining term originally used to describe the yield of gold panned in a locality, but extended to mean yield or afford in any sense; to turn out more or less satisfactorily.

PICKANINNY. A child of a member of any negroid race. Derived from the Spanish *pequeño niño.*

PINDER. A name given to the peanut among the negroes in Florida and other Southern States. Supposed to be of African origin. Also pindar and pindal.

PIPE-LAYING. A political contribution denoting the preparation of plans for promoting a political scheme or measure.

PLANK. A political contribution denoting one of the articles or paragraphs in the platform of a party. The use is purely a figurative one, where the word platform is taken in a double sense.

POND. In America, a natural or artificial pool of water; in England, only artificial pools are called ponds.

PORTAGE. A common use in the United States; denotes portions of interrupting land along river courses which necessitate carrying the goods, boats, etc., from water to water. Derived directly from the French.

POSTED. A trade contribution derived from the ledger; supplied with fullest information; possessed of needed intelligence; well-informed.

POWWOW. A word of American Indian origin from *powan*, a prophet or conjurer. The word has a colloquial use denoting a meeting or conference at which there is more noise than deliberation.

PRAIRIE. This word is taken directly from the French. It was frequently used by Father Hennepin and other French writers in describing the areas adjacent to the Mississippi. Inhabitants of the prairies never speak of them as plains. The latter term is restricted by them to the arid, treeless wastes; but never applied to the richly fertile undulating prairies.

PRAIRIE SCHOONER. A term originating in western America and used to designate the white-covered wagon used by emigrants to convey themselves and goods across the prairies before the completion of railroads across the continent.

PRETZEL. A German contribution denoting a small, brittle biscuit fashioned in the form of a knot and salted on the outside.

PRIMARY. A political contribution denoting a meeting of voters belonging to the same political party who meet to choose candidates or delegates, etc.

PROSPECT. A mining term meaning to look for indications of gold or other mineral; gradually extended to describe a search or investigation for other things.

RACCOON. The name of this familiar animal is of American Indian origin.

RAFT. A colloquial use in America to indicate a miscellaneous or unassorted collection of articles as, a raft of papers, or a whole raft of things to attend to. The word is derived from the use of raft to indicate the collection of trees transported in rafts.

RECONSTRUCTION. A political contribution denoting the process by which, after the Civil War, the seceding states were restored to rights and privileges as members of the Union (1865-1870).

RELIABLE. An American uses reliable when an Englishman would use trustworthy.

ROUND-UP. A ranching term from western America and describing the herding or driving together of animals on a ranch for inspecting, counting, sorting, or branding. The word has acquired a meaning of the completing or finishing of some large task.

SACHEM. A word of American Indian origin; a sagamore or chief.

SALOON. In America this is applied to a place where intoxicating liquors are sold. An Englishman speaks of such as a tap-room, or grog-shop, or public-house. English use restricts saloon to a spacious, elegant apartment, or a hall for public amusements or entertainments.

SALT RIVER. A political contribution denoting the defeat of a candidate for political preferment. Such an one is said to go, row, or be sent up Salt River. It is said that the navigation of Salt River in Kentucky is extremely arduous and a hard task for the unfortunate rower.

SAMBO. The offspring of a black person and a mulatto. Derived from Spanish *zambo*.

SETTLE. A trade contribution from the accounting room; to liquidate; to pay; to balance.

SHINPLASTER. A political contribution denoting the small paper fractional currency issued by private and irresponsible parties during the suspension of specie payment. These were especially abundant in the panic of 1837 and during the war (1861-1865). Few of them were ever redeemed. When the government assumed the issuance, the term was applied to them also.

SHIVAREE. A mock serenade with horns, kettles, bells, either in annoyance or insult. Derived from the French *charivari*, and often so spelled.

SICK. The old English sense is retained in American use. The modern English use implies affected by nausea and a desire to vomit. In many cases where an American might use sick, an Englishman would say ill.

SKUNK. The name of this animal is of American Indian origin.

SLEEPER. This American designation of the wooden supports of car rails is a tie in England.

SMART. Several colloquial uses of smart are to be noticed in America. (1) Considerable or large; as, a right smart distance. (2) Extremely bright and clever; as, smart as a steel trap. (3) Keen in business; sharp and often of questionable honesty. In England the word is restricted to talented.

SMUDGE. In America, a smoke made to drive away mosquitoes, etc.; in England, any overpowering smoke.

SPELLBINDER. A political contribution denoting a political orator or party speaker The term was first used during the presidential campaign of 1888.

SQUATTER. A term of American origin used to indicate one who settles upon land, usually public, without title to the same.

SQUATTER SOVEREIGNTY. A political contribution denoting the theory advocated by Democrats 1847-1861) and under Douglas that the people of a territory and not Congress had the right to decide whether slavery should exist within a territory. Called also popular sovereignty.

SQUAW MAN. An American contribution from the West to denote a white man who has married an Indian woman and has taken up the Indian mode of life either in part or in whole. Its use is generally contemptuous.

SQUELCH. To crush down; to put down. An old English word used by Samuel Butler in *Hudibras* and by others. No longer used in England.

STAKE A CLAIM. A mining term used to describe the marking out of a claim in gold regions. Later it meant the dividing off by means of marks or stakes.

STAMPEDE. A ranch term derived from the Spanish *estampido* and describing the panic-stricken rush of cattle in herds or droves.

STOOP. A Dutch contribution from *stoep*, and signifies the step or steps leading up to a house.

STORE. In America, applied to a shop. The English restrict the meaning to a place where goods are stored, and their use of the word corresponds to our idea of a warehouse or storehouse.

SUCCOTASH. Of American Indian origin, denoting a dish of maize and beans mixed.

TARRY. To delay. This is the old English form, common in the Bible and Book of Prayer. The English have discarded the word to a great extent.

TAVERN. Americans call a tavern what Englishmen call an inn, for in England there is never any lodging at a tavern. When lodging is supplied the place is an inn.

TEMPER. In America temper is the show or display of passion; in England it is the control of it.

TIMBER, THE. An American term to indicate the woods or the growing timber. The slang expression "taking to the tall timbers" means seeking a refuge from an embarrassing situation, and is a modification of "taking to the woods."

TOBOGGAN. A word of American Indian origin denoting a kind of sled without runners.

TOMAHAWK. A word of American Indian origin; the war ax of the Indians of North America. To bury the tomahawk was a signal of peace among the Indians.

TRACK. In America this means the rails upon which a train runs; in England it is always spoken of as the line.

TRAPPER. An American contribution indicating one who makes his living by trapping animals.

TRUCK-PATCH. A farm contribution descriptive of ground upon which vegetables, fruits, etc., are raised for market. The use of truck to describe the produce of a market garden is peculiar to the United States.

UGLY. In America ugly is often used where in England ill-natured would be used.

VENISON. In America venison means only deer's meat; while in England it means wild meat of any kind.

VEST. In England this article of a man's dress is always called a waistcoat.

VOYAGEUR. A French word in common use in America to denote the travelers in rivers and inland waters by boats or canoes. It has come directly into the language and has been widely disseminated by the very voyageurs themselves who early penetrated the remote parts of the country.

WIGWAM. A word of American Indian origin denoting a hut or house used by the Indians.

WILT. A colloquial use in America is that of becoming languid; of losing energy or strength. In America it is often used of plants when in England wither would be used.

WIRE-PULLER. A political contribution denoting a person in authority who manages the carrying through of a political enterprise or guides a political organization.

YAZOO FRAUD. A political contribution denoting the bill for the sale of a tract embracing what is now the state of Mississippi and one half of Alabama in 1795 by Georgia. The law was repealed in 1796 because it was fraudulently enacted. The U. S. Supreme Court in 1810 declared the repealing act void.

COMPOSITION.

Style is the man himself.—*Buffon.*
Style is the physiognomy of the mind, and a safer index to character than the face.—*Schopenhauer.*
Style is the personal impress which a writer inevitably sets upon his production.—*Arlo Bates.*

Style.—The above quotations imply not only the author's method of expressing his thought, but also his method of thinking. As style reflects the character and personality as well as the intellect of the writer, there arise many varieties of style. Hence, there is no one good style. To acquire a good style one must live with the best authors, read their works, and study their modes of expression and thinking. Disraeli says that mastery of one's subject is the true secret of style. To know what you would say and to say it with freedom and individuality is the great point.

Composition is the art by which ideas and mental impressions are conveyed in written language. To gain skill in composition it is necessary to examine its elementary principles. Considering it as a whole, there are three principles of structure which govern its mechanism: *Unity*, *Mass* or *Emphasis*, and *Coherence;* and three of quality which govern the intellectual character, *Clearness*, *Force*, and *Elegance*.

Unity requires that every composition shall center around one fundamental idea, since without it the value and effectiveness of the entire work will be destroyed; that every paragraph and sentence shall have one essential thought or purpose.

Mass concerns the external arrangement of what is written; it governs the placing of words and clauses in the sentence, of sentences in paragraphs, of paragraphs in longer compositions. Professor Barrett Wendell says, "The test of a well-massed sentence is very simple: Are the words that arrest the eye, the words on which the writer would arrest your attention?" He further says, "In an ideally massed sentence the most significant words come close to the periods, the less significant close to the lesser marks of punctuation, the least significant in those unbroken stretches of discourse where there is nothing but words to arrest the eye."

Coherence is the law of internal arrangement. It determines the relation of each part to the others, which relation must be clear and unmistakable. Words that are closely related in thought should be kept together. This is a good rule to follow in sentence construction. In paragraph making the placing of sentences to give the right proportion of strength to each one is more difficult.

It is not only necessary for the writer to follow closely the principles of *Unity*, *Mass*, and *Coherence*, but good style requires also a selection and right use of words. (See page 36.) This is called *Diction*, and it is based upon *Good Usage*, that usage which is present, national, and reputable. It is the general agreement regarding forms and standards by means of which ideas are conveyed. *Purity*, *Propriety*, and *Precision* are the most important qualities of good diction.

Purity relates to three things: viz., the forms of words, their construction in sentences, and the meaning of words and phrases. A violation of purity in the forms of words is a *barbarism;* in the grammatical constructions it is a *solecism;* in the meaning of words, an *impropriety*. Words should be chosen with reference to the desired effect, whether long or short, of English or foreign origin, general or specific, literal or figurative, although there are a few cautions to bear in mind. Avoid as far as possible the use of foreign words or idioms which have not become domesticated, words out of date, old-fashioned, or obsolete, unusual or unauthorized words, and slang or vulgar words and expressions. (See pages 36 to 43 for examples.)

Propriety requires that only such forms be used as are appropriate to the subject. It consists in choosing words that properly express the intended meaning. Avoid coarse expressions, poetic inversions, the use of figurative language in treating prosaic subjects, and mixed metaphors, but do use words according to their idioms. A free use of the dictionary and careful observance of the usage of the best writers and speakers are the wisest methods of securing propriety.

Precision is the quality by which a writer's style expresses "no more, no less, and no other than the thought he intended to express." It is the synonym of exactness, and in itself demands an accurate knowledge of synonyms with the ability to discriminate in their use. (See Dictionary of Synonyms, page 43.) To secure precision avoid ambiguous words or expressions (those which are capable of being understood in either of two senses); do not make overstatement or understatement of fact. (See pages 36 to 43.)

Good composition demands a large vocabulary. The best means of obtaining this is by careful reading, real study of the meaning and force of the terms used; a constant use of the dictionary, conversation of the highest order, and continued practice in writing, seeking always for the right words to express one's ideas.

The question of long or short sentences depends entirely upon the effect the writer wishes to produce. Long sentences give greater dignity and are more impressive if the subject demands dignity, while the short ones produce the effect of lightness. The question of effect should also decide whether loose or periodic sentences are better. (See page 33.) It is said that the best English contains more loose sentences than periodic because the latter have a tendency to make the composition stiff and formal. It is well to bear in mind that all good style contains a judicious union of both kinds.

Having considered the mechanical form of composition, as *Unity*, *Mass*, and *Coherence*, the principles of quality next demand attention. *Clearness* is closely associated with the principles of structure, but it goes a step farther and requires a complete understanding of the meaning of the sentences used, a full comprehension of their purpose. To insure this, one must avoid all vagueness of thought and expression, each sentence must have but one apparent meaning, and the language must be that of the persons addressed.

Force has been defined as the quality which appeals to the emotions, the quality which secures the reader's interest. It is the power of one mind over another, and includes both matter and manner. Perhaps the most necessary characteristic of force lies in what it suggests to the reader, its effect upon the mind. A good beginning and a good ending are equally necessary to forceful writing.

"*Elegance,*" says Professor Wendell, "is that distinguishing quality of style that pleases the taste; the æsthetic quality of style. Beauty, some call it; charm, others; others still, grace,

ease, finish, mastery." It is the quality in which the imagination shows itself. It is the function of culture in its broadest sense, to be acquired only through the masterpieces of literature, and a persistent effort in writing.

Outline or Plan.—There are two essential steps in all composition. First, the collection of material; second, the expression of the thoughts derived from that material. By preparing an outline or plan at first in a general way and filling in the subheads as material is classified in the writer's mind, the second step will be easier and the result more satisfactory. There are three main parts to every outline, the Introduction, the Body, and the Conclusion. If the points necessary to the development of these parts are arranged logically, the work of written expression is greatly aided. The introduction and conclusion need few, if any, subheads; the former should invite attention and arouse interest, while the latter brings out a definite meaning, what the writer wishes to enforce, to emphasize, and to make effective. The body should contain only as many subtopics as are necessary to aid the writer in putting his thoughts into a smoothly connected, harmonious composition.

The divisions of prose composition are: Narration, Description, Exposition, and Argument.

Narration.—A record of events, real or imaginary. In a narration there are four elements, the plot, the characters, the situation as to time and space, and the purpose or motive for which the whole is told. All its details should work towards a climax. Narration includes historical works, biography, autobiography, memoirs, journals, letters, books of travel, news items, anecdotes, folk tales, and fiction.

History.—A systematic and accurate record of past events; especially the record of the events in which man has taken an active part. It is distinct from tradition, which is an oral account of past events.

Biography.—A life history of one person written by another. When written by an individual about himself it is an *autobiography*.

Memoirs.—A narrative of the events happening within the memory of the writer is called memoirs. It may comprise the greater part of his life or may cover an interesting period of history with which he was connected.

Journal or Diary.—Systematic records, day by day, of the events during a man's life. "Pepys's Diary" and "Evelyn's Diary" have thrown much light upon great national events and the daily social life in England.

Travel.—Books of travel seem to combine the autobiography, the memoir, the journal, and the letter, in which the added charm of adventure, of strange lands and people, and of a constantly shifting scene both interests and instructs.

News Items.—Writers of news items require special training in order to acquire that clear, direct, and vivid style which impels attention.

Fiction.—The great difference between history and fiction is that events recorded as history are true, while fiction deals with purely imaginary circumstances. Perhaps the most remarkable feature of the literature of modern times is the increase in works of fiction. Still, it is among the enduring works of such great writers as Dickens, Thackeray, Scott, George Eliot, Hugo, Dumas, and Irving that the masterpieces of fiction are to be sought. In the great scope which the novelist's work affords, studies of society, psychology, art, science, literature, and history are often treated with consummate skill. Fictitious narrative includes long and short stories, novels, romances, and dramas. The short story is a condensed novel. Much more skill and literary ability are required to excel in this than in the longer novel. A short story is not a sketch in that it is compact and deals with more characters, details, and events than are found in a sketch. Edgar Allan Poe was probably the greatest, as he was the earliest, of American short story writers. Bret Harte, George W. Cable, Ruth McEnery Stuart, Edward Everett Hale, and Thomas Nelson Page are also among the most famous in America.

A *novel* deals realistically with actual life, while *romance* deals with life in a false or fantastic manner. Scott, Dickens, and Thackeray were novelists; Hawthorne was a writer of romance. A *drama* is a narrative portraying life or character told by actions and usually dialogue, to be put upon the stage.

Description.—The endeavor to present a picture by means of language. A writer must first see clearly what he wishes to describe, feel keenly what he wishes to communicate, and then confine himself to a portrayal of what he sees and feels. Description is closely associated with narration, to which it lends a strong support in the development of plot.

Exposition.—A statement, an explanation, or a setting forth. Clearness, unity, and progression are the most valuable qualities in this sort of writing. The plan or outline is here of greatest value. It is the product of the reasoning faculty. It is one of the most common forms of composition. *Definition* is a species of exposition. The two general divisions are scientific and literary exposition. The former deals with scientific subjects; the latter has a wider range and includes formal and informal essays, editorials, notices of plays, concerts, and art subjects, criticisms, book reviews, character sketches, and discourse. The essays of Bacon, Macaulay, Emerson, and Carlyle are formal, those of Addison, Swift, Lamb, Irving, and Lowell are informal.

Editorial.—A leading article in a journal or periodical written by the editor or his associates and published as an official argument or expression of opinion.

Criticism.—A written estimate based upon comparison of work with certain well defined standards. The great point for the critic to know is what the author tried to do, and judge of his success. Sainte-Beuve, Leslie Stephen, Taine, and Lowell were noted literary critics.

Book Reviews.—These are critical expositions which give in small space the general scope and literary or practical value of recent publications. Book reviews are helpful when they give the busy man an idea of what is going on in the literary world; and when they guide one to a selection of good books. A good book review includes a statement of the location of the principal scene in time and place, a sketch of each of the principal characters, a brief outline of the plot, a criticism of the plot, the characters, and the author's style in addition to a statement of the object of the book and its attainment.

Discourse.—Sermons, lectures, orations, and other speeches. *Sermons.*—Discourses based on texts chosen from the Scriptures, and appealing to the religious feeling. *Lectures.*—These vary in

theme but much more liberty is allowed than in the more formal oration, sermon, or essay. The scope is very broad; all possible sorts of subjects find their way into consideration; the style is as varied as the subject or its treatment; yet there ought to be a very definite and logical outline upon which the structure is built.

Oration.—A discourse intended to be delivered in public. Its purpose is to entertain, inform, interest, arouse the emotions, or to move the will. It is usually delivered upon some formal occasion and is more elaborate than ordinary speeches.

Argument.—The endeavor to establish the truth or falsity of an idea or a proposition; to make others think or believe as we do. It is very closely allied to exposition. The main difference between them is that argument goes further. "In exposition the writer declares; in argument he defends." This sort of composition is found in a lawyer's plea, in newspaper editorials, the scientific essay, and in literary opinions or criticism.

Debate.—Set discussion of a subject between opponents according to formal rules. Arguments on both sides of a question are furnished by the debate, which is a form of expository composition. One essential of a debate is that the subject be so narrow in scope or so well defined in its limits that the opposing sides must discuss the same aspects or points of the question. It is a waste of time for one side to discuss one part or aspect of a subject, while the opposing side does not answer the arguments adduced, but deals with a wholly different aspect. A good debater not only states all that is to be said in favor of his side of the question, but must also be ready to refute or to disprove what is said by the opposing side.

Spelling.—The first point by which a literary composition is judged is the ability of the writer to spell correctly. Correct spelling is an indication of the extent of a person's education. Good spelling is more essential even than good penmanship. Always consult a dictionary when in doubt about the spelling of a word.

Rules to Aid in Spelling.—There are many helpful rules to assist one in spelling; but these rules seldom cover all cases. The exceptions are sometimes more numerous than the cases which the rules themselves will cover. This is a result of the irregularities of the language due to the many sources from which the words are derived and to the changes which these words have undergone.

Believe, receive, and such words perplex one, because of the changed position of the *i* and the *e*. This is covered in part by the aid:—

I before E,
Except after C.

Words of one syllable ending in *l* with a single vowel before it double the *l:* as *tell, sell, call.* But if the *l* is preceded by a double vowel or diphthong there is only one *l* at the close: as *fail, rail, feel.*

Derivatives of monosyllables ending in *ll* formed by adding one or more syllables generally retain both *l's*: as *skillful, skillfulness, willful, willfulness.* So also in *installment, thralldom* and similar words. But one *l* is dropped when adding the termination *ly,* to prevent the recurrence of three *l's*: as *ill, illy, dull, dully.* Words similarly formed by adding the termination *less* are written either with the three *l's* with a hyphen before the termination or with two *l's* with the hyphen omitted: as *skill-less* or *skilless, smell-less* or *smelless.*

Words ending with silent *e* generally drop the *e* before taking an additional syllable beginning with a vowel: as *have, having; bride, bridal; lie, liar; move, movable; force, forcible.*

But the *e* is retained in some words to distinguish them from others: as *dyeing,* meaning coloring, distinguished from *dying,* expiring; *singeing* (burning) from *singing.* The *e* is also retained in *hoeing* and *shoeing.*

Words ending in *ce* or *ge* retain the *e* before a suffix beginning with *a* or *o* in order to preserve the soft sound of *c* or *g:* as *trace, traceable; change, changeable; courage, courageous.* But legal usage favors *mortgagor.*

When adverbs are formed by adding *ly* and nouns by adding *ment* to words ending in *e,* the *e* is usually retained: as *sure, surely; confine, confinement.* But *judge* and *acknowledge* drop the *e* and form *judgment* and *acknowledgment.*

Words of one syllable ending in a consonant preceded by a single vowel double the consonant on adding a suffix beginning with a vowel: as *run, running; big, bigger.* But if the final consonant is preceded by a double vowel or diphthong the consonant remains single: as *sleep, sleeping; plead, pleading.*

Words of more than one syllable ending in a single consonant and accented on the last syllable double the final consonant when suffixes are added: as *remit, remitting; commit, committee.* But if accented on the first or other syllable than the last (as trav'el) the single consonant is retained: as *travel, traveler.*

Words ending in *y* preceded by a consonant change the *y* to *i* and add *es* to form the plural: as *lady, ladies; comedy, comedies.* But if the *y* is preceded by a vowel the *y* is retained and *s* is added: as *valley, valleys; money, moneys.* An exception is made of names of persons, which are usually formed by the addition of *s*: as *Henry, Henrys.*

Words ending in *er* generally retain the *e* before the *r* when suffixes are added: as *refer, reference;* but some, as *hindrance, monstrous, wondrous,* and *disastrous,* elide the *e.*

Words which formerly ended in *our* are nearly all spelled with *or* now in the United States, though the *our* is largely retained in England: as *labor, honor, valor.*

Words ending in *o* generally form the plural regularly, as *solos, folios,* through usage differs in regard to some of them. A few nouns ending in *o* preceded by a single consonant form the plural by adding *es:* as *echoes, heroes, potatoes, tomatoes.*

Simplified Spelling.—Benjamin Franklin and Noah Webster were strongly in favor of a spelling reform.

Isaac Pitman, the inventor of phonography, labored for many years in England to simplify the spelling.

In 1874, at the annual meeting of the American Philological Association at Hartford, the president called attention to the "monstrous spelling of the English language."

In 1875, Prof. William D. Whitney of Yale University, and the first president of the American Philological Association, was one of

a committee appointed to consider the whole subject of spelling reform. In 1876 this committee reported in favor of it and laid down the principles which should guide the reform. The committee has been continued from year to year since then.

In 1876 an international convention for the advancement of English orthography was held at Philadelphia and Prof. Samuel D. Holdeman of the University of Pennsylvania presided. The convention resolved itself, on August 17, into the Spelling Reform Association.

In July, 1877, the "Standard Phonetic Alphabet" was adopted by the Spelling Reform Association.

In 1883 rules for simplified spelling were adopted by the American Philological Association and by the British Philological Association.

In 1886 a list of amended spellings was adopted by the American Philological Association and published in their *Transactions*.

In 1898 the American National Education Association adopted twelve simplified spellings: program, tho, altho, thoro, thorofare, thru, thruout, catalog, prolog, decalog, demagog, and pedagog.

In 1906 a list of 300 words was recommended by President Roosevelt to be used by the Public Printer at Washington in all government publications. This order was withdrawn on December 14, 1906, because the committee of Congress on printing did not approve of their use.

On November 13, 1907, the Board of Trustees of Columbia University officially adopted a list of 180 words to be used in all University printing. This list is as follows:—

Abridgment	Dolor	Humor
Acknowledgment	Draft	Hypotenuse
Adz	Dram	Idolize
Anapest	Dulness	Instil
Antipyrin	Ecumenical	Jail
Antitoxin	Edile	Judgment
Arbor	Enamor	Labor
Ardor	Encyclopedia	Legalize
Armor	Endeavor	License
Assize	Envelop	Licorice
Ax	Eon	Liter
Bark (not barque)	Epaulet	Lodgment
	Eponym	Luster
Behavior	Era	Mama
Brazen	Esophagus	Maneuver
Brazier	Esthetic	Materialize
Bun	Esthetics	Meager
Bur	Estivate	Medieval
Caliber	Ether	Meter
Caliper	Etiology	Miter
Candor	Fagot	Mold
Catechize	Fantasy	Molder
Center	Favor	Molding
Check	Favorite	Moldy
Checker	Fervor	Molt
Chimera	Fiber	Naturalize
Civilize	Flavor	Neighbor
Clamor	Fulfil	Niter
Clangor	Fulness	Ocher
Clue	Gage	Offense
Coeval	Gazel	Omelet
Color	Gelatin	Orthopedic
Colter	Gild (not guild)	Paleography
Controller		Paleolithic
Coquet	Gipsy	Paleontology
Criticize	Gloze	Paleozoic
Cue	Glycerin	Paraffin
Cutlas	Good-by	Partizan
Cyclopedia	Gram	Patronize
Dactyl	Harbor	Pedobaptist
Defense	Harken	Phenix
Demeanor	Hematin	Phenomenon
Deposit	Hiccup	Plow
Develop	Hock (not hough)	Polyp
Dieresis	Homeopathy	Practise v. and n.
Dike	Homonym	
Distil	Honor	Prenomen
Pretense	Saltpeter	Synonym
Preterit	Savior	Tabor
Pretermit	Savor	Teazel
Primeval	Scepter	Tenor
Program	Septet	Theater
Quartet	Sepulcher	Tumor
Questor	Sextet	Valor
Quintet	Simiter	Vapor
Rancor	Skilful	Vigor
Raze	Smolder	Vizor
Recognize	Somber	Wagon
Reconnoiter	Specter	Whisky
Rime	Succor	Wilful
Saber	Sumac	Woolen

Many changes in the spelling of words have been advocated and authorized by the Simplified Spelling Board, which, through the liberal endowment of Mr. Andrew Carnegie, is conducting an active campaign in this work. The changes advocated are radical, and the work is designed to reform the spelling gradually and not to make sweeping changes.

Handwriting.—The first essential is that the matter be easily read, as that is the purpose of the writing. Too lavish use of flourishes detracts from the legibility. Use only black ink, and never use a lead pencil in correspondence or in such formal or business writing as is intended to be preserved. The "fine hand" is generally hard to read and does not hide deficiencies in grammar, spelling, or education; generally it exaggerates them. Crooked writing is to be guarded against. Care in forming the letters properly, and especially in making all figures in amounts and dates, will conduce to legibility and intelligible communication. The "copperplate" hand is neither demanded nor appreciated in business or social circles. Handwriting is said to indicate character, temperament, and habits. It should be one's aim, then, to let it markedly display care, accuracy, neatness, and thought, rather than those qualities which made Horace Greeley's illegible writing a subject for ridicule.

USE OF CAPITALS.

To be able to use capital letters correctly is a sure mark of education. Generally speaking, too many are used rather than too few. The tendency in all writing and printing is to restrict the use of capitals to a far greater degree than was customary in olden times. An old book fairly teems with capitals where one would now never think of using them. The Germans use many more than we do, for nearly every noun in that language begins with a capital. The French use, perhaps, fewer than we, for they do not capitalize the names of the days of the week, or of the months, or adjectives derived from proper names, as we do.

(1) The first word of every complete or entire sentence must always begin with a capital letter.

The lower Himalayas are at first extremely disappointing. The scenery is enormous but not grand, and at first seems hardly large.—*F. Marion Crawford.*

Shall I stay with you always? Yes, just as long as I live, you shall be my child.—*Maria S. Cummins.*

"Tarry thou, till I come!"—The words shot through me.—*George Croly.*

(2) Every line of poetry should begin with a capital.

Like as the waves make towards the pebbled shore,
So do our minutes hasten to their end;
Each changing place with that which goes before,
In sequent toil all forwards do contend.
—*Shakespeare.*

His state
Is kingly; thousands at his bidding speed
And post o'er land and ocean without rest;—
They also serve who only stand and wait.
—*Milton.*

(3) The first word of every direct quotation should begin with a capital, unless introduced by that, if, or some other conjunction.

The judge replied, "Honesty is the best policy."
The judge said that honesty is the best policy.
Sir Henry Wotton expresses the joy of manly independence in his poem which begins: "How happy is he born and taught that serveth not another's will."
Lepers sit by the sunny walls, and your soul cries, "Unclean! Unclean!" while you loosen your purse-strings.—*George William Curtis.*

(4) The several names and appellations of Deity must begin with a capital letter.

These include: God, Jehovah, the Almighty, the Supreme Being, the Lord, Providence, the Messiah, the Holy Spirit, Jesus, Christ, Father, Son, Infinite One, the First Cause, the Saviour, etc.

(5) The words Bible, Scriptures, and names of books and parts of the Bible should begin with capitals.

(6) The names of the months and of the days of the week are written with capital letters.

January. Monday the 15th of July. He came on Tuesday.

(7) The names of holidays, festivals, fast days, and feast days, whether civil or religious, are usually written with an initial capital.

Christmas, Labor Day, Easter, Yuletide, Whitsunday, Ash Wednesday, Good Friday.

The names of the seasons, unless personified as in poetry, are not capitalized.

(8) All proper nouns are written with an initial capital. These include:—

(*a*) Names of persons, real or fictitious:—

Thomas Jefferson, Oliver Cromwell, Adam Bede, William II., Joseph H. Choate.

(*b*) Names of places:—

Chicago, New Orleans, Liverpool.

(*c*) Names of streets:—

Broadway, State Street, Pennsylvania Avenue, The Strand, Rue de Madeleine.

(*d*) Names of mountains:—

Andes, Sierra Nevada, Rocky Mountains, the Alps, Himalayas.

(*e*) Names of bodies of water:—

Lake Erie, Salt Lake, Dead Sea, Caspian Sea.

(*f*) Names of rivers:—

Mississippi, Amazon, Seine, Tiber.

(*g*) Names of ships:—

Lusitania, Kaiser Wilhelm der Grosse, Great Eastern.

(9) All adjectives derived from proper names:—

American, English, French, German, Jeffersonian, Alpine, Amazonian.

(*a*) We write china silk, india ink, india rubber, turkey red, castile soap, majolica ware, prussian blue, canton flannel, with small letters though derived from names of places. This is because they have become thoroughly incorporated into our language as common rather than proper adjectives.

(10) Christianize, Hellenize, Anglicize, and some other verbs derived from proper nouns are written with capital letters. But there are many such which have been more closely and intimately incorporated into the language and by frequency of use and consequent familiarity have come to be written with small letters. Among such are: boycott, out-herod, macadamize, japan (leather), galvanize (iron).

(11) Orient, Occident, Levant, are written with capitals when used as proper nouns to denote well defined geographical zones or districts. Otherwise they are written with small letters.

(12) In denoting parts of the country by the points of the compass, such terms are written with capital letters.

Out West. In the South. The Northwest. In the East.

(13) When a geographical, political, or physiographical conformation is used as a title, it is usually written with a capital.

Rocky Mountains, Mississippi River, Barbary States, Death Valley, Sioux City, Cook County.

But when this descriptive word is written before the distinctive word a small letter is usually employed.

The county of Westchester; the state of Texas; the kingdom of Italy.

(14) Names of religious denominations begin with capitals.

Methodists, Unitarians, Presbyterians, Roman Catholics, Episcopalians, Christian Scientists.

(15) The names of societies, associations, and corporate bodies are written with an initial capital for all important words in their titles.

Young People's Society of Christian Endeavor. Roman Catholic Hierarchy of the United States. International Order of the King's Daughters and Sons.

(16) The names of political parties are written with capital letters.

(17) Official and honorary titles begin with capitals when they occur before the name of the bearer.

President Roosevelt, Senator Brown, Secretary Hay.

If written after the bearer's name, they are preferably in small letters.

The late Grover Cleveland, ex-president of the United States.

When titles of honor are abbreviated and written after the bearer's name, these are capitalized. Such include degrees from universities.

William P. Thomas, M.D., D.C.L.; Hon. William H. Taft, D.C.L.; James Edwards, M.C.

(18) When a title is used alone without the bearer's surname, we write the title with a capital letter.

(19) In writing the title of a book it is customary to capitalize the important words in the title, such as the nouns, verbs, and adjectives, but not prepositions and conjunctions.

Roget's Thesaurus of English Words and Phrases. Sturgis's A Dictionary of Architecture and Building. Brown and Butterworth's The Story of the Hymns and Tunes.

In cataloguing books on library cards it is customary now to use no capitals in the title except the first initial letter and the initials of proper names which may occur.

Alford, Greek testament with revised text. Dodge, Bird's-eye view of our civil war.

(20) The pronoun I and the interjection O are always capitals.

Stay, O stay! nor thus forlorn
Leave me unblessèd, unpitied, here to mourn.
—*Gray.*

Oh is not capitalized excepting when it stands at the beginning of a sentence.

The other evening we went to the ball at the Tuileries, and oh! it was splendid.—*George William Curtis.*

(21) When a word is of very especial importance, whether an event, or transition, it may at the choice of the writer be rendered emphatic

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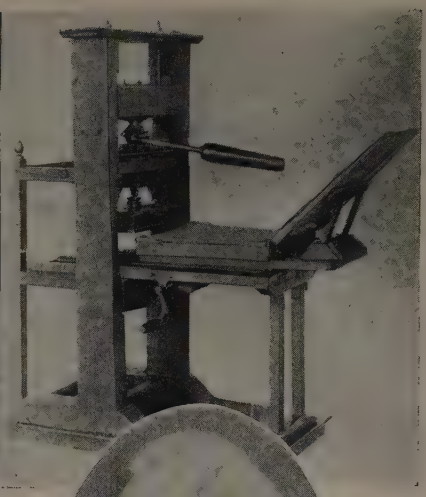
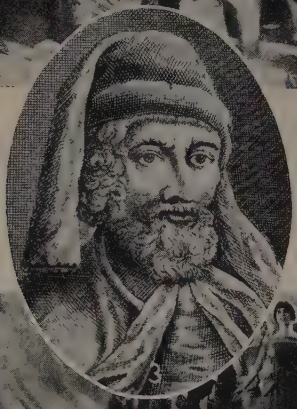
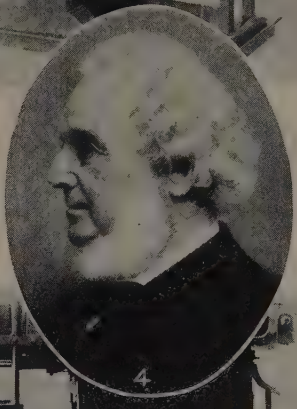
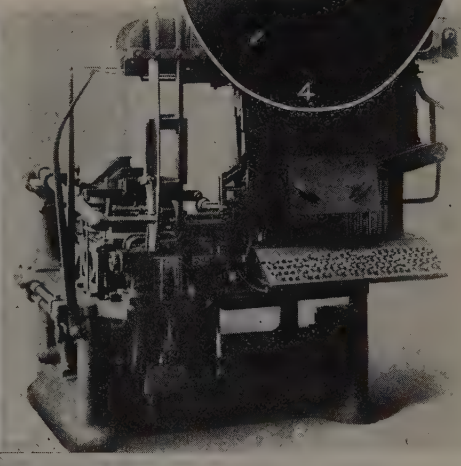
REPRESENTATIVE PUBLICATIONS

1 Gutenberg, inventor of printing, examining first printing from moveable types, Mainz, Germany. 2 Largest book in world, 400 years old, University of Rostock, Germany. 3 Bible in collection of Cambridge (Mass.) Municipal Library, printed in 1527 by Peter Quentels, Cologne, Germany. 4 Group of ancient books, 1000 years old, now in Jewish Theological Seminary, N. Y. City. 5 Old portrait of IBI-SIN, King of UR (in Chaldean bible history), on clay tablet of about 2300 B. C. 6 World's smallest book, one-half inch by three-quarters of an inch, and invoice (in Cuniform writing dated 2350 B. C.), found in central Babylonia. 7 Leaf of ancient Chinese Buddhist sacred book, printed 400 years before paper was made in Europe. 8 Egyptian writing, Hypostyle Hall, Karnak, Egypt.









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CONTRIBUTIONS TO EDUCATION THROUGH INVENTION

1 William Caxton examining first proof sheet from earliest printing press in A. D. 1471. 2 Early type of press used in U. S. A. 1600–1700. 3 William Caxton. 4 Richard Hoe, inventor of printing press for moveable types. 5 Christopher Latham Sholes, inventor of the typewriter. 6 Early model of linotype (Blower) machine invented by Ottmar Mergenthaler. 7 Modern Hoe Newspaper Press.

by writing with a capital. Thus we see such words as renaissance, revival of letters, reformation, middle ages, written both with and without capitals.

Often the principal subject of a composition is written with a capital letter whenever it occurs.

(22) A word, which when occurring only once or rarely upon a page would be written with a capital, is not so written if it is frequently repeated. A congressman addressing the chair as "Mr. Speaker" would be reported with a capital letter in Speaker, but addressing him as "sir," as is usually done, a small *s* would be written in "sir."

(23) Names of abstract ideas, if used like names of persons, are capitalized.

Can Honor's voice provoke the silent dust,
Or Flattery soothe the dull cold ear of Death?
—*Thomas Gray.*

(24) In all accounts or bills, the names of the separate items begin with capitals.

(25) In a formal resolution the first word after *Resolved* begins with a capital letter.

CORRECT PUNCTUATION.

Without punctuation marks all of our writing would be in simple sentences only, with a separate sentence for each statement. It would be impossible to show clearly the relative importance of each statement or to indicate that one sentence modified or restricted another. There could be no complex or compound sentences and both description and reasoning would be difficult. By the proper use of the several punctuation marks, we show clearly to the reader the full meaning of our statements.

Serious losses and much legal entanglement have resulted from the misplacing of even a comma. In legal documents great care is taken with punctuation, and many more marks are used in them than in ordinary writing and printing. All possibility of ambiguity or of misinterpretation is removed by what is known as close punctuation. Fifty years ago the pages of ordinary books were lavishly sprinkled with punctuation marks, in strange contrast to those of the present day.

Punctuation Marks:—

Comma	,	Quotation Marks	" "
Period	.	Apostrophe	'
Semicolon	;	Dash	—
Colon	:	Parentheses	( )
Interrogation	?	Brackets	[ ]
Exclamation	!	Hyphen	-
Ellipsis	* * * *		

Marks of Reference:

Asterisk	*	Paragraph	¶
Obelisk or Dagger	†	Index	☞
Double Dagger	‡	Brace	⏜
Section	§	Caret	∧
Parallels	‖		

The marks of reference are now seldom used in the best books, having given place to superior figures or small italic letters.

Comma.—(1) Two or more words connected in sense, but with the connecting word not expressed, are separated by commas.

Alfred was a brave, pious, patriotic prince.

(2) A relative clause which conveys an additional thought is separated from the rest of the sentence by commas.

The emperor, who had just arrived, immediately took command.

But when a relative clause restricts the meaning of the antecedent to a particular sense the commas should be omitted.

Happy are the people who have no history.

(3) The part of the sentence containing the noun absolute is separated from the rest of the sentence by commas.

Shame being lost, all hope of repentance is lost.

(4) The part of the sentence containing the nominative case independent is separated from the rest of the sentence by commas.

Brightest in dungeons, Liberty, thou art.

(5) Nay, so, however, hence, besides, perhaps, probably, finally, in short, at least, moreover, again, first, secondly, lastly, once more, on the contrary, and similar words and phrases are usually inclosed by commas.

(6) Nouns in apposition with or without explanatory words or phrases are usually separated by commas.

O Music! sphere-descended maid,
Friend of Pleasure, Wisdom's aid!
—*William Collins.*

But commas would not be used if the title is used as a part of the name.

Paul the Apostle of the Gentiles was eminent for his zeal and knowledge.

(7) Words of another writer introduced directly and not as a quotation are separated by a comma.

I pity the man who can travel from Dan to Beersheba and cry, 'T is all barren.

(8) Words and clauses expressing contrast are separated by commas.

Though deep, yet clear; though gentle, yet not dull;
Strong, without rage; without o'erflowing, full.
—*Sir John Denham.*

(9) When a word is omitted and its place is taken by a pause in reading or speaking, its place in writing is taken by a comma.

From law arises security; from security, inquiry; from inquiry, knowledge.

(10) Such expressions as, that is, as, namely, to wit, viz., take a comma after them.

He will be promoted; that is, if he prove worthy.

(11) When a subordinate clause in a complex sentence comes first, it is separated by a comma.

If thou art wise, thou knowest thine own ignorance.
—*Luther.*

(12) Two short, complete, and independent statements in one sentence may be separated by a comma.

You may paint with a very big brush, and yet not be a great painter.—*Carlyle.*

(13) Two words differently modified in the same construction are separated by a comma to avoid confusion.

The sheriff wore a cocked hat, and a sword.

(14) When a whole clause is the subject of the principal verb, it is not usually separated by a comma unless the clause ends with a verb which might cause confusion.

That the voice of the common people is the voice of God is as full of falsehood as commonness.—*Warwick.*
That that is, is.—*As You Like It.*

Semicolon.—(1) In a sentence composed of several members, each a distinct statement, and each dependent upon the other, the parts are separated by semicolons.

My way of life
Is fallen into the sere, the yellow leaf;
And that which should accompany old age,
As honor, love, obedience, troops of friends,
I must not look to have; but, in their stead,
Curses, not loud, but deep, mouth-honor, breath,
Which the poor heart would fain deny, and dare not.
—*Macbeth*, v. 3.

(2) A compound short sentence made up of two closely connected ideas has the parts separated by a comma; but when the ideas are not so closely connected use a semicolon.

My name is Norval; on the Grampian hills my father feeds his flock.—*Home.*

But

My mind to me a kingdom is,
Such perfect joy therein I find.—*Byrd.*

(3) When one or both of the members of a compound sentence contain commas, separate the members by a semicolon.

Mercy is above this sceptred sway,
It is enthroned in the hearts of kings,
It is an attribute to God himself;
And earthly power doth then show likest God's
When mercy seasons justice.
—*Merchant of Venice*, iv. 1.

(4) A sentence consisting of a direct statement followed by another introduced by for, but, and, or similar word is divided by a semicolon.

Many speak the truth when they say they despise riches and preferment; but they mean the riches and preferment possessed by other men.—*Colton.*

(5) When a series of ideas depends upon a statement made at either the beginning or end of a sentence, the members of the series are usually separated by semicolons.

Learn to be pleased with everything: with wealth so far as it makes us of benefit to others; with poverty, for not having much to care for; and with obscurity, for not being envied.—*Plutarch.*

This rule is often stated thus: A succession of clauses depending upon one principal expression should be separated by semicolons.

Colon.—(1) A colon is placed between the chief divisions of a sentence when they are but slightly connected and are themselves divided by other marks of punctuation.

Gather ye rosebuds while ye may,
Old Time is still a-flying:
And this same flower, that smiles to-day,
To-morrow will be dying.—*R. Herrick.*

(2) A colon is used after a sentence which announces a direct quotation.

(3) A colon is used after the word *following*, when a list of things is given.

(4) The colon is used after the "Dear Sir" or other address in letter writing. Sometimes the colon is followed by a dash, but this use is disappearing.

(5) A colon follows "Yes" or "No" when the rest of the sentence deals more fully with the affirmation or negation.

Yes: you will find people ready enough to do the good Samaritan, without the oil and twopence.—*S. Smith.*

No: creation, one would think, cannot be easy.—*Carlyle.*

Period.—(1) A period marks the close of every declarative and imperative sentence.

He buys very dear who begs.

(2) All abbreviations are followed by a period.

No. for number. Jas. for James. D.C.L. for Doctor of Civil Law. M.D. for medical doctor or Doctor of Medicine.

The Roman numerals are treated as abbreviations and are followed by a period.

Louis XIV., king of France. Henry I. was surnamed Beauclerc.

But when the possessive form is used the period is omitted.

William I's son Richard.

The period does not follow an abbreviation in which the ellipsis is marked by an apostrophe; nor in 1st, 2d, 3d, etc.

When a period follows an abbreviation it does not preclude the use of another punctuation mark immediately after the period if necessary.

The Norman kings of England were: William I., William II., Henry I., Stephen, Henry II., Richard I., and John.

Interrogation.—(1) Every direct question is followed by an interrogation point.

What is the use of health or life, if not to do some work therewith?—*Carlyle.*

(2) An interrogation point is often inserted in parentheses in any part of a sentence to express doubt.

One who said he was his friend (?) told me so.

When the entire question is a quotation the interrogation point should be placed before the last quote-marks.

"And who is he?" said Henry.

If only part of the question is quoted, the point should follow the last quote-marks.

Do you know who wrote "The Pioneers"?

Exclamation Point.—(1) The exclamation point is used to express any sudden emotion, as surprise, joy, grief, love, fear, hatred, anger, pity, or anxiety.

"Ah, that 's it! that 's it!" shouted the whole party delighted with the solution of the initial difficulty.—*Conscience.*

(2) The exclamation point follows the noun or pronoun after an interjection.

O blissful day! Ah me! how soon we pass!
O shame! where is thy blush?

The exclamation point usually follows Oh immediately if some other mark does not.

Oh, you have come at last!
Oh! I do not wish to deceive you.

The exclamation point is placed within the quote-marks, if the whole sentence is quoted; outside, if only a portion is quoted.

(3) One or several exclamation points may be inclosed in marks of parenthesis to denote surprise at, or ridicule of, a statement.

(4) An exclamation point follows a question to which no answer is expected.

What is more amiable than virtue!

Marks of Parenthesis.—These marks inclose parenthetical matter thrown into a sentence, which may be omitted without destroying the sense or the grammatical construction.

We have nothing to do with what is happening in space (or possibly may happen in time): we have only to attend to what is happening here and now.—*Ruskin.*

When the parenthesis is a question the interrogation point falls inside the last mark.

Brackets or Crotchets.—(1) Brackets are generally used to inclose corrections in a quoted statement, or to add words improperly omitted.

(2) When a parenthesis includes another parenthesis, brackets are employed on the outer parenthesis and marks of parenthesis on the inner.

Commas have taken the places of both parentheses and brackets in recent days. Speaking generally, the use of brackets or parentheses leads to an involved sentence which would read much better and more clearly if split up.

Hyphen.—(1) The hyphen is used to connect two words which are so used as properly to form a compound word, as sea-water, far-reaching.

(2) The hyphen is used to indicate the division of a word into syllables, as el-e-men-tal.

(3) The hyphen is used at the end of a line to connect the syllables of a divided word.

(4) In indicating the component parts of words, if a hyphen follows the part, a prefix is denoted as ad-, pro-, per-, and sub-. If the hyphen precedes it, a suffix or affix is denoted, as -tion, -ly, -ment, and -est.

Dash.—(1) The dash is used to indicate a sudden turn in a sentence or an abrupt termination, or interruption.

Where we made the mistake—but let us forget it.

(2) The dash is rapidly displacing the marks of parenthesis and brackets in parenthetical writing.

(3) The dash marks the omission of letters.

I saw General L——n there.

(4) A dash follows a question and precedes the answer when both are on the same line.

Q. Where do you live?—In San Francisco.

(5) A dash is often used before an expression which is repeated for especial emphasis.

(6) A dash precedes a partial quotation.

Ben Jonson speaks of

—"the vulgar sort
Of nut-crackers, who only come for sight."

(7) A dash also denotes hesitancy in speech

I think it will be necessary to—to—to—

Quotation Marks.—(1) A word, phrase, or sentence transcribed from an author in his own words is placed between quotation marks.

And here I am reminded that it is Pope who says "The proper study of mankind is man."

If a passage is not quoted *verbatim*, but only in paraphrase, no quotation marks are used.

(2) When a quotation occurs within a quotation double quotation marks are used for the whole quotation, and single quotation marks for that within.

"He said very pleasantly, 'What is your name?'"

(3) When a passage quoted consists of more than one paragraph, quotation marks are used only at the beginning of each paragraph and at the close of the last.

(4) When especial attention is called to a long quotation, single quotation marks may be used at the first of each line quoted.

Apostrophe.—(1) The apostrophe is used to denote the possessive case, as "Milton's."

(2) The apostrophe denotes a contraction by the omission of one or several letters, as "'t is" for "it is," "is n't" for "is not," "lov'd" for "loved," "I 'll" for "I will."

(3) The plural of proper names is not written with an apostrophe, as "Smiths" not "Smith's," "Marys" not "Mary's."

(4) When the plural of numerals is written wholly in letters no apostrophe is used; but if the figures for the numerals are used, add an apostrophe with s, as *twos, threes,* and *fours;* or 2's, 3's, and 4's. The plural of letters is written thus: "Mind your P's and Q's."

Diaeresis.—(1) The diaeresis is placed over the latter of two vowels to show that they are to be pronounced in separate syllables, as coöperate, Laocoön, preëngagement.

Letter Writing.—The art of letter writing has been mourned by many as a lost art. It is said that the letters of the present day do not compare in interest, style, and attractiveness with those of fifty years ago. The ease of travel, frequency of mails, the general rush of life, and the common use of the telephone have, no doubt, all had their effect upon the intercourse between people.

The importance of using great care in the writing of letters has in no wise diminished. Errors in spelling, grammar, choice of words, as well as clumsily constructed sentences and bad taste in the choice of materials, give just as much offense, and decide as strongly against a man, as they ever did.

Materials.—Fine paper and thick envelopes are the first requisite. Cream-white paper that folds once to go into an oblong envelope is preferred for social use. Pure white paper of fine quality, folding once across and twice the other way to fit a No. 6 or commercial envelope, is the best for business use.

Jet-black ink is the only color sanctioned by the best usage. Nothing is so trying upon both patience and eyes as a pale or a brilliant colored ink, especially when a fine pen is used.

Under no circumstances write a letter with a lead pencil. Its use is properly regarded as a discourtesy.

Do not tear a sheet of paper in halves, no matter how short your letter. This does not show economy but meanness, and it may occur in cases where it would give a wrong impression.

Writing materials are so inexpensive that one should have a plentiful supply of good material always at hand. Blotting paper, pens, ink, and paper should always be at hand and easily accessible, especially in homes where letter writing is least frequent.

Language in Letters.—Written language is always more formal and more correct than spoken language. The many slang terms, contractions such as don't, won't, etc., and colloquial expressions are not to be used in letter writing. Grammatical accuracy and the correct use of words are, if possible, to be more positively insisted upon in a letter than they are usually regarded in speaking. The structure of sentences and of paragraphs, punctuation, and the use of capitals, are of extreme importance in letter writing, and conciseness and exactness of expression are absolutely necessary. Perhaps the first essential is to see that in all cases your meaning is absolutely plain. If this can be secured in few words, then the prime requisites of a good letter will be secured. Correctness in spelling, grammar, and all of the niceties of expression will go for nothing if you do not express yourself both clearly and fully.

Young persons should be encouraged to write letters to their friends. They should be supplied with every facility for so doing. Not only should materials always be at hand when needed, but parents should suggest topics or subjects, however trivial, upon which the young may write to others. It is by practice that skill in the use of words comes, and children should not rely upon formal school exercises, perfunctorily performed, for the development of this most essential and much neglected accomplishment.

Parts of a Letter.—The parts of a letter now generally recognized are:—

(1) The Heading.
(2) The Address.
(3) The Salutation.
(4) The Body of the Letter.
(5) The Complimentary Close.
(6) The Signature.

The Heading, including the date and location, is the first point to be considered. Always date a letter exactly. In a business letter the date comes at the top of the page. In a social letter it may be reserved until the last if the writer chooses. If a reply is expected, the heading includes the full address of the writer.

The Address in a business letter is full and includes practically all that will appear upon the envelope. This, like the date, may appear either at the beginning or at the close of the letter.

The Salutation depends upon the nature of the letter, the station of the person addressed, and the degree of intimacy existing between the persons concerned. In ordinary business "Dear Sir" and "Dear Madam" are the forms almost universally employed. "Sir" and "Madam" are very formal modes of address. A woman, whether married or single, may always be addressed as "Dear Madam." One may also write to a single woman with the address "Dear Miss Wilson" with equal propriety, but not as "Dear Miss." "My dear Sir" and "My dear Madam" are regarded as being more formal or more distant than "Dear Sir" or "Dear Madam." In England the reverse is the case. In addressing a firm, "Gentlemen" is preferred to "Dear Sirs" by most writers. This form is also used in addressing firms made up of men and women. The use of capital letters in the Salutation is largely a matter of taste and we may write either "My Dear Sir" or "My dear sir" with equal propriety. The Salutation may be followed by a colon as:—

My dear sir:

or by a comma, as:—

My dear sir,

whichever one prefers.

The Body of the Letter may begin upon the same line as the salutation or, as is more frequently done, on the next line below. There are some who invariably begin a letter with excuses for not having written before. If that is needed in a letter, defer it until later on. Do not begin with the pronoun "I" if it can be avoided; and do not let that letter occur too frequently; a little care in the structure of sentences will avoid this. Give each topic a separate paragraph. Finish each topic fully before leaving it.

The Complimentary Close, like the Salutation, depends upon the persons concerned, and the nature of the letter. The most generally used are "Yours truly" and "Respectfully yours." They are what might be termed safe expressions to use. Affection, regard, and esteem will suggest other forms, such as "Sincerely yours," "Faithfully yours," "Affectionately yours," "Very cordially yours," "With kindest wishes, I remain," and many others.

These are written on the line below the last one of the body of the letter. The first word of the Complimentary Close should always be capitalized. A comma follows the last word.

The Signature, except in informal letters between intimates, should always be the full name. Many business letters are not signed by the senders, and endless trouble results from this carelessness. There is need of the fullest information as to name and address when a reply is expected. If a woman wishes to indicate that she is married she may inclose "Mrs." before her name as: (Mrs.) Ellen T. Ferguson.

Similarly a single woman may sign (Miss) Jane F. Anston.

The Superscription or Address upon the envelope is always to be clear as to the identity of the person and the locality in which he lives. Care in this regard insures more speedy delivery and often prevents disappointment. It is not now considered necessary to punctuate each line of the superscription with a comma, though it is quite permissible to do so. If commas are used there, a period must appear at the end of the lowest line. It is customary to add titles to the names of persons for whom the letter is intended. In England and in Canada the use of "Esq." is very general, when a man has no title. Sometimes "Mr." is prefixed to the name. But only one such may be used at a time. It is wrong to address a person as "Mr. Clarence F. Thomas, Esq." Write either "Mr. Clarence F. Thomas," or "Clarence F. Thomas, Esq." Where a man has gained several degrees the highest is chosen. If a man has secured both D.D. and LL.D. use both and put LL.D. last, as: James L. Adams, D.D., LL.D.

Prefix "Rev." before a clergyman's name and add abbreviations for his degree. Write before a bishop's name "Rt. Rev." for "Right Reverend" and append titles. Prefix "Hon." before the names of the Vice-President, members of the Cabinet, members of Congress, mayors of cities, judges, consuls, and other officials, and follow with any title, but never with "Esq." Never address or speak of a doctor's wife as "Mrs. Dr. Edwards," but as "Mrs. A. H. Edwards."

Examples of Formal and Familiar Correspondence.—Formal invitations and communications passing between persons not acquainted are often written in the third person throughout. Upon occasions of great formality and for large gatherings the invitation is generally engraved and printed.

AN INVITATION TO A WEDDING AT CHURCH.

Mr. and Mrs. Thomas Carter
request the honor of your presence
at the marriage of their daughter
Muriel
to
Mr. Charles Payton Tyrrell
on Thursday evening, May tenth
One thousand nine hundred twenty-eight
at half-past seven o'clock
First Baptist Church
Reading, Pennsylvania

INVITATION TO AN AT HOME FOLLOWING THE WEDDING.

Mr. and Mrs. James Ross Eaton
At Home
Thursday afternoon, January third,
One thousand nine hundred twenty-nine
from four thirty until eight o'clock
Six hundred fifty-three Euclid Avenue
Cleveland, Ohio

INVITATION TO AN AT HOME AFTER THE HONEYMOON.

Mr. and Mrs.—(bridegroom's name)
At Home
Tuesday evenings in December
from eight until ten o'clock
Six hundred fifty-three Euclid Avenue

INVITATION TO A RECEPTION AT THE HOME OF THE BRIDE'S PARENTS AFTER THE HONEYMOON.

Mrs.—(bride's mother's name)
Mrs.—(bride's name)
At Home
Wednesday, December tenth
from four until ten o'clock
Six hundred fifty-three Euclid Avenue

INVITATION TO A WEDDING AT RESIDENCE.

Mr. and Mrs. Wilson Everett
request the honor of the presence of
Mr. and Mrs. George T. Wilson
at the marriage of their daughter
Beatrice
to
Mr. Albert Percy Edmunds
on Thursday afternoon, October sixteenth
at four o'clock
Six hundred fifty-nine Fifth Avenue

FORM OF MARRIAGE ANNOUNCEMENT.

Mr. and Mrs. Wilson Everett
announce the marriage of their daughter
Beatrice
to
Mr. Albert Percy Edmunds
Thursday, October sixteenth
Six hundred fifty-nine Fifth Avenue

GENERAL NOTE OF INVITATION.

Mr. and Mrs. Thomas Jones Wilson request the pleasure of Mr. and Mrs. James Clark's company next Friday evening at eight o'clock.
Eighteenth State Street
May sixteenth.

REPLY ACCEPTING THE INVITATION

Mr. and Mrs. James Clark accept with pleasure the kind invitation of Mr. and Mrs. Thomas Jones Wilson for Friday evening.
One hundred forty-six Clifford Street
May seventeenth.

REPLY DECLINING THE INVITATION.

Mr. and Mrs. James Clark deeply regret that they cannot accept the kind invitation of Mr. and Mrs. Thomas Jones Wilson for Friday evening.
One hundred forty-six Clifford Street
May seventeenth.

INFORMAL INVITATION TO DINNER.

My dear Mr. Simpson:
Governor Anderson will dine with us on Thursday next at seven o'clock. It will give us very great pleasure if you will favor us with your company on that occasion.
Very cordially yours,
James P. Clark.

To James R. Simpson.
May 17, 1928.

ANSWER TO PRECEDING.

My dear Mr. Clark:
It will give me great pleasure to dine with you Thursday evening and meet Governor Anderson.
Very truly yours,
James R. Simpson.

To James P. Clark.
May 18, 1928.

NOTE ACCOMPANYING A WEDDING GIFT.

Miss Eva Clinton sends her kindest love and best wishes to Miss Amelia Rowan and asks that she will accept the accompanying trifle as a token of her affection and desire for her future happiness.
January Fifth, 1928.

REPLY TO THE PRECEDING.

Miss Amelia Rowan presents her compliments and sincere thanks to Miss Eva Clinton for the exquisite token of her affection and good wishes.
January Fifth, 1928.

LETTER OF CONDOLENCE.

to a friend on the death of her husband.

Rochester, New York,
November 7, 1928.

My dear Mrs. Van Arsdale:
Any word of mine will prove but poor comfort to one in such deep affliction as yours, yet I cannot refrain from offering to you my most sincere and heartfelt sympathy. My own grief at the loss of a beloved and highly valued friend teaches me how great must be your sorrow; but knowing your Christian fortitude under other circumstances, I trust that heavenly balm and consolation will be poured upon your heart. May God bless and sustain you, my dear friend.
If I can in any way be useful to you, or relieve you of any care, please call upon me.
With deepest friendship,
Yours sincerely,
Julian Suydam.

Mrs. Henry Van Arsdale.

LETTER ASKING A FAVOR.

Albany, New York,
October 19, 1928.

Dear Alma:
If you have finished reading Milton's "Paradise Lost," illustrated by Doré, will you kindly lend it to me for a few days? I wish to compare it with my new edition of the "Ancient Mariner," illustrated by the same artist.
Lovingly yours,
Sarah.

Miss Alma Bainbridge.

LETTER GRANTING A FAVOR.

Dear Sarah:
With pleasure I send the book, and hope that you will find it of value in your study of Doré.
Yours affectionately,
Alma.

October 20, 1928.
Miss Sarah Stanhope.

LETTER OF INTRODUCTION.

Boston, Massachusetts,
Dec. 11, 1928.

My dear Mr. Eliot:
Permit me to introduce the bearer, Mr. F. J. Howland, of Boston. Any attention shown him will be greatly appreciated.
Yours truly,
M. L. James.

To Mr. T. W. Elliot,
Chicago, Illinois.

REPLY TO AN ADVERTISEMENT.

864 Market Street
Galveston, Texas
January 23, 1929

Wright, Elliott and Company
1299 Monroe Street
Chicago, Illinois

Gentlemen:

Your advertisement in the Kansas City *Star* for yesterday has attracted my attention. If you are in need of a salesman to handle your brands of food products in the southern states, I think my qualifications may interest you.

Last summer, acting on the advice of my physician, I came south for a complete rest, made necessary by a railway accident. Since June I have traveled at leisure through Texas, Mississippi, Georgia, Alabama, and parts of other states, where I spent some time five years ago while on vacation. This seems a wonderful country to me, and I should like to consider locating here permanently. For this reason I seek employment such as your house seems to offer. You will find enclosed a statement of my age, health, and ideas of business, from which you may gain some information as to my fitness.

My old employers, Summers and Company, 469 Simrell Street, Kansas City, Missouri, will be glad to write you as to my success with them. Since a personal interview is much more satisfactory than mere correspondence, I suggest that you have one of your salesmen in this territory or the manager of your branch house in Austin arrange for a personal interview.

If you are interested in my qualifications, I should be glad to hear further from you, and to answer any questions you may wish to ask.

Very truly yours,
Edward Simpson, Jr.

LETTER ORDERING GOODS.

80 Grant Street
Elizabeth, New Jersey
February 10, 1928

Brokaw and Stanley
Broad Street
Philadelphia, Pennsylvania

Gentlemen:

For almost ten years, ending in June last, I was employed as a salesman by Davis and Company, large retail grocers of your city. Recently I invested my savings, and a small inheritance, in a good store in Elizabeth. Business has been so prosperous that I am now adding floor space, and wish to take advantage of buying in larger quantities from wholesale houses like yours.

Please let me know what terms you can make for both cash and credit for the bill of goods enclosed. I desire the shipment to be made by American Railway Express as soon as you are willing. As to my reliability, you may refer to my former employers and to the Second National Bank of Elizabeth, where I have an account.

Truly yours,
Stuart Newton

ACCEPTANCE OF ORDER.

159 Broad Street
Philadelphia, Pennsylvania
February 17, 1929

Stuart Newton
80 Grant Street
Elizabeth, New Jersey

Dear Mr. Newton:

We have corresponded with your references, mentioned in your letter of February 10, and find that your credit is excellent and your reputation high.

Our shipping department is, therefore, sending the goods to you requested, and we are billing them to you on our most liberal terms of 5% for cash, or three months without discount, at your option.

If you discover faults in any items of this shipment, let us have a chance to make an adjustment at once, since we value your order and we are pleased to open a new account.

Very truly yours,
Brokaw and Stanley.
By R. S. Stanley, Pres.

COMPLAINT TO AN EXPRESS COMPANY ABOUT LOSS OF GOODS.

New Haven, Conn.
December 2, 1928.

Adams Express Co.,
Hartford, Conn.

Dear Sirs: Word has been received that goods shipped by me to Hartford on the 10th ult. have not yet reached their destination. Kindly inquire into the matter, and let me know the result at your very earliest convenience.

Yours truly,
Brenton E. Hapgood.

LETTER WITH REMITTANCE.

Westfield, New Jersey
March 13, 1929

First National Bank
Somerville, New Jersey
Attention of Mr. H. J. Hixson

Gentlemen:

I am now enclosing my check for $25.65 to cover the semi-annual interest due on the note given by me to your bank last September. According to my understanding this note is to run for six months more. If I am wrong in this, or in figuring the amount of the interest now due, please inform me.

Gratefully yours,
Everett T. Huntley.

LETTER ACKNOWLEDGING REMITTANCE.

Syracuse, N. Y.,
November 28, 1928.

Mr. Everett T. Fuller.

Dear Sir: Your check for twenty-five dollars and sixty-five cents, ($25.65) in payment of interest on my note, received and credited.

Yours truly,
Oscar Blake.

LETTER REQUESTING PAYMENT.

Hope, Illinois
January 11, 1929

Mr. Samuel Poor
R. D. 3, Box 19
Hoopestown, Indiana

Dear Mr. Poor:

Last spring you appealed to us for credit on some farm implements which you said were absolutely needed that you might plant and harvest your crops this season. Though you did not comply with all the requirements usually met in cases of opening new accounts, we trusted to your sense of fairness.

Now we are obliged to make payments ourselves, and we find that your account is three months past due. Does it seem fair that you have written no explanation of your delay?

May we not hear from you at once?

Expectantly yours,
Lincoln Hardware Company.

LETTER REFUSING CREDIT.

Decatur, Illinois
January 11, 1929

Mr. Samuel Smith
Munhall, Indiana

Dear Mr. Smith:

You ask for credit on some farm machinery needed for the coming season.

We regret to say that our firm does business on a strictly cash basis, and our prices are made accordingly. In fairness to all our old customers, we feel that we must impartially hold to this plan of doing business.

Very truly yours,
Hall Hardware Company

LETTER REQUESTING RENEWAL OF NOTE.

Camden, N. J.,
November 4, 1928.

Gentlemen:

My note for two thousand dollars ($2,000) falls due on the 19th inst., and I find that it will be impossible for me to meet it. I would, therefore, ask you to renew it for ninety days, with interest, at the end of which time I shall undoubtedly be in receipt of more than sufficient funds to pay it.

Your compliance with this request I shall deeply appreciate.

Very respectfully yours,
Walter Provost.

Messrs. Adrian & Schuyler,
Philadelphia.

LETTER OF RECOMMENDATION.

Chapel Hill, North Carolina
June 29, 1928

Marsh, Treat, and Company
Raleigh, North Carolina

Gentlemen:

You request our opinion of Mr. Henry W. Fulton, who has been selling bonds for our house since April, 1926.

The best we can report of Mr. Fulton is that we should extremely regret to lose him. Yet, in justice to Mr. Fulton himself, we feel that he deserves more rapid advancement than we can offer at the present. He has always proved an alert, courteous, and effective employe.

Very truly yours,
Dow, Jones, and Coulter,
By R. S. Coulter, Secretary.

RSC-MJ

A TELEGRAM

The essential thing in writing a telegram is to make the message convey a clear, exact, and complete idea of what the sender means, in as few words as possible.

EXCUSE FOR ABSENCE FROM SCHOOL.

Dear Mr. Griffiths:

Please excuse Charles's absence from school, May sixth to ninth, on account of illness.

Very truly yours,
(Mrs.) Charles F. Brand.

GENERAL RECOMMENDATION.

Clarksburg, West Virginia,
March 16, 1929.

To Whom It May Concern:

This is to certify that the bearer of this note, Miss Gladys O'Neill, was graduated from Teachers' College, California, Pennsylvania, and has taught in the schools of this city for the past three years.

She has taught in Madison School and I have had the opportunity to observe her work closely. I can recommend her as capable of filling any position in a graded school.

Charles F. Rice,
Principal of Madison School.

TEACHER'S APPLICATION FOR POSITION.

Newtown, Pennsylvania,
January 21, 1929.

Mr. James C. Brown,
Superintendent of Schools,
Warren, Ohio.

Dear Sir:

I have been informed that there is a vacancy to be filled in the Garfield Junior High School of your city, and I should be glad to have you consider me as an applicant for the position.

In 1918 I was graduated from high school, and in 1922 completed the teachers' training course in the State Teachers' College of Indiana, Pennsylvania. The first three years after graduation I taught in the public schools of Newtown, which is my home town. The last four years I have been teaching in the East End Junior High School of Niles, Ohio.

I enclose copies of letters from the following:

Doctor T. J. Livermore of Indiana Normal School.

Doctor F. L. Mowrer, Superintendent of Schools, Newton, Pennsylvania.

Mr. O. K. Wilson, President of the Board of Education, Niles, Ohio.

I shall be pleased to come to Warren for a personal interview.

Respectfully yours,
(Miss) Irene Gordon.

Enc.

APPLICATION FOR COMMERCIAL POSITION.

622 Bancroft Street,
Zanesville, Ohio,
February 16, 1929

Messrs. F. Y. Young and Brother,
62 Liberty Street,
Pittsburgh, Pennsylvania.

Gentlemen:

I hereby apply for a position in your Sales Department which you mention in your advertisement in this morning's issue of the "Post Gazette".

I am twenty two years of age, a graduate of the Central High School of Zanesville in the class of 1926. I have also completed the regular stenographic course in the Warden Business School of your city. At present I am doing stenographic work for the H. J. Goodwin Company in this city.

My parents have moved to Pittsburgh. I am therefore anxious to secure a position in your city. I should be pleased to be granted a personal interview at your convenience.

Very truly yours,
(Miss) Irma C. Watson.

SALES LETTER

20 South LaSalle Street
Chicago, Illinois
August 13, 1927

John Purchas
Warren, Iowa

At last the ordinary business man is satisfied. No miracle has been performed. We have made no absolutely new type of breakfast food, or special brand of soap that will break your whiskers off without the use of some sort of razor, or even a typewriter that will always spell correctly.

Yet we have done something we feel you will appreciate. You may have thought it not quite possible. We have perfected and patented a new chair cushion for office and typewriter chairs that will stay put where you place it on the chair, will not become as hard as cement in an hour, and will outlast the desk chair itself.

If the enclosed circular describing the Easy Chair Pad interests you, let us have a chance to prove what we have been saying of it. Our slogan has always been,—"We refund without asking the customer to fill out a two-page blank explaining just what is wrong." You are the one to be pleased.

Yours expectantly,
Zero Manufacturing Company

MMJ:HT.
Enclosure

CONVERSATIONAL SALES LETTER.

Periodical Sales Company
Palo Alto, California
August 17, 1928

Mr. Lumber Merchant
Everywhere, U. S. A.

"What are you going to send your customers as a Christmas greeting this year? It won't be long now before Santa Claus will be coming around on his annual visit." In this manner our salesman opened a conversation in a large office recently.

"Blamed if I know," said the manager of the lumber company, "for we have tried calendars, ruling sticks, blotters, and everything else. They do no good."

"Are you certain of that?" asked our traveling man. "Why not try something different this time,—something that the office needs and will keep in sight every day of the year?"

"You are the boy to convince me that it can be done."

"Well, here is my chance right now. Have you seen the last copy of the *Retail Lumber Dealer?* Our house has arranged with the publishers to supply this monthly magazine to wholesale dealers who want to give their customers something handsome for Christmas."

"You don't mean to expect me to subscribe for this thing for a whole year for every customer? It would cost too much."

"Suppose you have been paying fifty or seventy-five cents for things which went out of sight or into the waste basket year after year. Why not pay a quarter more, get something that will please, and moreover something that will really advertise you every month of the year?"

As a result of this conversation, the salesman brought us 85 orders from one firm alone.

Let us send you further details. It will cost you nothing and may lead to greatly increased sales next year.

Very truly yours,
Periodical Sales Company
Herbert H. Halliday, Pres.

HHH-RSP
2 Enclosures

REQUEST FOR ADJUSTMENT OF LOSS

489 Chapel Street,
New Haven, Connecticut
March 1, 1928

Rapid Auto Express Company
Hartville, New York

Gentlemen:

Day before yesterday you brought several crates of furniture from New York to our warehouse in New Haven. As our workmen opened them yesterday afternoon, they found several pieces damaged or broken, and evidence of rough handling in transit. There seems to be some evidence of a collision or of some sudden jar which caused the injury.

As soon as we can estimate the exact damage, we shall send you a statement. In the meantime, if a representative of your firm wishes to examine the shipment, we shall be glad to have him come to our office.

Truly yours,
Tuttle Furniture Co.
By J. C. Eliot, Manager.

jce-ty

LETTERS OF FAMOUS PEOPLE

Abraham Lincoln's reply to a letter requesting information about the financial condition of one of his neighbors.

Springfield, Illinois,
My dear Sirs: September 17, 1858.

Yours of the 10th inst. received. I am well acquainted with Mr. X., and know his circumstances. First of all, he has a wife and baby; together they ought to be worth $50,000. Secondly, he has an office in which there are a table worth $1.50 and three chairs worth, say, $1. Last of all, there is in one corner a large rat-hole which will bear looking into.

Respectfully,
A. Lincoln.

March 3, 1863.

To Mr. James T. Fields:

I was ashamed this morning to send the expressman to your door in quest of an old umbrella, not unlike that which accompanied and consoled the exiled King of France in his flight to England. Nevertheless I did send, for it is a lineal descendant of King Cotton, and is of that particularly audacious kind that never says "Lost." In the hands of a modern sensuous poet the handle would become pearl (daughter, not mother of), and the rest would be of a "tissue from the looms of Samarcand." Finally, it is the one I keep to loan to lecturers at the Lowell Institute and the like; and, tho' very dissipated, is worth reclaiming.

Accept my apology and believe me or not,
Yours truly,
Henry W. Longfellow.

Thomas Bailey Aldrich to Professor Edward S. Morse.

My dear Morse:

It was very pleasant to receive a letter from you the other day. Perhaps I should have found it pleasanter if I had been able to decipher it. I don't think I mastered anything beyond the date, which I knew, and the signature, at which I guessed.

There is a singular and perpetual charm in a letter of yours—it never grows old, and it never loses its novelty. One can say every morning, as one looks at it, "Here 's a letter of Morse's I have n't read yet. I think I shall take another shy at it to-day, and maybe I shall be able in the course of a few years to make out what he means by those t's that look like w's and those i's that have n't any eyebrows."

Other letters are read and thrown away and forgotten, but yours are kept forever—unread. One of them will last a reasonable man a lifetime.

Phillips Brooks to his niece.

233 Clarendon Street, Boston,
My dear Gertie: March 21, 1881.

This is a picture of you and Toody and the little boy that gave you the measles. Toody is the one with the umbrella, and you are the one with your finger in your mouth. I am glad you have got done the measles. What are you going to have next? I should think you might take half of poor Tood's measles and help her through. I thank you for writing me such a beautiful letter, and I hope you will come and see me the first time you go out.

Samuel Johnson's letter on friendship written to Mrs. Thrale.

Since you have written to me with the attention and tenderness of ancient times, your letters give me a great part of the pleasure which a life of solitude admits. You will never bestow any share of your good-will on one who deserves better. *Those who have loved longest love best.* A sudden blaze of affection may by a single blast of coldness be extinguished; but that fondness which length of time has connected with many circumstances and occasions, though it may for a while be depressed by disgust or resentment, with or without a cause, is hourly revived by accidental recollection. To those who have been much together, everything heard and everything seen recalls some pleasure communicated or some benefit conferred, some petty quarrel or some slight endearment. Esteem of great powers, or amiable qualities newly discovered, may embroider a day or a week, but a friendship of twenty years is interwoven with the texture of life. A friend may be often found and lost but an *old friend* never can be found, and nature has provided that he cannot *easily* be lost.

29 De Vere Gardens, W.,
My dear Tennyson: August 5, 1889.

To-morrow is your birthday—indeed a memorable one. Let me say I associate myself with the universal pride of our country in your glory, and in its hope that for many and many a year we may have your very self among us, secure that your poetry will be a wonder and delight to all those appointed to come after. And for my own part, let me further say, I have loved you dearly. May God bless you and yours!

At no moment from first to last of my acquaintance with your works, or friendship with yourself, have I had any other feeling, expressed or kept silent, than this which an opportunity allows me to utter—that I am and ever shall be, my dear Tennyson,

Admiringly and affectionately yours,
Robert Browning.

The Earl of Chesterfield to his son.

Dear Boy: London, August 10, 1749.

Let us resume our reflections upon men, their characters, their manners; in a word, our reflections upon the World.

They may help you to form yourself and to know others. A knowledge very useful at all ages, very rare at yours; it seems as if it were nobody's business to communicate it to young men. . . . . .

There is a certain dignity of manners absolutely necessary, to make even the most valuable character either respected or respectable. Whoever is admitted or sought for, in company, upon any other account than that of his merit and manners, is never respected there, but only made use of.

. . . . . .

Abject flattery and indiscriminate assentation degrade as much as indiscriminate contradiction and noisy debate disgust. But a modest assertion of one's own opinion and a complaisant acquiescence in other people's, preserve dignity. . . . . Adieu.

Figures of Speech.—When, instead of literal terms, we employ imagery we are said to use figurative language. The forms of expression so used are called figures of speech, tropes, or images. The use of figurative language clothes the sentences in beauty and dignity; pleases us by exciting our imagination; enables us to make a larger use of our vocabulary; and aids us by a clearer and more forcible manner of expressing our thoughts. Figures should be used sparingly. A too frequent use of them palls upon the reader and causes a lack of appreciation of them.

The figures of speech most frequently used are arranged in three groups:—

Figures based on resemblance.	Simile. Metaphor. Personification. Apostrophe. Allegory.
Figures based on contrast.	Antithesis. Epigram. Irony.
Figures based on other relations.	Metonymy. Hyperbole. Climax. Interrogation. Exclamation. Vision.

Simile.—This is the comparison of two things when *like*, *as*, or a similar word is employed. Not all comparisons, however, are similes. To say "The lion is as strong as the tiger" is not to use a simile, though there is comparison and *as* is used. It is important to note that a simile expresses a likeness of one point between things that are unlike in every other point. The following are good examples of simile:—

"A fatal habit settles upon one like a vampire and sucks his blood."

How far that little candle throws its beams!
So shines a good deed in a naughty world.
—*Shakespeare, Merchant of Venice.*

Her hair drooped round her pallid cheek,
Like seaweed on a clam. —*Holmes.*

Metaphor.—When we say that one thing is another by way of comparison we call the figure a metaphor. As in the case of the simile the contrasted things must not be too nearly alike.

"All the world 's a stage."
"Spare moments are the gold-dust of time."
"Thy liquid notes that close the eye of day."

When one object is compared to two or more in the same sentence there results a mixed metaphor, which is generally ludicrous or ridiculous in its effect. Care must also be taken that a metaphor be not combined with a literal statement in the same sentence. When we say "Her cheeks bloomed with roses and health" we combine the metaphor "roses" with the literal "health." But we might correctly say "roses of health."

Personification.—When inanimate objects are treated as though they were animate, and when the lower animals are endowed with human powers and attributes, they are personified.

"The morning stars sang together."
"The angry sea."
"The wind howled."
"All day the sea-waves sobbed with sorrow."

Apostrophe.—When we address an inanimate object, or an absent or dead person, the figure is called apostrophe.

"My country, 't is of thee."
"Thou, too, sail on, O ship of state."
"O Death, where is thy sting?"

Allegory.—In some respects an allegory is a continuous metaphor. It is essential, however, that the subject be kept in the background in an allegory and not given the prominence which is required in a metaphor. Among the most famous allegories are: Bunyan's "Pilgrim's Progress"; Spenser's "Faerie Queene"; Swift's "Tale of a Tub"; and Addison's "Vision of Mirza."

Allegorical representation is very common in painting and in sculpture. Many famous large mural decorations are of allegorical subjects; among the most celebrated are the many fine examples found on the walls of the Library of Congress and in the Boston Public Library.

Parable.—A short account of a happening, either real or imaginary, intended to enforce or to teach a moral principle, is a parable. This was Christ's favorite method of teaching.

Fable.—Useful lessons taught by stories in which animals and inanimate objects are introduced as persons are called fables. This was a favorite method with classical writers, such as Æsop; and with modern writers, such as Fenelon and Gay.

Antithesis.—A forcible statement of unlikeness in which the contrast is conveyed by balanced sentences is called antithesis. It is important that the same structure of sentence be maintained and that the same parts of speech be used in the contrasting parts of the sentence.

"Deeds show what we are; words, what we would be."
"Silence is as deep as Eternity; speech is as shallow as Time."
"Fools rush in where angels fear to tread."

Epigram.—This is a condensed, pointed saying which apparently contradicts in one part of the sentence or by one word what has been said in another.

"The child is father of the man."
"When you have nothing to say, say it."

Irony.—A statement made in such a way that its very absurdity will show that the opposite meaning is intended is the figure known as irony.

Metonymy.—When the name of an object is put for another in cases where the two objects are so closely related that the one name suggests the other it is called metonymy. This is a common figure in daily speech. We say "The kettle boils" when we mean that the water in the kettle boils. The use of "hands" for men; "head" for cattle; "gray hairs" for age; "rum" for intemperance, are all familiar cases of metonymy.

Hyperbole.—This is the figure of exaggeration, not for the purpose of deceiving, but, usually, to attain force or emphasis.

"The waves are mountains high."

The modern popular use of superlatives in daily intercourse illustrates the common use of hyperbole.

Climax.—The climax is a series of statements

of which each succeeding one surpasses or eclipses the preceding one. It is necessary that the rising order be strictly observed or an anti-climax will result. Never let a weaker or less important statement follow a stronger one.

Here I stand for impeachment or trial! I dare accusation! I defy the honorable gentleman! I defy the government! I defy their whole phalanx!
—*Grattan.*

The following is an example of anticlimax:—

"The arm of the Lord is as fixed as fate, as sure as eternity, as strong as the rock of Gibraltar."

Interrogation and Exclamation.—In these figures strength or force is derived by putting a statement in the form of a question to which no answer is expected or in the exclamatory form.

Am I my brother's keeper?
Is life so dear, or peace so sweet, as to be purchased at the price of chains and slavery?
—*Patrick Henry.*

Oh what a tangled web we weave
When first we practise to deceive!
—*Scott.*

But oh, for the touch of a vanished hand,
And the sound of a voice that is still!
—*Tennyson.*

Vision.—This figure represents a past scene or event as one now passing before the eyes of the audience or the reader.

I see before me the gladiator lie;
He leans upon his hand—his manly brow
Consents to death, but conquers agony,
And his drooped head sinks gradually low.
—*Byron.*

Synecdoche.—A figure in which a part is used to represent the whole, as when "fifty sail" is used for fifty ships; or the whole is used for the part, as "The whole world knows his worth"; or the species for the genus, as the use of "cut-throat" for assassin; or the genus for the species, as "being" for man; or using the word for the material from which a thing is made instead of the name of the thing itself, as "board" for table; or that which contains for the thing contained, as "bottle" for wine, etc.

Litotes.—A moderation, modification, or softening of a statement in order to avoid censure or to increase the effect.

"I am a citizen of no mean city."

In such cases a statement is made by denying the opposite.

Parallel.—A lengthy or continued comparison of two objects, whereby the likenesses and differences are noted. Sometimes it takes the form of an expanded or extended antithesis.

Allusion.—The use of a well-known fact or event in history for explanation, description, or illustration.

Onomatopoeia.—The use of words which cause the sound to correspond to the sense. Poe's poem, *The Bells*, and Southey's description of how the waters come down at Lodore are marked examples. Many words like *rattle, crackle, boom, rumble, roll, roar, swish,* and *hiss,* are onomatopoetic words.

Structure of Sentences.—Sentences from a grammatical standpoint are classified as simple, complex, or compound.

A simple sentence contains one predicate, either simple or compound.

A compound sentence is composed of two or more principal clauses.

A complex sentence contains one principal clause and one or more subordinate clauses.

A declarative sentence is a statement.

An interrogative sentence is a question.

An imperative sentence is a command or request.

An exclamatory sentence expresses strong feeling.

A periodic sentence or a period holds the attention until the close; or it is a sentence in which the full meaning of the speaker is not made clear until the last word is spoken.

A loose sentence may be brought to a close in one or several places, and in each case make complete sense.

A balanced sentence is composed of two members of similar form. It is much used in contrast, comparison, or antithesis.

A *phrase* is a group of closely connected words not containing a subject and predicate, but which may be used as a single part of speech. According to form, phrases are prepositional, participial, and infinitive; according to use, they are adjective, adverbial, and noun.

A *clause* is a part of a sentence containing a subject and predicate. From their rank in the sentence, clauses are named principal or independent, and subordinate or dependent. Co-ordinate clauses are those of equal rank in sentences, and are joined by "and," "but," "so," etc. From their use in sentences, subordinate clauses are called noun, adverbial, and adjective. A restrictive clause limits the word which it modifies so closely that it cannot be omitted without changing the meaning intended. *That* often introduces a restrictive clause. An unrestrictive clause may be omitted or changed to a principal clause.

Analysis is the separation of a sentence into its elements. *Synthesis* is the formation of a sentence from the parts.

Idiom.—A form of expression peculiar to a particular language. "At his fingers' ends."

Ambiguity.—A word or expression capable of being understood in either of two meanings.

Euphony.—The harmony of a sentence is often destroyed by the repetition of the same word or of the same sounds. This fault is known as a lack of euphony.

"The principal *ordered* the teachers to *order* the pupils to preserve good *order.*"

The same effect is produced by the repetition of the same syllabic sounds.

"The elephant was dra*wn in an e*normous car."

Tautology.—The needless repetition of the idea in other words is known as tautology. "To return back," "To still continue," "To rearrange again," are familiar instances.

Redundancy.—The addition of statements, descriptions, or words not essential to clear expression which overload the sentence.

"Collect *together* all of the books." The idea is repeated by the unnecessary use of *together.*

Pleonasm.—The use of more words than are necessary to express the idea. It is sometimes permissible. "I saw it *with my own eyes.*"

Verbosity.—The expression of the idea by many words, however grammatical or euphonious the choice may be, is the fault called verbosity.

"He regrets that the multiplicity of his engagements precludes the possibility of taking advantage of your polite invitation."

This fault is sometimes known as that of *prolixity, circumlocution,* or *periphrasis.*

Poetry.—Poetry has been defined by Edmund Clarence Stedman as follows:—

"Poetry is rhythmical, imaginative language expressing the invention, taste, thought, passion, and insight of the human soul."

The important classes of poetry are the epic, the lyric, and the dramatic.

Epic Poetry.—An epic poem deals with the past, is consequently dependent upon memory and imagination; is narrative in character; treats usually of the life and heroic adventures of some great person; is simple in construction and generally excites deep interest. The longer and more celebrated epics are Homer's "Iliad," Homer's "Odyssey"; Vergil's "Æneid"; the Anglo-Saxon "Beowulf"; and Milton's "Paradise Lost."

Lyric Poetry.—Lyric poetry has more to do with the emotions and feelings than with events. In lyric poetry the power and personality of the poet is of far greater importance than are the subjects of which he treats. In this class are included hymns, odes, patriotic songs, love songs, nature poems, and the sonnet. Burns is probably the greatest lyric master in the English language.

The sonnet is limited in length to 14 lines and in subject to only one thought. This form originated in Italy. It was first used in England by Wyatt and Surrey. A sonnet is divided into two parts—the first eight lines called the *octave*, in which the subject is introduced and elaborated; and the last six lines, called the *sestet*, in which the subject is summed up or the conclusion drawn. The rhyming of the lines in a sonnet is very variable and much freedom is allowed. The sonnets of Shakespeare, of Milton, and of Wordsworth are most celebrated and many of them are familiar.

Dramatic Poetry.—The forms through which the English drama passed in its development are: Passion plays and Saint plays; Miracle plays; Moralities; Interludes; Comedies, and Tragedies.

Passion plays originated in Europe in the second century and were paraphrases of Biblical events. These were presented in churches with the priests as actors. In the fifth century they were strengthened by the addition of tableaux, dialogue, and very simple scenery. Plays with such characters as Daniel, Lazarus, and St. Nicholas as heroes were common in England in the twelfth century.

Miracle plays were presented in the public squares and places of cities, in the fourteenth century. They consisted of cycles which often covered from 25 to 42 important events of Biblical history. Coventry, Chester, York, and others were noted for the miracle play cycles in those days. Oberammergau in Germany is still noted for its passion plays, which vividly portray the chief events in Christ's life, and these are given by a simple village people with inadequate equipment, yet in such manner as to attract the attention of the whole world.

Moralities were plays in which the several vices and virtues were personified and allegorical representations were used in an attempt to correct abuses which had gradually crept into the miracle plays to the great scandal of the church.

Interludes were short plays given between the acts of more important plays in order to engage the attention and interest of the audience during, otherwise, long waits for dressing and stage carpentry.

Comedy was first known in England in "Ralph Roister Doister" by Nicholas Udall in 1551.

Tragedy was first presented in "Gorboduc, or Ferrex and Porrex," by Norton and Sackville.

Mixed Forms.—It is possible for one poem to combine epic, lyric, and dramatic characteristics.

A legend is a more or less mythical elaboration of some story founded upon tradition or fact. Layamon's "Brut"; Chaucer's "Canterbury Tales"; Longfellow's "Golden Legend," "Hiawatha," "Evangeline," and "King Robert of Sicily" are noted examples of this form.

An allegory, such as Spenser's "Faerie Queene," and shorter forms, as Leigh Hunt's "Abou Ben Adhem," is not only metaphorical in treatment but didactic in purpose.

The Ballad or folk-song is in some respects a combination of both epic and lyric characteristics. Old English history is a prolific field and has given to us such vigorous, dashing, and charming examples as "Chevy Chase," "Robin Hood," and "Bonny Barbara Allan."

Versification.—A verse is not to be confounded with a stanza. A verse is a line of poetry, or a combination of feet, and we speak of blank verse and of rhymed verse. A stanza is a group of verses and consists usually of either four or eight lines.

Meter is the division of a verse or line into feet. The kinds of feet most commonly used in poetry are:—

Trochee, consisting of one accented and one unaccented syllable, as bright'est, and is marked thus: — ⏑

Iambus, consisting of one unaccented and one accented syllable, as distress', and is marked thus: ⏑ —

Anapest, consisting of two unaccented and one accented syllable, and is marked thus: ⏑ ⏑ —

Dactyl, consisting of one accented and two unaccented syllables, and is marked thus: — ⏑ ⏑

Spondee, consisting of two accented syllables, and is marked thus: — —

Scansion.—This is the measuring of lines, dividing them into feet, and marking any pauses in the lines. In it we tell the kind of feet and the number of feet to a line.

One foot to the line is monometer verse.
Two feet to the line is dimeter verse.
Three feet to the line is trimeter verse.
Four feet to the line is tetrameter verse.
Five feet to the line is pentameter verse.
Six feet to the line is hexameter verse.
Seven feet to the line is heptameter verse.

In scanning a line we proceed thus:—

The cur | few tolls | the knell | of part | ing day.

The unaccented and the accented syllables are marked and it is seen that the verse consists of five iambi. Therefore the verse is said to be iambic pentameter.

Tell me | not in | mournful | numbers

is a trochaic tetrameter for it consists of four trochaic feet.

The Assyr | ian came down | like a wolf | on
the fold. |

This is anapestic tetrameter verse for it consists of four anapestic feet.

Lines which lack a syllable at the end, or which terminate in an incomplete or imperfect foot, form what is known as catalectic verse.

It was | eve, at | anchor | riding,
Stately | ships were | lulled to | rest.

The first line is trochaic tetrameter for it contains four trochees; the next line is trochaic tetrameter catalectic for it contains four trochees, the last of which is catalectic.

Caesura is a break or pause which occurs usually in the middle of a foot.

"This is the forest primeval. || The murmuring pines and the hemlocks."

There is a caesural pause after primeval. There are sometimes two such pauses in a long line.

Rhyme.—This correspondence between the sounds of words, in order to be perfect, must conform to the following rules:—

(1) The vowel sounds in the words must be the same.

Sing rhymes with ring, but not with pleasing.

(2) The consonants following the vowel must have the same sound.

(3) The consonants before the vowel should have different sounds.

(4) The accents should fall on corresponding syllables in the rhymed words.

Poetic license is a term given to a certain freedom and liberty accorded to poets in the use of meter and rhyme. In some cases a much better expression may be secured by slight variations in rhyme and meter, so perfection in these qualities is not always demanded.

Alliteration or head rhyme, as the Anglo-Saxons called the frequent recurrence of the same letter in line, was the mark of Old English rhyme. We now use the end rhyme. A moderate use of alliteration is permitted in verse. "Lightly down leaping he loosened his helmet" is a line from an Old English poem where the rhyme is secured by the oft-repeated letter "l." Among modern poets Swinburne is, perhaps, most noted for alliterative rhyming. Shelley speaks of "the beaded bubbles winking at the brim"; and Roberts of "the grackles bickering in the alder boughs."

Blank Verse.—Poetry in which the lines do not end in rhymes. It is most common in long and serious poems. The writer is not hampered in the expression of thought by a search for rhymes.

Distich or Couplet.—A verse of two lines making complete sense. Distich is also applied to an epigram of two verses.

Triplet.—Three verses or poetic lines rhyming together.

Quatrain.—A stanza of four lines rhyming alternately. The Omarian quatrain in which Fitzgerald wrote his Omar rhymes in the first, second, and fourth lines.

Rhyme-royal.—A stanza of seven ten-syllabled lines of which the first and third, the second, fourth, and fifth, and the sixth and seventh rhyme. The stanza was introduced by Chaucer.

Spenserian Stanza.—A stanza of eight iambic pentameter lines followed by an iambic hexameter. It was introduced by Edmund Spenser and has been much used by Byron and other modern poets.

Heroic Verse.—The verse in which epic or heroic poems are usually written; in English, Italian, and German it is the iambic pentameter; in French, the iambic hexameter. In Vergil's Æneid, and in Homer's works, it is the hexameter line.

Alexandrine.—A verse composed of twelve syllables; sometimes applied to the last line of a Spenserian stanza.

Vers de Société.—Sometimes called society verse. It is the lightest kind of lyrical poetry, designed for the entertainment of polite society.

Villanelle.—A form of French verse written in nineteen lines and two rhymes, arranged in five triplets and a concluding quatrain. The first and third lines of the first stanza are repeated alternately as the last line of the following triplets and also form a couplet at the close of the quatrain.

Ode.—A lyric poem suitable to be set to music; it possesses marked nobility of sentiment and dignity of style.

Strophe.—That part of a Greek chorus or dance when the chorus turns from the right to the left of the orchestra. In modern verse it is also sometimes applied to a stanza.

Antistrophe.—The return of the chorus after the strophe. When the chorus moved around the altar, the strophe was sung while moving from east to west; the antistrophe, from west to east; and the epode, or last part of the song, while all stood before the altar.

Epode.—An after song; that part of a lyric poem which follows the strophe and antistrophe. Archilocus invented a lyric poem in which a longer verse is followed by a shorter; such are the Epodes of Horace.

Meter.—The meter of hymns and psalms is sometimes designated by such terms as long meter (L. M.), short meter (S. M.).

The Long Meter, or **L. M.**, is formed of four-line stanzas of tetrameter verse.

Though long the weary way we tread,
And sorrow crown each lingering year,
No paths we shun, no darkness dread,
Our hearts still whispering, Thou art near.

The Common Meter, or **C. M.**, is formed of four-line stanzas, the first and third lines of tetrameter (four-syllabled) verse, and the second and fourth of trimeter (three-syllabled) verse.

No mortal can with him compare
Among the sons of men.

The Short Meter, or **S. M.**, is formed of four-line stanzas, the first, second, and fourth lines of trimeter (three-syllabled) verse, and the third line of tetrameter (four-syllabled) verse.

Stand up and bless the Lord,
Ye people of his choice.

The Hallelujah Meter, or **H. M.**, is formed of eight-line stanzas, of which the first four are of tetrameter (four-syllabled) verse, and the last four are of trimeter (three-syllabled) verse, though sometimes these last four are written as two lines of hexameter (six-syllabled) verse.

WORDS OFTEN INCORRECTLY USED.

A.—Do not fail to repeat the article before a word if the sense requires it: He bought a black and white horse (one horse). He bought a black and a white horse (two horses).

Use *a* before a word beginning with a consonant or an aspirated "h"; *an* before a word beginning with a vowel or a silent "h."

Above.—Good writers do not say "the *above* statement"; *foregoing* or *preceding* is preferred. *Above mentioned* and *above referred to* do not sound as well as the simpler *already* does.

Accept of.—The *of* is unnecessary; we do not accept *of* gifts; we simply accept them.

Accompany.—In speaking of things, remember that one thing is accompanied *with* another; of persons, one person is accompanied *by* another. "The rain is accompanied *with* wind." "The governor was accompanied *by* his secretary."

Accord.—Not to be used for grant or give. *Accord* is a formal word and it involves great condescension on the part of the one who bestows.

Ad.—Not a correct abbreviation for advertisement and not sanctioned by good authorities. In writing, *advt.* is the proper form. The reason why *ad.* is so commonly used is because it is so difficult to pronounce *advt.*

Adjective.—It surprises some to learn that the best usage sometimes permits the use of an adjective where an adverb might be expected: Drink *deep;* he looked *bad;* stand *erect;* that seems *strange; wide* open; *red* hot; *pale* blue.

Adopt.—Often wrongly used for decided upon. Congress *adopts* a set of rules or a resolution which some one has prepared beforehand. But when several courses of action are presented and fully discussed, it is better to say that such a measure or course was *decided upon.*

Administer.—Medicine, oaths, affairs, and governments are *administered;* blows are *dealt.*

Advent.—Not to be used instead of arrive or arrival. Reserve the use of *advent* for sacred, stately, or ceremonial occurrences.

Affect.—Means to influence in some way; *effect* means to bring about, to accomplish: "This will not *affect* me in any degree." "He failed to *effect* the reforms for which he labored so hard."

Agriculturist.—This form is to be preferred to *agriculturalist.*

Ain't.—Never use this incorrect form of I'm not. It is less an abbreviated form of have not, for which it is sometimes used. Say *am not, are not, is not,* and *have not.*

Alike.—This word does not need *both* and *just* which so often accompany it. "Both alike" or "both just alike" are not to be used; say "They were dressed alike."

All of.—The *of* is not necessary. "I have them *all*" is better than "I have *all of* them" and "Take it *all*" than "Take *all of* it."

All of them.—Instead of "All of them left at nine" say "They all left at nine."

All over.—Transpose these words to "over all" and the effect is better. "Fires are raging *over all* the country" is a much better form.

Allege.—*Say* is much to be preferred to *allege* in the sense in which it is so commonly misused. If there is no sense of criminality or fleeing from blame in the statement, do not use *allege.*

Allow.—Commonly misused for admit, think, or to be of the opinion. "He *allowed* that the price was a reasonable one" should be "He *admitted* that," etc.

All the same.—This is not so good as *nevertheless,* or *still,* for which it is sometimes used.

Almost, nearly.—Use *almost* when a thing has been going on for some time and is nearing completion; use *nearly* in speaking of something that has not been begun or did not happen. A man who has been severely injured might be *almost* killed; while one who fled unharmed from the danger might have been *nearly* killed.

Alone.—Not to be used instead of only. To do something *alone* is to do it unaided; to be the *only* one to do signifies that there were none others who did it. "I did it *alone*" means that I had no help or was unaccompanied. "I was the only one who did it" means that others did not do it.

Alternative.—Do not use *alternative* when *course* is meant. It is absurd to speak of "the only possible *alternative,*" because alternative means that a choice between two courses is open to one.

Always.—Watch this word to see if its use is really necessary. "Whenever I go to New York, I *always* go to see him" is no stronger with, than without, the word.

Among one another.—Say "*with* one another" or "*among* themselves."

And.—Not to be used instead of *to.* "Try *and* come," should be "Try *to* come." "Go *and* see him" should be "Go *to* see him."

Not to be used for *or.* "A language like the Greek *and* Latin;" there is no Greek and Latin language.

And which.—*Which* in this case is unnecessary, the *and* alone will do all that is needed.

Anniversary.—This word is applied only to yearly celebrations, as birthdays or wedding anniversaries. We do not speak of centennial *anniversaries;* we call them centennial *celebrations.*

Antecedents.—Not to be used for past history or reputation. Avoid such an expression as "His *antecedents* are bad."

Anticipate.—Not to be used in the sense of hope, or expect.

Any.—Not to be used as in the sentence "I did not sleep *any* last night."

Anyhow, anyway.—Not to be used in place of "At any rate," "In any event," "Be that as it may."

Any place.—Avoid the use of such forms as: "He wants to go *some place,*" "He will not go *any place.*" Use *somewhere* and *anywhere* instead.

Anyway and anywhere.—Never spell these with the unnecessarily added "s."

Apparent.—Not to be used for evident, obvious, or plain. "The truth of that is *apparent*" should be "The truth of that is *obvious.*"

Apt, likely.—*Apt* means endowed with some special fitness or ability; *likely* means probably. "He is *apt* to come at any time" is wrong, for it requires no mental fitness to come. Say "He is *likely*" or, better, "It is *likely* that he may come at any time."

Around, round.—Use *around* when rest is signified; *round* when motion is expressed. "The grocer is just *around* the corner." "The

boy ran *round* the corner." "He sailed *round* the world." "The bandage was tied *around* his finger."

As—as, so—as.—Use *as—as* for positive or affirmative comparison; *so—as* for negative comparison: "John is *as* tall *as* James;" "George is not *so* tall *as* Mary."

As I take it.—Better say "As I understand it," "As I see it," or "As it seems to me."

Ascend.—Do not use *up* with this word. "He ascended *up* to the top" should be "He ascended to the top."

At.—Instead of "Where have you been *at?*" say simply "Where have you been?"

At all.—This expression is usually unnecessary as it does not add to the strength of a sentence. "It does not rain *at all*" is no better than "It does not rain."

At best.—Say "at *the* best."

At that.—Avoid the use of this expression.

Audience.—Do not use when you mean spectator. An *audience* listens; *spectators* see what occurs.

Awful, awfully.—That only is awful which inspires awe. Do not use these words in any other sense. They are among the words most frequently used in an incorrect way.

Back.—Often wrongly used for *ago*. Do not say "three weeks *back*" or "a week *back*." Say *ago*.

Bad.—Do not say *bad* accident for *serious* accident; or a *bad* pain for a *severe* pain.

Bad grammar.—Some claim that this expression is false syntax; that if it is grammar it cannot be bad. But the Standard Dictionary quotes it as an allowable expression.

Badly.—Not to be used for greatly, exceedingly, or very much. "That rug needs to be beaten *badly*" is an amusing blunder. "I wanted that *badly*" is an expression to be avoided.

Balance.—Do not say "the *balance* of the day was spent at golf"; say "the *remainder* of the day." Leave balance to the bookkeeper or to the accountant, who regards a sum necessary to balance an account as the *balance*.

Beastly.—This term, so commonly used as expressive of disappointment, disgust, or contempt, should not find a place in your vocabulary.

Beautiful.—Not to be used where *nice* is meant. "*Beautiful* bread" should be "*nice* bread."

Because why.—Do not join these words. Either alone may be made to do the work you require of it.

Been to.—Do not say "I have been *to* New York" for "I have been *at* (or *in*) New York." You cannot *be to* a place.

Beginners.—Never say "a new beginner," nor "a new beginning." The *new* is unnecessary.

Behind.—Often unnecessarily used with left. "I left him *behind* in St. Louis" should be "I left him in St. Louis."

Between.—This is a preposition and requires the objective case after it. Never say: "Between you and *I*," because *I* is the nominative. Say "Between you and *me*."

Blame on.—Say "blame *for*" or "lay the blame *upon*"; but do not "blame anything *on* any one."

Both alike.—Leave out *both*.

Both of them.—Instead of "Both of them are here" say "They are both here."

Bound.—A very common incorrect form of speech, as "I am *bound* to go." One is bound only when some obligation or constraining or compelling force binds one. Say "*determined* to go" or "*resolved* to go."

Bran-new.—The word is *brand-new*.

Bred and born.—Transpose these and say "born and bred."

But.—Often incorrectly used for *than* after *other*. Instead of "It is none other *but*" say "It is none other *than*."

But what.—Do not use when you mean *but that*. "I do not know *but what* I shall" is better written "I think I may." "I know nothing *but what* you told me" is correct.

Calculate.—Be sure that some mathematical process is concerned when you use this word. Do not "*calculate* that it will rain" unless you have arrived at the conclusion by a meteorological calculation.

Call.—Not to be used for occasion. "He had no *call* to be angry with me" should be "He had no *occasion* to be angry with me."

Cherubim.—Remember that *cherubim* is the Hebrew plural form of cherub. Then you will never speak of "*a* cherubim."

Choose.—Do not say "Because I don't *choose* to." Say, rather, "Because I would rather not" or "Because I don't care to do so" (or whatever verb is required).

Clothes.—Do not say that your clothes have grown too small for you, when it is you who have grown too large for your clothes.

Combine.—Do not use together with this word. "Combine *together*" is unnecessary repetition.

Complected.—Better use *complexioned*.

Couple.—When you use this word be sure that the two objects are really united by some bond or tie. Do not use it when you mean two.

Credible.—This word, which means worthy of belief, is not to be confounded with *creditable*, which means redounding to one's credit.

Crush out.—The *out* is usually unnecessary in this expression, for crush means to force out of shape. We "*crush* a rebellion."

Dangerous.—Do not use *dangerous* for in danger or dangerously, as "He is ill, but not *dangerous*." His life may be in danger, but he is far from being *dangerous*.

Deceive.—One does not deceive another unless he actually produces a false impression. It is absurd to say "He is deceiving me," because if he is deceiving you, you do not know it; if you do know it, he is not deceiving you. "He is trying to deceive me," or "He thinks he is deceiving me," is what is meant.

Demean.—Often wrongly used for bemean. Demean is to behave one's self; bemean is to disgrace one's self.

Depreciate.—Instead of "The property has *depreciated in value*" say "The property has *depreciated*." Depreciate means to fall in value.

Die.—Put such expressions as "I thought I should *die*" and "I nearly *died* laughing at him" out of your vocabulary.

Different.—Followed by *from*, never by *than*.

Differ from and with.—One thing differs *from* another in appearance, size, etc.; one person differs *with* another in opinion.

Direct.—Do not use this word for address. You do not *direct* a letter; you *address* it when

you write an address upon the envelope. You do, however, *direct* a person how to reach a place.

Disappointed.—Never be "*agreeably disappointed*," rather be "*agreeably surprised.*"

Discommode.—Often used for incommode. "I fear I shall *discommode* you" should be "I fear I shall *incommode* you."

Disremember.—Say *forget.*

Done.—See that there is some other verb such as have, had, is, or was, with *done* when you use it. "You *done* it" should be "You *did* it."

Don't.—This is a contraction for do not but not for does not. Use *does n't* in the latter case. Such forms are permissible in conversation, but in writing the full form should be used.

Don't think, don't believe.—Instead of "I don't think it will rain" say "I think it will not rain."

Doubt but that.—Leave *but* out and say "I do not doubt that such is the case."

Drunk.—Drunk is the past participle; drank is the past tense. "They *drank* his health," "His health was *drunk.*"

Dutch.—Do not say *Dutch* when you mean German. *Dutch* pertains to Holland.

Each.—Always takes a verb in the singular. "Each *comes* in *his* turn and *receives* the amount due for *his* work."

Each other.—See that only two are concerned when this expression is used. If more than two are concerned use *one another.*

Eat.—Do not use this form for eaten. Instead of "The candy is all *eat* up" say "The candy is all *eaten.*"

Either.—Not to be used when you mean each. "On *either* side of the street" should be "On *each* side of the street," when both sides are meant. "On *either* side" is right when only one side is meant and when it does not matter which side.

Elder, Older.—Use *elder* and *eldest* in speaking of persons and usually of members of the same family, as the "*elder* brother"; *older* and *oldest* are applied to both persons and things.

Elegant.—Not to be used in such expressions as "*elegant* time," "an *elegant* view."

Else.—Be sure to follow *else* with *than*, not with *but.* Say "It was no one *else than* John."

Else.—Not necessary in the sentence "Nobody *else* but me." Say "Nobody but me."

Else.—By custom when *else* joined to anybody, somebody, any one, or some one, forms a possessive the *'s* is added to else, as *somebody else's.* But there are many who prefer to write *somebody's else, some one's else.*

Endorse, indorse.—Do not say "*endorse* upon the back of" for *endorse* means to write upon the back of. *Indorse* is the spelling generally preferred in business.

Enjoy.—No one really *enjoys* poor health.

Enough.—Instead of "A large enough room" say "A room large enough."

Equally.—Not necessary in the expression, "It is *equally* of the same value." Say "It is of the same value" or "They are of equal value."

Equally as well.—The *as* is not necessary, so write "*equally well.*"

Equanimity.—Do not say "*equanimity* of mind." It is useless repetition.

Ever.—Not to be used with the phrase "As soon as"; this of itself is sufficient.

Every.—Be careful to see that a verb of the singular number follows. "*Every* passenger *was* injured."

Every confidence.—Better say "*implicit* confidence." *Every* refers to a number of things, which confidence is not.

Every now and then.—Better use "occasionally."

Except.—Not to be used for unless, as "*Except* I am delayed." Say "*Unless* I am delayed."

Excessively.—Use very or exceedingly rather than *excessively.* "It is *exceedingly* cold" is better than "It is *excessively* cold."

Executed.—Do not use *executed* for put to death. Sentences are *executed;* criminals are *put to death.*

Expect.—Do not say "I *expect* it is" or "I *expect* it was." Use suppose, or think, or believe, or suspect. *Expect* refers only to the future.

Experience.—It is better to say "I *feel* great pleasure," not "I *experience* great pleasure."

Farther, further. Farther is the comparative of far and measures distance, as "How much *farther* have we to go?" Further measures quantity or degree, as "You should say nothing *further* upon that subject."

Feel bad, feel badly.—One feels *bad* when one's health is not good; one feels *badly* when there is something wrong with one's sense of touch.

Few.—There is a difference between *few* and *a few.* "*Few* persons like him" means that he is generally disliked. "*A few* persons like him" means that there are some who do like him.

Few, little.—Few measures number; little measures quantity or size. "I have *fewer* (not *less*) books than you;" "We all have *less* money than we think we need."

Find.—Not to be used for provide or furnish. "I *find* him in clothes" should be "I *furnish* (or *provide*) him with clothes."

First.—Say "first two," "first five," instead of "two first," "five first." Only one can be first; the next is second.

First-rate.—Use this as an adjective; not as an adverb. "You did that *first-rate*" is not correct.

Fix.—Be sure that you intend to convey the idea of fastening firmly when you use *fix.* It is not the same as repair, remedy, arrange, or set up.

For.—This word is often added to a sentence when not needed. "He knows more than you think *for*" would read better without *for.*

For to.—Not to be used where *to* alone is sufficient. "I went *for to* see him" should be "I went *to* see him."

From.—Often used where of is required. "He died *from* consumption" should be "He died *of* consumption." It is, however, quite right to use "from the effects of."

-ful.—This termination often causes trouble in forming plurals. The plural of *teaspoonful* is *teaspoonfuls;* of *cupful, cupfuls.*

Froze.—Do not use *froze* for frozen. Instead of "The brook is all *froze* over" say "*frozen* over."

Funny.—Often used where strange, or queer, or unusual is meant. One should not say "That 's *funny*" when the element of fun is entirely lacking.

Gent.—This word should never be used. It is not tolerated in refined writing or speaking.

Going to, just going to.—Use *about to* instead. "I am *about to* go."

Got.—Strictly this word means having possession of a thing after an effort to secure it. It does not signify mere possession. Instead of "I have n't *got* a pencil" say "I have no pencil."

Gotten.—While many good writers employ this form, *got* is to be preferred. Instead of "When he had gotten over his illness" say "When he had recovered from his illness."

Graduate.—We can say either "He was graduated from the university" or "He graduated from the university." Formerly it was held that "was graduated" only was correct; now both forms are used.

Gratis.—Not necessary in such expressions as "Given away *gratis*." Gratis means without charge or cost; given away means that also.

Grow small.—One cannot grow and become small at the same time. Use decrease or diminish.

Guess.—Be careful that this word is not used for think. Do not say "I *guess* so" when you mean "I think so."

Had better, had rather.—These forms are used by some of our best writers, though *might* or *would better* and *would rather* are preferable.

Had have.—The form "had have" is incorrect, for there is no such form of the verb. In "If I *had have* known it, I should have gone," the *have* is unnecessary; leave it out. Sometimes in pronunciation the *have* sounds like of—"If I had of heard it," etc.

Had ought.—*Had*, or any other form of the verb to have, cannot correctly be used as an auxiliary with ought. Use should or ought not. "He should not have done it" or "He *ought* not to have done it."

Hain't.—There is no such contraction for "have not" or "has not." Its use is a vulgarism.

Handful.—The plural is *handfuls*, not *handsful*. We may, however, speak of one having "both hands full."

Hang.—This verb has two forms of the past participle, *hanged* and *hung*. *Hanged* is used in speaking of a person who has been put to death in that way. "He was *hanged* for it," not "He was *hung* for it."

Hard, Hardly.—*Hardly* means scarcely and is not to be used for the adverb *hard*. "He struck the drum *hard*" (not *hardly*).

Have.—This word often intrudes in an incorrect way. "I meant to *have* written to you" should be "I meant to write to you." "I intended to *have* gone" should be "I intended to go." "I should like to *have* gone" should be "I should have liked to go."

Hence, Thence, Whence.—As these words mean from here, from there, and from where, it is wrong to say *from hence, from thence*, or *from whence*.

How?—Not to be used for What? or for "What did you say?"

However.—The use of this form for *how* and *ever* combined is a common error, as "*However* did you manage it?" for "How did you possibly manage it?" Nor should the word be used in the sense of "at any rate," "under all circumstances." The word is properly an adverb.

I am thinking.—"I think" is preferable.

If I was him.—This should be "If I were he." The verb *to be* takes the same case after as before it, and the subjunctive form *were* is required because there is no possibility of your being he.

Immigrant and Emigrant.—These are often confounded in use. An immigrant is one who comes *into* a country; an emigrant goes *out* of a country. A German leaving Hamburg for New York is an emigrant from Germany and an immigrant to the United States when he reaches New York.

Imminent.—Do not say eminent when *imminent* is meant. "He is in *imminent* (not eminent) danger."

In.—Often used for into. Instead of "Put your knife *in* your pocket" say "Put your knife *into* your pocket."

In case.—It is better to say "If I go" rather than "In *case* I go."

In so far as.—The *in* is not necessary. "So far as I know" is the correct form.

In spite of.—It is better to use *despite* or *notwithstanding*.

In the street.—This form is preferred to *on the street*. "He lives *in* State Street" is better than "*on* State Street."

Index.—This word has two plural forms: *indexes* when parts of books are meant; *indices* with reference to exponents of numbers.

Is that so?—This and similar expressions of surprise imply some doubt or incredulity and are not complimentary to the person to whom they are addressed.

Kind of.—Do not use this phrase for "somewhat" or "rather." It is correctly used in "What kind of man is he?" but do not say "What kind of *a* man is he?" The term "kinder" for "kind of" is inelegant.

Lady.—This term is much abused. When distinguishing the sexes say "woman" and "man." The term "woman" is never uncomplimentary, as many persons think. The combination of "saleslady" is wrong for, clearly, the opposite of "salesman" is "saleswoman."

Last and Latter.—When comparing or referring to two use *latter* instead of *last*. Generally avoid the use of former and latter in writing if you can, for the eye or memory must go back to the terms previously referred to in order to see which one is meant. Say, also, "the last three," "the last four," and not "the three last."

Lay and Lie.—These verbs are frequently confounded. The confusion arises from the fact that lay is the present tense of the verb to lay, and is also the past tense of the verb to lie. Present, *lay*, to put down or to cause to lie down; imperfect, *laid;* past participle, *laid*. Present, *lie*, to rest; imperfect, *lay;* past participle, *lain*. *Lay* in the present tense requires an object after it. *Lay* in the past tense does not require an object after it. In the expression "Now I lay me down to sleep" we have a poetic form of "Now I lie down to sleep." Here the form of the verb is reflexive.

Least.—"Of two evils choose the *least*" is incorrect. Say instead, "Of two evils choose the *less*."

Leave.—This verb is often used where let is meant. "*Leave* me go," "*Leave* me alone," should be "*Let* me go" and "*Let* me alone."

Lengthways, Sideways, Endways.—Preferable forms are *lengthwise*, *sidewise*, and *endwise*.

Let you and I.—This should be "Let you and *me*." Let requires the objective case after it.

Liable, Likely.—Liable means "having a tendency"; likely suggests "very probable." Do not, then, say "It is liable to storm" or "He is liable to come." Use "likely" in these sentences.

Lit.—Not to be used for lighted. Instead of "He *lit* the gas" say "He *lighted* the gas." Nor for alighted. Instead of "He *lit* on his feet" say "He *alighted* on his feet."

Little or nothing.—Instead of "They know *little or nothing* about it" say "They know *little, if anything*, about it."

Miss.—The plural is *Misses*. Instead of "the Miss Smiths" say "the Misses Smith."

Mistake.—Do not say "I took you for another person." Say "I mistook you for another person."

Mistaken.—The common form "If I am not mistaken" should be "If I mistake not." A person may be mistaken for another.

Mutually.—Not to be used with "each other." Instead of "They mutually hated each other" say "They hated each other."

Myself.—Only to be used when emphasis is required, as "I did it *myself*," meaning that I was unaided or had no associates. Avoid its use in such sentences as "My son and *myself* were there."

Near.—Not to be used for nearly. "It was not *near* so hard as I expected" should be "It was not *nearly* so hard as I feared."

Never.—Do not use *never* for not. "I *never* did it" should be "I did not do it."

Nicely.—Not to be used for well or very well. "I am getting along *nicely* now" would be stronger if well or very well were used.

No.—Used wrongly for not in such sentences as "Whether I go or *no*," "Whether he is there or *no*." Use *not* in such cases.

Nothing like.—Instead of "It is *nothing like as* good as mine" say "It is *not nearly so* good as mine."

Noways.—Incorrectly used for nowise. Say "He was nowise to blame."

Numerous.—Avoid the expression "numerous friends" and say "many friends."

Of all.—Not necessary in such expressions as "the first of all," "the last of all." "The first" and "the last" are quite as expressive.

Off.—Often incorrectly used for from. Instead of "He jumped *off* the roof" say "He jumped *from* the roof." It is even worse when followed by of, as "He jumped *off of* the roof."

On.—Often incorrectly used for to. Instead of "The box fell *on* the floor" say "The box fell *to* the floor."

One.—When the pronoun "one" is used in a sentence, see that it is not changed to "he" or "they." Keep it all the way through. Do not say "One can do as he likes with his own," but "One can do as one likes with one's own."

One.—Not to be joined to "other" or "another." "The other one" and "another one" should be simply "the other" and "another."

One another.—Often used for "each other." "They loved *one another*" should be "They loved *each other*." Though we hear "Little children, love one another."

Only.—Be careful to place this word as close as possible to the word which you intend it to modify. If you say "I only wrote to him a week ago," you mean that you wrote and did nothing else; but "I wrote to him only a week ago" means that it is only a week since you wrote to him. "I wrote only to him a week ago" means that you did not write to any one else.

Opposite.—Should be followed by to in such sentences as "I live opposite to the hotel."

Other.—This word is frequently omitted when the sense demands its use. It finds a place in the sentence "James is more studious than any *other* boy in his class," because James is one of the boys in the class and he is not more studious than himself.

Ought.—Not to be used for aught. Instead of "For *ought* I know," write "For *aught* I know."

Over.—Should not be used for across. "I am going *over* the bridge" should be "I am going *across* the bridge," unless one means that one is going over the side of the bridge into the water.

Own up.—Not so good as confess or acknowledge.

Pair.—"A pair of new shoes," not "A new pair of shoes," for the shoes are new.

Pants.—This word should find no place in the vocabulary of any person of refinement. Say trousers.

Partake.—You cannot *partake* of food by yourself; it must be a share of that which is enjoyed by several. Eat is a much better word to use.

Party.—Not to be used for person. Do not say "I met a party on the train" unless you mean that you met a party of several persons. "A certain party" is also wrong when you mean some person whose name you do not care to mention.

Pellmell.—Never to be applied to one person, but only to a confused crowd. "He ran pellmell down the street" should be "He ran excitedly down the street."

Per.—Be careful to use this only with Latin words. It is quite right to say "per cent.," "per diem," "per capita," or "per annum"; but never "per day," "per week," or "per year." Say "so much *a* day." In signing for another write "by" not "per."

Perfect.—Avoid such expressions as "A perfect lady," or "A perfect gentleman." Nor does perfect admit of degrees of comparison. Do not say "most perfect."

Pled.—Not to be used for pleaded. Say "He *pleaded* for mercy," "He *pleaded* for his life," "He *pleaded* in his behalf."

Post.—Not to be used for inform. Do not say "I am not very well *posted*."

Prejudice.—Never to be used in a good or favorable sense. You are not *prejudiced* in a person's favor; you are *prepossessed* in his favor. You are invariably prejudiced against him.

Presume.—Not to be used for think or believe. "I *presume* that is correct" should be "I *think* (or *believe*) that is correct."

Pretend.—Not to be used for profess or claim. Instead of "I *pretend* to know something about law" say "I *profess* to know something about law."

Preventative.—Wrongly used for preventive. Do not speak of a "*preventative* treatment of disease."

Promise.—Do not say "to promise faithfully." One may promise to do something faithfully; but one cannot promise faithfully to do it.

Propose.—Often incorrectly used for purpose. Instead of "I *propose* to go home to-morrow" say "I *purpose* to go home to-morrow."

Providing.—Not to be used for provided. Instead of "We shall go, *providing* the day is fine" say "——*provided* the day is fine."

Pure and Unadulterated.—An unnecessary repetition. That which is pure is, of course, unadulterated.

Quantity.—Wrongly used for number. Do not say "a great *quantity* of people" for "a great *number* of people" or "a great *many* people."

Quite.—Not to be used before a noun. Do not say "He is *quite* an orator."

Raise.—Not to be used for rear or bring up. Cattle are reared, or raised; children are brought up, or reared; potatoes are grown, or raised; one's rent is increased, not raised.

Real.—Not to be used for very. Avoid such expressions as "real sorry," "real well," "real glad."

Restore.—Do not say "Restore it *back* to me." Restore means to give back, and the sentence is as though one said "Give it back back to me."

Reverend.—In speaking of a clergyman always say "*The* Reverend Thomas Brown," not "Reverend Thomas Brown."

Saw.—Do not say "I *never saw* anything like this before." The proper form is "I *have never seen* anything like this." It is correct, however, to say "I never saw anything like that when I was there."

Says I.—Say "I said."

Seldom or ever.—Omit "or ever." It is not necessary. "I seldom see him" is correct.

Set, Sit.—The farmer *sets* a hen; but the hen *sits*. So we should speak of a *sitting* hen. We *sit* up late at night. We *sit* down on chairs. We *set* figures down in our books. We are able to *sit* up after an illness.

Shall have.—Do not say "I shall have pleasure in accepting your kind proposal." Say "I have much pleasure."

Shall, Will.—These forms of the future tense are very frequently interchanged and wrongly used. There are two futures: (1) The simple future, which denotes only the futurity of an event. In it we use *shall* in the first person and *will* in the second and third. *Simple Future.*—Singular: First person, I shall go; second person, Thou wilt go or You will go; third person, He will go. Plural: First person, We shall go; second person, Ye or you will go; third person, They will go. (2) The determinate future, which denotes an expression of the will or a determination that an event must occur in the future. In it we use *will* in the first person and *shall* in the second and third. *Determinate Future.*—Singular: First person, I will go; second person, Thou shalt go or You shall go; third person, He shall go. Plural: First person, We will go; second person, Ye or you shall go; third person, They shall go. If one remembers that the form *will* means a willingness or the performance of one's own free will, it will be seen that since one can will only for one's self and not for another, *will* must be used only in the first person of the determinate future. "I will go" denotes although there are many obstacles to prevent me, yet I have determined to go. "You shall go" denotes that although you object to going, I am going to see to it that you do go. The same is true of "He (or they) shall go." In the simple future "I shall go" denotes that my going is a matter of no determination or of overcoming any objections or obstacles, but is a natural happening in the future. "You will go," "He will go," "They will go" denote a perfect willingness upon the part of the respective agents and the absence of any force or compulsion to be exercised by the speaker. *Shall* is the proper form to be used in the first person when questions are asked. "Shall I come to-morrow?" is the correct form. "Will I come to-morrow?" means "Am I willing to come to-morrow?" and no one knows that so well as the speaker. In the second and third persons use *will* in the interrogative form. "Will you come to-morrow?" "Will they come to-morrow?" In the form "Shall he come to-morrow?" the speaker asks "Is it your determination that he must come to-morrow?" and, of course, there are occasions when that form might be used correctly.

Should, Would.—The form often seen in letter writing "I should be very glad if you would send me the papers" would be better "I shall be very glad if you will send me the papers."

Sick, Ill.—In England *sick* is restricted to a form of illness attended by nausea or vomiting. This distinction is not rigidly observed in the United States.

Slow.—Often used for slowly. Instead of "The boat is traveling *slow*," say *slowly*.

Smell of.—The *of* is unnecessary in such sentences as "I saw the dog smell of his master's coat."

Some.—Not to be used before numerals. Instead of "I met him *some* six years ago" say "I met him *about* six years ago."

Some.—Not to be used for somewhat. Do not say "He is some better to-day" for "He is rather (or slightly or somewhat) better to-day."

Somewhere.—Use this word in place of *somewheres* or *some place*.

Splendid.—Not to be used to express mere excellence. Avoid such expressions as "perfectly splendid," "a splendid time," and "a splendid story."

Standpoint.—Frequently used where point of view would be much better.

Stationary, Stationery.—*Stationary* means remaining in one place or in one position. *Stationery* is writing material of all kinds.

Statu Quo.—Not to be used for *status quo*. *In statu quo* is correct.

Stop.—Wrongly used for stay. Instead of "I am *stopping* with a friend" say "I am *staying* with a friend."

Stricken, Struck.—While *stricken* is used in cases where misfortune is expressed, as "He was *stricken* with apoplexy," we also find more freedom in its use in the United States than in England. It is not unusual in this country to hear a motion in Congress "that all after the first paragraph be *stricken* out."

Such.—Not to be used for so, as "I had never felt *such* a severe pain," which should be "I had never felt *so* severe a pain."

Surplus.—Do not say "A surplus over and above," for a surplus is over and above.

Suspicioned.—Not to be used for suspected.

Than me.—Frequently used for *than I*. Instead of "He is stronger *than me*" say "He is stronger *than I*."

That.—Not to be used for so. Instead of "He was *that* independent that he refused my offer" say "He was *so* independent."

That, Who.—(1) "I saw the expressman, *who* brought my trunk," means "I saw the expressman, *and he* brought my trunk." (2) "I saw the expressman *that* brought my trunk" points out a particular expressman, viz., the one that brought my trunk.

That 's him.—Should be "That 's *he*."

Them.—Do not use *them* for *those*. Instead of "Give me some of *them* pears," say "Give me some of *those* pears."

Then.—Not to be used in such expressions as "The then secretary," "The then cabinet." Say "The secretary at that time," "The cabinet of that time."

Thence.—Remember not to use from with this word. *Thence* means from that place. "He departed *thence* at noon."

There.—Do not use this word with that. "That there house" should be "that house." "That there" and "this here" are common errors to be avoided.

There 's.—Do not use this form for there are. "*There 's* twenty" should be "There are twenty."

These kind, Those sort.—Remember that "kind" and "sort" are singular nouns and require "this" and "that," not "these" and "those."

Think.—Say "I think not" instead of "I don't think so." Say what you do think, rather than what you do not think.

Think for.—*For* is unnecessary. "He hears more than you *think for*" should be "He hears more than you think he does."

Thinks I.—Say "I thought."

Through.—Inelegant in such expressions as "getting through" with a speech or with a meal.

To.—Avoid the use of this word for *at* after the verb to be in such expressions as "He was *to* home when I called," "He is not *to* home," "He was *to* school." Also in "I saw him *to* meeting Sunday." Use *at* in all such cases.

To let.—The proper form is "To be let." A landlord wishes *to let* his house; but the house is *to be let*.

To-morrow.—There has been much argument over the expressions "To-morrow *is* Tuesday" and "To-morrow *will be* Tuesday." Both forms are regarded as correct.

Try.—Not to be used in speaking of an experiment. We do not *try* an experiment; we *make* it.

Try and.—Instead of "Try *and* come," say "Try *to* come."

Unbeknown.—Not to be used for *unknown*.

Unique.—While we may say a thing is quite unique, we cannot say that it is very unique. Unique means "the only one of its kind."

Universally.—Not to be used in the sense of "generally." Instead of the expression "universally regretted" or "universally beloved" say "generally regretted" or "generally beloved."

Unmistakable.—Be careful not to lose sight of the fact that *un* means not. You will not, then, say "He spoke in *no* unmistakable terms," for "no unmistakable" means "mistakable."

Up.—Not necessary after the verb *to rise*. Instead of "He rose up from his chair," say "He rose from his chair."

Use.—There are many incorrect and inelegant forms of this verb. Avoid such as "I use to" for "I used to"; "Did n't you use to?" "You use n't to," and other uncouth expressions.

Various.—Often used for several. Instead of "Illinois is the greatest of the various states mentioned," say "of the several states mentioned."

Very.—Need not be used with such superlatives as best and worst. "The very best" is no better than "the best."

Vest.—Waistcoat is the better term.

Veterans.—Do not say "old veterans." A veteran is one who has been long in service. It is correct to say "aged veterans."

Vicinity.—Not to be used when "neighborhood" is intended.

Wa'n't.—Not to be used as a contraction for was not or were not.

Want, Need.—*Want* expresses both the desire for a thing and also the idea that the thing is lacking; *need* expresses the necessity of having a thing. A rich man may want a position which he does not really need.

Want of.—Instead of saying "What does he *want of* a boat?" say "For what purpose does he *want* a boat?" or, still better, "Why does he *need* a boat?"

Ways.—Often incorrectly used for way. Instead of "His house is a long *ways* from here," say "His house is a long *way* from here."

Well.—Not needed in such forms as "Well, I don't know." It also marks indecision and gives a bad impression.

What for.—Do not say "What did you do it for?" better, "Why did you do it?"

Whatsomever.—Never use this form for *whatsoever*. *Whatever* is better than either.

Where.—Often incorrectly followed by to. "Where did he go to?" should be "Where did he go?"

Who.—Many persons never use *whom* but always *who*. Instead of "Who are you speaking to?" say "To whom are you speaking?" Instead of "Who did you give it to?" say "To whom did you give it?"

Whole.—"The whole of" is not so good as "all." Do not say "The whole of the guests were present," say "All the guests were present."

Worse.—Not to be used when *more* is intended. You do not dislike one thing *worse* than another; you dislike it *more* than another.

A DICTIONARY OF ENGLISH SYNONYMS.

Comprising words related in meaning, arranged in groups, with examples of their proper use and notes of their difference. A complete alphabetical index of these words is to be found at the end of the table.

A knowledge of synonyms brings out the finer and nicer shades of the meanings of words, makes our meaning clearer, and secures a good literary style. There are in English a great many pairs of words which have come into the language, one through the gateway of the Anglo-Saxon, the other through the French, and these are almost perfect synonyms. These are curiously repeated in the liturgy of the English church, and include "acknowledge" and "confess," "dissemble" and "cloke," and "will" and "testament." Yet in the growth of the language these words have had other distinguishing shades of meaning attached to them, until it may almost be positively stated that there are no two words in the English language that are perfectly synonymous. The word *synonyms* has come to mean pairs of words or groups of words which are similar in meaning. A table of synonyms is of great service to young writers, who are often at a loss to find the word which will exactly express the shade of meaning which is desired. Very often the required word may be found by turning to a word which expresses the idea, and looking through the list of synonyms under that head.

1. **ABANDON,** abdicate, abjure, cast off, cease, cede, depart from, desert, discontinue, forego, forsake, forswear, give up, leave, quit, recant, relinquish, renounce, repudiate, resign, retire from, retract, surrender, vacate, and withdraw from. A throne is abdicated; religion, opinion, or allegiance is abjured; territory is ceded; a wife deserts her husband; a cowardly crew deserts a ship, while the passengers abandon it; a pleasure is foregone; an office is resigned; a statement is retracted; religion is renounced; a claim is repudiated; premises are vacated.

2. **ABANDONED** (adjective), bad, corrupt, depraved, detestable, dissolute, forlorn, forsaken, incorrigible, irreclaimable, odious, profligate, reprobate, shameless, unprincipled, vicious, wicked. An abandoned person has given himself up wholly to unrestrained evil and does not care; the reprobate is beyond hope; the corrupt and vicious may regard public opinion; the dissolute and profligate may reform.

3. **ABASE,** bring low, cast down, debase, degrade, depress, disgrace, humble, humiliate, lower, reduce, sink. Abase is to lower in station or in reputation; debase is to lessen the character or quality; an insult humiliates; a sense of inferiority or of unworthiness humbles; punishment disgraces; an officer is degraded in rank or reduced; a vice is degrading; misfortune may abase, but cannot disgrace.

4. **ABASH,** bewilder, confound, confuse, daunt, discompose, disconcert, dishearten, embarrass, humble, humiliate, mortify, overawe, shame. A perplexity may confuse; a defeat may confound; an accident may discompose; a failure of memory may disconcert an actor; losing one's way may bewilder one; a rude child may mortify a parent; soldiers overawe a mob; an officer's weapon daunts a criminal, exposure shames him; a Christian humbles himself before God; a sense of shame humiliates.

5. **ABATE,** decline, decrease, diminish, ebb, lessen, lower, mitigate, moderate, reduce, subside. Pain, fever, or a storm abates; offenses or misfortunes are mitigated; stocks or prices decline; a flood subsides; a tide ebbs; interest is lowered; weather moderates; population decreases.

6. **ABBREVIATE,** abridge, compress, condense, contract, curtail, cut down, epitomize, prune, reduce, shorten. A word or a phrase is abbreviated or contracted; a book is abridged; air is compressed; water vapor or gas is condensed; expenses are curtailed; wages are cut down; a larger work is epitomized; bushes are pruned; hours are shortened.

7. **ABET,** advocate, aid, assist, countenance, embolden, encourage, incite, instigate, promote, sanction, support, uphold. A crime is abetted; a reform is advocated; the poor are aided; the weak are assisted; men are incited to a riot; a crime is instigated; civil authorities are upheld; a course may be sanctioned.

8. **ABHOR,** abominate, despise, detest, dislike, hate, loathe, nauseate, scorn, shun. Abhor implies a starting back in horror and is the strongest of the series; detest implies both indignation and contempt; loathe suggests disgust; a traitor is abhorred; a coward is despised; a liar is detested; tyranny is hated; a flatterer is loathed.

9. **ABILITY,** aptitude, capability, capacity, cleverness, competency, dexterity, efficiency, expertness, faculty, power, qualification, readiness, skill, talent. Ability includes power of every kind; capacity suggests the power to receive; efficiency the power to execute; faculty is the power of mind or body; talent is a special endowment; dexterity is power acquired by practice; competency meets the demand of the occasion; readiness is promptness in meeting the demand.

10. **ABOLISH,** abate, abrogate, annihilate, annul, destroy, end, eradicate, exterminate, extirpate, nullify, obliterate, overthrow, prohibit, remove, repeal, reverse, revoke, set aside, stamp out, subvert, supplant, suppress, terminate. Slavery is abolished, as are other widespread or long-existing conditions, customs, or institutions; nuisances are abated; laws and treaties are abrogated by other laws or treaties which supersede them; laws are annulled, nullified, or repealed; that which is annihilated is utterly destroyed (reduced to nothing); troubles are ended; faults are eradicated (taken out by the root); pests are exterminated (put an end to); an eye is extirpated in surgery (taken out root and branch); a postage stamp is obliterated; laws prohibit; appellate courts reverse decisions of inferior courts; treaties are revoked; liberties are subverted; rebellions are suppressed; court favorites are supplanted; controversies are terminated.

11. **ABRIDGMENT,** abstract, analysis, compend, compendium, digest, outline, summary, synopsis. An abridgment gives the most important parts of a work just as they stand in the larger work; a synopsis or outline gives a plan of the larger work; an analysis gives the chief thoughts or arguments in a condensed form; a summary condenses to the utmost the thought; an epitome, compend, or compendium is a compact presentation of a subject without regard to other publications. A dictionary is abridged, but an analysis, summary, digest or epitome of it is impossible. We may have a compendium of English literature or an epitome of religion, but an abridgment of either is an absurdity.

12. **ABSOLUTE,** arbitrary, authoritative, autocratic, despotic, irresponsible, supreme, tyrannical, unconditional, unequivocal. Absolute power is neither limited nor controlled; authoritative is based upon the right to claim authority; autocratic power is limited only by the person who so rules; despotic is rather weaker than tyrannical; arbitrary power rests upon the will or judgment of the wielder; irresponsible persons have no limiting restraint; unequivocal has the sense of decided, most certain, undoubted.

13. **ABSOLVE,** acquit, clear, discharge, exculpate, exempt, exonerate, forgive, free, liberate, pardon, release, set free. To absolve from sins; to acquit of a charge; to clear of blame; to discharge a prisoner; to exculpate from fault; to exempt from taxes or military service; to exonerate from guilt; to forgive an offender; to free a prisoner; to liberate a captive; to pardon a criminal; to release from an obligation; to set free from a bond.

14. **ABSORB,** consume, drink in, drink up, engross, exhaust, imbibe, suck up, swallow, swallow up, take in, take up. Wood absorbs moisture; wood is consumed in the fire; we drink in knowledge; one engrosses the conversation; learning is imbibed; a credulous person swallows preposterous stories; lime takes up water.

15. **ABSTINENCE,** abstemiousness, continence, fasting, frugality, moderation, self-control, self-restraint, sobriety, temperance. Abstinence implies going without; abstemiousness, partaking sparingly; self-control, self-restraint, and self-denial imply refraining from what one desires; fasting has a religious or hygienic connection; one is temperate in eating and drinking; but one abstains from vice.

16. **ABSTRACT,** appropriate, detach, discriminate, distinguish, distract, divert, eliminate, purloin, remove, separate, steal, take away, withdraw. We abstract an element from all that attends it and we view it separately; the mind is abstracted from all other subjects and concentrated upon one; the mind is diverted from that to which it should attend; ideas may be separated; we discriminate between things by distinguishing their differences; we eliminate certain things from a consideration by ignoring them; purloin and steal imply appropriating unlawfully to one's own use.

17. **ABSTRACTED,** absent-minded, absorbed, heedless, inattentive, indifferent, listless, negligent, oblivious, preoccupied, thoughtless. Abstracted, absorbed, and preoccupied are used when considering the cause; absent-minded relates to the effect of the abstraction, absorption, or preoccupation; heedless is willfully thoughtless; inattentive to the subject in hand is absorption in another subject; listless may be a physical condition of inattention; negligent, when the abstraction causes indifference; one is oblivious when the thoughts are elsewhere.

18. **ABSURD,** anomalous, chimerical, erroneous, false, foolish, ill-advised, ill-considered, ill-judged, inconclusive, incorrect, infatuated, irrational, mistaken, monstrous, nonsensical, paradoxical, preposterous, ridiculous, senseless, stupid, unreasonable, wild. That which is contrary to the first principles of reasoning is absurd; that which deviates from a fixed rule, or law, is anomalous; enterprises which are fancifully impracticable are chimerical; views are erroneous through mistaken conceptions; reasoning may be false; that which is contrary to the dictates of good sense is foolish; irrational views are contrary to sound reasoning; a statement may be paradoxical (or apparently contradictory in its terms) and yet be true; that which is silly is petty and contemptible; monstrous and preposterous imply an overwhelming absurdity; verses may be nonsensical and yet entertaining.

19. **ABUSE,** damage, defame, defile, disparage, harm, ill-treat, ill-use, impose on, injure, malign, maltreat, misuse, molest, oppress, persecute, pervert, rail at, reproach, revile, ruin, slander, victimize, vilify, vituperate, wrong. Property is abused by willful defacement; a tenant may damage property and injure its sale; false reports may defame a man; contact with vice will defile him; we disparage by speaking lightly or by making little of; a man may be abused without being harmed; talents are often perverted; innocent persons are often victimized by swindlers; a wrongfully accused man is vilified; shockingly abusive language is vituperation; one is oppressed for pecuniary advantage, and persecuted for opinions.

20. **ABYSS,** chasm, deep, gorge, gulf, pit, profound. Abyss, chasm, and gorge generally apply to openings in the earth caused by upheavals; gulf, deep, and profound refer to the ocean; a pit is an excavation.

21. **ACCEDE,** acquiesce, agree, assent, coincide, comply, concur, consent, yield. Opinions which concur agree in general terms; those which coincide agree in every detail; decisions always concur, never coincide; causes concur, but views coincide; terms are accepted; wishes are acceded to or complied with; proposals are acceded to or consented to; consent expresses a more hearty acquiescence than does accede; one yields to another upon conviction.

22. **ACCELERATE,** advance, dispatch, drive, expedite, facilitate, further, hasten, hurry, promote, speed, urge. Motion is accelerated; enterprises are advanced; a thing is dispatched when finished; work is expedited when all hindering influences are removed; processes are facilitated when means of accomplishment are rightly adjusted; hurry implies attendant confusion; a cause is promoted by advancing influences.

23. **ACCESSORY,** abettor, accomplice, ally, assistant, associate, coadjutor, colleague, companion, confederate, follower, helper, henchman, participator, partner, retainer. Accessory, abettor, confederate, and accomplice are generally used in a bad sense. An ally is a national or military associate; an abettor of a crime is present at the time of its commission, an accessory never; one who watches outside while a crime is committed is an abettor, not an accessory, while an accomplice is usually one of the chiefs or principals; a retainer, or a henchman, or a follower, is one bound to a chief by reward, fee, or need; a partner is one whose association is now wholly limited to business interests; a colleague is always used in a good sense.

24. **ACCIDENT,** adventure, calamity, casualty, chance, contingency, disaster, fortuity, hap, happening, hazard, incident, misadventure, mishap, possibility. An accident is a happening without intention; an adventure is a happening either good or ill; a calamity involves serious sufferings; a casualty is usually a fatal accident; chance is a happening without known cause; a contingency is the possibility of happening; a disaster is an accident attended by suffering or loss; a fortuity is a chance occurrence; a mishap is a slight disturbing accident.

25. **ACCOMPLISH,** achieve, bring about, bring to pass, carry out, carry through, complete, consummate, discharge, do, effect, execute, finish, fulfill, perform, realize. We accomplish what we set out to do; we achieve some great or especially worthy undertaking; we bring about or bring to pass things in which we were sharing with others a leading part; carry out and carry through apply to long-sustained efforts; we complete that which has been begun before; we consummate that upon which thoughts and hopes have long been centered; we discharge what was assigned us to do; we effect a purpose by certain means; we execute the commands of another; finish applies frequently to the superficial and detailed careful execution of a work; we fulfill our obligations or agreement; we perform a feat in which there has been always a possibility of failure; we realize an ideal.

26. **ACQUAINTANCE,** association, companionship, experience, familiarity, fellowship, friendship, intimacy, knowledge. Acquaintance between persons implies that each knows the other. We can have no acquaintance with any one who does not know us. Association does not imply friendship or intimacy, for men may be associated for a long time in business with each other without knowing each other intimately; there may be friendship between two who have never met, but who know each other by correspondence and reputation; intimacy implies a thorough knowledge of each other's thoughts and feelings; fellowship is greater than friendship by the great quality of sympathy; acquaintance with a man's writings or with a subject is less deep than is familiarity.

27. **ACRIMONY,** acerbity, asperity, bitterness, causticity, harshness, malignity, moroseness, severity, sharpness, sourness, unkindness, virulence. Acerbity is sharpness with some bitterness caused by slight or momentary vexation; asperity denotes decided irritability; acrimony is caused by deep-rooted dislike; malignity denotes the greatest degree of intention to do harm; virulence of speech suggests the exudation of poison and accompanies unbridled hostility; severity of language is always calm and intentionally just, though always painful.

28. **ACTIVE,** agile, alert, brisk, bustling, busy, diligent, energetic, expeditious, industrious, lively, mobile, nimble, officious, prompt, quick, ready, restless, sprightly, spry, supple, vigorous, wide-awake. Active implies not only a quickness but a continuous or habitual action; busy means actually employed; a bustling person is noisily busy; an officious person is unpleasantly active in the affairs of others; a restless person is busy because he cannot keep quiet.

29. **ACTUAL,** authentic, certain, demonstrable, developed, genuine, positive, real, true, unquestionable, veritable. Actual applies to something which has been done or is accomplished; real to something which exists; an authentic story is one which has been fully proved or corroborated; demonstrable is capable of proof; developed has been evolved or brought about; genuine is opposed to false, dissembling, or fictitious; positive is fixed or established.

30. **ADD,** adjoin, affix, amplify, annex, append, attach, augment, cast up, enlarge, extend, increase, join on, make up, subjoin, sum up. In adding we increase by uniting; in multiplying we increase by repeating; we augment immaterial things by any means; we enlarge a house; extend the bounds of an empire; annex a building to another; affix a seal to a document or a signature to a letter; amplify a discourse; append a statement; make up an account.

31. **ADDICTED,** accustomed, attached, devoted, disposed, given, habituated, inclined, prone, wedded. One is addicted to habits which have gained a strong hold upon him; accustomed to hard work; attached to his family; devoted to his art; given to gluttony; wedded to science; prone to evil.

32. **ADDRESS,** accost, apostrophize, appeal, approach, court, greet, hail, salute, speak to, woo. We accost a stranger when we speak first; greet is a passing salutation and may be silent; hail is to greet in a loud-voiced and hearty manner; to apostrophize is to solemnly address; we appeal for aid; we may address a person either by speech or by writing.

33. **ADEQUATE**, able, adapted, capable, commensurate, competent, equal, fit, fitted, fitting, qualified, satisfactory, sufficient, suitable. An adequate remedy; an able man will do everything well; a capable man will do fairly well; means are commensurate when they are equal to the performance of the task in hand; competent, which takes account of both natural and acquired abilities, is higher than qualified, which considers only the acquired abilities.

34. **ADMIRE**, adore, applaud, approve, enjoy, esteem, extol, honor, love, respect, revere, venerate, wonder. We admire the beauty of nature; we enjoy a book; we approve excellence; applaud a good performance; esteem the good; honor and respect nobility of character; revere and venerate the aged; extol the goodness of God; adore his majesty and power.

35. **ALLUDE**, advert, hint, imply, indicate, insinuate, intimate, mention, point, refer, signify, suggest. Allude is to refer only slightly to a matter; we advert to it when we turn out of our way to consider it; we refer to it when we bring it prominently before the mind of our hearers; we mention it when we state it clearly or name it distinctly; a hint is a harmless suggestion; but an insinuation is always unfavorable; we imply without directly stating a fact.

36. **ALTERNATIVE**, choice, election, option, pick, preference. Alternative is strictly the choice of one of two things. It has, however, come to mean the one thing chosen from two; choice is a selection from among many things, or the act of choosing, or the right to choose; option is the privilege or right of choosing; pick and election are examples of a word of Anglo-Saxon origin and one derived from the French, which were at one time synonymous, and these are used when the objects are represented as displayed before one and a choice is made; alternative signifies that it is the only other thing one can do under the circumstances, while all the other words in the group imply freedom of action.

37. **AMBITION**, aspiration, competition, emulation, opposition, rivalry. Ambition was originally "a going around" among the Roman people asking for their votes for political office; it is the seeking for fame, honor, riches, and political preferment; aspiration is the simple desire to excel; competition is a striving with another; emulation is a friendly desire to equal or to surpass another; opposition suggests a struggle involving both competition and hindrance; rivalry is a competition for the nobler sorts of prizes.

38. **ANALOGY**, affinity, coincidence, comparison, likeness, parity, proportion, relation, resemblance, semblance, similarity, simile, similitude. Analogy is a resemblance and from the likeness noted other deductions are made; affinity is attraction without apparent likeness; coincidence is an exact agreement on one or more points, the commonest being that of time of occurrence; similitude is a setting forth of a comparison between things which resemble one another in one or more points; resemblance is only superficial and does not extend to the essence or entity of things; parity of reasoning is applied to an argument on things not really analogous.

39. **ANGER**, animosity, displeasure, exasperation, fretfulness, fury, impatience, indignation, irritation, offense, passion, peevishness, petulance, rage, resentment, temper, vexation, wrath. Anger is violent and is brief in proportion to its violence; animosity is active and lasting, though less so than enmity; displeasure is the mildest of these terms; exasperation, literally "a roughening," is a flash of anger that quickly subsides; fretfulness, peevishness, and petulance are slight displays of anger excited by petty causes; fury is intense and uncontrollable; indignation is a form of impersonal and unselfish displeasure; irritation is a slight expression excited by repeated occurrences of slight cause; rage excites to imprudent and indiscreet acts; temper is properly the general state of mind, though it is often colloquially used for anger.

40. **ANIMAL**, beast, brute, creature. Animal is the term used to denote a being capable of feeling, and is employed to distinguish from inanimate objects and from vegetable life; a beast is one in which the appetites are the strongest characteristics; a brute is the term applied to an animal incapable of experiencing the finer sensibilities; creature is a general term applied to all created things.

41. **ANNOUNCE**, advertise, circulate, communicate, declare, enunciate, herald, make known, notify, proclaim, promulgate, propound, publish, report, reveal, state, tell. We announce a fact in some formal way or public manner; business is advertised; plans are communicated; we enunciate views; notify an individual, but give notice to the public; declare our intentions or declare war; proclaim peace; propound a question; promulgate a platform of a party; herald an event; reveal a secret; report an interview; publish a book; announce our arrival.

42. **ANSWER**, rejoinder, repartee, reply, response, retort. An answer may be in words, or by a look or an action or sign; a reply unfolds thought and intelligence; a rejoinder is an answer to a reply; repartee is a witty, good-natured, and prompt answer; a retort may be bitter, sarcastic, or savage in its nature.

43. **ANTICIPATE**, apprehend, expect, forecast, foretaste, hope, look forward to. Anticipate goes before in fact or in thought; apprehend is applied to an event or condition which is both expected and feared; we expect that which we have good reason to think will happen; we forecast what we think or judge will occur; we foretaste what we look forward to with certainty and pleasure; we hope for that which we wish to happen; we look forward to a condition which possibly may come about.

44. **ANTIPATHY**, antagonism, aversion, detestation, disgust, dislike, distaste, hatred, hostility, repugnance, repulsion. Antipathy and repugnance are intuitive or instinctive and may have no actual or apparent cause; antipathy is a mental or physical recoil from association or connection with either persons or things; repugnance suggests a desire or impulse to fight against; aversion, or turning away from, is both deep and lasting in its effects; disgust and distaste are usually acquired; those of strong religious and moral senses abhor and detest.

45. **ANTIQUE**, ancient, antiquated, old-fashioned, quaint. Antique is old in style and is still prized; ancient is merely very old; antiquated is old and discarded; old-fashioned may or may not be prized and we may approve or contemn the thing so spoken of; quaint is old, odd, and pleasing.

46. **ANXIETY**, anguish, apprehension, care, concern, dread, fear, foreboding, fretting, misgiving, perplexity, solicitude, trouble, worry. Anxiety is suffering caused by what may happen, while anguish is the result of what has happened; in anxiety there is always the element of hope, while in apprehension, dread, fear, and foreboding there is only despair; care and anxiety over matters impel to the necessity of taking action to prevent or repair injury; concern is less grave than anxiety; worry is a less serious form of anxiety; fretting and worry imply an open communication or display to others of anxiety; one may be perplexed but not at all anxious; trouble is a general term for mental disturbance.

47. **APATHY**, calmness, composure, immobility, impassibility, indifference, insensibility, lethargy, phlegm, sluggishness, stoicism, unconcern, unfeelingness. Apathy is an entire absence of feeling or emotion; calmness is a state of mind resulting from courage, confidence, or strength; composure is calmness produced by the exercise of the will; immobility is usually applied to the countenance which does not betray its emotions or feelings; impassibility is the inability to suffer and is a divine attribute; indifference implies a lack of interest in a thing, insensibility, a lack of feeling; lethargy suggests a stupor or general inactivity; phlegm is a constitutional sluggishness; stoicism is intentional or willful indifference to trouble or suffering, sometimes spoken of as philosophical; unconcern disregards consequences.

48. **APOLOGY**, confession, defense, exculpation, excuse, justification, plea, vindication. By offering an apology one admits wrong and offers concessions; in old times apology meant a valiant defense; an excuse is a reason for the fault or offense; a confession is a full acknowledgment of a fault or offense and may or may not contain an apology or excuse; an exculpation is a defense clearing one's self of blame; a justification is a plea of right and justice in one's action; a plea may be a prayer for pardon or leniency, or it may be an attempt to clear one of all blame; a vindication is a reëstablishment of reputation.

49. **ASK**, beg, beseech, crave, demand, entreat, implore, petition, pray, request, require, solicit, supplicate. We ask what we have good reason to expect; we beg what we have no right to expect; we beseech with a humbled intensity; crave is a formal word; we demand what is rightfully ours; entreat is an earnest asking; implore is attended by weeping; petition is written request to those in authority; request is a formal asking; solicit is an effort to excite sympathy; supplicate implies an asking on bended knees.

50. ASPECT, view. Aspect is the way a thing appears to us; view is the application of our faculty of sight to a large or complex object. We may take a false view of things; things may present a false aspect to us; a view from one's window may be permanent, but may present varying aspects to us.

51. ASSEMBLY, assemblage, group, collection, gathering, company, meeting, convention. Assembly and assemblage are applied to persons, though a late use of the word assemble is applied in manufacturing to the putting together of the parts of machinery, such as bicycles or automobiles; an assembly of persons is a voluntary gathering of people usually under the authority of one person; a group is applicable to both animate and inanimate objects, and usually conveys an idea of artistic effect; a collection suggests a gathering together under some guiding force which may be with a definite purpose in view or mechanical and by chance; a meeting is less formal and more general than an assembly; a convention is a gathering together under authority, in which the members are assembled but the gathering is convened.

52. ASSERT, affirm, asseverate, aver, avouch, protest. Assert is used in opposition to suppose or imply, while affirm is the opposite of deny; we assert a truth; we affirm a proposition; to asseverate is to assert with earnestness and force; we aver what we are in a position to prove; protest originally meant a serious or public indication of truth and sincerity, but in doing so it often entailed disproving the opposite and it now often has the force of antagonism or opposition; and while we protest our innocence we also protest against another person or thing; protestations are often apparently the opposite of actions and indicate one motive while they seem to express another.

53. AVENGE, revenge. Avenge is to inflict pain or loss in retaliation for injury to one's self or another and may be an act of justice; revenge is the infliction of pain or loss to satisfy a vindictive desire; we avenge another's loss; we revenge ourselves.

54. AVERAGE, mean, medium. Average is a medial sum or quantity made out of several unequal sums or quantities; mean is a point intermediate between two extremes; medium, in addition to a sense of mean, has the idea of an agent or instrument.

55. BAD, evil, naughty, wicked. Bad denotes the absence of good qualities and is the general term; evil is employed only in a moral sense; a wicked man is immoral and sinful, offending both divine and human laws; naughty expresses the faults of children, though at one time it was applied to anything which was not what it ought to be.

56. BAFFLE, defeat, frustrate. Baffling involves repeated counteractions from several standpoints, as a baffling wind heads a sailor off in every direction; when used of persons it implies skill and scheming; a disease may baffle the best efforts of the most skilled physician; defeat is final, while one may overcome baffling forces; a man may be baffled but not defeated; plans and purposes are frustrated when they are made or caused to miss their ends

57. BANISH, exile, expel. Banish signifies to put under a ban, and implies the removal from a place or the prohibition from privileges; exile signifies removal from home; expulsion is simply coercive, and may be the act of an individual or a society beyond whose jurisdiction the act does not extend. The Tarquins were banished from Rome never to return; a man may be exiled for a time; a person is expelled from a society.

58. BARE, naked, uncovered. Bare implies the absence of some particular covering; naked the absence of all covering; that is uncovered from which the covering has been removed.

59. BASE, vile, mean. The intensity of meaning of these words rank as written, base stronger than vile, and vile than mean. We abhor the base; are disgusted with the vile; and have contempt for the mean. The higher in social rank the greater his baseness; the lower in rank the greater his vileness; the richer the person the greater his meanness.

60. BEAR, carry, convey, transport. Bear is to take the weight of a burden upon one's self and to sustain it; carry is to remove the object to another place; convey expresses the manner in which goods or messages are carried; transport tells not only the manner in which they are carried but implies something of the distance.

61. BEAR, yield. Bear marks the power of bringing forth; yield is applied to the result. Trees bear fruit under nearly all conditions; they yield according to the degree of cultivation which they receive. A certain quantity of seed will yield so much, while each individual plant bears its share.

62. BIAS, prepossession, prejudice. Bias marks a leaning toward feelings or opinions; prepossession indicates an occupation of the mind by some idea which shuts out all others; prejudice is a condition of mind caused by judging or deciding without full information or data. Prejudice is always used in a bad sense; a man's mind may be honestly biased or prepossessed, but prejudice favors the cause of faleshood.

63. BLAME, censure, condemn, reprove, reproach, upbraid. Blame simply ascribes a fault to one; censure expresses disapproval of acts; condemn is more concerned with things than with persons; reprove is decidedly personal in its application; reproach denotes the expression of personal feelings in a matter; upbraid conveys an idea of contempt or wounded feelings.

64. BLEMISH, stain, spot, speck, flaw, defect. A blemish affects the nice appearance of a thing and may include all of the other terms; a stain is larger than a spot, while both are caused by something foreign to the object; a speck is smaller than a spot; a flaw is usually applied to hard substances and denotes a faulty surface; a defect denotes that some essential part is lacking.

65. BLOT OUT, expunge, rase, erase, efface, cancel, obliterate. Blot out may cover with a blot; expunge shows that the parts are no longer to be considered; figures are erased that the space may be occupied by others; they are canceled by striking through them with a pen or by similar marks; they are obliterated by any or all of these means without indicating which; they are effaced by scraping off the surface as of a wall.

66. BODY, corpse, carcass. We speak of the dead body of man or of brutes; corpse is the term to use to convey that a human body is lifeless; carcass is often used contemptuously or restricted properly to a brute's dead body.

67. BOLD, fearless, intrepid, undaunted. Bold applies to the spirit; fearless to the mind. One may be fearless when there is no danger; but one is bold only in time of danger. Intrepid is a condition of fearlessness; undaunted is the highest condition of boldness, and is the state in which one faces almost awe-inspiring odds.

68. BOOTY, spoil, prey. Booty indicates a division among soldiers or sailors of things taken in battle and divided in shares; spoils are the property of the slain in battle which rightfully belong to the victor; prey is properly that which is taken to be consumed, though the term is often used figuratively in an extended sense.

69. BORDER, edge, rim, brim, brink, margin, verge. Border is a stripe; edge is a line; rim is the edge of any vessel; brim is the edge of a cup; brink is the edge of a precipice; margin is the border around a printed or written page; verge is the very outer border.

70. BOUND, limit, confine, circumscribe, restrict. A bound is a natural or political division between countries, such as a river or mountain; limit is an artificial boundary; to confine is to bring the limits close together; to circumscribe is to mark out the surrounding limits; to restrict is to keep within well defined limits.

71. BOUNDARY, frontier, confines, precinct. A boundary divides or limits the extent of a thing; the frontier lies on the front or at the entrance into a country; confines are the parts which touch other states or countries; a precinct, while properly the girdle or space surrounding something, is often applied to the entire space within certain bounds.

72. BOUNDLESS, unlimited, infinite. A thing is boundless while no limits or bounds exist or may be seen. We speak of the boundless ocean only while we cannot see the bounds. Unlimited indicates that no limits exist but that there might better be a restriction. Infinite indicates that no limits can exist.

73. BRAVE, defy, dare, challenge. To brave is to withstand or to resist an opposing force with bravery; to defy is to consider lightly an opposing force as one which can easily or safely be overcome; to dare is to provoke opposition; to challenge is a formal provocation to a contest.

74. BRAVERY, courage, valor. Bravery depends upon the physical temperament, is a sort of instinct, and is of service only in time of contest; courage is based upon reason or reflection, may be displayed by persons of weak physical powers, and is of service at all times; valor is the highest type and combines both bravery and courage.

75. BREAK, burst, crack, split. Break indicates separation into parts with more or less force and from any cause; burst is applied to hollow bodies which break under pressure from the inside; crack is an irregular breaking of hard or brittle objects; split is to break lengthwise and is generally applied to wood.

76. BREEZE, gale, blast, gust, storm, tempest, hurricane. A breeze is gentle; a gale is strong and steady; a blast is sudden, impetuous, and of short duration; a gust is sudden and vehement. These terms are applied to the wind. A storm includes other elements besides the wind; a tempest is a storm with thunder and lightning; a hurricane exceeds all storms in violence and intensity.

77. BRING, fetch, carry. Bring is to carry a thing with one from place to place; fetch is to go first to the place where the thing is and to bring it back with one; carry has the sense of taking something directly from one place to another.

78. BUILD, erect, construct. Build expresses the purpose; erect, the manner; and construct, the contrivance. Erect conveys an idea of height; construct, of ingenuity. We build houses, erect monuments, and construct machines.

79. BUSINESS, occupation, employment, engagement, avocation. Business takes all one's time, thoughts, power, and interest; occupation and employment, only one's time and strength; engagement is partial employment; avocation a special or particular employment. One who is busy has more to take his attention than one merely occupied.

80. BUSINESS, trade, profession, art. The employment of one's time, experience, and ability for profit is business; buying and selling are inseparable from trade; learning and particular skill are required in a profession; artistic ability is needed in an art.

81. BUSINESS, office, duty. Business is an engagement which a man proposes for himself; office, what he is required to do for another; duty is an obligation. Office being work performed for others is usually restricted to public affairs.

82. BUSTLE, tumult, uproar. Bustle is marked by hurry; tumult by confusion and disorder; uproar by the noise of many voices.

83. BUY, purchase, bargain, cheapen. Buy and purchase are synonymous terms, and may be interchanged, though purchase is considered a term of greater refinement by some. We buy necessities but purchase luxuries. Bargain and cheapen have to do with the price more than with the exchange. Poor people are obliged to cheapen, but a mean person may bargain.

84. CALAMITY, disaster, misfortune, mischance, mishap. Calamity is a great disaster or misfortune; misfortune is a great mischance or mishap. A calamity is attended by destruction; disaster by injury or defeat of one's plans; misfortune by the loss of property or of health; a mischance or mishap is comparatively trivial.

85. CALCULATE, reckon, compute, count. Reckon, compute, and count are all modes of calculating. We reckon when we count and set down in detail; we compute by estimates based upon a variety of information; we count one by one. Calculation is applied to the larger mathematical processes.

86. CALENDAR, almanac. A calendar registers events under every month, as a gardener's calendar which tells the horticultural events for each month; an almanac registers times or the divisions of the year.

87. CALL, cry, exclaim. Call summons or attracts another on ordinary occasions; cry is to call loudly upon some particular occasion; exclaim is to give voice to one's feelings by a loud cry or call on some particular occasion.

88. CALL, invite, bid, summon. We call by the use of any sounds; invite by a direct or formal act or word or by a look, manner, or motion; we bid in words and with some authority; we summon by a more or less imperative request.

89. CALM, composed, collected. Calm expresses the state of the feelings; composed, of feelings and thoughts; collected, more particularly of the thoughts.

90. CALM, placid, serene. Calm refers only to the winds; serene, to the air and sky; placid, only to the mind.

91. CAN, may. Can denotes possibility or power, or ability; may, liberty, permission, or probability.

92. CANDID, open, sincere. Candid implies conscious purity of intention; openness implies unguardedness and a freedom in speaking one's thoughts; sincerity permits one to speak only what one thinks and causes one to frequently refrain from speaking.

93. CARE, charge, management. Care comprehends personal labor in attending to something; charge conveys an idea of responsibility; management involves the direction of others or of regulating or ordering affairs.

94. CAREFUL, cautious, provident. Carefulness may be shown by either doing or in not doing; caution is care in guarding against danger; provident conveys an idea of seeing beforehand and of taking steps to guard against possible danger in the future.

95. CARESS, fondle. One caresses by words and actions; fondles, by actions alone.

96. CARNAGE, slaughter, massacre, butchery. Carnage takes into account the number of the dead resulting; slaughter, both the act and the manner of the killing; massacre denotes a secrecy and treachery of action; butchery is the killing of the helpless.

97. CARRIAGE, gait, walk. Carriage indicates the way one carries the whole body; gait, the limbs and body in walking; walk is rather indefinite and indicates the manner of walking.

98. CAUSE, reason, motive. Cause is concerned with the order in which connected events happen; reason denotes the movements and operations of the mind; motive the impulses or ideas which move one to act.

99. CAUSE, occasion, create. To cause is to bring about naturally; to occasion is to bring about incidentally, though often necessarily; create is to bring into existence arbitrarily.

100. CAUTIOUS, wary, circumspect. One is cautious on all occasions when danger is present; but wary when the danger is great. These terms vary only in degree and are used of practical acts; circumspect denotes a watchful care in matters of theory and contemplation.

101. CEASE, leave off, discontinue. Cease indicates the passive act of stopping particular actions or habits, and is the simple cessation; leave off and discontinue are active. We cease writing or crying; a laborer leaves off his work at any hour, generally with a view of taking it up again; we discontinue visits when we observe that they are not agreeable to others.

102. CELEBRATE, commemorate. We may celebrate either a present or past event; we commemorate only past events; celebration is usually festive and social; commemoration is marked by solemnity or seriousness.

103. CELESTIAL, heavenly. Celestial is opposed to terrestrial and is a general term applied to the heaven of the heathens; heavenly is used as relating to the abode of the God of the Hebrews and the Christians.

104. CERTAIN, sure, secure. We are certain and sure as to our convictions; secure regarding our interests or condition; certainty is based upon positive knowledge or experience; sure may be a condition resulting from reliance upon the word of others; security is a sense of freedom from danger and literally means without care.

105. CESSATION, stop, rest, intermission. Cessation indicates that something is no longer going on; stop, that something has intervened to prevent motion or a continuance of the act; whatever does not move or exert itself is at rest; intermission is an alternation of motion and rest at regular or irregular intervals.

106. CHAIN, fetter, band, shackle. Chain is the general and indefinite term; fetters are larger than chains and may consist of several chains; bands are any restraints upon the limbs or body; shackles are fetters which confine or hamper the limbs.

107. CHANCE, fortune, fate. Chance is the name given to the uncertain and variable events which happen without order, form, or design; fortune applies to persons, and is represented as being blind in the bestowal of its awards; fate forms fixed plans with decisive results.

108. CHANCE, probability. A chance is a possibility however slight; many chances make a probability.

109. CHANCE, hazard. Hazard is a species of chance and is always unfavorable; there is a chance of gaining, but a hazard of losing.

110. CHANGE, alter, vary. One changes a thing by putting another in its place; one alters a thing by making it different from what it formerly was; one varies it by altering it in several ways and at different times.

111. CHANGE, exchange, barter, substitute. We change by putting one thing in the place of another; we exchange by giving one thing for another, being guided generally by a preference only; we barter when we give in exchange for a thing another commodity of equal value; we substitute when we put one thing in the place of another for better effect.

112. CHANGE, variation, vicissitude. Change is a ceasing to be the same; variation consists in being different at different times; vicissitude in being alternately different and the same at different times. We change our mode of life; experience variations, and suffer the vicissitudes of daily life.

113. CHARACTER, letter. Character is a letter of a foreign alphabet which differs in form from those of our own; the constituents of our own alphabet are letters; the units in shorthand are characters and not letters.

114. CHARACTER, reputation. Character is the moral equipment as it really is; reputation is what others think a man to be. A man of doubtful character may have a good reputation.

115. CHARM, enchant, fascinate, enrapture, captivate. Charm is to affect as by a charm or magical verse; to enchant is stronger than to charm and was originally to affect as by an incantation; to fascinate is still stronger and affects through the eye and operates by words and motions; to enrapture is a mental effect which is brought about directly without the implied secrecy of the previous terms; to captivate has a moral application only and is often used with fascinate in a bad sense.

116. CHEAT, defraud, trick. To cheat is to deceive by direct or gross falsehood or tricking; to defraud by a fixed plan or contrivance; to trick by an impromptu invention.

117. CHECK, curb, control. Check is derived from the game of chess where the term denotes that the king is prevented from moving, hence it implies that the body to be checked is in motion; curb is derived from the curb of a horse's bridle and like control may be applied to bodies at rest or in motion; control or counter-roll is the keeping of one roll against another and has a moral application.

118. CHECK, chide, reprimand, reprove, rebuke. One is checked that he may be stopped in what he is then doing; one is chidden that he may be prevented from repeating an act; one is reprimanded for omissions or mistakes; reproved for irregularities of conduct; rebuked for improprieties of behavior.

119. CHECK, stop. Check is to cause to move more slowly; stop is to prevent all motion. The course of a river is checked by rocks or sand banks, but is stopped by a dam; a man who is checked in his career continues upon it but more slowly; one stopped in his career adopts another course.

120. CHEER, encourage, comfort. One cheers the spirits of the sad, encourages the resolution of the timid, and comforts the afflicted in their distress. Cheering and encouraging act upon the mind; comforting may affect the body as well.

121. CHEERFUL, merry, sprightly, gay. One is cheerful when the flow of happiness is even and moderate; merry when there is more noise and tumult; sprightly when the happiness is buoyant and demonstrative; gay when the pleasure is fitful and may be followed by sullenness and discontent.

122. CHIEF, principal, main. Chief has to do with order or rank, as a chief clerk; principal, with importance and respectability, as the principal people or street in a city; main with the degree or quantity, as a main water pipe, or a main line, or the main object.

123. CHIEF, chieftain, head, leader. Chief is the first in civil matters; leader is the first in bold or difficult enterprises; a chieftain is a sort of leader who usually combines executive ability and undisputed power over his followers; heads are endowed with talents for directing large enterprises.

124. CHOOSE, prefer. To choose is to take one thing from among others; to prefer is to take one thing before or rather than another. Necessity often directs a choice and may prevent from taking what one prefers; the dictates of reason often direct one to choose one course as the wisest, when it is not at all what one prefers.

125. CHOOSE, pick, select. One picks with greater care than one chooses, and selects with still greater discrimination than one picks. One may choose or pick one or several from among many, but one generally selects a number.

126. CHOOSE, elect. One man or many may choose a person for an office or position; election is always the act of many; a person chosen is generally bound to accept the office; one who is elected has the right of refusal.

127. CITE, quote. One may cite either persons or things; one quotes things only. An author is cited; his works are quoted; authorities are cited by lawyers and historians to strengthen the evidence and to inspire confidence; passages from authors are quoted for purposes of illustration, confutation, or support of an argument.

128. CITE, summon. These words convey the idea of authoritatively calling upon a person to appear. Cite is used in a legal sense; summon is both legal and ordinary in its use. One is cited to appear before a court; one is summoned for the same purpose, but may be summoned as a doctor or friend to a sick bed.

129. CIVIL, polite. Polite expresses more than civil; it is really polished or refined. One may be civil without being polite; an inferior is civil to his superior; one is polite to an equal or to an inferior; civility is the absence of rudeness; politeness goes out of its way to please.

130. CLANDESTINE, secret. Clandestine implies that the thing done in secret is illegal or forbidden; that done in secret may be perfectly right but is done only without the knowledge of others. A secret marriage is conducted without the knowledge of some others; a clandestine marriage, without the knowledge, and, often, contrary to the wishes of others.

131. CLASS, order, rank, degree. Class distinguishes from without; order, rank, and degree, from within. We speak of the laboring class, the merchant class, etc. Order is a more particular division; the word means literally a row. One conceives persons or things arranged in rows according to some standard of equality. Rank distinguishes one individual from another; and there are degrees among those of the same rank.

132. CLEARLY, distinctly. That is seen clearly when the view is unobstructed; distinctly, when one may distinguish it from all other objects. One may see a thing clearly, but by reason of its distance or through a defect of sight it may not be seen distinctly.

133. CLEARNESS, perspicuity. Clearness applied to our ideas denotes the manner in which we understand or perceive; perspicuity denotes how distinctly and plainly we express our ideas. One may understand a question very clearly; but may fail utterly in expressing it perspicuously. A study of subjects which develop the reasoning powers will enable one to see clearly; grammar, and the cultivation of a good style, enable one to express himself with perspicuity.

134. CLEMENCY, lenity, mercy. Clemency is a mildness which prevents one from exercising power for fear of causing pain or suffering; it often defeats the ends of justice. Lenity deals lightly in dispensing punishment and implies an exercise of discretion where withholding a severe punishment may often have a greater effect. Mercy is shown by those in authority to one who is in trouble, distress, or suffering either by his own fault or through other circumstances.

135. CLERGYMAN, parson, priest, minister. In countries which have a national or state church it is customary to restrict the use of the term clergyman to those only who hold the holy office in that church. In polite society the word is often preferred when speaking of any of the clergy of any denomination; parson is really the highest of the three orders of the inferior clergy: parson, vicar, and curate; but the term has passed almost into a nickname; priest is one who is ordained to actually officiate at the altar in distinction to the deacon, who only assists; a minister actually or habitually officiates.

136. CLOAK, mask, blind, veil. These figurative words, derived mainly from articles of clothing, all express the idea of means employed to keep one's acts or motives concealed from others; blind and veil only partly conceal; mask and cloak conceal the whole object; a veil deceives one's self; the cloak, mask, and blind deceive others; we speak of a hypocrite making a cloak of religion; of false friends wearing a mask; of cheating tradesmen using a blind; of prejudice acting as a veil upon one's judgment.

137. CLOG, load, encumber. A clog impedes motion as of a wheel or machine which may be clogged with dirt; loaded is used in the sense of overloaded, as a picture loaded with color, or a tree with fruit; encumbered objects move or act but with difficulty.

138. CLOISTER, convent, monastery. A cloister conveys an idea of seclusion or retirement; a convent of a community or gathering; a monastery of solitude. One shuts himself up in a cloister, gives himself up to God, and surrenders his personal liberty; renounces his worldly habits in a convent; shuns all human intercourse in a monastery.

139. CLOSE, compact. Compactness is produced by a perfect adhesion of parts, while closeness consists in mere proximity or nearness.

140. CLOSE, near, nigh. There is little or no difference between near and nigh; the former is most frequently heard. Houses are close when they nearly touch; near when within sight. Persons are close when they touch; near when within speaking distance.

141. CLOSE, shut. Close is to put close together and is a partial shutting; shut is to close so as to prevent admittance or entrance; we close a door or window when we partly shut it; we shut our eyes by closing the lids; we shut our mouths by closing the lips.

142. CLOSE, conclude, finish. Close brings near to the end; conclude brings actually to an end; finish is to follow to a conclusion according to a certain well-defined plan; we may close by stopping abruptly at any point even though we have not concluded or finished; we may conclude before we have wholly finished.

143. COADJUTOR, assistant. A coadjutor is a fellow laborer who takes higher rank than an assistant or subordinate helper.

144. COARSE, rough, rude. Coarse refers frequently to the materials of which a thing is composed; rough to the surface; and rude to the fashion, make, or finish of things. We speak of coarse food, clothing, feelings, or manners; rough wood, skin, or language; and rude implements, utensils, language, or manners.

145. COAX, cajole, fawn, wheedle. Coax is to plead as with a child or simpleton, using entreaty or supplication in place of reason or argument; cajole is to employ trickery and stratagem coupled with soft words and insinuating manners; fawn is to hang upon in a servile or flattering way; wheedle is to employ knavish artifices as by greedy or covetous persons upon those of easy temper and generous impulses.

146. COERCE, restrain. Coercion implies the use of force or pressure to compel in a certain course; restrain, the keeping within certain bounds. We coerce when we prevent one from doing certain things and compel him to do others; we restrain when we only prevent him from doing some things. So we restrain while we coerce; but do not coerce when we restrain.

147. COEVAL, contemporary. Coeval means of the same age; contemporary, of the same time. As an age is a very long period, these words differ in degree. Things are coeval which extend over long periods; contemporary when existing at the same and, comparatively, short time.

148. COLLEAGUE, partner. Colleague implies the sharing of a common office; partner, of a common interest. Members of Congress and judges have colleagues; business men have partners.

149. COLOR, dye, tinge, stain. A thing is colored when color is put on it, or a description is colored by strong figures, facts, or vivid description; that is dyed when substances are used to change the color, usually said of textiles and fabrics; tinged when lightly touched with color, usually poetical; and stained when an unnatural color is added. In a moral sense that is stained which has lost its purity.

150. COLOR, hue, tint. A hue is a faint or blended color; a tint a shade of color.

151. COMBAT, oppose. Combat, to fight together, is used in speculative and moral matters; opposed is used in private and personal concerns; one's position is combated; one's interests or plans are opposed.

152. COMFORT, pleasure. Comfort is the most lasting form of enjoyment; pleasure is followed or accompanied by suffering; comfort is less than pleasure in detail, but it is more than pleasure in the aggregate.

153. COMMAND, order, injunction, precept. A command is given by one in authority, is imperative and must be obeyed; an order instructs, directs, and must be carried out; an injunction is an explicit impressing upon the mind; a precept points out a clear duty or a wise course.

154. COMMISSION, authorize, empower. We commission another to perform an act for us by expressing our wishes in the matter; we authorize when our personal authority is necessary to empower another to act; we empower another by formally transferring to him the legal right to act.

155. COMMODIOUS, convenient. Commodious contributes to the bodily ease and comfort; convenient well suits the business, the interests, or the plans; a porch, a house, a room, or a chair is commodious; an arrival, a time, a season, or an opportunity is convenient.

156. COMMODITY, goods, merchandise, wares. A commodity is some article which is of the first necessity; goods are those things of value sold by retail traders; merchandise is the belongings of merchants; wares are manufactured articles and are either goods or merchandise.

157. COMMON, vulgar, ordinary, mean. Things may become common, vulgar, or ordinary by frequent use; that which is mean is so of itself and by its nature. What everybody may obtain, use, and enjoy is common and hence of little value; vulgar is opposed to polite and cultivated; ordinary is the opposite of distinguished; mean is that which is inferior or does not rise above the moderate.

158. COMMONLY, generally, frequently, usually. What all do is commonly done; what the greater part do is generally done; what many do or what a few do very often is frequently done; what one or many are used to do regularly is usually done.

159. COMMOTION, disturbance. A public commotion is attended by unusual bustle and excitement; a disturbance interrupts the peace and quiet of a community. A commotion in nature is violent motion of several objects or of the individual parts of an object; a disturbance puts the object out of its natural condition or state.

160. COMMUNICATE, impart. That is communicated which is made of common knowledge or of common enjoyment; what is imparted is given to or shared with another and is usually of interest or importance to both parties.

161. COMPARISON, contrast. Generally we compare things to show their likeness and to learn their true relations; we contrast things to show their differences; we compare two shades of the same color; we contrast two different colors. Comparison brings out like qualities; contrast displays opposite qualities.

162. COMPATIBLE, consistent. Whatever does not interfere with carrying out a plan is compatible with it; whatever conforms to one's ideals or with one's station in life is consistent.

163. COMPENSATION, amends, satisfaction, recompense, remuneration, requital, reward. Compensation is a return, equal in value, for a loss or damage sustained; amends is a return for something faulty; satisfaction is a satisfying return made to another for injuries or damage; a recompense is a voluntary return for some service voluntarily performed; remuneration is a reward based more upon the dignity, fame, or standing of the person than upon the value of the services performed; requital is a grateful return for a kindness done; a reward is that which comes to a man in return for his conduct.

164. COMPETENT, fitted, qualified. One is competent who is qualified by mental endowments and experience; the disposition and character have much to do with one's fitness; one is qualified by acquaintance with the business to be done and by expertness in doing it.

165. COMPETITION, emulation, rivalry. Competition is more the act of striving for the same object as another; emulation is the spirit in which the contest is conducted; rivalry has usually a selfish object in view and marks an unworthy spirit as well as unscrupulousness in the choice of means of attaining the end.

166. COMPLAIN, lament, regret. Complaint is caused by dissatisfaction; lamentation by grief; and regret by pain.

167. COMPLAIN, murmur, repine. Complaint is not so loud as murmuring, but louder than repining. Complaint and murmuring are demonstrated by audible means; repining is generally in secret.

168. COMPLAINT, accusation. A complaint is generally made for the purpose of obtaining redress; an accusation, to bring the guilty to punishment.

169. COMPLETE, perfect, finished. When there is no deficiency, nothing wanting, a thing is complete; when it possesses marked excellence, it is perfect; when there is no omission in it, it is finished. Nothing that man does is, in the proper sense, perfect, but the term is used relatively to indicate a high degree of excellence.

170. COMPLETE, finish, terminate. When we complete a work, we make it what it ought to be; we

finish it when we do all to it that was originally intended; we terminate it by bringing it to an end.

171. **COMPOUND,** complex. A compound is made up of several wholes; a complex, of many parts. A compound may consist of two constituents; a complex consists of many parts.

172. **COMPREHENSIVE,** extensive. Comprehensive is concerned with quantity; extensive, with space. What comprehends much is comprehensive, what extends far is extensive. A comprehensive view of a subject takes in all of the branches of it; an extensive view takes up all of the minute details.

173. **CONCEAL,** dissemble, disguise. We conceal by simply abstaining from making known what we wish kept secret; we dissemble by both art and falsehood in an effort to prevent others from learning what we desire to keep secret; we disguise by cunning, artifice, and labor what we desire to pass unnoticed.

174. **CONCEAL,** hide, secrete. We conceal by keeping something out of sight; we hide it by putting it under cover; we secrete it by putting it in cunningly devised, unfrequented, or least thought of places.

175. **CONCEIVE,** understand, comprehend. To conceive is the simplest of these mental operations as we may conceive only one idea. We may conceive that something is possible without understanding or comprehending how or why; understanding applies to the more familiar subjects of business and daily life; comprehending relates to principles, lessons, and speculative knowledge.

176. **CONCEPTION,** notion. Conceptions are the result of one's own understanding and imagination; they are the product of one's own unaided mental operations upon one's own ideas; notions are the result of information and experience.

177. **CONCILIATE,** reconcile. We conciliate a person when we gain his affection and esteem for ourselves; we reconcile two persons when we unite their esteem and good will to each other.

178. **CONCLUSION,** inference, deduction. A conclusion gathers up all of the arguments and reasoning into full and complete proof; an inference is only partial, indecisive, and special; a deduction is drawn from a number of facts, inferences, and assertions and is final.

179. **CONCLUSIVE,** decisive, convincing. That which is conclusive puts an end to all argument and determines what the judgment shall be; decisive puts an end to all doubt or wavering and determines the will; convincing applies only to argumentative matters and is more particular and special than conclusive. A chain of reasoning is conclusive; a command is decisive; an argument is convincing.

180. **CONCORD,** harmony. Concord is the union of the wills and affections and may exist between persons living apart from one another; harmony is an accord of the minds of persons and is used of those whose daily lives are closely united. In music concord is used in speaking of two or more single sounds; harmony of any number or aggregate of sounds.

181. **CONDITION,** station. Condition in life relates to one's circumstances, education, or birth; station to one's rank, occupation, or mode of life.

182. **CONDUCE,** contribute. Conduce is used of all that brings about a condition or serves the full purpose; contribute serves a secondary purpose and only helps in a lesser degree to bring about a condition.

183. **CONDUCT,** manage, direct. Wisdom and knowledge are required to conduct; action to manage; and authority to direct.

184. **CONFER,** bestow. Conferring is an act of authority and is properly the act of those in power; bestowing is more an act of generosity or charity and is the act of private individuals.

185. **CONFIDENT,** dogmatical, positive. A confident man has faith in himself, is always ready to act, and is sure of success; a dogmatical man is used to making unqualified assertions, is always ready to speak, and feels sure of being heard; a positive man is fixed to one point, is confident that he has made no mistake, trusts more to his own memory and powers than he ought, and is consequently most often deceived.

186. **CONFIRM,** corroborate. What confirms removes all doubt; what corroborates adds more strength to. A story is confirmed when it is proved beyond all doubt; evidence is corroborated when something is added which strengthens it in some particular.

187. **CONFIRM,** establish. These words differ essentially only in degree,—confirm is not so strong as establish. While stories, reports, rumors, and opinions are confirmed, reputations, principles, faiths, and hopes are established.

188. **CONFOUND,** confuse. A person confounds one thing with another; he is confused or confuses himself. One name is confounded with another; a child often has confused ideas on a subject. When one takes two different accounts to be the same, one confounds them; when one mingles items from one account with another one confuses them.

189. **CONFRONT,** face. Two or more persons confront each other, as witnesses are confronted; one person faces danger, conditions, or the enemy.

190. **CONFUSION,** disorder. Confusion marks the absence of all order; disorder marks the disarrangement of things where order previously existed.

191. **CONFUTE,** refute, disprove. Confute is applied to argumentative matters, an argument is confuted by proving its fallacy; a charge is refuted by proving the innocence of the party; an assertion is disproved by showing that it is not correct.

192. **CONJECTURE,** supposition, surmise. A conjecture is an idea in the mind based upon some trivial suggestion; a supposition is based upon some reasons; a surmise has less foundation than either. We make conjectures regarding events, their causes, consequences, and circumstances; suppositions on speculative points; and surmises regarding the motives or intentions of people.

193. **CONNECT,** combine, unite. Only things of the same kind can be united and in the union all individuality is lost; unlike things are combined or connected and in the combination or connection each remains distinct. Combine indicates a closer union than connect. Houses are connected by a common passage; the armies of two nations are combined; two armies of the same nation are united.

194. **CONNECTION,** relation. Connection indicates the tie that binds two or expresses the condition of being so bound; relation does not define what the association is. There is a relation between one who gives a present and one who receives it; they stand in the relation of giver and receiver. There is a dependence upon one another for one could not be giver unless the other received the gift. But there need be no connection between them.

195. **CONSCIENTIOUS,** scrupulous. A conscientious person is guided by his conscience in all of his acts; a scrupulous person is so in minor or trifling points. Scruple is derived from a Latin word meaning a little hard stone which hurts one when stepped on. A man may be conscientious in the discharge of all of his duty; and an otherwise inefficient servant may be scrupulously clean.

196. **CONSEQUENCE,** effect, result, issue, event. Consequences may follow naturally from the actions of men or from things in which there was no design, plan, or intention; results follow directly from a plan, design, or purpose; an effect is produced by connection with some cause or thing which has effected or brought it about; issue and event mark the final outcome and are used of larger or more vital operations as of negotiations and battles.

197. **CONSIDER,** reflect. One considers common objects; reflects upon speculative and moral matters. We consider before we take action; we reflect when we look back upon what has been done with a view to future guidance.

198. **CONSIDER,** regard. We consider things when we look upon them as they really are, and study them with thoughtful caution; we regard them when we look into them with personal interest. We are accustomed to consider the details of means and matter and to regard the end or object at large.

199. **CONSIGN,** commit, intrust. To consign is to transfer to another for a specific purpose as in consigning goods to another to sell for one's advantage; commit is to put into the hands of another to manage for one, as a merchant commits the management of his business to his clerk; intrust is to place in trust and marks the confidence and trust of the one party, and the responsibility of the other.

200. **CONSTRAINT,** restraint. Constraint applies to the movements of the body; restraint to the mind as well. One is constrained by tight clothing or one's manner is constrained as though bound; one is restrained by motives or fear of consequences.

201. **CONSULT,** deliberate. Consult requires the discussion or consideration by, at least, two persons; one may deliberate alone. We speak and listen when we consult; we hesitate and take time to deliberate. Those who coöperate frequently consult; those who have large measures to decide deliberate.

202. CONSUMMATION, completion. A thing is complete when it answers its purpose; consummate when it has attained the highest possible degree. Wishes are consummated; plans are completed. The completion of one's plans may not be the consummation of one's hopes.

203. CONTAIN, hold. Hold is employed only for the matter for which hollow bodies have a capacity. In general use contain is regarded as being preferable to hold, and is applied to spiritual or moral content.

204. CONTAMINATE, defile, pollute, taint, corrupt. Corrupt destroys the purity; the other terms denote injury to the purity. Taint is the weakest of the words; corrupt and defile are the strongest. The impure contaminates; the gross and vile defile or pollute; the contagious or infectious corrupts; what is corrupted may taint.

205. CONTEMN, despise, scorn, disdain. We contemn that which is contemptible in superiors, such as mean acts; we despise or look down upon degraded or inferior persons; one who is scorned is shorn or stripped of honors and derided; in disdaining we consider a person or thing as altogether unworthy. A little, vain mind scorns others, though the noblest minds scorn to do mean or dishonest acts. A haughty or perverted mind treats others with disdain.

206. CONTEMPLATE, meditate, muse. We contemplate what is before us, or the present; we meditate upon the absent, or the past; though we may both contemplate and meditate for the future. We muse on circumstances or events which are just happening. There is more of serious thought in meditating or contemplating than in musing.

207. CONTEMPTIBLE, contemptuous. A thing, an act, or a person may be contemptible; the manner in which one shows his contempt is contemptuous.

208. CONTEMPTIBLE, despicable, pitiful. One is contemptible for vanity or weakness, despicable for baseness and vileness, pitiful for lack of spirit or manliness.

209. CONTENTMENT, satisfaction. A contented person wishes for no more; one is satisfied when one has obtained all that was wished for. A contented feeling is permanent; one is satisfied only for the time. Contentment is the absence of pain; satisfaction is a feeling of pleasure.

210. CONTINUAL, perpetual, constant. That which is continual is never interrupted; that which is perpetual has no end; that which is constant suffers no change.

211. CONTINUE, remain, stay. Continue suggests a state of action; remain, of rest. One continues working; one remains quiet. To remain is involuntary; to stay is voluntary. One remains in prison; one stays with a friend.

212. CONTINUE, persevere, persist, pursue, prosecute. Continue contains the general idea of not setting the work or act aside; persevere is to continue with no wish to desist; persist, with a determination not to cease; a plan, a measure or a line of conduct is pursued according to some definite design; an undertaking is prosecuted to carry it out in conformity to some desire or to follow it up to a definite result. One may persist in trifles, but one perseveres in important works.

213. CONTRADICT, deny, oppose. One may contradict unintentionally by setting up one statement against another as a lying witness contradicts himself; one denies by purposely asserting the falsehood of another's statement; one opposes by any mode of action or statement.

214. CONTRIVE, invent, devise. Devising is more difficult than contriving. A contrivance is simple and easily understood; a device has greater difficulties to overcome and is more complex. Invention is of greater importance and suggests something hitherto unthought of. Thought and combination will contrive and devise, but ingenuity is required to invent.

215. CONTROVERT, dispute. We controvert speculative matters; we dispute statements of fact.

216. CONVERSANT, familiar. To be familiar with things or subjects expresses a more thorough and intimate knowledge of them than to be conversant with them does. One is conversant with things that have come to his notice frequently; one is familiar with those things which come up in the daily routine of his business. A layman may be conversant with ordinary phases of law, but by no means familiar with all cases or aspects bearing upon them.

217. CORRECT, accurate. What is done according to a fixed rule is correct; what is done by an effort of the mind and attention is accurate. An engineer makes an accurate survey, a scientist accurate observations, a pupil solves a mathematical problem accurately. Another pupil may solve a problem and be correct in the use of the rule yet his work may not be accurate.

218. COST, expense, price, charge. Cost is the amount laid out on a thing; expense is what the person actually lays out; price is what the thing will fetch or be worth; charge is whatever is to be demanded of the person or thing. In manufacturing the cost of production, a share of expense, and all other legitimate charges, with profit added determine the price.

219. COVER, hide. We hide by covering, though we cover without any idea of hiding. Hide always conveys the idea of concealing.

220. CURE, heal, remedy. We cure what is out of order, heal what is broken, and remedy by applying remedies.

221. CURIOUS, inquisitive, prying. One is curious who carefully examines things for himself; inquisitive when he closely questions others; and prying when curious or inquisitive regarding other people's affairs.

222. CURSORY, hasty, slight, desultory, perfunctory. Cursory implies a running over a subject in both a hasty and slight way. A cursory view of a subject may be taken because it is unimportant; a hasty view may lead to error; a slight view to shallowness. A desultory action is a leaping action, not continuous but with intervals; a perfunctory act is one done from duty but without much, if any, interest in the subject.

223. CUSTOM, habit. Custom is the frequent performance or repetition of an act; habit results from this frequent performance. A custom is the result of the action of the will; habits are performed involuntarily. We follow a custom and acquire a habit.

224. CUSTOM, fashion, manners, practice. The customs of a country are the regulations for the conduct of men in the important concerns of life and are authoritative; fashions are arbitrary, fickle, and subject to frequent change; manners are the expressions of moral feelings and are an index of the culture and refinement of the people; a practice differs from a custom in that it may be frequent or infrequent, regular or irregular.

225. DEADLY, mortal, fatal. Deadly is productive of death; mortal terminates in or is liable to death; fatal relates to death and to things which work great mischief. Mortal is past all cure; fatal cannot be retrieved; deadly may be counteracted.

226. DEATH, decease, demise. Death is the general term; it denotes extinction of life and may be applied to both men and all animals; decease is a technical term in law and in a popular use denotes a falling off in the number of living; demise is appropriately used of those who, in dying, put off or resign earthly honors or high station.

227. DEBILITY, infirmity, imbecility. Debility is a physical weakness and may be constitutional or otherwise; infirmity is accidental weakness and is either physical or mental; imbecility is mental weakness. Debility may be general or local; infirmity is local; imbecility is general.

228. DEBT, due. Debt is usually applied to that which is owing from a person; due to that which is owing to a person. One pays one's debts and receives one's dues.

229. DECEIVER, impostor. A deceiver practises any form of deception; an impostor deceives by putting on a false appearance. The deceiver plays upon individuals or the public; the impostor usually upon the public at large.

230. DECISION, judgment, sentence. A decision is given; it puts an end to all doubt and enables a person to act. A judgment is formed; it respects innocence or guilt, moral excellence or defects of persons or things, and preferable courses of action; it enables a person to think. A sentence follows upon a judgment, is pronounced or passed, and determines the sentiments of those in judgment.

231. DECLARE, publish, proclaim. Declare is simply to make known to others, to make clear to them; one may declare privately or publicly, by word of mouth or by writing. We publish in the manner which will make the thing most widely known and cause it to become public property. Proclaiming is always an official act, as when the President issues a proclamation on public affairs. In olden times proclamations were uttered to the public by heralds who shouted out the royal wishes or commands.

232. **DECREE,** edict, proclamation. A decree is a solemn and deliberative act, the decision of one or many, and regulates both private and public matters. An edict is more authoritative than a decree, speaks the will of an individual, usually despotic, and includes such commands as the ukase of Russia. A proclamation contains the command to the people from a constitutional ruler.

233. **DEDICATE,** devote, consecrate. One who dedicates himself to God, promises solemnly to give himself entirely up by shutting out all other considerations; one who devotes himself to the ministry, pursues it as the first object of his thoughts but not to the exclusion of all else. We also devote our time to some work or thing. Consecrate is to set apart for a special object or purpose with religious form or ceremony.

234. **DEDUCT,** subtract. Deduct is a taking away from in a general sense as when one deducts an amount paid from the whole bill of charges; subtract is a technical term of arithmetical calculations, as when a bookkeeper subtracts small amounts from the gross sum.

235. **DEFACE,** disfigure, deform. Deface denotes the actual destruction of what has previously existed; disfigure is to destroy or to so execute as to take away the figure; deform is to change the form of what has existed. A painting or writing is defaced by tearing, smearing, or similar cause; a statue is defaced when the outward surface is damaged, disfigured by the loss of a limb; deformed when made so as to appear monstrous or even unlike the original. The human form is disfigured by loss of a limb or serious burn; deformed, when misshapen.

236. **DEFECTIVE,** deficient. Defective denotes that something is wanting to complete; deficient relates more to the part or thing that is wanting. A book is defective because some leaves are missing; the leaves are deficient.

237. **DEFEND,** protect, vindicate. Defend has the sense of keeping or warding off in a general way. Defense may be made regardless of the station or rank of the defender. A weak man may defend a stronger. Protect has the sense of a defense or shelter by a superior and involves an additional idea of covering, supplying with necessities, and furnishing comforts. Vindicate has a moral sense where a man not only defends himself against charges, but proves his innocence, and restores his good name.

238. **DEFENSIBLE,** defensive. A place or a line of conduct is defensible when it is possible to defend it; the means taken to defend it are the defensive measures.

239. **DEFINITE,** positive. Definite is bounded by a line or limit; positive is placed or firmly fixed. A man's views upon a question are definite when clear and sharply marked so as not to be confounded with others; they are positive when they admit of no doubt.

240. **DEFINITION,** explanation. A definition is correct or precise and marks off the boundaries and limitations; an explanation is ample or general and spreads out a full view of the matter. We both define and illustrate when we explain. We define a word when we show its exact meaning; we explain its use by illustration and contrast with other words.

241. **DEJECTION,** depression, melancholy. Dejection, a casting or hurling down, is stronger than depression, a pressing down. Both of these feelings or states of mind are temporary and passing. Melancholy is constitutional and is a disease. Its effects are permanent.

242. **DELAY,** defer, postpone, procrastinate. prolong, protract, retard. Delay denotes not to commence action; defer to put off action until another time; postpone is a discretionary act of putting off until a more favorable time; procrastinate is a delay arising from the fault of the person and is a culpable or negligent delaying; prolong is to lengthen to a wearisome extent; protract is to draw or drag along with no activity; retard is to cause a thing to go slowly or to prevent its advance.

243. **DELEGATE,** depute. An office or duty is delegated; the person to whom the task is delegated is deputed to perform it.

244. **DELIGHTFUL,** charming. Delightful is applied to both material and spiritual objects; charming is restricted generally to objects of sense. Music is rather charming than delightful.

245. **DELIVER,** rescue, save. Deliver is to set free; rescue to recover from danger; save to make safe. Deliver and rescue take out of the way of danger or suffering: save is to keep out of the way of evil. We deliver from slight danger; we rescue from great or immediate harm.

246. **DEMAND,** require. We demand by a formal asking for that which is justly our due and about which there can be no question; we require what we wish or expect to be done, but our requisition may be met by questioning or refusal.

247. **DEMUR,** hesitate, pause. We demur or keep back from doubt or difficulty; we hesitate from indecision; we pause from caution or the force of circumstances. We demur and hesitate by an action of the mind; we pause in speaking or in action.

248. **DENOTE,** signify. Denote is to cause to know; signify is to make some sign as a guide to the understanding. Letters or characters may be used to denote grades of excellence or the quality of things; nods, signs, glances, or looks signify wishes or feelings.

249. **DESIGN,** purpose, intend, mean. Design and purpose denote works of greater importance than intend and mean, which are familiar. A design includes many objects or topics; a purpose but one; there is something more methodical and studied about a design; a purpose is proposed or set before the mind seriously; we intend only vaguely; mean is applied to matters requiring but little thought and implies simply to have in mind.

250. **DESIGN,** plan, scheme, project. A design is arranged, studied out, and systematically prepared; a plan is the means by which a thing is to be brought about; a scheme and a project are intricate solutions of rare or extraordinary conditions; a project is intended to cover matters of great moment involving large interests. Design and plan are more practical and less speculative than scheme or project.

251. **DESIRE,** wish, long for, hanker after, covet. A desire demands gratification; wish is a strong inclination for; longing is impatient and continued; hankering is a desire for something placed out of reach; coveting is the desire for something which belongs to another. Hankering suggests a wish for something which has been previously enjoyed but of which we are now deprived.

252. **DESPERATE,** hopeless. Desperate, applied to things, is stronger than hopeless; it expresses the absence of hope to remove evil; hopeless expresses the absence of hope to attain good. One makes a desperate effort; one undertakes a hopeless task.

253. **DESTINY,** fate, lot, doom. Destiny is considered as marking one's station and walk in life; fate regards what one suffers; lot denotes what one gets or possesses; doom is the final and unhappy destiny of life.

254. **DESTROY,** consume, waste. Destroy is puting an end to that which one desires should be preserved; consume is to use up; waste is to consume by using wrongly.

255. **DESTRUCTION,** ruin. Destruction is immediate; ruin is gradual. What is destroyed may be rebuilt; what is ruined is past recovery or restoration. Destruction may be partial; ruin is total.

256. **DESTRUCTIVE,** ruinous, pernicious. An instrument or means is destructive or pernicious; its effects are ruinous. Pernicious agents or influences work in a more limited way than do the destructive.

257. **DETECT,** discover. One detects what another wishes to conceal; one discovers that which is concealed without wicked intent.

258. **DETER,** discourage, dishearten. Deter is to frighten away from a thing and one is deterred from beginning a thing; one is discouraged or disheartened from continuing a work. An impatient man is easily discouraged; one who lacks courage or perseverance is disheartened.

259. **DETERMINE,** resolve. Determine is an act of the judgment and follows examination and choice; resolve is an act of the will and follows determination. We determine what is best to be done and resolve to do it.

260. **DEVIATE,** wander, swerve, stray. Deviate is to turn out of the way or direct path; wander is to travel aimlessly without regard to paths or directions; swerve is to turn abruptly and suddenly from a course; stray is used in a bad sense either measured by morality or by consequences.

261. **DEVISE,** bequeath. Devise is to give lands or real estate by a properly attested and witnessed will; bequeath is to give personal property after one's death in a less formal but no less legal way.

262. **DICTATE,** prescribe. Dictate denotes greater authority than prescribe. Dictate is more than command; there is no sense of command in prescribe

though a rule of action or conduct is laid down for the prescribed to follow. One may dictate a line of action without giving any reasons therefor; prescription has the sanction of reason.

263. **DICTION,** style, phrase, phraseology. Diction is concerned with a proper observation of grammatical rules, proper use of words, and a clearness of writing such as may be attained by any student; style deals with niceties and elegances of expression, such as characterize the writings of the masters of the language; phrase has to do with the use of single words; phraseology with a succession of phrases.

264. **DIE,** expire. Die denotes the extinction of life; expire the last act of life. Trees and plants die, but do not expire; animals which breathe air, and some objects which depend upon air, such as lamps, expire.

265. **DIFFER,** vary, disagree, dissent. Differ is the most general and indefinite term. We differ from any cause or in any degree; we vary in only small matters. It takes two or more to differ; one may vary; we disagree in matters of personal interest and in practical affairs; there is always more or less ill-humor and feeling in a disagreement; there is also hard feeling among those who dissent in matters of speculation or opinion.

266. **DIFFERENCE,** variety, diversity. A difference may exist between two objects; variety requires several; diversity exists in the taste or opinion.

267. **DIFFERENCE,** distinction. The difference lies in the things themselves; the distinction is the act of the person who notes the difference. The distinction between two objects lies in the difference between them.

268. **DIFFERENCE,** dispute, altercation, quarrel. A difference is a less serious and personal matter; a dispute suggests many angry words and much ill-feeling; an altercation is a wordy dispute, with wide difference of opinion, and much abusive language; a quarrel is the most serious and involves all forms of violence.

269. **DIFFERENT,** distinct, separate. Difference is opposed to likeness; no objects which are alike can be different. Distinct is opposed to identity; two objects exactly alike may appear to be distinct when seen clearly. Separate is opposed to unity; two bodies which are united are not separate.

270. **DIFFERENT,** several, various, divers, sundry. Different describes the quality of things rather than the number and may be used of two; several denotes split up into many; various expresses a great number and a great diversity; divers denotes many different objects; sundry denotes many things widely separated.

271. **DIFFERENT,** unlike. Things which are different have some points of resemblance and may be compared; things which are unlike are wholly so and do not admit of comparison.

272. **DISPEL,** disperse. To dispel is to drive away a thing, so that it does not return; to banish permanently, to eliminate completely. Knowledge dispels ignorance; and light, gloom. More force is implied by dispelling than in dispersing. Both are used figuratively. The thing itself may be destroyed if dispelled; while to disperse may mean merely to destroy the cohesion of its parts. To disperse does away with the completeness as a whole; to distribute elsewhere, or scatter, but not to remove; yet to disperse is a voluntary action; while the act of scattering may be involuntary and without method or plan.

273. **DISPENSE,** distribute. To dispense is to confer upon, in the sense of giving out in different directions. But it has no special reference to the one who does the bestowing. One may say Nature dispenses her bounty to all. To distribute is a definite action toward individual points, as something which comes directly from giver to recipient. To dispense is also to do without a thing,—as "we can readily dispense with that."

274. **DISPLEASE,** offend, vex. Displease is the opposite of please, and more nearly respects the inward state of mind; while the act of offending is outwardly to give occasion to provoke the feeling. Simply not to please is a negative quality; while to offend is to cause a sense of displeasure in a distinct and definite way. Vex has the same signification as offend with the additional sense of repeated actions tending to aggravate not only one's displeasure but the actual offense.

275. **DISPLEASURE,** anger, disapprobation. Displeasure is a state of irritation of mind or feeling caused by the conduct of others. It is always produced by an adequate cause, real or supposed. Anger may result from continued displeasure, and is a state of mind aggravated by a continuance, perhaps, of offensiveness. Displeasure is mild, while anger is harsh. Disapprobation is an opposite opinion from approval. Displeasure is always felt at what has passed; disapprobation may be felt also with regard to things about to take place.

276. **DISPOSE,** arrange, digest. To dispose is to assign a place to each of several things; to arrange implies a more thoughtful action. Disposal is a personal act. Troops may be disposed but ideas may be arranged. Things not wanted are disposed of; books are arranged with regard to subjects or size. To digest is the act of assimilation, the gathering together of things with a fixed design in so doing. To digest information implies an intellectual process; while disposal may be simply to set aside or put apart.

277. **DISPOSITION,** temper. Both terms refer to the mind and its bias. Disposition is the natural or prevailing tendency of the mind as a whole, and is a permanent state. Temper relates only to the bias or tone of the feelings, and is transitory. A disposition inclining to right living makes a man a useful member of society; a good temper may make one acceptable and agreeable but not necessarily useful. A good disposition will go far toward correcting the errors of temper; a bad one will leave no chance for amending the temper.

278. **DISPOSITION,** inclination. Disposition is used here in application to the particular frame of mind, rather than the general, as in the previous instance. A disposition may be indulged in; while an inclination may be yielded to. A disposition to do something applies to the state of the whole mind at that time; an inclination may be a particular part of one's general disposition. One may be disposed to be unfriendly; but have an inclination to be studious.

279. **DISREGARD,** neglect, slight. To disregard is the act of not heeding, while neglect is the act of not choosing. To disregard means a settled mental purpose to diverge from a stated plan. To neglect is to omit to do an act, as from forgetfulness or postponement. What is disregarded is purposely passed over after being seen; what is neglected is often not seen or thought of at the time. To slight is to pass over lightly, easily, casually.

280. **DISSENSION,** contention, discord. Dissension is a state produced by a collision of opinions, peculiar to bodies of men; while contention is a collision of interests, but related to individual action. Selfishness is the main cause of contention; a disposition to be opinionated causes dissension. Discord is mainly caused by ungovernable temper. Inharmonious collision between two unrelated or unsuited chords in music makes discord. Contention implies greater action than the state of being discordant or in dissension.

281. **DISTANT,** remote, far. Distant implies standing apart from, used in reference to great space; far is used relatively, and only of space which is ordinary. Distant applies to bodies at rest, while far may be attributed to bodies which are or are not stationary. Remote is an implication of superlative distance, something so far that it is out of sight and inaccessible. A place may be quite definitely distant; a bird flies indefinitely far.

282. **DISTINGUISH,** discriminate. Distinguish is to regard things as to their entirety or their divisibility. One distinguishes as to quality by the senses; while one discriminates with the understanding only. The latter is a definite action; while ability to distinguish is indefinite.

283. **DISTINGUISHED,** conspicuous, noted, eminent, illustrious. A thing is distinguished for a certain quality when that thing acquires distinction or bears the mark of it, though only by comparison. Anything is conspicuous with regard to its being seen; it is distinguished only as it is separate and distinct from others. A person is noted for some certain quality, without being necessarily either distinguished or conspicuous. One may be either one or all these three for attributes which are good, bad, or indifferent; but the terms eminent and illustrious apply only to good qualities and praiseworthy actions. A person may be eminent for virtue or attainments; and these things make his name illustrious.

284. **DISTRESS,** anxiety, anguish, agony. Distress is the state one may find himself in when there seems no chance for escape. Distress is produced by a present evil, from an outward cause, with either old or young; anxiety or anguish can only belong to riper years. Anxiety is often imaginative; anguish and agony are forms of the more severe degrees of distress. Anguish usually follows reflection upon an evil which is past; while agony is felt by a person witnessing what comes directly under his observation.

285. **DISTRESS,** perplex, harass. Distress is that which brings to straits, or binds so as to hamper action. To distress is to cause to be thrown into discomfort by a condition; while to perplex is to puzzle

or bewilder or entangle. To harass is to cause a distressed condition repeatedly or continuously. One may be perplexed in understanding, but he is harassed intellectually by baffling and recurrent causes, which may throw him into a state of distress.

286. **DISTRIBUTE,** allot, assign, apportion. To distribute is a term applied to the portioning out of a thing in more than one direction, while to allot is to dispose for a specific reason, as for the sake of usefulness or order or beauty. To assign is definitely to readjust as to merit; to apportion is to divide by some fixed rule that is meant to be uniform and fair.

287. **DISTRICT,** region, tract, quarter. District is a definite tract or space specifically set apart. A region is a more indefinite place, of larger dimensions. The former may apply to a small part of a region, while the term tract is applied to a smaller portion still. A quarter is used merely to designate a direction, and is the most vague term of all. A region is usually spoken of in connection with weather or climatic conditions. All are terms relating to area.

288. **DISTRUST,** suspicion, diffidence. Distrust is the opposite of a state of trustfulness, and may be a negative feeling, while suspicion is an active and positive conviction of the evil in a matter. When a person feels a lack of trust in his own powers or qualities, the term used is diffidence, while distrust may be felt either of ourselves or of others. The condition of distrustfulness is a particular state; that of suspicion is a matter of habit.

289. **DISTURB,** interrupt. Disturb is to cause to be disordered and thrown into a state of commotion, either internally or externally. When such confusion comes positively and outwardly, it is an interruption. Disturbance depends upon the character or temperament of the individual; interruption, or breaking in upon a thing so as to stop progress, would affect any one of an indefinite number. To disturb is to cause the state of rest to exist no longer; to interrupt is to destroy the evenness or regularity of a course.

290. **DIVIDE,** part, separate. Divide is to put into parts or asunder, though the separation of the parts of a thing may still leave them connected; as a stream may divide a state, by running through it, while a mountain merely separates the parts of a country. To divide applies to things only; to part or to separate applies to persons as well. People may part without coming to a separation; and the moment of parting is often more painful than the separation to follow.

291. **DIVIDE,** share, distribute. To divide has the sense of a division into parts, not extending beyond the thing divided; distribution or sharing extends as well to the purpose of the action. To share is simply to give or receive an apportionment; to distribute applies to giving only, as to a definite number of persons.

292. **DOCILE,** tractable, ductile. To submit one's judgment or inclinations to the influence or power of another is a docile condition, and is applied to the will, mainly. To be tractable is one form of docility,—that of making the conduct conform to judgment. To be ductile is another form of being docile,—that pertaining to matters of character. Docility and tractability are applicable either to mankind or brutes; ductility as applied to the mind or its powers may be used only of persons.

293. **DOCTRINE,** precept, principle. Doctrine relates to a thing taught, while precept is a thing laid down. Doctrine presupposes a teacher; precept a superior with authority. A principle is the starting point of a theory or school of mental effort; while the doctrine is composed of several principles. The principle lies in the thing itself; the doctrine is framed by some one, and the precept also implies individual and preliminary action.

294. **DOCTRINE,** dogma, tenet. A thing which originates with a teacher is a doctrine; a dogma is the thing thought, or admitted to be the truth, and may lie with a number of individuals. A tenet is a thought, or series of them, held or maintained by one or more. Doctrines rest on authority of the originator; dogma upon authority of the church or body holding such principles; while a tenet rests upon its own merit for support.

295. **DOUBT,** question. Doubt respects what is believed about that of which one has two opinions; question relates to a deviation from such a belief. Doubt is mental, and denotes a withheld decision; to question implies an inquiry into a matter, with a demand for proof which will assist in a decision.

296. **DOUBT,** suspense. To be in doubt is to lack the necessary evidence for belief in a matter; to be in suspense is to fail to possess certainty regarding something maintained. Doubt interrupts progress towards a desired truth; suspense puts an impediment in the way of progress.

297. **DOUBTFUL,** dubious, uncertain, precarious. The state of being doubtful admits of doubting only; while being dubious relates to events and things speaking for themselves, and causes suspense. The meaning is very similar, both having distinct relation to the person holding an opinion on a matter. Uncertain and precarious are applied to qualities of the things themselves, as a rule. Precariousness usually depends upon the will or humor of another, and is actually the highest form of uncertainty. It is applied to that which is dependent to an extent upon future casualties. Uncertainty is a more negative quality of variance in a state of doubt.

298. **DRAW,** drag, haul, pull, pluck, tug. To lay hold of a body and put it in motion toward one's self is to draw it; to drag it is to draw it with violent effort. To haul is, commonly, to drag it with still greater violence. To pull is a maintained effort to draw without effect or motion; to pluck is, literally, to pick out of, or twitch apart from. To tug is to pull with violent effort; as, after a long pull for the shore, the oarsmen may still tug at the oars.

299. **DREAM,** reverie. To dream is to pass through subconscious experience, commonly in sleep, a mental process occurring when the imagination is in a sound state. A reverie may come while a person is awake, with the imagination in more or less of a disturbed condition.

300. **DREGS,** sediment, dross, scum. Dregs are the worthless part which may separate from a liquid. Sediment is the matter, not necessarily worthless or dirty, which may settle at the bottom. Dross is a variation of the term dregs, more often applied to metal-working. Scum is the same as froth, or that which rises to the surface. Dregs and sediment settle of themselves; but scum and dross signify some preliminary process of evolution.

301. **DULL,** gloomy, dismal, sad. The removal of brightness or spiritedness of a thing constitutes its dullness; and implies literally a lack of light. The state of being gloomy denotes not only the lack of perfection in dullness, but actual tarnishing. A place as gloomy as possible may be said to be actually dismal, simply extending and emphasizing dullness which has passed the gloomy stage. Sad is more an attribute of moral states than of physical; and may indicate a heart-wound or pained feeling.

302. **DURABLE,** lasting, permanent. Durable is said of things intended to remain a shorter time than lasting, and always of things material. Lasting is used of things spiritual. That which perishes quickly is not durable; that which ceases quickly is not lasting. Permanent is, literally, remaining to the end.

303. **DURABLE,** constant. Durable is the attribute of things, while constancy pertains to either persons or things. What is durable is inherently so; what is constant is so from temperament. The durable lasts long, it may be; but the constant is possessed of uninterrupted durability.

304. **DURATION,** time. Duration is commonly the portion of time during which a thing exists; continuance in time, but has reference to the beginning and ending of the existence of a thing. Time is infinite duration or its measure.

305. **DUTIFUL,** obedient, respectful. Dutiful means a fullness of duty, and is independent of all circumstances. Obedience and respect are relative terms, and merely modes of being dutiful. Respectful is a term of greater latitude than either of the others.

306. **DUTY,** obligation. Duty is that which is due from one being to another. Obligation denotes the bond or necessity entailed in the discharge of the duty. A duty is not necessarily lasting. An obligation is compulsory. Love may be the impelling power in the carrying out of a duty; necessity, or a sense of honor, is more likely to be the force behind an obligation.

307. **EAGER,** earnest, serious. Eager implies to be ardent in the pursuit or accomplishment of a thing. Eagerness is largely based upon impulsive or thoughtless action. Earnestness applies more to a settled purpose, a state of mind, to do a thing, as a characteristic of the temper of mind. Seriousness does not go to the extreme of solemnity, but is literally without laughter. Earnestness indicates a state of being ardent in the pursuit of an object; seriousness expresses a fixed intention in the same direction, but with less warmth.

308. **EARNEST,** pledge. An earnest is a token or assurance of what may be expected. A pledge, as of one's good faith in a matter, is the bond or guaranty that the duty or labor will be performed; but earnest

applies more to the confidence inspired than to the tie by which it is either affirmed or brought to pass.

309. **EASE,** quiet, rest, repose. Ease respects a motionless state of exemption from pain, noise, or other disturbance, and implies negative and apathetic pleasure and agreeable calmness;—the stationary state of being easy following a period of unrest. Quietness is an attribute of this state, with particular reference to the absence of noise or outside violence. Quiet denotes a lying-down state or condition; while rest simply applies to cessation from motion. Repose is the degree of rest enjoyed after its interruption.

310. **EASE,** easiness, facility, lightness. Ease and easiness relate to the abstract state or condition of ease in thing or person. Facility relates to that which is done; as one may say, a person's facility is determined by comparison of his ability with that of others who are less skillful. We judge of the easiness of a thing by comparison of it with others more difficult. Lightness and ease are both said of what is to be borne. That which presses in any form is not easy; that which presses in a sense of weight does not possess lightness. To ease is to relieve a person of pain or labor. To facilitate is to make a course or progress more certain; and to lighten is to remove a burden in the sense of weight.

311. **EASY,** ready. Easy implies a sense of freedom and absence of obstruction looking towards action in ourselves; to be ready indicates a preparedness, a willingness and a disposition to go forward immediately and to do. The first relates only to the thing or manner; the latter to the person who does the thing.

312. **EBULLITION,** effervescence, fermentation, ferment. Ebullition denotes literally a boiling forth, and is drawn from a physical application of the process resultant from the effect of heat upon a liquid. Fermentation is a process more gradual than effervescence, which is ebullition in moderation. A ferment implies that a process has resulted tending to make a new state or a thing distinct from a former one.

313. **ECCLESIASTIC,** divine, theologian. An ecclesiastic is a person connected with or occupying a definite station in a religious order, though not in person performing any particular office in that station. A divine actually performs the office of teacher or preacher. A theologian is simply a student in theology.

314. **ECLIPSE,** obscure. Eclipse is a state of the shutting off of light from a thing, and implies a body completely out of view from that cause. Obscure is only a relative term and may apply to a partial eclipsing of light or power, as regarded in a general sense. To obscure a thing is to render less distinct by intervention of shadow; to eclipse is to hide wholly.

315. **ECONOMICAL,** saving, sparing, thrifty, penurious, niggardly. Economical is the attribute of not expending unwisely or unnecessarily; saving is keeping resources in an undisturbed state for future use, a laying by or setting apart with care of a reserve fund or quantity. Sparing is holding back that which ought naturally to be expended. Thrift is the prominence of that quality which arises from the habit of saving; to possess it makes a person thrifty or thriving. To be niggardly is to be close, to narrowly fall short of withholding altogether. To be penurious is to incline to niggardliness as regards one's self,—to actually suffer from the penury caused by not spending enough of one's own money or resources.

316. **ECONOMY,** frugality, parsimony. Economy implies management in expending, and a regulated manner of putting forth resources. Frugality denotes a prudent or temperate management of resources. Parsimony is a more negative term, relating to a simple forbearance in spending. One who is parsimonious has only the object of saving in his attitude. One who is frugal may spare expense upon himself and be liberal with others to the point of extravagance.

317. **ECSTASY,** rapture, transport. Ecstasy indicates a passive state of being beside one's self or out of one's mind, temporarily; a mental tension, and unusual elevation of spirits. Rapture is a state which does not, like the former, paralyze the faculties, but may call the faculties into action or expression. Ecstasy and rapture are always pleasurable and arise from pleasurable causes. Transport is a state of extreme mental activity which may relate either to joy or anger, pleasure or pain.

318. **EDIFICE,** structure, fabric. Edifice is a term relating to a house already made and finished, and is always architecturally applied. The word structure is used when the act of raising the edifice is considered. Fabric is a term applying to the simple framing, designing, or contriving of a thing to be erected or created.

319. **EDUCATION,** instruction, breeding. Education comprehends not only instruction (the communication of ideas) and breeding (the outward conduct or manners), but the formation of the mind and the establishment of principles. Instruction makes one more completely educated; breeding makes one more agreeable; while education makes one better in every direction. Travel and other things may add to education as neither simple instruction nor breeding can. The lack of breeding merely unfits a person for the society of the cultivated. Instruction withheld is more or less inconvenient though not fatal to worldly advancement; but a total lack of education, considered broadly, may be detrimental in every way.

320. **EFFECT,** produce, perform. What is effected is both performed and produced. To produce is to bring something into being, and performing is to carry a thing through to the end; while to effect is to produce by performing something. That which is effected is done according to a definite design. That which is produced may follow only incidentally.

321. **EFFECTIVE,** efficient, effectual, efficacious. Effective denotes being capable of effecting something. Whatever is efficient is that which is capable of effecting something. That which is efficacious or effectual signifies having the power to effect, or to bring about the effect. When an end or outcome is effectual, the means to that end must be termed efficacious; and it is unnecessary to adopt further measures when methods are proved to be effectual.

322. **ELDERLY,** aged, old. Elderly signifies approaching a state of age. Aged denotes a still greater degree of elderliness; and old implies still more age than either.

323. **ELOCUTION,** eloquence, oration, rhetoric. Elocution relates to the manner of delivering speech. Eloquence denotes the matter delivered, and lies in the person who does the speaking. Oratory deals with the mode or style of expression. Rhetoric is an amplification of oratory, dealing with the theory of the art of which oratory is but the practice. Elocution is therefore requisite for an actor, and eloquence more for a speaker, though of course oratory is most desirable for both.

324. **EMBARRASS,** perplex, entangle. Embarrass is to hamper or place impediments upon manners or circumstances affecting one's self, want of prudence or presence of mind being most common causes. One is perplexed when diverse interests or conditions cause confusion. Perplexities may arise from one's personal actions or from outside causes. Entanglements arise solely from outside sources. Pecuniary troubles embarrass; for example, perplexities may come from counter advices or counsels; while lawsuits entangle.

325. **EMISSARY,** spy. Emissary is literally one who is sent forth, or sent out. A spy is one who takes a station from which he sees things and takes cognizance of events or objects for future use. An emissary is sent out to mix with people or to associate with whoever may serve his purpose best to sow seeds of dissension or policy. A spy keeps at a distance and maintains secrecy as to his movements.

326. **EMPIRE,** reign, dominion. Empire is a term comprehending the idea of an exercise of sovereignty, allied to the idea of a definite reign by a ruling power. Empire is applied to people or nations, but a reign applies to the individuals who are in power. Dominion applies to the personal act, whether of a ruler or private individual. Force of law gives a potentate the reign over a people.

327. **EMPLOY,** use. To employ is to apply to some particular use or purpose; to use is to derive a benefit from such employment. One always employs when he uses; but does not always use what is employed. Persons as well as things may be employed; use is applied to things only.

328. **EMPTY,** vacant, void, devoid. Empty implies lacking or wanting, and is quite similar in meaning to the term vacant. Either a house or a seat is said to be empty or vacant when it lacks an inhabitant or an occupant. Void is slightly at variance with these terms, always used as a qualifying word but never prefixed as an adjective. A mind which is vacant of ideas may be termed void of reason; and a stare absolutely devoid of expression is said to be a vacant one.

329. **ENCOMIUM,** eulogy, panegyric. Encomium is a form of praise, in the usual sense, applied to an object at the time unconscious of such sentiments. A eulogy may be praise bestowed upon a hero of another age or country, or the characters or actions of men in general. Great achievements may be accorded encomiums; great men are given eulogies. A panegyric is,

literally, a solemn, formal oration, spoken before a stated assembly about the person or character of an individual.

330. **ENCOURAGE,** animate, incite, impel, urge, stimulate, instigate. To encourage is to inspire with courage or animate with stout-heartedness. To animate is to put spirit into a matter. To incite is to put into action or motion toward an object. To impel is to cause a thing to be advanced toward an end. To urge is to cause to be set into work or action. To stimulate is closely allied to the term "to inspire," relating rather to the putting forth of a goad, or incentive which encourages action. To instigate is to cause to be put forward and literally to spur onward. All are applied to the process of calling into action and bringing things to a specific end.

331. **ENCOURAGE,** advance, promote, prefer, forward. To encourage in another sense is the same as to promote,—to put forth as an impelling force. To advance is to bring near to a point or end. All three words are applicable either to persons or things. To prefer is to differentiate in favor of a certain person above others, and applies usually to the advancement of a person through outside efforts. To promote is to move forward or upward in degree, and is applied either to projects or persons. To forward a thing is to put it ahead one or more steps farther than its previous position. All these terms may be employed in certain phases in the consideration of either persons or things, and few other groups of allied words are more interchangeable in modern writings.

332. **ENCROACH,** intrench, intrude, invade, infringe. To encroach is to creep upon or into a situation unobserved, denoting an unauthorized procedure and, often, an imperceptible or insensible action. To intrench is to dig beyond one's own environment into that belonging to another. Intrude and invade are words denoting an unauthorized or unwarrantable entry into another's territory,—the former in a manner suggesting "thrust in upon" and the latter a "marching against" a position. To infringe is to break in upon, as, for example, an infringement of law or of rights. Intrusion implies an unexpected advance upon good manners, and invasion means an equally violent assumption of position beyond that just occupied.

333. **END,** terminate, close. To end is to bring a thing to its termination. To close is to end gradually. To terminate is to end finally. All are expressive of the conveyance of a thing to its last point.

334. **ENDEAVOR,** aim, strive, struggle. To make attempts to any end, or to set about doing a thing, is to endeavor to do it. To aim to do something is to have an objective beyond the immediate action. To strive is to qualify the act of endeavor, in the sense of earnestly doing it. To struggle is to find difficulties in the way of doing, to strive earnestly in contending with such difficulties. As, we endeavor to correct faults, aiming at perfection, by striving to conquer bad habits and struggling to overcome temptation.

335. **ENDEAVOR,** effort, exertion. An endeavor is, literally, a trying to do a thing, from a sense of duty. Effort is applied to the actual bringing out of the power to do, while exertion applies to the putting forth of that power. The latter is used as applied to nations as well as individuals; but endeavor is commonly an effort applied to individuals only.

336. **ENERGY,** force, vigor. Energy signifies the power of producing positive effects from inward force. Force is similar to the verb compel, as one may say he is forced to the conclusion through circumstances. Activity is connected with the idea of energy, and capability with that of force. Vigor is a term given to power exercised in a flourishing manner, usually applied to youthful energies.

337. **ENLARGE,** increase, extend. To enlarge is to make wider and increase in extent or dimension. To increase is to grow to a thing, signifying a greater size by reason of the junction of something else. To extend is to increase the length or the space of a thing. The bounds of a property are said to be enlarged; or the strength of an army increased; while views or prospects are seen to be extended.

338. **ENORMOUS,** huge, immense, vast. Enormous means extensive beyond the rules of law, order, or what is usual. Huge is, properly speaking, that quality indicating uncommon height; and these two are applicable to magnitude. Immense relates to excessive quantity and number, expressing more than vast. Immensity expresses extent exceeding all calculation; whereas vastness denotes simply a large or an unusual excess.

339. **ENORMOUS,** prodigious, monstrous. Enormous, signifying an excess of bounds, is to be contradictory of all rules and standards of judgment; while that which is monstrous contradicts nature and does violence to our senses and understanding. What is prodigious raises the mind beyond the ordinary course of thought, and excites astonishment and wonder.

340. **ENOUGH,** sufficient. Enough is literally a satisfying quantity of a thing. What is sufficient is that which is made or suited to the purpose. Enough may be applied to desires which have been well satisfied; sufficient to the ample supplying of one's wants. Enough is said only of the physical objects of desire; sufficient is said of that which serves its object.

341. **ENROLL,** enlist, register, record. To enroll is to place in a condition of enrollment, as in a manuscript or book form. To register is the act of placing in a written or listed form. To record is, literally, to bring back to mental consciousness, or to the memory, a fact or series of them by means of memoranda. To list, or enlist, is to set down more than one item in the form of a list. Both enroll and enlist imply a setting down of several things in an orderly manner in written or printed form.

342. **ENTERPRISING,** adventurous. Enterprising signifies to engage in that which is extraordinary or out of the common, and relates to the understanding. Adventurous means that enterprise which is hazardous or involves risk, venture, or trial. The enterprising conceive great attainments and enter upon the pursuit of difficult projects. The adventurous seek to do that which is new and dangerous.

343. **ENTHUSIAST,** fanatic, visionary. An enthusiast is one who is affected inwardly with extraordinary fervor, while a fanatic or a visionary expresses the same fervor in outward marks or singularities of conduct. Fanatic is a term often applied to those who, under stress of religious frenzy, are possessed of an intemperate zeal to insist upon others following their leadership. Visionaries are those who from any cause see or pretend to see visions as an inspiration. The influence of an enthusiast may proceed from earnestness of heart-purpose; but fanatical or visionary folk are governed by the fancy.

344. **EPITHET,** adjective. The rhetorician speaks of an epithet; the grammarian calls it an adjective. Epithet considers the meaning and force of the word; adjective is a class-name under which to place the word grammatically. So we would speak of a gentle, harsh, or ennobling epithet; but not of a gentle, harsh, or ennobling adjective. In the expression "Father Abraham," father is an epithet, but not an adjective.

345. **EQUAL,** even, equable, like, alike, uniform. Equal signifies like in degree, quantity, number, dimensions, or other qualities, and opposed to difference of any kind. Evenness is applied to the surface or the position of bodies, or may be used in a figurative sense, as to say one has marked evenness of temper. Equable means simply being susceptible of equality. Like or alike are terms used in connection with accidental qualities; and the term uniform signifies one form, and is applied to conduct, habits, or character.

346. **ERADICATE,** extirpate, exterminate. Eradicate is to get out by the root, to remove materially. Extirpate is to destroy thoroughly by removing the stalk. Exterminate is to cancel wholly and put a thing completely out of existence, and is used with regard to whatever has life, and denotes a violent and sudden action. Pestilence may extirpate, while the sword exterminates.

347. **ERROR,** mistake, blunder. Error is a term signifying the act of wandering from a fixed course, or going astray. A mistake is taking amiss or wrong, or going blindly into a path that is not the right one. Error is strictly opposed to truth, and is applied mainly to moral wrongs. Blunder is an error of action, while a mistake is an error of choice. A mistake is a thing that should be rectified. An error is something that may be forgiven. A blunder may or may not have to be set right.

348. **ERROR,** fault. While the error lies in the domain of judgment or conduct, a fault lies with the will or intent. Faults are things to be corrected, and errors are things to be treated. Error is a departure, however slight or infrequent, from a right line. Fault applies to that which is habitual.

349. **ERUPTION,** explosion. Eruption signifies a breaking forth or coming into view by a sudden bursting out. Explosion is the bursting of a thing with a noise; hence of flames there may be an eruption of a flaming substance, but an explosion of the gases or of gunpowder, and volcanoes have eruptions which are often attended by explosions as well.

350. **ESCAPE,** elude, evade. To escape is to get out of, or away from, without implying what means were

used. To elude is to avoid personally, in the sense of avoiding something which is impending. To evade is to slip away cleverly for the purpose of avoiding something. These are commonly terms applied to avoidance of disagreeable things. One is said to elude a punishment, but to evade a law.

351. **ESPECIALLY**, particularly, principally, chiefly. Especially refers to something which, out of many things, is superior to all. This meaning, in an exclusive or superlative sense, is peculiar, also, to the term particularly. Principally and chiefly refer in general to the superiority of some things over others, the former being less general than the latter. Especially is of stronger import than particularly.

352. **ESSAY**, treatise, tract, dissertation. Essay denotes an attempt or trial to set forth the outline or arguments supporting a subject, more commonly applied to small and detached pieces affording room for later amplifications. A treatise is a more systematic treatment of a subject, conveying the idea of something labored or exhaustive, and follows a more methodical form. Tracts are "occasion pieces," usually brief, and seldom surviving the occasion which gave rise to them. Dissertations are arguments advanced to support disputed points, or subjects about which there is considerable speculation.

353. **ESTEEM**, respect, regard. Esteem is to set a specific value upon an object, and is produced by intrinsic worth. Respect is the feeling engendered by some particular mark of distinction, as superiority of talent or attainments. Regard is affection blended with esteem, and flows directly from the heart. Like respect it is limited to a favored few. All these embrace a favorable attitude of mind towards the object.

354. **ESTIMATE**, compute, rate. To estimate is to get at the sum of a thing either by figurative or literal calculation,—a variation of esteem. To compute is personally to put together and think out by the specific process of assembling items in related form. To rate is to make a mental estimate of a thing by comparison, deduction, or natural sequence. All are applied to the mental operation by which sum, amount, or relative values are determined.

355. **ETERNAL**, endless, everlasting. Eternal is that which pertains to a state of which it can be said it has never begun and will never end, as set above time. Endless lies within appreciable time because it applies to something which began but which has no ending. Everlasting presupposes something which could have neither cessation nor interruption, and is more powerful than the term endless.

356. **EVADE**, equivocate, prevaricate. To evade is to avoid by a going around,—to escape by shrewdness or an artful mode, as by turning the subject or shifting, perhaps argumentatively. To equivocate is to employ a baser means of avoidance, and to make use of expressions tending towards a misleading. To prevaricate is to make use of actually and purposely contrived untruths, or vague statements conveying a wrong impression; or to employ loose and indefinite expressions, as in the case of criminals who want to shift responsibility for wrongdoing.

357. **EVASION**, shift, subterfuge. Evasion is used only in a sense other than good, with shifting and subterfuge as gradations of it. To shift is to put off a burden or responsibility upon some one else. Subterfuge is literally to fly away from in an underneath or concealed manner, suggesting recourse to screen or shelter. No truly courageous person will try to shift or to make use of subterfuge, and no candid one will consider making an evasion; all these being resorted to for low or paltry purposes.

358. **EVEN**, smooth, level, plain. Even is used of a surface or substance which is free from great or marked roughnesses or irregularities. Smooth signifies something which is wholly free from anything rough or irregular. Level, applied to a piece of land, means flat, or a surface free from protuberances or depressions. Plain is a term possessing the last mentioned qualities, and, in addition, is uninterrupted or untraversed, within the reach of vision, by water, woodland, or other deviation from an absolutely level-appearing state.

359. **EVENT**, incident, accident, adventure, occurrence. Event is that which falls out, "turns up," or transpires. Incident is something occurring in the course of events, as a collateral part of a natural or expected system. Adventure is that which happens to a person, or befalls in an unexpected or surprising manner. Occurrence is something running or coming naturally in the way, yet is a little out of the placid course of things. Accident is the thing which happens or transpires, always spoken of that which has been, an event occurring without rule or intention, and something which could not have been prevented.

360. **EVIL**, ill, misfortune, harm, mischief. Evil is comprehensive of those qualities which are not good, and ill is a contraction of or modified form of evil. Misfortune is a minor evil and depends upon circumstances. Harm and mischief are species of lesser evils; the latter an evil from some definite disturbance and the former from circumstances which may not be known, or from an indeterminate locality. Harm properly lies in the thing itself; mischief lies in that which is a consequence of a form of evil.

361. **EXACT**, extort. To exact is to drive out, as by simple force. To extort is to wring or to rend out, and implies the action of special or severe force. Exact is commonly an act of injustice; while extortion is an act of violence as in an act of tyranny; one may exact what is considered justly due or willingly accorded, as deference or obedience; one extorts what is not easily secured, or yielded only after much persuasion, as one may extort a confession or discovery.

362. **EXACT**, nice, particular, punctual. Exact is the quality of accuracy, the absence of defect of any sort. Nice is a term applied to a discriminating taste and quick perceptiveness, as in the judgment. Particular is a gradation of nicety, bringing discrimination to a specified point. Punctual is the quality of keeping to a definite point, like a person's punctuality as to time or season in doing a thing.*

363. **EXAMINATION**, search, inquiry, research, investigation, scrutiny. Examination is the balance in which mentality holds itself when an inquiry into the condition of a subject is in order. A search is a combination of seeking and seeing, in the sense that one might physically place himself in the attitude of looking intently after a thing. Inquiry is an intellectual effort of searching or seeking after; and research is searching with energy or special intentness. Investigation is the act of seeking out information or general facts by means of waymarks, signs, or tracks. Scrutiny is to examine strictly or turn over obstacles to find something sought for. A research is inquiry into that which is remote; an investigation is minute and detailed inquiry. Scrutiny implies the most careful examination or inquiry along a given line.

364. **EXAMINE**, search, explore. In the sense of looking upon places or objects with a view of securing a closer acquaintance, to examine expresses less than either to seek or to search. To search is to seek for things which are more or less remote and hard to find. We explore regions that are either highly inaccessible, hitherto unknown, or far removed. Examination implies that the object looked at is near; as a botanist examines a plant, but a discoverer explores a distant region. Exploration signifies more than either of the others an issuing forth or a quest, the result of which is wholly problematical.

365. **EXAMPLE**, pattern, sample. Example is a thing framed or shaped in accordance with a likeness or similarity; while a pattern is a literal copy. A sample denotes something done according to an example. A sample is usually an attainable goal; but an example or copy is ever something one strives to reach, being indefinitely held forth or in advance as a pattern.

366. **EXAMPLE**, precedent. Example has a particular use which implies that something which has preceded or taken place is by special distinction entitled to notice. A precedent much more distinctly implies this. Both signify something worthy of being followed or used as a rule or guide of action. The example may derive its authority from an individual, but the precedent from time and from common consent. One is more commonly led on a course by a copy or example; one is, more strictly speaking, guided or governed by a precedent.

367. **EXAMPLE**, instance. Example, as here used, denotes the thing to be followed or copied; instance, that which stands or serves for a starting or resting point. Examples are useful for instruction or illustration; instances are usually adduced by way of proof.

368. **EXCEED**, excel, surpass, transcend, outdo. To exceed is to go beyond or farther, or to pass out of. To excel is to lift or move over a thing. To surpass is, literally, to over-pass; as one nation surpasses another in a particular show of power. To transcend is to climb beyond a premise or boundary; and to outdo signifies doing what is beyond the ordinary course. To excel is confined to that which denotes good actions only, and can only be secured by effort. No particular effort is necessarily implied in surpassing a thing,

which may really be a passive and altogether involuntary condition.

369. **EXCELLENCE,** superiority. Excellence is the quality of excelling, which makes it an absolute term. Superiority is only a relative term, implying a degree or status of advance from an inferior position, literal or figurative. Superiority is often applied to a particular virtue or quality; but excellence, in the main, signifies general and sustained worthiness.

370. **EXCESS,** superfluity, redundancy. Excess is that which exceeds or goes beyond any measure. Superfluity signifies more than a sufficiency of a thing, a fullness to overflowing in reference to a definite supply. Redundancy denotes not only enough of a superfluity to overflow but enough to stream back, and even cause an inconvenient inundation of excess.

371. **EXCESSIVE,** immoderate, intemperate. Excessive denotes superlative excess, or what is beyond measure. Immoderate is merely beyond moderation or without measure; while intemperate signifies something which is without bounds in general. Excessiveness applies to what is over and above in general; both immoderate and intemperate imply the things which are excessive in a moral sense only. Excessive admits of degrees; while immoderate and intemperate indicate a great or surprising amount of going beyond,—immoderate being, in fact, the highest conceivable degree of excess.

372. **EXCHANGE,** barter, truck. To exchange is to put one thing in the place of another, or to take one for another. One of the several modifications of exchanging is the term barter, implying an exchange of one article of trade from one person to another. To truck is, literally, to wheel or carry about the thing to be traded for, sold, or exchanged. In all these there is the suggestion of private property changing ownership by an agreement involving conditions of sale or exchange.

373. **EXCITE,** incite, provoke. To excite is to make alive, to cause to be in an awakened condition, applied to purely physical influence. To incite is to rouse up and at the same time inspire with a feeling of hope or courage. To provoke is to call forth the feelings in such a way as to aggravate, and may be applied either to an inward or outward action. Excitement is usually applied to the inward feelings, as one may excite a smile but provoke laughter. To incite is always applied to moral action.

374. **EXCURSION,** ramble, tour, trip, jaunt. Excursion is a departure from one's course or path. A ramble is applied to a course taken without any particular objective. A tour is a circuitous course. A trip is an excursion on foot, or one which is so short that it might easily be taken on foot. A jaunt is very similar to trip, but implies a distance that might be more easily compassed by wheeling or other means of locomotion. A tour is most often applied to a sober scheme of enjoyment by travel; but those who have little time for such pleasure take trips or jaunts.

375. **EXCUSE,** pardon. To excuse is to exempt a person or thing from blame. To pardon is to give up or not insist upon the punishment of another for a fault. One excuses that which personally affects one's self, like a small offense, or pardons a much greater wrong, or one which offends against morals in general. Generosity and mercy are exercised in pardoning; while simple good nature may excuse.

376. **EXECUTE,** fulfill, perform. To execute is to bring about or cause to come to pass a certain ending, and involves active measures. To fulfill is to carry out an obligation, moral or otherwise. To perform is to do or carry forward a simple action or labor. One executes according to a fixed intention, personal or otherwise, but previously determined; one fulfills according to the wishes or expectations of others; one performs that which is a fixed program of action.

377. **EXERCISE,** practise. To exercise is to drive or force out action or power, as to carry forward repeated exertion of some sort. To practise is an amplification of the idea of continuous or habitual action. One may exercise a virtue, implying a peculiar mental effort; while the practice of a profession, for example, is to put forward efforts tending towards desired ends, daily and ordinarily, in the natural course of duty.

378. **EXERT,** exercise. Exert signifies an action which is either internal or external. The exercise of functions implies, as in the previous instance, something particular and definite which is being carried forward.

379. **EXHORT,** persuade. To exhort is to speak in a manner to excite or impel one in the direction of an advisable line or course. To persuade is to speak so as to produce more of the drawing or compelling and involuntary action on the part of the listener, as may be done by a friend or an equal. A superior exhorts, and presumably on matters of duty or necessity; but one who persuades may exert an influence over another resultant in any sort of action.

380. **EXIGENCY,** emergency. Exigency is what a case demands, while emergency signifies the coming out or rising above a case. The latter is imperative when it comes, the former more casual. A traveler carries enough with him to cover exigencies, but not always sufficient to cover emergencies.

381. **EXIST,** live. To exist is to place or to stand a thing by itself or of itself, and existence is the property of all things in the universe. To live is more, for it signifies action by the heart, as well as the quality of merely carrying life forward. A patient may exist but faintly; but when he is said to live, the implication is of vitality and energy, which the other term does not convey.

382. **EXONERATE,** exculpate. To exonerate is to take off or remove a burden, and to exculpate is to throw off the blame. The first is the act of another; the second is one's personal act.

383. **EXPEDIENT,** resource. An expedient is an artificial means to an end. A resource is a natural means. It requires cunning to set up and successfully resort to expedients; and we say a naturally clever man is one who has abundant resources,—not here used in the sense of wealth.

384. **EXPEDIENT,** fit. Expedient is a condition of readiness for a stated occasion, and fit, or fitness, signifies an agreement with or suitability to circumstances. Fitness is determined by moral rule, while the adoption of an expedient is an action dependent upon any outward circumstance. It is imprudent not to do that which seems to be expedient; but it is more or less of a disgrace to do a thing which is unfit.

385. **EXPERIENCE,** experiment, trial, proof, test. Experience is an action which denotes the act of bringing out or of lighting up a thing. The trial of a thing denotes the actual trying of it by examination or search. The proof of a thing is the act of making good along a certain line. The test is that which serves to prove the reality or do away with the uncertainty surrounding a thing. All these together, with the word experiment especially, imply endeavors to arrive at a certainty respecting some unknown particular or the truth of something which is largely speculative.

386. **EXPLAIN,** expound, interpret. To explain is to make plainer by either implied or actual speech. To expound is to set forth more especially in detail. To interpret is literally to get the sense out of something which needs explanation or elucidation. To expound and to interpret are both methods or species of explaining.

387. **EXPLAIN,** illustrate, elucidate. To explain is to render more intelligible by words. To illustrate means, literally, to make bright, that is, to cause a thing to be more easily examined. To elucidate signifies, literally, to bring forth into the light. Both illustrate and elucidate are to give additional clearness, implying that a partial explanation has preceded. We illustrate by means of examples, similes, and allegories; we elucidate by means of commentaries or explanatory notes.

388. **EXPLANATORY,** explicit, express. Explanatory signifies belonging or pertaining to an explanation. The explicit is that which is laid out for inspection, or unfolded to view. To express is to deliver an opinion or judgment in specific terms. The explicit demands a free use of words. The express requires words in which there is no ambiguity.

389. **EXPOSTULATE,** remonstrate. To expostulate is to demand a reason for a thing. To remonstrate is to show reason against something, and usually rests upon the force of peaceable representation. He who expostulates passes censure, and makes claim to be heard, often with a premeditation of violence. He who remonstrates presents his case and merely requests to be heard.

390. **EXPRESS,** declare, signify, testify, utter. To express is, literally, to press out what passes in the mind. A man may express all the affections; he declares his opinion for or against a matter, more or less publicly, and in more positive terms than he would use in an expression of his views. Words, looks, movements, gestures, may also express the feelings of a man. Signify and testify are words employed to describe any general act of communication other than by word; but express is stronger than either of them. By the latter the deepest feelings of the soul are made known.

while simple intentions are signified or testified to. To utter is to bring out by utterance an idea; while to express respects the thing which is to be communicated. Expressions come from the heart; but utterance is from the lips alone, and may easily consist of words without meaning.

391. **EXTENUATE,** palliate. To extenuate is to thin out or to make small in the sense of lessening the degree of an impropriety. To palliate is to throw a cloak, as of charitable consideration, over a wrong so that it may not be apparent. To extenuate is the effect of circumstances; to palliate is the effort of an individual.

392. **EXTRANEOUS,** foreign, extrinsic. Extraneous signifies, literally, out of the land or domain, and not belonging to it, as well as forming no necessary or natural part of a thing. The extrinsic is that which may be said to form a part of a thing but has only an indirect connection with it. Both these terms have only an abstract sense; but foreign is a much stronger term, and signifies not only apart from family or tribe, but from the nation also, and, in the widest sense, at large. Intrinsic merit lies in the contents of a thing, and is the opposite of extrinsic.

393. **EXTRAORDINARY,** remarkable. Extraordinary is, like remarkable, an epithet opposed to what is ordinary. The extraordinary is a thing which is out of the ordinary course, but may not be sufficiently so to cause general remark; hence it is not necessarily remarkable. There are few of the former, compared with the number of the latter. Extraordinary is a much stronger expression than remarkable, the latter being sometimes what is looked for, and the former what is often unexpected.

394. **EXTRAVAGANT,** prodigal, lavish, profuse. Extravagant means a general wandering and divergence from the line. Prodigal means a launching or sending forth, and that in unexpectedly great quantity. We speak of lavishness when we imply a dealing out of something so largely that it is of little use or of no avail. Profuseness is a term applied to a free and lavish pouring out of supplies in quantities. An individual is said to be extravagant with his own means, and profuse in what he bestows on another. One can only be prodigal with large sums, but extravagance may be associated with small sums in excess of one's own means.

395. **EXUBERANT,** luxuriant. Exuberant denotes that which is very fruitful and superabundant. Luxuriant signifies expanding with unrestrained freedom. Both are applied to vegetation in a thriving state; exuberance expressing the excess, and luxuriance the perfection of a state of growth.

396. **FABLE,** tale, novel, romance. Fable is something spoken or told. Tale is also a telling, or a species of narration. Novel is a tale which is extended. Romance is a tale that has for a basis the wonderful, or, to be literal again, the romantic. Fables are allegorical, and are supposed to be written for instruction; the action being perhaps natural enough but the agents imaginary. Tales are fictitious, as a rule, but unimaginative. The novel is a tale in complex form, introducing any number and variety of characters and incidents. But it remains for the romance to hold the attention and engross the interest to the exclusion, temporarily, of all other intellectual processes.

397. **FACTIOUS,** seditious. Factious signifies busy or intermeddling. Seditious means prone to sedition or insurrection. Factious applies to the tempers of men individually; seditious applies to bodies of men, in characterization of their conduct. The factious man wishes himself to take an aggressive part in affairs; the seditious man would compel others to do his bidding.

398. **FAIL,** fall short, deficient. To fail is not to succeed, and implies an action that was abortive. To fall short is to miss, by an appreciable difference, a reaching over to a desired aim or expectation. To be deficient is to fall short only in certain directions or in a specific manner. Falling short either designates the results of actions or the state of things in general. A person is deficient in politeness, education, or in some other definite and particular thing.

399. **FAIR,** honest, equitable, reasonable. Fair is synonymous with beautiful, and may be said of either persons or things. It also applies to fair-mindedness, and always springs from appreciation of the right. Honest is applied to a man's honor or principle, and characterizes conduct as being in line with truth and sincerity. Equitable is according to absolute equity, and reasonable is in conformity with reason. What is fair or equitable is so with reference to all its circumstances; what is reasonable is so of itself.

400. **FAITH,** creed. Faith denotes either the principle of trusting or of the thing trusted. Creed signifies the thing believed. The latter only represents the thing which is the object of faith, which is far the more comprehensive term. Faith is a more general and often more indefinite term; creed applies to a particular and definite code. Every established form of religion has its peculiar creed, while many may be grouped in accord with the same faith.

401. **FAITHFUL,** trusty. Faithful is filled full of faith or fidelity, respecting altogether the principle. Trusty signifies not only the principle but qualifications in general, and applies to those in whom trust is to be placed. Faithful is applied to persons, while trusty may be applied either to persons or things.

402. **FAITHLESS,** perfidious, treacherous. Faithless is a general term which denotes merely a breach of faith. Perfidious implies not only a breach of faith but added treachery and injury. A perfidious person generally works under the mask or semblance of sincerity and deceives those who trust him. A treacherous person betrays another, and we speak of the act as being treacherous also. A perfidious person has the will to do injury; he is treacherous as soon as he does the injury.

403. **FALL,** downfall, ruin. A thing falls from an upright or erect position. Its downfall is from an elevated position and the term is not applied to trifling objects or to slight falls. Ruin is the strongest word of the series and marks the fall, the downfall, and the resulting destruction.

404. **FALL,** drop, droop, sink, tumble. Fall is the general term; the others are particular words expressive of some form or act of falling. Drop conveys the idea of a sudden fall usually in the form of drops. Droop is a partial falling or dropping, as in the case of a flower or an awning or tent drooping. Sink is a gradual falling with a gentle motion. Tumble is to fall ungracefully, disorderly, or awkwardly.

405. **FALLACIOUS,** deceitful, fraudulent. Fallacious is deceitful or false without design or intention of so being. One may hold fallacious opinions or make fallacious statements from errors of judgment. Things are deceitful in appearance when they are not what they seem to be. Distances measured on the water are deceitful because they are greater than they appear to be. Fraudulent denotes willful, and often impudent, attempts to deceive.

406. **FALLACY,** delusion, illusion. A fallacy is that which tends to deceive. We try to detect fallacies in propositions or in reasonings. Delusion is something which deceives or misleads. Illusion is something which plays upon the mind, or it is the state of being so played upon or deceived.

407. **FAME,** reputation, renown. Fame is loud, noisy, uncertain, and more or less changing. Reputation is the lasting, solid, enduring opinion of a man and is generally based upon close observation or long intimacy. Renown is rather a combination of fame and reputation, being as loud as the one and as enduring as the other.

408. **FAME,** report, rumor, hearsay. Fame is that which spreads abroad without regard to the agent, is good or bad, and establishes the popular opinion or judgment of a person or thing. Report is a communication regarding events and occurrences; it depends upon the character and veracity of the one who communicates it. Hearsay regards the one who hears the thing and communicates his information not from any positive knowledge but from what he has been told.

409. **FAMILY,** house, lineage, race. Family regards the number, relationship, and intercourse of its members. A house regards the inmates and the occurrences within the walls. In an extended sense house is applied to the political, civil, official, and distinctive powers of a family and group, as the House of Brunswick, or the House of Lords. Lineage regards only blood relationship and includes present members, their ancestors and posterity. Race is broad, comprehensive, and includes all mankind or separate national or ethnical groups.

410. **FAMOUS,** celebrated, renowned, illustrious. Famous denotes that which is entitled to fame or which is the cause of it. Celebrated is that which is regarded with either solemnity or seriousness such as might mark a celebration or memorial ceremony. One who is celebrated commands great respect. A person is renowned because of the possession of very rare or extraordinary qualities or talents, or these in a high degree. Illustrious pertains to that which confers dignity or upon whom dignity is conferred.

411. **FANCY,** imagination. Fancy brings a thing into the mind and pictures it there either vaguely or

well-definedly. Imagination dwells upon the fancied subject, and invests it with much greater value and important accessories than fancy does. We fancy (not imagine) that we see or hear things.

412. **FASTIDIOUS**, squeamish. One is fastidious who is not easily pleased and whose niceness is caused by pride. One is squeamish who is easily disgusted from humor and caprice rather than from any well-founded sense of discrimination or good taste.

413. **FAVORABLE**, propitious. That which is well disposed towards us and acts kindly towards us is favorable. Whatever promotes our interests, furthers our plans, and confers benefits upon us by seconding our efforts and fulfilling our hopes is propitious. Winds, persons, friends, are favorable; the gods and circumstances are propitious.

414. **FEARFUL**, dreadful, frightful, horrible, horrid, tremendous, terrible, terrific. Fearful causes fear; dreadful causes dread. As fear and dread affect the mind only these in no way affect the senses. The derivation of the words makes plain the uses. Frightful causes fright; tremendous, literally, causes trembling or shaking; terrible and terrific cause terror; horrible and horrid, horror.

415. **FEAST**, banquet, carousal, entertainment, treat. Feast conveys the idea of enjoyment of a social meal. Banquet implies pomp, state, ceremony, and splendor. Carousal is a drunken feast. Entertainment and treat convey the idea of hospitality and generosity.

416. **FEAST**, festival, holiday. A feast is always sacred; a festival is either sacred or, at the least, serious; a holiday is a day upon which business is suspended.

417. **FEEL**, be sensible, conscious. Feel is capable of very wide uses, we feel with the whole body and with all our faculties; to be sensible is said only of the senses. We feel pleasure and pain; we are sensible of sounds. We are conscious of what passes inwardly. We feel the force of a remark; are sensible of the evil effects of wrongdoing; and are conscious of our own shortcomings.

418. **FEELING**, sense, sensation. Feeling is one of the five modes of sense; sense is the abstract power of feeling through the senses; sensation is feeling expressed in the serious, scientific, or medical sense of the word.

419. **FEELING**, sensibility, susceptibility. Feeling expresses a strong property of the mind, either particular or habitual; sensibility is taken in the sense of habit; susceptibility expresses a readiness to be affected by external objects. Keen sensibilities are undesirable since while they give much pleasure they also are the source of much pain.

420. **FEIGN**, pretend. These words both convey the idea of either doing or saying what is not true. Feign may be used in either a bad or an indifferent sense; pretend is always bad. Feign has in view a future purpose; pretend has a present purpose. Feign often follows a line of conduct; pretend depends upon words.

421. **FELICITATE**, congratulate. Felicitate has to do only with ourselves; congratulate, with others. We felicitate ourselves on an escape from evil; we congratulate others on their good fortune.

422. **FEROCIOUS**, fierce, savage. Ferocious conveys an idea of cruelty and wildness; fierce, of pride and anger; savageness, a less violent but more permanent state of cruelty or anger. Ferocious and fierce are usually applied to animals; savage, to man.

423. **FERTILE**, fruitful, prolific. Fertile expresses the power to send forth that which is unlike or not of its own nature. We speak of the soil being fertile when it sends forth an abundance of vegetation. Fruitful is the power of sending forth much which is of the same nature, as when trees, plants, and vegetables send forth fruit. Prolific is applied to animals.

424. **FERVOR**, ardor. We are fervent in feeling; ardent in acting. The affections are fervent; the passions are ardent.

425. **FESTIVITY**, mirth. Festivity rather produces mirth, and it includes eating, drinking, dancing, and other pleasures; mirth is that lightness of heart which usually attends such occasions.

426. **FICTION**, fabrication, falsehood. Fiction is the opposite of what is real; fabrication and falsehood, of what is true. The object of fiction is to instruct and to entertain; of fabrication and falsehood, to deceive and mislead. Fiction and fabrication require some invention; falsehood merely contradicts.

427. **FIGURE**, metaphor, allegory, emblem, symbol, type. Figure is that which is painted by the imagination and may be expressed in wood, marble, paint, and with a variety of tangible media; metaphor and allegory are figures of the imagination recorded only in words; an emblem is a representation of moral precepts and qualities by material objects; symbol is an emblem which all men recognize as standing for a definite thing; a type is an emblem by which one object is meant to represent another in a mystical way.

428. **FINAL**, conclusive. Final implies simply being the last; conclusive involves the processes by which one reaches the last. Final is arbitrary and the will can decide what shall be final; conclusive depends upon all the circumstances. An answer may be final, yet be far from being conclusive.

429. **FIND**, find out, discover, espy, descry. Find expresses a general idea of coming in sight of a thing. We may find a thing by accident, but we find out as a result of effort. We discover what is always remote and unknown. We espy what is very secluded and retired. We descry what is distant or rather hidden by a number of objects.

430. **FIND**, find out, discover, invent. In this sense we find modes or ways or means of performing or effecting purposes; we invent by applying in new ways materials which exist separately. We find out mechanical and operative processes; we discover by removing the obstacles and difficulties which ordinarily prevent a thing from being known or understood.

431. **FIND FAULT WITH**, blame, object to. All of these words denote expressing our dissatisfaction in words. We find fault with by pointing out the fault and we use the term in regard to both objects and persons. We blame persons only for the result of their faults. We object to things which have been done or are to be done.

432. **FINE**, delicate, nice. Fine is opposed to coarse, and we speak of a fine thread. In the moral sense fine conveys the idea of refined, as when we speak of a fine sense of honor or fine feeling. Delicate conveys an idea not only of fineness but also of something agreeable to the taste, as when we speak of delicate coloring, delicate shading, or of a delicate flower. In matters of appetite, delicate appeals to the refined and cultivated, while nice applies to the pleasures of the young, the ignorant, or the sensual. Nice has also a sense of discriminating, as when we speak of a nice taste in music. Niceness in such matters conforms to some established rule or standard.

433. **FINITE**, limited. Finite relates to the natural boundaries, while limited regards artificial bounds. We cannot extend the finite; but human power may change the limited.

434. **FIRM**, fixed, solid, stable. Firm is not easily shaken; fixed is attached or fastened to something and is not easily torn away; solid is capable of supporting or bearing up a load; stable will endure or last.

435. **FIT**, apt, meet. Fit is a property or quality which may be either natural or acquired; aptness is always a natural endowment; meet implies a sense of having been measured so as fully to come up to the requirements.

436. **FIT**, suit, adapt, accommodate, adjust. Fit makes a thing becoming or fit for one's use; suit is to make a thing suitable or agreeable; adapt is to change or to make something conform to present conditions, and involves the use of the judgment; accommodate is an act of the will and suggests that some sacrifice is involved; adjust conveys an idea of putting things in right order but not, necessarily, of keeping them in order.

437. **FIX**, determine, limit, settle. Fix has a general idea of making something keep its place and has a broad use; determine is a result of thought. In fixing one point is involved; in determining, one or more than one. We fix upon a point of beginning; we determine upon the beginning, the ending, the length, the breadth, and direction. We determine by removing doubt; a thing is limited by something tangible, or by law. We determine the details that we may settle the whole question.

438. **FLAG**, droop, languish, pine. Flag is to hang down as a flag and is only applied to those objects which may be blown out as a flag, though figuratively we say that the spirits flag. That droops whose head droops or flags. Languish is applied to persons and is used in describing conditions under sickness, prison, or other distress. Pine describes a mental condition of wearing pain.

439. **FLAT**, level. Flat is the opposite of round, and suggests the absence of elevation. Level has to do with other things by which its evenness is made clear.

440. **FLATTERER,** sycophant, parasite. A flatterer uses flattering words; the sycophant in addition to flattering words uses every artifice by which he can gain favor; and the parasite submits to every indignity and degradation to which he may be subjected.

441. **FLEXIBLE,** pliable, pliant, supple. Flexible is that quality which permits ease in bending; pliable, of folding. Pliant refers not to the quality but the act or the condition of folding backward and forward with marked readiness; supple suggests ease of movement.

442. **FLOURISH,** thrive, prosper. Flourish, a word drawn from the flower kingdom, denotes being in a state or condition which is agreeable; thrive denotes the process of reaching that state; while prosper is to pass through the several stages of seeing one's hopes consummated.

443. **FLOW,** stream, gush. Flow is the general term; the others are different modes of flowing. Water streams through small channels or from little spouts; fluids gush with violence. When we speak of blood flowing from a wound we merely express the idea that blood issues from the wound—we do not say how; it streams from it when it flows out as through a channel; but it gushes out when it issues forcibly and in as large quantities as the opening will permit.

444. **FLUCTUATE,** waver. He is said to fluctuate who forms many opinions in rapid succession; he wavers who cannot form an opinion or come to a conclusion. The spirits and opinions fluctuate; the will wavers.

445. **FLUID,** liquid. Fluid is anything that flows; a liquid is properly anything that has been melted. Water and air are fluids because both will flow; water is also a liquid because it is what ice becomes when it melts. Boiling lead is a liquid because it is melted.

446. **FOLLOW,** succeed, ensue. Follow, said of both persons and things, means to go or to be in the same place after another; succeed adds the idea of immediately after another. Ensue is used of things only and implies a necessary connection between the things spoken of.

447. **FOLLOW,** pursue. One follows another with a friendly or, at the least, an indifferent intent; one pursues with a hostile intent. When used of plans or purposes, one follows another's plans, but pursues his own.

448. **FOLLOW,** imitate. We imitate only that which is external, by copying or mimicking it; we follow, not only what is external, but what is internal, as the dictates of conscience.

449. **FOLLOWER,** adherent, partisan. A follower follows another person, his interests, or his principles; an adherent adheres to the cause or interests of another; a partisan adheres to a party. A follower has many motives; an adherent, a personal motive; and a partisan, a partial motive.

450. **FOOL,** idiot, buffoon. Fool is a class name and describes either a natural or artificial fool; an idiot is a natural fool; and a buffoon, an artificial fool. A fool goes contrary to common sense; an idiot cannot help doing so; while a buffoon does so intentionally.

451. **FOOLHARDY,** adventurous, rash. A foolhardy man has the hardihood of a fool and has no regard for consequences; an adventurous person is always ready to venture from the very love of it; a rash man acts swiftly without taking thought.

452. **FORBID,** prohibit, interdict. Forbidding is a direct, personal act; prohibit is a judicial act such as is exercised by the legal authorities; interdict is a moral term applied to the more serious concerns of life.

453. **FORCE,** violence. The use of force is justified by reason and fairness; the use of violence is illegal and, generally, unjustifiable.

454. **FORESIGHT,** forethought, forecast, premeditation. Foresight is seeing before; forethought is thinking before; forecast is reasonable prophecy of what will happen; premeditation is the act of taking thought beforehand with regard to what shall be said or done.

455. **FORETELL,** predict, prophesy, prognosticate. Foretell is a general and familiar word signifying to tell beforehand; predict is a foretelling by reason of some supernatural power, real or imagined; prophesy is to foretell by inspiration; prognosticate is to understand thoroughly so as to foretell results.

456. **FORGIVE,** pardon, absolve, remit. Forgive, of Anglo-Saxon origin, is the common term; pardon, from the French, is used of more serious offenses; absolve relates to the connection between man and God; remit relates more to the freeing from punishment than from blame or sin.

457. **FORM,** figure, conformation. Form is the result of either nature or art; figure, the result of design; and conformation is the arrangement or adaptation of parts to accomplish certain purposes or functions.

458. **FORM,** fashion, mold, shape. Form is to arrange in a form; fashion is to arrange in a definite or exact form; mold is to arrange in a set or precise form; shape is to arrange with regard to the external aspect.

459. **FORM,** ceremony, rite, observance. Form regards the prescribed standards of speech and conduct as determined by conventionality; ceremony regards those forms which express respect and deference; rites regard the tenets of religion; and observances refer to both religious and national ceremonies.

460. **FORMAL,** ceremonious, ceremonial. Formal describes conduct or speech in accordance with prescribed forms; ceremonious denotes an observance of ceremony, respect, or deference; ceremonial denotes an observance of proper ceremonies.

461. **FORMERLY,** in times past, in old times, in days of yore, in ancient times. Formerly denotes a more recent time than do the other terms; in fact, the difference in meaning or use of all of these terms is simply one of greater or less remoteness.

462. **FORMIDABLE,** dreadful, terrible, shocking. Formidable is applied to something which looms up so as to excite a weighty and serious fear; dreadful to what excites dread; terrible to what excites terror, acting both upon the senses and the imagination; shocking to what agitates violently. The terrible and the shocking both act in a sudden and unexpected manner, whereas that which is dreadful may grow gradually to be so, its forebodings being vague and intangible.

463. **FORSAKEN,** forlorn, destitute. To be forsaken is to be deprived of the companionship and assistance of others; to be forlorn is to be left alone in the midst of distress or difficulties, in a certain sense lost, to be without any guide in an unknown road; to be destitute is to be without any of the primary necessities and first essentials of life. To be forsaken is a partial condition only. To be destitute or forlorn is a more permanent condition.

464. **FORTUNATE,** lucky, fortuitous, prosperous, successful. Fortunate signifies being possessed of fortune in the circumstantial phases of a thing; and, with being lucky, is applied to that which occurs outside the plane of man's control. Lucky signifies having the luck or ability to make a success of something, and is always more sudden, unaccountable, or singular than to be fortunate. Fortuitous signifies to have by chance the quality of fortune. To be prosperous is to reach a condition in which hope has played a part, an extension of a state of advance along the line of one's fixed desires. To be successful is to meet with success, and is that degree of prosperity which immediately attends our own endeavor.

465. **FOSTER,** cherish, harbor, indulge. To foster is to give to a thing paternal care. To cherish is to feed with affection, to hold dear or set a value upon. To harbor is to provide shelter as well as protection. To indulge is to extend a certain liberty which is agreeable, often to give the whole mind to it, and make it the chief source of pleasure.

466. **FOUND,** ground, rest, build. To found is to exercise art or contrivance in making a support. To ground denotes the laying of the foundation of a thing so deep and so securely that it may never tremble or approach instability. To rest is more related to a state of settlement dependent upon the will of the individual. To build has especial reference not only to the basis taken but to the superstructure reared upon that foundation.

467. **FRANK,** candid, ingenuous, free, open, plain. Frankness is a condition of being wholly at ease, and may be associated with unpolished manners and impoliteness. Candor implies nothing to conceal and accompanies uprightness and refinement. Both may be either habitual or occasional and may be assumed. Ingenuousness is a permanent and inherent characteristic, implies a state of being absolutely without disguise, and denotes a habit of acknowledging the faults of one's self. Free is frank to the point of impertinence. Open signifies frank to the point of indiscretion, and to every one, while frankness is a habit of expression confined to particular individuals. Plain may be tactless, but is free from odiousness.

468. **FREAK,** whim. Freak applies more to the vagaries of childishness; whim refers rather to the eccentricities of responsible minds. Freak may be used in a figurative and material sense, *i. e.*, "Freak of

Fortune," "A freakish action." Whim is entirely a bias of the mind.

469. **FREE,** liberal. Free respects action or sentiment exerted under direction of the will. To be liberal is to act more largely according to the dictates of an enlightened mind or generous-hearted impulse. But liberality denotes impulsive, generous-hearted action, in which the will was the necessary first cause, or where without a definite will, despite the highest degree of liberality, action would never have resulted.

470. **FREE,** set free, deliver, liberate. Free is to free one's self. Set free means to make others free. Deliver is to rescue from evils due to circumstance, or those of oppression. Liberate is to rescue or set free from durance or captivity.

471. **FREE,** exempt. To be free is a state of freedom either by accident or design from any thing or condition undesirable. To be exempt is to be free by intention from any burden which ordinarily all others share.

472. **FREEDOM,** liberty. Freedom is a condition of untrammeled self-expression and action, used always in a good sense. Liberty is used often in a bad sense, and implies positive release from restraint.

473. **FREQUENT,** resort to, haunt. Frequent usually means the action of an individual; resort and haunt refer to numbers of individuals. Frequent and resort are used in an indifferent sense, haunt invariably in a bad sense.

474. **FRIGHTEN,** intimidate. Immediate danger which is seen frightens; threatened danger intimidates. Animals may be frightened but never intimidated.

475. **FROLIC,** gambol, prank. Frolic is any gay, joyous amusement. Gambol implies physical action, hence dancing or leaping for pleasure. Prank is a freakish trick or mischievous diversion. Gambol and prank may be applied to animals.

476. **FULFILL,** accomplish, realize. Wishes carried out are fulfilled. Any work perfectly done is accomplished. One's hopes, plans, or prospects are realized.

477. **FUNERAL,** obsequies. Funeral is an ordinary service however simple accompanying the interment of the dead. Obsequies may occur at any subsequent time. Also obsequies implies formal pomp and ceremony.

478. **GAIN,** profit, emolument, lucre. Gain is a general term meaning all increase of income. Profit means the gain from an estate or business. Emolument is reward or salary for labor or services. Lucre is used in a bad sense, signifying immoderate gain or usurious profit, or gain acquired in any dishonest way.

479. **GAPE,** stare, gaze. Ignorance and bewildered astonishment expresses itself by gaping; impertinence or stupefaction by staring. Gaze is used in a good sense and means to look steadily from any laudable motive. To gaze may express pleasure, interest, surprise, or curiosity.

480. **GATHER,** collect. Gather means to bring together. Collect implies the additional meaning of completing a whole by bringing together.

481. **GENDER,** sex. Gender, properly speaking, a kind, applies to distinctions in words. Sex implies nature or habit and applies to animals. There are three genders, masculine, feminine, and neuter; two sexes, male and female.

482. **GENERAL,** universal. The general rule may have exceptions; the universal has none. General is used in opposition to particular; universal is opposed to individual. General means the greater part; universal signifies every part.

483. **GENTEEL,** polite. Genteel refers to rank in life, to high birth, not necessarily to good breeding. Polite applies to manners, speech, and appearance.

484. **GENTILE,** heathen, pagan. Gentile signifies one who, while not positively believing in divine revelation, stands ready to be convinced. The heathen adopts a false form of worship. The pagan insists upon a mode of worship made out of his own imaginings. All pagans are heathens. All heathens are gentiles, but all gentiles are not either pagans or heathens.

485. **GENTLE,** tame. Gentle indicates sweetness and mildness in natural disposition; tame implies familiarity with human society due to training and association. All tame animals are not gentle, nor are all gentle animals tame. Tame is opposed to wild, gentle to rough or fierce.

486. **GET,** gain, obtain, procure. Get is a general term and includes the other three. What one gets may not be desirable or in accord with his efforts. To get something which is in any way advantageous or desired is to gain. Obtain implies rather the getting by one's own efforts and exertions. Procure is to obtain by either labor or strategy.

487. **GIFT,** present, donation. To make a gift is a generous act and confers benefit. Making a present is more an act of courtesy and confers pleasure. Gifts and presents are private and personal. Donations are public, viz., gifts to hospitals, churches, and other general institutions.

488. **GIFT,** endowment, talent. A gift is never obtained by one's own labors or exertions, and the word always suggests a giver. Endowments refer more to the receiver, and may be cultivated and acquired. Talents suggest only their own intrinsic merit independent of source, and may be either inherent or acquired.

489. **GIVE,** grant, bestow. The inclusive and general word is give. To grant is to give anything tangible or intangible in response to a request. Superiors grant or bestow. Any one may give to another. Bestow implies a condition of necessity on the part of the recipient.

490. **GIVE,** afford. Give is the general term. Afford implies giving in proportion to one's income or circumstances. Give denotes an entirely unconditional action.

491. **GIVE,** present, offer, exhibit. In order to give there must be acceptance. To present signifies giving with more or less formality. One offers when he makes the attempt to give. An offer may be refused. To exhibit is to place conspicuously in view.

492. **GIVE UP,** deliver, surrender, yield, cede, concede. We give up what is ours. We deliver that which is another's. We surrender with reluctance that which we wish to retain. To yield implies resistance, or giving up under compulsion and through helplessness or weakness. To cede is to surrender peaceably or by treaty, and implies willingness. Concede denotes yielding through courtesy or discretion.

493. **GIVE UP,** abandon, resign, forego. One can give up anything small or great. One abandons projects of importance, and that by his own decision. One resigns what he desires and what he already has. He foregoes that which he might have. We can forego a pleasure by deciding not to take it. We resign an office which we already hold.

494. **GLAD,** pleased, joyful, cheerful. These meanings increase in intensity in this order—pleased, cheerful, glad, joyful. Pleased may indicate only a fleeting emotion. Cheerful suggests a more permanent condition of mind independent of external conditions. Gladness may have its source in physical causes, but joy springs from mental impressions. Both gladness and joy are induced by outward circumstances.

495. **GLANCE AT,** allude to. Glance at in writing or speech signifies a cursory allusion to a fact or subject. To allude to implies an indirect but not concealed action, hence a reference to a subject without stating the fact.

496. **GLARING,** barefaced. Glaring denotes the quality of the thing; literally, in a powerful light. Barefaced describes the person; literally, entirely undisguised. Barefaced lie suggests the boldness of the liar. A glaring lie is an unmistakably obvious falsehood.

497. **GLIMPSE,** glance. A glimpse is what one sees in a fleeting moment. A glance is the act of looking quickly or surreptitiously. A glance at an object gives us a glimpse of it.

498. **GLOBE,** ball. Strictly speaking, a globe is a body not perfectly circular in every circumference line; that is, it may be irregularly round. A ball is symmetrically round. Globe applies rather to astronomical and chemical bodies.

499. **GLOOMY,** sullen, morose, spleeny. Gloomy is a matter of inherent disposition, a misfortune. Sullen is a matter of uncontrolled temper, a fault. Sullen also implies rebellion against authority. Morose is a pessimistic frame of mind in those of mature age and in authority, hence does not include rebelliousness. Spleen is perpetual bitterness and is a defect of the nature. Moroseness is a defect of the temper. Spleen is often consciously malicious. Moroseness signifies rather a warped judgment.

500. **GLORY,** honor. Glory induces extraordinary achievement. Honor leads to discharge of one's duty. Glory is more splendid and may be attained by only a few. Honor is more substantial and is within reach of

all. Glory may be regarded with indifference, but honor must be most highly prized and striven for by all.

501. **GLORY,** boast, vaunt. To glory is rather an act of the mind. To boast and to vaunt refer to an expression of that sentiment. One glories in matters of importance; he boasts of more trivial things. Vaunt is a word less commonly used in ordinary speech, and is confined more to classical literature.

502. **GODLIKE,** divine, heavenly. Godlike defines itself. Divine is opposed to human. Heavenly is opposed to earthly. Anything that appertains to a superior being is divine. That which belongs to heaven is heavenly.

503. **GOLD,** golden. Gold means made of gold. Golden is the quality of being or appearing like gold.

504. **GOOD,** benefit, advantage. Good comprehends everything that is suitable for a purpose, and desirable for happiness. Anything that may be used to promote our welfare is an advantage even though it be turned against us, thus becoming an evil rather than a good. A benefit is some specific good as applied to a particular individual, and is always in relation to circumstances.

505. **GOOD NATURE,** good humor. Both terms refer to an inherent disposition leaning towards pleasing others. Good nature is a permanent quality and habit. Good humor is a mood of the hour, and may be largely on the surface, while good nature applies to the state of the mind.

506. **GOODS,** furniture, chattels, movables, effects. One's goods include all personal possessions which are of value to him. Furniture belongs to the things of the household. Chattels has a wider significance, things separated from one's person and house, cattle, slaves, lands, etc., in fact all salable property. Movables are only those articles which can be taken from place to place. Effects contains almost as wide a meaning as goods, but relates especially to goods which can be converted into money. Goods not under the owner's control for disposal become effects.

507. **GOODS,** possessions, property. Goods must be considered as to whether they are real or imaginary, possessions as to whether lasting or temporary, property as to whether it is legal or illegal. "Some abound in the goods of this world." "Be not anxious for earthly possessions." "The most secure title to property is held by inheritance."

508. **GOVERN,** rule, regulate. To govern is to exercise authority tempered by judgment and knowledge. To rule is to arbitrarily control the actions of others. To regulate is to manage affairs purely by the exercise of judgment.

509. **GOVERNMENT,** administration. Government is a more comprehensive term than administration. Administration implies putting into execution the laws or will of another. A government may be administered. Administration may change while the government does not.

510. **GOVERNMENT,** constitution. Government signifies the general act of exercising authority in any form. A constitution is some fixed form of government.

511. **GRACE,** favor. Properly, grace is used only in regard to persons who have erred, and includes in a sense forgiveness. Favor is simply a kindness voluntarily shown, deserved or undeserved.

512. **GRACE,** charm. Grace is physical and qualifies the action of the body. Charm is an attractiveness of the mind and soul as well as of the body.

513. **GRATIFY,** indulge, humor. Gratify is to produce an intense pleasure, to please greatly, and suggests also an element of satisfaction. Indulge signifies to allow much gratification, perhaps to excess, but not necessarily so. To humor implies indulgence exercised toward fancies or caprices.

514. **GRAVE,** serious, solemn. Grave, weighty, applies to deportment and movements of the body as well as the state of mind; heaviness of action. Seriousness is caused only by an operation of the mind and bespeaks a steadiness of purpose and demeanor. Seriousness allows one to be quick and alert, which gravity does not. but is never jocular. Solemn is used to denote an extraordinary seriousness, and applies rather to things of a religious nature, or of great moment.

515. **GREAT,** large, big. Great defines intangible things and suggests an element of intangibility even in material things. Big applies to material things and expresses less in degree. Large describes things which can be measured. Great may be used to designate things infinite in quality. "God is great." We may say, "a great mind," "a big brain." Large suggests not only limitation, but is relative in its meaning. Thus, "The tiniest insect is comparatively large," never "comparatively big."

516. **GREAT,** grand, sublime. Great denotes extent. Grand embraces also the idea of superior excellence. Sublime applies only to the works of nature, and includes height, hence, figuratively, an elevating quality. Great may apply also to works of art, and suggests immensity.

517. **GRIEVE,** mourn, lament. Grieve is a general term, and denotes an inward act. To mourn is an outward act. Thus, to mourn is a manifestation of grief. Grieve and mourn are permanent sentiments. Lament is a passing feeling. To mourn may be a silent expression. Lament signifies mourning in cries or words.

518. **GROAN,** moan. Groan is involuntary, a noise made by hard breathing. Moan is a voluntary expression of pain, made simply by the voice. Both express pain of either body or mind.

519. **GROSS,** coarse. The moral significance of both words is synonymous. Gross suggests rather material bulk, hence is applicable more exclusively to habits of the body. Coarse suggests texture, so can be used to describe manners, and trend of the mind.

520. **GUARANTEE,** be security for, be responsible for, warrant. We guarantee by our word. To be security for includes also some binding act or contract, and is used more often in a legal sense. Guarantee is used more in a commercial sense, and implies the power to make good. Being responsible for applies to morals and conduct and is used always in reference to the behavior of people more or less under our charge and protection. To warrant binds one to make restitution; used morally, it indicates a justification of a certain line of action.

521. **GUARD,** defend, watch. Guard comprehends the meaning of both defend and watch. Defend is used only in case of actual attack. Guard signifies also to prevent the attack by watchfulness. One defends only in active fighting. One guards in times of peace and security. Watch denotes simply continuous observation for any purpose.

522. **GUARD,** guardian. A guard may guard either persons or things; a guardian applies to persons only. A guard may be only temporary, and protects from external evils. A guardian takes entire charge of the person and welfare of another.

523. **GUARD AGAINST,** take heed of. Guard against implies the exercise of special care against active external evils or influences. Take heed of applies to internal evils or undesirable mental tendencies, and passive dangers. "Take heed lest ye stumble." "Guard against slander."

524. **GUESS,** conjecture, divine. We guess at what is occurring or has occurred; we conjecture that which may be in the future. Properly, divine implies supernatural knowledge; commonly, however, it signifies to guess or conjecture correctly.

525. **GUILTLESS,** innocent, harmless. Innocent applies to acts; guiltless also to intentions. Guiltless properly characterizes only the condition of man; innocent may be used to indicate the quality of things. Innocent and harmless both represent a negative quality; innocent, a quality of the mind; harmless, an inability to cause physical injury.

526. **HAPPEN,** chance. Whatever occurs happens. That which happens by accident, or outside the ordinary course of expectation, is said to chance.

527. **HAPPINESS,** felicity, bliss, blessedness, beatitude. Happiness is induced by desirable conditions both of the body and soul. Felicity denotes an inward state due rather to ideal conditions of the soul, and independent of outward circumstances. Bliss indicates a higher degree of joy, and joy of a superior nature, than either happiness or felicity. Bliss relates to the spiritual nature. Blessedness implies special Divine favor. Beatitude denotes the most exalted degree of heavenly bliss.

528. **HAPPY,** fortunate. Happy relates to the state of mind; fortunate to external circumstances. Happiness depends upon one's nature; fortune upon one's efforts and abilities and chance. A fortunate man may be unhappy and *vice versa.*

529. **HARBOR,** haven, port. Harbor suggests a shelter, and is temporary; haven suggests a secure shelter, and a permanent resting place. A haven is a natural harbor; a port is an artificial or improved harbor, and is used rather in a commercial sense.

530. **HARBOR,** shelter, lodge. To harbor is used more often in a bad sense. It means to afford a

habitual stopping place. "One harbors resentment," or "one harbors thieves." One shelters those creatures which are helpless or weaker than one's self. One harbors permanently, though perhaps intermittently. One lodges that which wants a resting place. To lodge is temporary.

531. **HARD**, firm, solid. Hard denotes close adherence of the parts of any body. Firm is used to designate the close adherence of two separate bodies. Pieces of ice floating in a river may be hard but they are not firm. Solid is opposed to fluid and is not necessarily hard. Jelly is solid and stone is hard. Firm also implies a certain immovability.

532. **HARD**, callous, hardened, obdurate. As above, hard signifies the ability to resist external pressure. Hard is an intrinsic quality. Callous is a state of hardness brought about by circumstances and external conditions, or long-continued custom; a tender nature may become calloused. Hardened applies to both the heart and the mind. Obdurate refers especially to the will. One may become hardened by time and circumstance. Hardened is a permanent condition; calloused may be temporary.

533. **HARD**, difficult, arduous. Difficult is negative, and means simply not easy. Hard is a stronger term. Literally, arduous signifies high out of reach; hence, while hard tasks are possible of accomplishment by persons of only average ability, arduous work requires almost superhuman effort, and is beyond the reach of ordinary intellects.

534. **HARD-HEARTED**, cruel, unmerciful, merciless. Hard-hearted characterizes a settled habit of thought and action. Cruel may be only a passing disposition or an action of the moment. Cruelty is measured by the action rather than the person; a tender-hearted person may be cruel through ignorance. Both unmerciful and merciless denote lack of mercy, but merciless is the stronger term. A man may be unmerciful through an unwillingness to extend mercy in a particular case; a man is merciless when he is incapable of feeling mercy.

535. **HARDLY**, scarcely. In many senses these words are synonymous,, but when the idea of difficulty only is implied, hardly is the proper word. "I can hardly walk." When the idea of infrequency only is conveyed, scarcely is preferable. "He scarcely ever walks."

536. **HARSH**, rough, severe, rigorous. Harsh and rough have a physical significance, but harsh is much the stronger term. In their figurative use, rough applies to manner and mode of speech. Harsh refers to the mental attitude and includes that even when used to describe deportment. Severe and rigorous describe the action rather than the person. One may be severe in dealing with innocent persons under his control, but rigorous in punishing criminals. Rigorous is an extreme severity.

537. **HASTEN**, accelerate, speed, expedite, dispatch. Hasten denotes little besides active, rapid motion. Accelerate signifies to increase one's speed, or quicken an operation. Speed conveys the idea of forward movement. Whereas hasten may be aimless hurry, speed is effectual movement. Expedite expresses the idea of making easy of accomplishment; meaning, literally, to remove obstacles, hence to bring about a quick accomplishment. Dispatch designates the act of completing a task with expedition, of speedily finishing a piece of business.

538. **HASTEN**, hurry. We may hasten in good order and according to design. We always hurry in confusion, and without forethought.

539. **HATE**, detest. We hate from a personal feeling; we detest from a moral sense. We hate those who mistreat us; we detest those who mistreat others, or who are undeserving of respect. Therefore, to detest is commendable; to hate is blameworthy. We may hate those who are good, we cannot detest them.

540. **HATEFUL**, odious. Originally synonymous, these two words have now a slight deviation of meaning. Hateful is what we hate. Odious describes any quality or action that would make us hateful to others, or others hateful to us.

541. **HATRED**, enmity, ill will. Hatred expresses more than enmity, while ill will expresses less. Hatred wishes ill to others, and is happy only in their misery, but does not necessarily take an active part in causing that misery. Enmity, although consisting of action as well as feeling, is a more honorable sentiment in that it has always a real or fancied reason for its existence. Ill will lies only in the mind and may exist in only a slight degree.

542. **HAUGHTINESS**, disdain, arrogance. Haughtiness is based upon a high opinion of ourselves; disdain upon a low opinion of others. Hence disdain is sometimes justifiable. Haughtiness and disdain are sentiments of the mind. Arrogance is an expression of those sentiments, either by words or manner.

543. **HEALTHY**, wholesome, salubrious, salutary. In modern use healthy applies more exclusively to a condition of the body not to things that induce that condition. A man is healthy. Food, exercise, pure water, and good air are wholesome. Wholesome qualifies things and circumstances. Salubrity is the quality of an environment which improves the health. Salutary conveys the idea of positively curing disease.

544. **HEAP**, pile, accumulate, amass. Heap may be large or small, orderly or disorderly. A pile is always considerable in amount and is made according to some design, however simple. Hence a building may be called a pile. Accumulate suggests heaping and implies a collection of separate units which may be dissimilar in character. We amass that which coalesces into a whole. In neither amass nor accumulate is the action of a conscious agent necessary. A glacier accumulates stones. Ice amasses in rivers.

545. **HEAR**, hearken, overhear. To hear is solely the physical act of the ear. To hearken is also an act of the understanding. To overhear is to hear that which is not intended for us to hear.

546. **HEARTY**, warm, sincere, cordial. Sincere is a habit of one's nature Hearty, warm, and cordial express feelings induced only by certain circumstances, at certain times. Warm implies an affectionate regard; hearty a deep interest that comes from the heart, but not necessarily exercised toward an object of affection. Cordial indicates an extreme and sincere interest, and applies with special aptitude to the act of welcoming.

547. **HEAVY**, burdensome, weighty, ponderous. Heavy is an intrinsic quality of weight. A heavy thing becomes burdensome only when it is lifted or carried. Weighty is always positively heavy. Heavy has a relative meaning. A grain of corn is not weighty, but it is too heavy to be carried by an ant. Ponderous includes both size and weight, usually an excess of weight.

548. **HEED**, care, attention. Heed includes the idea of thinking upon the possible consequences of a mode of action. We heed the warning or counsels of others. We give attention to whatever is necessary for us to perform. We have a care for things of smaller consequence which require no forethought.

549. **HEIGHTEN**, raise, aggravate. To heighten is to make higher in the sense of taller. To raise represents the idea of lifting to a higher plane or situation. To aggravate is to make heavy, hence to increase. Applies to things disagreeable. A fever, a man's guilt or fear, may be aggravated or heightened.

550. **HEINOUS**, flagrant, flagitious, atrocious. Heinous signifies seriously violating laws either human or divine. A flagrant offense is one that defies custom and established opinion. A flagitious act is one that grossly violates the laws of good morals and decent conduct, especially if attended by profligacy. Atrocious is a crime committed under extremely aggravated conditions. "Than such atrocity can one no further go."

551. **HELP**, assist, aid, succor, relieve. Help is the general term and in almost every case could be used instead of any one of the others. Assist is used only of individuals. Aid is used in speaking of nations or bodies. Unlike the first three words, succor and relieve indicate exclusively the removal of an existing evil, while help, assist, and aid may mean also production of positive good. Succor must be personal aid, and refers to a definite and immediate action. Relieve is applied more commonly to pain and sickness.

552. **HIGH**, tall, lofty. High is the term in most common use. Tall and lofty mean extraordinary height. Tall always implies slenderness, that is, extension in a perpendicular direction only. Lofty also allows bulk or space in a lateral direction, as a tall steeple, a lofty room, or a lofty mountain. High is the general term of substitution for either of the others.

553. **HINDER**, prevent, impede, obstruct. Hinder expresses little else than delaying one's achievement of a purpose. Prevent means to hinder to the extent of rendering accomplishment impracticable. Impede implies hindering by means of confusing the action of a person or greatly increasing his labor. Obstruct suggests the presence of obstacles.

554. **HINT**, suggest, intimate, insinuate. We suggest and intimate openly. We intimate a fact because we prefer not to speak broadly. We suggest a line of conduct from a feeling of modesty or delicacy. We hint

surreptitiously at that of which we fear to speak directly. Insinuate is invariably used in a bad sense. To imply anything against the character or attainments of another is to insinuate.

555. **HOLD,** keep, detain, retain. To hold implies physical action, and may be only for a moment; is always temporary. To keep is rather the simple act of possessing, of permanently having within reach. To detain is holding back what is another's, hence is used to express delay of action caused by anything foreign to that action. To retain is the keeping indefinitely, but not necessarily permanently. Retain also indicates keeping through some change or changes of circumstances.

556. **HOLD,** occupy, possess. We hold temporarily or permanently for any purpose whatever. We occupy that which we hold for use whether it is ours or another's. We possess only that which is our own. Occupy contains also the idea of dwelling upon or within. Possess applies to anything we own.

557. **HOLD,** support, maintain. We hold by active exertion, in any direction. We support more passively. Even inanimate objects may support. Support is to hold up, or to help any one else to hold up; implies the idea of a prop. We hold our own opinions. We support another's opinions. We maintain opinions when we express them. We maintain by assertion. We support by argument. Maintain includes also the idea of money support.

558. **HOLY,** pious, devout, religious. Holy, a characteristic of the genuine Christian, heavenly minded. Pious is a less comprehensive term, consequently is applicable to a larger number. It applies to all believers in a Supreme Being whether Christian or of another belief. Pious signifies the homage of the mind and heart to a Supreme Being. Devout denotes an outward act of prayer or worship. Religious applies to those who conform to the dictates of conscience in all matters that relate to good morals and good citizenship.

559. **HUMBLE,** humiliate, degrade. To humble implies a previous eminence; literally to bring down. Degrade is used always in a bad sense morally; all vices degrade. It affects the character. Humble and humiliate apply rather to position, circumstance, and the mind or outward person, not to moral character. Humiliate is a stronger term than humble.

560. **HUMOR,** temper, mood. Temper is a permanent characteristic. Humor, a temper of the moment. Mood applies only to the temper of the mind and is a passing condition. Humor conveys an additional sense of physical cause.

561. **HURTFUL,** pernicious, noxious, noisome. Hurtful means simply full of hurt, injurious. Pernicious is positively destructive. Noxious and noisome are used only in a physical sense. Noxious is a direct bodily injury. Noisome an indirect and more subtle harm. Mosquitoes are noxious insects. Malarial fog is noisome.

562. **IDEA,** thought, imagination. An idea is a picture in the mind. We have ideas of all material things. We have thoughts upon abstract subjects. Imaginations are thoughts founded upon unrealities. Lower animals may have ideas. Insane people may have imaginations, but only rational beings can have thoughts.

563. **IDLE,** lazy, indolent. Idle is a state of being unoccupied with work. Lazy represents an aversion to labor, particularly labor requiring bodily exertion. A lazy man may work, and an idle man may want to work. Indolent indicates an inactivity of the mind due to lack of purpose or incentive. Lazy is opposed to industrious. Indolent is opposed to active.

564. **IGNORANT,** illiterate, unlearned, unlettered. Ignorant signifies not knowing. Illiterate is a form of ignorance due to an entire lack of education. A well-educated man may be ignorant of certain subjects or circumstances. Unlearned implies the lack of a higher education. Unlettered suggests an unfamiliarity with the classics of literature. Unlearned, unlettered, and ignorant may be used interchangeably in many cases.

565. **IMITATE,** copy, counterfeit. Imitate is to make a general likeness. Copy is to make an exact duplicate. Counterfeit is to copy with intent to defraud.

566. **IMITATE,** mimic, ape, mock. To imitate is a general term. To mimic is an exact imitation of manner or speech for the amusement of others. To ape is an absurdly exaggerated imitation of manner or dress, assumed for the purpose of making it appear to be one's natural expression. Mock signifies in its broader sense any form of taunting ridicule; is also used in the sense of mimic.

567. **IMMINENT,** impending, threatening. All three terms indicate approaching danger. Imminent may be sudden and only for a moment. Impending implies duration and gradual approach. Threatening is said of something impending, only when the danger is one which gives warning of its nearness.

568. **IMPERFECTION,** defect, fault, vice. An imperfection is a lack of perfection, and is rather a negative term. A defect is a positive imperfection or inability. Defective is a stronger term than imperfect. A fault is a defect for which a person may be held blameworthy. A vice is an actual stain upon the character.

569. **IMPERTINENT,** rude, saucy, impudent, insolent. Saucy, impudent, and insolent relate to the conduct of inferiors toward those above them in station or authority. Rude signifies rough, unpolished, and is often the result of ignorance or forgetfulness. Impertinent is a general term and must be always intentional. Impudent is a brazen impertinence. Insolent is the extreme of outrageous impertinence.

570. **IMPLACABLE,** unrelenting, relentless, inexorable. Implacable denotes absolutely unchangeable hatred or animosity. Relentlessness indicates the same fixity of purpose, but may be caused by adherence to principle rather than personal reasons. Inexorable may apply also to inanimate things, as death or justice. It signifies a quality of not yielding to prayers and entreaties. Unrelenting and relentless are almost identical unless, perhaps, the latter term is the stronger.

571. **IMPLANT,** ingraft, inculcate, instill, infuse. The first two words are their own definition. To implant, to set roots into the ground. To ingraft, to graft on to a plant already growing. A parent implants principles, a teacher ingrafts them. To inculcate, to teach by words, or to impress by continued repetitions of the teachings. Instill, literally drop by drop, is the gradual process of education. Permanent sentiments are instilled into the mind. Temporary excitements or feelings are infused.

572. **IMPLICATE,** involve. One is implicated who is only slightly or indirectly concerned in an affair. Involve conveys the idea of being completely entangled. Implicate, to be folded into. Involve, to be rolled up in.

573. **IMPORTANCE,** consequence, weight, moment. Things are important from the value, real or imaginary, which is placed upon them. Anything of importance because of the consequence which follows is said to be of consequence. "It is of no consequence" signifies that the result would be the same in any case. Intrinsic importance gives an action weight. Weight also implies an affair which requires deliberation. Moment bespeaks a great degree of importance.

574. **IMPUGN,** attack. Impugn relates only to doctrines and opinions. Attack includes the idea of violence, and applies also to material things. We impugn with arguments; we attack with ridicule.

575. **INACTIVE,** inert, lazy, slothful, sluggish. Inactive is the unqualified and general term. Inert signifies absolutely without motion. Lazy is the dislike of physical action. Slothful is always to move slowly. Sluggish means moving as in a stupor, heavily, drowsily.

576. **INCAPABLE,** insufficient, incompetent, inadequate. Incapable, without capacity, is a permanent and inherent characteristic of the mind. Insufficient, not enough, implies limitations that may be due to youth or inexperience. Incompetent is applicable to certain things and conditions; a thoroughly capable person in certain directions may be incompetent for other kinds of work. Inadequate, not equal to, has a relative significance, and is very nearly synonymous with insufficient.

577. **INCLINATION,** tendency, propensity, proneness. Inclination refers to our first leaning towards a thing. Tendency is an habitual inclination. Propensity is a strong tendency. Proneness indicates a still stronger tendency.

578. **INCREASE,** grow. That which becomes larger by any means whatever is said to increase. To grow is to increase by means of the life principle. Figuratively, grow is a gradual increase.

579. **INCREASE,** addition, accession, augmentation. Increase is again the unqualified term. Addition is to increase by means of putting two or more things together. Accession is an accidental mode of addition. A man makes additions to his wealth, but receives an accession to his property by inheritance. Augmentation is a more formal expression, synonymous with increase.

580. **INDEBTED,** obliged. Indebted is unlimited in its application. It designates the state of owing any-

thing Obliged is restricted in its use to the owing of favors and courtesies.

581. **INDIFFERENCE**, insensibility, apathy. Indifference is a negative term denoting entire lack of preference for one thing more than another. Insensibility is a lack of feeling. Apathy is an incapacity for feeling. Apathy is an inherent, permanent characteristic of one's constitution. Indifference and insensibility may be acquired or temporary. One may be indifferent and not insensible, or insensible and not apathetic.

582. **INDISTINCT**, confused. Indistinct is simply not positively well marked, faint in outlines. Confused implies a mixing or blending of outlines of two or more objects or ideas. Anything that is confused is also indistinct, but not *vice versa*.

583. **INFAMY**, ignominy, opprobrium. Infamy is opposed to good fame. It implies public disgrace, and refers to the act rather than the person. Ignominy and opprobrium apply rather to the person. Opprobrium is an extreme degree of ignominy. Either ignominy or opprobrium may not be far reaching, but may extend throughout a comparatively narrow circle of acquaintances.

584. **INFORM**, instruct, teach. Inform is a widely extensive term. It applies to all facts of any character, and any one however ignorant may inform others of anything that he knows. Instruct refers to the serious, valuable knowledge of life. Instruct and teach are the acts of those superior in attainments or position. Teach relates more especially to the imparting of facts and various useful knowledge, rather than the act of training the mind and implanting principles, which is preferably the office of the instructor.

585. **INFORMATION**, intelligence, notice, advice. Information refers to the knowledge one has acquired. Intelligence is the ability to understand. Information is knowledge imparted of facts that have occurred; intelligence, knowledge imparted of recent facts and suggests the idea that they are not generally known. Notice is knowledge imparted of what is about to occur. Advice in this sense is detailed information.

586. **INJURY**, damage, hurt, harm, mischief. Injury is the making of anything otherwise than perfect. Damage is an injury which subtracts from the value of a thing, and applies only to physical things. Injury and hurt both apply to persons, but hurt may be only a pain and momentary, while injury is more serious. Hurt qualifies only bodily injury. Harm and mischief may apply to either persons or intangible things, and are almost identical in meaning. Mischief, however, seems to include the idea of a malicious agent, while harm may be caused by things inanimate.

587. **INJUSTICE**, injury, wrong. Injury, again, is the general term. Injustice is an undeserved injury; also it is not necessarily an injury. An unfair opinion of any one does him an injustice, but not an injury. A wrong includes both injustice and injury.

588. **INSIDE**, interior. Inside applies to bodies both small and large. Interior is used in speaking only of large bodies. Inside means rather the side that is inward. Interior refers to the space inclosed.

589. **INSIST**, persist. Insist signifies to maintain a position. Persist conveys the impression of pressing forward. To continue to do anything is to persist. To refuse to yield a point is to insist.

590. **INSTANT**, moment. An instant is the present moment. A moment may be of the past or future. Both terms are a point of time, hence have no duration.

591. **INTERCEDE**, interpose, mediate, interfere, intermeddle. One intercedes to a superior for an inferior. One interposes between equals. One intercedes to plead a request. One interposes to stop a quarrel. One mediates to settle a quarrel, to make peace. To interfere does not necessarily imply a good motive, though it may benefit. One intermeddles only from a bad motive.

592. **INTERCOURSE**, communication, connection, commerce. Intercourse is the more general term and relates to every form of interchange between persons, not between persons and things. Communication refers especially to exchange of thoughts or messages, verbal or written. Connection, literally, linked together, implies relationship, or some form of permanent intercourse. Commerce relates especially to trade and mercantile intercourse. Connection applies also to things.

593. **INTEREST**, concern. Interest is the more comprehensive term, literally, to have a share. It applies to all that touches or comes near to us. Concern applies more particularly to things of an undesirable nature and suggests anxiety. Interest is prompted by desire and pleasure or the affections. Concern is prompted by fear

594. **JOURNEY**, travel, voyage. Journey, any trip or passage, long or short, from one place to another. Travel implies a journey involving exertion and fatigue; travel is also used in a less specific sense. Voyage relates to travel by sea.

595. **JUDGE**, umpire, arbiter, arbitrator. The judge makes decision according to prescribed law. He holds a more formal and permanent office. The other three decide according to their own judgment and are chosen for one particular case. The umpire decides contests, the arbiter and arbitrator matters of litigation. Arbitrator implies the meaning peacemaker. Arbiter is used also in the sense of controller or arranger, as, "He is the arbiter of my fate."

596. **JUDGMENT**, discretion, prudence. Judgment is the quality of being able to decide between right and wrong in general. Discretion requires an intuitive and fine discernment and includes the exercise of tact. It relates especially to our capacity for management in dealing with others. Prudence includes caution and applies exclusively to the control of our own conduct.

597. **JUSTICE**, equity. Equity contains a higher moral significance than justice. Equity is the application of the golden rule. Justice relates to the adjustment of legal rights, and denotes fairness and equality.

598. **KEEP**, preserve, save. Keep is used generally to characterize the retention of possession, to have about one indefinitely. To preserve is to keep intact or in a state of perfection. To save suggests also an act of rescue. We save from destruction. We preserve through all sorts of adverse circumstances.

599. **KILL**, murder, assassinate, slay, slaughter. Kill is the general term, meaning simply to take life. Murder is to kill unjustly or with violence, and applies only to human beings. Slay is to kill in battle or in a duel. Slaughter properly applies only to animals, but is used in reference to human beings when they are killed after the manner of brutes.

600. **KIND**, species, sort. Kind, originally of the same family, has a less definite meaning than species. Species is, in its most accurate sense, a scientific term of classification, according to well defined attributes. Kind is a more general term of discrimination. Sort does not imply necessarily any similarity, but merely the assemblage. It denotes arrangement rather than classification, and may be used either as kind or species.

601. **KNOWLEDGE**, science, learning, erudition. Knowledge implies the things known, however learned; learning, knowledge one has acquired through schools or study. Erudition is the highest term and denotes great reading and research. Science is learning which is classified, and is the exact knowledge of an orderly mind, concerning facts in nature. Erudition implies rather a knowledge of literature, philosophy, and history, though it may include all learning.

602. **LARGE**, wide, broad. Large is the general expression for dimension in every or any direction; that is, large includes length, breadth, height, and depth. Wide and broad are almost synonymous, wide being opposed to close, and broad to narrow, hence wide is used more properly in speaking of apertures, as a wide mouth, a wide door.

603. **LAST**, latest, final, ultimate. That which is last or ultimate is succeeded by nothing else. Latest implies that which is succeeded by only a short interval of time. Final suggests the completion of a task or plan. Last is opposed to first, latest to earliest, final to the beginning. Ultimate suggests completion. A man's last words are not necessarily his ultimate verdict.

604. **LAUGH AT**, ridicule. Laugh at is a natural expression of mirth excited by the actions or traits of another. Ridicule conveys a greater degree of contempt and shows itself in words or writings or actions. Laugh at may be involuntary. Ridicule is a positive action directed by the will.

605. **LAUGHABLE**, ludicrous, ridiculous, comical, droll. Anything that excites laughter is laughable. Ludicrous and ridiculous suggest a laughable situation of a person, ridiculous, however, being much the stronger term and relating to actions or mental attitude, while ludicrous refers more to one's outward appearance or position. Comical and droll properly designate things or the antics of animals rather than persons.

606. **LAWFUL**, legal, legitimate. Lawful pertains to law in general. Legal is a more definite term and relates to civil law. Legitimate is of broader significance and applies to unwritten law or generally accepted

rules. Thus one says legitimate art, legal documents, lawful acts.

607. **LEAD**, conduct, guide. One leads by the hand, conducts by the mind, guides by the eye. Hence conduct includes the idea of planning and managing. Lead implies helping one weaker than one's self. Guide is simply to point out the way. One could lead a child who knew the road, or guide a strong man who did not know the road.

608. **LEAN**, incline, bend. That which leans rests on one side. Lean suggests the need of a support. Incline implies simply to deviate from the perpendicular or horizontal, be it ever so slightly. Bend suggests curvature. Trees bend with the wind. A hill inclines. An old man leans on his cane.

609. **LEAVE**, quit, relinquish. One leaves that to which he may return. To quit is final. To relinquish is to quit unwillingly.

610. **LEAVE**, take leave, bid adieu, bid farewell. Leave designates simply the act of separating one's self from anything. Take leave is an expressed ceremony of parting between persons. Bid adieu and bid farewell are a solemn leave-taking, and indicate a permanent or at least a long and uncertain separation.

611. **LEAVE**, liberty, permission, license. The word leave is used in small matters. Liberty, as here used, suggests infringement on the rights of another. License is legal permission. Permission is a more general term, and may be either public or private. Leave is always private.

612. **LET**, leave, suffer. Let implies simply the passive part of not placing hindrance on the actions of another. Leave signifies rather an active removal of constraint, or a positive decision not to interfere. Suffer is the strongest term, and refers to one's attitude towards those over whose actions he has the right to exercise control.

613. **LIE**, lay. Lie is an intransitive verb, and lay a transitive verb. A creature lies down, but he lays himself down. I lie on the couch. I lay the book on the table.

614. **LIFT**, raise, erect, elevate, exalt. We lift that which we take off the ground. We raise and erect by placing in a higher position while it remains on the ground. Erect signifies raising to an upright position and contains also the idea of construction. Elevate implies raising from a lower point to a higher, and is used more often in a figurative sense. Exalt applies always in a moral sense. One's soul may be exalted.

615. **LIKENESS**, resemblance, similarity, similitude. Likeness is a general term and refers to either external or internal circumstances. Resemblance applies only to outward appearance; and similarity only to the invisible qualities. There may be a resemblance of face, but a similarity of disposition. Either is a likeness. Similitude is a more poetic term than similarity; has also a higher significance.

616. **LINGER**, tarry, loiter, lag, saunter. We linger from reluctance to go on and usually against our ideas of what we should do. We tarry deliberately. Hence linger suggests the thought of continually intending or starting to move, while tarry implies complete suspension of motion. To loiter is to move slowly and with reluctance. To lag is to go slower than others. Thus we can loiter when we are alone, but we lag only when we are in company with others. To saunter is to loiter aimlessly or without any destination in view.

617. **LIST**, roll, catalogue, register. List is the most simple, and implies merely names or words written one under the other. Roll is used only for names of persons. Thus we may have a list of names, a list of the trees in a certain locality, a list of verbs, but a roll of honor. A catalogue contains more details and specifications than a list, while a register is a complete record of the names on the list.

618. **LITTLE**, small, diminutive. Little is the most general term, and refers to both size and quantity. Small has reference only to size. One may say a little water or a little dog, but one may not substitute small in the first example. Diminutive is small contrary to the natural course. All babies are small, but not all are diminutive.

619. **LOOK**, see, behold, view, eye. See is the mechanical action of the eye. Look is a voluntary effort to see. We may see without looking and *vice versa*. A blind person may look towards an object. Behold includes the idea of an impressive mental sensation. To view is to look at in all directions, comprehensively. To eye is to look at shrewdly or earnestly.

620. **LOOK**, appear. To appear is simply to come into sight. One's look implies the impression one's appearance makes. Also one's appearance refers to one's manner and deportment and the characteristics thus indicated, while looks refers to the external face or figure. She looked beautiful. She appeared charming. And, in the first sense, he appeared suddenly and looked hideous.

621. **LOOSE**, vague, lax, dissolute, licentious. Loose is the general term, and applies to anything that lacks proper connection or adherence of its parts. Whatever is remotely scattered is vague. Vague applies only to the intellect. Dissolute and licentious refer only to the morals. Lax may designate either. Lax suggests the quality of being unbound. Dissolute is the extreme of loose; licentious is the extreme of lax. In modern use licentious applies exclusively to sexual immorality, while the other words include looseness of all moral principles.

622. **LOSS**, damage, detriment. Whatever has gone from us that we want to keep is a loss. Any object that is injured to the extent of decreasing its value is damaged. A detriment is a lack, whether by loss or damage or through never having possessed.

623. **LOW**, mean, abject. Low is below the ordinary level. Mean is at the ordinary level. Abject holds also the idea of submission, and is not an inherent quality. Low and abject may be involuntary. A man is voluntarily mean. A servant is low in station, but he is not necessarily abject. A slave is abject in his condition but not necessarily so in his nature; while a king may be abject through cowardice or fear. Abject is, literally, cast down.

624. **MAKE**, form, produce, create. Make is an unqualified term, and signifies the bringing into being of anything. To form is to give a shape to, to make according to a pattern. To produce is to bring into existence, usually by changing the qualities of its parts. Fire is produced by friction; corn is produced from the earth: a vase is formed from clay. Also a thing may be formed without the means of a conscious agent,—rocks are formed. In the literal sense only the Supreme Being can create. All the words are used figuratively.

625. **MALEDICTION**, curse, imprecation, execration, anathema. A malediction is a spoken evil wish. An imprecation is a prayer for evil. A curse is a solemn or ratified malediction, and also represents varying degrees of evil, and may be an act either of God or man. An execration is an informal expression of the most violent personal anger. An anathema is an execration pronounced by an authoritative body or person according to canon law. Only man pronounces a malediction, an imprecation, an execration, or an anathema.

626. **MALEVOLENT**, malicious, malignant. Malevolent characterizes an inherent quality of one's nature and is therefore constantly active. Malicious represents a quality that may be temporarily roused. A malicious person takes pleasure in causing pain to others, while a malevolent person works evil as a matter of course. One might say that to a malevolent person his malevolence is a necessity; but malice to a malicious person is a luxury. Malignant is properly applied to the evil itself rather than to the person.

627. **MALICE**, rancor, spite, grudge, pique. Malice takes delight and pleasure in working evil. Rancor is unremitting anger and may have been justly or unjustly provoked. Petty malice, malice in trivial things, is spite. A grudge includes the idea of revenge for some particular injury and may be of long standing. A grudge may be satisfied by a single revengeful act, and then cease to exist. A pique is short lived, and not deep seated. It is caused by any trifling affront.

628. **MARITIME**, marine, naval, nautical. Maritime signifies belonging to the sea. It can be applied to countries which have great intercourse by sea, or to commerce by sea, and is a broader term than marine, which signifies directly pertaining to the sea, and is used entirely in a technical sense. Naval refers to the government navy maintained on the sea, or it may designate commercial arrangements, but is more frequently used in the former sense. Nautical pertains to the science of sailing, or navigation, or the mechanical ship.

629. **MARK**, print, impression, stamp. Mark has a universal application, and signifies anything which in any way alters the external face of anything. Stamp is made by direct pressure, and by an artificial instrument. Print is either an artificial or natural impression, made either by design or accident. A print has always a definite form and represents an object or a sign. An impression is properly a sinking in of the mark. Impression and stamp are both used figuratively. Otherwise print and impression are almost always exactly synonymous.

630. **MARK**, trace, vestige, footstep, track. As above, mark is the term of general significance. A faint

mark or one broken in outline is a trace. Vestige applies only to those definite traces left by mankind, as the marks remaining of an earlier race of people. Footstep is the impression made by the foot of a creature. A track is any kind of mark by which we can trace the path taken by anything, but applies more strictly to the impression left by feet, or wheels, or whatever comes in contact with the ground.

631. **MARRIAGE,** wedding, nuptials. Marriage is simply the act of marrying. Wedding is the ceremony and attendant festivities of marriage. Hence one may have an elaborate wedding or a simple wedding, but the marriage is the same. Nuptials includes the idea of both marriage and wedding.

632. **MARRIAGE,** matrimony, wedlock. Marriage refers rather to the act of marrying. Matrimony is the state of being married. Thus one can say marriage is the necessary step toward matrimony. Wedlock is used instead of matrimony in modern speech when it has a legal significance.

633. **MAXIM,** precept, rule, law. A maxim is a self-evident moral truth. A rule is an inflexible guiding principle, and may have reference only to the conduct of affairs, without involving any moral phase. A precept is both a maxim and a rule. Precept applies to those principles which form character. A law is from a higher authority than rule. The government rules are laws. We may speak of the laws of God, the rules of good breeding, the precepts of Jesus. Precepts are taught. Rules are to be obeyed.

634. **MELODY,** harmony, accordance. Melody is a succession of single musical tones. Harmony is a succession of chords. Accordance is the necessary quality of harmony, but it is the technical word meaning merely agreement of sound. Harmony has a wider significance. Harmony becomes the science of musical composition in its technical sense. All three terms are used figuratively.

635. **MEMORY,** remembrance, recollection, reminiscence. Memory is simply the act of the mind in recalling images, whether voluntary or involuntary. Remembrance is the conscious exercise of memory. Recollection is remembrance in a greater degree. Animals may have remembrance, but only man has recollections. Recollection suggests the recalling to one's memory incidents and visions of the distant past. Remembrance is the more ordinary exercise. We remember our lessons. We remember to put on overshoes. We recollect our childhood's home. Reminiscence is the remembrance of things purely intellectual.

636. **MULTITUDE,** crowd, throng, swarm. Multitude applies to great numbers of anything; crowd, throng, and swarm to animate objects; crowd and throng to human beings. A multitude is always large. Crowd signifies rather pressing close together. So a few people in too small a space form a crowd. One can say, a small crowd. A crowd in motion is a throng. Swarm suggests more rapid motion, and applies literally only to insects, as a swarm of locusts. It is used figuratively in reference to other creatures.

637. **MUTILATE,** maim, mangle. To mutilate is to remove any part. Maim originally applied only to wounds in the hand, but is generally understood in the present day to mean a wound in any of the limbs, or any infirmity which deprives a man of the use of a limb or an extremity. Mangle refers to irregular wounds or gashes in any part of the body.

638. **NAME,** call. To name is to say the name. To call is the use of any sound. Also to name describes a person's name. To call describes a nickname or a characteristic. The emperor was named Nero; he was called a monster. He was named William; he was called William the Conqueror.

639. **NECESSARY,** expedient, essential, requisite. Necessary is the indefinite term. Expedient suggests the exercise of discretion. A course of action which is expedient may or may not be followed; while it is necessary to the best results, it is not inevitable that it occur. Requisite is a stronger degree of necessity. Essential implies a vital necessity. Essential, the essence, is the strongest possible degree of necessity.

640. **NECESSITIES,** necessaries. The necessary is that which is absolutely necessary, regardless of circumstance. Water is a necessary of life. Necessities are the things which are necessary through circumstances; they may be artificially created. To those who live for fashion alone luxuries become necessities.

641. **NECESSITY,** need. Necessity refers to the thing wanted; need, to the person wanting. Need may apply to a temporary lack; necessity more properly to habitual lacks. We may need greatly that which is not a necessity.

642. **NEGLECT,** omit. To neglect is a culpable act. To omit may be permissible. We omit or not at our discretion. We have no right to neglect.

643. **NEGLIGENT,** remiss, careless, thoughtless, heedless, inattentive. The first two words refer to the act, the others to the state of the mind. Negligent is a stronger term than remiss. Remissness may be due to forgetfulness. Negligence applies to those things constantly in view. One is careless in trivial matters; one is thoughtless in matters of greater moment, matters that have to do with conduct. Heedless denotes a lack of caution; thoughtless, a lack of reflection; inattentive, a lack of attention. Careless includes the idea of lack of desire: one is careless when he does not care. There are times when heedlessness and inattention are not culpable. It shows a nobility of soul to be heedless of unavoidable discomforts, or inattentive to small slights.

644. **NEIGHBORHOOD,** vicinity. Vicinity has the wider meaning; it refers to the country round about. Neighborhood applies to one's immediate vicinity; it also includes the people living near. Vicinity is used to designate only the place in general.

645. **NEW,** novel, modern, fresh, recent. New is the general term, meaning anything that is not old. Novel contains the idea of something out of the ordinary. A new baby is certainly not a novelty. Modern is used in contrast to that which is old fashioned or out of date. Fresh includes the idea of condition. New vegetables are not necessarily fresh. An old man may have a fresh color. Recent is used to designate that which has just occurred; it relates to happenings and applies properly to news.

646. **NOTED,** notorious. Noted signifies well known. Notorious is used only in a bad sense, and applies only to those who are noted for evil deeds and vices.

647. **NOTICE,** remark, observe. We may notice casually. To remark implies a return of the mind to the subject. To observe one must examine closely. We notice and remark involuntarily. When we observe, we make a special effort.

648. **OBJECT,** oppose. We object to that of which we disapprove. We express objections by words. We oppose by actively placing obstacles in the way. We express opposition by acts and positive effort to thwart.

649. **OBSERVATION,** observance. Observation is the act of examining an object with the eyes. Observance is the act of keeping with care or holding it sacred. By a close observation of affairs, one cultivates a shrewd judgment. The observance of July fourth serves to keep the patriotism of our forefathers fresh in the minds of our children.

650. **OBSERVE,** watch. To observe is to look at consciously. To watch is to observe keenly with suspicion, or at least from some particular reason for strictness. We may observe listlessly or idly. We watch alertly.

651. **OBSTINATE,** contumacious, stubborn, headstrong. Obstinacy is not necessarily a fault. It is the rather negative quality of adherence to one's own line of action, or set of opinions. Stubborn is a stronger term and implies force. Headstrong implies lack of judgment. Stubborn is perversion of will, headstrong a perversion of judgment. Contumacious signifies violent opposition to those in authority and is always a crime against lawful restraint.

652. **OCCASION,** opportunity. Occasion leaves us no choice of action. We must do as occasion requires. Opportunity tempts us to action, but we may or may not respond. The opportunity offers, or we seek it. The occasion demands of us, and comes of itself.

653. **ODD,** uneven. Odd is to be without a mate. Uneven is to be unequal. Thus odd comes to mean a person who has peculiarities like no one else. Both words are opposed to even.

654. **OFFENDER,** delinquent. Offender is one who positively offends, or goes against the law. A delinquent is one who fails by omission to do what is required, hence delinquent is sometimes used in a legal sense to denote a lawbreaker.

655. **OFFER,** bid, tender, propose. Offer is the general term, and is employed for that which is literally transferable. To offer is a voluntary and discretionary act and may be accepted or rejected. Bid implies a commercial transaction, as to offer a price for the purchase of a house. To tender is to offer in words or to present for acceptance, as a sum of money by way of payment, or to fulfill an obligation; one may also tender his services. Terms of settlement and arrangements or plans with specifications are proposed, also a certain line of action may be proposed.

656. **OFTEN,** frequently. Often signifies a repetition of action. Frequently has relation to a plurality

of objects. A man often errs. People frequently make mistakes. We frequently meet the same persons in the route which we often take.

657. **OLD,** ancient, antique, antiquated, old fashioned, obsolete. Old includes all the other terms. Anything very old is ancient. Anything long ancient is antique. Anything no longer in the fashion is old fashioned. Whatever is extremely old fashioned is antiquated. Obsolete implies gone out of use. It more often refers to customs and words.

658. **OPENING,** aperture, cavity. Opening is the general term, meaning any place that is open. There may be an opening in the woods. Aperture is a small opening into some specific inclosure. The cavity is the inclosure. The aperture is the opening leading to the cavity.

659. **OPTION,** choice. Option is the power of choosing. Choice is the act of choosing. Option implies an uncontrolled act of the mind. Choice is simply an act of the will.

660. **ORIGIN,** beginning, rise, source. Origin refers to the cause of existence; beginning to the period of existence. The origin must be before the beginning. The rise includes also the gradual progress of the early stages of existence. The origin exists but once. The source is permanent. Thus, if the source of a river is destroyed, the river ceases to exist.

661. **OUTLIVE,** survive. To outlive means simply living longer than another. Strictly speaking survive—live after—is used more to designate life continued after hardships. Few men can survive the bitter cold of the arctic regions. Only seventeen persons survived the devastating plague. But the two words are used interchangeably in many instances.

662. **OVERFLOW,** inundate, deluge. To overflow, flow over; inundate, flow into; deluge, wash away. The wash tub or the river may overflow. A cellar may be inundated by an extra heavy rain. A deluge carries all before it.

663. **OVERTURN,** overthrow, subvert, invert, reverse. To overturn is to turn over gradually or otherwise. To overthrow is to overturn with violence. Either of these two actions may place a thing on its side. To subvert is to turn that under which should be upward. To invert is to place on its head that which should be on its feet. All these terms have to do with the perpendicular. Reverse is to place that before which should be behind. Subvert is used only of things of great importance. One inverts a plate, he reverses the action of a locomotive engine.

664. **OVERWHELM,** crush. To overwhelm is to cover with a heavy body so that one sinks under it. To crush is to destroy the shape or consistency by violent pressure. An avalanche overwhelms an entire settlement and many houses and people are crushed beneath it. A wagon may crush a man by rolling over him but he is not overwhelmed.

665. **PACE,** step. Pace is the manner of moving the body in passing. Step relates to the manner of moving the feet. The pace is a walk or a run. It is fast or slow. The step is long or short, light or heavy. In measurement, the pace is a long step, the step is the length of the ordinary step made without effort.

666. **PAINT,** depict. Paint, to represent scenes or figures on paper or canvas. Paint is also used figuratively, as to paint scenes to others by means of words. Depict is used only in the figurative sense.

667. **PALE,** pallid, wan. A lack of color where color might be expected is pale. Pallid is an excess of paleness. Wan is pallid to the point of sickliness. It also suggests the state of having a wasted look.

668. **PARABLE,** allegory. Both terms denote a story told in illustration of a truth. A parable is a story presented in a simplified form to illustrate a moral truth. But everything is represented in its proper nature. In an allegory, mental and moral attributes and personal characteristics are personified; or the characters are represented by something else. "I am the vine, ye are the branches," is a spoken allegory.

669. **PART,** division, portion, share. Part is the general and indefinite term. Portion is always the result of dividing. Division is used as portion, also to designate the act of dividing. Share signifies the portion to which one is entitled. A part is not necessarily a division. A part may be complete in itself, as the parts of an engine. The parts of a book are the leaves and the binding; the divisions would be certain sections of the reading matter.

670. **PARTAKE,** participate, share. To partake is to take a part to one's self. To participate is to enter into. We partake of a meal with a friend. We participate in his happiness. To share is to take that to which we are entitled. It is also used in the opposite sense,—to share with another, *i. e.*, to give part to another.

671. **PARTICULAR,** singular, odd, eccentric, strange. That which is particular belongs to some special part or place. What is singular is single, or the only one of its kind. Anything odd has no mate. Eccentric signifies out of the center, and is used to designate singularity to the point of lack of mental balance. Strange indicates that which does not belong to this part or place, alien.

672. **PATIENCE,** endurance, resignation. Endurance relates to the act. Patience relates to the state of mind.

> There was never yet philosopher
> That could endure the toothache patiently.
> —*Shakespeare.*

If we endure without complaint and with a serene mind, we have patience. Endurance is simply strength to bear. Resignation comprehends also the idea of conformity of will. We can be patient under injustice, but, in order to be resigned, we must be in a state of mind that sees no injustice.

673. **PATIENT,** passive, submissive. To be patient is a virtue. Passive is the state of enduring weakly or indifferently. Patient implies an act of the will. Submissive is the state of yielding to superior authority or force. Submissive is opposed to contumacious.

674. **PEACE,** quiet, calm, tranquillity. Peace is a necessary quality of all the other terms. Peace denotes a state of no hostility. Quiet implies freedom from noise. Calm refers rather to the state of the mind. Tranquillity is a condition of extreme calm. Both calm and tranquillity express absence of motion as well as absence of noise.

675. **PEEL,** pare. To peel is to remove the skin. To pare is to trim or make smooth. A potato is peeled after it is boiled. It is pared before it is boiled. We pare our nails, we peel an orange.

676. **PENETRATE,** pierce, perforate, bore. To penetrate is to go into a substance. Rust penetrates iron. Fog penetrates the air. Pierce commonly suggests penetrating by means of a sharp point. Ordinarily, perforate indicates numbers of piercings. A perforated surface is full of comparatively small openings. Bore is to make a hole by means of a rotary instrument. A dagger pierces, a gimlet bores.

677. **PEOPLE,** populace, mob. People is the general term denoting simply human beings in the aggregate. Populace is a vast assemblage of people. Mob is used to designate what is low, hence a turbulent crowd of people.

678. **PEOPLE,** persons, folks. As above, people comprehends persons in the mass. Persons has an individual sense. One may say one person, five or six persons; but such people. Folks is almost synonymous with people, but is generally used in a more familiar sense; derivatively, the common people.

679. **PERCEIVE,** discern, distinguish. We perceive that which is obvious. We discern that which is more or less hidden. We distinguish in order to know one thing from another. We perceive colors, shapes, or the truth. We discern motives, characters, consequences. We distinguish shades of the same color. The owl cannot distinguish objects by daylight.

680. **PERCEPTION,** idea, conception, notion. We have a perception of that which is before us. When the object is removed we have an idea of it. We have a conception of what we have never seen. A notion is what we think the thing is, judging by its appearance.

681. **PERISH,** die, decay. To die is simply to cease to live. To perish is to have its substance dissolved or disintegrated. Thus wood may perish but it does not die. Decay expresses the process of gradual destruction or disintegration of substance. A thing may perish suddenly. Decay takes time.

682. **PERPETRATE,** commit. Perpetrate is much the stronger term. One perpetrates a crime; he commits an error or an offense.

683. **PERSUADE,** entice, prevail upon. Persuade implies causing the will to yield. That is not necessary in the use of prevail upon. One may be prevailed upon by force or authority. Persuade is to coax until one voluntarily consents. One persuades by words. One entices by words or actions. Entice is commonly used in a bad sense.

684. **PILLAR,** column. Modern use recognizes little difference of meaning in these two terms. Derivatively, a column is a pillar which is also a prop or support, but the best modern authorities recognize no such distinction.

685. **PITEOUS,** doleful, woeful, rueful. Piteous describes the expression of suffering; the child wept piteously. Doleful relates to those expressions or sounds which suggest pain or melancholy; the doleful cry of the sea birds. Woeful has a wider application, referring rather to one's circumstances; hungry, cold, and friendless, he was certainly in a woeful plight. Rueful expresses regret rather than actual pain, and applies to the expression of one's face; one looks rueful when he loses his train, or spoils his best hat.

686. **PITIABLE,** piteous, pitiful. Pitiable is deserving of pity, and is consequently always used in a good sense. Piteous implies helplessness, Pitiful implies worthlessness. One whose situation is pitiable is unfortunate. One whose circumstances are piteous is incapable. One who makes pitiful shifts to get along is small and mean.

687. **PITY,** compassion. Pity indicates an inferior object. We pity a man of weak intellect. We feel compassion for those who are unfortunate. We pity our inferiors. We compassionate our equals. Pity is allied to contempt.

688. **PITY,** mercy. We pity those who are innocent and those who are guilty. Pity may be unexpressed by action. Mercy is action prompted by a sentiment. We have mercy only for the culpable.

689. **PLACE,** station, situation, position, post. Place is the general and indefinite term, denoting any space that may be occupied. A station is a definite place, a stated place. Situation and position include the place and the thing that occupies it. Situation comprehends the site, and is used to denote the way an object stands in relation to its surroundings; the house is in a fine situation. Position indicates the way an object stands in relation to itself; as, "That man has an awkward position." A post is a place in which one has a specific duty to perform.

690. **PLACE,** dispose, order. To place is to put in a place, any place. To dispose is to place according to a rule, or some special plan. To order is to place after some carefully arranged plan. Things carefully ordered may not be disposed to the best advantage.

691. **PLACE,** spot, site. A place is indefinite. A spot is a particular place. A site is a place considered as a situation and is generally used in connection with buildings; as, a fine site for a church. A spot is comparatively small.

692. **PLAY,** game, sport. Anything done for recreation and amusement is play. Game is systematic play according to rules. Sport is any recreative employment that demands bodily exercise. Chess, croquet, and cards are games. Riding, rowing, shooting, and skating are sports. Golf is both a sport and a game.

693. **PLEASURE,** joy, delight, charm. Pleasure is the general term comprehending all the others. Anything that pleases gives pleasure. Pleasure varies in degree. Joy and delight are always extreme degrees of pleasure. Joy is produced by the exercise of the affections; delight, through either the affections or the intellect. Delight is more intense than joy and depends upon the temper of the person. We feel the charm of things which attract us toward them. Thus we take delight in her society, but we are charmed by her personality.

694. **PLENTEOUS,** plentiful, abundant, copious, ample. Plenteous and plentiful are exactly synonymous in meaning full or filled. Plenteous is used in the grave or poetic sense. Plentiful is the familiar word. Abundant, to overflow, means more than plentiful. Copious is used to designate what is collected in one point, hence is used more often to describe that which may flow, or be poured, as a fluid. Ample signifies that which is capable of expansion, what may be increased or diminished at will. We say, a plentiful harvest, plenteous mercy, copious flood.

Kindly pours its copious treasures forth.
—*Thomson.*

695. **PLUNGE,** dive. To plunge is to suddenly submerge one's self in the water. To dive is to go to or toward the bottom of the water. One may plunge without diving, or *vice versa.* Used figuratively, plunge is an act of recklessness; dive is a preconsidered action.

696. **POISE,** balance. Poise is an equilibrium maintained in relation to itself. Balance is an equilibrium maintained in relation to other things. One poises one's self. One balances one's self opposite another, or one balances other things. One loses his balance when other things change or shift their corresponding weight and he falls. He loses his poise when he falls without any external, active cause.

697. **POISON,** venom. Poison is anything which destroys the system. Venom is a virulent poison. Poison must be administered internally. Venom may be applied externally. The air we breathe may be poisonous, but it cannot be venomous.

698. **POLITE,** polished, refined. Polite indicates a behavior which is always agreeable to others. Politeness which is acquired by art is polish. A man is polite according to the rules of good society. He is polished by force of circumstances. Polite and polish apply only to the exterior. Refined extends to the mind and nature of a person.

699. **POSSESSOR,** proprietor, owner, master. Proprietor is synonymous with owner except that owner is used for trivial things. Proprietor and owner denote the legal right of control. Possessor indicates the actual having about one. Thus one may say, "I am the owner of that book, but Mr. Blank possesses it at present." Master signifies absolute control and ownership. An insane person may be the proprietor of an estate, but he is not allowed to be master of it.

700. **POSSIBLE,** practicable, practical. Anything that can be done, however difficult, is possible. That which can be practised is practicable; that is, what may be brought into habitual use. Practical is that which is practised. Practical is opposed to theoretical.

701. **POVERTY,** want, penury, indigence, need. Poverty is the general term, and means opposed to wealth. Indigence is a nearer approach to extreme destitution than poverty. Penury is the last extremity of poverty. Need and want apply to a temporary condition which may be relieved by a single act. Want is a stronger term than need. One is in want who lacks the necessaries of life. He who is in need may lack only the comforts. Need and want are used also to indicate a lack of anything by a person not necessarily in poverty.

702. **PRESSING,** urgent, importunate. One's affairs may be pressing or urgent. Pressing is the stronger term, implying compulsion. Urgent appeals to our feelings and implies persuasion. Importunate is used only of persons. Beggars may be importunate. Importunate is urgent to the point of irresistibleness.

703. **PRESUMPTIVE,** presumptuous, presuming. Presumptive is used in a good sense. The presumptive heir; that is, one who is expected to be heir. Presuming and presumptuous both indicate an unauthorized taking upon one's self of authority or position. Presumptuous is the stronger term. Also, presuming applies to one's nature. Presumptuous has reference to special acts. He is a most presuming person. His conduct was presumptuous.

704. **PRETENSE,** pretension, pretext, excuse. Pretense is a concealment of what is bad. Pretension is display of what is good. Pretext is a pretense used as an excuse to accomplish or conceal actions really culpable or criminal. A pretense may conceal only a mild fault. Pretext holds always the idea of a means to an end. Excuse may be a perfectly legitimate reason or explanation of any act which is a breach of etiquette, or a violation of generally accepted rules.

705. **PREVENT,** obviate, preclude. That which one prevents does not happen. That which one obviates is rendered unnecessary or removed. In ordinary modern use, preclude is to make impossible in the nature of things. A boy is prevented from running a foot race by any obstacle, by the prohibition of his father, by lack of racing shoes, etc. He is precluded by a broken leg.

706. **PREVIOUS,** preliminary, preparatory, introductory. Anything that happens before is previous. Preliminary is used in speaking of contracts; preliminary articles, preliminary condition. Preparatory implies making ready for what is to follow. Introductory relates to making plainer that which is to follow, hence is used in matters of discussion and literature; introductory remarks.

707. **PRIDE,** vanity, conceit. Pride applies to anything; vain, to one's appearance; conceit, to one's talents or mental attributes. Pride may be an entirely proper sentiment. One has pride in work well done, a superiority of position, family, literary or scientific attainments, or wealth. It is only an excess of pride that is culpable. One is vain of his clothes. One is proud of that which he has. He is vain or conceited of that which he only thinks he has.

708. **PRIVACY,** retirement, seclusion. Privacy is opposed to public, and indicates the state of attracting no notice. Retirement indicates a privacy positively sought, a withdrawal from the society of others. Seclusion is the extreme of retirement. Nobody has access to one who lives in seclusion.

709. **PROGRESS,** progression, advance, advancement. Progress applies to a continual going forward. Advance signifies going forward toward a definite goal

that may be reached. We make progress in learning, to which there is no end. A man intending to be president of the United States may be said to have made advance when he becomes governor of his own state. Progression and advancement imply also the act of moving forward. He made great progress last year. The progression or advancement from one point to another was necessarily slow.

710. **PROMINENT**, conspicuous. Whatever projects beyond the level or line of other things is prominent. That which is easy to be seen by many is conspicuous. The nose is the most prominent feature, but it is never conspicuous unless it is misshapen, highly colored, or in some way abnormal.

711. **PROMISCUOUS**, indiscriminate. Promiscuous signifies mixing of different things. Indiscriminate applies to the action in which one does not discriminate between different things. One is promiscuous in his company when he associates equally with everybody. He is indiscriminate when he exercises no choice between desirable and undesirable persons.

712. **PROOF**, evidence, testimony. Proof is incontrovertible. Evidence furnishes or tends to furnish proof. Proof is exact, hence is used scientifically. Testimony is evidence by means of spoken or written words. Evidence is offered by anything. Only a person can give testimony.

713. **PROROGUE**, adjourn. Prorogue is to defer indefinitely. Adjourn is to adjourn for a day or a short period of time. Prorogue relates to national assemblies. Adjourn applies to any meeting. Congress or other governing body is adjourned every day. It is prorogued when a ruler or executive terminates its session for the season.

714. **PROVE**, demonstrate, evince, manifest. Prove is the general term. We demonstrate when we prove by intellectual effort. Only persons can demonstrate. We evince to produce conviction. We manifest to make a thing known. We evince by our daily habit of action. We may manifest by a momentary act. We demonstrate and prove facts in science or nature. We evince or manifest a disposition. Things may prove, evince, and manifest.

715. **PROVIDE**, procure, furnish, supply. Provide and procure are the acts of persons only. Furnish and supply may be the acts of unconscious agents. We provide for the future. We procure when by the exercise of labor or management we get anything, whether needed or not. Furnish implies a care in selection. Supply is to furnish that which is lacking.

716. **PUBLISH**, promulgate, divulge, disclose, reveal. To publish is to make public. Promulgate is to make known to the world, or to as many as possible. Modern use gives to promulgate also the suggestion of teaching and imparting. He who promulgates doctrines does more than publish them; he also tries to gain converts. We divulge that which should be kept secret. We disclose an affair from beginning to end. To disclose is to lay bare a whole transaction. We reveal that which has been concealed. It is not culpable to reveal. We divulge secrets. We reveal mysteries.

717. **PURPOSE**, propose. We purpose trivial things. We propose important things. Purpose is to intend. Propose is to express our intention by setting it forth definitely either to others or in our own minds.

718. **QUESTION**, query. Questions may be asked out of curiosity. Queries are put to gain information. A question may be frivolous; a query is rational and serious.

719. **RARE**, scarce, singular. Derivatively, rare means thin. Scarce means cut short. Hence rare is used in speaking of atmosphere when it is lighter in weight than normal. Scarce used in that connection would mean limited in quantity. Rare is applied to luxuries. Scarce to articles of ordinary use or necessity. Jewels are rare but not scarce. Scarce always suggests a deficient supply. In times of famine bread is scarce. Scarce applies only to material things. Singular is merely peculiar or different from others of its kind. Rare always suggests high value. What is singular may be highly undesirable.

720. **READY**, apt, prompt. Ready is applied to that which is prepared for any set purpose. Apt is a kind of readiness which implies one's equipment; literally, fit. Prompt denotes that readiness which consists of quickness. Thus, one who has a ready wit is apt in conversation. One who is prompt is not late, is habitually on time, hence always ready for his appointments. We make ourselves ready for a journey. Apt and prompt refer only to persons. Ready is a general term, and applies to anything.

721. **RECKON**, count, account, number. Reckon is to reach an accurate result by summing up the factors, hence is used figuratively, "Reckoning themselves absolved by," etc. Count is the simple act of determining how many. Number implies the additional act of tabulating or labeling. Account signifies the necessary arithmetical calculations attendant upon keeping one's books. All the terms have a figurative application.

722. **REDEEM**, ransom. Redeem is the general term. Ransom applies only to persons. We ransom with money. We redeem with any equivalent of money. Ransom is used most frequently in connection with prisoners of war.

723. **REDRESS**, relief. Redress signifies literally to bring back to the former point. Relief is to help. Hence redress applies to matters of law and justice; relief, to matters of kindness and compassion. People are entitled to redress for their wrongs. They are dependent upon their own exertions or the generosity of others for relief from their sufferings.

724. **REDUCE**, lower. Reduce, to change the condition of anything by making it less in size, quality, quantity, or rank. Reduce to powder. The fever was much reduced. He was reduced from colonel to captain. To lower is to change the position of anything by making it less high. We lower a bucket into a well; we lower a wall. In their figurative sense the same idea is conveyed. Reduce is the stronger term. One is reduced to his last extremity. He is lowered in the estimation of his friends.

725. **REFUSE**, decline, reject, repel, rebuff. Refuse is the common and general term. Decline is to refuse gently and with courtesy. Reject is a more positive and decided refusal. We decline an invitation to drive. We reject a dishonorable proposal. Repel is to refuse violently. Repel indicates an active antagonism. To rebuff is to refuse with rudeness and scorn or contempt.

726. **RELATE**, recount, describe. We may relate anything. We recount that in which we have borne a part or in which we have a deep interest. We recount that which is remotely in the past. We may relate in writing; we recount only by speech. We relate and recount that which passes. We describe that which exists. We relate the story of our journey. We describe the country we passed through or the car which carried us. We recount our adventures. We describe the places where they occurred.

727. **REMAINS**, relics. That which remains unused or unconsumed is the remains. That which is left after a long lapse of time is relics. Relics always have a value derived from their original state or owner. Remains may or may not be of value. There are remains of buildings after a fire. The uneaten food still on the table is the remains of the feast. Old monasteries contain precious relics of the saints.

728. **REPEAT**, recite, rehearse, recapitulate. Repeat, to go over again, is the more common term. Recite is to repeat from memory. Rehearse is to repeat or recite in order to prepare or learn a part. Recapitulate is to repeat in an exhaustive manner, to go into the minute particulars. Recapitulate is not to repeat word for word, as recite; but rather to repeat statements or specifications.

729. **REPENTANCE**, penitence, contrition, compunction, remorse. Repentance is the general term. We repent a sin, a mistake, or an error of judgment. We feel penitence only for sins. Contrition is a continuous penitence and denotes an habitual state of mind. Compunction is momentary and occasional. Remorse is an excessive contrition and causes anguish. Compunction causes a sharp, temporary sorrow. Contrition causes sadness.

730. **REPRIEVE**, respite. Reprieve, to take off that which has been laid upon, is permanent. Respite is a temporary cessation. A condemned man who is granted a new trial gains a respite. If his sentence is commuted he has a reprieve.

731. **REST**, remainder, remnant, residue. Rest comprehends the meaning of all the other terms. Remainder applies only to things. The remainder is that which is left after part has been taken away. The remainder may be more than half. A scanty remainder is a remnant. Remnant applies specially to the small ends of cloth or tapestry goods which are left unsold. Residue is the settlings. Residue is used in chemistry. All three terms have figurative use.

732. **RESTORATION**, restitution, reparation, amends. To give back that which is taken away is common to all these terms. Restoration and restitution apply only to property. Any one can restore. Only the one who wrongfully took away can make restitution. Restitution is always a restoration of that which has

been unjustly taken. He who has stolen money can make restitution. Reparation applies to intangible things also. He who has robbed another of his good name makes reparation. Amends is used in trivial matters. One makes amends for the loss of a day's pleasure. He makes amends for some small slight or negligence.

733. **RESTORE,** return, repay. To restore is to make good. Hence restore signifies the act of bringing back to its former condition that which has been injured, or replacing by something else that which has been lost or destroyed. To return is to give back what has been taken away. We return the same thing that was taken. To repay is to return equal value in service, favors, or money.

734. **RETARD,** hinder. To retard is to make slow. To hinder applies to the person. Retard has reference to the actions. We retard the accomplishment of anything by hindering the person who is trying to accomplish. But if the person is able to overcome hindrances, we hinder without retarding.

735. **RETORT,** repartee. Retort is always a reply to a censure. It may be, and frequently is, ill natured. Repartee is commonly a witty reply to good-natured badinage or wit.

736. **RETROSPECT,** review, survey. Review is to see again that which we have seen before. We may review the past or review the present. Retrospect is to review the past. Survey is to take a comprehensive view of a thing in order to examine all sides of it. A survey is not necessarily a review. We may take a survey of what we see for the first time.

737. **REVIVE,** refresh, renovate, renew. Revive is to make alive again. Refresh is to make fresh again. Renovate and renew signify to make new again. Revive applies to things and conditions of much importance. Refresh is used in connection with trivial things and conditions. A dying or unconscious man is revived by a powerful remedy. A dusty traveler is refreshed by a bath. An old, shabby costume can be renovated. Renew signifies imparting fresh vigor, or beginning again. They renewed their clamor. A lease may be renewed.

738. **RICHES,** wealth, opulence, affluence. Riches is the general term, and is comparative,—"And his best riches, ignorance of wealth." Wealth is great riches. Wealth applies also to intangible things, as a wealth of good nature. Opulence suggests a flourishing prosperity, an exuberant wealth. Affluence denotes an increasing wealth, and always holds the idea of riches flowing in to a person.

739. **RIDICULE,** satire, irony, sarcasm. Ridicule is simply to excite laughter at the expense of any one, for any cause. Satire is more formal. One writes a satire, or makes an address which is a satire. Irony is to condemn with seeming praise, to say the opposite of what one really means. Sarcasm is personal satire. Sarcasm expresses personal resentment, and is seldom justifiable.

740. **RIGHT,** just, fit, proper. Right is determined by the unwritten laws of God. Just is what is fixed by the written laws of man. The fit and proper are defined by the established rules and customs of society. Right is absolute. There are degrees of just, fit, and proper. Right is applicable to everything. Just refers to matters of important interest. Proper relates to the minor concerns of life. Fit is a more exact term than proper. Several courses of action might be proper under certain circumstances. Only one would be the fit thing to do.

741. **RIPE,** mature. Ripe denotes merely a completion of growth. Maturity is a state of perfection in development. Ripe is a condition of a brief time only. Mature designates a state of more or less continuance. There is an opportune moment when a thing is ripe; beyond that is the stage of decay. Hence the figurative use of the word. The people were ripe for revolt. The project is ripe for execution.

742. **ROUTE,** road, course. The route is any way or road chosen for any particular occasion. Route is used to designate the entire plan of the course taken in an extended journey. Course indicates any place where one runs or walks. Figuratively, course is a plan of action. Road is the beaten track, the regular way.

743. **SAFE,** secure. To be exempt from harm is to be safe. To be exempt from all danger of harm is to be secure. Security is absolute and final. Safety may be comparative and temporary.

744. **SECRET,** hidden, latent, occult, mysterious. What is secret is known to some one. That which is hidden may be known to no one. Latent is that which is secret and ought not to be secret. Occult is that which is concealed from all but the few because of the difficulty of finding it out. Mysterious is that which is hidden from all because of the impossibility of finding it out.

745. **SEEK,** search. We seek that which is not at hand. We search for that which is hidden. Also we invariably seek the thing we want to find; we search the place where it is likely to be found.

746. **SIGN,** signal. A sign makes it possible for us to recognize an object and may be natural. A signal is always the work of a conscious agent. A signal always implies attracting the attention of those at a distance. We converse with the deaf by signs. Ships signal each other at sea.

747. **SILENT,** mute, dumb, speechless. Silent is the indefinite term. Silent means the absence of all noise. Dumb is the state of being physically incapable of speech. Speechless is to be temporarily dumb. He who is mute is in a state where he will not speak. A man is mute from fear because he dares not speak, or mute because he does not wish to speak.

748. **SIMULATION,** dissimulation. Simulation is putting on an appearance of what one is not, as a simulation of virtue. Dissimulation is a concealment of what one is. Good writers make this nice distinction.

749. **SIZE,** magnitude, greatness, bulk. Size is an indefinite general term. A thing may be of small size. Magnitude and greatness always indicate a large size. Magnitude is a scientific term. Greatness is the more usual term for things in general. Bulk is a considerable degree of size. It applies to masses of matter, hence used in any other sense implies shapelessness.

750. **SLACK,** loose. Slack refers to things which are tied, or that with which they are tied. Slack is opposed to taut. Loose is a more general term, and is opposed to tight. A knot may be loose so that the rope soon becomes slack. A garment may be loose, but not slack.

751. **SLEEP,** slumber, doze, drowse, nap. Sleep is the general and indefinite expression. To slumber is to sleep lightly. To doze is to incline to sleep, to nap fitfully. To drowse is to be half asleep. To nap is to sleep briefly. A nap, though short, may be a sound and deep sleep. An invalid may drowse all day, and yet be conscious of all that transpires.

752. **SLIP,** slide, glide. To slip is an involuntary motion. To slide is voluntary. Slip and slide indicate merely a movement forward, backward, or sidewise. Glide is a mode of progression without apparent motion. A ship glides. To glide is to walk so smoothly that the feet seem not to move at all.

753. **SLOW,** dilatory, tardy. Slow applies generally to all bodily and mental activity. Dilatory refers to the habit of mind. Tardy indicates the quality of being late. A man is tardy at his place of business in the morning. He may be dilatory about getting at his work after his arrival.

754. **SMELL,** scent, odor, perfume, fragrance. Smell and scent apply equally to that which gives and that which receives the odor. Odor, perfume, and fragrance are said only of that which gives the smell. Smell refers to all creatures. Scent is an extremely keen sense of smell and applies particularly to animals. Everything that can be perceived by the olfactory sense has a smell. Odor is an artificial smell. Perfume is an agreeable smell. Fragrance is the sweetest and strongest of perfumes. In this sense scent is synonymous with smell.

755. **SOFT,** mild, gentle, meek. Any substance which yields easily to pressure is soft. That which acts weakly upon the senses is mild. Soft is opposed to hard. Mild is opposed to sharp, or strong, or severe. Gentle is opposed to violent. Meek denotes submissiveness and lack of courage. The first three terms have both a physical and a moral application, the last only a moral application.

756. **SOLITARY,** sole, only, single. Solitary refers to material things. Sole refers to intangible things. Both signify one left by itself. A solitary tree. The sole cause of the delay. Only implies a lack. One might prefer a solitary tree in his grounds, but only one tree suggests a need for more. Single indicates simply a state of being detached. Ten single dollars would be said in contradistinction from a ten dollar bill, but the dollars are not solitary. Solitary includes the idea of desertion. Only contains no such meaning.

757. **SOME,** any. Some refers to a particular part in distinction from the rest. Any is applicable universally without distinction. Some do this, others do that. Anybody who lacks patience may acquire it.

758. **SOON**, early, betimes. Soon has reference to a relatively short period of time after the present moment. Early is before the time appointed. Betimes is before it is necessary. Soon may mean in a few minutes or in a few weeks.

759. **SPACE**, room. Space is the general term referring to any portion of the universe unoccupied by a solid body. Room is limited in its meaning; it is bounded space, an artificially formed portion of space, or a limited space.

760. **SPEAK**, say, tell. Speak is an intransitive verb, say a transitive verb. Also say is a somewhat more comprehensive word, generally including the idea of expressing a thought, which speak does not necessarily do. To tell refers to the communication of some definite fact.

761. **SPREAD**, scatter, disperse. Spread applies chiefly to indivisible bodies. Water spreads. We spread honey on bread. A bird spreads its wings. Scatter refers exclusively to divisible bodies. One scatters seeds. The wind scatters leaves. Disperse is to separate individual bodies which are collected. Disperse the crowd.

762. **STRAIGHT**, right, direct. Straight denotes that which has no turning or curvature: mechanically, the shortest line between two points. Direct means simply clear, plain, uninvolved. A direct road is one which, though it may turn if desirable, is yet easy to follow and turns no more than is necessary. Right is that which is as it ought to be.

763. **STRICT**, severe. Severe is the stronger term and includes the idea of positive harshness. Strict means absolute inflexibility in the enforcement of discipline. Strictness is not incompatible with kindness.

764. **SYSTEM**, method. System expresses more than method. System refers to complex concerns. Method may be applied to any task, however simple, which is to be done. System relates to the arrangement of many different affairs which must be made to work together smoothly.

765. **THICK**, dense. Thick and dense are almost synonymous. Dense applies rather to the consistency of bodies exclusively, while thick is used also to designate the actual measurement of the third dimension. Thus one says a thick slice of bread, or thick cream; but either thick or dense woods, thick or dense smoke.

766. **THREAT**, menace. Threat and menace are practically interchangeable, though threat is rather the familiar term, and menace is used more often in reference to great dangers only.

767. **TURN**, bend, twist, distort, wring, wrest, wrench. Turn is the general term, meaning to put a thing out of its position or direction. To bend is to turn out of its direction. To twist is to turn spirally, to convolve, to wind. Distort is to twist grotesquely out of its proper shape. Wring is to twist and compress with force. Wrench is a sudden, short, and violent twist. To wrest is to wrench away from.

768. **UNDER**, below, beneath. Under signifies the situation of being low, also concealed or hidden by something else which is directly on top. Below is lower than something else which is higher but not necessarily directly overhead. Beneath is a stronger term than under. Beneath suggests the state of being under the surface. Beneath the river bed. Under water, under the table. Below sea level.

769. **UNHAPPY**, miserable, wretched. Unhappy is merely the state of being positively not happy. Miserable is the extreme of unhappy. Wretched is the extreme of miserable. Wretched may also include outward circumstances, while unhappy and miserable refer rather to the state of mind.

770. **UNLESS**, except. Unless is used in relation to actions; except in relation to things or individuals. I shall not go unless he does. No one is happy unless he wills to be. All may go except those who are incapacitated. All are happy except those who will not be happy. All plums are sweet except our plums.

771. **UNTRUTH**, falsehood, falsity, lie. An untruth, what is not true, may be unintentional. Falsehood and lie are intentional untruths. Lie is a stronger term than falsehood. Falsity is the characteristic of what is false. One cannot speak a falsity, but he may make a statement the falsity of which is apparent.

772. **UNWORTHY**, worthless. Unworthy has reference to some particular thing or circumstance. A man may be unworthy of another's kindness or hospitality; or unworthy of high honors. Worthless is an abstract condition, meaning unworthy of anything, entirely without worth.

773. **UTTER**, speak, articulate, pronounce. Utter is the general term, meaning to make a vocal sound. Speak is to utter something intelligible. Articulate is a mechanical act. One articulates sounds. Pronounce is a method of speech through the action of the intelligence. One pronounces words. One articulates distinctly. One pronounces correctly.

774. **VALUABLE**, precious, costly. That which has intrinsic value is valuable. That which brings a high price is costly. That which is precious is valuable to certain persons exclusively, or only under peculiar conditions. In times of famine bread is precious, and on a desert water is precious. A souvenir which cost nothing and is not valuable may be precious to an individual.

775. **VALUE**, worth, rate, price. Value is relative. Worth is absolute. There may be artificial value; there can be no artificial worth. Whatever we give in exchange for a thing is a rate. Rate may be indefinite. Price is a fixed rate.

776. **VALUE**, prize, esteem. We value a thing according to its market price. We prize it according to its worth to us. Esteem refers to things not salable. We esteem our friends; we esteem qualities in men.

777. **VIEW**, prospect, landscape. A view is that which is seen. A prospect is what may be seen. A prospect, therefore, exists all the time whether looked at or not. But a view may be intercepted. A prospect is a wide, comprehensive view. A view may be of a single object, a house, or a town. A prospect is as far as one can see. Landscape, formerly landshape, is a portion of country which may form a view or prospect.

778. **VIOLENT**, furious, boisterous, vehement, impetuous. Violent is the general term, all the others representing some form of violence. Furious is excessively violent. Boisterous is noisy and rough; violence in action. Vehement refers rather to the emotions. Impetuous signifies sudden and extreme violence in action or speech. That which is impetuous cannot be withstood. That which is vehement is not under control.

779. **WAIT**, wait for, look for, expect. Wait, wait for, and look for indicate a certain preparation for a future event, also a calculation for it. Expect applies only to the latter sense. Expect is to believe an event is to occur. Wait and wait for imply a readiness for it. Look for is literally waiting and watching. Figuratively it is a momentary expectation.

780. **WANT**, need, lack. One wants when he is without that which is necessary for his comfort. He needs when he is without that which is necessary to his existence or purposes. Want includes the idea of desire. We may want luxuries. One may want what another has no use for. But all need essentially the same things. To lack is to be deficient, commonly to be deficient in one thing. Lack applies also to inanimate things. The door lacks a hinge.

781. **WAY**, manner, method, mode, course, means. Way is a general expression denoting the process by which anything is done. Manner is a way chosen for a particular occasion. Method is a way thought out by one's self. Method may be the result of experience, or be built upon a theory. Method is applied to matters requiring thought and contrivance. Mode refers to mechanical matters. One may have a good method of singing, but an awkward mode of handling his music, and an unattractive manner of carrying himself on the stage. Course is the measures collectively which we adopt in order to achieve a result. Means is the actual thing or things we do or use in order to succeed. Means might be regarded as tools.

782. **WEAKEN**, enfeeble, debilitate, enervate, invalidate. Anything that depletes strength is said to weaken. Enfeeble is to undermine vital power permanently. Debilitate may refer to the weakening temporarily or otherwise of force in one particular only. Enervate applies to the weakening of nervous force. Invalidate has reference merely to things. One's claim to an estate may be invalidated. One is enfeebled by the progress of a fatal illness, or old age. One's memory may become debilitated by excessive demands upon it.

783. **WEARISOME**, tiresome, tedious. Anything which requires expenditure of strength may become wearisome. Tiresome holds more the idea of a tax upon physical strength. Tedious refers rather to that which is mentally tiresome. Also, tedious suggests what is tiresome through inaction, or waiting and suspense.

784. **WEARY**, tire, jade, harass. Long continued effort and exertion weary. A slight exercise may tire. Tire is a more superficial effect. Exertion beyond one's strength jades. Jade contains the idea of weariness

approaching exhaustion. Exertion under conditions most annoying and unpleasant harasses. Harass includes mental irritation, and may refer only to excessive exasperation.

785. **WEIGHT,** burden, load. Anything that is heavy has weight. Load signifies a weight which is carried. Weight and load may be more or less heavy. A burden is that which is carried by animate bodies. A ship or a wagon may carry a load, but only a person or an animal can carry a burden. A burden is commonly a heavy load, though not necessarily so.

786. **WEIGHT,** heaviness, gravity. Weight is the quality of being heavy and is the effect of the force of gravity; it is also the quantity of heaviness. We may speak of the weight of even very light bodies; but we speak of the heaviness of only those of great weight. Gravity is the attractive force which the mass of the earth exerts upon all bodies, and is the cause of weight. In a figurative use we speak of the gravity of an offense or crime.

787. **WELL-BEING,** welfare, prosperity, happiness. Well-being is the state or condition of being well and may be regarded as a more or less normal condition; welfare is the state or condition of both well-doing and well-being; prosperity indicates an advance, gain, or successful progress towards the attainment of that which is desired; happiness is the state of mind which is brought about by prosperity, welfare, or well-being.

788. **WHOLE,** entire, complete, total, integral. What is whole has had nothing taken from it. That which is entire has not been divided. The complete is not in any way deficient. Thus, one eats a whole apple when he eats all of it, but he does not eat it entire because he eats it one piece at a time. However, the apple, if it were not grown to its full size, was not complete. Total implies the summing up of all the parts, and is used in speaking of intangible things. Integral is that which is both whole and entire.

789. **WICKED,** nefarious, iniquitous. Wicked, being the generic expression, may be used in a milder sense than the other two. Iniquitous is a species of wickedness which is extremely reprehensible. Nefarious is a still stronger term and denotes wickedness in the highest degree. That which is nefarious violates the most sacred trust and obligation.

790. **WILL,** wish. To wish is simply a desire toward an object. To will is to effect a wish by one's own active exertions.

791. **WILLINGLY,** voluntarily, spontaneously. What is done willingly is done without resistance of the will. What is done voluntarily is done of one's own accord without outside force or suggestion. Spontaneously refers to that species of the voluntary which requires no effort, hence is used also to describe inanimate action.

792. **WISDOM,** prudence. Wisdom is knowledge. Prudence is foresight in action. Prudence holds also the idea of caution.

793. **WIT,** humor, satire, irony, burlesque. Wit consists in a spontaneous perception of knowledge or truth. Wit expresses itself only in words. Humor, which is rather a capacity for perceiving the ludicrous, may express itself in both words and action. Satire is ill-natured wit. Irony is likewise more or less ill natured, but has the peculiar quality of expressing the opposite of what is meant. Burlesque is the lowest form of humor; it is grotesque and exaggerated representation and consists mostly of action rather than speech.

794. **WONDER,** surprise. What is unusual produces a feeling of wonder. That which is sudden and unexpected causes surprise.

795. **WONDER,** miracle, marvel, prodigy, monster. As above, the unusual is regarded as a wonder. A wonder is natural. A supernatural event is a miracle. What is excessively wonderful is a marvel. Marvels border on the fictitious. That which is a wonder because of premature development is a prodigy. Hence achievements disproportionately large to the means employed are called prodigious. A child who does anything as well as an adult could be expected to do it is a prodigy. A monster is a violation of the laws of nature.

796. **WORD,** term, expression. Any connected sounds which serve to communicate a thought are words. A word which has a specific meaning is a term. A word, or words, which convey a forcible meaning is an expression. A writer's purity of style depends upon his choice of words; his precision depends upon his choice of terms. His forcefulness depends upon the aptitude of his expressions. Usage determines words. Science fixes terms. Sentiment provides expressions.

797. **WORK,** labor, toil, drudgery, task. Anything that calls for exertion is work. Labor is hard work. Toil is the extreme of hard work. Drudgery is the most menial and unsatisfying work. Task is work imposed by others. Task comprehends also the idea of a particular piece of work.

798. **WRITER,** penman, scribe. Whoever writes is a writer. Whoever writes expertly is a penman. Who copies or transcribes is a scribe.

799. **WRITER,** author. Every one who writes is a writer, but only he who invents is an author; hence editors and compilers are writers, but not authors unless they also write original books.

800. **YOUTHFUL,** juvenile, puerile. Youthful is having the quality of youth. Juvenile is the state of being very young. Puerile, meaning childish, is more often used in a bad sense, as describing acts of men which mark the absence of manhood. Youthfulness in an older person is a beautiful attribute.

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SELECTED LISTS OF ANTONYMS AND HOMONYMS.

ANTONYMS.

Antonyms are words of opposite; synonyms words of like meaning. Below is given a list of some common words with their antonyms. Only the ordinary equivalents are selected, but it is to be understood that a word may have several antonyms, not all of which express the exact opposite meaning, for some show a distinction relatively intermediate.

abandon—cherish
abate—aggravate, enlarge
abhor—crave
abide—depart
abolish—renew
abound—lack
absolve—convict
absorb—exude
abuse—conserve
accident—preparation
active—inert
adapt—disturb
add—subtract
adequate—worthless
adhesive—separable
admire—despise
adorn—deface
afraid—fearless
agree—contradict
alert—sluggish
alike—different
allow—forbid
also—in spite of
amend—debase
amid—far from
amplify—reduce
anger—love
animal—spiritual
apparent—doubtful
append—detach
ask—deny
attach—separate
auxiliary—opponent
awful—humble
awkward—dexterous
barbarous—urbane
barrier—passage
beautiful—ugly
because—although, however, yet
beginning—ending
bind—loose
bitter—sweet
body—mind
brave—cowardly
bright—dark, dull
call—listen
candid—foxy, crafty
catch—release
cease—begin
change—retain
check—accelerate
chief—underling
choose—reject
clear—vague, foggy
clever—dull
comfortable—wretched
company—solitude
condemn—justify
confess—secrete
confirm—cancel
conquer—surrender
convey—retain
criterion—guess
dark—radiant
defer—hasten
delicious—nauseous
delightful—hateful
despair—confidence
difficult—easy
discover—conceal
docile—wilful
doubt—trust
eager—apathetic
end—start
endure—yield
enmity—harmony
entertain—bore
esteem—contempt
evident—obscure
excess—dearth
exercise—rest
extemporaneous—memorized
faith—doubt
fallacy—fact, logic
fanciful—literal
fancy—fact
fickle—steady
fiction—history, reality
fine—coarse, huge
fix—detach, loosen
friendly—hostile
general—rare, singular
get—abandon
graceful—awkward
happy—melancholy
healthy—ill, delicate
help—oppose
hide—uncover
high—low
holy—wicked
honest—deceitful
horizontal—sloping, vertical
hypothesis—discovery
ideal—reality, act
idle—industrious
important—worthless
impromptu—prepared
infinite—measurable
inherent—external
insanitary—hygienic
justice—favoritism
large—microscopic
likely—dubious
make—destroy
meek—arrogant
mercy—cruelty
mind—matter
mix—divide
modesty—conceit
morose—genial
neat—slovenly
necessity—choice
new—old
normal—exceptional
obsolete—novel
order—license
pain—pleasure
pardon—sentence
particle—whole
perceive—overlook
perfect—worthless
permit—deny
persuade—deter
pertness—shyness
pity—brutality
pleasant—repulsive
plentiful—scanty
polite—rude
poverty—affluence
power—weakness
praise—censure
precarious—steady
prefer—hinder
prejudice—reasoning
previous—following
pride—modesty
primeval—recent
profit—loss, waste
promote—retard
proposal—refusal
prudence—folly
queer—usual
racy—flat, stale
radical—conservative
rare—common
reach—depart, leave
real—imaginary
religion—impiety
rend—mend
renounce—claim
revelation—mystery
revenge—forgive
riddle—axiom
rise—descend
royal—servile
rustic—urbane
sample—whole
scholar—ignoramus
send—bring
sensibility—numbness
severe—lenient
skeptic—believer
skilful—bungling
speech—silence
state—refute
steep—flat
subjective—objective
subvert—conserve
supernatural—ordinary
suppose—know
synonym—antonym
system—chaos
taciturn—garrulous
temerity—hesitation
terse—prolix
transient—eternal
tire—rest
utility—futility
vacant—crammed
venal—honest
venial—mortal
wit—stupidity
work—rest
youthful—decrepit
zealous—slothful

HOMONYMS.

Homonyms are sets of words that are sounded alike, but have no other connection, either in spelling or meaning. English is rich in these combinations, but it is necessary to print only those common ones most often confused in spelling. Careless writers frequently spell by sound alone, and so confuse these homonyms.

ail, to be ill.
ale, a beverage.

air, the atmosphere.
ere, before in time.
e'er, contraction of ever.
heir, one who inherits.

aisle, open space between rows of seats.
isle, short form of island.
I'll, contraction of I will.

altar, part of a church.
alter, to change or modify.

ante, before in time, or order.
anti, against.

ascent, upward path or act of going up.
assent, to agree to; agreement.

bare, stripped, naked.
bear, to carry; a kind of animal.

beach, a shore.
beech, a species of tree.

beat, to strike or punish.
beet, a kind of vegetable.

borough, a kind of town.
burrow, hole made by an animal.
burro, a small donkey.

bread, baked flour.
bred, reared or raised.

canon, law, church rule.
cannon, a large gun.

canvas, a kind of coarse cloth.
canvass, to solicit; to seek orders.

cede, to give up or grant.
seed, that from which anything grows or springs.

cere, to wrap as in cloth.
seer, a prophetic person.
sere, dry, withered.

cite, to quote; to summon.
sight, ability to see, view; look.
site, position, place, or station.

climb, to mount; to go up.
clime, region; poetic for climate.

currant, a small seedless raisin; a species of the gooseberry.
current, moving water or air; figurative for time, etc.

faint, fatigued; a swoon.
feint, a sham or pretense.

fair, pleasant, clear; a kind of market.
fare, money paid for a ride or trip; food in general.

dying, expiring.
dyeing, coloring.

gait, manner of walking or moving.
gate, entrance to enclosure.

hail, frozen rain; to greet.
hale, in good health, robust.

hoard, to lay up miserly; a pile.
horde, moving crowd, tribe; group of animals.

hied, past of hie, to hasten.
hide, skin or covering.

leased, hired on terms or contract.
least, smallest in size or amount.

lead, a metal; verb, meaning to conduct.
led, past tense of verb lead.

loan, something temporarily granted by another, as money, articles; use always as a noun.
lone, solitary, single.

maize, corn of the American Indians.
maze, a labyrinth, thick growth of something.

OTHER WORDS OFTEN CONFUSED.

Because of their similarity, homonyms are often mistaken for each other in writing and speaking. Another considerable class of words, on account of likeness in sound or spelling, are frequently confused. Some of these fall into a class called heteronyms, which are two or more words spelled alike, but pronounced differently, and having no connection whatever in meaning. Thus heteronyms have nothing in common, beyond the accident of being spelled alike; they even come from totally different roots. While this class is not large in English, a few common members give no little trouble. A few of these to illustrate are given below.

might, power, strength.
mite, small bit; a tiny animal.

miner, a worker in mines.
minor, one under age.

ode, a certain kind of poem, usually divided into formal parts.
owed, past tense of owe; indebted to.

pair, two joined; a couple.
pare, to cut or shave off a part.
pear, a certain pome fruit and tree.

plain, flat, level country or land.
plane, uniform, flat surface, as in certain geometric figures; a kind of tree.

pore, to gaze intently upon or over; to study; minute openings in leaf, skin, etc.
pour, to discharge, or escape freely.

principal, adj., meaning chief; as adj. used as noun, it means head as of a school; or chief sum as in the term principal and interest.
principle, noun, means some fundamental rule or truth; is never used as adj.

rain, water from the clouds.
rein, to curb; a part of a harness to curb or direct a domestic animal.
reign, time of rule, or act of ruling, as of a monarch.

raise, to exalt, lift up, or grow.
rays, shafts of light.
raze, to destroy wholly, or level with the ground.

right, just, correct, honorable.
rite, ceremony or formal custom.
write, to communicate by letters or characters.
wright, a maker or workman, as wheelwright, playwright.

soar, to mount, or fly upward.
sore, tender, painful, infected.

stationary, fixed, firm, remaining in one spot.
stationery, writing paper, supplies for business offices.

straight, direct.
strait, a narrow place; restricted.

tare, a weed; allowance for weight of container.
tear, to rend, or divide into parts.

their, possessive case of they.
there, adverb, meaning in that place.

to, preposition.
too, adverb, meaning in addition to; too much.
two, one and one; a pair.

vain, proud.
vein, a bloodvessel.
vane, an indicator, as of the direction of the wind; web of a leaf.

vice, a moral fault; as prefix, one who acts for another.
vise, or vice; a grip.

waive, to concede, or give up a right or point.
wave, a ridge of water in motion, to undulate, to flourish.

SOME COMMON HETERONYMS.

bass (base), lowest notes in the musical scale; one who sings the low or bass part.
bass, a species of fish.

bow (bou), the forward part of a ship; a nod.
bow (bo), an instrument to shoot arrows; something bent or bowed, as a rainbow, a violin bow.

lead (led), the metal.
lead (leed), a verb meaning to conduct or guide.

row (ro), rank, file; to move a boat by means of oars.
row (rou), contest, loud commotion, quarrel.

sow (so), to plant seeds by casting.
sow (sou), female of the pig species

wind (wind), air in motion.
wind (wind), to turn, twist, or coil.

CONFUSIONS OF SOUND AND MEANING.

accept, to receive or take something offered.
except, to rule out, refuse to admit to a class.

affect, verb only, to change or modify.
effect, as verb, to put into operation or carry out; as noun, the result of some specified cause.

all ready, completely prepared or furnished.
already, an adverb, meaning previously, or before the present time.

allude, to refer to casually or indefinitely.
elude, to escape or avoid by craft or stealth.

allusion, a general or casual reference.
illusion, an unreal or fancied image presented to the sight.

angel, a celestial messenger.
angle, space between non-parallel lines.

arraignment, legal term, meaning to call to answer an indictment.
arrangement, act or manner of disposing or ordering.

born, to come into this world; used as a passive verb.
borne, carried, brought.

breath, a single respiration; breeze, etc.
breathe, the act of breathing; to respire.

cavalry, a body of mounted horsemen in an army.
Calvary, place where Christ was crucified.

capital, a capital city, etc.
capitol, a legislative statehouse, as the U. S. Capitol at Washington.

cemetery, place of interment for the dead.
seminary, a seat of learning; a place of nurture or development.

choose, to select.
chose, past of same verb; selected or adopted.

coarse, not fine; large grained.
course, a certain space of ground covered; part of a meal; a study or group of studies.

complement, that which is used to complete, as predicate complement.
compliment, commendation with show of courtesy or flattery.

costume, apparel or ornamental dress.
custom, habit of action, usage; practice.

desert, a waste place.
dessert, part of a meal.

epithet, an adjective expressing appropriate quality; an expression.
epitaph, an inscription on a tomb, or one written for such.

formally, in a set or formal manner.
formerly, in some past time; previous to now.

forth, straightway; forward in time or space.
fourth, next after third; one of four parts.
fortieth, one of four times ten parts.

later, after something else happened.
latter, last of two things or events.

lead, present tense.
led, past of verb lead.
lead, a metal.

lessen, to diminish.
lesson, to teach or discipline.

lightning, electricity in the air.
lightening, becoming or growing light; relieving from a load.

loose, not tight: to release.
lose, to part with, fail to keep, mislay, or squander.

partition, that which separates or divides, or parcels out.
petition, a request; supplication.

phrase, a group of words; a pithy expression.
phase, one of the different appearances of an object.

pitcher, a container for liquids; one who throws something, like a ball, hay, quoits.
picture, a likeness or representation of a person, object, or group.

presence, act of being in a certain place.
presents, gifts.

quiet, still.
quite, entirely, wholly.
quit, to leave, or cease doing something.

respectfully, in a deferential manner.
respectively, in a reciprocal relationship.

statue, a sculptured or modeled likeness.
stature, height.
statute, law or other enactment.

their, possessive pronoun, third person plural.
there, adverb, in a certain place.
they're, short form for they are.

which, pronoun.
witch, an ugly woman supposed to have uncanny powers; crone.

whose, possessive pronoun.
who's, shortened form of who is.

your, possessive pronoun, your or yours.
you're, shortened for of you are.

DOUBLETS.

Many pairs or sets of words in English, though apparently different in form, are nevertheless from the same original root, with certain changes in spelling, or certain additions. Those listed below are quite typical of the class.

abbreviate, abridge
adamant, diamond
amiable, amicable
an, one
arc, arch
army, armada
balm, balsam
blame, blaspheme
brother, friar
caitiff, captive
camera, chamber
cavalry, chivalry
champaign, campaign
chieftain, captain
church, kirk
confound, confuse
crimson, carmine
dainty, dignity
dell, dale
disport, sport
entire, integer
etiquette, ticket
faculty, facility
fiddle, viol
flour, flower
gage, wage, wed
gig, jig
guard, ward
guise, wise
hale, whole
history, story
hospital, hostel, hotel, spital
human, humane
influence, influenza
iota, jot
jealous, zealous
locust, lobster
minster, monastery
naive, native
onion, union
outer, utter
paralysis, palsy
parson, person
piety, pity
plateau, platter
poke, pouch
posy, poesy
regal, royal
round, rotund
scabby, shabby
scandal, slander
separate, sever
shirt, skirt
soprano, sovereign
species, spice
supersede, surcease
tamper, temper
tradition, treason
unity, unit
vast, waste
verb, word
wain, wagon
wrack, wreck

COMPLEXITY OF THE ENGLISH LANGUAGE.

English has borrowed words from the four quarters of the earth and even from the small islands of the seas. Some terms go through very curious transformations, and some even reverse

their original meaning. Some words grow more stately and dignified; others degenerate in a shocking degree. By looking up the words listed below, one can see how interesting a book the dictionary really becomes.

abominable
algebra
alkali
academy
affidavit
ambition
ammonia
auctioneer
biscuit
blackguard
candy
cemetery
church
criticism
demagogue
diamond
electricity
geranium
handkerchief
hussy
incandescent
infant
ink
knave
mausoleum
mob
monk
nice
presently
school
secure
shrewd
silly
sincere
sinecure
solecism
squash
subpoena
taboo
treacle
vassal
villain

SOME OF THE COMMON PREFIXES.

a, in, on, by, toward; abed, aground.
a, not: anarchy, adamant, avocation.
a, ab, abs, from: avert, absent, abscond.
ac, af, ag, al, an, etc., to: accept, adopt, affix, allude, annex.
ana, up, back: anagram, analysis.
ante, before: antecedent, anterior, antedate.
anti, against: antidote, antagonist, anthem.
apo, away from: apostate, aphelion.
auto, self: automatic, automobile, autocrat.
be, make, cause: besmear, bemoan, belittle.
bi, bis, to halve: bisect, binomial, bipartisan.
circum, around: circumscribe, circumference, circuit.
co, com, con, etc., with: composition, collect, compute.
contra, counter: contravene, controvert, contradict.
de, down: descend, deform, debase.
de, from, apart: defame, deviate, defray.
demi, hemi, half: demitasse, demigod; hemisphere.
dia, through: diatonic, diameter; (as *de*), devil.
dis, di, dif, apart, not: disagree, diverge, difficulty.
duo, du, double: duet, duplicity, double.
ex, ef, e: effete, exodus, elope.
em, en, in, in, into: embody, enter, entrail, involve.
epi, upon, on: epitaph, epigram, ephemeral.
equi, equal: equidistant, equinox, equinimity.
eu, well: eulogy, eugenics, (as *ev*) evangelist.
ex, ec, el, out, from: except, eccentric, ellipse.
extra, beyond: external, extraordinary.
fore, previous, before: foretaste, foreordain.
gain, against: gainsay.
hetero, other: heterodox, heteronym, heterogeneous.
homo, like, similar: homonyms, homologous, hom(o)eopathy.
hyper, above: hypercritical, hyperbole, hyperbaton.
hypo, under: hyphen, hypocrisy, hypodermic.
in, il, im, etc., in, into: illustrate, immure, innate.
in, il, im, etc., not: infirm, illogical, immortal.
inter, intra, intro, within, between: internal, intramural, introduce.
male, bad, ill: malediction, maltreat, malaria.
meta, met, after, for (change): metaphor, meteor, method.
mis, wrongly: mistake, misapply, amiss.
mis, ill, badly: mischief, misnomer, misprize. (Has no connection with one just before.)
mono, alone, single: monograph, monotype, monolog.
multi, many: multigraph, multitude.
ne, neg, not: negation, neglect, neuter.
non, not: nonsense, nonchalant, (as *um*) umpire (for numpire).
ob, of, op, etc., near, against, etc.: obscure, obviate, offend, oppose.
on, upon, on: onrush, onslaught, (as *a*), afoot, asleep.
out, out, away, surpass: outlaw, outdo, outbrag.
pan, all: panacea, pantheon, pantaloon.
para, par, beside: parallel, paradigm, parody.
per, through: person (parson), perception, pardon.
peri, around: periscope, period, periphery.
poly, many: polygon, polyglot, polygamy.
post, after: postpone, postmortem, postscript.
pre, before: precede, preach, prison, prefer, provost.
pro, forward, ahead: proceed, prologue, (as *pur*) purchase, (as *por*) portray.
re, again: repeat, remind, renew, renovate.
retro, behind, backwards: retrograde, retrospect.
se, sed, apart, away from: secede, select, segregate.
sub, suf, under: submarine, suffuse, submit, suffrage.
super, over, above: supervene, superintend, superficial.
tranc, across: transit, transfix, transparent.
ultra, beyond: ultimate, ulterior.
un, uni, one: unique, unanimous, univocal.
vice, vis, instead of: viceregent, vice president, viscount.

SOME OF THE COMMON SUFFIXES.

acle, object, place: miracle, tabernacle, barnacle.
age, act, group of: foliage, courage, lineage.
an, ain, associated with: artisan, chieftain, partisan.
ance, ancy, ence, ency, etc., state of, quality of: abundance, agency, alliance.
ant, ent, one who: assistant, litigant, student.
ar, ary, relating to: solar, solitary, dictionary.
ard, art, characterized as: braggart, coward, laggard.
ate, one who: advocate, duplicate, magistrate.
ate, having qualities of: roseate, laminate, friate.
ate, to do something: placate, tabulate, stabulate.
ble, that which may be as root indicates: flexible, legible, movable, soluble.
ceous, cious, etc.: gracious, herbaceous, ingenious, rapacious.
craft, skill or trade: woodcraft.
cule, cle, diminutive: animalcule, particle, reticule.
cy, condition, state: curacy, captaincy, regency.
dom, judgment, office: freedom, kingdom, wisdom.
ed, adj. suffix denoting quality or trait: cultivated, gifted, clear-headed.
ee, er, ier, or, yer, one who: engineer, financier, doer, actor, sawyer.
en, n, made of: golden, oaken, wooden.
en, diminutive: kitten, mitten, maiden.
en, to cause: lighten, soften, whiten.
er, more: larger, older, richer, whiter.
esce, to become: acquiesce, effervesce.
ese, native of, belonging to: Chinese, Japanese.
ess, feminine ending: abbess, lioness, tigress.
et, ette, diminutive: casket, epaulette, rosette.
fast, firm, placed: bedfast, stedfast.
ferous, producing: auriferous, pestiferous.
fice, something fashioned or done: artifice, office, orifice.
ful, full of, producing: artful, graceful, hateful.
fy, to cause: fortify, glorify, ratify.
hood, head, state, condition of: manhood, statehood, godhead.
ic, ical, one who: critic, heretic, heroical.
ic, ics, art of, science of: arithmetic, mathematics, physics.
ice, state, quality of: malice, service.
ician, one who: electrician, musician, politician.
id, made, or having traits of: frigid, vapid, viscid.
ing, act of: going: thinking, running.
ise, ize, make, become: advertise, plagiarize, criticize.
ish, to make or become: astonish, cherish.
ish, adj., somewhat: mannish, whitish.
itis, affliction of: appendicitis, tonsillitis, colitis.
ity, ty, ety, quality, state, ability: acidity, cruelty, timidity.
ium, um, ending of names of metals: aluminum, radium, sodium.
ive, quality, character of: attractive, preventive, sedative.
ix, feminine: executrix, testatrix.
kin, diminutive: lambkin, napkin.
less, without, free from: fearless, hopeless, shameless.
let, diminutive: hamlet, rivulet.
logy, science or study of: biology, geology, sociology.
ly, like, resembling, like: childlike, manlike, manly. (Also adverbial ending.)
ment, quality of: judgment, punishment.
ness, quality of: firmness, gladness, richness.
ock, diminutive: burdock, hillock.
ple, ply, many times, folded: multiple, four-ply, triple.
ry, ery, collection of, art of, etc.: cavalry, cannonry, artistry, basketry.
sion, tion, act of, state of being: action, affliction, partition, tension.
some, like, acting like: frolicsome, lightsome, lonesome.
st, agent: harpist, zoologist.
ster, agent: spinster, huckster, webster, (weaver).
ulent, abounding in: corpulent, virulent, opulent.
ulous, given to: credulous, bibulous.
ward, in direction of: backward, forward, outward.
y, having quality of: crafty, hilly, jolly, windy.

BRIEF LIST OF LATIN WORDS

Four or five hundred Latin words enter into thousands of compounds in English. Below are many that have given us a large number of words in common use. Since the roots of the Latin originals are often disguised even in the Latin itself, it seems best to give the whole word in each case, rather than the primary roots. Long vowels are not marked in the Latin words, except wherein absolutely needed. In the main the list here used follows the work of Professor W. W. Skeat in his *Etymological Dictionary*.

ac, sharp: acerbity, acrid, acumen, acute, ague, eager.
aequ-us, equal: adequate, equal, equanimity, equation, equinox, equity, equivalent, iniquity.
ag-ere, to drive: act, agent, agile, agriculture, coagulate, cogent, essay, exact, exigent, pilgrim.
al-ius, other: alias, alien, alibi, alter, alteration.
ang-ere, to choke: angina, anguish, anxious, anger.
anim-a, breath: animal, animate, equanimity, unanimous.
ann-us, year: annual, biennial, superannuate.
aqu-a, water: aquatic, aquarius, aqueduct, sewer.
arm-a, arms: alarm, armada, armament, armadillo.
art-em, accusative case, skill: art, artificial, inert.
audi-re, to hear: audible, audience, audit, obedient.
aur-um, gold: aureate, dory, oriel, oriole, orpine.
bass-us, low: abase, basement, bass, debase.
bat-ere, to beat: abate, battalion, battery, battle.
bib-ere, to drink: beverage, bib, imbibe, imbrue.
breu-is, short: abbreviate, breve, brevet, brief. (Latin *u* also includes English *v*.)
caball-us, a horse: cavalier, cavalry, chivalry.
cad-ere, to fall: accident, cadence, cascade, case.
caed-ere, to cut: concise, decide, precise, suicide.
cal-are, to summon: calends, council, calendar.
camer-a, a chamber: camera, chamber, comrade.
camp-us, a plain: campus, camp, campaign, champagne.
cand-ere, to shine: candid, candle, chandler, incandescent, incendiary, incense.
cant-are, to sing: accent, canorous, cant, canticle, canto, chant, incantation, recant.
cap-ere, to seize, lay hold of, contain: accept, anticipate, cable, capsule, casement, cash, catch, conceit, conceive, encase, except, occupy, precept, receptacle, recipe, sash.
cap-ut, the head: achieve, cabbage, cadet, capital, captain, cattle, chapter, chattel, chief, precipice.
ced-ere, to come, yield: accede, ancestor, antecedent, cease, cede, cessation, decease, precede, recess, succeed.
cent-um, hundred: cent, centenary, centuple, quintal.
cing-ere, to gird: cincture, precinct, shingles, succinct.
circ-us, a ring, circle: circus, search, research.
clam-are, to call out: acclaim, claim, declaim, proclaim.
clar-us, clear: claret, clarify, clarion, glair.
cohort-em (acc.), an enclosure: cohort, cortege, court, courteous, courtesy, curtesy.
coqu-ere, to cook: biscuit, cook, kitchen, precocious.
cord, (cor), heart: accord, cordial, courage, record.
coron-a, crown: corolla, coronal, coroner, crown.
corp-us, body: corps, corpse, corpulent, incorporate.
cred-ere, to believe: credible, credit, credulous, creed.
cresc-ere, to grow: accretion, accrue, concrete, crescent, crew, decrease, excrescence, increment, recruit.
cruc-em, a cross: crucial, cruise, crusade, excruciate.
cur-a, care: accurate, curate, curious, proctor, scour, secure, sinecure, sure.
curr-ere, (curs), to run: coarse, concur, corridor, corsair, courier, course, current, cursive, succour.
damn-um, loss: condemn, damage, damn, indemnify.
da-re, to give: condone, dado, donation, dower, pardon.
dent-em (acc.), tooth: dandelion, dental, dentifrice, dentist, indenture.
deus, god: adieu, deify, deist.
dic-ere, to say (and *dic-are,* to tell): abdicate, addict, condition, dedicate, dictate, diction, dight, ditto, ditty, edict, index, indict, preach, predicament, benediction.
die-s, day: dial, diary, dismal, sojourn.
domin-us, a lord: dame, damsel, danger, demesne, domain.
duc-ere, to lead: adduce, deduct, doge, douche, ducal, duchess, duchy, ductile, duke, produce, redoubt.
duo, two: deuce, double, doublet, doubt, dozen, dubious, duet, duodenum, duplicate, indubitable.
em-ere, to take: assume, ensample, exemplar, impromptu, premium, prompt, ransom, sumptuous.
es-se, to exist, be: absent, entity, essence, present, quintessence.
fac-ere, to do: affair, affect, counterfeit, deficient, difficulty, efficient, fictitious, faculty, fashion, fetish, feat, feature, fiat, forfeit, infect, profit.
fa-ri, to speak: affable, confabulate, defame, fable, fairy, ineffable, infamy, infant, preface, profess.
fer-re, to bear: circumference, confer, differ, fertile.
fid-em, (acc.), faith: affiance, affidavit, confide, defy, diffident, faith, fealty, infidel, perfidious.
fil-um, a thread: enfilade, filiment, file, fillet.
fin-is, end: affinity, final, finance, fine, finical.
flor-em, (acc.), flower: fleur-de-lis, floral, flour, flourish, flower, inflorescence.
flu-ere, to flow: affluence, defluction, floss, fluctuate, flux, influence, influenza.
fort-em (acc.), comfort, deforce, force, fortress.
frang-ere (frag), to break: fraction, frail, refrain.
front-em (acc.), forehead: affront, effrontery, frontier.
fund-ere, to pour: confound, diffuse, fuse, refund, refuse.
gen-us, kin: congenial, engine, gender, generic, gentle, gentry, genuine, genteel, gentile, genus, gin.
grat-us, pleasing: agree, grace, gratify, gratuity, ingrate.
hab-ere, to have: able, binacle, debenture, debt, devoir, due, endeavor, habit, habitat, prebend.
i-re, to go: arrant, circuit, commence, count, exit, initial, issue, itinerent, obit, sedition, transit.
iung-ere (iug), join: adjoin, jugular, junction, junta.
iur-are (ius), to swear: abjure, juridical, just, jury.
labor-em (acc.), labor: elaborate, laboratory, labor.
leg-are, to appoint: allege, colleague, college, legacy.
linqu-ere, to leave: relict, relinquish, ellipse.
litera, letter: alliteration, literature, obliterate.
long-us, elongate: longitude, lunge, oblong, purloin.
loqu-i, to speak: colloquy, elocution, obloquy.
luc-ere, to shine: lucent, illustrate, lunatic, translucent, sublunar.
mag-n-us, great: magnate, magnify, magnitude, main, major, master, maxim, mayor, mister.
mal-us, bad: malady, malaria, malice, malison, maltreat.
man-ere, to remain: manor, manse, mansion, menial.
man-us, maintain: manage, manner, manual, manuscript.
medi-us, middle: immediate, medieval, mediocre, mizen.
memor, recall: memoir, memory, remember.
ment-em (acc.) mind (*mon-ere,* to advise): comment, memento, mental, admonish, monetary, muster, summons.
migru-ere, to wander: emigrate, transmigrate, immigrate.
minu-ere, to diminish: administer, diminish, minim, minor.
mitt-ere, (miss), to send: admit, commit, compromise, demise, emit, missal, missive, omit, promise, surmise.
mod-us, manner: commodious, mode, modest, modern, modify, mood, mould.
mont-em, (acc.), hill: mount, amount, paramount, tantamount.
mou-ere, (mot), to move: emotion, mob, moment, motor, mutiny, promote, remove.
nasci, to be born (natus, gnatus), born: cognate, innate, naive, nascent, nation, nature, supernatural.
nomen, a name: ignominy, nominal, noun, renown.
noscere (gnoscere), to come to know: cognition, ignoble, incognito, noble, notice, notion, notorious.
numer-us, a number: number, numeration, numerous.
ocul-us, eye: inoculate, ocular, binocular.
opt-are, to wish: adopt, optative, option.
ord-o, order: extraordinary, ordain, ordinary, ordnance.
pac-ere, pas-isti (pact), to agree, *pang-ere,* to fasten: appease, compact, impact, impinge, pacify, page, pale.
par-are, to prepare: apparatus, emperor, imperative, parade, rampart, separate.
part-em, (acc.), apart: parcel, parse, partake, particle.
pasc-ere (pa, past), to feed: pabulum, pastel, patristic.
pater (patr-i), father: expatriate, paternal, patron, pattern, repair.
ped-em (acc.), foot: biped, impede, pawn, pedal, pedestal, pediment, pioneer.
pend-ere (pens), to weigh: append, compensate, expend, pensy, pendant, pendulum, pension, pentroof, poise, ponder, prepense, propensity, spencer, suspend.
plan-us, flat: explain, plain, plan, plane, planisphere.
ple-nus, full, (complere): accomplish, complement, complete, depletion, expletive, plenary, replete.
plic-are, to fold, *plect-ere,* to plait: apply, complex, deploy, explicit, imply, pliant, suppliant.
pon-ere, to place: apposite, composite, compost, compound, deposit, depot, exposition, opponent, ponent, positive, postpone, preposition, propound, provost, purpose.
port-ere, to carry: import, port, portfolio, portly.
prehend-ere, to seize: apprise, comprise, impregnable, prehensile, prentice.
prim-us, first: premier, prim, prime, primeval, primitive, primrose, prince, principle.
pung-ere (punct), to prick: appoint, expunge, point, punctuate, pungent.
pur-us, pure: pure, purify, puritan, spurge.
quaer-ere, (quaest), to seek: acquire, conquest, enquire, query, question.
quiet-em, (acc.), acquit, coy, quiet, quite, requiem.

reg-ere, to rule: alert, direct, erect, escort, rectangle, regal, regimen, regnant, reign, rule.
rot-a, a wheel: control, roll, rondeau, round, rowel.
sal-ire, to leap, spring: assail, assault, desultory, exult, salient, sally, salver.
scand-ere, to climb: ascend, escalade, scan, transcend.
scrib-ere, to write: ascribe, conscript, descry, rescript, scribble, script, scrivener, transcribe.
sed-ere, to sit: assess, hostage, possess, residue, sedentary, sediment, session, sizar, subsidy, surcease.
sent-ire, (sens), to feel: assent, dissent, resent, scent, sense, sentence, sentiment.
sequ-i, to follow: associate, consecutive, ensue, intrinsic, persecute, pursue, sect, sequel, society.
seru-us, a slave: conserve, dessert, observe, reservoir, serf, sergeant, servile, subserve.
sign-um, a sign: ancient, assign, design, ensign, signet.
simil-is, similar, *simul,* together: assemble, resemble, similar, simile, similitude, simulate.
spec-ere, to look: aspect, despise, espy, special, species, specimen, spectacle, spectre, spice, spy.
sta-re, to stand: arrest, assist, cost, desist, estate, obstacle, persist, restive, stage, stamina, statist, stature, subsist, superstition.
string-ere (strict), to draw tight: astringent, constrain, distress, distract, strain, strait, stringent.
tang-ere, (tag, tact), to touch: attain, attaint, contact, contiguous, entire, integer, tact, tangent.
tend-ere, to extend: attend, extend, intent, ostentation.
ten-ere, to hold: abstain, attempt, content, continuous, detain, pertain, tenet, tentacle.
ting-ere, to dye: distain, stain, taint, tincture, tinge.
toll-ere, to lift: ablative, collation, delay, dilate, extol, oblate, relate, translate.
trah-ere, (tract), to draw: abstract, entreat, extract, portrait, portray, subtract, trace, trail.
trud-ere, to trust: abstruse, detrude, obtrude.
und-a, a wave: abound, inundation, surround.
un-us, one: annul, null, onion, unicorn, uniform, union, unique, unity.
ual-ere, to be strong: avail, convalesce, prevail, valentine, valiant, value.
ueh-ere (uect), to carry: convex, inveigh, vehement, vex.
uen-ire, (uent), to come: advent, avenue, convene, convent, covenant, event, revenue, souvenir.
uert-ere, to turn: adverse, avert, divers, divorce, invert, prose, traverse, verse, version, vertebra.
uer-us, true: aver, veracious, verify, verisimilitude.
uest-is, clothing: invest, travesty, vestment, vestry.
uia, way: convey, deviate, envoy, invoice, obvious, viaduct, voyage.
uid-ere, (uis), to see: advice, envy, evident, invidious, proviso, prudent, purvey, review, supervise, survey, videlicet, view, visage, vista, visual.
uiu-ere, (uict), to live: revive, viands, vital, vivacity, vivify, vivisection.
uol-o, I wish; *uel-le,* to wish: volition, voluntary.
uolu-ere, (uolut), to roll: convolve, evolve, revolt, revolve, vault, volume, volute.
uoc, to call: voice, *uoc-ere,* to call: advocate, advowson, avouch, avoke, vocable, vocation, voice, vouch, vowel.

SOME GREEK WORDS.

Greek has contributed far less than Latin, but the list of words is rather notable. A few of the principal ones follow, with their English equivalents and derivatives. English letters are used in the spelling of these terms.

ag-ein, to drive: agony, antagonist, axiom, epact.
ak, a point; *akros,* pointed: acacia, acme, aconite, acrobat, acropolis.
all-os, other: allopathy, parallax, parallel.
arch-e, beginning: anarchy, archaic, architect, archives, monarch, patriarch.
ball-ein, to throw: diabolic, emblem, hyperbole, palaver, parable, parley, parlor, problem, symbol.
bio-s, life: biography, biology, amphibious.
bomb-os, a humming: bomb, bound, bumper.
burs-e, a hide: bursar, purse, reimburse.
gam-os, marriage: bigamy, polygamy, cryptogamia.
gen, race: endogen, genealogy, genesis.
ge, earth: geography, geometry, perigee.
gloss-a, tongue epiglottis, glossary, gloze.
gno-nai, to know: diagnosis, gnome, gnostic.
graph-ein, to write: autograph, digraph, paragraph, biography, graphic, graft, anagram, diagram, grammar.
edra, seat: cathedral, chair, chaise.
erg-on, work: erg, energy, organ, exergue.
the-ma, a theme: anathema, antithesis, epithet, synthesis, thesis, thesaurus, treasure.
iste-mi, I stand: apostasy, ecstasy, statics.
kai-ein, to burn: caustic, cauterize, encaustic, ink.
keimai, I lie down: cemetery, coma.
kli-nein, to lean: climax, climate, clime, clinical.
kri-nein, to judge: crisis, criterion, hypocrisy.
krupt-ein, to hide: cryptic, apocrypha, grot, grotesque.
lamban-ein, to seize: catalepsy, syllable, dilemma.
log-os, saying: analogy, apologue, apology, catalogue, dialect, eclectic, eclogue, eulogy, lexicon, logic.
metr-on, measure: diameter, metre, symmetry.
mon-os, single: minster, monad, monarch, monastery, monk, monopoly, mono- in compounds.
nem-ein, to assign: nemesis, nomad, numismatic, economy.
od-os, a way: episode, method, period, synod.
onoma, name: anonymous, homonymous, metonomy, pseudonym, synonym.
optik-os, visual: dioptic, optic, ophthalmia, synopsis.
path-os, suffering: antipathy, apathy, pathos.
paus-is, a pause: compose, expose, impose, oppose, pose, propose, purpose, suppose, transpose.
poin-e, a penalty: impunity, pain, penal, penance, penitent, pine, repine, subpœna.
skepto-mai, I consider: skeptic, bishop, scope.
stell-ein, to send: apostle, epistle, stole.
tom-os, section: anatomy, atom, epitome, tome.
ton-os, tone: attune, diatonic, intone, oxytone, tonic.
trop-os, a turn: trope, trophy, tropic.
(h)yd-or, water: dropsy, hydra, hydrangia, hydraulic.
od-e, a song: epode, monody, ode, parody, prosody.
phain-ein, to show: epiphany, fancy, fantasy.
phon-e, sound: anthem, euphony, phonetic, symphony, telephone.
chron-os, time: anacronism, chronicle, synchronism.

WORDS ADOPTED FROM OTHER LANGUAGES.

Where do all the words in the English language come from? Most have been adopted from older tongues, including the parent English or Anglo-Saxon, as it has been called. Latin has furnished a great number of words, the native about as many, and a third group comes from many different sources. To show the great number of languages that have furnished us with words, a few of the more prominent are taken here to illustrate.

From the Scandinavian, directly or through some other language, come the words geyser, dahlia, slag, gauntlet, sloyd, floe, jib, barb, bet, bondage, brandish, cromlech, flummery, maggot, gallop, gawky, strive, waif, pocket, wicket, and knout.

From the Welsh, Gaelic, and allied dialects: braggart, crowd, flannel, clan, claymore, coronach, inch, loch, reel, slogan, whisky, colleen, skain, Tory, shillelagh, bound, vassal, charge, carpenter, dolman, garter, chariot, and barge.

From the Spanish and Portuguese and through them originally from the Latin: alligator, armada, cork, corral, desperado, matador, olio, negro, renegade, duenna, grandee, sierra, sombrero, sherry, salver, tornado, vanilla, casque, comrade, creole, grenade, molasses, pimento, punt, quadrille, tank, and parasol.

From the Dutch: aloof, avast, boom, bruin, clamp, dapper, deal, drawl, gas, deck, jerkin, knickerbocker, skipper, sled, slim, sloven, sniffle, trigger, uproar, wagon, yacht, and spook.

From the Russian, Polish, Bohemian, and allied tongues: cravat, sable, trump, trombone, polka, howitzer, slave, vampire, ukase, samovar, and steppe.

From the Hebrew: alleluia, bedlam, cherub, homer, gopher, jug, log, shibboleth, satan, teraphim, alphabet, delta, sabbath, damson, abbey, jockey, lazar, cabal, camel, cider, elephant, ebony, leviathan, mammon, and jesuit.

From various Asiatic languages: bandanna, bangle, thug, shampoo, calico, tomtom, bamboo, teak, collie, peacock, caddy, gong, junk, muck, tea, bantam, mammoth, turkey, boomerang, taboo, tattoo, atoll, mogul, and camphor.

From some of the African languages: behemoth, sack, satchel, oasis, ammonia, gypsy, lion, fustian, morocco, canary, and guinea.

From North American Indian: hickory, hominy, moose, moccasin, racoon, squash, toboggan, tomahawk, wigwam, and skunk.

From other North American languages and dialects: coyote, jalap, copal, tomato, mahogany, potato, hammock, buccaneer, hurricane, tapioca, quinine, and tobacco.

WORDS OFTEN WRONGLY SPELLED.

Regardless of your own position in life, the habit of correct spelling is most essential. Modern improvements in communication and transportation have welded firmly together our entire social fabric, so that business can no longer be transacted without good methods of writing. Spelling is prerequisite to a common understanding and to achievement in any field of business or social life. Good spelling, then, becomes increasingly important.

Correct spelling, however, is more a matter of habit than the average person realizes. Many learn to spell with little apparent effort; others seem continually to misspell the same words, making no apparent advance from time to time. Every parent should realize how essential it is to train children in correct habits of spelling in the first grades of school. Little folks must be constantly encouraged to observe words carefully, to read print clearly, and to spell consistently.

Spelling in the common schools is no longer taught in a haphazard fashion. If the object of a spelling book were to provide all the words in English for classroom study, a whole lifetime itself would be consumed in doing little else but studying orthography. Since only a small portion of the common words,—to say nothing of the intricate and unusual ones,—may be given room in any spelling book, a careful selection may be made for practical purposes. It is hardly necessary to teach *parallelogram, cochineal, hydroptic,* and such uncommon terms in the schools. On the other hand, teachers must make sure that they include all the every-day words that one needs in business, in social correspondence, and in other writing common to all persons. First, then, principles and a few simple rules may be taught. Second, a list of words commonly misspelled may be prepared for any book or any classroom. Third, each person should keep his own list of words that have given him trouble.

If one could learn only two new words each day, in three or four years, he would have the foundation vocabulary of business or social life. Indeed the mastery of a list of a thousand or more words, like that given in this book, would decrease the average person's misspellings by not less than fifty per cent. What is more important—it would get one into the habit of observing and remembering how common words are correctly spelled. Half the familiar words that many persons always misspell are found daily in our conversations and in almost every chapter of all our books.

Parents may greatly assist the schools in fostering care, observation, attention, and good memory in spelling. A good ear to distinguish between sounds, a good eye to see the correctly written or printed word, and careful habit in pronouncing and writing are the main essentials to success in spelling. Of many possible suggestions to improve our spelling, the few given below have been chosen as practical and stimulating.

1. The first step is to develop a spelling consciousness. Children must soon learn to make good writing and spelling a matter of habit, almost a matter of conscience. Carelessness, hurry, poor observation always stand in the way. The more the pupil guesses, the more confused he becomes; the more he relies on mere memory of certain words, without mastering classes and types, the more he will retard his own progress. Much poor spelling is the result of impulsiveness. It has often been remarked by educators that poor spellers are likely to be imperfect observers. Some have indeed placed careful scrutiny of words above everything else as an aid to learning. Either good or bad spelling may be said to be a habit of mind. One results from training, persistence, and habits of seeing things rightly; the other, from a blundering, uncertain, inconsistent, and erratic haste.

2. Spelling involves the chief senses. We hear, see, speak, and write words. Thus we use the ear, the eye, the tongue, and the arm and hand eventually. The process is incomplete until all the elements are mastered. For instance, to pronounce and to write correctly are compensating elements, as are those of hearing and seeing. Many words are often misspelled because they are mispronounced. Many are missed because they are not observed closely, or because they are written in a slipshod manner. Unless a person always habitually spells a word as it should be written, he has no good right to claim that he can spell it. Some, on the contrary, spell a word all right when it is pronounced in a spelling lesson, and they habitually get it wrong when they transcribe it to a sheet of letter paper. This certainly is not good spelling; for the test is practical, every-day use.

3. The natural order of learning to spell is recognized now in most schools. First, the word is pronounced by the teacher, and then defined, and used in a sentence. Second, it is written on the board, so that all pupils may observe it accurately, while any uncertain or peculiar parts are pointed out. Hard letters or those often confused may be printed in large hand or in colored crayon. Third, the class pronounces it carefully, and then individuals in the class. A word like *perhaps* or *irrelevant,* in which some of the letters may be transposed, should be sounded by several members of the class. Fourth, the class may now write the word or spell it orally. Fifth, eternal vigilance and many reviews fix the word forever. By the end of the second grade in school, a pupil should know the values of sounds and how to recognize them.

4. Pronunciation must be careful and distinct, but no letter or syllable should be over-emphasized or distorted. In a spelling test, the words should be pronounced as they should ordinarily be sounded. First, one must recognize all the letters of the word; second, he must remember them in their right order, without transpositions or shifts; third, he must always recall any peculiarities, like exceptions to rules, silent letters, and the like; fourth, he must be sure that the accent is correctly placed. Teachers and parents should point out the pit-falls in words before they have their charges study the spelling lesson. Otherwise, habits of carelessness may persist, and the student fails to notice the important parts or letters. Always be on guard against confusions like *to* and *too, lose* and *loose, lead* and *led.* When such words are confused, be sure to stress the use and meaning of the word in connection with the way it should be written.

5. Good spellers recognize that a word is right by the way it looks. If it looks too short, it may be wrong. If it looks too long, some letters may have crept in without belonging there. Thus, any observing person should recognize that *candidate,* without the first *d,* does not "look right." Vizualizing helps to fix words in memory. Look at the word you often misspell, notice every single letter, notice just how they are arranged, and how they look when written or printed. In other words, photograph the word on the sensitive plate of your brain. Now erase the word, or shut your eyes. Can you see it precisely as printed or written? Can you see groups of words thus clearly? Many students have found the method of fixation of vision truly wonderful. All poor spellers should try it again and again for greater and greater results.

6. Always point out to pupils just where they make their characteristic mistakes. One person sees the words wrongly; another does not hear them as they are pronounced; a third, even though seeing and hearing rightly, may not speak the words as others do; and a fourth may make blunders like leaving out letters, writing, i. e. *ind* for *ing.* Whatever method is used in teaching spelling, the incorrect forms should not be written on the board by the teacher. If one feels he must write an incorrect spelling, for purpose of illustration, the correct one should be placed more prominently beside it, and should be left there long after the wrong form is erased.

7. Few definite rules for spelling are needed. Some have already been given in this book on pages 22 and 23. Pupils should constantly be asked to explain the spelling of words. For instance, why is there no *e* in

writing; why is it *disappoint,* with only one *s;* why is it *perspire,* with the first *e* before the *r;* why is there no extra *e* after the *h* in *athletics?* In the grammar school and afterward, the component parts of words, prefixes, suffixes, stems, and other elements of words should be stressed.

8. Danger signals need to be erected over certain classes of words. First, transpositions of letters may thus be marked, in words like *tragedy,* in which poor spellers often exchange the *d* and the *g;* or the *i* and the *s* in *business,* getting the order mixed. Second, from certain words like *sophomore, hygiene, Niagara, arctic,* and a score of other common ones, it should be noted, a letter often drops. Third, into many words a letter intrudes. Fourth, special signals should be set against common confusions of words like *accept* and *except; lose* and *loose; their* and *there; to* and *too.*

Several excellent treatises have been written on the subject of learning to spell. Some of these, unfortunately, are not often available to the general reader. A few are mentioned here: Pryor and Pittman's *Guide to the Teaching of Spelling;* F. N. Freeman's *The Psychology of Spelling;* the investigations of Prof. W. F. Jones, who compiled a list of "one hundred demons" and other works on spelling; Leonard P. Ayres, whose *Spelling Scale* of a thousand common words is published by the Russell Sage Foundation of New York, with B. R. Buckingham's additions, as published by the University of Illinois; and other discussions by E. J. Ashbaugh, S. A. Courtis, Daniel Starch, Henry Suzzalo, W. F. Tidyman, and J. E. W. Wallin.

During the last two decades various investigations have proved that it is possible to compile a simple list of words most often misspelled. Different classifications are proposed. Merely for the sake of convenience, the divisions used in this book have been chosen, and the words have been listed in several classes. First of all, a junior list shows those words that every child in school should master. Professor W. F. Jones, after elaborate investigations, collected one hundred words that have been termed the principal "demons" in elementary spelling. About sixty of these hundred demons from Prof. Jones' classification have been included in the list given below. Others have been added to make a relatively complete list of words that children misspell in the grades.

A JUNIOR WORD LIST

across
again
all right
almost
already
always
among
amount
animal
answer
any
arctic
arouse
awful
beggar
beginning
believe
benefit
born
brief
built
burglar
buried
business
busy
can't
caught
certain
choice
climb
clothes
collar
college
coming
commit
conquer
course
cousin
cries
debt
decide
despair
develop
different
dining
divide
doctor
dodge
don't
dropped
dying
early
easy
eighth
every
explain
February
field
figure
finally
forty
friend
ghost
goddess
grammar
guess
having
heroine
hoarse
hungry
illness
imagine
instead
its (pronoun)
laid
led (past of verb)
lemon
liable
library
living
lose
lying
making
many
meant
minute
much
niece
oblige
occur
often
omit
once
one's
opinion
opposite
paid
permit
planned
pleasant
possibly
priest
prove
pursue
quantity
quiet
quite
raise
ready
really
receive
refer
reference
referred
safety
said
says
scene
seen
seems
separate
similar
since
speech
straight
sugar
sure
their
there
therefore
till
too (adverb)
together
toward
truly
Tuesday
until
very
visible
weather
Wednesday
where
whether
which
wholly
women
won't
writing
yacht
yield

Adult lists might include those terms that are most often misspelled, those used in connection with study and criticism, those used in business and the arts, those often confused, and a special list of proper names that cause most difficulty. In the next list that follows below are included all words that are not technical or are not otherwise classified.

COMMON WORDS OFTEN MISSPELLED BY ADULTS

abbreviation
abundance
accept
accidentally
accommodate
accompanied
accuracy
accustomed
acknowledge
acquaint
address
admittance
advice (noun)
advise (verb)
aggravate
agreeable
all right
almost
already
altogether
amateur
ambiguous
ambitious
amusement
ancestor
annihilate
apartment
apology
apparently
appearance
appetite
arise
arrangement
arrival
artificial
ascend
ascertain
assent
assistance
athlete
attached
attacked
attendance
attraction
audience
authentic
awkward
balance
bargain
battalion
befitting
believe
beneficial
benefit
benefited
bicycle
boundary
bouquet
breath
breathe
burglar
burial
busy
busied
business
calendar
campaign
capable
captain
career
carriage
carrying
cemetery
ceremony
chagrined
character
chasm
chauffeur
chautauqua
chieftain
choice
chord
chose (past of choose)
circuit
circuitous
cistern
citizen
civilization
coincidence
collar
collision
comfortable

commemorate
commission
committed
committee
comparatively
comparison
compelled
complaint
concede
conceive
concession
condition
confer
conferring
conqueror
conscientious
considerable
conspicuous
constancy
continually
continuous
convenience
conveyance
countenance
counterfeit
courage
courageous
courtesy
cruelty
customary
damaging
deceased
deceive
decision
decrease
delicacy
delivered
dependence
describe
description
despair
desperate
destroyed
deterred
development
difference
different
difficult
diligence
dining
disappearance
disapprove
discernible
discipline
discourse
discreet
discussing
disguise
dissipate
dissolve
disturbance
doctrine
don't
dragging
drowsiness
drudgery
duchess
dyeing (coloring)
dying (expiring)
earnest
easily
efficient
eligible
embarrass
emigrant
emphatic
endurance
enthusiasm
especially
eventually
exaggerate
excellence
existence
explanation
exquisitely
extraordinary

extravagant
evidently
extremely
familiar
fascinate
February
feminine
fiery
football
forbearance
forcible
forefinger
forehead
formerly
forty-four
frolicked
garrison
genius
ghastly
gorgeous
government
grandeur
guardian
happily
hastily
heavily
height
hereafter
heroine
hindrance
humorous (funny)
hungry
hurriedly
hurrying
hypocrisy
identity
ignorance
illegible
illegitimate
illuminate
imitate
immediately
immense
immigrant
impartial
impatience
imperative
imperceptible
impossible
incidentally
inconvenience
incredible
independent
infinite
influence
inhabit
innocence
insatiable
insensibility
insistent
inspiration
intellectual
intelligence
interrupt
irksome
irrelevant
irresistible
irritate
its (pronoun)
itself
it's (it is)
journeyed
knapsack
knowledge
laughter
lazily
led (past tense of lead)
legendary
leisure
lightning
lily
listening
living
lose
luscious
luxuriance

machine
magazine
maintain
maintenance
manage
manageable
masquerade
meanness
medicine
messenger
miscellaneous
mischief
mischievous
moisten
mortally
murmur
mysterious
naturally
necessary
neighborhood
nevertheless
noticeable
nowadays
obedience
occasion
occasionally
occur
occurred
occurrence
offered
omission
omitted
one's
opponent
ordinarily
originally
outrageous
palace
paradise
parliament
particularly
patience
peaceable
peculiarity
pecuniary
pennant
perceive
permission
permitted
persecute
physical
physician
piteous
pleasant
portable
portrayed
practical
precede
preferred
preferable
prejudice
preparation
privately
privilege
procedure
proceed
profession
profited
prophecy (noun)
prophesy (verb)
prosecute
purpose
pursuit
quantity
quarantine
quarter
rapidly
realized
reappearance
receive
recollect
recommend
reconcile
recurrence
reference
referred

region
reliability
relief
relieve
religious
repeatedly
repentance
repetition
resistance
responsible
ridiculous
sacrifice
safety
salary
satisfy
scarcely
secede
secrecy
seize
sensitive
separate
sergeant
serviceable
shepherd
siege
similar
sincerely
sovereign
specimen
spirit
steady
stepped
stretch
studying
subordinate
subterranean
successful
sufficient
summary
supersede
surface
surprise
suspicious
syllable
sympathize
systematic
talkative
tariff
tedious
temperament
temperance
temporary
tendency
terrible
territory
together
too (adverb)
torture
transferred
treasure
trespass
triumphant
tyrannical
umbrella
unanimous
undoubtedly
unsuccessfully
usually
valuable
variety
vegetable
vengeance
vigorous
village
villain
visible
weightier
whether
wholesome
wholly
whose
wield
writer
writhe
yield
zealous

A SPECIAL LIST FOR STUDENTS.

Below are printed some words that are frequently found in connection with school studies, written papers in English classes, or criticism of literary works.

accelerate
acid
address
adverbially

aeronaut
aeroplane or airplane
alliteration
allusion

aluminum
ambiguous
ammonia
analogous

analysis
anecdote
anonymous
apparatus

apostrophe
archaic
assignment
audience
auxiliary
bibliography
biography
canyon
catastrophe
chemistry
chivalry
chronological
circuitous
circumference
civilization
coefficient
coherence
colloquial
combatant
comma
comparative
complement (that which completes)
consonant
copyright
corroborate
crater
criticism
criticize
curriculum
cyclone
cylinder
cylindrical
dandelion
decimal
definition
definitely
demonstrative
denominator
description
develop
diagonal
dialogue (-log)
diameter
dictionary
diphthong
doctrine
dynasty
effervesce
efficiency
elegy
elision
emphasis
encyclopedia
enumeration
equation
equilibrium
eulogy
explanation
extemporaneous
filament
foreign
gasoline
gazetteer
gencalogy
genitive
geology
grammar
gymnastics
hemisphere
hexagonal
homologous
homogeneous
horizontal
hygiene
hypothesis
iambic
idiom
illusion
imaginative
impromptu
infinitive
interrogative
island
isosceles
isthmus
kodak
label
laboratory
language
latitude
legendary
linguistic
liquefaction
literary
longitude
machinist
mathematics
metaphor
metonymy
microscope
mineralogy
mirage
modifiers
monosyllable
multiplication
municipal
mystery
mythological
naphtha
narrative
neuter
nickel
nominative
numerator
o'clock
onomatopoetic
oscillate
ostracize
oxygen
pageant
paragraph
parallel
parenthesis
peninsula
perpendicular
phenomenon
philosophy
plateau
playwright
politics
polysyllable
possessive
prairie
precedence
predicate
principal (adj.)
principle (noun)
professor
pronunciation
proportion
psychology
quantitative
quarantine
quatrain
reciprocity
rectangle
rhetoric
rime, rhyme
rhythm
sarcastic
satirical
schedule
science
secession
semicolon
soliloquy
studying
subjunctive
substantive
surgeon
suzerainty
synonym
synthesis
technical
temperament
temperature
tournament
tragedy
turpentine
university
vacuum
velocity
zoology

ONE HUNDRED HOUSEHOLD WORDS.

almond
antique
appetite
apron
artificial
atomizer
banana
biscuit
bronchitis
bungalow
bureau
calendar
cantaloupe
caromel
chiffonier
cinnamon
clothes
cloths
cologne
culinary
dairy
deodorize
desiccate
dessert
diagnosis
diamond
digestible
dining room
discipline
disease
dishabille
doily
dye (color)
dyeing (coloring)
embroidery
epidemic
etiquette (-et)
faucet
fricassee
glycerine
inflammation
influenza
jewelry
kerosene
kimono
leisure
liniment
luscious
macaroni
mackerel
mahogany
marshmallow
mattress
measles
medicine
meningitis
meringue
molasses
mopping
mosquito
mucilage
neighbor
neuralgia
paraffine
parasol
parboil
perspire
picnic
piccalilli
picnicking
pneumonia
poached
portrait
pumpkin
quinine
raisin
raspberry
receipt
recipe
relish
restaurant
salmon
sarsaparilla
sassafras
settee
shrubbery
sieve
singeing
sirloin
spaghetti
syringe
taffeta
tenant
umbrella
utensils
vanilla
ventilate
vinegar
woolen
worsted

COMMERCIAL WORDS.

acceptance
accommodation
accompt
accountant
acknowledge
actuary
adjustment
advertise
affidavit
agency
agreement
alignment
annuity
apartment
application
assignment
attorney
auction
auditor
bankruptcy
bookkeeper
bulletin
business
calculation
campaign
cashier
certificate
check, cheque
collateral
collectable
commodity
competition
comptroller
confidential
consignment
consistency
conveyance
copyright
corporation
counterfeit
counsellor
creditor
curiosity
customer
debenture
debit
debtor
deficit
demonstration
department
difference
discount
dividends
economy
electrotypes
employee (-ye)
examination
expenditure
finance
financial
financier
fiscal
foreclosure
forfeit
forgery
franchise
fraudulent
guarantee
guaranty
heading
hundred
illustrations
insolvency
interest
inventory
judgment

lease
ledger
legacy
liability
license
lithographs
luxury
machinery
magazines
manufacture
manufacturer
maturity
medium
mercantile
merchandise
millionaire
mimeograph
mortgage
municipal
necessity
negotiable
notary public
payee
permission
preferred
preliminary
produce
promissory
psychology
quantity
questionnaire or questionary
receipt
recommendation
referee
remittance
repetition
requisite
respectfully
respectively
responsible
routing
salary
schedule
securities
signature
slogan
speculate
stationery (office supplies)
statistics
stenographer
stereotype
substantial
suggestion
syndicate
tariff
testimony
typewriter
warehouse
weight

SOME PROPER NAMES OFTEN MISSPELLED.

Aaron
Addison
Aeneid
Britain, Great
British
Briton (person)
Burke, Edmund
Carlyle, Thomas
Chaucer
Chesapeake
Cincinnati
Coleridge
Colosseum
Connecticut
Delaware
Disraeli
Eliot, George and Chas. W.
February
Gettysburg
Grecian
Hawaii
Huguenots
Iliad
Isaiah
Johnson, Samuel
Jonson, Ben
Lafayette
Macaulay
Macbeth
Macduff
Manila
Marner, Silas
McKinley, William
Mediterranean
Michigan
Niagara
Odyssey
Olympic
Philip
Philippines
Pompeii
Poughkeepsie
Roosevelt
Shelley
Stevenson, R. L.
Swedish
Thackeray
Tuesday
Ulysses
Wednesday
Welsh (people)
Worcester
Wordsworth
Yosemite

RECENT WORDS AND PHRASES.

The English language is constantly receiving phrases or words in new uses. Many of these have grown up since the airplane, radio, and other modern inventions have become popular. Not a few came to us from the Great War.

ace, a French aviator who brought down at least five enemy planes; hence, any great aviator.
aerial sickness, a malady somewhat resembling mountain and seasickness, caused by the pitching and motion of aircraft.
aerostat, a passive balloon.
aileron, stabilizing device or plane attached to aircraft.
Anzacs, soldiers from Australia and New Zealand, the name being formed from the first letters of Australian and New Zealand Army Corps.
Archibald, German mobile anti-aircraft gun.
aviette, heavier than air machine propelled by aviator himself.
barrage, a curtain of projectile fire, at first used to repel an attack but later also used to cover an advance of troops on the field.
bertha or big bertha, a large German gun so nicknamed from the name of Frau Bertha Krupp, head of the Krupp interests.
Binet test, a series of graded questions and tasks to indicate the intelligence of children; later extended to test adults as well.
black Maria, a shell imperfectly exploded so as to throw off dense clouds of smoke used as a screen to cover naval or military movements.
blimp, small balloon equipped to carry passengers and to produce its own internal power.
Boche, French slang for *caboche,* meaning thick head, as applied to a German.
Bolsheviki, party of the majority in Russia, according to meaning of the word; party given to extreme political measures.
bromide, a person or term that follows custom or convention.
camouflage, any device to disguise a camp, ship, army, or depot for supplies; originally, a painted device used to deceive; and figuratively any process of deception or fraud.
corona, the fringe of light around an object; as the corona of the sun, the irregular mass of light beyond the round ball that we usually see.
cubists, a school of modern painters who rely on geometrical forms and straight lines for effects in pictures, rather than on curves.
dactylogram, a finger print, as a means of identification.
decathlon, a meet consisting of the 400 meter run, broad jump, shot put, running high jump, 100 meter run, throwing the discus, pole vault, javelin throw, 1500 meter run, and running hurdle race.
decode, to translate any message from a code into ordinary language.
direct primary, nomination of candidates directly, not by party caucus.
endocrine, an organ secreting internally a substance used in some part of the body, as the thyroid gland.
fuselage, the long body of an airplane, now usually enclosed.
hormone, substance secreted in one gland of benefit to some other part of the body.
hyphenate, a citizen in one land who still holds allegiance to another country; used in disparaging sense.
imagist, in poetry, is one who relies little on rime and rhythm, but on beauty through clear and striking images.
lettergram, a message longer than an ordinary telegram, sent at the convenience of the telegraph company at a reduced rate.
Mensheviki, party of the left or minority in Russia.
moron, a person over twelve who has the mentality of a child about eight years old.
Octobrist, a moderate liberal in Russia.
Olympiad, celebration of Olympic games every four years.
pacifist, a zealous advocate of principles opposed to war of any sort.
participating policy, in insurance, a contract that allows the insured person a share of the profits of the business.
pilot balloon, a small balloon sent up to detect the direction of the wind, or air currents.
plumcot, a cross of the plum and apricot.
preferential voting, a scheme by which the voter marks both his first and second choices for an office; in case of any failure to obtain a majority, the person wins who has greatest number of first and second choices.
questionary, a set of inquiries or questions sent to a number of persons by one making special study or investigation of a subject; a questionnaire.
Soviet, meaning a council, is a local unit of democratic government in Russia under the Bolsheviki; the entire government consists of a federation of these large and small units.
strafe, to punish, a word from the German phrase *Gott strafe England,* a popular slogan during the Great War in Germany.
surtax, in the United States, a certain amount of extra tax on incomes of $5000 net or more.
syndicalism, principles of "direct action," or the desire to secure changes in social orders by general strikes or sudden popular movements.
Triple Entente, agreements between France and Russia, England and France, and England and Russia, by which a concerted action against the Central Powers in the Great War was produced.
twilight sleep, a form of partial unconsciousness induced through the use of scopolamine and morphine, or some form of it, to deaden the pains of childbearing.
volplane, to glide to earth in a flying machine.
war bride, a person married to a soldier about to leave for the war, or on temporary leave from the front; as slang, a corporation that derived great profits from the war industries.

WORDS OFTEN WRONGLY PRONOUNCED.

1. DIVISION OF COMMON WORDS.

Key to Marked Letters.

1. Native or English Sounds.

ä = *a* in arm.
å = *a* in ask.
ă = *a* in at.
â = *a* in air.
ā = *a* in ale.
b = *b* in be.
ch = *ch* in chew.
d = *d* in do.
ĕ = *e* in ebb.
ē = *e* in eel.
ẽ = *e* in ermine.
f = *f* in foe.
g = *g* in get.
h = *h* in he.
ĭ = *i* in it.
j = *j* in jet.
k = *k* in key.
l = *l* in lave.
m = *m* in me.
n = *n* in no.
ng = *ng* in ring.
ŏ = *o* in odd.
o = *o* in orange
ô = *o* in or.
ȯ = *o* in only.
ō = *o* in old.
o͝o = *oo* in look.
ōō = *oo* in ooze.
p = *p* in pay.
r = *r* in rave.
s = *s* in see.
sh = *sh* in she.
t = *t* in to.
t̛ = *th* in thy.
th = *th* in thigh.
û = *u* in urge.
ŭ = *u* in up.
v = *v* in van.
w = *w* in we.
y = *y* in ye.
z = *z* in zebra.
zh = *z* in azure.

2. Foreign Sounds.

ö = *ö* in Göthe.
ü = *ü* in Müller.
ăn = *en* in encore.
ăn = *in* in vin.
ôn = *on* in bonbon.
ŭn = *un* in un.
k = *ch* in Richter
g = *g* in Leipzig.

3. Diphthongal Sounds.

ī = *i* in ice.
oi = *oi* in oil.
ow = *ow* in now.
u = *u* in duke.

abdomen, ăb-dō′mĕn, *not* ăb′dō-mĕn.
aborigines, ăb-ô-rĭj′ĭn-ēz.
abstemious, ăb-stē′mĭ-ŭs, *not* ăb-stĕm′ĭ-ŭs.
abstractly, ăb′străkt-lĭ.
abstruse, ăb-stro͞os′, *not* ăb-stro͞os′.
access, ăk-sĕs′ *or* ăk′sĕs; ăk′sĕs (Imp.).
acclimate, ăk-klī′māt, *not* ăk′klĭm-āt.
accompaniment, ăk-kŭm′păn-ĭ-mĕnt, *not* ăk-kŭmp′nĭm-ĕnt.
accouchement, ăk-ko͞osh-măn′.
accouter, ăk-ko͞o′tĕr, *not* ăk-kow′tĕr.
accrue, ăk-kro͞o′, *not* ăk-kro͞o′
accurate, ăk′kū-rāt, *not* ăk′kĕr-ĭt.
acetic, ă-sē′tĭk *or* ă-sē-tĭk.
acetylene, ă-sĕt′ĭl-ēn; ăs′ĕt-ĭl-ēn.
acorn, ā′kŭrn; ā′kĕrn (Wor.).
acoustic, ă-kow′stĭk, or ă-ko͞o′stĭk.
across, ă-kros′, *not* ă-krost′.
acts, ăkts, *not* ăks.
acumen, ă-kū′mĕn, *not* ăk′yū-mĕn.
adagio, ă-dä′jō.
adamantine, ăd-ă-măn′tĭn, *not* ăd-ă-măn′tēn.
address (n.), ăd-drĕs′.
address (vb.), ăd-drĕs′.
adept, ăd-ĕpt′, *not* ăd′ĕpt.
adieu, ă-dū′; Fr. pron. ăd-yö′.
ad infinitum, ăd ĭn-fĭn-ī′tŭm, *not* ăd ĭn-fĭn′-ĭt-ŭm.
adjectively, ăd′jĕk-tĭv-lĭ.
admirative, ăd-mī′rȧ-tĭv.
adobe, ă-dō′bā.
adult, ă-dŭlt′, *not* ăd′ŭlt.
ad valorem, ăd vă-lō′rĕm, *not* ăd văl′ō-rĕm.
adventure, ăd-vĕnt′yur.
adverse, ăd′vĕrs.
advertise, ăd-vĕr-tīz′.
advertisement, ăd-vĕr′tĭz-mĕnt *or* ăd-vĕr-tīz′-mĕnt.
æon, ē′ŏn.
aerate, ā-ĕr-āt, *not* ā-rē-āt.
aerial, ā-ē′rĭ-ăl.
ærie, ē′rĭ.
aerometer, ā-ĕr-ŏm′ē-tĕr.
aeronaut, ā′ĕr-ō-nôt; ā′rō-nôt (Smart).
ætiology, ē-tĭ-ŏl′ō-jĭ.
a fortiori, ā fôr-shĭ-ō′rī.
aggrandize, ăg′grăn-dīz.
agile, ăj′ĭl, *not* ăj′īl.
aid-de-camp, ād′dŭ-kăn.
aiguille, ā-gwēl′; Fr. pron. ā-gwē′yŭ.
ailment, āl′mĕnt, *not* āl′mŭnt.
aisle, īl.
algæ, ăl′jē.
algebra, ăl′jē-brȧ, *not* ăl′jē-brā.
algebraist, ăl′jē-brā-ĭst.
alias, ā′lĭ-ăs, *not* āl′ĭ-ăs.
alien, āl′yĕn, *not* ā′lĭ-ĕn.
allopathist, ăl-lŏp′ăth-ĭst, *not* ăl′lō-păth-ĭst.
allusion, ăl-lu′zhŭn, *not* ăl-lo͞o′zhŭn.
ally (n.), ăl-lī′.
alma mater, ăl′mȧ mā′tĕr, *not* ăl′mä mä′tĕr.
almond, ä′mŭnd.
alpaca, ăl-păk′ȧ, *not* ăl-ȧ-păk′ȧ.
alternately, ăl-tĕr′nāt-lĭ, *not* ăl′tĕr-nāt-lĭ.
alto-rilievo, ăl′tō rē-lyā′vō.
alveolar, ăl-vē′ō-lĕr *or* ăl′vē-ō-lĕr.
amateur, ăm-ȧ-tur′; Fr. pron. ä-mä-tör′.
ameliorate, ȧ-mēl′yō-rāt, *not* ā-mē′lĭ-ō-rāt.
amenable, ȧ-mē′nȧ-bl, *not* ā-mĕn′ā-bl.
amende honorable, ä-mänd′ ō-nō-rä′bl.
ament, ăm′ĕnt.
amœba, ȧ-mē′bȧ.
anæmic, ȧ-nĕm′ĭk, *not* ȧ-nē′mĭk.
anchor, ăng′kĕr.
ancien régime, ăns-yăn′ rā-zhēm′.
andante, ăn-dăn′tē; It. pron. än-dän′tä.
angiosperm, ăn′jĭ-ō-spĕrm.
aniline, ăn′ĭl-ĭn *or* ăn′ĭl-ēn.
animalcule, ăn-ĭm-ăl′kul, *not* ăn-ĭm-ăl′kū-lē.
antarctic, ănt-ärk′tĭk, *not* ănt-är′tĭk.
anxiety, ăng-zī′ē-tĭ, *not* ăngk-sī′ē-tĭ.
anxious, ăngk′shŭs, *not* ăng′shŭs.
aperient, ȧ-pē′rĭ-ĕnt.
aperture, ăp′ĕr-tur.
apices (plural of apex), ăp′ĭs-ēz.
apostle, ȧ-pos′l, *not* ȧpŏs′l *nor* ȧ-pôs′tl.
apotheosis, ăp-ō-thē′ō-sĭs, *not* ăp-ō-thē-ō′sĭs
apotheosize, ăp-ō-thē′ō-sīz.
appellate, ăp-pĕl′lāt.
appendicitis, ăp-pĕn-dīs-ī′tĭs.
appetitive, ăp′pē-tī-tĭv.
appoggiatura, ăp-pŏj-ȧ-to͞o′rȧ.
apricot, ā′prĭ-kŏt, *not* ăp′rĭ-kŏt.
apropos, ăp′rō-pō, *not* ăp-rō-pō′.
aqua, ā′kwȧ.
aquarium, ȧ-kwā′rĭ-ŭm, *not* ä-kwä′rĭ-ŭm.
aqueduct, ăk′wē-dŭkt, *not* ăk′wē-dŭk.
archangel, ärk-ān′jĕl, *not* ärch-ān′jĕl.
archbishop, ärch-bĭsh′ŏp, *not* ärch′bĭsh-ŏp.
archduke, ärch-du͞k′, *not* ärch′du͞k.

archfiend, ärch′fēnd, *not* ärch-fēnd′.
archipelago, är-kĭ-pĕl′å-gō, *not* är-chĭ-pĕl′å-gō.
architect, är′kĭ-tĕkt, *not* är′chĭ-tĕkt.
archives, är′kīvz, *not* är′chīvz.
arctic, ärk′tĭk, *not* är′tĭk.
aria, ä′rĭ-å *or* ā′rĭ-å.
arid, ăr′ĭd, *not* ā′rĭd.
aristocrat, å-rĭs′tō-krăt *or* ăr′ĭs-tō-krăt.
artificer, är-tĭf′ĭs-ēr, *not* är′tĭf-ĭs-ēr.
artiste, är-tēst′.
ascetic, ăs-sĕt′ĭk.
ask, åsk, *not* ăsk.
askance, às-kàns′, *not* ăs-kăns′.
asphalt, ăs-fălt′, *not* ăs′fălt.
astrakhan, ăs-trå-kăn′, *not* ăs′trå-kăn.
atheneum, ăth-ē-nē′ŭm, *not* ā-thē′nē-ŭm.
attaché, åt-tå-shā′.
attacked, ăt-tăkt′, *not* ăt-tăk′tĕd.
attorney, ăt-tûr′nĭ.
auberge, ō-bârzh′.
au courant, ō kōō-räN′.
au fait, ō fā′.
aunt, ănt, *not* ănt, *nor* ânt.
au revoir, ō rŭv-wär′.
aurist, ô′rĭst.
aurora borealis, ô-rō′rå bō-rē-ā′lĭs.
automobile, ô-tō-mō′bĭl; *Fr. pron.*, ō-tō-mō-bēl′.
automobilist, ô-tō-mō′bĭl-ĭst.
avoirdupois, ăv-ēr-dŭ-poiz′ *not* ăv-ēr-dŭ-poi′.
backslide, băk-slīd′, *not* băk′slīd.
backslider, băk-slī′dēr, *not* băk′slī-dēr.
bade, băd, *not* bād.
banana, bå-nă′nå, *not* băn-ăn′å.
bandoline, băn′dō-lĭn, *not* băn-dō-lēn′.
bargain, bär′gĕn, *not* bär′gŭn.
barrel, băr′rĕl, *not* bär′rŭl.
bas-bleu, bä-blē′; Fr. pron. bä-blö′.
basin, bā′sn, *not* bā′sĭn.
basket, bås′kĕt, *not* băs′kĕt.
bas-relief, bä-rē-lēf′.
basso-rilievo, băs′so rē-lē-ā′vō.
bass-relief, băs′rē-lēf.
bath, båth, *not* băth.
bdellium, dĕl′yŭm.
beau ideal, bō ī-dē′ăl.
beau monde, bō-mōnd′ *or* bō-mōnd′; Fr. pron. bō-mônd′.
beaux-esprits, bō-zĕs-prē′.
bedstead, bĕd′stĕd, *not* bĕd′stĭd.
belles-lettres, bĕl-lĕt′tĕr.
bellows, bĕl′ŭs.
beloved (adj), bē-lŭv′ĕd.
beloved (part.), bē-lŭvd′.
belvedere, bĕl-vē-dēr′ *or* bĕl′vē-dēr.
benignant, bē-nĭg′nănt, *not* bē-nī′nănt.
bestial, bĕst′yăl.
bête-noire, bāt-nwär′.
betrothal, bē-troth′ăl, *not* bē-trō′thăl.
bicycle, bī′sĭk-l, *not* bī′sī-kl.
biennial, bī-ĕn′ĭ-ăl.
bijou, bē-zhōō′.
billet-doux, bĭl′ā-dōō.
bindery, bīnd′ēr-ĭ, *not* bīnd′rĭ.
biographer, bī-ŏg′rå-fēr.
biography, bī-ŏg′rå-fĭ.
bizarre, bē-zär′.
blasé, blå-zā′.
blatant, blā′tănt, *not* blăt′ănt.
bon-ton, bôN-tôN′.
bon-vivant, bôN-vē-väN′.
burlesque, bûr-lĕsk′, *not* bûr′lĕsk.
business, bĭz′nĕs, *not* bĭz′ĭ-nĕs.

butcher, bŏŏch′ēr, *not* bōō′chēr.
cacao, kå-kā′ō *or* kā′kō.
cachet, kåsh′ā.
cachou, kå-shōō′.
cacique, kå-sēk′.
cadaver, kå-dā′vēr, *not* kå-dăv′ēr.
cæsura, sē-zŭ′rå *or* sē-sŭ′rå; sē-zhōō′rå (Hal.).
café, kăf′ā; Fr. pron. kä-fā′.
caisson, kā′sŏn.
calf, kăf, *more properly* kåf.
caliph, kā′lĭf.
calk, kôk.
calm, käm, *not* kăm.
caloric, kå-lŏr′ĭk, *not* kå-lō′rĭk.
calve, kåv, *not* kåf.
calyx, kā′lĭks, *not* kăl′ĭks.
camelopard, kå-mĕl′ō-pärd *or* kăm′ĕl-ō-pärd.
campagna, kăm-pän′yå.
campanile, kåm-på-nē′lā.
canaille, kå-nāl′; kăn-ăl′ (Stor.); Fr. pron. kä-nä′yŭ.
cancel, kăn′sĕl, *not* kăn′sl.
candelabra, kăn-dē-lā′brå, *not* kăn-dē-lä′brå.
canine, kå-nīn′.
cañon, kăn′yŭn *or* kän-yōn′.
cantalever, kăn′tå-lĕv-ēr.
cantatrice, kàn-tå-trē′chē.
canyon, kăn′yŭn.
caoutchouc, kōō′chōōk.
capitulate, kă-pĭt′yŭ-lāt, *not* kă-pĭch′ōō-lāt.
capuchin, kăp-yŭ-shēn′, *not* kăp′yŭ-chĭn.
caret, kā′rĕt *or* kăr′ĕt.
caricature, kăr′ĭk-å-tŭr.
Carolinian, kăr-ō-lĭn′ĭ-ăn, *not* kăr-ō-lī′nĭ-ăn.
carte blanche, kärt-blänsh′.
cartridge, kär′trĭj, *not* kăt′rĭj.
caseine, kā′sē-ĭn, *not* kā′sē-ēn.
cashmere, kăsh′mēr.
casino, kå-sē′nō.
castanet, kăs′tå-nĕt.
catalogue, kăt′å-lŏG, *not* kăt′å-lôG.
catalpa, kå-tăl′på, *not* kå-tôl′på.
catch, kăch.
catchup, kăch′ŭp, *not* kĕch′ŭp.
catechism, kăt′ē-kĭzm, *not* kăt′ē-kĭz-ŭm.
catsup, kăt′sŭp.
caveat, kā′vē-ăt, *not* kăv′ē-ăt.
cayenne, kā-ĕn′ *or* kī-ĕn′.
cello, chĕl′lō.
cement (n.), sē-mĕnt′ *or* sĕm′ĕnt.
cemetery, sĕm′ē-tĕr-ĭ, *not* sĕm′ē-trĭ.
centennial, sĕn-tĕn′nĭ-ăl, *not* sĕn-tĕn′yăl.
cephalic, sē-făl′ĭk, *not* sĕf′ăl-ĭk.
ceramic, sē-răm′ĭk, *not* kē-răm′ĭk.
cerebrum, sĕr′ē-brŭm, *not* sē-rē′brŭm.
cerement, sēr′mĕnt, *not* sĕr′ē-mĕnt.
challis, shăl′lĭ.
chalybeate, kå-lĭb′ē-āt, *not* chå-lĭb′ē-āt.
chamois, shăm′ĭ *or* shå-moi′.
champagne, shăm-pān′.
chaos, kā′ŏs.
chaperon, shăp′ēr-ōn.
chargé d'affaires, shär-zhā′ dăf-fâr′.
charlotte russe, shär′lŏt rōōs.
chasm, kăzm, *not* kăz′ŭm.
chasten, chā′sn, *not* chās′n, *nor* chās′tn.
chastise, chăs-tīz′, *not* chās′tīz.
chastisement, chăs′tĭz-mĕnt, *not* chăs-tīz′mĕnt.
chauffeur, shō-fŏr′.
chef, shĕf.
chef-d'œuvre, shā-dēvr′.
chemise, shē-mēz′.

chenille, shē-nēl′.
cherubim, chĕr′ʊ-bĭm, *not* chĕr′ŭb-ĭm.
chestnut, chĕs′nŭt, *not* chĕst′nŭt.
cheviot (cloth), chĕv′ē-ŭt.
chiaro-oscuro, kē-ä′rō ŏs-kōō′rō.
chicken, chĭk′ĕn, *not* chĭk′n.
chiffonier, shĭf-ŏn-ēr′.
children, chĭl′drĕn, *not* chĭl′dĕrn.
chimera, kĭm-ē′rȧ, *not* kī-mē′rȧ.
chiropodist, kī-rŏp′ō-dĭst.
chisel, chĭz′ĕl, *not* chĭz′l.
chock-full, chŏk′fo͝ol, *not* chŭk′fo͝ol.
chorister, kŏr′ĭs-tēr, *not* kō′rĭst-ēr.
chyle, kīl.
chyme, kīm.
cinchona, sĭn-kō′nȧ, *not* sĭn-chō′nȧ.
circuit, sēr′kĭt, *not* sĕr′kŭt.
civil, sĭv′ĭl, *not* sĭv′l.
clairvoyant, klâr-voi′ănt.
clandestine, klăn-dĕs′tĭn.
clapboard, klăb′ôrd, *not* klăp′bôrd.
clarinet, klăr′ĭn-ĕt.
cleanly (adj.), klĕn′lĭ.
cleanly (adv.), klēn′lĭ.
clematis, klĕm′ȧ-tĭs, *not* klē-mā′tĭs.
clique, klēk, *not* klĭk.
coadjutor, kō-ăd-jʊ′tēr, *not* kō-ăd′jʊ-tēr.
cocaine, kō′kȧ-ĭn.
codeine, kō-dē′ĭn.
cognomen, kŏg-nō′mĕn, *not* kŏg′nō-mĕn.
coiffure, kwä-für′.
colander, kŭl′ăn-dēr, *not* kŏl′ăn-dēr.
cold-chisel, kōld′-chĭz-ĕl.
colosseum, kŏl-ŏs-sē′ŭm.
column, kŏl′ŭm, *not* kŏl′yŭm.
comeliness, kŭm′lĭ-nĕs, *not* kōm′lĭ-nĕs.
comely, kŭm′lĭ, *not* kōm′lĭ.
comme il faut, kŭm-ēl-fō′.
commiserate, kŏm-mĭz′ēr-āt, *not* kŏm-mĭs′ēr-āt.
commodious, kŏm-mō′dĭ-ŭs, *not* kŏm-mō′jŭs.
commune (n.), kŏm′mʊn.
comparable, kŏm′pȧ-rȧ-bl, *not* kŏm-pâr′ȧ-bl.
complex, kŏm′plĕks, *not* kŏm-plĕks′.
comptroller, kŏn-trō′lēr.
con amore, kŏn ȧ-mō′rē.
concrete (n. and adj.), kŏn′krēt.
concrete (vb.), kŏn-krēt′.
condolence, kŏn-dō′lĕns, *not* kŏn′dō-lĕns.
conduit, kŏn′dĭt *or* kŭn′dĭt.
confidant, kŏn-fĭd-ănt′, *not* kŏn′fĭd-ănt.
congenial, kŏn-jēn′yăl.
congregate, kŏng′grē-gāt.
connoisseur, kon-nā-sör′.
conquest, kŏng′kwĕst, *not* kŏn′kwĕst.
conscientious, kŏn-shĭ-ĕn′shŭs, *not* kŏn-sĭ-ĕn′-shŭs.
conservatoire, kôn-sĕr-vä-twär′.
considerable, kŏn-sĭd′ēr-ȧ-bl, *not* kŏn-sĭd′rā-bl.
consignee, kŏn-sīn-ē′.
constable, kŭn′stȧ-bl, *not* kŏn′stȧ-bl.
consul, kŏn′sŭl, *not* kown′sŭl.
contemplative, kŏn-tĕm′plā-tĭv, *not* kŏn′tĕm-plā-tĭv.
contiguous, kŏn-tĭg′yʊ-ŭs.
contretemps, kôn-trŭ-tän′.
conversant, kŏn′vĕr-sănt, *not* kŏn-vĕr′sănt.
coquet, kō-kĕt′.
coral, kŏr′ăl, *not* kō′răl.
cordial, kôr′jăl *or* kôrd′yăl.
cornet, kôr′nĕt, *not* kôr-nĕt′.
corolla, kō-rŏl′ȧ.
corps (military), kōr; pl. kōrz.
cortége, kôr-tāzh′.
cosmetic, kŏz-mĕt′ĭk, *not* kŏs-mĕt′ĭk.
cote (n.), kōt, *not* kŏt.
cotillion, kō-tĭl′yŭn.
coupé, kōō-pā′.
coupon, kōō′pŏn.
courteous, kûrt′ē-ŭs.
cousin, kŭz′n, *not* kŭz′ĭn.
covetous, kŭv′ĕt-ŭs, *not* kŭv′ē-chŭs.
cowardice, kow′ärd-ĭs, *not* kow′ärd-ĭs.
craunch, kränch, *not* krônch.
crèche, krāsh.
credence, krē′dĕns, *not* krĕd′ĕns.
credulous, krĕd′yʊlŭs, *not* krĕj′ōō-lŭs.
creek, krēk, *not* krĭk.
crematory, krĕm′ȧ-tō-rĭ.
crouch, krowch, *not* krōōch.
cuirass, kwē-rȧs′ *or* kwē′rȧs.
cuisine, kwē-zēn′.
culinary, kʊ′lĭn-ā-rĭ, *not* kŭl′ĭn-ā-rĭ.
cupboard, kŭb′bērd.
cupola, kʊ′pō-lȧ, *not* kʊ′pȧ-lō.
curator, kʊ-rā′tēr.
cycle, sī′kl, *not* sĭk′l.
czarowitz, zär′ō-wĭts *or* tsär′ō-vēch.
daguerreotype, dȧ-gĕr′ō-tīp, *not* dȧ-gĕr′ē-ō-tīp.
dais, dā′ĭs.
damage, dăm′āj, *not* dăm′ĭj.
daub, dôb, *not* dŏb.
débris, dā-brē′.
débutante, dā-bʊ-tŏnt′.
decade, dĕk′ād, *not* dē-kād′.
décolleté, dā-kōl-tā′, *not* dā-kŏl′tā.
decorous, dē-kō′rŭs *or* dĕk′ō-rŭs.
deficit, dĕf′ĭs-ĭt, *not* dē-fĭs′ĭt.
deign, dān.
delirious, dē-lĭr′ĭ-ŭs, *not* dē-lē′rĭ-ŭs.
demesne, dē-mēn′; dē-mān′.
depths, dĕpths, *not* dĕps.
de rigueur, dŭ rē-gör′.
deshabille, dāz-ȧ-bēl′; dĕs-hȧ-bĭl′ *or* dĕz′ă-bēl.
desideratum, dē-sĭd-ēr-ā′tŭm, *not* dē-sĭd-ēr-ä′tŭm.
despicable, dĕs′pĭk-ȧ-bl, *not* dē-spĭk′ȧ-bl.
destine, dĕs′tĭn.
de trop, dŭ trō′.
different, dĭf′fĕr-ĕnt, *not* dĭf′rĕnt.
digitalis, dĭj-ĭ-tā′lĭs, *not* dĭj-ĭ-tä′lĭs.
dilettante, dĭl-ĕt-ăn′tā *or* dē-lā-tän′tā.
diploma, dĭ-plō′mȧ, *not* dī-plō′mȧ.
direct, dī-rĕkt′, *not* dī-rĕkt′.
discourse, dĭs-kōrs′, *not* dĭs′kōrs.
disease, dĭz-ēz′, *not* dĭs-ēz′.
disputant, dĭs′pʊ-tănt, *not* dĭs-pʊ′tănt.
distich, dĭs′tĭk, *not* dĭs′tĭch.
district, dĭs′trĭkt, *not* dē′strĭkt.
diverge, dĭv-ērj′, *not* dī-vērj′.
dolce far niente, dōl′chā făr-nē-ān′tā.
domain, dō-mān′, *not* dō′mān.
donkey, dŏng′kĭ, *not* dŭng′kĭ.
douche, dōōsh.
drawers, drô′ĕrz, *not* drôrz.
drought, drowt.
drowned, drownd.
ductile, dŭk′tĭl, *not* dŭk′tēl.
eau de cologne, ō dŭ kō-lōn′.
eczema, ĕk′zē-mȧ, *not* ĕk-zē′mȧ.
elegiac, ē-lē′jĭ-ăk *or* ĕl-ē-jī′ăk.
eleven, ē-lĕv′n, *not* lĕv′n.
élite, ā-lēt′.
elongate, ē-lŏng′gāt, *not* ĕ-lŏn′gāt.
enchant, ĕn-chănt′, *not* ĕn-chănt′.

encore, äng-kōr′.
engine, ĕn′jĭn, *not* ēn′jĭn.
ennui, än-wē′; Fr. pron. ÄN-nwē′.
enquiry, ĕn-kwī′rĭ, *not* ēn′kwĭr-ĭ.
entente cordiale, äN-tänt′ kôr-dyäl′.
erasure, ē-rā′zhŭr, *not* ē-rā′shŭr.
erysipelas, ĕr-ĭ-sĭp′ē-lăs, *not* ĭr-ĭ-sĭp′ē-lăs.
esoteric, ĕs-ō-tĕr′ĭk.
espionage, ĕs′pē-ŏn-äj *or* ĕs′pē-ŏn-äzh.
esprit de corps, ĕs-prē′ dŭ kōr.
etiquette, ĕt′ĭ-kĕt.
étude, ā-tōōd′.
exaggeration, ĕgz-ăj-ēr-ā′shŭn.
examine, ĕgz-ăm′ĭn, *not* ĕks-ăm′ĭn.
example, ĕgz-ăm′pl.
exist, ĕgz-ĭst′, *not* ĕks′ĭst.
exit, ĕks′ĭt, *not* ĕgz′ĭt.
exogenous, ĕks-ŏj′ē-nŭs.
expedient, ĕks-pē′dĭ-ĕnt, *not* ĕks-pē′jĕnt.
expiratory, ĕks-pīr′ă-tō-rĭ.
exponent, ĕks-pō′nĕnt, *not* ĕks′pō-nĕnt.
exquisite, ĕks′kwĭz-ĭt, *not* ĕks-kwĭz′ĭt.
extant, ĕks′tănt, *not* ĕks-tănt′.
ex-tempore, ĕks-tĕm′pō-rē, *not* ĕks-tĕm′pōr, a gross error.
extraordinary, ĕks-trôr′dĭn-ā-rĭ *or* ĕks-trā-ôr′-dĭn-ā-rĭ.
façade, fă-säd′ *or* fă-säd′.
falcon, fô′kn.
faucet, fô′sĕt, *not* făs′ĕt.
faux pas, fō-pä′, *not* fōō′pō.
favorite, fā′vēr-ĭt, *not* fā′vēr-ĭt.
fecund, fē′kŭnd, *not* fē′kŭnd.
fellow, fĕl′lō, *not* fĕl′lŭ.
feminine, fĕm′ĭn-ĭn, *not* fēm′ĭn-ĭn.
fête, fāt.
fiancé, fē-äN-sā′.
fiancée, fē-äN-sā′.
fibril, fī′brĭl, *not* fĭb′rĭl.
figure, fĭg′yur.
finale, fē-nä′lā, *not* fī-năl′ē.
finance, fĭn-ănz′, *not* fī′năns.
financier, fĭn-ăn-sēr′, *not* fī′năn-sēr.
florid, flŏr′ĭd, *not* flō′rĭd.
forbade, fôr-băd′, *not* fôr-bād′.
forest, fŏr′ĕst, *not* fōr′ŭst.
fragile, frăj′ĭl, *not* frăj′īl.
franchisement, frăn′chĭz-mĕnt.
fräulein, froi′līn.
friendship, frĕnd′shĭp, *not* frēn′shĭp.
frontier, frŏn′tēr, *not* frŭn′tēr.
fungi, fŭn′jī, *not* fŭng′gī.
furniture, fûr′nĭt-yur.
gallery, găl′ēr-ĭ, *not* găl′rĭ.
garage, găr′äj; Fr. pron., gär-äzh′.
garçon, gär-sôN′.
garrulous, găr′rŏŏ-lŭs.
gaucherie, gōsh-rē′.
generally, jĕn′ēr-ăl-ĭ, *not* jĕn′răl-ĭ.
generic, jē-nĕr′ĭk, *not* jĕn′ēr-ĭk.
genre, zhäNr.
genuine, jĕn′yu-ĭn, *not* jēn′yu-īn.
gerund, jĕr′ŭnd, *not* jē′rŭnd.
get, gĕt, *never* gĭt.
ghastly, gäst′lĭ, *not* găst′lĭ.
giaour, jowr.
gist, jĭst, *not* gīst.
gives (fetters), jĭvz, *not* gīvz.
gladiolus, glă-dī′ō-lŭs.
glottis, glŏt′ĭs, *not* glō′tĭs.
glycerine, glĭs′ēr-ĭn, *not* glīs′ēr-ēn.
gneiss, nīs.
gondola, gŏn′dō-lă, *not* gŏn-dō′lă.
gone, gon.
government, gŭv′ẽrn-mĕnt, *not* gŭv′ēr-mĕnt.
granddaughter, grănd′dô-tēr, *not* grän′dô-tēr.
grandson, grănd′sŭn, *not* grän′sŭn.
grasp, grăsp, *not* grāsp.
gratis, grā′tĭs, *not* grăt′ĭs.
grimace, grĭm-ās′, *not* grīm′ās.
habitué, ă-bē-tü-ā′ *not* hăb-ĭt-yu-ē′.
handbook, hănd′bo͝ok, *not* hän′bo͝ok.
harass, hăr′ăs.
hautboy, hō′boi.
hearth, härth, *not* hērth.
height, hīt, *not* hĭtth.
heinous, hā′nŭs, *not* hē′nŭs.
herring, hĕr′ĭng, *not* hĕr′ĭn.
highwayman, hī′wā-măn, *not* hī-wā′măn.
history, hĭs′tō-rĭ, *not* hĭs′trĭ.
homestead, hōm′stĕd, *not* hōm′stĭd.
honest, ŏn′ĕst, *not* ŏn′ŭst.
honorable, ŏn′ŏr-ă-bl, *not* ŏn′rà-bl.
hoof, hōōf, *not* hŏŏf.
horizon, hō-rī′zŏn.
horrid, hŏr′rĭd, *not* hôr′rĭd.
hors d'œuvre, ôr dŏv′r.
hovel, hŏv′ĕl, *not* hŭv′ĕl.
hundred, hŭn′drĕd, *not* hŭn′dērd.
hydraulics, hī-drô′lĭks, *not* hī-drŏl′ĭks.
hypocrisy, hĭp-ŏk′rĭs-ĭ.
ice-cream, īs′krēm, *not* īs-krēm′.
idiosyncrasy, ĭd-ĭ-ō-sĭng′krà-sĭ.
ignoramus, ĭg-nō-rā′mŭs, *not* ĭg-nō-rā′mŭs.
illustrate, ĭl-lŭs′trāt, *not* ĭl′lŭs-trāt.
impious, ĭm′pī-ŭs, *not* ĭm-pī′ŭs.
importune, ĭm-pôr-tun′.
impotent, ĭm′pō-tĕnt, *not* ĭm-pō′tĕnt.
inaugurate, ĭn-ô′gu-rāt, *not* ĭn-ô′gŭr-āt.
incomparable, ĭn-kŏm′pà-rà-bl, *not* ĭn-kŏm-pâr′-ā-bl.
indisputable, ĭn-dĭs′pu-tà-bl, *not* ĭn-dĭs-pu′tà-bl.
inexplicable, ĭn-ĕks′plĭk-à-bl.
infamous, ĭn′fà-mŭs.
innocent, ĭn′nō-sĕnt, *not* ĭn′nō-sŭnt.
inquiry, ĭn-kwī′rĭ, *not* ĭn′kwĭr-ĭ.
insatiable, ĭn-sā′shà-bl *or* ĭn-sā′shĭ-à-bl.
instead, ĭn-stĕd′, *not* ĭn-stĭd′.
interesting, ĭn′tẽr-ĕst-ĭng, *not* ĭn-tẽr-ĕst′ĭng.
international, ĭn-tẽr-năsh′ŭn-ăl, *not* ĭn-tẽr-nā′-shŭn-ăl.
inundate, ĭn-ŭn′dāt, *not* ĭn′ŭn-dāt.
iron, ī′ŭrn.
isinglass, ī′zĭng-glàs, *not* ī′zĭn-glàs.
italic, ī-tăl′ĭk, *not* ī-tăl′ĭk.
ivory, ī′vō-rĭ, *not* ī′vrĭ.
joist, joist, *not* jois.
jonquil, jŏn′kwĭl.
jostling, jŏs′lĭng, *not* jŏst′lĭng.
jowl, jōl, *not* jowl.
judgment, jŭj′mĕnt, *not* jŭj′mŭnt.
jugular, ju′gu-lẽr, *not* jŭg′yu-lẽr.
just (adv.), jŭst, *never* jĕst.
kaleidoscope, kà-lī′dō-skōp.
kept, kĕpt, *not* kĕp.
kettle, kĕt′l, *not* kĭt′l.
kiln, kĭl, *not* kīln.
kinetograph, kĭ-nē′tō-grâf.
knout, nowt or nōōt.
laboratory, lăb′ō-rà-tō-rĭ, *not* lăb′rā-tō-rĭ.
lamentable, lăm′ĕnt-à-bl, *not* lā-mĕnt′à-bl.
language, lăng′gwāj, *not* lăng′gwĭj.
languor, lăng′gwẽr.
laryngitis, lăr-ĭn-jī′tĭs, *not* lăr-ĭn-jē′tĭs.

laugh, lăf.
laundress, län'drĕs.
lava, lä'vȧ *or* lā'vȧ, *not* lăv'ȧ.
legate, lĕg'āt, *not* lē'gāt.
length, lĕngth, *not* lĕnth.
library, lī'brā-rĭ, *not* lĭ'brĭ.
licorice, lĭk'ō-rĭs, *not* lĭk'ō-rĭsh.
literature, lĭt'ēr-ȧ-tur.
lithographer, lĭth-ŏg'rȧ-fēr, *not* lĭth'ō-grăf-ēr.
long-lived, lŏng'līvd, *not* lŏng'lĭvd.
mackerel, măk'ēr-ĕl, *not* măk'rĕl.
maestro, mä-ās'trō, *not* mā'strō.
magna charta, măg'nȧ kär'tȧ.
magnolia, măg-nō'lĭ-ȧ, *not* măg-nōl'yȧ.
malpractice, măl-prăk'tĭs, *not* măl'prăk-tĭs.
mange, mānj, *not* mănj.
mania, mā'nĭ-ȧ, *not* mān'yȧ.
maniacal, mȧ-nī'ăk-ăl, *not* mā'nĭ-ăk-ăl.
manœuvre, mȧ-nōō'vr.
maritime, măr'ĭt-ĭm.
marquis, mär'kwĭs; Fr. pron. mär-kē'.
masculine, măs'kŭ-lĭn, *not* măs'kū-lĭn.
massacre, măs'sȧ-kēr.
mattress, măt'rĕs.
mausoleum, mô-sō-lē'ŭm.
mauve, mōv.
mayonnaise, mȧ-yō-nāz'.
megrim, mē'grĭm.
meningitis, mĕn-ĭn-jī'tĭs.
menu, mē-nōō'; Fr. pron., mē-nü'.
meringue, mē-răng'.
mesne, mēn.
metric, mĕt'rĭk, *not* mē'trĭk.
migraine, mī-grān'.
minuet, mĭn'yū-ĕt, *not* mĭn-yū-ĕt'
mirage, mē-räzh'; mē-räzh'.
miserere, mĭz-ē-rē'rē.
mischievous, mĭs'chē-vŭs, *not* mĭs-chē'vŭs.
misconstrue, mĭs-kŏn'strū, *not* mĭs-kŏn-strū'.
mistletoe, mĭz'l-tō, *not* mĭs'l-tō.
mobile, mō'bĭl; mō-bēl' *or* mōb'ĭl (Wor.).
modiste, mō-dēst'.
moire antique, mwär ăn-tēk', *not* mō'rē ăn-tēk'.
musicale, mū-zē-kȧl'.
nature, nāt'yur.
nausea, nô'shē-ȧ *or* nô'shȧ, *not* nô'sē-ȧ.
necessarily, nĕs'ĕs-sĕr-ĭl-ĭ, *not* nĕs-ĕs-ser'ĭl-ĭ.
née, nā.
négligé, nā-glē-zhā'.
nephritis, nē-frī'tĭs.
nervine, nēr'vĭn, *not* nĕr'vēn.
neuralgia, nū-răl'jĭ-ȧ, *not* nū-răl'jȧ.
nicety, nī'sē-tĭ, *not* nīs'tĭ.
nom de plume, nôn dŭ plüm.
nominative, nŏm'ĭn-ȧ-tĭv, *not* nŏm'nȧ-tĭv.
nonchalant, nôn-shȧ-läN'.
nonpareil, nŏn-pȧ-rĕl', *not* nŏn-pȧ-rēl'.
nouveau-riche, nōō-vō-rēsh'.
noxious, nŏk'shŭs, *not* nŏk'shĭ-ŭs.
nuptial, nŭp'shăl, *not* nŭp'chăl.
oaths, ōthz, *not* ōths.
obeisance, ō-bē'sȧns *or* ō-bā'sȧns.
obesity, ō-bĕs'ĭt-ĭ, *not* ō-bēs'ĭt-ĭ.
obligato, ŏb-lē-gä'tō.
obligatory, ŏb'lĭ-gā-tō-rĭ.
oboe, ō'boi *or* ō'bō-ā.
ocelot, ō'sē-lŏt.
often, of'n, *not* of'tĕn.
olden, ōld'n, *not* ōld'ĕn.
on dit, ôN-dē'.
ordeal, ôr'dē-ăl, *not* ôr-dē'ăl.
oust, owst, *not* ōōst.
overalls, ō'vēr-ôlz, *not* ō'vēr-hôlz.
oxide, ŏks'īd *or* ŏks'ĭd.
pæony, pē'ō-nĭ.
pajama, pȧ-jȧ'mȧ.
palmistry, păl'mĭs-trĭ, *not* pä'mĭs-trĭ.
papa, pȧ-pä' *or* pä'pȧ.
papier-mâché, pap-yā' mä-shā'.
papyrus, pȧ-pī'rŭs, *not* păp'ĭr-ŭs.
pariah, pä'rĭ-ȧ *or* pā'rĭ-ȧ.
participle, pär'tĭ-sĭp-l, *not* pärt'sĭp-l.
partridge, pär'trĭj, *not* păt'rĭj.
passé, pä-sā'.
pâté de foie gras, pä-tā' dŭ fwä grä.
patriot, pā'trĭ-ŏt.
patron, pā'trŭn, *not* păt'rŭn.
penchant, päN-shäN'.
perhaps, pĕr-hăps', *not* prăps.
peritonitis, pĕr-ĭ-tō-nī'tĭs, *not* pĕr-ĭ-tō-nē'tĭs.
persist, pĕr-sĭst', *not* pĕr-zĭst'.
petite, pē-tēt'.
pharyngitis, făr-ĭn-jī'tĭs.
phial, fī'ăl.
photographer, fō-tŏg'rȧ-fēr.
photogravure, fō-tō-grä-vür'.
physicist, fĭz'ĭs-ĭst.
piano, pē-ä'nō.
plait, plāt.
pneumatics, nū-măt'ĭks.
poem, pō'ĕm, *not* pō'ŭm.
poignant, poin'ănt, *not* poin'yant.
polygamy, pō-lĭg'ȧ-mĭ, *not* pŏl'ĭg-ā-mĭ.
portemonnaie, pōrt'mŭn-nā.
potato, pō-tā'tō, *not* pō-tā'tŭ.
portière, pôr-tĭ-ār'; Fr. pron., pôrt-yâr'.
precedence, prē-sē'dĕns, *not* prĕs'ē-dĕns.
preferable, prĕf'ēr-ȧ-bl, *not* prē-fēr'ȧ-bl.
prelate, prĕl'āt, *not* prē'lāt.
pretense, prē-tĕns', *not* prē'tĕns.
prettily, prĭt'ĭl-ĭ, *not* prĕt'ĭl-ĭ.
prima donna, prē'mȧ dŏn'nȧ.
program, prō'grăm, *not* prō'grŭm.
propinquity, prō-pĭng'kwĭt-ĭ.
protégé, prō-tā-zhā'.
pseudonym, sū'dō-nĭm.
psychic, sī'kĭk.
publicist, pŭb'lĭs-ĭst.
puisne, pū'nĭ.
puissant, pū'ĭs-ănt *or* pū-ĭs'ănt, *not* pwē'sănt.
pumpkin, pŭmp'kĭn, *not* pŭng'kĭn.
pursuivant, pûr'swē-vănt.
pyrites, pĭr-ī'tēz.
quash, kwŏsh, *not* kwăsh.
queue, kyu.
qui vive, kē-vēv', *not* kwē-vēv'.
quoit, kwoit *or* koit.
quorum, kwō'rŭm, *not* kwôr'ŭm.
raceme, rȧ-sēm'.
radish, răd'ĭsh, *not* rĕd'ĭsh.
raison d'être, rāzôN' dātr.
rancor, răng'kēr, *not* răn'kēr.
ransack, răn'săk, *not* răm'săk.
réchauffé, rā-shō-fā'.
recherché, rŭ-shâr-shā'.
recipe, rĕs'ĭp-ē.
reconnoiter, rĕk-ŏn-oi'tēr, *not* rē-kŏn-oi'tēr.
referable, rĕf'ēr-ȧ-bl, *not* rē-fēr'ȧ-bl.
regalia, rē-gā'lĭ-ȧ.
régime, rā-zhēm'.
renaissance, rē-nā'săns; Fr. pron., rŭ-nā-sänS'.
rendezvous, rĕn'dĕ-vōō; Fr. pron., räN'dā-vōō.
reparable, rĕp'ȧ-rȧ-bl, *not* rē-pâr'ȧ-bl.
répertoire, rĕp'ēr-twär; Fr. pron., rā-pâr-twär'.

replica, rĕp′lĭk-ȧ.
repoussé, rŭ-pōō-sā′.
reputable, rĕp′yu-tȧ-bl.
requiem, rē′kwĭ-ĕm.
research, rē-sĕrch′, *not* rē′sĕrch.
resource, rē-sōrs′, *not* rē′sōrs.
restaurant, rĕs′tō-rȧnt *or* rĕs′tō-räng.
résumé, rā-zōō-mā′; Fr. pron., rā-zü-mā′.
reveillé, rĕ-vāl′yā.
reverend, rĕv′ẽr-ĕnd, *not* rĕv′ēr-ĕnt.
revocable, rĕv′ō-kȧ-bl, *not* rē-vō′kȧ-bl.
rheumatism, ru′mȧ-tĭzm, *not* rōōm′ȧ-tĭzm.
rinse, rĭns, *not* rĕns.
robust, rō-bŭst′, *not* rō′bŭst.
roil, roil, *not* rīl.
roof, rōōf, *not* rŏŏf.
root, rōōt, *not* rŏŏt.
rostrum, rŏs′trŭm, *not* rō′strŭm.
roué, rōō-ā′.
route, rōōt; rowt is perhaps the more common pronunciation in the United States.
rutabaga, ru-tȧ-bā′gȧ.
sachem, sā′chĕm, *not* săch′ĕm.
sacrament, săk′rȧ-mĕnt, *not* sā′krȧ-mĕnt.
sacrilegious, săk-rĭl-ē′jŭs, *not* săk-rĭl-ĭj′ŭs.
saengerfest, sāng′ẽr-fĕst.
sagacious, sȧ-gā′shŭs, *not* sȧ-gāsh′ŭs.
said, sĕd.
salmon, săm′ŭn.
salve (ointment), săv.
satin, săt′ĭn, *not* săt′n.
savage, săv′āj, *not* săv′ĭj.
says, sĕz, *not* sāz.
scalene, skȧ-lēn′, *not* skā′lēn.
scared, skârd, *not* skârt.
scherzo, skĕrt′sō.
séance, sē′ăns; Fr. pron., sā-ăNs′.
seckel (pear), sĕk′l, *not* sĭk′l.
secretary, sĕk′rē-tā-rĭ, *not* sĕk′ē-tā-rĭ.
separable, sĕp′ȧ-rȧ-bl.
sequin, sē′kwĭn, *not* sĕk′wĭn.
sesame, sĕs′ȧ-mē.
several, sĕv′ẽr-ăl, *not* sĕv-răl.
shriek, shrēk, *not* srēk.
signora, sēn-yō′rȧ.
sleek, slēk, *not* slĭk.
slept, slĕpt, *not* slĕp.
slough (cast-off skin), slŭf.
slough (ditch), slow.
snout, snowt, *not* snōōt.
solace, sŏl′ās, *not* sō′lās.
solecism, sŏl′ē-sĭzm, *not* sō′lē-sĭzm.
sonata, sō-nä′tȧ.
soprano, sō-prä′nō, *not* sō-prăn′ō.
sough, sŭf.
souvenir, sōō-vŭ-nēr′, *not* sōōv′nēr.
spoon, spōōn, *not* spŏŏn.
squalor, skwā′lôr (Web. and Wor.); skwŏl′ẽr or skwā′lẽr (Stor.).
steady, stĕd′ĭ, *not* stĭd′ĭ.
stoicism, stō′ĭs-ĭzm, *not* stō′ĭk-ĭzm.
stomach, stŭm′ak, *not* stŭm′ĭck.
suede, swād.
suite, swēt, *not* sut.
supple, sŭp′l, *not* sōō′pl.
surprise, sûr-prīz′, *not* sŭp-prīz′.
surveillance, sûr-vāl′yăns *or* vā′lăns.
syringe, sĭr′ĭnj, *not* sĭr-ĭnj′.
syrup, sĭr′ŭp.

table-d'hôte, tä′bl-dōt.
tapis, tăp′ĭs, tā′pĭs, or tȧ-pē′.
technique, tĕk-nēk′.
telegraphy, tẽ-lĕg′rȧ-fĭ.
tenet, tĕn′ĕt, *not* tē′nĕt.
tepid, tĕp′ĭd, *not* tē′pĭd.
tête à tête, tāt-ȧ-tāt′.
theater, thē′ȧ-tẽr, *not* thē-ā′tẽr.
three-legged, thrē′lĕgd, *not* thrē′lĕg-ĕd.
tic-douloureux, tĭk dōō-lōō-rōō′.
tonsilitis, tŏn-sĭl-ī′tĭs, *not* tŏn-sĭl-ē′tĭs.
tortious, tôr′shŭs.
tour, tōōr.
tout-ensemble, tōōt ăN-săN′bl.
trichina, trĭk-ī′nȧ.
tricycle, trī′sĭk-l, *not* trī′sī-kl.
trilobite, trī′lō-bīt, *not* trĭl′ō-bīt.
trousseau, trōō′sō′.
turnip, tûr′nĭp, *not* tûr′nŭp.
ultimatum, ŭl-tĭm-ā′tŭm, *not* ŭl-tĭm-ä′tŭm.
umbrella, ŭm-brĕl′ȧ, *not* ŭm-bẽr-ĕl′ȧ.
uncivil, ŭn-sĭv′ĭl, *not* ŭn-sĭv′ŭl.
unctuous, ŭngkt′yu-ŭs.
undersigned, ŭn-dẽr-sīnd′, *not* ŭn-dẽr-zīnd′.
uninterested, ŭn-ĭn′tẽr-ĕst-ĕd.
unlearned (adj.), ŭn-lẽr′nĕd, *not* ŭn-lẽrnd′.
unlearned (part.), ŭn-lẽrnd′. *not* ŭn-lẽr′nĕd.
unprecedented, ŭn-prĕs′ẽ-dĕnt-ĕd.
untoward, ŭn-tō′ẽrd, *not* ŭn-tō-wôrd′.
used, uzd, *not* ust.
usually, yu′zhu-ăl-ĭ, *not* yu′zhăl-ĭ.
usurp, yu-zûrp′, *not* yu-sûrp′.
vagary, vȧ-gā′rĭ, *not* vā′gȧ-rĭ.
vagrant, vā′grănt, *not* văg′rănt.
vanquish, văng′kwĭsh, *not* văn′kwĭsh.
vase, vās *or* văz.
vaudeville, vōd′vĭl; Fr. pron., vōd-vēl′.
vehement, vē′hē-mĕnt.
veinous, vā′nŭs, *not* vē′nŭs.
venous, vē′nŭs, *not* vā′nŭs.
verbatim, vẽr-bā′tĭm, *not* vẽr-băt′ĭm.
version, vẽr′shŭn, *not* vẽr′zhŭn.
vessel, vĕs′sĕl, *not* vĕs′l.
veterinary, vĕt′ẽr-ĭn-ā-rĭ, *not* vĕt′rĭn-ā-rĭ.
vice versa, vī′sē vẽr′sȧ, *not* vīs′vẽr-sȧ.
victim, vĭk′tĭm, *not* vĭk′tŭm.
vis-a-vis, vēz-ȧ-vē′.
vitriol, vĭt′rĭ-ŭl, *not* vĭt′rŭl.
volatile, vŏl′ȧ-tĭl, *not* vŏl′ȧ-tēl, nor vŏl′ȧ-tīl.
volume, vŏl′yum.
voluntarily, vŏl′ŭn-tā-rĭl-ĭ, *not* vŏl-ŭn-tā′rĭl-ĭ.
was, wŏz, *not* wŭz.
water, wô′tẽr, *not* wŏt′ẽr.
which, hwĭch, *not* wĭch.
whisk, hwĭsk, *not* wĭsk.
whole, hol, *not* hōl.
whooping (cough), hōōp′ĭng, *not* hŏŏp′ĭng.
widow, wĭd′ō, *not* wĭd′ŭ.
window, wĭn′dō, *not* wĭn′dŭ.
wistaria, wĭs-tā′rĭ-ȧ, *not* wĭs-tē′rĭ-ȧ.
women, wĭm′ĕn, *not* wĭm′ĭn.
wondering, wŭn′dẽr-ĭng, *not* wŭn′drĭng.
wrath, răth, *not* răth.
wrestler, rĕs′lẽr, *not* rĕst′lẽr.
yacht, yŏt.
yellow, yĕl′lō, *not* yĕl′lŭ.
yew, yu.
yolk, yōlk *or* yōk.
zodiacal, zō-dī′ăk-ăl, *not* zō′dĭ-ăk-ŭl.

2. DIVISION OF PROPER NAMES.

Aachen, ä′kĕn.
Abbassides, ăb-băs′sĭdz.
Abélard, ăb′ē-lärd; Fr. pron., ä-bā-lär′.
Abomey, ăb-ō-mā′.
Aboukir, ä-bōō-kēr′.
About (Edmond), ĕd-môn′ ä-bōō′.
Abraham, ā′brȧ-hăm, *not* ā′brăm, unless spelled *Abram*.
Acapulco, ä-kä-pōōl′kō.
Achaia, ā-kā′yȧ *or* ä-kī′yä.
Acheron, ăk′ē-rŏn, *not* ăch′ē-rŏn.
Achitophel, ȧ-kĭt′ō-fĕl.
Aconcagua, ä-kŏn-kä′gwä.
Adige, ăd′ĭj-ē; It. pron., ä′dē-jä.
Adonais, ăd-ō-nā′ĭs.
Adonijah, ăd-ō-nī′jȧ.
Adoniram, ăd-ō-nī′răm.
Ægean, ē-jē′ăn.
Æolus, ē′ō-lŭs, *not* ē-ō′lŭs.
Afghanistan, ăf-găn-ĭs-tän′, *not* ăf-găn-ĭs′tăn; ăf-găn-ĭs-tän′ (Gaz.).
Agape, ăg′ȧ-pē.
Agassiz, ăg′ȧs-ē *or* ăg-ăs′ĭz; Fr. pron., ä-gä-sē′.
Agincourt, ăzh-ăn-kōōr′.
Aguilar (Grace), ä-gē-lär′.
Agulhas, ä-gōōl′yäs.
Ahasuerus (King), ȧ-hăs-ū-ē′rŭs.
Ahasuerus (The Wandering Jew), ȧ-hăzh-ōō-ē′-rŭs.
Aïda, ä-ē′dä.
Aix-la-Chapelle, āks-lä-shä-pĕl′, *not* ā-lä-shä-pĕl′.
Akron (Ohio), ăk′rŏn, *not* ā′krŏn.
Alcæus, ăl-sē′ŭs.
Alcantara, ăl-kăn′tä-rä.
Alcibiades, ăl-sĭ-bī′ȧ-dēz.
Alcides, ăl-sī′dēz.
Alcuin, ăl′kwĭn.
Alcyone, ăl-sī′ō-nē.
Aldebaran, ăl-dĕb′ȧ-răn.
Aleutian (Islands), ā-lū′shĭ-ăn, *not* ā-lū′-shăn.
Alexander, ăl-ĕgz-ăn′dēr, *not* ăl-ĕks-ăn′dēr.
Alfieri, ăl-fē-ā′rē.
Algonquin, ăl-gŏn′kwĭn.
Alighieri, ä-lē-gē-ā′rē.
Alleghany, ăl-lē-gā′nĭ.
Alleyn, ăl′ĕn.
Alma-Tadema, ăl′mä tä′dā-mä, *not* ăl′mä tä-dā′-mä.
Almagest, ăl′mȧ-jĕst.
Alnwick, ăn′nĭk.
Amiens, ăm′ē-ĕnz; Fr. pron., ä-mĭ-ăN′.
Amoskeag, ăm-ŏs-kĕg′.
Ampere, äN-pâr′.
Amphion, ăm-fī′ŏn, *not* ăm′fĭ-ŏn.
Amphitrite, ăm-fĭ-trī′-tē, *not* ăm′fĭ-trīt.
Amphitryon, ăm-fĭt′rĭ-ŏn.
Amurath, ä-mōō-rät′.
Anaximenes, ăn-ăks-ĭm′ē-nēz.
Anchises, ăn-kī′sēz.
Andalusia, ăn-dȧ-lōō-shĭ′ȧ; ăn-dȧ-lū′shĭ-ȧ (Gaz.).
Andorra, ăn-dō′rä.
Androcles, ăn′drō-klēz.
Andromache, ăn-drŏm′ȧ-kē.
Andromeda, ăn-drŏm′ē-dȧ.
Andronicus, ăn-drō-nī′kŭs.
Angostura, ăn-gŏs-tōō′rä.
Angoulême d', dăN-gōō-lām′.
Antietam, ăn-tē′tăm.
Antigone, ăn-tĭg′ō-nē.
Antinous, ăn-tĭn′ō-ŭs, *not* ăn-tĭn′ōōs.
Antiochus, ăn-tī′ō-kŭs, *not* ăn-tī-ŏk′ŭs.
Antiope, ăn-tī′ō-pē.
Apache, ä-pä′chā.
Apelles, ȧ-pĕl′ēz.
Aphrodite, ăf-rō-dī′tē, *not* ăf′rō-dīt.
Apollyon, ȧ-pŏl′ĭ-ŏn *or* ȧ-pŏl′yŭn.
Appalachian, ăp-pȧ-lā′chĭ-ăn, *not* ăp-pā-lā′chĭ-ăn.
Appomattox, ăp-pō-măt′ŏks.
Aquinas (Thomas), ȧ-kwī′năs.
Arab, ăr′ăb; Wor., ā′răb as secondary pron.
Aram (Eugene), ā′răm, *not* ăr′ăm.
Arapahoe, ăr-ăp′ȧ-hō.
Arbela (Assyria), är-bē′lä.
Arbela (Sicily), är′bē-lä.
Archias, är′kĭ-ăs, *not* är′chĭ-ăs.
Archimedes, är-kĭm-ē′dēz, *not* är-kĭm′ē-dēz.
Archytas, är-kī′tăs.
Arcite, är′sīt or är-sīt′.
Arequipa, ä-rā-kē′pä.
Aries, ā′rĭ-ēz.
Arion, ā-rī′ŏn.
Aristides, ăr-ĭs-tī′dēz.
Aristobulus, ā-rĭs-tō-bū′lŭs *or* ăr-ĭs-tō-bū′lŭs.
Arkansas, är′kăn-sô.
Arles, ärlz; Fr. pron., ärl.
Aroostook, ȧ-rōō′stŏŏk.
Artaxerxes, är-tăks-ĕrk′sēz; Bib. är-tăg-zĕrk′zēz.
Artemis, är′tē-mĭs.
Artemisia, är-tē-mĭsh′ĭ-ȧ.
Artois, är-twä′.
Arundelian, ăr-ŭn-dēl′yăn; ăr-ŭn-dē′lĭ-ăn (Wor.).
Aryan (Indo-European), är′yăn *or* ăr′ĭ-ăn; ā′rĭ-an *or* ăr′ĭ-ăn (Stor.).
Ascham (Roger), ăs′kăm.
Asiatic, ā-shĭ-ăt′ĭk, *not* ā-zhĭ-ăt′ĭk.
Asmodeus, ăz-mō-dē′ŭs.
Asturias, ăs-tōō′rē-ăs.
Astyanax, ăs-tī′ăn-ăks.
Atahualpa, ä-tä-hwäl′pä.
Ate (goddess of revenge), ā′tē, *not* āt.
Athos (Mount), ăth′ŏs, *not* ā′thŏs.
Atilla, ȧ-tĭl′ȧ.
Auber, ō-bâr′, *not* ô′bĕr.
Aubert, ō-bâr′.
Aubigné d', dō-bēn-yā′.
Audubon, ô′dū-bŏn; Fr. pron., ō-dü-bôN′.
Auerstadt, ow′ĕr-stĕt.
Augean, ô-jē′ăn, *not* ô′jē-ăn.
Augereau, ōzh-rō′.
Aurungzebe, ō-rŭng-zāb′.
Ausable, ô-sä′bl.
Austerlitz, ôs′tĕr-lĭts; Ger. pron., ows′tĕr-lĭts.
Auvergne, ō-vărn′yŭ.
Auxerre, ō-sār′.
Averroës, ä-vĕr′ō-ēz.
Avignon, ä-vēn-yôN′.
Avon, ā′vŏn, *not* ăv′ŏn.
Aytoun, ā′tōōn.
Badajos, bä-dä-hōs′.
Bagehot, băj′ŏt.
Bahia, bä-ē′ä.
Baireuth, bī′rŭth; Ger. pron., bī′roit.
Bajazet, băj-ȧ-zĕt′, *not* bā-jăz′ĕt.
Balboa de, dā bäl-bō′ä.
Balearic (Islands), băl-ē-ăr′ĭk, *not* băl-ē′rĭk.
Balthaser, băl′tä-zär.
Balzac de (Honoré), ō-nō-rā′ dŭ bäl-zäk′; anglicized, băl′zăk.
Banquo, băng′kwō; băn′kwō (Biog.).
Barberini (palace), bär-bä-rē′nē.
Barras de, dŭ bä-räs′ *or* dŭ bä-rä′.

Barthélemy, bär-tāl-mē′.
Bartholdi, bär-tōl-dē′, *not* bär-thōl′dē.
Baruch, bā′rŭk.
Bathsheba, băth-shē′bȧ *or* băth′shē-bȧ.
Baton Rouge, băt′ŭn rōōzh; Fr. pron., bä-tôN′ rōōzh.
Bayard de, dŭ bā′ärd; Fr. pron., dŭ bä-yär′.
Bayard (Thomas F.), bī′ärd, *not* bā′ärd.
Bayreuth, bī′rʊth; Ger. pron., bī′roit.
Beatrice Cenci, bā-ā-trē′chā chĕn′chē.
Beauchamp (Fr.), bō-shäN′.
Beauchamp (Eng.), bē′chăm.
Beauharnais de, dŭ bō-är-nā′.
Beethoven van, vän bā′tō-vĕn.
Bellerophon, bĕl-ĕr′ō-fŏn.
Bellini, bĕl-lē′nē.
Ben-Cruachan, bĕn-krōō′kȧn.
Benguela, bĕn-gā′lä.
Bentivoglio, bĕn-tē-vōl′yō.
Béranger de, dŭ bā-rän-zhā′.
Berenice, bĕr-ē-nī′sē.
Bering (strait), bē′rĭng; Danish pron., bā′rĭng.
Bermoothes, bĕr-mōō′thēz.
Bernice, bĕr-nī′sē.
Bertuccio, bär-tōō′chō.
Besançon, bŭz-äN′sôN.
Betelguese, bĕt′ĕl-gēz.
Beust von, fōn boist.
Bewick, bʊ′ĭk, *not* bē′wĭk.
Beyroot, bā′rōōt, *not* bā-rōōt′; Turkish pron., bī′rōōt.
Bierstadt, bēr′stät, *not* bēr′stăd.
Biot, bē-ō′ *or* byō; bē-ō′ *or* bē-ōt′ (Biog.).
Bizet, bē-zā′.
Björnson (Björnstjerne), bē-örn-stē-ĕr′nĕ bē-yörn′son.
Blenheim, blĕn′ĭm, *not* blĕn′hīm.
Blois, blwä.
Blücher von, fōn blōō′kĕr; Ger. pron., fōn blü′kĕr.
Boadicea (Queen), bō-ăd-ĭs-ē′ȧ.
Boanerges, bō-ăn-ēr′jēz.
Bode, bō′dē, *not* bōd.
Boerhaave, bōr′hāv; Dutch pron., bōōr′hä-vĕ.
Boethius, bō-ē′thĭ-ŭs.
Boïeldieu, bō-yĕl-dē-ö′; bwäl-dyö′ (Biog.).
Boileau, bwä-lō′.
Bokhara, bŏk-ä′rä.
Boleyn (Anne), bŏŏl′ĭn.
Bologna, bō-lōn′yä, *not* bō-lō′nä.
Bonheur (Rosa), bō-nör′, *not* bŏn′ŭr.
Bonnivard de, dŭ bō-nē-vär′.
Boötes, bō-ō′tēz.
Borghese, bōr-gā′zā.
Borromean (islands), bŏr-rō-mē′ăn.
Borromeo, bŏr-rō-mā′ō, *not* bŏr-rō′mē-ō.
Bossuet, bō-sü-ā′, *almost* bō-swā′.
Boucher de Perthes, bōō-shā′ dŭ pārt.
Boucicault, bōō-sē-kō′, *not* bōō′sē-kôlt.
Bouguereau, bōō-gĕr-ō′, *not* bōō-zhĕr-ō′.
Bouillon de (Godfrey), dŭ bōō-yôN′.
Bowditch, bŏw′dĭch, *not* bō′dĭch.
Bowdoin (college), bō′dn.
Bozzaris, bŏt′sär-ĭs.
Brahe (Tycho), tī′kō brā *or* brä; Danish pron., brä′ĕ.
Bremer (Fredrika), frĕd-rē′kȧ brē′mĕr; Swedish pron., brĭm′ĕr.
Breton (Jules), zhül brâ-tôn′.
Briareus, brī-ā′rē-ŭs or brī′ā-rʊs, *not* brī-ā-rē′ŭs.
Brockhaus, brŏk′hows.
Broglie de, dŭ brō′ĭ; dŭ brōg-lē′ (Biog.).
Brougham, brōō′ăm *or* brōōm.
Brown-Séquard (Dr.), brown-sā-kär′.
Brüges, brʊ′jĕz; Fr. pron., brüzh.
Brugsch Bei, brōōsh bā.
Brunehilde, brōō-nē-hĭl′dē.
Brunelleschi, brōō-nĕl-lĕs′kē.
Buccleugh, bŭk-klʊ′.
Bucharest, bʊ-kā-rĕst′.
Buda Pesth, bʊ′dȧ-pĕst; Hungarian pron., bōō′ dō-pesht.
Buddha, bŏŏd′ȧ.
Buddhism, bŏŏd′ĭzm.
Buddhist, bŏŏd′ĭst.
Buena Vista, bwā′nä vēs-tä *or* bō′nȧ vĭs-tȧ.
Buenos Aires, bō′nŭs ā′rĭz *or* âr; Sp. pron. bwā′nōs ī′rĕs.
Buffon de, dŭ bŭf′ŭn; Fr. pron., dŭ bü-fôN′.
Bülow von, fōn bü′lō.
Buonaparte, bōō-ō-nä-pär′tä.
Buonarroti, bōō-ō-när-rŏt′ē.
Burgoyne, bûr-ɢoin′.
Bysshe, bĭsh.
Byzantine, bī-zăn′tĭn *or* bĭz′ăn-tīn.
Byzantium, bĭz-ăn′shĭ-ŭm, *not* bĭz-ăn′tī-ŭm.
Caceres, kä′thā-rĕs.
Caedmon, kĕd′mŏn *or* kăd′mŏn.
Caesarea, sĕs-ā-rē′ȧ, *not* sĕz-ā-rē′ȧ.
Caiaphas, kā′yā-făs; kī′ăf-ăs (Stor.).
Caius (college at Cambridge), kēs *or* kē.
Calais, kā-lā′.
Calaveras, kä-lä-vā′räs.
Callao, käl-lä′ō *or* käl-yä′ō.
Callimachus, kăl-lĭm′ȧ-kŭs.
Callisthenes, kăl-lĭs′thē-nēz.
Cambacérès de, dŭ kăN-bä-sā-rĕs′.
Cambyses, kăm-bī′sēz.
Canandaigua, kăn-ăn-dā′gwȧ, *not* kăn-ăn-dā′ ɢʊ-ȧ.
Candace, kăn′dȧ-sē.
Canes Venatici, kā′nēz vē-năt′ĭs-ī.
Cannes, kän.
Canute, kā-nʊt′.
Capella, kȧ-pĕl′lȧ.
Capitoline, kăp′ĭt-ōl-īn, *not* kăp′ĭt-ōl-ēn.
Capri, kä′prē.
Caracci, kä-rä′chē.
Cardan, kär′dăn; Fr. pron., kär-dăN′.
Caribbean (Sea), kăr-ĭb-ē′ăn, *not* kär-ĭb′ē-ăn.
Carnot, kär-nō′.
Carolinian, kăr-ō-lĭn′ĭ-ăn, *not* kăr-ō-lī′nĭ-ăn.
Carracci, kăr-rä′chē.
Cartagena, kär-tȧ-jē′nȧ; Sp. pron., kär-tä-hā′nä.
Carthaginian, kär-thȧ-jĭn′ĭ-ăn, *not* kär-thȧ-jē′ nĭ-ăn.
Cartier (Jacques), zhäk kärt-yā′.
Casaubon, kȧ-sô′bŏn; Fr. pron., kä-zō-bôN′.
Cassiopeia, kăs-sĭ-ō-pē′yȧ.
Castiglione, käs-tēl-yō′nā.
Castlereagh, käs-l-rā′.
Castruccio, käs-trōō′chō.
Cattaraugus, kăt-ȧ-rô′gŭs.
Caucasus, kô′kȧ-sŭs, *not* kô-kā′sŭs.
Cavour di, dē kä-vōōr′.
Cayenne, kā-ĕn′ *or* kī-ĕn′.
Cayuga, kā-yōō′gȧ.
Cecrops, sē′krŏps.
Cedric, sĕd′rĭk *or* kĕd′rĭk.
Cedron, sē′drŏn.
Cellini (Benvenuto), bĕn-vā-nōō′tō chĕl-lē′nē.
Cerberus, sĕr′bē-rŭs.
Ceres, sē′rēz.
Cesnola di, dē chĕs-nō′lä.
Cévennes, sā-vĕn′.

Chaeronea, kĕr-ō-nē′å.
Chagres, chä′grĕs, *not* shä′grĕs.
Cham, kăm.
Chamonix, shä-mō-nē′.
Chamouni, shä-mōō-nē′.
Champollion, shăm-pōl′ē-ŏn; Fr. pron., shăN-pōl-yōN′.
Champs-Elysées, shăN-zā-lē-zā′.
Chapultepec, chä-pōōl-tā-pĕk′.
Charon, kā′rŏn, *not* chā′rŏn.
Charybdis, kå-rĭb′dĭs.
Châteaubriand de, dŭ shä-tō-brē-ăN′.
Chaudière (Falls), shō-dē-ār′.
Chautauqua, shå-tô′kwä, *not* chå-tô′kwä.
Chedorlaomer, kĕd-ôr-lā′ō-mēr *or* ō′mēr.
Cheops, kē′ŏps, *not* chē′ŏps.
Cherbuliez, shĕr-bü-lē-ā′.
Chersonesus, kēr-sō-nē′sŭs.
Cherubini, kā-rōō-bē′nē.
Cheyenne, shī-ĕn′; shē-ĕn′ (Gaz.).
Chihuahua, chē-wä′wä.
Chillicothe, chĭl-ĭ-kŏth′ē, *not* chĭl-ĭ-kō′thē.
Chimborazo, chĭm-bō-rä′zō; Sp. pron., chēm-bō-rä′thō.
Cholmondeley, chŭm′lĭ.
Chryseis, krĭ-sē′ĭs.
Chuquisaca, chōō-kē-sä′kä.
Cimabue, chē-mä-bōō′ā.
Cimon, sī′mŏn.
Cincinnati, sĭn-sĭn-nä′tĭ, *not* sĭn-sĭn-năt′ŭ.
Cinque-ports, sĭngk′pōrts.
Circe, sēr′sē.
Cirencester, sĭs′ĕt-ēr *or* sĭs′ĭs-ēr.
Civita Vecchia, chē′vē-tä vĕk′kē-ä.
Cleobulus, klē-ō-bu′lŭs, not klē-ŏb′yu-lŭs.
Cleomenes, klē-ŏm′ē-nēz.
Clough (Arthur Hugh), klŭf.
Cnidus, nī′dŭs.
Cockburn (Lord), kō′bûrn, *not* kŏk′bŭrn.
Codrus, kō′drŭs.
Cohoes, kō-hōz′, *not* kō-hōōz′.
Colbert, kōl-bâr′.
Coligny de, dŭ kō-lēn-yē′ *or* dŭ kō-lēn′yē.
Colman, kōl′măn, *not* kŏl′măn.
Cologne, kō-lōn′; Fr. pron., ko-lon′yŭ.
Colquhoun, kō-hōōn′.
Comanche, kō-măn′chē; kō-măn′chā (Gaz.).
Combe, kōōm *or* kōm.
Comte, kôNt.
Condé de, dŭ kôn-dā′.
Condillac de, dŭ kôn-dē-yăk′.
Condorcet de, dŭ kôn-dôr-sā′.
Cophetua, kō-fĕt′yu-å.
Coquelin, kok-lăN′.
Corot, kō-rō′.
Correggio da, dä kŏr-rā′jō.
Corydon, kŏr′ĭ-dŏn.
Cotopaxi, kō-tō-păk′sē; Sp. pron., kō-tō-pä′hē.
Courbet, kōōr-bā′.
Cousin, kōō-zăN′.
Coxsackie, kŏŏk-sô′kē.
Cracow, krā′kō.
Cruikshank, krŏŏk′shăngk.
Cumæan, ku-mē′ăn.
Cuvier, kü-vē-ā′.
Cuyahoga, kī-å-hō′gå.
Cuyp, koip.
Cuzco, kōōs′kō.
Cyaxares, sī-ăks′å-rēz.
Cybele, sĭb′ē-lē *or* sĭb-ē′lē.
Cyprian, sĭp′rĭ-ăn, *not* sĭ′prĭ-ăn.
Czajkowski, chī-kŏvs′kē.

Czerny, chĕr′nē.
Daguerre, dă-gâr′.
Dahlgren, dăl′grĕn.
Damiens, dā′mĭ-ĕnz; Fr. pron., dä-mē-ăN′.
Damon, dā′mŏn.
Dandolo, dän′dō-lō.
Dannecker von, fōn dän′ĕk-ĕr.
Darius, dā-rī′ŭs.
Daubigny, dō-bēn-yē′.
Daudet (Alphonse), äl-fôNs′ dō-dā′.
Davoust, dä-vōō′.
De Amicis, dā ä-mē′chēs, *not* dē ä-mē′sis.
Deborah, dĕb′ō-rå, *not* dē-bō′rå.
Delaroche, dŭ-lä-rosh′.
Delft, dĕlft.
Demetrius, dē-mē′trĭ-ŭs, *not* dē-mĕt′rĭ-ŭs.
Deneb, dē′nĕb.
Deptford, dĕt′fŭrd; dĕd′fŭrd (Gaz.).
Descartes, dā-kärt′.
Des Moines, dē moin′.
Desmoulins, dā-mōō-lăN′.
Détaille, dā-tä′yŭ.
Dhaulagiri, dow-lä-gē′rē.
Diderot, dē-drō′.
Didot, dē-dō′.
Dieppe, dē-ĕp′.
Dies Iræ, dī′ēz ī′rē.
Dijon, dē-zhôN′.
Dionysus, dī-ō-nī′sŭs.
Discobolus, dĭs-kŏb′ō-lŭs.
Disraeli, dĭz-rā′lē *or* dĭz-rē′lē; dĭz-rā′ĕl-ē (Biog.).
Dnieper, nē′pĕr; Russian pron., dnyĕp′ĕr.
Dniester, nēs′tĕr; Russian pron., dnyĕs′tĕr.
Dolce (Carlo), dōl′chā.
Dolci (Carlo), dōl′chē.
Domenichino, dō-mĕn-ē-kē′nō.
Doña, dōn′yå.
Donegal, dŏn-ē-gôl′, *not* dŏn′ē-găl.
Don Quixote, dŏn kwĭks′ōt; Sp. pron., dōn kē-hō′tā.
Dovrefield, dō-vrŭ-fĭ-ĕld′.
Drachenfels, drä′kĕn-fĕls.
Drogheda, drŏ′hĕd-å.
Du Chaillu, dü shä-yü′.
Duchesne, dü shān′.
Dudevant (Mme.), düd-văN′.
Dumas, dü-mä′ *or* dü-mäs′.
Duplessis, dü-plā-sē′.
Duquesne, dü-kān′.
Dürer (Albert), dü′rĕr.
Duyckinck, dī′kĭngk.
Ebers (Georg), gā-ōrk′ ā′bĕrs.
Ecbatana, ĕk-băt′å-nå.
Edam, ā-däm′, *not* ē′dăm.
Eleanor, ĕl′ē-å-nôr.
Eleazar, ē-lē-ā′zär *or* ē-lē′ā-zär.
Elgin, ĕl′gĭn, not ĕl′jĭn.
Eliphalet, ē-lĭf′å-lĕt.
Elssler (Fanny), ĕls′lĕr, *not* ĕs′lĕr.
Emmaus, ĕm-mā′ŭs *or* ĕm′mā-ŭs.
Encke, ĕng′kē.
Enghien d', dän-găN′; dän-gē-ăN′.
Epaminondas, ē-păm-ĭn-ŏn′dăs.
Erasmus, ē-răz′mŭs, *not* ē-răs′mŭs.
Erato, ĕr′å-tō, *not* ē-rā′tō, *nor* ĕr-ä′tō.
Eratosthenes, ĕr-å-tŏs′thē-nēz.
Erectheum, ĕr-ĕk-thē′ŭm, *not* ē-rĕk′thē-ŭm.
Erigena, ē-rĭj′ē-nå *or* ĕr-ĭj-ē′nå.
Erostratus, ē-rŏs′trā-tŭs.
Escurial, ĕs-ku′rĭ-ăl; Sp. pron., ĕs-kōō-rē-äl′.
Estaing d', dĕs-tăN′.
Eugène, ö-zhăn′.

Eugénie de Montijo, ö-zhā-nē′ dŭ môn-tē-zhō′.
Euler, yōō′lĕr; Ger. pron., oi′lĕr.
Eunice, yu′nĭs; Bib. yu-nī′sē *or* yu′nĭs.
Euphrosyne, yu-frŏs′ĭn-ē.
Euripides, yu-rĭp′ĭd-ēz.
Eurydice, yu-rĭd′ĭs-ē.
Fahrenheit, fä′rĕn-hīt.
Faneuil (Hall), făn′ĭl, *commonly* fŭn′ĕl.
Farquhar, fär′kwär *or* fär′kēr.
Fatima, făt′ē-mä.
Faust, fowst *or* fôst.
Fechter, fĕsh′tĕr.
Fénelon, fā-nē-lôN′ *or* fān-lôN′.
Fesole, fĕs′ō-lā.
Feuerbach, foi′ĕr-bäk.
Feuillet (Octave), ök-täv′ fö-yā′.
Fichte, fĭk′té.
Fiesole, fyĕs′ō-lā.
Figaro, fē-gä-rō′, *not* fē-gā′rō.
Flotow von, fōn flō′tō.
Fomalhaut, fō′măl-hôt.
Fontainebleau, fôN-tān-blō′.
Fontenoy, fōn-tē-noi′; Fr. pron., fôNt-nwä′.
Fortuny, fōr-tōō′nē.
Fouché, fōō-shā′.
Fourier, fōō′rē-ĕr; Fr. pron., fōō-rē-ā′.
Fra Diavolo, frä dē-ä′vō-lō.
Fraunhofer von, fōn frown′hō-fĕr.
Freischütz, Der, dĕr frī′shüts.
Frelinghuysen, frē′lĭng-hī-zĕn.
Fresnel, frā-nĕl′.
Freycinet de, dŭ frā-sē-nā′.
Friesic, frē′sĭk.
Froebel, frö′bĕl.
Froissart, frois′ärt; Fr. pron., frwä-sär′.
Froude, frōōd.
Galen, gā′lĕn.
Gallatin (Albert), găl′ă-tĭn; Fr. pron., gă-lă-tăN′.
Galle (Dr.), gä′lĕ.
Galvani, gäl-vä′nē.
Galway, gôl′wā, *not* găl′wā.
Garibaldi, găr-ĭb-ăl′dĭ, *not* găr-ĭb-ôl′dē.
Gauss, gows.
Gautier (Théophile), tā-ō-fēl′ gō-tē-ā′.
Gay-Lussac, gā-lü-săk′.
Geikie (James), gē′kē, *not* gī′kē.
Genghis Khan, jĕn′gĭs kän.
Genseric, jĕn′sĕr-ĭk.
Geoffrey, jĕf′rĭ.
Geoffroy, zhō-frwä′.
Geraldine, jĕr′ăl-dĭn.
Gérôme, zhā-rōm′.
Gesenius, gē-sē′nĭ-ŭs; Ger. pron., gā-zā′nē-ŏŏs.
Ghent, gĕnt, *not* jĕnt.
Ghiberti, gē-bĕr′tē.
Ghirlandajo, gēr-län-dä′yō.
Gizeh, gē′zĕ.
Gila, hē′lä.
Gil Blas, zhēl bläs; Sp. pron., hēl bläs.
Gioja, jō′yä.
Giordano Bruno, jōr-dä′nō brōō′nō.
Giorgione, jōr-jō′nā.
Giotto, jŏt′tō.
Giovanni, jō-vän′nē.
Gironde, jē-rŏnd′; Fr. pron., zhē-rôNd′.
Giuseppe, jōō-sĕp′pā.
Gladstone, glăd′stūn, *not* glăd-stōn.
Glück, glük.
Glyptothek, glĭp-tō-tāk′.
Gobelin, gŏb′ē-lĭn; Fr. pron., gō-blăN′.
Godavery, gō-dä′vĕr-ĭ.
Godiva (Lady), gō-dī′vä.
Goethe von, fōn gö′tĕ.
Golgotha, gŏl′gō-thä, *not* gōl-gō′thä
Gortschakoff, gôrt-chä-kŏf′.
Gotham, gō′thăm.
Gottschalk, gŏt′shälk, *not* gŏt′shôk.
Gough, gŏf.
Gounod, gōō-nō′.
Gower, gow′ĕr *or* gōr.
Granicus, grȧ-nī′kŭs.
Greenough, grē′nō.
Greuze, gröz.
Grévy, grā-vē′.
Grosvenor, grōv′nĕr.
Grote, grōt.
Grotius, grō′shĭ-ŭs.
Grouchy de, dŭ grōō-shē′, *not* dŭ grōō′chē.
Gruyère, grü-yâr′.
Guelph, gwĕlf.
Guericke von, fōn gĕr′ĭk-ĕ *or* fōn gā′rĭk-ĕ.
Guido Reni, gwē′dō rā′nē *or* gōō-ē′dō rā′nē, *not* gē′dō rā′nē.
Guildhall, gĭld′hôl.
Guillotin, gē-yō-tăN′.
Guinevere, gwĭn′ē-vēr.
Guise de, dŭ gwēz; dŭ gwēz, dŭ gü-ēz′, *or* dŭ gēz (Biog.).
Guizot, gē-zō′ *or* gwē-zō.
Günther, gün′tĕr.
Gustavus, gŭs-tā′vŭs, *not* gŭs-tä′vŭs.
Gutenberg, gōō′tĕn-bĕrg, *not* gŭt′ĕn-bĕrg.
Guyot, gē-ō′.
Gwendolen, gwĕn′dō-lĕn.
Gyges, jī′jēz.
Habakkuk, hăb-ăk′ŭk *or* hăb′ăk-ŭk.
Haeckel, hĕk′l; Ger. pron., hâ′kĕl.
Haggai, hăg′ā-ī *or* hăg′ā.
Hague, hāg.
Halcyone, hăl-sī′ō-nē.
Halévy, ä-lā-vē′.
Halle, hä′lĕ.
Haller von, fōn häl′lĕr.
Hamilcar Barca, hȧ-mĭl′kär bär′kä.
Handel, hăn′dĕl; Ger. pron., hĕn′dĕl.
Hardicanute, här-dĭ-kā-nut′.
Harun-al-Raschid, hä-rōōn′ăl-räsh′ĭd *or* hä-rōōn′-äl-rä-shēd′.
Havre de Grace, hä′vĕr *or* ä′vĕr dŭ gräs.
Hawaii, hä-wī′ē.
Haydn, hā′dn; Ger. pron., hī′dn.
Hayti, hā′tĭ; Fr. pron., ä-ē-tē′.
Hazlitt, hăz′lĭt.
Heine (Heinrich), hīn′rĭK hī′nĕ.
Heligoland, hĕl′ĭ-gō-länd.
Héloise, ā-lō-ēz′.
Helvétius, hĕl-vē′shĭ-ŭs; Fr. pron., ĕl-vā-sē-üs′.
Hemans (Mrs.), hĕm′ănz, *not* hē′mănz.
Hengist, hĕng′gĭst.
Hephæstion, hē-fĕs′tĭ-ŏn.
Heraclitus, hĕr-ȧ-klī′tŭs, *not* hē-răk′lĭt-ŭs.
Herat, hĕr-ät′.
Herculaneum, hĕr-ku-lā′nē-ŭm.
Herodotus, hē-rŏd′ō-tŭs.
Hesiod, hē′sī-ŏd; hē′shī-ŏd (Biog.).
Hesse, hĕs, *not* hĕs′sē.
Heyne, hī′nĕ.
Himalaya, hĭm-ä′lā-yȧ; often pronounced hĭm-ā-lā′yä.
Hippocrates, hĭp-pŏk′rā-tēz.
Hoang-Ho, hō-äng-hō′.
Hobbes, hŏbz.
Hoboken, hō′bō-kĕn.
Hohenlohe, hō′ĕn-lō-ē.

Hohenzollern, hō′ĕn-tsŏl-ĕrn.
Holbein, hōl′bīn.
Holstein, hōl′stīn.
Holyhead, hōl′ī-hĕd.
Holyoke (Mount), hōl′yōk, *not* hō′lī-ōk.
Hortense, ôr-tăNs′.
Hôtel de Ville, o-tĕl′ dŭ vēl.
Houdon, ōō-dôN′.
Houston (Sam), hus′tŏn, *not* hows′tŏn.
Hudibras, hu′dĭ-brăs, *not* hu′dī-brä.
Hughes (Thomas), huz.
Huguenot, hu′gē-nŏt.
Huron (Lake), hu′rŏn.
Huygens, hī′gĕnz; Dutch pron., hoi′hĕnz.
Hyacinthe (Père), pâr ē-ä-săNt′.
Hyksos, hĭk′sŏs.
Hypatia, hī-pā′shĭ-ȧ.
Hyperion, hī-pē′rĭ-ŏn.
Iamblichus, ī-ăm′blĭk-ŭs.
Icarus, ĭk′ȧ-rŭs, *not* ī-kā′rŭs.
Ichabod, ĭk′ȧ-bŏd.
Ich dien, ĭk dēn.
Ictinus, ĭk-tī′nŭs.
Imogen, ĭm′ō-jĕn.
Ines, ē-nĕs′.
Ingelow (Jean), jēn ĭn′jē-lō.
Inkerman, ĭng-kĕr-măn′.
Invalides (Hôtel des), o-tĕl′ dāz ăN-văl-ēd′.
Iowa, ī′ō-wȧ, *not* ī-ō′wȧ.
Iphigenia, ĭf-ĭ-jē-nī′ȧ, *not* ĭf-ĭ-jē′nĭ-ȧ.
Irenaeus, ĭr-ē-nē′ŭs, *not* ī-rē′nē-ŭs.
Irene, ī-rē′nē.
Ischia, ĭs′kē-ä.
Isham, ĭ′shăm.
Isis, ī′sĭs.
Ismaïl, ĭs-mä-ēl′.
Isocrates, ī-sŏk′rā-tēz.
Isola, ē′sō-lä.
Isolde, ē-sōl′dā *or* ĭ-sōld′.
Israel, ĭz′rā-ĕl, *not* ĭs′rā-ĕl.
Isthmian, ĭs′mĭ-ăn *or* ĭst′mĭ-ăn.
Ithuriel, ĭ-thu′rĭ-ĕl.
Ivan, ē-vän′.
Ixion, ĭks-ī′ŏn, *not* ĭks′ĭ-ŏn.
Iztaccihuatl, ēs-täk-sē-hwät′l.
Jacobi, yä-kō′bē.
Jacquard, zhä-kär′.
Jacques, zhäk.
Jakutsk, yä-kōōtsk′.
Janauschek, yä′now-shĕk.
Japanese, jăp-ăn-ēz′ *or* ēs′.
Japheth, jā′fĕth, *not* jā′fĕt.
Java, jä′vȧ *or* jȧ′vȧ, *not* jăv′ȧ.
Jean Valjean, zhäN văl-zhäN′.
Jeanne d'Arc, zhän därk′.
Jeddo, yĕd′dō.
Jena, jĕn′ȧ; Ger. pron., yā′nä.
Jephthah, jĕf′thȧ, *not* jĕp′thȧ.
Jerusalem, jē-ru′sā-lĕm.
Jesuit, jĕz′yu-ĭt, *not* jĕzh′yu-ĭt.
Jevons, jĕv′ŏnz, *not* jē′vŏnz.
Joachim, jō′ȧ-kĭm; Ger. pron., yō′ȧ-kĭm.
Joan of Arc, jōn′ ŏv ärk *or* jō-ăn′ŏv ärk.
Joinville de, dŭ join′vĭl; Fr. pron., dŭ zhwăN-vēl′.
Jordaens, yōr′däns.
Joseffy, yō-sĕf′ĭ.
Joubert, zhōō-bâr′.
Jowett, jŏw′ĕt, *not* jō′ĕt.
Juarez, jōō-ä′rĕz; Sp. pron., hōō-ä′rĕth.
Jubilate, ju-bĭl-ā′tē *or* ā′tē.
Judaic, ju-dā′ĭk.
Juggernaut, jŭg′ĕr-nôt.
Juliet, ju′lĭ-ĕt.
Jungfrau, yŏŏng′frow.
Juniata, jū-nĭ-ăt′ȧ.
Junot, zhü-nō′.
Jussieu de, dŭ jŭs-sū′; Fr. pron., dŭ zhŭ-sē-ö′.
Kansas, kăn′zăs, *not* kăn′zäs.
Kant, känt.
Katahdin (Mount), kä-tä′dĭn.
Kearney, kär′nĭ, *not* kēr′nĭ.
Kearsarge (Mount), kēr′särj.
Keble (John), kē′bl, *not* kĕb′l.
Kenelm, kĕn′ĕlm, *not* kĕn-ĕlm′.
Kennebec, kĕn-ē-bĕk′, *not* kĕn′ē-bĕk.
Keokuk, kē′ō-kŭk, *not* kē-ō′kŭk.
Khiva, kē′vä.
Kief, kē-ĕf′.
Kiel, kēl.
Kiev, kē-ĕf′.
Kilauea, kē-low-ā′ä.
Kléber, klē′bĕr *or* klā′bâr; Fr. pron., klā-bâr′.
Knollys, nōlz.
Köln, köln.
Königsberg, kĕn′ĭgz-bĕrg; Ger. pron., kö′nĭgs-bĕrg.
Kosciusko, kŏs-sĭ-ŭs′kō.
Kossuth, kŏsh′ōōt.
Kotzebue von, fŏn kōt′sē-bōō.
Krause, krow′zĕ.
Krupp, krōōp.
Kurile (Islands), kōō′rĭl.
La Bruyère de, dŭ lä brü-ē-yâr′ *or* dŭ lä brü-yâr′.
Lachesis, läk′ē-sĭs, *not* läk-ē′sĭs.
Lachine (rapids), lä-shēn′.
Ladrones (Islands), lä-drōnz′; Sp. pron., lä-drō′nĕs.
Laertes, lā-ēr′tēz.
Laffitte, lä-fēt′.
Lafontaine de, dŭ lä-fŏn-tān′; Fr. pron., dŭ lä fôN-tān′.
La Fourche, lä fōōrsh′.
La Guayra, lä gwī′rä.
Lalla Rookh, lä′lä-rōōk, *not* lä-lä-rōōk′.
Languedoc, läN′gŭ-dok.
Lannes, lăn or län.
Laocoön, lā-ŏk′ō-ŏn, *not* lā-ō-kōōn′.
Laplace de, dŭ lä-plȧs′.
Laputa, lȧ-pu′tȧ.
Lares, lā′rēz.
La Rochefoucauld de, dŭ lä rösh-fōō-kō′.
Latin, lăt′ĭn.
Lausanne, lō-zän′.
Lavoisier, lä-vwä-zē-ā′.
Layard, lā′ĕrd.
Lebrun, lŭ-brŭN′.
Le Clerc, lŭ klâr′, *not* lŭ klârk′.
Ledru-Rollin, lŭ-drü′-rō-lăN′.
Legaré, lŭ-grē′.
Leibnitz von, fŏn līp′nĭts.
Leicester, lĕs′tĕr.
Leigh (Aurora), lē, *not* lā.
Leila, lē′lȧ, *not* lī′lȧ.
Leipsic, līp′sĭk.
Leipzig, līp′tsĭg.
Lely (Sir Peter), lē′lĭ.
Lenape, lĕn′ȧ-pē.
L'Enclos de (Ninon), nē-nôN′ dŭ läN-klō′.
Leominster, lĕm′ĭn-stĕr, *not* lē′ō-mĭn-stĕr.
Le Sage, lŭ säzh′.
Lesseps de, dŭ lā-sĕps′; dŭ lā-sĕp′ (Biog.).
Le Sueur, lŭ sü-ör′.
Leutze, loit′sē.
Lever (Charles), lē′vĕr, *not* lĕv′ĕr.

Leverrier, lŭ-vĕr′ĭ-ĕr; Fr. pron., lŭ-vā-rē-ā′.
Lewes (George Henry), lu′ĭs, *not* luz.
Leyden, lī′dĕn.
Lieber, lē′bĕr.
Liebig von, fōn lē′bĭg.
Liége, lēj; Fr. pon., lē-āzh′.
Lima (Peru), lē′mä.
Lima (U. S.), lī′mä.
Limoges, lē-mōzh′.
Lincoln, lĭng′kŭn, *not* lĭn′kŭn.
Linné von, fōn lĭn′ā.
Liszt (Franz), fränts lĭst.
Lodi, lō′dē.
Lopê de Vega, lō′pā dā vā′gä.
Lopez, lō′pĕs; Sp. pron., lō′pĕth.
Los Angeles, lōs ăn′jĕl-ēz; Sp. pron., lōs äng′-hĕl-ĕs.
Lucrezia Borgia, lōō-krāt′sē-ä bōr′jä.
Luigi, lōō-ē′jē.
Luther, lu′thẽr; Gr. pron., lōō′tĕr.
Lycidas, lĭs′ĭ-dăs.
Lyell (Sir Charles), lī′ĕl.
Lyly (John), lĭl′ĭ.
Lyonnaise, lī-ŏn-āz′; Fr. pron., lē-on-āz′.
Macbeth, măk-bĕth′, *not* măk′bĕth.
Machiavelli de, dā mäk-ē-ä-vĕl′ē.
Mackay (Charles), mäk-ī′ *or* măk-ā′.
Macleod, măk-lowd′.
Macready, măk-rē′dĭ, *not* măk-rā′dĭ.
Maggiore (Lake), mäd-jō′rā.
Magyar, măg′yär; Hung. pron., mŏd-yŏr′; mäd′-yär (Stor.).
Mahabharata mä-hä-bä′rä-tä.
Maintenon de, dŭ măn-tŭ-nôn′.
Mainz, mīnts.
Malcolm, măl′kŭm.
Malebranche, mäl-brȧnsh′.
Malesherbes de, dŭ mäl-zârb′.
Malibran, mä-lē-brȧn′; anglicized, măl′ĭ-brăn.
Malpighi, mäl-pē′gē.
Malthus, măl′thŭs.
Manetho, măn′ē-thō.
Mansard, măn-särd′; anglicized măn′särd.
Maori, mä′ō-rē.
Maracaybo, mä-rä-kī′bō.
Marat, mȧ-rä′, *not* măr-ăt′.
Mardigras, mär-dē-grä′.
Maria Theresa, mā-rī′ȧ tē-rē′sä.
Marie Antoinette, mä-rē′ ăn-twä-nĕt′.
Marion, măr′ē-ŏn.
Marius, mā′rī-ŭs, *not* măr′ĭ-ŭs.
Marjoribanks, märch′bängks.
Marlborough (Duke) môl′brō; môl′bŭr-ŭ (Biog.).
Marochetti, mä-rō-kĕt′ē.
Marseillaise (hymn), mär-sā-yāz′.
Marseilles (Fr.), mär-sālz′.
Masaniello, mä-sä-nē-ĕl′lō.
Massasoit, măs′sā-soit.
Massillon, măs′ĭl-ŏn; Fr. pron., mä-sē-yôn′.
Mather (Cotton), măth′ẽr.
Mauch Chunk, môk chŭngk′.
Mauna Loa, mow′nä lō′ä.
Maupertius de, dŭ mō-pâr-twē′.
Maximilian (Emperor), măks-ĭ-mĭl′yăn.
Mayence, mä-yȧns′.
Mazarin, măz-ăr-ĕn′; Fr. pron., mä-zä-răn′.
Mazzini, mät-sē′nē.
Medici de', dā mĕd′ē-chē *or* dā mā′dē-chē.
Mefistofele, mā-fēs-tō′fā-lā, *not* mĕf-ĭs-tŏf′ē-lē.
Mehemet Ali, mā′hĕm-ĕt ä′lē.
Méhul, mā-ül′.
Meissonier, mā-sō-nē-ā′.
Melanchthon, mē-lăngk′thŏn; Ger. pron., mē-länk′tōn.
Menai (Straits), mĕn′ī, *not* mē′nī.
Mencius, mĕn′shĭ-ŭs.
Mendelssohn Bartholdy, mĕn′dĕl-sōn bär-tōl′dē.
Metternich von, fōn mĕt′ẽr-nĭk.
Meyerbeer, mī′ẽr-bār.
Miami, mī-ä′mĭ.
Michael, mī′kā-ĕl; coll., mī′kĕl.
Michael Angelo, mī′kā-ĕl ăn′jā-lō.
Michel-Ange (Fr.), mē-kĕl′-äNzh.
Michelangelo (It.), mē-kĕl-än′jā-lō.
Millais, mĭl-lā′.
Millet, mē-yā′.
Mirabeau de, dŭ mē-rä-bō′; anglicized, mĭr′ä-bō.
Missouri, mĭs-sōō′rĭ, *not* mĭz-zōō′rĭ.
Mivart (St. George), mĭv′ärt.
Mnemosyne, nē-mŏs′ĭn-ē.
Mœris (Lake), mē′rĭs.
Mohammed, mō-hăm′ĕd.
Molière, mō-lē-ãr′; Fr. pron., mol-yâr′.
Moltke von, fōn mōlt′kĕ.
Montaigne de, dŭ mōn-tān′; Fr. pron., dŭ môN-tân′yŭ.
Mont Blanc, môN-blȧN′; often anglicized, mŏnt-blăngk′.
Montcalm de, dŭ mŏnt-käm′; Fr. pron., dŭ môn-kälm′.
Mont Cenis, môN sŭ-nē′.
Montesquieu de, dŭ mōn-tĕs-kU′; Fr. pron., dŭ môN-tĕs-kyö′.
Monticello (Italy), mŏn-tē-chĕl′lō.
Moore (Thomas), mōr *or* mōōr.
Moscheles, mōsh′ĕl-ĕs.
Moses, mō′zĕz.
Moultrie, mōō′trĭ *or* mōōl′trĭ.
Mozart, mō-zärt′; Ger. pron., mōt′särt.
Müller (Max), mül′ẽr.
Munchausen, mŭn-chô′sĕn.
München, mün′kĕn.
Münchhausen von, fōn münk′how-zĕn.
Munkacsy de, dŭ mōōn′käch-ē.
Murat, mU-rät′; Fr. pron., mü-rä′.
Murillo, mU-rĭl′lō; Sp. pron., mōō-rēl′yō.
Musset de, dŭ mü-sā′.
Nantes, năntz; Fr. pron., năNt.
Napier, nā′pē-ẽr.
Natchitoches, năk-ĕ-tŏsh′ *or* năch-ĭ-tŏch′ĕs.
Nebuchadnezzar, nĕb-yU-kăd-nĕz′är.
Nepos (Cornelius), nē′pŏs.
Nesselrode von, fōn nĕs′ĕl-rō-dĕ.
Neuchâtel, nö-shä-tĕl′.
Neumann, noi′măn, *not* nU′măn.
Nevada, nē-vä′dȧ.
Newfoundland, nU′fŭnd-lănd.
New Orleans, nU ôr′lē-ănz, *not* nU ôr-lēnz′.
Nibelungen-Lied, nē′bĕl-ŏŏng-ĕn-lēd.
Nice, nēs.
Niebuhr, nē′bōōr.
Nijni-Novgorod, nĭzh′nē-nŏv-gō′rŏd; nizh′nē-nŏv gō-rŏd′ (Gaz.).
Nismes, nēm.
Notre Dame, nō-tr dăm′.
Novalis, nō-vä′lĭs.
Ober Ammergau, ō′bĕr ăm′mĕr-gow.
Odoacer, ō-dō-ā′sẽr, *not* ō-dō′ä-sẽr.
Odysseus, ō-dĭs′ē-ŭs *or* ō-dĭs′sUs.
Oedipus Tyrannus, ĕd′ĭp-ŭs tĭr-ăn′ŭs.
Oehlenschläger, ö′lĕn-shlā-gẽr.
Oersted, ör′stĕd.
Ole Bull, ō′lē bŏŏl.
Opie, ō′pĭ.

Origen, ŏr′ĭ-jĕn.
Oude, owd, *not* ōōd.
Oudinot, ōō-dē-nō′.
Ouida, wē′dä.
Ovid, ŏv′ĭd, *not* ō′vĭd.
Paganini, pä-gä-nē′nē.
Paget, paj′ĕt.
Palfrey, pôl′frĭ.
Palgrave, pôl′grāv.
Palissy, păl′ĭs-ĭ; Fr. pron., pä-lē-sē′.
Pall-Mall (street in London), pĕl-mĕl′, *not* păl-măl′ *nor* pôl-môl′.
Palmerston, päm′ĕr-stŭn, *not* păl′mĕr-stŭn.
Paoli di, dē pä′ō-lē, *almost* pow′lē.
Parnell, pär′nĕl, *not* pär-nĕl′.
Parrhasius, păr-rā′shĭ-ŭs, *almost* păr-rā′shŭs.
Pascal, päs′käl; Fr. pron., päs-käl′.
Pasteur, päs-tör′.
Perugino, pā-rōō-jē′nō.
Pestalozzi, pĕs-tä-lōt′sē.
Pesth, pĕst; Hungarian pron., pĕsht.
Petrograd, pyĕ′tro-grät.
Petruccio, pā-trōō′chō.
Phaedrus, fē′drŭs.
Philippi, fĭl-ĭp′ī, *not* fĭl′ĭp-ī.
Phocion, fō′shĭ-ŏn, *not* fō′shŏn.
Piccolomini, pĭk-ō-lō′mē-nē.
Pisa, pē′zä *or* pē′sä.
Pisistratus, pī-sĭs′trā-tŭs, *not* pĭs-ĭs-trā′tŭs.
Pizarro, pē-zär′ō; Sp. pron., pē-thär′ō.
Pleiades, plē′yà-dēz.
Pleiads, plē′yădz.
Pliny, plĭn′ĭ.
Plotinus, plō-tī′nŭs.
Pnyx, nĭks.
Poitiers, pwà-tĭ-ā′; sometimes anglicized poi-tērz′.
Pompeii, pŏm-pā′yē, *not* pŏm′pē-ī.
Ponce de Leon, pōn′thā dā lā-ōn′; anglicized pŏns dē lē′ŏn.
Pontius, pŏn′shĭ-ŭs, *not* pŏn′shŭs.
Popocatapetl, pō-pō′kät-ä-pä-tl; pō-pō-kä-tä-pĕt′l.
Port au Prince, pōrt′ō-prĭns; Fr. pron., pōrt-ō-prăns′.
Poughkeepsie, pō-kĭp′sĭ, *not* pō-kēp′sĭ.
Pouschkin, pōōsh′kĭn *or* pōōsh′kēn.
Powhatan, pow-hät′ăn′, *not* pow-hăt′ăn.
Pozzuoli, pŏt′sōō-ō′lē.
Praxiteles, prăks-ĭt′ē-lēz.
Provençal, prō-vĕn′sàl; Fr. pron., prō-văn-sàl′.
Psyche, sī′kē.
Ptolemy, tŏl′ē-mĭ.
Puebla, pwĕb′lä.
Pythagoras, pĭth-ăg′ō-răs, *not* pī-thăg′ō-răs.
Quatre Bras, kä′tr brä.
Rabelais, răb-lā′; rä-bĕl-ā′ *or* rä-blā′ (Biog.).
Rachel (actress), rä-shĕl′.
Racine, rä-sēn′.
Raleigh (Sir Walter), rô′lĭ.
Rameses, răm′ē-sēz; rä-mē′sēz (Stor.).
Ramillies, răm′ĭl-ēz; Fr. pron., rä-mēl-yē′ *or* rä-mē-yē′.
Raphael, răf′à-ĕl; rā′fà-ĕl *or* rä′fä-ĕl (Biog.).
Réaumur de, dŭ rā-ō-mür′.
Récamier, rā-kä-mē-ā′.
Reichsrath, rīks′rät.
Reichstadt, rīks′stät.
Reichstag, rīk′stäg.
Rembrandt, rĕm′brănt; Dutch pron., rĕm′bränt.
Rémusat de, dŭ rā-mü-zä′.
Renan, rŭ-nän′; anglicized, rē′năn *or* rē-nän′.
Rensselaer, rĕn′sē-lēr.
Rheims, rēmz; Fr. pron., răns.
Rhodes, rōdz.
Ricardo, rē-kär′dō.
Ricci, rē′chē.
Richelieu de, dŭ rĭsh-ĕl-ōō′; Fr. pron., dŭ rēsh-lē-ö′.
Richter, rĭk′tĕr.
Robespierre de, dŭ rō′bĕs-pēr; Fr. pron., dŭ rob-ĕs-pyâr′.
Rochambeau de, dŭ rō-shăn-bō′.
Roland, rō′lănd; Fr. pron., rō-lăn′.
Rollin, rōl′ĭn; Fr. pron., rō-lăn′.
Rollo, rōl′ō.
Romanof, rō-mä′nŏf.
Romola, rŏm′ō-là.
Rossetti, rōs-sĕt′ē.
Rossini, rōs-sē′nē.
Ruy Blas, rōō′ē-bläs.
Ruysdael, rois′däl.
Ruyter de, dŭ rī′tĕr; Dutch pron., dŭ roi′tĕr.
Ryswick, rĭz′wĭk; Dutch pron., rĭs′vĭk.
St. Cloud, sānt klowd′; Fr. pron., săn klōō′.
St. Croix, sānt kroi′; Fr. pron., săn krwä′.
St. Cyr, săn sēr′.
St. Denis, sānt dĕn′ĭs; Fr. pron., săn dĕn-ē′.
St. Simon de, dŭ sānt sī′mŏn; Fr. pron., dŭ săn sē-môn′.
Sainte-Beuve, săNt-böv′.
Sala (George Augustus), sā′lä, *not* sä-lä′.
Saladin, săl′ăd-ĭn.
Salome, sà-lō′mē.
Samoa, sä-mō′ä.
San Joaquin, săn hō-ä-kēn′, *almost* wä-kēn′.
San José, săn hō-sā′.
San Juan, săn hōō-än′.
San Luis Potosi, săn lōō-ēs′ pō-tō-sē′.
Sardanapalus, sär-dà-nà-pā′lŭs, *not* sär-dăn-ăp′-ā-lŭs.
Sault, sō *or* sōō.
Scheele, shēl; Swedish pron., shā′lā.
Scheherezade, shā-hā-rā-zä′dā.
Schelling von, fŏn shĕl′lĭng.
Schenectady, skĕn-ĕk′tà-dĭ.
Schiedam, skē-dăm′, *not* shē-dăm′.
Schiller von, fŏn shĭl′lĕr.
Schleiermacher, shlī′ĕr-mäk-ĕr.
Schleswig-Holstein, shlĕs′vĭg-hōl′stīn.
Schoharie, skō-hăr′ĭ, *not* skō-hā′rĭ.
Schopenhauer, shō′pĕn-how-ĕr.
Schubert, shōō′bĕrt.
Schumann, shōō′măn.
Schurz (Carl) shŏŏrts.
Sebastopol, Sĕb′ăs-tō′pŏl *or* Sē-băs′tō-pŏl; Rus. Sē-văs′tō-pŏl.
Sedan, sē-dăn′; Fr. pron., sŭ-dăN′.
Semiramide, sā-mē-rä-mē′dā. *not* sĕm-ĭr-ăm′ĭd-ē.
Semiramis, sē-mĭr′à-mĭs.
Sennacherib, sĕn-ăk′ĕr-ĭb *or* sĕn-à-kē′rĭb.
Sesostris, sē-sŏs′trĭs.
Severus, sē-vē′rŭs.
Sévigné de, dŭ sā-vēn-yā′.
Sèvres, sāvr; sĕvr *or* sâvr (Gaz.).
Seychelles, sā-shĕl′.
Sheboygan, shē-boi′găn.
Sheol, shē′ōl.
Sieyès, sē-yās′; sē-ĕs′ *or* sē-ā-yĕs′ (Biog.).
Sigismund (Emperor), sĭj′ĭs-mŭnd; Ger. pron., zē′gĭs-mŏŏnt.
Sikhs, sēks.
Simplon, sĭm′plŏn; Fr. pron., săn-plôn′.
Sioux, sōō.
Skaneateles (Lake), skăn-ē-ăt′lĕz.
Sluys, slois.

Sontag, sŏn′tăg *or* zŏn′tăg.
Soult, sōōlt.
Southey, sow′thĭ *or* sŭthĭ.
Spinoza, spē-nō′zä.
Spurzheim, spōōrts′hīm.
Stabat Mater, stā′bät mā′tĕr.
Staël de, dŭ stäl′; Fr. pron., dŭ stä-ĕl′.
Steuben, stu′bĕn; Ger. pron., stoi′bĕn.
Strabo, strā′bō.
Strauss, strows.
Sully, sŭl′ĭ; Fr. pron., sü-lē′.
Swedenborg, swē′dĕn-bôrg; Swedish pron., svĭd′-ĕn-bōrg.
Sweyn, swān.
Taj Mahal, täzh mä-häl′.
Taliaferro, tŏl′ĭv-ēr.
Talma, täl′mä; Fr. pron., täl-mä′.
Taney, tô′nĭ.
Tannhäuser, tän′hoi-zēr.
Tauchnitz, towk′nĭts.
Teniers (David), tĕn′yĕrz; tĕn′ē-ĕrz (Biog.); Fr. pron., tā-nē-âr′.
Teufelsdröckh (Herr), hĕr toi′fĕls-drök.
Thalberg, täl′bĕrg.
Thales, thā′lēz.
Thermopylae, thĕr-mŏp′ĭl-ē.
Thierry, tyā-rē′.
Thiers, tē-âr′.
Thisbe, thĭz′bē.
Thomas (Ambroise), äN-brwäz′ tō-mä′.
Thoreau, thō′rō.
Thorwaldsen, tôr′wôld-sĕn *or* tôr′väl-zĕn.
Tighe (Mary), tī.
Tintoretto Il, ēl tĭn-tō-rĕt′ō; ēl tēn-tō-rĕt′ō (Biog.).
Tischendorf von, fōn tĭsh′ĕn-dôrf.
Tissot, tē-sō′.
Titian, tĭsh′ăn; tĭsh′ē-ăn (Biog.).
Tivoli (New York), tĭv′ō-lī; tĭv-ō′lē (Gaz.).
Tocqueville de, dŭ tōk′vĭl; Fr. pron., dŭ tok-vēl′.
Tolstoi, tōl′stoi.
Torricelli, tŏr-rē-chĕl′lē.
Toussaint L'Ouverture, tōō-săN′ lōō-vĕr-tür′.
Tremont, trē-mŏnt′.
Trieste, trē-ĕst′; It. pron., trē-ĕs′tà.
Trondhjem, trŏnd′yĕm.
Trovatore Il, ēl trō-vä-tō′rā.
Truxillo, trōō-hēl′yō.
Tschaikowsky, chī-kŭvs′kĭ.
Tuesday, tuz′dā, *not* tōōz′dĭ *nor* tyus′dĭ.
Tuileries, twēl-rē′, *not* twĭl′ēr-ēz.
Turenne de, dŭ tu-rĕn′; Fr. pron., dŭ tü-rĕn′.
Turgeneff, tōōr-gĕn′ĕf.
Tyndale, tĭn′dāl, *not* tĭn′dăl.
Tyrol, tĭr′ōl; Ger. pron., tē-rōl′.
Tyrwhitt, tĕr′ĭt.
Uhland, ōō′länt.
Ulrici, ōōl-rēt′sē.
Utrecht, yu-trĕkt′; Dutch pron., ü′trĕkt.
Valenciennes, vä-lĕn-sĭ-ĕnz′; Fr. pron., vä-läN-sē-ĕn′.
Valhalla, văl-hăl′ä.
Vandyck, văn-dīk′.
Van Eyck, văn īk′.
Vauban de, dŭ vō-băN′.
Vaucluse, vō-klüz′.
Vaud (Pays de), pā-ē′ dŭ vō′.
Vaughan, vôn *or* vô′ăn.
Velasquez, vā-läs′kĕth.
Verboeckhoven, vĕr-bōōk′hō-vĕn.
Vercingetorix, vĕr-sĭn-jĕt′ō-rĭks.
Verdi, vâr′dē.
Verestchagin, vā-rēs-tchä′gĭn.
Vernet, vĕr-nā′.
Veronese (Paul), vă-rō-nā′zā.
Versailles, vĕr-sālz′; Fr. pron., vĕr-sä′yŭ.
Vespasian, vĕs-pā′zhĭ-ăn.
Vespucci (Amerigo), ä-mä-rē′gō vĕs-pōōt′chē.
Vibert, vē-bâr′.
Vichy, vē-shē′.
Vienna, vī-ĕn′ä, *not* vī-ĕn′à.
Villiers, vĭl′yĕrz.
Vincennes, vĭn-sĕnz′; Fr. pron., văN-sĕn′.
Vinci da, dä vĭn′chē.
Viollet-le-Duc, vē-ō-lā′ lŭ-dük′.
Virchow, vĕr′chow; Ger. pron., fĭr′kō.
Vladimir, vlăd′ē-mĕr; Russian and Polish pron., vlä-dē′mĭr.
Volapük, vō-lä-pük′.
Vosges, vōzh.
Wagner, wăg′nĕr; Ger. pron., väg′nĕr.
Wagram, vä′grăm.
Walhalla, wŏl-hăl′à.
Wallenstein von, fōn wŏl′ĕn-stīn; Ger. pron., fōn väl′ĕn-stīn.
Waller, wŏl′ĕr.
Warwick (Eng.), wôr′ĭk.
Waterloo, wô-tĕr-lōō′; Dutch pron., vä-tĕr-lō′.
Watervliet, wô-tĕr-vlēt′.
Watteau, vä-tō′; commonly wä-tō′.
Waukegan, wô-kē′găn.
Weber von, fōn vā′bĕr.
Wednesday, wĕnz′dā, *not* wĕd′nĕs-dā.
Wellesley (Islands), wĕls′lĭ.
Wellesley (College), wĕlz′lĭ.
Wemyss (Castle), wēms.
Werther, wĕr′tĕr; Ger. pron., vär′tär.
Wesley, wĕs′lĭ.
Whitefield, hwīt′fēld, *not* hwīt′fēld.
Wieland, wē′länd; Ger. pron., vē′länt.
Wilhelm, vĭl′hĕlm.
Wilkesbarre, wilks′bär-ĭ.
Winnepesaukee (Lake), wĭn-ē-pē-sô′kē.
Wolf, wōōlf; Ger. pron., vōlf.
Wolseley (Sir Garnet), wōōlz′lĭ, *not* wŏŏl′zĭ.
Wolsey (Cardinal), wōōl′zĭ, *not* wōōl′sĭ.
Woolwich, wŏŏl′ĭj.
Worcester, wōōs′tĕr.
Worcestershire, wōōs′tĕr-shĭr.
Wörth (Ger.), vört.
Württemberg, vür′tĕm-bĕrg.
Wyandotte, wī-ăn-dŏt′.
Wyckliffe, wĭk′lĭf.
Ximenes (Cardinal), zĭm-ē′nēz; Sp. pron., hē-mā′nēs.
Yang-tse-kiang, yăng-tsē-kĭ-äng′.
Yenikale (Strait), yĕn-ē-kä′lā.
Yenesei, yĕn-ē-sā′ē.
Ygdrasyl, ĭg′drâ-sĭl.
Yonge (Charlotte), yŭng.
Yosemite (Valley), yō-sĕm′ĭt-ē.
Youghiogheny, yŏ-hŏ-gā′nĭ.
Ypres, ē′pĕr.
Yvetot, ĕv-tō′.
Zeus, zus, *not* zē′ŭs.
Zeuxis, zuk′sĭs.
Zipporah, zĭp-ō′rà.
Zollverein, tsōl′fē-rīn; zŏl′fĕr-īn (Stor.).
Zoroaster, zō-rō-ăs′tĕr, *not* zō′rō-ăs-tĕr.
Zorrilla y Moral, thŏr-ēl′yä ē mō-räl′.
Zutphen, zŭt′fĕn.
Zuyder Zee, zī′dĕr zē; Dutch pron., zoi′dĕr zā.
Zwingle, zwĭng′gl.
Zwingli, zwĭng′glē; Ger. pron., tsving′lē.

DICTIONARY OF ABBREVIATIONS.

A., a. Adjective.
A. Alto; Argon.
A., ans. Answer.
a., @ (Lat. *ad*), To; At.
a, aa. The like quantity of each.
A. A. Associate of Arts.
A. A. G. Assistant Adjutant General.
A. A. A. S. American Association for the Advancement of Science.
A. A. S. (Lat. *Academiae Americanae Socius*), Fellow of the American Academy.
A. A. S. S. (Lat. *Academiae Antiquarinae Societatis Socius*), Member of the American Antiquarian Society.
A. B. (Lat. *artium baccalaureus*), Bachelor of Arts.
Abbr., Abbrev. Abbreviated, Abbreviation.
Abl., ablat. Ablative.
Abp. Archbishop.
A. B. S. American Bible Society.
A. C. (Lat. *ante Christum*), Before Christ; Analytical Chemist.
Acad. Academy.
A. C. A. American Congregational Association.
Acc., Accus. Accusative.
Acc., Acct. Account.
A. D. (Lat. *anno Domini*), In the year of our Lord.
A. D. C. Aide-de-camp.
Ad., advt. Advertisement.
Adj. Adjective.
Adjt. Adjutant.
Adjt. Gen. Adjutant General.
Ad lib., Ad libit. (Lat. *ad libitum*), At pleasure.
Adm. Admiral.
Admr. Administrator.
Admx. Administratrix.
Adv. Adverb.
Ae., Aet. (Lat. *aetatis*), Of Age, Aged.
A. F. A. Associate of the Faculty of Actuaries.
A. G., Adjt. Gen. Adjutant General.
Ag. (Lat. *argentum*), Silver.
Agl. Dept. Agricultural Department.
Agr., Agric. Agriculture, Agricultural.
Agt. Agent.
A. H. (Lat. *anno Hegirae*), In the year of the Hegira, or flight of Mohammed.
A. H. S. (Lat. *anno humanae salutis*), In the year of human salvation.
A. I. A. Associate of the Institute of Actuaries; American Institute of Architecture.
A. I. C. E. Associate of the Institute of Civil Engineers.
A. L. of H. American Legion of Honor.
Ala. Alabama.
Alas. Alaska.
Ald. Alderman.
Alex. Alexander.
Alf. Alfred.
Alg. Algebra.
Al. Aluminium; aluminum.
A. M. (Lat. *anno mundi*), In the year of the world.
A. M. (Lat. *ante meridiem*), Before noon.
A. M. (Lat. *artium magister*), Master of Arts.
Am., Amer. America, American.
Amer. Phil. Soc. American Philosophical Society.
Amt. Amount.
A. N. Anglo-Norman.
an. (Lat. *anno*), In the year.
Anal. Analysis.
Anat. Anatomy, Anatomical.
Anc. Ancient.
Anon. Anonymous.
Ans. Answer.
A. N. S. S. Associate of the Normal School of Science.
Ant., Antiq. Antiquities, Antiquarian.
Anthrop. Anthropology, Anthropological.
A. O. U. American Ornithologists' Union.
A. O. U. W. Ancient Order of United Workmen.
Ap. Apostle.
Apoc. Apocalypse, Apocrypha.
Apog. Apogee.
App. Appendix; Apostles.
approx. Approximate, -ly.
Apr. April.
A. P. S. Associate of the Pharmaceutical Society.
Aq. (Lat. *aqua*), Water.
A. P. A. American Protestant Association; American Protective Association.
A. Q. M. Assistant Quartermaster.
A. Q. M. G. Assistant Quartermaster General.
A. R. (Lat. *anno regni*), In the year of the reign.
Ar., Arab. Arabic, Arabian.
Ar., Arr. Arrive, Arrives, Arrived, Arrival.
A. R. A. Associate of the Royal Academy.
Arab. Arabic, Arabian.
Aram. Aramaic.
Arch. Architecture.
Archaeol. Archaeology.
Archd. Archdeacon.
A. R. H. A. Associate of the Royal Hibernian Academy.
Arith. Arithmetic, Arithmetical.
Ariz. Arizona.
Ark. Arkansas.
Arm. Armenian; Armoric.
Arr. Arrive, Arrives, Arrived, Arrival.
A. R. R. (Lat. *anno regni regis* or *reginae*), In the year of the king's (or queen's) reign.
A. R. S. A. Associate of the Royal Scottish Academy.
A. R. S. L. Associate of the Royal Society of Literature.
A. R. S. M. Associate of the Royal School of Mines.
Art. Article.
A. S., A.-S. Anglo-Saxon.
As. Arsenic.
Asst. Assistant.
A. S. S. U. American Sunday School Union.
Assyr. Assyrian.
Astrol. Astrology.
Astron. Astronomy, Astronomical.
A. T. S. American Tract Society.
Atty. Attorney.
Atty. Gen. Attorney General.
Au. (Lat. *aurum*), Gold.
A. U. A. American Unitarian Association.
A. U. C. (Lat. *anno urbis conditae*), In the year from the building of the city—Rome.
Aug. Augmentative.
Aug. Augustus; August.
Auxil. Auxiliary.
A. V. Authorized Version.
A. V. Artillery Volunteers.
Avoir. Avoirdupois.

B. Bass (*Music*); Book; Boron.
B., Brit. British.
b. Born.
B. A. Bachelor of Arts. [*A. B.*]
Ba. Barium.
Bal. Balance.
Balt., Balto. Baltimore.
Bank. Banking.
Bap., Bapt. Baptist.
Bar. Barrel; Barometer.
Bart., Bt. Baronet.
Bat., Batt. Battalion.
bbl., bbls. Barrel, Barrels.
B. C. Before Christ.
B. Ch. (Lat. *baccalaureus chirurgiae*), Bachelor of Surgery.
B. C. L. (Lat. *baccalaureus civilis legis*), Bachelor of Civil Law.
B. D. (Lat. *baccalaureus divinitatis*), Bachelor of Divinity.
Bd. Bound.
Bdls. Bundles.
Bds. Bound in boards.
B. E. Bachelor of the Elements.
Beds. Bedfordshire.
Belg. Belgic, Belgian.
Ben., Benj. Benjamin.
Berks. Berkshire.
Bi. Bismuth.
Bib. Bible, Biblical.
Biog. Biography, Biographical.
Biol. Biology, Biological.
B. L., B. LL. (Lat. *baccalaureus legum*), Bachelor of Laws.
B. L. S. Bachelor of the Library of Science.
bls. Bales.
B. M. (Lat. *baccalaureus medicinae*), Bachelor of Medicine.
B. M., B. Mus. (Lat. *baccalaureus musicae*), Bachelor of Music.
B. O. Branch Office.
B. O. Bachelor of Oratory.
Bohem. Bohemian.
Bot. Botany, Botanical.
B. O. U. British Ornithologists' Union.
Bp. Bishop.
Br., Bro. Brother.
Bret. Bas-Breton, or Celtic of Brittany.
Brig. Brigade.
Brig. Gen. Brigadier General.
Brit. Britain, Britannia, British.
Bro. Bromine.
B. S. Bachelor of Surgery; Bachelor of Science.
B. Sc. (Lat. *baccalaureus scientiae*), Bachelor of Science.
B. S. L. Botanical Society, London.
Bt. Baronet.
bush. Bushel.
B. V. Blessed Virgin.
B. V. M. Blessed Virgin Mary.
bx., bxs. Box, Boxes.

C. Cent, Cents; Centigrade; Consul; Centime, Centimes; a hundred; Carbon.
C., Cap. (Lat. *caput*), Chapter.
Ca. Calcium.
C. A. Chartered Accountant.
Cal. California; Calendar.
Cam., Camb. Cambridge.
Cant. Canticle; Canterbury.
Cantab. (Lat. *Cantabrigiensis*), Of Cambridge.
Cantuar., Cant. (Mid. Lat. *Cantuaria*), Canterbury.
Cap. (Lat. *caput*), Capital; Chapter.
Caps. Capitals.
Capt. Captain.
Card. Cardinal.
Cath. Catholic.
Cb. Columbium (Niobium).
C. B. Companion of the Bath.
C. C. Catholic Clergyman, Catholic Curate.
c. c. Cubic centimeter.
Cd. Cadmium.
C. D. V. Carte-de-Visite.
Ce. Cerium.
C. E. Civil Engineer.
Cel. Celsius.
Celt. Celtic.
Cent. (*centum*), A hundred; Centigrade.
Cert., Certif. Certify; Certificate.
Cf. (Lat. *confer*), Compare.
C. ft. Cubic feet.
C. G. Coast Guard; Commissary General; Consul General.
C. G. S. Centimeter-Gramme-Second.
C. H. Court House.
Ch. Church; Chapter.
Chal. Chaldron.
Chal., Chald. Chaldee, Chaldean, Chaldaic.
Chan. Chancellor.
Chap. Chapter.

Chas. Charles.
Chem. Chemistry, Chemical.
Ch. Hist. Church History.
Chin. Chinese.
Chr. Christ; Christian; Christopher.
Chron. Chronology, Chronological.
C. I. [Order of the] Crown of India.
Cic. Cicero.
C. I. E. Companion of the Order of the Indian Empire.
Cin. Cincinnati.
Cit. Citation; Citizen.
Civ. Civil.
C. J. Chief Justice.
cl. Centiliter.
Cl. Clergyman; Chlorin.
Class. Classical.
Clk. Clerk.
cm. Centimeter; *cm.*2 Square centimeter; *cm.*3 Cubic centimeter.
c. m. Cubic meter.
C. M. Certificated Master; Common meter.
C. M. (Lat. *chirurgiae magister*), Master in Surgery.
C. M. G. Companion of the Order of St. Michael and St. George.
Cml. Commercial.
c. mm. Cubic millimeter.
C. M. Z. S. Corresponding Member of the Zoölogical Society.
Co. Company; County; Cobalt.
C. O. D. Cash on delivery; Collect (payment) on delivery.
Cogn. Cognate.
Col. Colonel; Colonial; Colossians; Column.
Coll. College; Collector; Collection.
Colloq. Colloquial, Colloquialism, Colloquially.
Colo. Colorado.
Com. Commander; Commerce; Commissioner; Committee; Commodore; Common.
Comm. Commentary; Commerce.
Comp. Compare; Comparative; Compound, Compounded.
Compar. Comparative.
Compos. Composition.
Com. ver. Common Version.
Con. (Lat. *contra*), Against.
Conch., Conchol. Conchology.
Con. Cr. Contra Credit.
Cong. Congregation, Congregational, Congregationalist; Congress.
Conj. Conjunction; Conjugation.
Conn. Connecticut.
Con. Sect. Conic Section.
Contr. Contracted, Contraction.
Cop., Copt. Coptic.
Cor. Corinthians.
Cor. Mem. Corresponding Member.
Corn. Cornwall; Cornish.
Corrup. Corruption, Corrupted.
Cor. Sec. Corresponding Secretary.
Cos. Cosine.
C. P. Clerk of the Peace; Common Pleas.
C. P. A. Certified Public Accountant.
C. P. C. Clerk of the Privy Council.
C. P. S. (Lat. *custos privati sigilli*), Keeper of the Privy Seal.
Cr. Credit, Creditor; Chromium.
C. R. (Lat. *Civis Romanus*), Roman Citizen.
C. R. (Lat. *custos rotulorum*), Keeper of the Rolls.
Cres. Crescendo.
Crim. con. Criminal conversation, or adultery.
Crystall., Crystallog. Crystallography.
Cs. Caesium.
C. S. A. Confederate States of America.
C. S. Court of Sessions; Clerk to the Signet; Civil Service.
C. S. I. Companion of the Star of India.
Csk. Cask.
Ct. (Lat. *centum*), A hundred.
Ct. Court.
Ct., Conn. Connecticut.
C. T. Certified Teacher.
C. T. A. U. Catholic Total Abstinence Union.
Cu. (Lat. *cuprum*), Copper.
Cub., Cu. ft. Cubic, Cubic foot.
cu. cm. Cubic centimeter.
cu. dm. Cubic decimeter.
cum d. (Lat. *cum dividendo*), With dividend.
Cur., Curt. Current—this month.
Cwt. A hundredweight; Hundredweights.
Cyc. Cyclopaedia.

D. Deputy.
d. (Lat. *denarius, denarii*), A penny, Pence.
d. Died.
Dan. Daniel; Danish.
Dat. Dative.
Dav. David.
D. C. (Ital. *da capo*), From the beginning.
D. C., Dist. Col. District of Columbia.
D. C. L. Doctor of Civil (or Canon) Law.
D. D. (Lat. *divinitatis doctor*), Doctor of Divinity.
D. D. D. (Lat. *dat, dicat, dedicat*), He gives, devotes, and consecrates; the formula by which gifts were consecrated to the gods of Rome. Also (Lat. *dono dedit dedicavit*), He gave and consecrated as a gift.
D. D. S. Doctor of Dental Surgery.
D. E. Dynamic Engineer.
D. Eng. Doctor of Engineering.
Dec. December.
decim. Decimeter.
Def. Definition.
Deft. Defendant.
Deg. Degree, Degrees.
Del. Delaware.
del. (Lat. *delineavit*), He (or she) drew.
Dep., Dept. Department.
Dep. Deputy.
Der. Derived, Derivation.
Deut. Deuteronomy.
D. F. Dean of the Faculty; Defender of the Faith.
dg. Decigram.
Dg. Dekagram.
D. G. (Lat. *Dei gratia*), By the grace of God.
Dict. Dictionary.
Dim., Dimin. Diminutive.
Dis., Disct. Discount.
Dist. District.
Dist. Atty. District Attorney.
Div. Divide; Dividend; Division; Divisor.
dl. Deciliter.
Dl. Dekaliter.
D. Lit., D. Litt. Doctor of Literature.
D. L. O. Dead Letter Office.
dm. Decimeter; *dm.*2 Square decimeter; *dm.*3 Cubic decimeter.
Dm. Dekameter; *Dm.*2 Square dekameter; *Dm.*3 Cubic dekameter.
D. M., D. Mus. Doctor of Music.
D. M. D. Doctor of Dental Medicine.
D. O. Doctor of Osteopathy.
Do. (Ital. *ditto*), The same.
Doc. Document.
Dols. Dollars.
Dom. Econ. Domestic Economy.
Doz. Dozen.
Dpt. Deponent.
Dr. Debtor; Doctor; Dram, Drams.
Dram. Dramatic, Dramatically.
D. S. (Ital. *dal segno*), From the sign.
D. Sc. Doctor of Science.
dst. Decister.
Dst. Dekaster.
D. T. (Lat. *doctor theologiae*), Doctor of Theology.
Du., Dut. Dutch.
Dub. Dublin.
Duo. 12*mo.* Duodecimo (twelve folds).
D. V. (Lat. *Deo volente*), God willing.
D. V. M. Doctor of Veterinary Medicine.
D. V. S. Doctor of Veterinary Surgery.
Dwt. (Lat. *denarius*, and English *weight*), Pennyweight, Pennyweights.
Dynam. Dynamics.

E. East, Eastern; English; Edinburgh; Erbium.
Ea. Each.
E. Aram. East Aramaean, generally called Chaldee.
Eben. Ebenezer.
E. C. Eastern Central; Established Church.
Eccl., Eccles. Ecclesiastical.
Eccles., Ecclesiol. Ecclesiology.
Econ. Economy.
Ed. Editor; Edition; Edinburgh.
Ed., Edm. Edmund.
Edin. Edinburgh.
E. D. S. English Dialect Society.
Edw. Edward.
E. E. Errors excepted.
E. E. Electrical Engineer.
e. g. (Lat. *exempli gratia*), For example.
E. I. East Indies, East Indian.
E. I. C., E. I. Co. East India Company.
E. I. C. S. East India Company's Service.
Elec., Elect. Electric, Electricity.
Eliz. Elizabeth, Elizabethan.
Emp. Emperor, Empress.
Ency., Encyclo. Encyclopaedia.
E. N. E. East-north-east.
Eng. England, English.
Eng., Engin. Engineer, Engineering.
Eng. Dept. Department of Engineers.
Ent., Entom. Entomology, Entomological.
Env. Ext. Envoy Extraordinary.
Eph. Ephesians; Ephraim.
Epiph. Epiphany.
Epis. Episcopal.
Epist. Epistle, Epistolary.
Eq. Equal, Equivalent.
Equiv. Equivalent.
Esd. Esdras.
E. S. E. East-south-east.
Esp., Espec. Especial, Especially.
Esq., Esqr. Esquire.
et al. (Lat. *et alibi*), And elsewhere.
et al. (Lat. *et alii, aliae,* or *alia*), And others.
etc., &c. (Lat. *et caeteri, caeterae,* or *caetera*), And others, and so forth.
Eth. Ethiopia, Ethiopian.
Ethnol. Ethnology, Ethnological.
et seq. (Lat. *et sequentes,* or *sequentia*), And the following.
Etym. Etymology.
Ex. Example; Examined; Exception; Exodus.
Exc. Excellency; Except, Excepted.
Exch. Exchange; Exchequer.
Exd. Examined.
Ex. Doc. Executive Document.
Exec. Executor.
Execx. Executrix.
Ex. Gr. (Lat. *exempli gratia*), For example.
Exod. Exodus.
Exon. (Lat. *Exonia*), Exeter.
Exr. Executor.
Ez. Ezra.
Ezek. Ezekiel.
E. & O. E. Errors and omissions excepted.

F. Fellow; Folio; Fahrenheit; Fluorin.
f. Farthing, Farthings.
f., fem. Feminine.
f. Franc, Francs.
ft. Foot, Feet.
Fahr. Fahrenheit.
F. A. S. Fellow of the Society of Arts.
F. & A. M. Free and Accepted Masons.

F. A. S. E. Fellow of the Antiquarian Society, Edinburgh.
F. B. S. E. Fellow of the Botanical Society of Edinburgh.
Fe. (Lat. *ferrum*), Iron.
F. C. Free Church [of Scotland].
Fcp. Foolscap.
F. C. P. S. Fellow of the Philosophical Society, Cambridge.
F. C. S. Fellow of the Chemical Society.
F. D., Fid. Def. (Lat. *Fidei Defensor*), Defender of the Faith.
Feb. February.
Fec. (Lat. *fecit*), He or she did it.
F. E. I. S. Fellow of the Educational Institute of Scotland.
Fem. Feminine.
F. E. S. Fellow of the Entomological Society; Fellow of the Ethnological Society.
Feud. Feudal.
F. F. V. First Families of Virginia.
F. G. S. Fellow of the Geological Society.
F. I. A. Fellow of the Institute of Actuaries.
F. I. C. Fellow of the Chemical Institute.
fi. fa. Fieri facias.
Fig. Figure, Figures, Figurative, Figuratively.
Finn. Finnish.
F. K. Q. C. P. I. Fellow of the King's and Queen's College of Physicians, Ireland.
Fl. Flemish; Florin, Florins; Flourished.
Fla. Florida.
Flem. Flemish.
F. L. S. Fellow of the Linnaean Society.
F. M. Field Marshal.
Fo., Fol. Folio.
F. O. Foreign Office; Field Officer.
F. O. B. Free on board.
For. Foreign.
Fort. Fortification.
F. P. Fire Plug.
F. P. S. Fellow of the Philological Society.
Fr. France; French; Francis; Francs.
fr. From.
F. R. A. S. Fellow of the Royal Astronomical Society.
F. R. C. P. Fellow of the Royal College of Physicians.
F. R. C. P. E. Fellow of the Royal College of Physicians, Edinburgh.
F. R. C. S. Fellow of the Royal College of Surgeons.
F. R. C. S. E. Fellow of the Royal College of Surgeons, Edinburgh.
F. R. C. S. I. Fellow of the Royal College of Surgeons, Ireland.
Fred. Frederick.
Freq. Frequentative.
F. R. G. S. Fellow of the Royal Geographical Society.
F. R. H. S. Fellow of the Royal Horticultural Society.
F. R. Hist. S. Fellow of the Royal Historical Society.
Fri. Friday.
Fries. Friesland.
Fris. Frisian.
F. R. Met. S. Fellow of the Royal Meteorological Society.
F. R. M. S. Fellow of the Royal Microscopical Society.
F. R. S. Fellow of the Royal Society.
F. R. S. E. Fellow of the Royal Society, Edinburgh.
F. R. S. L. Fellow of the Royal Society of Literature.
F. R. S. S. Fellow of the Royal Statistical Society.
F. S. A. Fellow of the Society of Arts, or of Antiquaries.
F. S. A. Scot. Fellow of the Society of Antiquaries of Scotland.
Ft. Foot, Feet; Fort.
Fth. Fathom.
Fur. Furlong.
Fut. Future.
F. Z. S. Fellow of the Zoölogical Society.

G. Genitive; Guinea, Guineas; Gulf.
g., gm. Gram.
Ga. Georgia; Gallium.
G. A. General Assembly.
Gad. Gadhelic.
Gael. Gaelic.
Gal. Galatians.
Gal., Gall. Gallon, Gallons.
Galv. Galvanism, Galvanic.
G. A. R. Grand Army of the Republic.
G. B. Great Britain.
G. B. & I. Great Britain and Ireland.
Gd. Gadolinum.
Ge. Germanium.
G. C. B. Grand Cross of the Bath.
G. C. H. Grand Cross of the Guelphs of Hanover.
G. C. L. H. Grand Cross of the Legion of Honor.
G. C. M. G. Grand Cross of St. Michael and St. George.
G. C. S. I. Grand Commander of the Star of India.
G. D. Grand Duke, Grand Duchess.
Gen. General; Genesis; Genitive.
Gend. Gender.
Genit. Genitive.
Gent., Gentn. Gentleman, Gentlemen.
Geo. George.
Geog. Geography, Geographical.
Geol. Geology, Geological.
Geom. Geometry, Geometrical.
Ger., Germ. German, Germany.
Gi. Gill, Gills.
G. L. Grand Lodge.
Gl. Glucinum (Beryllium).
Gm. Gram.
G. M. Grand Master.
Go., Goth. Gothic.
G. O. M. Grand old man (applied to Gladstone).
Gov. Governor.
Gov. Gen. Governor General.
Govt. Government.
G. P. O. General Post Office.
Gr. Grain, Grains; Great; Greek; Gram; Gross.
Gram. Grammar, Grammatical.
Gro. Gross.
G. T. Good Templars; Grand Tyler.
Gtt. (Lat. *gutta, guttae*), Drop, Drops.
Gun. Gunnery.

H. Hour, Hours; Hydrogen.
Ha. Hektar.
Hab. Habakkuk.
Hag. Haggai.
Hants. Hampshire.
H. B. C. Hudson Bay Company.
H. B. M. His (or Her) Britannic Majesty.
H. C. Heralds' College; House of Commons.
H. C. M. His (or Her) Catholic Majesty.
He. Helium.
h. e. (Lat. *hoc est, hic est*), This or that is, here is.
Heb., Hebr. Hebrew, Hebrews.
Her. Heraldry, Heraldic.
Hf.-bd. Half-bound.
H. G. Horse Guards.
Hg. (Lat. *hydrargyrum*), Mercury; Hektogram.
H. H. His (or Her) Highness; His Holiness (the Pope).
Hhd. Hogshead, Hogsheads.
H. I. H. His (or Her) Imperial Highness.
Hind. Hindu, Hindustan, Hindustani.
Hist. History, Historical.
H. J., H. J. S. (Lat. *hic jacet, hic jacet sepultus*), Here lies, Here lies buried.
Hl. Hektoliter.
Hm. Hektometer; *Hm.2* Square hektometer.
H. M. His (or Her) Majesty.
H. M. P. (Lat. *hoc monumentum posuit*), Erected this monument.
H. M. S. His (or Her) Majesty's Service, Ship, or Steamer.
Hon., Honble. Honorable.
Hond. Honored; Honduras.
Hor., Horol. Horology, Horological.
Hort., Hortic. Horticulture, Horticultural.
Hos. Hosea.
H. P. Half Pay; High Priest; Horse Power.
H. R. House of Representatives.
H. R. E. Holy Roman Empire, or Emperor.
H. R. H. His (or Her) Royal Highness.
H. R. I. P. (Lat. *hic requiescit in pace*), Here rests in peace.
H. S. (Lat. *hic situs*), Here lies.
H. S. H. His (or Her) Serene Highness.
H. T. Hawaii Territory.
Hum., Humb. Humble.
Hun., Hung. Hungary, Hungarian.
Hund. Hundred.
Hyd., Hydros. Hydrostatics.
Hydraul. Hydraulics.
Hydros. [HYD.]
Hypoth. Hypothesis, Hypothetical.

I. Island; Iodine.
Ia. Iowa.
Ib., Ibid. (Lat. *ibidem*), In the same place.
Icel. Iceland, Icelandic.
Ich., Ichthy. Ichthyology.
Id. (Lat. *idem*), The same.
Ida. Idaho.
I. e. (Lat. *id est*), That is.
I. H. S. (Lat. *Iesus* [*Jesus*] *Hominum Salvator*), Jesus, the Saviour of Men.
Ill. Illinois.
Imp. (Lat. *imperator*), Emperor; Imperial; Impersonal.
Imp., Impf. Imperfect.
Imper. Imperative.
In. Inch, Inches.
Incog. (Ital. *incognito, incognita*), Unknown.
Ind. India, Indian; Indiana; Indium.
Indic. Indicative.
Ind. Ter. Indian Territory.
Inf., Infin. Infinitive.
In lim. (Lat. *in limine*), At the outset.
In loc. (Lat. *in loco*), In its place.
I. N. R. I. (Lat. *Iesus* [*Jesus*] *Nazarenus Rex Iudaeorum*), Jesus of Nazareth, King of the Jews.
Ins. Insurance.
Ins. Gen. Inspector General.
Inst. Instant, the present month; Institute, Institution.
Int. Interest.
Int. Dept. Department of the Interior.
Intens. Intensive; Intensative.
Interj. Interjection.
Intrans. Intransitive.
In trans. (Lat. *in transitu*), On the passage.
Int. Rev. Internal Revenue.
Introd. Introduction.
Io. Iowa.
I. O. F. Independent Order of Foresters.
I. O. G. T. Independent Order of Good Templars.
I. O. O. F. Independent Order of Odd Fellows.
I. O. R. M. Improved Order of Red Men.
I. O. S. M. Independent Order of Sons of Malta.
I. O. U. I owe you.
i. q. (Lat. *idem quod*), The same as.
Ir. Ireland, Irish; Iridium.
Irreg. Irregular.
Is., Isa. Isaiah.
I. S. Irish Society.
Isl. Island.
I. S. M. Jesus Salvator Mundi.
It., Ital. Italy; Italic; Italian.
Itin. Itinerary.

J. Judge; Justice.
J. A. Judge Advocate.
Jac. Jacob, Jacobus (— James).
J. A. G. Judge Advocate General.
Jan. January.
Jap. Japan, Japanese.
Jas. James.
Jav. Javanese.
J. C. Jesus Christ.
J. C. D. (Lat. *juris civilis doctor*), Doctor of Civil Law.
J. D. (Lat. *jurum doctor*), Doctor of Laws.
Jer. Jeremiah.
J. G. W. Junior Grand Warden.
J. H. S. [*I. H. S.*].
Jno. John.
Jour. Journey.
Jon., Jona. Jonathan.
Jos. Joseph.
Josh. Joshua.
Jour. Journal.
J. P. Justice of the Peace.
Jr. Juror; Junior.
J. U. D. (Lat. *Juris utriusque doctor*), Doctor of both laws (*i. e.*, of civil and canon law).
Jud. Judith.
Judg. Judges.
Jul. July; Julius; Julian.
Jul. Per. Julian Period.
Jun. June.
Jun., Junr. Junior.
Juris. Jurisprudence.

K. King; Knight; (Lat. *kalium*), Potassium.
Kan., Kas., Ks. Kansas.
K. B. Knight of the Bath.
K. B. King's Bench.
K. C. King's Counsel.
K. C. B. Knight Commander of the Bath.
K. C. H. Knight Commander of the Order of Hanover.
K. C. M. G. Knight Commander of St. Michael and St. George.
K. C. S. I. Knight Commander of the Star of India.
K. E. Knight of the Eagle.
Ken., Ky. Kentucky.
Kg. Kilogram.
K. G. Knight of the Garter.
K. G. C. Knight of the Grand Cross.
K. G. C. B. Knight of the Grand Cross of the Bath.
K. G. E. Knight of the Golden Eagle.
K. G. F. Knight of the Golden Fleece.
K. G. H. Knight of the Guelphs of Hanover.
Ki. Kings.
Kilog. Kilogram.
Kilom., Kilo. Kilometer.
Kingd. Kingdom.
kl. Kiloliter.
K. L. B. Knight of Leopold of Belgium.
K. L. H. Knight of the Legion of Honor.
Km. Kilometer; *Km.*2 Square kilometer; *Km.*3 Cubic kilometer.
K. M. Knight of Malta.
Knick. Knickerbocker.
Knt. Knight.
K. of H. Knights of Honor.
K. of L. Knights of Labor.
K. of P. Knights of Pythias.
K. P. Knight of St. Patrick.
Kr. Krypton.
K. R. N. S. Knight of the Royal North Star (Sweden).
Ks. Kansas.
K. S. Knight of the Sword (Sweden).
Kt. Knight.
K. T. Knight of the Thistle; Knight Templar.
K. T. S. Knight of Tower and Sword (Portugal).
Ky. Kentucky.

L. Latin; Lake; Lord; Lady.
l. Liter.
L., l., £. (Lat. *libra*), Pound, Pounds (sterling).
L., lb., lb. (Lat. *libra*), Pound, Pounds (weight).
La. Louisiana; Lanthanum.
L. A. Law Agent; Literate in Arts.
Lam. Lamentations.
Lat. Latin; Latitude.
lb. Pound, Pounds (weight).
L. c. Lower case (in printing).
L. c., loc. cit. (Lat. *loco citato*), In the place cited.
L. C. Lord Chamberlain; Lord Chancellor.
L. C. J. Lord Chief Justice.
L. C. P. Licentiate of the College of Preceptors.
Ld. Lord.
Ldp. Lordship.
L. D. S. Licentiate of Dental Surgery.
Leg., Legis. Legislature, Legislative.
Leip. Leipzig.
Lev. Leviticus.
Lex. Lexicon.
Lexicog. Lexicography, Lexicographer, Lexicographical.
L. G. Life Guards.
L. Ger. Low German or Platt-Deutsch.
L. H. D. Doctor of Humanities.
Li. Lithium.
L. I. Light Infantry; Long Island.
Lib. (Lat. *liber*), Book.
Lib. Library, Librarian.
Lieut., Lt. Lieutenant.
Lieut. Col. Lieutenant Colonel.
Lieut. Gen. Lieutenant General.
Lieut. Gov. Lieutenant Governor.
lin. Lineal, or right-line measures; *e. g.*, lin. yd.; lin. ft., etc.
Linn. Linnaeus, Linné, Linnaean.
Liq. Liquor, Liquid.
Lit. Literally, Literature, Literary.
Lit. D., Litt. D. (Lat. *literarum doctor*), Doctor of Literature.
Lith. Lithography.
Liv. Livre.
LL. B. (Lat. *legum baccalaureus*), Bachelor of Laws.
LL. D. (Lat. *legum doctor*), Doctor of Laws.
LL. I. Lord Lieutenant of Ireland.
LL. M. Master of Laws.
L. M. Long Meter.
Lon., Lond. London.
Lon., Long. Longitude.
Loq. (Lat. *loquitur*), He (or she) speaks.
Lou. Louisiana.
Lp. Lordship.
L. P. Lord Provost.
L. S. (Lat. *locus sigilli*), Place of seal.
L. s. d. (Lat. *librae, solidi, denarii*), Pounds, shillings, pence.
Lt. Lieutenant.
Lt. Inf. Light Infantry.
Luth. Lutheran.

m. Meter; *m.*2 Square meter; *m.*3 Cubic meter.
m. Married; Masculine; Mile, Miles; Minute, Minutes.
M. Marquis; Middle; Monday; Morning; Monsieur.
M. (Lat. *mille*), Thousand.
M. (Lat. *meridies*), Meridian; Noon.
M. A. (Master of Arts.) [*A. M.*]
Mac., Macc. Maccabees.
Mach., Machin. Machine, Machinery.
Mad., Madm. Madam.
Mag. Magyar; Magazine.
Maj. Major.
Maj. Gen. Major General.
Mal. Malachi; Malay, Malayan.
Manuf. Manufactures, Manufacturing.
Mar. March; Maritime.
Marq. Marquis.
Mas., Masc. Masculine.
Mass. Massachusetts.
M. Ast. S. Member of the Astronomical Society.
Math. Mathematics, Mathematician, Mathematical.
Matt. Matthew.
M. B. (Lat. *medicinae baccalaureus*), Bachelor of Medicine.
M. B. (Lat. *musicae baccalaureus*), Bachelor of Music.
M. C. Member of Congress; Master of Ceremonies.
Mch. March.
M. C. P. Member of the College of Preceptors.
M. D. (Lat. *medicinae doctor*), Doctor of Medicine.
Md. Maryland.
Mdlle. (Fr. *mademoiselle*), Miss.
Mdse. Merchandise.
M. E. Most Excellent; Military Engineer; Mining Engineer; Mechanical Engineer.
M. E. Methodist Episcopal.
Me. Maine.
Meas. Measure.
Mech. Mechanics, Mechanical.
Med. Medicine, Medical; Mediaeval.
Med. Lat., Mediaev. Lat. Mediaeval Latin.
Mem. Memorandum, Memoranda.
Mess. & Docs. Messages and Documents.
Messrs. (Fr. *messieurs*), Gentlemen.
Met. Metaphysics, Metaphysical.
Metal. Metallurgy.
Metaph. Metaphysics; Metaphorically.
Meteor. Meteorology, Meteorological.
Meth. Methodist.
Meton. Metonymy.
Mex. Mexico.
Mfd., Mfs. Manufactured, Manufactures.
Mfg. Manufacturing.
M. F. H. Master of Foxhounds.
mg. Milligram.
Mg. Magnesium; Myriagram.
M. H. Most Honorable.
M. H. Ger. Middle High German.
Mic. Micah.
M. I. C. E. Member of the Institute of Civil Engineers.
Mich. Michigan; Michaelmas.
Mid. Middle; Midshipman.
Mid. Lat. Latin of the Middle Ages.
Mil., Milit. Military.
M. I. M. E. Member of the Institute of Mining Engineers.
Min. Mineralogy, Mineralogical; Minute, Minutes.
Minn. Minnesota.
Min. Plen. Minister Plenipotentiary.
Miss. Mississippi.
ml. Milliliter.
Ml. Myrialiter.
Mlle. (Fr. *mademoiselle*), Miss.
M. L. S. B. Member of the London School Board.
mm. Millimeter; *mm.*2 Square millimeter; *mm.*3 Cubic millimeter.
Mm. Myriameter.
MM. Their Majesties.
MM. (Fr. *messieurs*), Gentlemen.
Mme. (Fr. *madame*), Madam.
Mn. Manganese.
M. N. A. S. Member of the National Academy of Sciences.
M. N. S. Member of the Numismatical Society.
Mo. Missouri; Month; Molybdenum.
Mod. Modern.
Mod. (Ital. *moderato*), Moderately.
Mon. Monday.
Mons. (Fr. *monsieur*), Sir, Mister.
Mont. Montana.
M. P. Member of Parliament.
M. P. P. Member of Provincial Parliament.
M. P. S. Member of the Pharmaceutical Society; Member of the Philological Society.
Mr. Master, Mister.
M. R. A. S. Member of the Royal Asiatic Society.
M. R. C. P. Member of the Royal College of Physicians.
M. R. C. S. Member of the Royal College of Surgeons.
M. R. C. V. S. Member of the Royal College of Veterinary Surgeons.
M. R. G. S. Member of the Royal Geographical Society.

M. R. I. Member of the Royal Institution.
M. R. I. A. Member of the Royal Irish Academy.
Mrs. Mistress.
M. R. S. L. Member of the Royal Society of Literature.
M. S. Master of Surgery.
M. S. Master of Science.
M. S. (Lat. *memoriae sacrum*), Sacred to the memory of.
MS. Manuscript.
MSS. Manuscripts.
mo., mth. Month.
Mt., Mts. Mount, Mountains.
Mus. Museum; Music, Musical.
Mus. B. (Lat. *musicae baccalaureus*), Bachelor of Music.
Mus. D., Mus. Doc., Mus. Doct. (Lat. *musicae doctor*), Doctor of Music.
M. W. G. M. Most Worthy Grand Master.
Myth. Mythology, Mythological.

N. Noon; North; Noun; Number; New; Neuter; Nitrogen.
Na. (Lat. *natrium*), Sodium.
N. A. North America, North American.
Nah. Nahum.
Nap. Napoleon.
Nat. Natural; National.
Nat. Hist. Natural History.
Nat. Ord. Natural Order.
Nat. Phil. Natural Philosophy.
Naut. Nautical.
N. B. New Brunswick; North Britain (= Scotland).
N. B. (Lat. *nota bene*), Note well, take notice.
N. C. North Carolina.
Nd. Neodymium.
N. D., N. Dak. North Dakota.
Ne. Neon.
N. E. New England; Northeast.
Neb. Nebraska.
Neg. Negative, Negatively.
Neh. Nehemiah.
Nem. con. (Lat. *nemine contradicente*), No one contradicting; unanimously.
Nem. diss. (Lat. *nemine dissentiente*), No one dissenting; unanimously.
Neth. Netherlands.
Neut. Neuter.
Nev. Nevada.
New Test., N. T. New Testament.
N. F. Newfoundland.
N. H. New Hampshire.
N. H. Ger. New High German.
Ni. Nickel.
N. J. New Jersey.
N. L., N. Lat. North Latitude.
N. M. New Mexico.
N. N. E. North-north-east.
N. N. W. North-north-west.
N. O. New Orleans.
No. (Lat. *numero*), Number.
nol. pros. (Lat. *nolle prosequi*), Unwilling to prosecute.
Nom., Nomin. Nominative.
Non con. Non-content, dissentient. (The formula by which Members of the House of Lords vote negatively.)
Non obst. (Lat. *non obstante*), Notwithstanding.
Non pros. (Lat. *non prosequitur*), He does not prosecute.
Non seq. (Lat. *non sequitur*), It does not follow (as a consequence).
n. o. p. Not otherwise provided for.
Nor., Norm. Norman.
Nor. Fr., Norm. Fr. Norman French.
Norm. [NOR.].
Norw. Norway, Norwegian, Norse.
Nos. Numbers.
Nov. November.
N. P. Notary Public.
N. S. New style; Nova Scotia.
n. s. Not specified.
N. S. J. C. (Fr. *Notre Seigneur Jesus Christ*), Our Lord Jesus Christ.
N. T. [NEW TEST.]
Num., Numb. Numbers.
Numis. Numismatic, Numismatology.
N. V. M. Nativity of the Virgin Mary.
N. W. Northwest.
N. W. T. Northwest Territory.
N. Y. New York.
N. Z. New Zealand.

O. Ohio; Old; Oxygen.
ob. (Lat. *obiit*), He (or she) died.
Obad. Obadiah.
Obdt., Obt. Obedient.
Obj. Objective.
Obs. Obsolete.
Oct. October.
Oct., 8vo. Octavo.
O. F. Odd Fellows.
O. H. G. Old High German.
O. H. M. S. On Her Majesty's Service.
O. K. "All correct."
Okl. Oklahoma.
Old. Test., O. T. Old Testament.
Olym. Olympiad.
O. M. Old Measurement.
O. M. I. Oblate of Mary Immaculate.
Op. Opposite, Opposition.
Opt. Optative; Optics, Optical.
Or. Oregon; Oriental.
Ordn. Ordnance.
Orig. Original, Originally.
Ornith. Ornithology, Ornithological.
Os. Osmium.
O. S. Old Style; Old Saxon.
O. S. A. Order of St. Augustine.
O. S. B. Order of St. Benedict.
O. S. F. Order of St. Francis.
O. T. [OLD TEST.].
O. U. A. M. Order of United American Mechanics.
Oxf. Oxford.
Oxon. (Lat. *Oxonia, Oxoniensis*), Oxford; Of Oxford.
Oxonien. (Lat. *Oxoniensis*), Of Oxford.
Oz. Ounce. [The *z* in this contraction and in *viz.* represents an old symbol (3), used to mark a terminal contraction.]

P. Page; Participle; Past; Pole; Port; Phosphorus.
Pa. Pennsylvania.
P. a. Participial adjective.
Paint. Painting.
Pal., Palaeont. Palaeontology, Palaeontological.
Palaeobo. Palaeobotany.
Pa. part. Past participle.
Par. Paragraph; Participle.
Parl. Parliament, Parliamentary.
Part. Participle.
Part. adj. Participial adjective.
Particip. Participial.
Pass. Passive.
Pat. Patrick.
Pathol. Pathological.
Payt. Payment.
Pb. (Lat. *plumbum*), Lead.
P. C. (Lat. *patres conscripti*), Conscript Fathers.
P. C. Police Constable; Privy Council; Privy Councilor.
P. C. S. Principal Clerk of Session.
Pd. Paid; Palladium.
Pd. D. Doctor of Pedagogy.
P. E. Protestant Episcopal.
P. E. I. Prince Edward Island.
Penn. Pennsylvania.
Pent. Pentecost.
Per., Pers. Persian; Person, Personal.
Per an. (Lat. *per annum*), Yearly.
Per cent., Per ct. (Lat. *per centum*), By the hundred.
Perf. Perfect.
Peri. Perigee.
Pers., Persp. Perspective.
Peruv. Peruvian.
Pet. Peter.
P. G. M. Past Grand Master.
Phar., Pharm. Pharmacy.
Ph. B. (Lat. *philosophiae baccalaureus*), Bachelor of Philosophy.
Ph. D. (Lat. *philosophiae doctor*), Doctor of Philosophy.
Phil. Philip; Philippians; Philosophy, Philosophical.
Phil., Phila. Philadelphia.
Philem. Philemon.
Philol. Philology, Philologist, Philological.
Philom. (*Philomathes*). Lover of learning.
Philomath. (*Philomathematicus*). Lover of mathematics.
Philos. Philosophy, Philosophical.
Phil. Soc., Ph. S. Philological Society.
Phil. Trans. Transactions of the Philosophical Society.
Ph. M. Master of Philosophy.
Phen., Phenic. Phenician.
Photog. Photography, Photographic, Photographer.
Phren., Phrenol. Phrenology, Phrenological.
Phys. Physics, Physical; Physiology, Physiological.
Physiol. Physiology, Physiological.
Pinx., Pxt. (Lat. *pinxit*), He (or she) painted it.
Pk. Peck.
Pl. Place; Plate; Plural.
P. L. Poet Laureate.
Plff., Pltff. Plaintiff.
Plu. Plural.
Plup. Pluperfect.
Plur. Plural.
P. M. (Lat. *post meridiem*), Afternoon.
P. M. Past Master; Peculiar Meter; Postmaster.
P. M. G. Postmaster General.
P. O. Post Office.
P. & O. Co. Peninsular and Oriental Steam Navigation Company.
Poet. Poetry, Poetical.
Pol. Polish.
Polit. Econ. Political Economy.
P. O. O. Post Office Order.
Pop. Population.
Port. Portugal, Portuguese.
Poss. Possessive.
Pp. Pages.
P. p. Past participle.
P. P. (Lat. *pater patriae*), Father of his country.
P. P. Parish Priest.
P. P. C. (Fr. *pour prendre congé*), To take leave. [T. T. L.]
Pph. Pamphlet.
P. pr. Present participle.
Pr. Present; Priest; Prince; Praseodymium.
P. R. (Lat. *Populus Romanus*), The Roman people.
P. R. Prize Ring.
P. R. A. President of the Royal Academy.
P. R. C. (Lat. *post Romam conditam*), After the building of Rome. [A. U. C.]
Preb. Prebend.
Pref. Prefix; Preface.
Prep. Preposition.
Pres. President; Present.
Pret. Preterite.
Prim. Primary.
Prin. Principal.
Print. Printing.
Priv. Privative.
Prob. Problem; Probable, Probably.
Prof. Professor.
Pron., Pro. Pronoun; Pronounced; Pronunciation.
Pron. a. Pronominal adjective.
Prop. Proposition.
Pros. Prosody.
Pro tem. (Lat. *pro tempore*), For the time being.
Prov. Proverbs, Proverbial, Proverbially; Provincial, Provincially; Provost.
Provinc. Provincial.
Prox. (Lat. *proximo*), Next; or of next month.
Prs. Pairs.
P. R. S. President of the Royal Society.

P. R. S. A. President of the Royal Scottish Academy.
Prus. Prussia, Prussian.
P. S. (Lat. *post scriptum*), Postscript.
P. S. Privy Seal.
Ps., Psa. Psalm, Psalms.
Psychol. Psychology.
Pt. Part; Payment; Point; Port; Platinum.
P. T. Post Town; Pupil Teacher.
Pub. Public; Published, Publisher.
Pub. Doc. Public Documents.
P. V. Post Village.
Pwt. Pennyweight.
Pxt. [PINX.]
Pyro., Pyrotech. Pyrotechnics.

Q., Qu. Query; Question.
Q. C. Queen's College.
Q. d. (Lat. *quasi dicat*), As if he should say.
Q. e. (Lat. *quod est*), Which is.
Q. E. D. (Lat. *quod erat demonstrandum*), Which was to be proved.
Q. E. F. (Lat. *quod erat faciendum*), Which was to be done.
Q. E. I. (Lat. *quod erat inveniendum*), Which was to be found out.
Q. l. (Lat. *quantum libet*), As much as you please.
Q. M. Quartermaster.
Q. M. G. Quartermaster General.
Qr. Quarterly; Quire.
Q. S. Quarter Sessions.
Q. s. (Lat. *quantum sufficit*), A sufficient quantity.
Qt. Quart.
Qu. Queen; Query; Question.
Quar., Quart. Quarterly.
Quar., 4to. Quarto.
Ques. Question.
Q. v. (Lat. *quod vide*), Which see.
Qy. Query.

R. Railway; Réaumur; River.
R. (Lat. *rex*), King; (Lat. *regina*), Queen.
R. (Lat. *recipe*), Take.
Ra. Radium.
R. A. Royal Academy, Royal Academician; Rear Admiral; Royal Arch; Royal Artillery.
Rabb. Rabbinical.
Rad. (Lat. *radix*), Root.
R. A. M. Royal Academy of Music.
R. A. S. Royal Agricultural Society.
Rb. Rubidium.
R. C. Roman Catholic.
R. D. Rural Dean.
R. E. Royal Engineers; Royal Exchange.
R. E. Reformed Episcopal.
Réaum. Réaumur.
Rec. Recipe.
Recd. Received.
Recpt. Receipt.
Ref. Reference.
Ref. Ch. Reformed Church.
Ref. Pres. Reformed Presbyterian.
Reg. Regular.
Reg., Regr. Registrar.
Reg., Regt. Regiment, Regimental.
Rel. Religion, Religious.
Rel. Pron. Relative Pronoun.
Rem. Remark, Remarks.
Rep. Report; Representative.
Rep., Repub. Republic, Republican.
Res. Resolution.
Retd. Returned.
Rev. Revelation; Revenues; Reverend; Review; Revise.
Revd. Reverend.
Revs. Reverends.
Rev. Stat. Revised Statutes.
Rh. Rhodium.
R. H. A. Royal Horse Artillery.
Rhet. Rhetoric, Rhetorical.
R. H. S. Royal Humane Society.
R. I. Rhode Island.
R. I. P. (Lat. *requiescat in pace*), May he (or she) rest in peace.
Riv. River.
R. M. Royal Mail; Royal Marines.
R. M. A. Royal Marine Artillery; Royal Military Asylum.
R. M. L. I. Royal Marine Light Infantry.
R. M. S. Royal Mail Steamer; Royal Mail Service.
R. N. Royal Navy.
R. N. R. Royal Naval Reserve.
R. O. Receiving Office.
Robt. Robert.
Rom. Roman, Romans.
Rom. Cath. Roman Catholic.
R. P. Regius Professor.
R. R. Right Reverend.
R. R. Railroad.
R. S. A. Royal Scottish Academy.
R. S. E. Royal Society of Edinburgh.
R. S. L. Royal Society of London.
R. S. P. C. A. Royal Society for the Prevention of Cruelty to Animals.
R. S. V. P. (Fr. *Répondez s'il vous plaît*), Please reply.
Rt. Right.
Rt. Hon. Right Honorable.
Rt. Rev. Right Reverend.
R. T. S. Religious Tract Society.
Rt. Wpful. Right Worshipful.
Ru. Ruthenium.
Russ. Russia, Russian.
R. V. Revised Version; Rifle Volunteers.
R. W. Right Worshipful; Right Worthy.
R. W. D. G. M. Right Worshipful Deputy Grand Master.
R. W. G. M. Right Worshipful Grand Master.
R. W. G. R. Right Worthy Grand Representative.
R. W. G. S. Right Worthy Grand Secretary.
R. W. G. T. Right Worthy Grand Treasurer; Right Worthy Grand Templar.
R. W. G. W. Right Worshipful Grand Warden.
R. W. J. G. W. Right Worshipful Junior Grand Warden.
R. W. S. G. W. Right Worshipful Senior Grand Warden.
Ry. Railway.

S. Saint; Saturday; Section; Shilling; Sign; Signor; Solo; Soprano; South; Sun; Sunday; Sabbath; Sulphur.
s. Second, Seconds; See; Singular; Son; Succeeded.
S. A. South Africa; South America.
s. a. (Lat. *secundem artem*), According to the rules of art; (Lat. *sine anno*), Without date.
Sab. Sabbath.
Sam., Saml. Samuel.
Sam., Samar. Samaritan.
Sans., Sansc., Sansk. Sanscrit, Sanskrit.
S. A. S. (Lat. *Societatis Antiquariorum Socius*), Fellow of the Society of Antiquaries.
Sat. Saturday.
Sax. Saxon, Saxony.
Sb. (Lat. *stibium*), Antimony.
S. B. South Britain (England and Wales). [N. B.]
S. C. South Carolina.
S. C. (Lat. *senatus consultum*), A decree of the senate.
Sc. [SCIL., SCULP.]; Scandium.
Scan. mag. (Lat. *scandalum magnatum*), Defamatory expressions to the injury of persons of high office or dignity.
S. caps. or *s. c.* Small capitals. (In printing.)
Sc. B. (Lat. *scientiae baccalaureus*), Bachelor of Science.
Sc. D. (Lat. *scientiae doctor*), Doctor of Science.
Sch. (Lat. *scholium*), A note; Schooner.
Sci. Science.
Sci. fa. Scire facias.
Scil. Sc. (Lat. *scilicet*), Namely; to wit.
S. C. L. Student in Civil Law.
Sclav. Sclavonic.
Scot. Scotland, Scotch, Scottish.
Scr. Scruple, Scruples.
Scrip., Script. Scripture, Scriptural.
Sculp. Sculpture.
Sculp., Sculpt., Sc. (Lat. *sculpsit*), He (or she) engraved it.
s. d. (*sine dividendo*). Without dividend.
S. D. Doctor of Science.
S. D., S. Dak. South Dakota.
S. D. U. K. Society for the Diffusion of Useful Knowledge.
Se. Selenium.
S. E. Southeast.
Sec. Second.
Sec., Sect. Section.
Sec., Secy. Secretary.
Sec. Leg. Secretary of Legation.
Sen. Senate, Senator.
Sen. Doc. Senate Document.
Sep., Sept. September.
Seq. (Lat. *sequentes, sequentia*), The following or the next.
Serg., Sergt. Sergeant.
Serg. Maj. Sergeant Major.
Serj., Serjt. Serjeant.
Serv. Servian.
Sess. Session.
S. G. Solicitor General.
s. g. [SP. GR.]
Sh. Shilling, Shillings.
Si. Silicon.
Sing. Singular.
S. J. Society of Jesus.
S. J. C. Supreme Judicial Court.
Skr. Sanskrit.
Slav. Slavonic.
Sld. Sailed.
Sm. Samarium.
S. M. Sergeant Major.
S. M. Lond. Soc. (Lat. *Societatis Medicae Londiniensis Socius*), Member of the London Medical Society.
Sn. (Lat. *stannum*), Tin.
S. N. (Lat. *secundum naturam*), According to nature, naturally.
Soc., Socy. Society.
S. of Sol. Song of Solomon.
S. O. S. Save our ship.
Sp. Spain, Spanish; Spirit.
s. p. (Lat. *sine prole*), Without issue.
S. P. C. A. Society for the Prevention of Cruelty to Animals.
S. P. C. C. Society for the Prevention of Cruelty to Children.
S. P. C. K. Society for the Promotion of Christian Knowledge.
Spec. Special, Specially.
S. P. G. Society for the Propagation of the Gospel.
sp. gr., s. g. Specific gravity.
S. P. Q. R. (Lat. *Senatus Populusque Romanus*), The Senate and the People of Rome.
s. p. s. (Lat. *sine prole superstite*), Without surviving issue.
sq., Square; *sq. ft.*, Square foot, feet; *sq. in.*, Square inch, inches; *sq. m.*, Square mile, miles; *sq. yd.*, Square yard; *sq. rd.*, Square rod; *sq. cm.*, Square centimeter; *sq. dm.*, Square decimeter; *sq. Dm.*, Square dekameter; *sq. Hm.*, Square hektometer; *sq. Km.*, Square kilometer.
Sr. Senior; Sir; Strontium.
S. R. I. (Lat. *Sacrum Romanum Imperium*), The Holy Roman Empire.
S. R. S. (Lat. *Societatis Regiae Socius*), Fellow of the Royal Society.
SS. Saints.
S. S. Sunday School.
S. S. C. Solicitor before the Supreme Court.
S. S. E. South-south-east.
S. S. W. South-south-west.
St. Saint; Stone; Strait; Street.
st. Ster (metric).
st. (Lat. *stet*), Let it stand (in printing).

Stat. Statute, Statutes; Statuary.
S. T. Sons of Temperance.
S. T. B. Bachelor of Sacred Theology.
S. T. D. (Lat. *sacrae theologiae doctor*), Doctor of Divinity.
ster., stg. Sterling.
St. L. St. Louis.
S. T. P. (Lat. *sacrae theologiae professor*), Professor of Theology.
Str. Steamer.
Subj. Subjunctive.
Subst. Substantive; Substitute.
Suff. Suffix.
Sun., Sund. Sunday.
Sup. Superior; Superlative; Supplement; Supine.
Supp. Supplement.
Supt. Superintendent.
Surg. Surgeon, Surgery.
Surg. Gen. Surgeon General.
Surv. Surveying, Surveyor.
Surv. Gen. Surveyor General.
S. v. (Lat. *sub verbo* or *voce*), Under the word or title.
S. W. Senior Warden; Southwest.
Sw. Sweden, Swedish.
Switz. Switzerland.
Syn. Synonym, Synonymous.
Synop. Synopsis.
Syr. Syria, Syriac; Syrup.

T. Tonneau or ton (metric).
T. Tenor; Ton; Tun; Tuesday.
Ta. Tantalum.
T. A. B. Total Abstinence Brotherhood.
Tab. Table; Tabular statement.
Tan. Tangent.
Tart. Tartaric.
Tb. Terbium.
Te. Tellurium.
Tech. Technical, Technically.
Tenn. Tennessee.
Ter. Territory.
Term. Termination.
Teut. Teutonic.
Tex. Texas.
Text. rec. (Lat. *textus receptus*), The received text.
Th. Thomas; Thursday; Thorium.
Theo. Theodore.
Theol. Theology.
Theor. Theorem.
Thess. Thessalonians.
Tho., Thos. Thomas.
Thu., Thur., Thurs. Thursday.
Ti. Titanium.
Tier. Tierce.
Tim. Timothy.
Tit. Title; Titus.
Tl. Thallium.
Tm. Thulium.
T. O. Turn Over.
Tob. Tobit.
Tom. Tome, volume.
Tonn. Tonnage.
Topog. Topography, Topographical.
Tp. Township.
Tr. Translation, Translator, Translated; Transpose; Treasurer; Trustee.
Trans. Transaction; Translation, Translator, Translated.
Trav. Travels.
Treas. Treasurer.
Trig., Trigon. Trigonometry, Trigonometrical.
Trin. Trinity.
T. T. L. To Take Leave. [P. P. C.]
Tu., Tues. Tuesday.
Turk. Turkey, Turkish.
Typ. Typographer.
Typog. Typography, Typographical.

U. Uranium.
U. C. (Lat. *urbis conditae*), From the building of the city—Rome [A. U. C.]; Upper Canada.
U. J. D. [J. U. D.]
U. K. United Kingdom.
U. K. A. Ulster King at Arms; United Kingdom Alliance.
Ult. (Lat. *ultimo*), Last, of the last month.
um. Unmarried.
Unit. Unitarian.
Univ. University.
Up. Upper.
U. P. United Presbyterian.
U. S. United States.
u. s. (Lat. *ut supra*), As above.
U. S. A. United States of America; United States Army.
U. S. L. United States Legation.
U. S. M. United States Mail; United States Marine.
U. S. M. A. United States Military Academy.
U. S. N. United States Navy.
U. S. N. A. United States Naval Academy.
U. S. S. United States Senate; United States Ship or Steamer.
U. S. S. Ct. United States Supreme Court.
Usu. Usual, Usually.
U. S. V. United States Volunteers.
Ut. Utah.

V. Verb; Verse; Victoria; Violin; Vanadium.
V. (Lat. *versus*), Against.
V. (Lat. *vide*), See.
V. A. Vicar Apostolic; Vice Admiral.
Va. Virginia.
Val. Valve; Value.
Var. Variety.
Vat. Vatican.
v. aux. Verb auxiliary.
V. C. Vice Chancellor; Victoria Cross.
v. def. Verb defective.
V. D. M. (Lat. *Verbum Dei Minister*), Minister of the Word of God.
Ven. Venerable.
V. G. Vicar General.
v. g. (Lat. *verbi gratia*), For example.
v. i. Verb intransitive.
Vice-pres. Vice-president.
vid. (Lat. *vide*), See.
v. imp. Verb impersonal.
v. irr. Verb irregular.
Vis., Visc. Viscount.
viz. (Lat. *videlicet*), Namely, to wit.
v. n. Verb neuter.
Voc. Vocative.
Vol. Volume.
Vols. Volumes.
V. P. Vice-president.
v. r. Verb reflexive.
V. Rev. Very Reverend.
vs. (Lat. *versus*), Against.
V. S. Veterinary Surgeon.
v. t. Verb transitive.
Vt. Vermont.
Vul., Vulg. Vulgate.
Vulg. Vulgar, Vulgarly.
vv. ll. (Lat. *variae lectiones*), Various readings.

W. Wednesday; Week; Welsh; West, Western; (Lat. *wolframium*), Tungsten.
Wall., Wallach. Wallachian.
Wash. Washington.
W. C. Western Central (Postal District, London).
W. C. A. Women's Christian Association.
W. C. T. U. Women's Christian Temperance Union.
Wed. Wednesday.
Wel. Welsh.
w. f. Wrong font (in printing).
Whf. Wharf.
W. I. West Indies; West Indian.
Wis., Wisc. Wisconsin.
Wk. Week.
W. Long. West Longitude.
Wm. William.
W. M. Worshipful Master.
W. N. W. West-north-west.
Wp. Worship.
Wpful. Worshipful.
W. S. Writer to the Signet; West Saxon.
W. S. W. West-south-west.
Wt. Weight.
W. Va. West Virginia.
Wyo. Wyoming.

X. Christ; Xavier.
Xe. Xenon.
Xm., Xmas. Christmas.
Xn. Christian.
Xnty. Christianity.
Xper., Xr. Christopher.
Xt. Christ.
Xtian. Christian.

Y. Year.
Yb. Ytterbium.
Yd. Yard.
Yds. Yards.
Ye. The; Thee.
Y. M. C. A. Young Men's Christian Association.
Y. M. Cath. A. Young Men's Catholic Association.
Y. M. H. A. Young Men's Hebrew Association.
Y. P. S. C. E. Young People's Society of Christian Endeavor.
Yr. Year; Younger; Your.
Ys. Years; Yours.
Yt. Yttrium.
Y. W. C. A. Young Women's Christian Association.

Zach. Zachary.
Zech. Zechariah.
Zeph. Zephaniah.
Z. G., Zoo. Zoölogical Gardens.
Zn. Zinc.
Zoochem. Zoöchemistry, Zoöchemical.
Zoogeog. Zoögeography, Zoögeographical.
Zool. Zoölogy, Zoölogical.
Zr. Zirconium.

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COMMON WORDS AND PHRASES.

FROM THE LATIN AND THE GREEK.

ab extra, From without.
ab hoc et ab hac, From this and from that; confusedly.
ab inconvenienti, From the inconvenience.
ab incunabulis, From the cradle.
ab initio, From the beginning.
ab intra, From within.
ab origine, From the origin or beginning.
ab ovo, From the egg.
ab ovo usque ad mala, From egg to apples, i. e., from the beginning to the end of the menu of a Roman banquet; hence, from first to last, from beginning to end.
absit invidia, Let there be no ill-will.
absque argento omnia vana, Without money all is vain.
absque hoc, Without this.
absque ulla conditione, Unconditionally.
absque ulla fraude, Without any fraud.
abundat dulcibus vitiis, He abounds with pleasant faults.
ab uno disce omnes (From one learn all), From a single example judge the whole.
ab urbe condita, From the building of the city, i. e., Rome. [A. U. C.]
abusus non tollit usum, Abuse is not an argument against proper use.
a capite ad calcem, From head to heel.
accepta, The receipts in accounts.
accessit, He came near; applied to a testimonial for one second in merit.
accusare nemo se debet, nisi coram Deo, No one is bound to accuse himself, except before God.
acerrima proximorum odia, The hatred of the nearest relatives is most intense.
acervatim, By heaps.
acribus initiis, incurioso fine, With eager beginnings, but negligent ending.
a cruce salus, Salvation by the cross.
acti labores jucundi, Finished labors are pleasant.
actum est de republica, It is all over with the commonwealth.
a cuspide corona, A crown from the spear; glory from military exploits.
ad absurdum, To show the absurdity.
ad arbitrium, At will, at pleasure.
a dato, From date or from this time.
ad Calendas Graecas, At the Greek calends, i. e., never, since the Greeks had no calends.
ad captandum, To attract or please.
ad captandum vulgus, To catch the rabble.
addendum; (pl.) *addenda*, A thing to be added; an appendix.
a Deo et rege, From God and the king.
ad eundem (sc. *gradum*), To the same degree.
ad extremum, To the extreme.
ad finem, To the end.
ad gustum, To taste.
ad hominem, Personal; to the individual.
adhuc sub judice lis est, The affair is not yet decided.
a die, From that day.
ad infinitum, To infinity.
ad inquirendum, For inquiry.
ad instar, After the manner of.
ad interim, In the meanwhile.
ad internecionem, To extermination.
ad libitum, At pleasure.
ad modum, In the manner of.
ad multos annos, For many years.
ad nauseam, So as to nauseate.
ad patres, Gathered to his fathers; dead.
ad quod damnum, To what damage.
ad referendum, To be further considered.
ad rem, To the purpose; to the point.
adscriptus glebae, Attached to the soil.
adsum, I am present; I am here.
ad summum, To the highest point or amount.
ad unguem, To a nicety.
ad unum omnes, To a man.
ad utrumque paratus, Prepared for either event.
ad valorem, According to the value.
adversus, Against.
ad vivum, To the life.
aegrescit medendo, It becomes worse from the remedies employed.
aequam servare mentem, To preserve an equable mind.
aequanimiter, With equanimity.
aequo animo, With an equable mind.
aere perennius, More lasting than brass; enduring forever.
aetatis suae, Of his or her age.
afflatus, Inspiration.
agenda, Things to be done.
Agnus Dei, The Lamb of God.
αἱ δ' ἐλπίδες εἰσὶν ἐγρηγορότων ἐνύπνια, Hopes are but the dreams of those who wake.
ἀκόλαστα πάντα γίγνεται δούλων τέκνα, Unbridled ever are the sons of slaves.
alere flammam, To feed the flame.
alias, Elsewhere; otherwise.
aliena optimum frui insania, It is well to profit by the madness of others.
alieni appetens, sui profusus, Lavish of his own property while coveting that of others.
alieni temporis flores, Flowers of past time.
alitur vitium vivitque tegendo, Vice thrives and lives by concealment.
aliud corde premunt, aliud ore promunt, One thing they keep back in the heart, they express another with the mouth.
ἄλλος ἐγώ, A second self. (Definition of a friend.)
alma mater, Fostering mother.
alter ego, Another self.
alter idem, Another precisely similar.
alter ipse amicus, A friend is another self.
alterum alterius auxilio eget, The one needs the assistance of the other.
alterum tantum, As much more.
amantium irae amoris integratio, Lovers' quarrels are a renewal of love.
a maximis ad minima, From the greatest to the least.
ambiguas in vulgum spargere voces, To spread doubtful reports among the people.
amicus humani generis, A friend of the human race.
amicus usque ad aras, A friend even to the altars (of sacrifice); to self-immolation.
amo, I love.
amor nummi, Love of money.
amor patriae, Love of country; patriotism.
ἂν ἔτι μίαν μάχην Ῥωμαίους νικήσωμεν, ἀπολούμεθα παντελῶς, One more such victory over the Romans, and we are utterly undone. (Hence the phrase, "A Pyrrhic Victory.")
anguis in herba, A snake in the grass; a false friend; a lurking danger.
animal disputans, A disputatious creature.
animal implume bipes, An animal without feathers and having two legs. Plato's definition of man.
animus furandi, The intention of stealing.
animus imponentis, The intention of the author or composer.
anno aetatis suae, In the year of his or her age.
anno Christi, In the year of Christ. [A. C.]
anno Domini, In the year of our Lord.
anno humanae salutis, In the year of man's redemption. [A. H. S.]
anno mundi, In the year of the world.
anno salutis, In the year of salvation. [A. S.]
anno urbis conditae, In the year since the city—i. e., Rome—was built.
annus mirabilis, A year of wonders. (A term often applied to 1666 in English History, in which the chief events were: War with the Dutch, the Great Plague, and the Great Fire of London. The title of a poem by Dryden.)
ante, Before.
ante bellum, Before the war.
ante lucem, Before daybreak.
ante meridiem, Before noon.
ante tubam trepidat, He trembles even before the trumpet sounds (for the charge).
ἄνθρωπον ζητῶ, I am seeking a man.
anti, Against.
antiqua homo virtute et fide, A man of old-time virtue and fidelity.
a parte ante, From the part gone before; past.
aperto vivere voto, To live with desires freely expressed.
ἁπλοῦς ἐπ' ἐχθροῖς μῦθος ὁπλίζειν χέρα, An armed right hand is our sole reply to foes.
a posse ad esse, From possibility to reality.
a posteriori, From the effect to cause.
apparatus belli, Materials for war.
apparent rari nantes in gurgite vasto, A few appear swimming here and there in the vast whirlpool.
a priori, From the cause to the effect.
aptat se pugnae, He prepares for the contest.
aqua vitae, Brandy; spirit; alcohol.
arbiter elegantiarum, An authority in matters of taste; master of ceremonies.
arcana caelestia, Celestial secrets.
arcana imperii, State secrets.
arcanum, A secret.

argumentum baculinum, The argument of the club; an appeal to force.
argumentum ad crumenam, An argument to the purse.
argumentum ad hominem, An argument to the man.
argumentum ad invidiam, An argument to envy; an appeal to low passions.
argumentum ad judicium, An argument to the judgment.
ἄριστον μέτρον, The golden mean.
ἄριστον μὲν ὕδωρ, Water is the chief element, *i. e.*, the origin of all things.
arrectis auribus, With attentive ears.
ars est celare artem, True art is to conceal art.
artium magister, Master of arts.
a teneris annis, From tender years.
at spes non fracta, Yet hope is not crushed.
audi alteram partem, Hear the other side.
audit vocatus Apollo, Apollo hears when invoked.
aurea mediocritas, The golden mean.
auri sacra fames, The accursed thirst for gold.
auspicium melioris aevi, An omen of better times.
auxilium ab alto, Help from on high.
Ave, Maria, Hail, Mary.
a verbis ad verbera, From words to blows.
a vinculo matrimonii, From the tie of marriage.

beatae memoriae, Of blessed memory.
bella! horrida bella! Wars! horrid wars!
bella matribus destestata, Wars, so detested by mothers.
βέλτιον γὰρ ὀψιμαθῆ καλεῖσθαι, ἢ ἀμαθῆ, It is better to be called late-learned than unlearned.
beneplacito, At pleasure.
benigno numine, By the favor of Providence.
biennium, A period of two years.
bis pueri senes, Old men are twice boys.
bona fide, In good faith.
bona fides, Good faith.
brevi manu, With a short hand, offhand, immediately, summarily.
brevis esse laboro obscurus fio, If I labor to be brief, I become obscure.
brutum fulmen, A harmless thunderbolt.

cacoethes carpendi, A mania for finding fault.
cacoethes loquendi, A rage for speaking.
cacoethes scribendi, A passion for scribbling.
cadit quaestio, The question drops; there is no further discussion.
caetera desunt, The rest is wanting.
caeteris paribus, Other things being equal.
candida Pax, White-robed Peace.
cantate Domino, Sing unto the Lord. (The opening words in the Latin of many Psalms.)
caput, Head; chapter.
caput mortuum, The worthless remains.
caret initio et fine, It wants beginning and end.
casus belli, A cause justifying war; a ground of war.
casus conscientiae, A case of conscience.
casus foederis, The end of the league.
casus fortuitus, A fortuitous occurrence.
causa sine qua non, An indispensable condition.
caveat actor, Let the doer beware.
caveat emptor, Let the buyer beware.
cave canem, Beware of the dog.
cedant arma togae, Let arms yield to the gown; let military authority give place to law.
cede Deo, Submit to Providence.
Christo et Ecclesiae, For Christ and the Church.
χρυσὸς δ' ἀνοιγει πάντας κἀίδου πύλας, Gold opens every gate, even that of hell.
circuitus verborum, A circumlocution.
circulus in probando, A circle in the proof; the fallacy of using the conclusion as one of the premises.
cis, This side of.
cito, Quickly.
coena Domini, The Lord's Supper.
cogito, ergo sum, I think, therefore I am.
comitas inter gentes, Comity between nations.
commune bonum, A common good.
communia proprie dicere, To say common things appropriately.
communibus annis, On the annual average; one year with another.
communi consensu, By common consent.
compos mentis, Of a sound mind.
con commodo, At a convenient rate.
concordia discors, Discordant harmony.
conditio sine qua non, An indispensable condition.
conjunctis viribus, With united powers.
conquiescat in pace, May he rest in peace.
consensus facit legem, Consent makes the law.
consuetudo pro lege servatur, Custom is held as law.
contra bonos mores, Contrary to good manners.
copia verborum, An abundant supply of words; fluency of speech.
coram nobis, In our presence.
coram non judice, Before a person who is not a judge; not before the proper tribunal.
corpus Christi, Body of Christ.
corrigenda, Corrections to be made.
corruptio optimi pessima, The corruption of the best becomes the worst.
cor unum, via una, One heart, one way.
cos ingeniorum, A whetstone for the wits.
crescit eundo, It increases as it goes.
crux criticorum, The puzzle of critics.
crux mathematicorum, The puzzle of mathematicians.
crux medicorum, The puzzle of physicians.
cui bono? What is the good of it?
culpam poena premit comes, Punishment follows close on crime.
cum grano salis, With a grain of salt; with some allowance.
cum privilegio, With privilege.
currente calamo, With a running pen; offhand.
custos morum, The guardian of morality.
custos rotulorum, Keeper of the rolls.

dabit Deus his quoque finem, God will put an end to these also.
damnant quod non intelligunt, They condemn what they do not understand.
damnum absque injuria, A loss without an injury.
data et accepta, Expenses and receipts.
datum, pl. data, A fact or principle granted.
deceptio visus, An optical illusion.
decies repetita placebit, Though ten times repeated it will please.
decrevi, I have decreed.
de die in diem, From day to day.
de gustibus non est disputandum, There is no disputing about tastes.
Dei gratia, By the grace of God.
de jure, By the law; by right.
dele, Blot out, erase.
delectando pariterque monendo, By pleasing while admonishing.
delenda est Carthago, Carthage must be destroyed. (The phrase by which Cato the Elder urged the Roman people to destroy Carthage, the hated rival of Rome, and by which he is said to have concluded every speech which he made in the Roman Senate, even when an irrelevant subject was under discussion.
Δελφικὴ μάχαιρα, A Delphic sword. (A two-edged sword, in reference to the ambiguities of the Delphic oracle.)
de minimis non curat lex, The law does not concern itself with trifles.
de mortuis nil nisi bonum, Let nothing be said of the dead but what is good.
de nihilo nihil, in nihilum nil posse reverti, From nothing nothing, into nothing nothing can return. (The doctrine of the indestructibility of matter.)
de novo, Anew.
Deo date, Give to God.
Deo gratias, Thanks be to God. [D. G.]
de omnibus rebus, et quibusdam aliis, Concerning all things, and certain other things beside. (Said of the literary work of an immature author treating of many subjects.)
Deo monente, God giving warning.
Deo, non fortuna, From God, not from chance.
Deo volente, God willing.
de profundis, Out of the depths. (The first words of the Latin version of Ps. cxxx.)
desideratum, A thing desired.
desuetudo, Disuse.
desunt caetera, The remainder is wanting.
Deus nobis haec otia fecit, God has given us this ease.
Deus vobiscum, God be with you.
dextro tempore, At a favorable time
dictum, A saying; a decision.
dictum de dicto, Report upon hearsay.
dies faustus, A lucky day.
dies infaustus, An unlucky day.
dies irae, Day of wrath; the title of a celebrated Latin hymn.
dii majorum gentium, The gods of the superior houses; the twelve superior gods.
dii penates, Household gods.
disjecta membra, Scattered remains.
docendo discimus, We learn by teaching.
doli incapax, Incapable of mischief.
dominus, Lord.
Dominus vobiscum, The Lord be with you. (The words by which the priest blesses the people in the Roman Church.)
δός μοι ποῦ στῶ καὶ κινῶ τὴν γῆν, Give me a standpoint, and I can move the earth.
do ut des, I give that you may give; the principle of reciprocity.

aramatis personae, The characters of the play.
dulce et decorum est pro patria mori, It is sweet and glorious to die for one's country.
durante vita, During life.

ecce homo, Behold the man! (Applied specifically to a picture of Christ wearing a crown of thorns, when delivered to the people by Pilate.)
e contrario, On the contrary.
editio princeps, The first edition.
ἐγὼ γάρ εἰμι τῶν ἐμῶν ἐμὸς μόνος, Of all my kin I am my only friend.
eheu! fugaces labuntur anni, Alas! our fleeting years slip away.
emeritus, One retired from active official duties.
ἕνα . . . ἀλλὰ λέοντα, One, but a lion.
ἐν νύκτε βουλή, In the night there is counsel; sleep on it.
eo nomine, By that name.
equanimiter, With equanimity.
e regione, In a straight line; exactly opposite.
e re natâ, According to the exigency.
errare est humanum, To err is human.
erratum (pl. errata), An error.
ἧσω γὰρ καὶ ἐγὼ, τὰ δέ κεν Διὶ πάντα μελήσει, I hurl the spear, but Jove directs the blow.
esse, To be; existence.
est modus in rebus, There is a middle course in all things.
esto perpetua, Let it endure forever.
et caetera, And the rest.
et cum spiritu tuo, And with thy spirit.
et sequentes, et sequentia, And those that follow; and what follows.
et tu, Brute! And thou also, Brutus. (The dying exclamation of Caesar, when he saw Brutus among his assassins.)
εὕρηκα, εὕρηκα, I have found it! I have found it!
e vestigio, Instantly.
ex abrupto, Abruptly; suddenly.
ex abundantia, Out of the abundance.
ex adverso, From the opposite side.
ex aequo et bono, According to what is right and good.
ex capite, From the head, from memory.
ex cathedra, From the chair or pulpit; spoken with authority; by virtue of office.
exceptio probat regulam, The exception proves the rule.
exceptis excipiendis, Due exceptions (or allowances) having been made.
excerpta, Extracts.
excudit, He made it.
ex curia, Out of court.
ex delicto, From the crime.
ex dono, By the gift.
exegi monumentum aere perennius, I have reared a monument more lasting than bronze. (Said by Horace in regard to his poems.)
exempli gratia, By way of example. [e. g.]
exeunt, They go out.
exeunt omnes, All go out.
exit, He (or she) goes out.
exitus acta probat, The result justifies the deed.
ex more, According to custom.
ex necessitate rei, From the urgency of the case.
ex nihilo nihil fit, From nothing nothing comes.
ex officio, By virtue of office.
ex opere operato, By outward acts.
ex parte, On one part or side.
experto crede, Believe one who has tried it, or who speaks from experience.
ex post facto, After the deed is done; retrospective.
ex propriis, From one's own resources.
ex tempore, Off hand; without preparation.
extra muros, Outside the walls.
extra ordinem, Extraordinarily.
ex usu, From, or by, use.

facetiae, Jokes.
facile princeps, The acknowledged chief; one who stands undoubtedly first.
facsimile, An exact imitation.
factotum, A man of all work.
fare, fac, Say, do.
fata obstant, The Fates oppose.
fata viam invenient, The Fates will find out a way.
favete linguis, Be silent.
fax mentis incendium gloriae, The passion for glory is a torch to the mind.
fecit, He made it.
feliciter, Happily; successfully.
felo de se, Self-felony; a suicide.
ferae naturae, Of a wild nature; applied to wild beasts.
fiat, Let it be done.
fiat justitia ruat caelum, Let justice be done though the heavens should fall.
fiat lux, Let there be light.
fidei defensor, Defender of the faith.
fides Punica, Punic faith; treachery. (Among the Romans the bad faith of the Poeni or Carthaginians was notorious.)
fidus Achates, Faithful Achates, the companion of Aeneas; a trusty friend.
filius populi, A son of the people.
filius terrae, A son of the earth; one of low origin.
finis, The end.
flagrante delicto, In the commission of the crime; in the very act.
fruges consumere nati, Born to consume the fruits of the earth; born only to eat.
fugit hora, The hour flies.
fuit Ilium, Troy has been; Troy was, but is no more.
functus officio, Having discharged his duties; hence, out of office.
furor arma ministrat, Rage provides arms.
furor loquendi, A rage for speaking.
furor poeticus, Poetical fire.
furor scribendi, A rage for writing.

gallice, In French.
genius loci. The genius or presiding spirit of the place.
germanice, In German.
gloria in excelsis Deo, Glory to God in the highest.
gloria Patri, Glory be to the Father.
gradatim, Gradually; step by step.
Gradus ad Parnassum, Steps to Parnassus; aids to writing Greek and Latin verses. (The name of a book.)
gratis dictum, Mere assertion.
gregatim, Gregariously.

Hannibal ad portas, Hannibal at the gates; the enemy close at hand.
ἅπαξ λεγόμενον, Said or used but once (as a rare word).
haud longis intervallis, At frequent intervals.
helluo librorum, A devourer of books; a bookworm.
hic et ubique, Here and everywhere.
hic finis fandi, Here was an end to the discourse.
hic jacet, Here lies.
hic sepultus, Here is buried.
hinc illae lacrimae, Hence these tears; this is the cause of the trouble.
ἱστορία φιλοσοφία ἐστὶν ἐκ παραδειγμάτων, History is philosophy teaching by examples.
hoc anno, In this year.
hoc loco, In this place.
hoc saxum posuit, He placed this stone.
hoc tempore, At this time.
hominis est errare, To err is of man.
homo alieni juris, A man under the control of another.
homo factus ad unguem (usually thus quoted; but the correct form is *ad unguem factus homo*), A highly cultivated and polished man; literally, a man polished to the finger nail. (The expression is suggested by a practice of sculptors, who use the finger nail in putting the finishing touches to their models.)
homo homini lupus, Man is a wolf to his fellow man; one man preys on another.
homo multarum literarum, A man of many letters; a man of great learning.
homo sui juris, A man who is his own master.
honores mutant mores, Honors change manners.
honor est a Nilo, Honor is from the Nile. (Anagram for "Horatio Nelson.")
honos alit artes, Honor nourishes the arts.
honos habet onus, Honor is burdened with responsibility.
hora fugit, The hour flies.
horribile dictu, Horrible to tell.
hortus siccus, A dry garden; a collection of dried plants; an herbarium.

idem sonans, Sounding the same.
id est, That is.
id genus omne, All that class.
idoneus homo, A fit man.
Ἰησοῦς Χριστοῦ Θεοῦ Υἱος Σωτήρ, Jesus Christ, the Son of God, Saviour. The initials of these Greek words form the Greek word *ἰχθύς*, a fish, and this fact explains the common use of the fish as a weather vane on church steeples.
Iesus, Hominum Salvator, Jesus, Saviour of men.
imo pectore, From the bottom of one's heart.
impari Marte, With unequal military strength.
impedimenta, Luggage; the baggage of an army.
imperium in imperio, A government existing within a government. (Said of a power set up against constituted authority.)
in actu, In the very act; in reality.
in aequilibrio, In equilibrium.
in ambiguo, In doubt.
in armis, Under arms.

in articulo mortis, At the point of death.
in camera, In the chamber; in secret.
in capite, In chief.
in curia, In court.
inde irae, Hence this resentment.
index expurgatorius, A list of prohibited books.
in dubiis, In matters of doubt.
in esse, In being.
in extenso, At length.
in extremis, In very bad circumstances; at the point of death.
infinito, Perpetually.
in flagrante delicto, In the commission of the act.
infra dig., *infra dignitatem*, Beneath one's dignity.
in invitum, Against an unwilling party.
in loco, In the place; upon the spot; in the place of.
in loco parentis, In the place of a parent.
in medias res, In the very midst of the business.
in medio tutissimus ibis, Safety lies in a middle course.
in memoriam, In memory of.
in nomine, In the name of.
in ovo, In the egg.
in pace, In peace.
in perpetuum, Forever.
in pleno, In full.
in posse, In possible existence.
in praesenti, At the present time.
in propria persona, In one's own person.
in re, In the matter of.
in rem, Against the thing or property.
in rerum natura, In the nature of things.
in saecula saeculorum, Forever.
insculpserunt, They engraved it.
insculpsit, He engraved it.
in situ, In its proper position.
in statu quo, In its former state.
in stirpes, According to lineage.
in suspenso, In suspense.
in te, Domine, speravi (Ps. xxxi.), In thee, O Lord, have I put my trust.
inter alia, Among other things.
inter canem et lupum, Between the dog and the wolf; twilight.
inter nos, Between ourselves.
inter se, Amongst themselves.
in toto, In the whole; entirely.
in transitu, On the passage.
intra parietes, Within the walls; private.
in usu, In use.
in utroque fidelis, Faithful in both.
in utrumque paratus, Prepared for either event.
in vacuo, In a vacuum.
ipse dixit, He himself has said it; a mere assertion.
ipsissima verba, The identical words.
ipso facto, By the fact itself.
ipso jure, By the law itself.
ita est, It is so.
ita lex scripta est, Such is the written law.
italice, In Italian characters.
iterum, Again.

jacta alea est! The die is cast! (The exclamation of Julius Caesar when he crossed the Rubicon.
januis clausis, With closed doors; in secret.
joci causa, For the sake of a joke.
jubilate Deo (Ps. c. 1), O be joyful in the Lord.
judicium Dei, The judgment of God.
judicium parium aut leges terrae (Magna Charta), The judgment of our peers, or the laws of the land.
jure divino, By divine law.
jure humano, By human law.
jus canonicum, Canon law.
jus civile, The civil law.
jus divinum, The divine law.
jus et norma loquendi, The law and rule of speech.
jus gentium, The law of nations.
jus possessionis, The right of possession.
juxta, Near by.

καθ' ὑδατος γράφεις, You are writing in water.
κατ' ἐξοχήν, Preëminently.

labore et honore, By labor and honor.
laesa majestas, High treason.
lapis philosophorum, The philosopher's stone.
lapsus calami, A slip of the pen.
lapsus linguae, A slip of the tongue.
lapsus memoriae, A slip of the memory.
lares et penates, Household gods.
latine dictum, Spoken in Latin.
laus Deo, Praise to God.
lector benevole, Kind, or gentle, reader.
legatus a latere, A papal legate.
lege, Read.
lex loci, The law of the place.
lex non scripta, The unwritten law; the common law.
lex scripta, The written or statute law.
lex talionis, The law of retaliation.
λιμῷ γὰρ οὐδὲν ἐστιν ἀντειπεῖν ἔπος, There is no word with which to answer hunger.
lingua franca, The mixed language spoken by Europeans in the East.
lite pendente, During the trial.
loco citato, In the place quoted.
locum tenens, One occupying the place; a substitute.
locus criminis, Place of the crime.
locus in quo, The place in which.
locus sigilli, The place of the seal.
longo intervallo, By or with a long interval.
lucus a non lucendo, A witticism, which, assuming that *lucus*, a dark grove, is derived from the verb *lucere*, to shine, supposes it must be a *non lucendo*, from its not being light; an absurd name.
lusus naturae, A freak of nature; a deformed animal or plant.

magister ceremoniarum, A master of the ceremonies.
Magna Charta, The great charter; the charter of English liberties.
magna civitas, magna solitudo, A great city is a great solitude.
magnum bonum, A great good.
magnum opus, A great undertaking; the great work of a man's life.
mala fide, With bad faith; treacherously.
mali exempli, Of a bad example.
mali principii malus finis, The bad end of a bad beginning.
malis avibus, With unlucky birds, *i. e.*, with bad omens.
malo modo, In an evil manner.
malum in se, Bad in itself.
manibus pedibusque, With hands and feet; tooth and nail.
manu propria, With one's own hand.
mare clausum, A closed sea; a bay.
materfamilias, The mother of a family.
materia medica, Substances used in the healing art.
maximus in minimis, Very great in trifling things.
mea culpa, Through my fault.
me judice, I being the judge; in my opinion.
memorabilia, Things to be remembered.
memoriæ in aeterna, In eternal remembrance.
μὴ νῦν τὰ πόρσω τἀγγύθεν μεθεὶς, σκόπει, Gaze not on things afar, neglecting things at hand.
memoriter, By rote.
meo voto, At my own wish.
minutiae, Trifles.
mirabile dictu, Wonderful to relate.
mirabile visu, Wonderful to see.
mirabilia, Wonders.
mirum in modum, In a wonderful manner.
miserabile vulgus, A wretched crew.
modo et forma, In manner and form.
modus, Manner.
modus operandi, The manner of working.
μοῖρα δέ τις καὶ πόλεων ἐστὶν ὥσπερ καὶ ανδρῶν, Cities have their destinies as well as men.
monumentum aere perennius, A monument more durable than bronze.
more majorum, After the manner of our ancestors.
more suo, In his own way.
mors janua vitae, Death is the gate of life.
mors omnibus communis, Death is common to all.
mos pro lege, Custom has the force of law.
motu proprio, Of his own accord.
mutatis mutandis, The necessary changes being made.
mutuus consensus, Mutual consent.

nec scire fas est omnia, It is not allowed to know all things.
ne exeat, Let him not depart.
nemine contradicente, No one contradicting.
nemine dissentiente, No one dissenting.
nemo reclamat, nullus obsistit, No one protests, no one makes opposition.
νέος ἀπόλλυθ', ὁντινα φιλεῖ θεός, He whom the gods love dies young.
ne quid detrimenti respublica capiat, In order that the commonwealth suffer no injury. (The form of words by which the dictator of the Roman republic was invested with supreme authority.)
nihil ad rem, Nothing to the point.
nihil tetigit quod non ornavit, He touched nothing without embellishing it.
νικᾶ δ' ὁ μειὼν τὸν μέγαν, δίκαι' ἔχων, And armed with right, the less o'ercomes the great.
nil admirari, To be astonished at nothing.
nil dicit, He makes no answer.
nolens volens, Willing or unwilling.

noli me tangere, Touch me not.
nomen et omen, Name and omen; a name that is ominous.
non compos mentis, Not in sound mind.
non constat, It does not appear.
non datur tertium, There is no third choice.
non ens, Nonentity.
non est, It is not; wanting.
non est inventus, He is not found.
non libet, It does not please me.
non liquet, It is not clear.
non obstante, Notwithstanding.
non omne licitum honestum, Lawful acts are not all honorable.
non omnia possumus omnes, We cannot, all of us, do everything.
non sequitur, It does not follow; an illogical conclusion.
non sum qualis eram, I am not what I once was.
noscitur a sociis, A man is known by the company he keeps.
nostro periculo, At our own risk.
nota bene (N. B.), Mark well.
notatu dignum, Worthy of note.
νοῦς ἐστὶν ὁ διακοσμῶν τε καὶ πάντων αἴτιος, Mind is the disposer and cause of all.
nudis verbis, In plain words.
nuptiae, nuptials; wedding.

obiit, He (or she) died.
obiter dictum, A casual remark; an unauthoritative opinion.
observanda, Things to be observed.
odi profanum vulgus, et arceo, I hate the vulgar crowd, and drive them away.
odium theologium, The hatred of theologians.
officina gentium, The workshop of the world.
οἷα κεφαλὴ ἐγκέφαλον οὐκ ἔχει, What a splendid head, and yet no brain!
ὀλίγοι γὰρ ἐσθλοὶ κρείσσονες πολλῶν κακῶν, Better a few brave men than many cowards.
omne ignotum pro magnifico, Everything unknown is thought to be magnificent.
omne solum forti patria est, Every land is a brave man's country.
omnia mutantur, nos et mutamur in illis, All things are subject to change and we change with them.
omnia vincit amor, et nos cedamus amori, Love conquers all things, let us too yield to love.
οἱ πολλοί, The many; the common people.
ora pro nobis, Pray for us.
orate pro anima, Pray for the soul (of).
orator fit, poeta nascitur, The orator is made; the poet is born.
ore rotundo, With a full voice.
origo mali, Origin of evil.
o tempora, o mores, Alas for the times and the manners.
otium cum dignitate, Ease with dignity.
οὐ τοὺς Λακεδαιμονίους (ἔφη) ἐρωτᾶν πόσοι εἰσίν, ἀλλὰ ποῦ εἰσὶν οἱ πολέμιοι, The Lacedemonians do not ask "How many are the enemy?" but "Where are they?"
pace tua, By your leave.
pacta conventa, The conditions agreed on.
palmam qui meruit ferat, Let him bear the palm who has deserved it.
Πὰν ὁ μέγας τέθνηκε, Great Pan is dead.
pari passu, With equal pace; together.
paritur pax bello, Peace is produced by war.
par negotiis, neque supra, Equal to, but not above, his business.
pars adversa, The adverse party.
pars pro toto, The part for the whole.
particeps criminis, A partaker in the crime; an accessory.
parva componere magnis, To compare small things with great ones.
passim, Everywhere; throughout.
πάταξον μὲν ἄκουσον δέ, Strike, but hear me.
paterfamilias, The father of the family.
Pater noster, Our Father.
pater patriae, The father of his country. A title bestowed by the Roman Senate on Caesar Octavianus Augustus.
patres conscripti, The Conscript Fathers; the Roman Senate. (Applied humorously to the members of municipal and town councils.)
pax in bello, Peace in war.
pax orbis terrarum, The sovereignty of the world. (A legend frequently found upon Roman coins.)
pax Romana, The Roman Empire.
pax vobiscum, Peace be with you.
peccavi, I have sinned.
per, By, through, by means of.
per capita, By the head.
per centum, By the hundred.
per contra, Contrariwise.
per diem, By the day.
per fas et nefas, Through right and wrong.
per gradus, Gradually.
per interim, In the meantime.
per se, In itself; for its own sake.
petitio principii, A begging of the question.
per viam, By the way of.
φύσει σοφὸς μὲν οὐδείς, No one is wise by nature.
pinxit, He (or she) painted it.
placet, It pleases. (Specifically, the mode of assent by a civil power to the promulgation of a papal bull or an ecclesiastical ordinance. A vote of assent, as of the governing body of a university, or of the members of an ecclesiastical council. The form of dissent is *non placet*.)
plebs, The common people.
poeta nascitur, non fit, The poet is born, not made.
ποιητὰ δὲ νόμιμα εἶναι, Whatever is, is right.
πολλοὶ στρατηγοὶ Καρίαν ἀπώλεσαν, Too many generals lost Caria.
pons asinorum, The bridge of asses.
posse videor, I seem to be able.
post bellum auxilium, Aid after the war.
post cineres gloria venit, Glory comes after death.
post mortem, After death.
post obitum, After death.
praecognita, Things previously known.
prescriptum, A thing prescribed.
primae viae, The first passages.
prima facie, At the first glance.
primo, In the first place.
primus inter pares, First among his peers.
principiis obsta, Resist the first advances.
probatum est, It is proved.
pro Deo et ecclesia, For God and the church.
pro et con (for *contra*), For and against.
profanum vulgus, The vulgar rabble.
pro forma, As a matter of form.
pro hac vice, For this turn or occasion.
pro memoria, As a memorial.
pro nunce, For the present.
propaganda fide, For extending the faith.
pro patria, For our country.
pro rata, In proportion.
pro rege, lege, et grege, For the king, the law, and the people.
pro re nata, For a special emergency.
pro tanto, For so much.
pro tempore, For the time being.
ψυχῇ μιᾷ ζῆν, οὐ δυοῖν, ὀφείλομεν, One life to live, not twain—this is our due.
pulvis et umbra sumus, We are dust and shadow.
punctum saliens, A salient or prominent part.
punica fides, Punic faith; treachery

quaere, Query; inquiry.
quaeritur, The question arises.
qualis vita, finis ita, As life is, so will its end be.
quamdiu se bene gesserit, As long as he behaves himself; during good behavior.
quantum, The quantity or amount.
quantum libet, As much as you like.
quantum meruit, As much as he deserved.
quantum mutatus ab illo, How changed from what he was.
quantum sufficit, A sufficient quantity.
quantum vis, As much as you will.
quasi, As if; in a manner.
quem di diligunt adolescens moritur, Whom the gods love dies young.
qui capit, ille facit, He who takes it, makes it.
quid faciendum? What is to be done?
quid nunc? What now? what news?
qui docet, discit, He who teaches, learns.
quid pro quo, One thing for another; an equivalent.
quid rides? Why do you laugh?
quid times? What do you fear?
quoad hoc, To this extent.
quo animo? With what intention?
quocunque modo, In whatever manner.
quocunque nomine, Under whatever name.
quod avertat Deus! God forbid!
quod bene notandum, Which is to be especially noted.
quod erat demonstrandum, Which was to be proved. Abbreviated Q. E. D.
quod erat faciendum, Which was to be done. Abbreviated Q. E. F.
quod vide [q. v.], Which see.
quomodo? In what manner? how?
quondam, Former.

rara avis, A rare bird. (Sometimes used to express incredulity or doubt about a story or description.)
rata, Rate; one's own share.

ratione soli, According to the soil.
rectus in curia, Upright in court, with clean hands.
regium donum, A royal gift.
renovato nomine, By a revived name.
requiescat in pace, May he rest in peace.
rerum primordia, The first elements of things.
res gestae, Things done; exploits.
res judicata, A matter already settled.
respublica, The commonwealth.
resurgam, I shall rise again.
re vera, In truth.
Ῥώμη δέ γ' ἀμαθὴς πολλάκις τίκτει βλάβην, Strength uninstructed ofttimes causes harm.
ruat caelum, Let the heavens fall.
rus in urbe, The country in the city.

sal Atticum, Attic salt; wit.
salvo jure, The right being safe.
salvo sensu, The sense being preserved.
sanctum sanctorum, Holy of holies.
sartor resartus, The mender mended.
satis superque, Enough, and more than enough.
scilicet, That is to say; to wit.
scribimus indocti doctique, Learned and unlearned, we all write.
secundum artem, According to the rules of art.
secundum naturam, According to the course of nature.
secundum ordinem, In order.
semel et simul, Once and together.
semel pro semper, Once for all.
semper felix, Always fortunate.
senatus consultum, A decree of the senate.
sensu bono, In a good sense.
sensu malo, In a bad sense.
seriatim, In order; serially.
sero, sed serio, Late, but seriously.
servare modum, To keep within bounds.
sesquipedalia verba, Words a foot and a half long.
sic passim, So everywhere.
sic semper tyrannis, Ever thus to tyrants.
sic transit gloria mundi, So the glory of this world passes away.
sicut ante, As before.
sic vos non vobis, Thus do ye, but not for yourselves.
si diis placet, If it pleases the gods.
silentium altum, Deep silence.
silent leges inter arma, The laws are silent amidst arms.
si monumentum requiris, circumspice, If you seek his monument, look around. (An inscription in St. Paul's Cathedral, London, for Sir Christopher Wren, who was the architect of the building.)
sine cura, Without care or charge.
sine die, Without a day appointed.
sine dubio, Without doubt.
sine invidia, Without envy.
sine praejudicio, Without prejudice.
sine qua non, Without which, not; an indispensable condition.
siste, viator, Stop, traveler.
σκηνὴ πᾶς ὁ βίος, All the world 's a stage.
sit ut est, aut non sit, Let it be as it is, or not at all.
spes tutissima caelis, The safest hope is in heaven.
splendide mendax, Splendidly false; untrue for a noble cause.
spolia opima, The richest booty.
sponte sua, Of one's own accord.
stat magni nominis umbra, He stands the shadow of a mighty name.
status quo ante bellum, The state in which things were before the war.
status quo, status in quo, statu quo, The state in which.
sta, viator, heroem calcas, Stop, traveler, thou art treading upon a hero.
stet, Let it stand.
studium immane loquendi, An insatiable desire for talking.
sua cuique voluptas, Every man has his own pleasures.
suaviter in modo, fortiter in re, Gentle in manner, forcible in action.
sub colore juris, Under color of law.
sublata causa, tollitur effectus, The cause having been removed the effect ceases.
sub poena, Under a penalty.
sub rosa, Under the rose; secretly.
sub silentio, In silence.
sub specie, Under the appearance of.
sub voce, Under the word.
suggestio falsi, Suggestion of falsehood.
sui generis, Of its own kind; unique.
συμβούλευε μὴ τὰ ἡδίστα, ἄλλα τὰ κάλλιστα, Consider not what is most agreeable, but what is best.
summa summarum, Sum total.
summum bonum, The chief good.
summum jus, summa injuria est, The rigor of the law is the height of oppression.
sunt lacrimae rerum, There are tears for misery.
suo marte, By his own powers or skill.
suum cuique, Let each have his own.
suus cuique mos, Every one has his own particular habit.

tabula rasa, A blank tablet.
taedium vitae, Weariness of life.
tantaene animis caelestibus irae? Can such anger dwell in heavenly minds?
te judice, You being the judge.
tempora mutantur, et nos mutamur in illis, The times are changed, and we are changed with them.
tempus edax rerum, Time the devourer of all things.
tempus fugit, Time flies.
tempus ludendi, The time for play.
tentanda via est, A way must be tried.
terra firma, The firm land; the continent.
terra incognita, An unknown land.
tertium quid, A third something difficult of classification as to nature or substance; a nondescript.
teste, Witness; the concluding clause of a writ.
τίς οὖν ἄρξει τοῦ ἄρχοντος, Who then shall rule the ruler?
τίς τρίχας ἀντ' ἐρίων ἐποκίζατο, Who will shear hair when he can shear wool?
toga virilis, The gown of manhood.
τὸ καλόν, The beautiful.
τὸ κέρδος ἡδὺ κἂν ἀπὸ ψευδῶν ἴῃ, How sweet is gain, e'en though it comes from fraud.
τῶν εὐτυχούντων πάντες εἰσὶ συγγενεῖς, All men claim kinship with the fortunate.
τὸ πρέπον, What is becoming or decorous.
tot homines, quot sententiae, So many men, so many minds.
totidem verbis, In just so many words.
toties quoties, As often as.
toto caelo, By the whole heavens; diametrically opposite.
totum, The whole.
trahit sua quemque voluptas, Each one is drawn by his own taste.
tria juncta in uno, Three joined in one (the motto of the Order of the Bath).
truditur dies ille, Day is pushed forward by day.

ubi bene ibi patria, Where one is well off, there is his country.
ubi jus incertum, ibi jus nullum, Where the law is uncertain, there is no law.
ubi lapsus? Where have I fallen?
ubi libertas, ibi patria, Where liberty dwells, there is my country.
ubique, Everywhere.
ubi supra, Where above mentioned.
ultima ratio regum, The last argument of kings.
ultima Thule, The utmost boundary or limit.
ultimus Romanorum, The last of the Romans.
ultra licitum, Beyond what is allowable.
una voce, With one voice.
uno animo, With one mind, unanimously.
usque ad aras, To the very altars.
usque ad nauseam, To disgust.
usus loquendi, Usage in speaking.
ut apes geometriam, As bees practise geometry.
utcunque placuerit Deo, As it shall please God.
ut infra, As stated or cited below.
ut supra, As stated or cited above.

vade in pace, Go in peace.
vade mecum, Go with me; a constant companion.
vae victis, Woe to the conquered. (Said to have been the exclamation of Brennus, when he threatened to exterminate the Romans.)
vale, Farewell.
valete ac plaudite, Farewell and applaud.
variae lectiones, Various readings.
variorum notae, The notes of various authors.
vel prece, vel pretio, For either love or money.
venia necessitati datur, Pardon is granted to necessity; necessity has no law.
veni, vidi, vici, I came, I saw, I conquered.
verbatim et literatim, Word for word and letter for letter.
veritatis simplex oratio est, The language of truth is simple.
vestigia, Tracks, traces.
vexata quaestio, A disputed question.
via, By the way of.
via media, A middle course.
via trita, via tutissima, The beaten path is safest.
vice, In the place of.
vice versa, The terms being exchanged.
vide et crede, See and believe.
videlicet, To wit; namely. Abbreviated *viz.*
videtur, It appears.
vide ut supra, See what is stated above.

vi et armis, By force and arms.
vincet amor patriae, The love of country will prevail.
vinculum matrimonii, The bond of marriage.
vindex injuriae, An avenger of injury.
vir sapit qui pauca loquitur, He is wise who talks but little.
virtus semper viridis, Virtue ever green and flourishing.
virtute, non viris, From virtue, not from men.
virtute officii, By virtue of one's office.
vis comica, Comic power or talent.
vis conservatrix naturae, The preservative power of nature.
vis inertiae, The power of inertia; resistance.
vis medicatrix naturae, The healing tendency of nature.
vis preservatrix, A preserving power.
vis vitae, The vigor of life.
vitam impendere vero, To risk one's life for the truth.
vita sine litteris mors est, Life without literature is death.
vitiis nemo sine nascitur, No one is born without faults.
vivat regina, Long live the queen.
vivat respublica, Long live the republic.
vivat rex, Long live the king.
viva voce, By the living voice; by oral testimony.
vive, vale, Farewell and be happy.
volo, non valeo, I am willing, but unable.
vota vita mea, My life is devoted.
votum castitatis, A vow of chastity.
vox clamantis in deserto, The voice of one crying in the wilderness.
vox et praeterea nihil, A voice and nothing more; sound without meaning.
vox faucibus haesit, His voice stuck in his throat; he was speechless.
vulgo, Commonly.
vulnus immedicabile, An irreparable injury.

ξένους πένητας μὴ παραδράμῃς ἰδών, Seek not to flee from guest of low estate.
ζῶμεν ἀλογίστως, προσδοκῶντες μὴ θανεῖν, Thoughtless we live, expecting not to die.

zonam perdidit, He has lost his purse; he is in distressed circumstances.

MODERN LANGUAGES.

Phrases not designated are from the French; those from other languages are distinguished thus: (Ger.)—German; (It.)—Italian; and (Sp.)—Spanish.

a, At; according to; to.
a bas, Down.
a bon marche, Cheap.
abonnement, Subscription.
a bras ouverts, With open arms.
abrege, Abridgment.
absence d'esprit, Absence of mind.
a causa persa, parole assai (It.), When the cause is lost, there is enough of words.
accueil, Reception; greeting; welcome.
a charge, At expense.
a cheval, On horseback.
a compte, On account.
a coup sur, With certainty; surely.
a couvert, Under cover, protected, sheltered.
acqua Tofana (It.), A subtle poison.
a demi, By halves.
a dessein, Designedly.
a deux mains, For both hands; having two uses.
a discretion, At discretion, unrestrictedly.
a droite, To the right.
affaire d'amour, A love affair.
affaire d'honneur, An affair of honor, a duel.
affaire du coeur, An affair of the heart, a love affair.
a fin, To the end or object.
affreux, Frightful.
a fond, To the bottom, thoroughly.
a gauche, To the left.
a haute voix, Aloud.
aimable, Amiable.
a l'abandon, At random; disregarded; left uncared for.
a la belle etoile, In the open air.
a la bonne heure! Well-timed! In good time!
a la campagne, In the country.
a la faveur, By the favor of.
a la Française, In French fashion.
alguazil (Sp.), A Spanish constable.
a l'improviste, Unawares, on a sudden.
all' alba (It.), At daybreak.
alla Siciliana (It.), In the Sicilian manner; in shepherd's dress.
allegresse, Liveliness; geniality.
Alles hat seine Zeit (Ger.), All in good time.
allez-vous en, Away with you, be off.
allons, Come on.
allzuviel ist ungesund (Ger.), Too much of a good thing.
al occorrenza (It.), According to circumstances.
a l'ordinaire, In the ordinary manner.
al piu (It.), At most.
alto rilievo (It.), In high relief.
am Anfang (Ger.), At the beginning.
amende honorable, Fit reparation; a satisfactory apology.
a merveille, Marvelously.
ami de cour, A friend of the court; hence an uncertain friend.
ami du peuple, Friend of the people.
a moitie, By halves.
ancien regime, The ancient order of things.
a outrance, To the death.
a peindre, Worth painting.
a peu pres, Nearly.
a pezzi (It.), By the piece.
a piacere (It.), At pleasure.
a pied, On foot.
a plomb, Perpendicularly; firmly.
a point, Just in time; exactly; exactly right.
appui, Point of support; prop.
a prima vista (It.), At the first sight.
a propos, To the point.
a propos de rien, Apropos to nothing; not pertinently.
arc-en-ciel, Rainbow.
a rez de chaussee, Even with the ground.
argent comptant, Ready money.
arriere pensee, Mental reservation; unavowed purpose.
a toute outrance, To the utmost; mercilessly.
a tout hasard, At all hazards; at all events.
a tout prix, At any price.
au bon droit, To the just right.
au courant, Well acquainted with; well informed.
au desespoir, In despair.
au levant, To the east; eastward.
au pis aller, At the very worst.
auto da fe (Portuguese), An act of faith; the burning of Jews and heretics.
autre droit, Another's right.
autre fois, Another time.
aux armes, To arms.
avant propos, Preface; introductory matter.
avec permission, By consent.
a volonte, At pleasure.
a vostra salute (It.), To your health.
a votre sante, To your health.
a vuestra salud (Sp.), To your health.

beaux esprits, Men of wit, or genius.
beaux yeux, Handsome eyes; attractive looks.
bel esprit, A wit, a genius.
bel etage, The second story of a house.
ben trovato (It.), Well invented.
besoin, Need; want.
bete, A beast.
boite, A small box for work, carried by ladies.
bon gre, mal gre, With good or bad grace; willing or unwilling.
bonne et belle, Good and pretty.
bonne foi, Good faith.
bouleversement, Overturning.
brevet d'invention, A patent
brevete, Patented.

cabaretier, An innkeeper.
cachot, A dungeon.
cap-a-pie, From head to foot.
carbonari (It.), Members of a secret political society in Italy.
careme, Fast; lent.
c'en est fait de lui, It is all over with him.
c'est-a-dire, That is to say.
c'est une autre chose, That is quite another thing.
Champs Elysees, Elysian Fields; a public park in Paris.
chanson, A song.
chapeau, A hat.
chapeaux bas, Hats off.
chateaux en Espagne, Castles in Spain.
chef de bataillon, A major.
chemin couvert, A covered way or passage.
chemin de fer (lit., iron road), A railway.
che sara, sara (It.), What will be, will be.
ci git, Here lies. (A common inscription on tombstones.)
comment vous portez vous, How are you?
compte rendu, An account rendered, a report.
comptoir, Countingroom.
comte, Count.
comtesse, Countess.
con arco (It.), With the bow.
concours, Competition for, or as for a prize.
con dolore (It.), With grief; sadly.
conoscente (It.), A connoisseur.
conseil de famille, A family council or consultation.

conseil d'etat, A council of state, a privy council.
couleur de rose, Rose color.
coup, A stroke.
coup de grace, A finishing-stroke.
coup de main, A sudden attack, enterprise, or undertaking.
coup de maitre, A master-stroke.
coup d'essai, A first attempt.
coup d'oeil, A rapid glance.
coup de pied, A kick.
coup de plume, A literary attack.
coup de soleil, A sunstroke.
coup de theatre, A theatrical effect.
creve-coeur, Deep sorrow; grief.

d'accord, Agreed; in tune.
Das geht Sie Nichts an (Ger.), That does not concern you.
de haute lutte, By a violent struggle.
dehors, Without; out of; foreign; irrelevant.
de mal en pis, From bad to worse.
demeure, Dwelling; residence.
demi-jour, Faint light.
depeche, A dispatch; a message.
dernier ressort, The last resource.
desagrement, Something disagreeable or unpleasant.
desoriente, Confused.
detour, A circuitous march.
Dieu vous garde, God protect you.
di grado in grado (It.), Step by step; gradually.
di salto (It.), By leaps.
divertissement, Amusement; sport.
douceur, A bribe.
doux yeux, Soft glances.
drap d'argent, Silver lace.
drap d'or, Gold lace.
drole, A comical fellow; a queer subject; a clown.

ebauche, A rough drawing; a sketch.
ecole de droit, Law school.
ecole de medecine, Medical school.
ecole militaire, Military school.
ecole polytechnique, Polytechnic school.
egal, Equal.
egalite, Equality.
egarement, Bewilderment.
el corazon manda las carnes (Sp.), The heart bears up the body.
eleve, Pupil.
eloge, A funeral oration.
eloignement, Estrangement.
emigre, An emigrant.
employe, A person employed; a clerk.
empressement, Ardor; zeal; interest.
en ami, As a friend.
en arriere, In the rear, behind.
en attendant, In the meantime.
en badinant, In sport, jestingly.
en bagatelle, Triflingly; contemptuously.
en echelon, In steps; like stairs.
en effet, Substantially, really, in effect.
enfant gate, A spoiled child.
enfants perdus (lit., lost children), A forlorn hope.
en flute, Carrying guns on the upper deck only.
en foule, In a crowd.
en grand, Of full size.
en grande tenue, In full official, or evening, dress.
en haut, On high; above.
en plein jour, In open day.
en retraite, In retreat.
en revanche, In return; as a compensation for.
en tasse, In a cup.
entourage, Surroundings.
en tout, In all; wholly.
entre deux feux, Between two fires.
entre deux vins (lit., between two wines), Half-drunk.
entrepot, A warehouse or magazine.
entreprenant, Enterprising.
entre-sol, A half story or mezzanine, especially one next above the ground floor.
en verite, In truth, really.
en vigueur, In force.
envoye, An envoy or messenger.
Es fehlt mir Nichts (Ger.), Nothing is the matter with me.
Es freut mich sehr (Ger.), I am very glad.
Espagnol, Spanish; a Spaniard.
esprit de corps, The spirit of honor, loyalty, or enthusiasm in an individual working for the good of a common body, society, or association, as a college class, a military company, fraternal or other association.
esprit des lois, Spirit of the laws.
Es thut mir sehr leid (Ger.), I am very sorry.
Etats-Generaux, The States General.

Ewigkeit (Ger.), Eternity.
expose, An exposition; a recital.

façon de parler, Manner of speaking; phrase, locution.
fade, Flat; stale; insipid.
faineant, Idle.
faire sans dire, To act without saying.
faire son devoir, To do one's duty.
fait accompli, A thing accomplished.
fantoccini (It.), Dramatic representations with puppets.
fauteuil, An easy chair.
faux pas, A false step; an act of indiscretion.
femme couverte, A married woman.
femme de chambre, A chambermaid.
femme de charge, A housekeeper.
femme sole, An unmarried woman.
fete, A feast, festival; holiday.
fete Dieu, The Corpus Christi festival in the Roman Catholic Church.
feu de joie, A bonfire; a firing of guns in token of joy.
feuilleton, A small leaf; a part of a newspaper devoted to light, entertaining matter.
fille de chambre, A chambermaid.
fille d'honneur, A maid of honor.
fils, Son.
fin de siecle, The end of the century.
fleur-de-lis, The flower of the lily.
fleur de terre, Even with the surface of the ground.
fra (It.), Brother; friar.
frais, Cost; expense.
franco, (It.), Free from postage.

garde du corps, A body guard.
garde-feu, A fire guard; fender.
garde royale, Royal guard.
Gehen Sie Ihres Weges (Ger.), Go your way.
gens d'armes, Military police.
gens de condition, People of rank.
gens d'eglise, The clergy; clerics.
gens de guerre, Military men.
gens de lettres, Literary people.
gens de lois, Lawyers.
gentilhomme, A gentleman.
giovine Italia (It.), Young Italy.
gitano (Sp.), A gypsy.
goutte a goutte, Drop by drop.
grace a Dieu, Thanks be to God.
grande chere et beau feu, Good cheer and a good fire; comfortable quarters.
grand merci, Many thanks.
guerra al cuchillo (Sp.), War to the knife.
guerre a mort, War to the death.
guerre a outrance, War to the uttermost.

habile, Skillful; able.
hardiesse, Boldness.
haut gout, High flavor; elegant taste.
heureusement, Happily.
historiette, A short history; a tale.
homme d'affaires, A man of business.
homme de robe, a man in civil office.
homme des lettres, A literary man.
homme d'esprit, A man of intellect; a wit.
homme d'etat, A statesman.
hors de combat, Disabled, unfit to continue contest.
hors de saison, Out of season; unseasonable.
hotel des Invalides, The military hospital in Paris.
hotel de ville, A town hall.
hotel Dieu, A hospital.
hotel garni, Furnished lodgings.
hurtar para dar por Dios (Sp.), To steal in order to give to God.

i gran dolori sono muti (It.), Great griefs are mute.
il ennuie a qui attend, Waiting is tedious.
il faut de l'argent, Money is wanting.
illicite, Unlawful.
impoli, Unpolished; rude.
impolitesse, Coarseness; rudeness.
in bianco (It.), In blank; in white.
in petto (It.), Within the breast; in reserve.

jalousie, Jealousy; A Venetian window blind.
Jardin des Plantes, The botanical garden in Paris.
je ne sais quoi, I know not what.
je n'oublierai jamais, I will never forget.
je suis pret, I am ready.
jet d'eau, A fountain; a jet of water.
jeu de mots, A play upon words; a pun.
jeu de theatre, A stage trick; clap-trap.
joli, Pretty.

lache, Lax; relaxed.
la critique est aisee, l'art est difficile, Criticism is easy, art is difficult.

laguna (It.), A moor; a fen.
laissez-nous faire, Let us act for ourselves; let us alone.
la, la, So so; indifferently.
l'argent, Silver; money.
lasciate ogni speranza, voi ch' entrate (It.), All hope abandon, ye who enter here.
Lassen Sie mich gehen (Ger.), Let me alone.
l'avenir, The future.
legerete, Lightness; levity.
le grand monarque, The grand monarch. A title applied to Louis XIV.
le grand oeuvre, The great work; the philosopher's stone.
le mot d'enigme, The key of the mystery.
l'empire des lettres, The empire of letters.
le pas, Precedence.
le point de jour, Daybreak.
le roi et l'etat, The king and the state.
le roi le veut, The king wills it.
les bras croises, The arms crossed.
lese majeste, High treason.
les larmes aux yeux, Tears in one's eyes.
l'etoile du nord, The star of the north.
le tout ensemble, The whole taken together.
lettre de cachet (Fr. Hist.), A secret letter sealed by the royal seal, containing orders for arrest and imprisonment without trial.
lettre de change, Bill of exchange.
lettre de marque, A letter of marque or reprisal.
levee, A morning reception.
liaisons dangereuses, Dangerous alliances.
libraire, A bookseller.
l'inconnu, The unknown.
lo barato es caro (Sp.), A bargain is dear.

ma foi, Upon my faith; upon my word.
maison de campagne, A country house.
maison de ville, A town house.
maitresse, Mistress.
malade, Sick.
maladie du pays, Homesickness.
mal de dents, Toothache.
mal de tete, Headache.
malgre nous, In spite of us.
mardi gras, Shrove Tuesday.
marechal, Marshal.
mariage de conscience, A private marriage.
mauvaise honte, False modesty.
mauvais gout, Bad taste.
mauvais sujet, A worthless fellow.
mise-en-scene, The setting of a dramatic piece upon the stage.
mon ami, My friend.
mon cher, My dear (fellow).
mot du guet, A watchword.

naturel, Nature; disposition; temper.
ni l'un ni l'autre, Neither the one nor the other.
nom de guerre, A war-name; an assumed title; a pseudonym.
non mi ricordo (It.), I do not remember.
Noth kennt kein Gebot (Ger.), Necessity knows no law.
Notre Dame, Our Lady, the Virgin Mary.
n'oubliez pas, Do not forget.
nous verrons, We shall see.
nouvelles, News.

oeil de boeuf, A bull's eye.
olla podrida (It.), A heterogeneous mixture.
oui-dire, Hearsay.
ouvert, Open.
ouvrier, A workman, an artisan.

padrone (It.), Master; employer; landlord.
par accord, By agreement.
par avance, In advance.
par ci, par la, Here and there.
parole d'honneur, Word of honor.
partout, Everywhere.
pas a pas, Step by step.
passager, A passenger.
passe-partout, A master key.
pasticcio (It.), Patchwork.
pave, Pavement.
per contante (It.), For cash.
per contra (It.), On the contrary.
per mese (It.), By the month.
petit coup, A small mask.
petit maitre, A little master; a fop.
peu-a-peu, Little by little; by degrees.
peu de chose, A trifle.
pezzo (It.), Piece; piece of money; a coin.
piccolo (It.), Small.
pied a terre, A temporary lodging.
pis aller, The worst or last shift.
piu (It.), More.
poco a poco (It.), Little by little.
point d'appui, Prop; point of support.
porte-chaise, A sedan.
poste restante, To remain until called for; applied to letters in a post office.
pour passer le temps, To while away the time.
preux chevalier, A brave knight.
proces verbal, A detailed statement.
proprietaire, A proprietor.

quelque chose, Something; a trifle.
qu'il soit comme il est desire, Let it be as desired.

rabat, Reduction of price.
recu, Received; receipt.
reprise, A reprisal.
revenons a nos moutons, Let us return to our sheep: let us come back to our subject.
rire entre cuir et chair, To laugh in one's sleeve.

sanan cuchilladas, mas no malas palabras (Sp.), Wounds from a knife will heal, but not those from an evil tongue.
sans-culottes, Without breeches; a term applied to the rabble of the French Revolution.
sans façon, Without form or trouble.
sans pareil, Without equal.
sans peine, Without difficulty.
savoir-vivre, Good breeding.
savon, Soap.
sdegno d'amante poco dura (It.), A lover's anger is short-lived.
selon les regles, According to rule.
Sie sehen gut aus (Ger.), You look well.
so viel ich weiss (Ger.), As far as I know.
Sturm und Drang (Ger.), Storm and stress.

taille, Form; stature; shape.
tapis, The carpet.
terra cotta (It.), Baked earth.
tour d'expression, An idiom.
tout au contraire, On the contrary.
tout-de-suite, Immediately.
tout frais fait, All expense defrayed.
traduttori, traditori (It.), Translators are traitors.
trottoir, Sidewalk.

un bienfait n'est jamais perdu, A kindness is never lost.
vaurien, A worthless fellow.
vignette, A name given to slight engravings ornamenting books, bank notes, etc.
vivat, A shout of long live.
vive la republique, Long live the republic.
vive la bagatelle, Success to trifles.
vive l'empereur, Long live the emperor.
vive le roi, Long live the king.
voila tout, That is all.
voila une autre chose, That is quite another thing.

Was fehlt Ihnen? (Ger.), What is the matter with you?
zeitgeist (Ger.), The spirit of the age.

MODERN LANGUAGES—SOCIAL.

a l'americaine, After the American fashion.
a l'anglaise, After the English fashion.
a la carte, By the card.
a la française, After the French fashion.
a la grecque, After the Greek fashion.
a la mode, According to the custom; in the fashion.
a la parisienne, After the Parisian fashion.
al fresco (It.), To the shade; to the open air.
a l'italienne, In the Italian mode.
allemande, A kind of German dance.
amour propre, Self-love; vanity.
a rivederci (It.), Adieu until we meet again.
au contraire, On the contrary.
au fait, Well instructed; expert.
au fond, At the bottom.
auf Wiedersehen (Ger.), Till we meet again.
au gratin, With cheese.
au jus, With the natural juice.
au naturel, Cooked and served in its natural state.
au reste, As for the rest.
au revoir, Adieu until we meet again.
autre fois, Another time.
au troisieme, On the third floor.

bas bleu, A blue-stocking; a woman who seeks a reputation for learning.
beau ideal, A model of perfection.
beau monde, The fashionable world.
bechamel, Fine white sauce thickened with cream.
bete noire, A bugbear.
bienvenue, Welcome.
billet doux, A love letter.
bisque, A soup of shellfish and game.
bizarre, Odd; fantastic.

blanc mange (a delicate dessert), White jelly.
blase, Surfeited.
bon ami, Good friend.
bonbon, A sweetmeat; confectionery.
bon jour, Good day; good morning.
bon mot, A witticism.
bonne, A nurse.
bonne bouche, A dainty.
bon ton, High fashion; first class society.
bon vivant, A good fellow; a free liver.
boudoir, A small private apartment.
bouillon, Soup.

canaille, The lowest class of people; the rabble.
caramel, A burnt sugar candy.
carte blanche, Full power.
carte de visite, A small photograph upon a card.
chanson, A song.
chateau, A castle.
chauffeur, Driver of an automobile.
chef, A chief man cook.
chere amie, Dear friend.
coiffeur, A hairdresser.
coiffure, A headdress.
comme il faut, Proper; as it should be.
compagnon de voyage, A traveling companion.
con amore (It.), With affection; very earnestly.
consomme, A kind of soup.
contretemps, An awkward mishap.
conversazione (It.), A meeting for conversation.
cotillon, A lively dance.
croquette, A ball of minced meat or of other ingredients, rolled in bread crumbs and fried.
crouton, A small piece of bread fried and used in soups.
cuisine, A kitchen; cookery.

debut, First appearance.
debutante, A young lady just entering society.
decollete, Leaving the neck and shoulders uncovered; low-necked.
dejeuner a la fourchette, A meat breakfast.
demi-tasse, A small cup.
denouement, The unraveling or discovery of a plot; issue; event.
de trop, Too much, or too many; not wanted.
devoir, Duty.
diner, Dinner.
dolce far niente (It.), Sweet idleness.
domino (It.), A mask robe.
double entente, Double meaning; a play on words.

eau de cologne, Cologne water.
eau de vie, Water of life; brandy.
eclat, Splendor; brilliancy.
elite, A select body of persons.
embonpoint, Plumpness; good condition.
empressement, Eagerness; ardor.
en deshabille, In undress.
en famille, In a domestic state.
en masse, In a body.
ennui, Weariness; listlessness.
en papillote, In curl papers.
en regle, Regular; in order; according to rule.
en route, On the way.
ensemble, The whole.
en suite, In company; in a set.
entourage, Surroundings.
entree, Entry; first course.
entremets, Small and dainty dishes set between the principal ones at table.
entre nous, Between us; in confidence.

farce, Forcemeat.
fete champetre, A rural festival.
finale (It.), The closing part in any performance.
fondant, Sugar boiled and beaten to a creamy paste.
fondue, A light preparation of melted cheese.
fricassee, Chickens cut in pieces, prepared in a white sauce with accessories.

garage, A place where automobiles are stored and kept in order.
garçon, A lad; a waiter.
gateau, Cake.
gaucherie, Awkwardness.
glace, Anything iced.
gouvernante, A governess.
grande parure, grande toilette, Full dress.
grisette, Dressed in gray. (Applied to French shop girls.)
gusto (It.), Great relish.

habitue, A frequenter.
haricot, A kind of ragout; kidney bean.

hasta la primera vista (Sp.), Until the first sight; until we see each other again.
hasta luego (Sp.), Until we meet soon again.
hasta mañana (Sp.), Good-by until to-morrow.
hasta otra vez (Sp.), Until another time; until we meet again.
hauteur, Haughtiness.
haut ton, Highest fashion.
Hollandaise sauce, A rich sauce something like hot mayonnaise.
hors d'oeuvres, A kind of very light entrée.

impromptu, A prompt remark without study.
insouciance, Indifference; carelessness.

jeu d'esprit, A witticism.

le beau monde, The world of fashion; society.
lingerie, Linen goods; women's fine underwear.
litterateur, A literary man.

macedoine of vegetables, A mixture of vegetables with a white sauce.
macedoine of fruit, A kind of jelly.
ma chere, My dear.
mademoiselle, A young unmarried lady.
maitre d'hotel, A house steward.
major-domo (It.), One who has the management of a household.
mal a propos, Ill-timed.
mal de mer, Seasickness.
mariage de convenance, A marriage of convenience.
matinee, A musical or dramatic entertainment held in the daytime.
mayonnaise, A kind of salad dressing.
menage, Household.
menu, Bill of fare.
meringue, Sugar and white of an egg beaten to a sauce.
mesalliance, Marriage with one of lower station.
monsieur, Sir; master; gentleman.
morceau, Morsel.

naive, Having unaffected simplicity.
naivete, Native simplicity.
nee, Born.
neglige, A morning dress.
nom de plume, An assumed or literary name.
nonchalance, Coolness; easy indifference.
nougat, A mixture of almonds and sugar.
nuance, Shade; gradation; tint.

on dit, They say.
outre, Eccentric.

par excellence, Preëminently.
par exemple, For example.
partie carree, A party of four, two men and two women.
parvenu, A newcomer; an upstart.
passe, Worn-out.
pas seul, A single step; a dance.
pate de foies gras, Goose-liver pie.
patisserie, Pastry.
penchant, Inclination; liking.
petit, Small.
pommes de terre, Potatoes.
potage au gras, Meat soup.
pot-pourri, A medley.
pour prendre conge, To take leave.
prima donna (It.), Leading lady singer in an opera.
protege, One protected by another.
puree, A thick soup.
puree aux croutons, A thick soup with cubes of toasted bread.

quien sabe? (Sp.), Who knows?
qui vive? Who goes there?—hence on the alert.

raconteur, A relater; a teller.
ragout, A rich mixture.
raison d'etre, The reason for a thing's existence.
rechauffe, Warmed over, as food; hence, stale, insipid.
rencontre, An encounter.
rendezvous, A place of meeting.
repondez s'il vous plait (R. S. V. P.), Reply if you please.
restaurateur, One who provides.
rissoles, Small pastry, either of savory or sweets fried.
robe de chambre, A dressing gown.
robe de nuit, A night gown.
role, A part in a performance.
roue, A debauchee.
rouge, Red coloring for the skin.

salle a manger, Dining room.
sang-froid, Coolness; self-possession.

sans souci, Without a care, free and easy.
saute, To cook quickly over a hot fire with just enough butter to prevent sticking.
seance, A sitting.
sobriquet, A nickname.
soi-disant, Self-styled; pretended.
soiree, An evening party.
soubrette, On the stage a servant girl who acts in comedies the part of an intrigante.
souffle, A very light, much whipped up, pudding or omelette.
souper, Supper.

tableau vivant, The representation of a picture by persons grouped together, silent and motionless.
table d'hote, A common table for guests.
tendresse, Passion; affection.
tete-a-tete, A conversation between two parties.
timbale, A pie raised in a mold.
toujours, Always.
tout-a-fait, Entirely; wholly.
tout-a-vous, Wholly yours.
tout ensemble, The whole taken together.
trousseau, A wedding outfit.

valet de chambre, An attendant.
veloute, The stock for white sauce.
virtu (It.), Taste; art; skill.
virtuoso (It.), One skilled in matters of taste or art.
vis a vis, Opposite; facing.
vol au vents, Patties of very light puff paste filled with meat or preserves.

CLASS MOTTOES

ad astra per aspera, To the stars through difficulties.
ad vindictam tardus, ad beneficentiam velox, Slow to vengeance, swift to kindness.
age quod agis, Do what you do (*i. e.*, Mind your own affairs).
αἰὲν ἀριστεύειν, To excel always.
alta petens, Seeking higher things.
alteri sic tibi, Do to others as to yourself.
ἅμα ὀρεγόμενοι, Pulling together.
ars longa, vita brevis, Art is long, but life is short.
astra castra, numen lumen, The stars my camp, the Deity my light.
audaces fortuna juvat, Fortune favors the bold or brave.
aude aliquid dignum, Dare something worthy.
aude sapere, Dare to be wise.
aut inveniam viam, aut faciam, I will either find or make a way.

bis vivit qui bene, He lives twice who lives well.

carpe diem, Enjoy the present day; seize the opportunity.
certum pete finem, Aim at a sure end.
coelitus mihi vires, My strength is from heaven.
consilio et animis, By wisdom and courage.
consilio et prudentia, By wisdom and prudence.
crux mihi anchora, The cross my anchor.

dant animos vicis, Mutual help gives strength.
dat cura quietem, Vigilance ensures tranquillity.
Dei memor, gratus amicis, Mindful of God, grateful to friends.
delectare in Domino, To rejoice in the Lord.
Deo adjuvante, non timendum, God helping, nothing need be feared.
Deo date, Give to God.
Deo duce, God being my leader.
Deo ducente, nil nocet, God guiding, nothing harms.
Deo favente, With God's favor.
Deo juvante, With God's help.
Deus major columna, God the greatest support.
Deus mihi providebit, God will provide for me.
Deus nobiscum, quis contra? God with us, who against us?
ducit amor patriae, Love of country leads.
dum spiro, spero, While I breathe, I hope.
dum vivimus, vivamus, While we live, let us live.

e pluribus unum, One from many.
esse quam videre, To be rather than to seem.
esto quod esse videris, Be what you seem.
excelsior, Higher.

facta probant, Let deeds prove.
fide et fortitudine, With faith and fortitude.
fide non armis, By faith, not by arms.
fides et justitia, Fidelity and justice.
fides non timet, Faith knows no fear.
finis coronat opus, The end crowns the work.
forsan et haec olim meminisse juvabit, Perhaps it will be pleasant hereafter to remember these things.
forti et fideli nihil difficile, To the brave and faithful nothing is difficult.

gaudeamus igitur, Therefore let us rejoice.
γνῶθι σεαυτόν, Know thyself.

hodie non cras, To-day, not to-morrow.
honesta quam splendida, Things honest rather than things splendid.

in Deo spero, In God I trust.

καιρόν γνῶθι, Know your opportunity.

laborare est orare, To labor is to pray.
labor omnia vincit, Labor conquers all things.

magna est veritas et praevalebit, Truth is mighty and will prevail.
μηδὲν ἄγαν, Not too much of anything.
medio tutissimus ibis, In a medium course you will go most safely.
memento mori, Remember death.
mens sana in corpore sano, A sound mind in a sound body.
mens sibi conscia recti, A mind conscious of rectitude.
μέτρον ἀρίστον, The middle course is best.
multum in parvo, Much in little.

nemo me impune lacessit, No one wounds me with impunity.
ne plus ultra, Nothing further.
ne quid nimis, Not anything too much or too far.
nil desperandum, Never despair.
nil nisi cruce, Naught but the cross.
nisi Dominus, frustra, Unless God be with you, all your toil is in vain.
non multa, sed multum, Not many things, but much.
non nobis solum, Not for ourselves alone.
non quis, sed quid, Not who, but what.
non quo, sed quomodo, Not by whom, but in what manner.
non sibi, sed omnibus, Not for self, but for all.
non sibi, sed patriae, Not for self, but for country.
non videri, sed esse, Not to seem, but to be.
nulla dies sine linea, No day without a line; *i. e.*, without something done.
nulli secundus, Second to none.
nunc aut nunquam, Now or never.

omnia ad Dei gloriam, All things to the glory of God.
omnia cum Deo, All things with God.

palma non sine pulvere, No excellence without great labor.
patior, potior, I endure, I obtain.
per crucem ad coronam, Through the cross to a crown.
per crucem ad palmam, Through the cross to victory.
πόνῳ πόνον φέρω, I bear toil by toil.
possunt quia posse videntur, They can because they think they can.
principia, non homines, Principles, not men.
pro bono publico, For the public good.

quae nocent, docent, Things which injure, instruct.
quanti est sapere! How desirable is knowledge!
qui non proficit deficit, He who does not advance goes backward.
quod facimus bene faciamus, What we do let us do well.
quo fas et gloria ducunt, Where right and glory lead.

recta sursum, Right upwards.
respice, aspice, prospice, Look back, look forward, and look around.
respice finem, Look to the end.
revocate animos, Call back your courage.
sapere aude, Dare to be wise.
semper fidelis, Always faithful.
semper paratus, Always ready.
semper vigilans, Always watchful.
servabo fidem, I will keep faith.
spectemur agendo, Let us be judged by our actions.
spes sibi quisque, Let every one hope in himself.
σπεύδε βραδέως, Make haste slowly.
suaviter in modo, fortiter in re, Gentle in manner, but resolute in deed.

tentanda via est, A way is to be attempted.
thure et jure, By religion and justice.

vi et arte, By strength and skill.
vincit qui patitur, He conquers who endures.
vincit qui se vincit, He conquers who conquers himself.

PEDAGOGICAL AND PSYCHOLOGICAL TERMS.

ABNORMAL. Deviating from a standard or type.

ABSOLUTE. That which is not relative.

ABSORPTION. Complete occupation of the attention.

ABSTRACT. A relative term implying that an aspect, quality, or relation of an object is considered as having a separate or independent existence apart from the body possessing it. Abstract is the opposite of concrete.

ABSTRACTION. That process by which single ideas are separated from others and the attention fixed upon them.

ACCIDENTAL. That which is not essential or substantial. A further meaning makes it uncaused or fortuitous.

ACQUIRED. That which is added during the individual's life, from experience, to the original equipment of the mind.

ACQUISITIVENESS. Relative ease of acquiring or learning; generally regarded as a natural fitness.

ACTION. A general term for deeds or acts, and the doing of them. Voluntary actions are those performed by an act of will; non-voluntary, reflex, or automatic are performed independent of the will; involuntary are those which are opposed by the will, and occur in spite of a will to the contrary.

ADOLESCENCE. The period in the life of an individual preceding the attainment of maturity.

ANALYSIS. The act of separating a whole into its component parts for the purpose of studying their relation.

ANIMISM. The hypothesis, original with Pythagoras and Plato, that the universal soul (*anima mundi*), no matter how conceived, is the cause or principle of life.

ANTHROPOLOGY. The science of man or the natural history of mankind.

ANTHROPOMETRY. The science which deals with the measurements, physical proportions, and characteristics of the human body.

APPERCEPTION. A process of attention involving interaction between (1) the presentation of the subject to which attention is being given, (2) the whole of the previous matter relating to the subject and held in the mind, and (3) all of the performed mental processes. In education the term is used to denote the consideration and interpretation of new knowledge in the light and by the aid of that previously acquired.

ASSIMILATION. The union of thought elements by conscious process; or the association between like elements and compounds.

ASSOCIATION. In education the intentional and designed comparison of newly presented facts with other related facts already known.

ATTENTION. The act of the mind at work or beginning to work on a subject.

Reflex attention is drawn without the subject's foreknowledge by unexpected stimulation. Voluntary attention follows a purpose or an object that is interesting.

Voluntary attention is under the control of the will to attend, while non-voluntary or spontaneous attention is given without effort or fixed purpose.

ATTITUDE. Readiness for attention, or action, of a definite sort.

AUTO-SUGGESTION. The process of bringing about in oneself hypnotic or suggestive states.

BACONIAN METHOD. The inductive method of reasoning developed by Francis Bacon. Reasoning from particulars to the general.

BASEDOW'S METHOD. "Everything according to nature."

BELIEF. A mental acceptance of something thought of as real. **DISBELIEF.** A state of belief in a contrary truth.

CALISTHENICS. The art, science, or practice of muscular exercise to promote health, strength, or grace of the body.

CAPACITY. The power of receiving ideas, or of acting upon them; physical power of any sort.

CATECHETICAL METHOD. Instruction by means of questions and answers, usually for the purpose of examination.

CAUSALITY. The necessary connection between events in point of time. It is opposed to the idea of logical necessity and to chance or freedom.

CLASSICAL COURSE. A course of study which includes the Greek and the Latin languages.

CLASSIFICATION. The simplest form of generalization.

CLEARNESS. That stage of method in which the mind apprehends facts with distinctness of understanding; according to Herbart the first formal step in method.

CO-EDUCATION. The education together of persons of both sexes or of different races in the same institution of learning.

COGNITION. The state of being aware of an object.

COLOR-BLINDNESS. An abnormal condition of vision characterized by the absence of particular color tones.

COMPARATIVE PSYCHOLOGY. Comparison of the minds of different animal forms, including man.

COMPARISON. The act of discerning the likeness and difference between two or more objects.

CONATION. The active element of consciousness which displays itself in tendencies, impulses, desires, and acts of the will.

CONCENTRATION. The voluntary centering of thought upon a subject.

CONCEPT. Cognition of a single whole as distinguished from the particular elements of which it is composed. It is a distinction between a universal and a particular. The formation of concepts is the first step in thinking.

CONCEPTIONS. Perceptions registered or pictured in the mind so as to be recalled.

CONCEPTUALISM. A psychological doctrine that the mind can form general conceptions of individual objects; it is opposed to both realism and nominalism.

CONCRETE. Belonging to actual things or events.

CONSCIOUSNESS. The characteristic which distinguishes mental from all other life. It divides all that is mind from all that is not mind.

CONTENT. A term referring to what is in the mind; whatever forms part of a total consciousness; the qualities which a concept contains.

CONTROL. Voluntary command of mind and body.

CO-ORDINATION (of studies). A grouping of subjects mutually related in parts but essentially independent as branches of knowledge.

CORRELATION. The forming of explicit relationships among the parts of a mental whole. In studies it is the arrangement of studies and topics with regard to their reciprocal relations. Topics in the same subject may be correlated as well as those which are related to topics in other subjects, as classical, scientific, and economic subjects.

CULTURE. The result of mental and moral cultivation; a breadth of knowledge and refinement. Culture epochs in education involve the idea of a connection between the development of each child and the historical development of the race, and that in this is found the reason for the sequence of subjects in the instruction given.

CURRICULUM. A specified fixed course of study in an institution of learning.

DEDUCTION. A mental process or method in teaching in which reasoning proceeds from the general to the particular, as in geometry.

DIAGRAM. A simple drawing used to illustrate an oral explanation.

DIALECTICS. In education it is the art of teaching by means of discussion.

DIDACTICS. The science and art of teaching.

DISCIPLINE. Systematic training through education. The term thus applies to both mental and physical training. The mental discipline resulting from some studies is greater than their cultural value. It expands and regulates the powers.

DISCRIMINATION. A decision upon the difference between objects, each judged by the whole context of experience.

DISTRACTION. Inattention produced by stimulation of the attention to something else.

EDUCATION. The science and art of mental, moral, and physical development; the cultivation of the mind and manners, and the training of the body, through instruction and exercise.

EDUCATIONAL PSYCHOLOGY. That department of psychology which investigates the inner reaction that accompanies the manifold activities of man. The inner activities of man are educational.

EFFORT. The performance of work by force of will.

EGO. Individual consciousness of the object-self as contrasted with the same individual's thought of another, known as the *alter*. Ego is the self; non-ego, the not-self.

EMILE. A romance, named for the principal character, in which Jean Jacques Rousseau promulgated his views on education and natural religion.

EMOTIONAL TRANSMISSION. The communication of ideas or knowledge by arousing or appealing to the emotions.

EMOTIONS. Vivid feelings arising from the consideration of objects perceived, remembered, or imagined. An emotion is a tendency to feel. An instinct is a tendency to act in the presence of certain objects of environment.

EMPIRICAL. Relating to experience by being based upon, directed by, or derived from it. Opposed to rational.

EMULATION. Imitative rivalry; incentive to surpass or equal others. The Jesuits, in their teaching, called it "the whetstone of talent, the spur of industry."

END. That which satisfies a tendency, impulse, desire, or act of will.

ENVIRONMENT. All the external circumstances or conditions surrounding an object at any stage of its existence.

ESSENCE. The necessary and constant nature of a thing as contrasted with its accidents.

ESSENTIAL. Relating to the constant and necessary nature of a thing. Opposed to accidental.

ETHOLOGY. The science of the formation of human character whether by individuals or in groups.

EUGENICS. Sex-education.

EXERCISE. Learning or training through practice; also the task, duty, or work which produces it.

EXPERIENCE. A phase or mode of conscious change; the events of the mental life as a whole.

EXPERIMENT. A change in phenomena purposely brought about in order to study the phenomena and to obtain knowledge regarding them.

EXPERIMENTATION. The process of trying or testing, as a method of securing results.

EXTERNAL OBJECTS. One of the oldest psychological theories of our perception of an external object by Hobbes. He says that sensation and sense-perception are due to the resistance offered by the organism to change produced by an external impression.

FACULTY. Capability for a certain kind of mental process. It is a power of the mind to change and to impart.

FEELING. A mode of self-consciousness, or subjective consciousness. As a sensation it is a simple state of mind; as an emotion it is complex.

FELLOWSHIP. In England, a position of privilege and emolument in a college which entitles the holder to the enjoyment of certain revenues and privileges. In America, an amount of money or a scholarship which enables a student to pursue his studies at a certain institution or abroad.

FORMAL CULTURE. The doctrine that mental power, derived from any form of exercise or by any means, is applicable to any department of human activity.

FORMAL STEPS. The essential stages of a rational method. Herbart considers four: Clearness, Association, System, and Method. Others have more: Preparation, Presentation, Association, Generalization, and Application.

FROEBELIAN MOVEMENT. The movement advocating the Froebelian or kindergarten system of instruction. Its first principle is that the end and means of a child's education should be unrestricted, creative activity.

FUNCTION. Any conscious process which takes part in a larger group or system of processes.

GENERAL CONCEPT. It always includes two essential and distinct parts, an image, and the meaning of this image.

GENERAL IDEA. It emphasizes the presence of the image.

GENERAL NOTION. This emphasizes consciousness of meaning.

GENERALIZATION. The act of recognizing a likeness not before discovered, which involves formation of a new concept or extends an old one.

GENETIC. Pertaining to or dealing with original production. Genetic science deals with the problems of origin and development. Genetic forces are those which produce results. Genetic method is the explanation of things according to the manner of their origin. Genetic psychology is concerned with mental evolution, development, and growth.

GRAMMARIAN. (1) One who has a fine knowledge of grammar. (2) Among the Greeks and Romans, one who was especially versed in any particular branch of learning, but expecially one who excelled in the interpretation of poetical works.

GRAMMAR SCHOOL. In England, a school preparatory for college where Greek and Latin are taught. In America, the grades above the primary.

GROWTH. This shows the part played by special circumstances and experiences in the life of the individual.

GYMNASIUM. (1) In ancient Greece a place for instruction of the mind and for athletic exercise. (2) A school where the higher branches of science and literature are taught, especially in Germany. It is a classical rather than a technical school.

HABIT. A fixed tendency to think, feel, or act, in a particular way under special circumstances. Habits are acquired tendencies.

HALLUCINATION. A sensation without objective stimulus.

HERBARTIAN MOVEMENT. In pedagogy the followers of Herbart, laying emphasis upon his doctrine of apperception, put great stress upon the content of studies and the different processes of the mind.

HIGH SCHOOL. In the United States, the highest department in the free graded schools, coming between what is commonly known as the grammar school and a college or technical school; a free secondary school.

HUMANIST. One who in the time of the Renaissance, following the example of Petrarch, advocated by precept and example the study of classical, and especially Greek, literature.

HUMANITIES, THE. Learning and literature of a secular nature in opposition to the learning and literature of the nature of divinity. More particularly such subjects as the classics, poetry, philology, grammar, history, and archaeology were included under this head.

IDEA. A group of sensations or sensory elements reproduced more or less clearly by the image of an object not really present. A mental picture or image of an object that is not present.

ILLUSION. A mental object, or its construction, which is accepted as real, but is not so.

IMAGE. A mental picture. Its chief merit lies in its distinctness or clearness.

IMAGINATION. An idea of objects and events. The power or process of having mental pictures. There are two kinds: constructive, characterized by a definite purpose, and a persistent effort to accomplish that purpose; aesthetic, which is characterized by feeling or emotion and aims at immediate enjoyment.

IMPULSE. A sudden or transient mental motive or feeling. It is the basis of will.

INDUCTION. The method of teaching by reasoning from particulars to generals.

INFERENCE. The act of passing from one judgment to another.

INHIBITION. It is the restraint by which one mental process prevents the simultaneous occurrence of others.

INSTINCT. An impulse which leads to action without knowledge of a reason for the action.

INSTRUCTION. That mode of teaching whereby the pupil is informed and at the same time exercised for the attainment of knowledge and mental power.

INTELLECT. The faculty or capacity of knowing.

INTEREST. The doctrine, in education, that the means (studies) should awaken the pupil's interest; and, conversely, that interest in the ends for which a pupil studies should arouse interest in the means. It is the name of the feelings evoked by an idea, and which give that idea the power of arousing and holding the attention, and is of two kinds: *natural*, which is the interest that the presentation of the object has in itself; *acquired*, the interest which the presented object gains on account of its associations.

INTROSPECTION. The close and critical examination by an individual of his own mental states and processes for the purposes of study.

INTUITION. In education, the grasp of knowledge through the use and employment of the senses.

INVENTION. The mental power or faculty of making or creating, the power of imagining new relations of ideas.

JUDGMENT. The assertion of agreement or disagreement between two ideas. Judging is the mental act by which the mind compares. Judgments are either intuitions or inferences.

KINAESTHESIS. The perception attendant upon muscular movements; the muscular sense.

KNOWLEDGE. The mind's certainty of objects presented through the senses. Presentative knowledge is acquired through the senses. Representative knowledge is brought before the mind in the form of images or notions. Intuitive knowledge is the immediate perception of truth without reasoning.

LABORATORY. A work room devoted to investigations or experiments in any branch of natural science.

LATIN GRAMMAR SCHOOL. A secondary school in which the study of the Latin grammar inordinately preponderated. It was introduced into America from England by the early colonists and the first such school was opened in Boston in 1635. It was of the gymnasium type of Germany and has been largely modified or in most cases displaced by the tendencies of modern education in the United States.

LIBERAL EDUCATION. An education of wide, ample scope and extent so that the mind is master of its own powers, irrespective of one's occupation.

MANUAL TRAINING. In schools, the educating of the hands to do various kinds of work, which supplements the mental training received.

MEMORIZING. The act of committing to memory, or learning by heart.

MEMORY. The mental process which reproduces and recognizes prior experiences in their proper relative time order. The three mental functions, reproduction, recognition, and localization, are concerned in an act of memory.

MEMORY, DEFECTS OF. The chief classes are excess and defect. Amnesia is the name given to failure of retentiveness; paramnesia is a false memory or illusory memory; hypermnesia is an unusual exaltation of memory.

MENTAL DEVELOPMENT. The sum total of the processes through which the individual mind passes from birth to death.

MENTAL GROWTH. An increase in the stock of mental materials, which are supplied by sensation and perception. Sensation is the beginning of mental life, and is followed by perception, memory, conception, judgment, and reasoning in turn.

METHOD. A systematic process, aiming at definite ends, controlled by fixed principles. Compayre says: "Method is the order we involuntarily introduce into our thoughts, our acts, and our undertakings."

MILITARY SCHOOL. A school where, in connection with other instruction, the students are taught subjects pertaining to war, and expecially the drills.

MIND. It is that which knows, feels, and wills. Soul, spirit, ego, self, and subject are synonymous terms.

MNEMONICS. Devices or rules intended to improve and strengthen the memory.

MONITORIAL SYSTEM. Introduced into England by Dr. Andrew Bell in 1797, who with Joseph Lancaster developed it until it became a substitute for a national system. The older boys were used as instructors for the younger.

Its greatest result was in the development of education as a function of the state; it also introduced a better system of grading. Its main defects were too formal work, extremely superficial instruction, rigid and mechanical discipline and too much formal memory work. It was popular in the United States for about 20 years.

MORAL SENSE. The specific feeling attached to the distinction between right and wrong.

MUSCULAR SENSE. It consists of the sum of simple mental states which accompany the action of the muscles.

NATURALISTIC MOVEMENT. This was the overthrow of that conception, developed by the Renaissance, that education is a mastery of books and forms. Social reform was the great aim. Rousseau was the leader. His fundamental theories were this: "Education is a natural process, it is a development from within, it comes from workings of natural instincts and interests, and is an expansion of natural powers; it is life itself." It was the foundation of all educational development in the nineteenth century. Rousseau was the forerunner of the psychologists in education.

NOMINALISM. The doctrine that ideas or universals have no objective existence. It goes further and holds that universals are only names adopted for convenience and that reality consists in the individual concrete objects.

OBJECT. Whatever consciousness cognizes and, cognizing, feels an interest in.

OBJECTIVE. Whatever belongs to the object recognized, in distinction from the process of knowing, feeling, and willing.

OBSERVATION. In education, the acquisition of knowledge by direct sense-perception. It is regarded as one step in a rational method of teaching.

ORBIS PICTUS. The first illustrated text-book for children, written by Comenius. In *The World of Sensible Things Pictured* each chapter was headed by a somewhat complicated picture in which various objects were numbered with reference to particular lines in the text below. It deals with things, and by induction leads to a generalized knowledge.

ORGANON. A series of treatises on logic by Aristotle, in which the basis for scientific thought in any line of intellectual activity was first formulated.

PEDAGOGICS OR PEDAGOGY. The theory and practice of teaching as a profession; in it the sciences of the mind, of body, and of society are systematically applied to the work of education. It depends upon psychology for its methods, and upon civilization for its ends. Its problems pertain to the curriculum, the methods of teaching, and the development of character.

PEDANTRY. The overestimate of mere knowledge; the vulgar or uncalled for display of learning.

PERCEPT. The cognition which results from actual sensation and not from a mental picture.

PERCEPTION. The consciousness of particular material things present to the senses. The process of localizing sensations and referring them to definite objects. An act of the mind in becoming cognizant of the sensation. Its elements are sensation, reference, and grouping.

PESTALOZZI'S NINE LAWS. (1) Activity is the law of childhood. Accustom the child to do—educate the hand. (2) Cultivate the faculties in the natural order. First form the mind, and then furnish it. (3) Begin with the senses, and never tell a child what he can discover for himself. (4) Reduce the subject to its elements. One difficulty at a time is enough for a child. (5) Proceed step by step; be thorough. (6) Let every lesson have a point. (7) Develop the idea, then give the term. (8) Proceed from the known to the unknown. (9) Synthesis, then analysis; not the order of the subject, but the order of nature.

PHILOSOPHICAL SCHOOLS. They afforded a training in argument in private upon questions of metaphysics and ethics. Plato, Aristotle, Zeno, and Epicurus each founded a school, in which the work finally became formal and artificial. Many minor schools of this sort also were established.

PHYSIOLOGICAL PSYCHOLOGY. Investigates the vital processes which require the simultaneous application of the external and internal tests and methods of observation. It deals with the corporeal manifestations of mind.

PRIMARY SCHOOLS. In the system of public schools in America the department of one or more grades that come between the kindergarten and the grammar grades.

PSYCHIC AND PSYCHICAL. These pertain to the mind or soul.

PSYCHOLOGY. The scientific study of mental operations. The science which deals with actual psychical processes, and treats of their objects, and of the conditions of their occurrence. Kulpe defines it as "the science of the facts of the experience in their dependency upon experiencing individuals." The science originated with Aristotle, who did more for psychology than any other individual contributor. Practically but slight advance was made in the science between his time and that of the birth of the modern science. Descartes, Hobbes, and Spinoza are among the illustrious names during the earlier modern period. Incidentally Locke made important contributions to the science; among others he invented the expression "association of ideas." Hartley, Hume, and the two Mills, Herbart, Bain, Condillac, and Beneke are the chief workers in the field of the "new" psychology. Darwin, Spencer, Romanes, Morgan, Dahl, Wasmann, Bethe, Mills, and others contributed largely through the field of biology. Tarde, Baldwin, and Durkheim in the field of anthropology; Preyer, Baldwin, Miss Shinn, Sully, and many others in the field of child study; and Weber, Fechner, Helmholtz, and Wundt in the field of physiological psychology, have been prominent contributors to the science.

RATIONAL. Pertaining to the reason, being derived from, directed by, or based upon it. Opposed to empirical.

RATIONALISM. The theory that reason is an independent source of knowledge.

REALGYMNASIUM. A German secondary school in which no Greek is taught but much time is given to the sciences. It is between the Gymnasium and the Realschule.

REALISM. (1) As the direct opposite of nominalism, this doctrine states that universals, such as genera, have an existence independent of our conceptions and are real things or entities. (2) As the direct opposite of idealism, this doctrine holds that to our sense perception a direct, individual, external object at once presents to our cognition itself, instead of an object representative of its genera or type. The term is also applied to that type of education in which natural phenomena and social institutions rather than languages are the chief subjects of study.

REALSCHULE. A secondary scientific school in Germany teaching no classics, but affording manual training, besides various industrial courses, German, French, history, geography, geometry, mechanics, and drawing.

REASON. That faculty and process of mind which consists in the drawing of inferences.

REASONING. The process of inference or arrangement of ideas according to the laws of thought. It is the third aspect of thinking. In *implicit* reasoning the general principle is implied, not brought before the mind. In *explicit* reasoning, the general principle is evident. *Inductive* reasoning is passing from the particular to the general, or from a part to the whole; it begins with individual facts, puts percepts before concepts, and judgments before conclusions; *deductive* reasoning is passing from the general to the particular, from the whole to a part, from the greater to the less.

RECOGNITION. The consciousness accompanying any mental object when it is perceived, as having been understood before.

REFORMATION, THE. In education, its effect was to emphasize reason, the right of private judgment, and the necessity of familiarity with original literary material as the source of true ideas. To it we owe our idea of universal elementary education, and its realization.

RELATIVITY. Every aspect or phase of experience is influenced by every other aspect or phase of the experience at the same instant. This is called the law of relativity. There is a sense of relativity which conveys the idea that we can know about things only as they affect our minds, and not as the things themselves really are.

RENAISSANCE, THE. It was a movement primarily in individualism. In the earlier part of the movement, and in the south of Europe, culture as a means of personal development was emphasized; later, and in the north, knowledge as a means of reforming society was the chief interest. The first was the revival of the Greek education, and the latter was the narrow humanistic education. Erasmus was the greatest educator.

RETENTION. The action upon the mind of the material when apprehended. To apprehend an object is to fix it in memory; to retain an impression is to hold it in memory; to reproduce an impression is to bring it into memory.

RHETORICAL SCHOOLS. By the latter part of the fourth century B. C., the work of the wandering sophists had divided into two distinct types, the rhetorical and philosophical. The former prepared for the practical activities of life, through training in oratory and the new knowledge of the times. Isocrates was a leader in this movement.

RHETORS, SCHOOLS OF THE. These were schools in Rome similar to the rhetorical schools of Greece, and furnished a preparation for the life of affairs at Rome by a thorough training in oratory.

SCHOLASTICISM. (1) The name applied to the system of philosophy, taught in Roman Catholic institutions of learning, which is based upon the teachings of the early church fathers, as Augustine and Jerome, and teachings of Aristotle and of certain Arabian commentators. (2) The type of intellectual life which prevailed from the eleventh to the fifteenth century. It was responsible for the origin of universities, and its purpose was to develop power of disputation, systematize knowledge, and make the individual master of this knowledge. It reduced religious thought to logical form. *The Sententiae* of Peter the Lombard and the *Summa Theologiae* of Thomas Aquinas were the most noted works; Anselm was called the father of scholasticism.

SCHOOLMEN. The leaders in the scholastic movement. (See pages 972 and 1049.)

SCIENCE. Knowledge reduced to principles, classified and systematized.

SECONDARY SCHOOLS. Schools including the high school and others which are preparatory for college.

SELF. A term used to denote the mind, soul, ego, or spirit.

SELF-ACTIVITY. A change produced within a being through determination and without destroying the identity of the being.

SELF-CONSCIOUSNESS. The mind's knowledge of itself. It is the foundation of all knowledge.

SENSATION. A simple mental state resulting from the stimulation or excitation of the outer extremity of an incarrying or sensory nerve. The first thing in the way of consciousness.

SENSE. The power of the mind to know a particular external impression.

SENSE-ORGAN. That part of the terminal apparatus of the nervous organism which furnishes impressions.

SENSE-PERCEPTION. A mode of consciousness produced by the present operation of an external stimulus upon the nervous system. It takes cognizance of all objects, independent and real.

SENSES, TRAINING OF. The regular and systematic exercise of the senses, to make the sense-percepts clear and distinct, and to develop the conceptual and reasoning powers. "There is nothing in the mind that was not first in the senses."

SENSIBILITY. The power of the mind to feel, which feeling includes all pleasurable and painful conditions of the mind.

SIMILARITY, LAW OF. A principle of the association of ideas, according to which resemblance between two mental objects of any kind is the reason of the recall of the one on the presence of the other.

SOCRATIC METHOD. (1) The process of arriving at fundamental generalizations by an inductive method of question and answer. (2) The form of instruction described in the Dialogues of Plato, often called the "dialogic method." It is made up of two parts: (*a*) The Socratic irony to clear the mind of false or absurd ideas, and (*b*) the attempt to cause the student to discover fundamental definitions by inductive reasoning instigated by question and answer.

SOPHISTS. Greek teachers who taught by formal discourse or lecture, rhetoric, philosophy, and conduct. They were disliked by thinking Greeks because of their claim to teach all things, and their demand for pay for their services. They were prominent in the last half of the fifth century B. C. A period of great enlightenment followed.

SUGGESTION. Any impression which is consciously received through any of the senses.

SUMMA THEOLOGIAE. The most extensive work of Thomas Aquinas, attempting to give in the form of the scholastic method of philosophizing a complete theological survey of the divine, human, and natural worlds. Its chief contents are derived from the famous *Book of Sentences* collected from the Christian Fathers by Peter the Lombard and classified after the manner of Abelard into affirmative and negative statements (*Sic et non*). This work of Aquinas is one of a hundred similar expositions that exist in manuscript, and many of them in print.

SYLLOGISM. Deductive reasoning.

SYNTHESIS. The method, process, and function of putting things together.

TEACHING. "Teaching is a process by which one mind, from a set purpose, produces a life-unfolding process in another."

TECHNICAL SCHOOLS. Schools where the instruction tends to fit the students for some art, science, or trade; most frequently the mechanical arts are specified.

THINKING. Forming ideas, concepts, the knowledge of ideas or relations. It discriminates, assimilates, and detects differences and agreements. It has three aspects, conception, judgment, reasoning, none of which could occur without the others.

THOUGHT. The act, process, or power of thinking.

TRADE SCHOOLS. Schools where the pupils receive instruction in some craft or business, as well as mental instruction.

UNCONSCIOUS. Not possessed of mind or consciousness.

UNDERSTANDING. The mental instrument of scientific knowledge as opposed to reason, the instrument of philosophic knowledge. To the understanding all things are relative; and the faculty deals with all things and events dependent upon environment. A knowledge of the relations of things. It is the mother of interest; interest is the mother of feeling; interest and feeling aid retention.

UNIVERSITY. An institution for the instruction of students in the higher branches of literature, arts, and sciences with the power to confer degrees recognized throughout the world as valid. It may or may not include a college, or may consist of many under one general administration.

UNIVERSITY EXTENSION. A plan, originating in England, for extending the influence and instruction of universities outside the site of the institution by means of classes and lectures at important centers.

VOLITION. The decision upon a psychic issue by an individual, or the faculty of will by which the powers are directed to the attainment of a chosen end.

WHOLE. Psychologically, whatever is thought of, attended to, or otherwise acted upon as a single object though capable of treatment as two or more objects (parts of the whole).

WILL. The term *will* includes all active operations of the mind.

DICTIONARY OF TERMS USED IN JOURNALISM.

BANK OR DECK. One part of a series of headlines, in a single line or several. Banks are printed in varying sized types. Also used for table on which type or plates are kept in the printery.

BEAT OR SCOOP. Important item of news secured and printed in a paper before competitors learn of it,—the ambition of all good newspaper writers. A reporter's territory, like a policeman's, is also called a beat or run.

BULLETIN. Later important news printed at top of an article usually in bold face type. This gives developments after the main article was written, or the latest words off the wire as the paper goes to press. Sometimes printed in colored ink by means of a fudge plate (q. v.).

CAPTION. Heading or title of an article or part; now often confined to picture headings and texts that accompany them.

DUMMY. Sheet or set of sheets bound together to show the form size, arrangement of pages, and sometimes the literary material of a news page, book or other printed work.

ELECTROTYPE. A copper-covered duplicate of type or cuts with or without the metal or wooden base used as backing when it is run through the press. Material cast solid from impression of composed types, columns, and pages.

FEATURE STORY. Any news account emphasizing elements other than the usual facts of time, place, and persons concerned. The human interest story is a variety in which pathos, mystery, heroism or some other quality or emotion is emphasized or "played up."

FLASH. Brief or tabloid bit of news received over the telegraph wire or by radio; an important preliminary report, or supplement to news of more than usual interest.

FOLLOW COPY. As written in the margin by an author or editor means that the material is to be set precisely as indicated; used in cases where some intermediary might think a mistake had been made. George Eliot, for instance, might be misspelled by the printer; to guard against this "Follow copy" might be written in the margin of the manuscript.

FONT. Assortment of large and small type with all other marks ordinarily used in composing for the press. These are of many different sizes and styles of type as made by the type founders.

FUDGE. Small printing cylinder that may be attached to a large rotary press to add base ball scores, flashes, stock news, or sensational news (often in colored ink) to a page. This saves casting a whole new plate for the press, since a part may be cut from the large one and the fudge plate inserted in its place.

GALLEY. Long, shallow tray for holding lines of type till they are used for making plates or for use in a press. Printers often speak of a certain number of galleys of material. A galley proof is one taken directly from the types by placing a sheet of paper over them and then running a roller over that. Galleys are about two feet long, but usually are not entirely filled with type.

HANGING INDENTATION. In this form the first line fills the whole column or other space, the rest, however, being indented from the left-hand side or sometimes at both sides. Headlines are often so arranged. To indent is to run to the right a certain number of spaces, the exact number depending on custom and purpose.

JUSTIFYING. Filling in space between words or letters to make composed matter even at both ends according to the size of space allowed.

LEAD (pronounce leed). Initial sentence or brief paragraph of a news article telling, who, what, when, where, and why of the article; a summary or condensation of all essential facts.

RELEASE. Permission is given to print or release a story at a certain time and not before. For example, the President's message is usually submitted several days before it is read to Congress and held by the papers for release not earlier than the afternoon of the reading in Washington.

REWRITE MAN. One who revises or makes over articles and news as written or reported by another. A valuable man on any newspaper.

RUNNING STORY. An account or news article that develops from time to time and is printed from day to day in parts, or one that comes into the news office bit by bit and is set and assembled as it arrives.

STORY. Any narrative article for the regular columns of a paper. Burglar story means story of a burglary, etc.

STREAMER OR BANNER. Large heading that runs across the whole or large part of a page.

STYLE BOOK. Book of directions for editors or reporters issued by a printing or news organization.

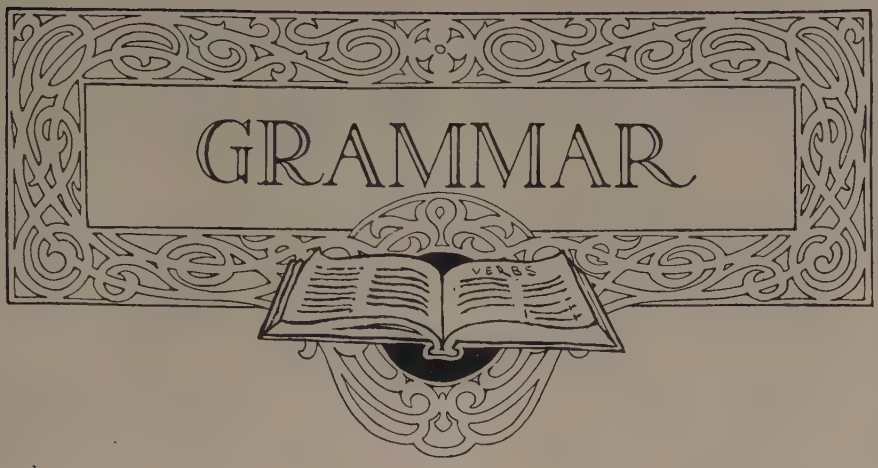
SYNDICATE. Commercial organization that sells any form of news, feature articles, or pictures for use in papers, books, or magazines.

THIRTY. Usually written in figures as the telegrapher's symbol that the end of a story has been reached. Other forms used by writers are three upright parallel lines and the symbol "#." If "More" is written at the end of a bit of copy, the compositor knows that the end is not reached. If "Hold" is written, the make-up force knows that the material is to be held for further additions, corrections, or changes.

U. P. UNITED PRESS, a commercial organization selling news to papers.

A. P., a cooperative organization of papers that exchange news among each other.

YELLOW JOURNALISM. A term used about the time of the Spanish American War to indicate news that plays up the base side of human nature. News that shows the yellow in humanity. Now the term is used for almost any sensational, exaggerated, or distorted method of writing news.



ENGLISH IN THE HOME
PREPARING THE CHILD FOR SCHOOL
LANGUAGE DEMONS
READING AN AID TO LANGUAGE
POETRY AND THE CHILD
RESULTS OF EARLY READING
GETTING THE CHILDREN INTERESTED
SENTENCE BUILDING
PHRASES
CLAUSES
PARTS OF SPEECH
ANALYSIS
DIAGRAMS

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FAMOUS AMERICAN EDUCATORS

Noah Webster
Dr. Lyman Abbott
Prof. John Grier Hibben
Dr. Isaac Funk

Horace Mann
William Wirt
Dr. Charles W. Eliot
Ella Flagg Young

BOOK II.

GRAMMAR.

Drawing by SELDEN IRWIN.

EVERYDAY LANGUAGE, FIFTY LANGUAGE DEMONS, VALUE OF READING, POETRY AND THE CHILD, SENTENCES, PHRASES AND CLAUSES, NOUNS, PRONOUNS, ADJECTIVES, VERBS, INFINITIVES AND PARTICIPLES, ADVERBS, PREPOSITIONS, INTERJECTIONS, CONJUNCTIONS, ANALYSIS, DIAGRAMS.

OUR EVERYDAY LANGUAGE

Good English in the home. Habit is important in the use of our mother tongue. We often fall into careless customs in speaking. Even highly educated persons now and then make mistakes in grammar. Many believe they can change their habits of speech whenever they choose. All habits soon become fixed and hard to modify, and bad speaking is no exception. The drop of water at last wears away the flagstone. Little by little the small slips in grammar almost inevitably wear down the language of any person. If we do not wish the stone at last to be spoiled, we should begin early to stop the dripping of the water. In the same manner, if we do not wish the speech of our children to become spoiled by errors in language and grammar, we must begin to train them early to avoid many common faults.

Schools and homes may cooperate in teaching good English. Every home should encourage the best modes of speech. Not more than six per cent of our entire lives is spent in the schools. Ninety-four per cent must, therefore, be accounted for. Our fine schools in America are gradually spreading their influence among all our people. Children of every land have come to our shores, and they desire to learn the best that our language has to offer them. Parents are learning to help themselves. Almost daily, associations are formed to assist the teachers of the public schools in their planning of good education. Good speech days and weeks are held in hundreds of communities every year. More and more, then, both schools and homes are learning to assist each other for the improvement of all our people.

How may the home prepare the child for school? First of all, by setting a good example of correct speech. Little people are like those small animals called chameleons, which take on the colors of their surroundings. If you place them on a red background, they will look red; on a brown cloth and they take on a brownish tinge, and so on. Habits of good or bad speech are absorbed by children much as the chameleons absorb colors near them.

Possibly some of the following suggestions may interest those who are responsible for the training of little folks.

1. If an adult happens to make a mistake in grammar, he should correct himself when he thinks of it, and call attention of children to the right forms. Emphasis always should be laid on correct English. Tell children what they should be saying,—and not merely what they should not say. Let the good drive out the bad expression.

2. Do not nag children for making little mistakes in language. It is much better in every way to encourage them gently but persistently. Remember that it takes years to perfect our training in good speech. If a bad language habit is once formed, it may take weeks or months of careful thought to break it. Ordinarily children have to be warned repeatedly not to use a given wrong expression. When all of us hear so much bad speaking in almost every corner of life, it is hardly reasonable to expect little boys and girls to remember from the first time we correct them.

3. Be certain to select only the best reading for children. Books that are carelessly written

should not be purchased. Beware of jokes, pictures with slang or vulgar comments, and some of the professional funny men whose stock in trade is distortion of good English. All such are for adults only. A great store of cheap, but worthy books, are now available for children.

4. Encourage children to tell little stories, or relate personal experiences, in the freedom of the home circle. They may seem awkward in school, and so unable to do their best before a class and teacher. At home they develop powers rapidly, and soon can tell elaborate stories, full of imagination, and correct in their language.

5. In the home, as well as in school, be careful not to write incorrect expressions where children see them. If you must write a wrong form on the board or tablet, be certain to place the right one beside it and leave the latter long after the other is erased or cancelled.

Of course, it is necessary to avoid many faults that are common in the speech of careless adults or of children who know no better. A long list of such mistakes might be compiled, but we shall offer fifty samples as fairly typical of all.

Fifty Language Demons. Borrowing a term used by Prof. W. F. Jones, who compiled a list of one hundred common spelling demons, let us notice how the right forms are distinguished from the wrong. Some of the list here given are ungrammatical expressions, some confused meanings or uses, and others distorted pronunciations. Not all are found in every community.

RIGHT FORM.	WRONG FORM.
Almost all have arrived.	Most all have arrived.
And should be used sparingly.	*And* used in most sentences.
Are you going?	Be you goin'?
Between you and me.	Between you and I.
Can hardly see.	Can't hardly see.
Did it.	Done it.
Different from.	Different than.
Don't get angry.	Don't get mad.
Everybody look out for himself.	For themselves.
Ought not.	Hadn't ought.
Half an hour.	A (an) half an hour.
Have not, haven't.	Hain't.
Have not any, haven't any.	Haven't got none, haven't no.
Have not obtained, received.	Hain't got.
He is in the city.	He is to the city.
He and I did it.	Him and me done it.
He let us go, permitted us to go.	He left us go.
I am not, he is not, you are not, etc.	I ain't, etc. (no such word).
I am surely glad to see you.	I am sure glad to see you.
I find it nowhere.	I find it no place.
I can't find it anywhere.	I can't find it nowhere, no place.
I do not know, don't know.	I dunno.
I have a bad cold.	I've got a bad cold.
I think it is not.	I don't think it is.
I understand his schemes.	I'm onto him, wise to him.
It isn't anywhere.	It isn't no place.
It is nowhere.	It isn't, ain't, no place.
It is a pleasant (bright, fair, warm, delightful) day.	It is a nice day.
It is of no use to try. It is useless, foolish, to try.	It is no use to try.
It was an entertaining (well acted, etc.) play or motion picture.	It was a grand (swell, etc.) show.
He and I went.	He and myself went.
He lay down to rest.	He laid down to rest.
He would have gone.	He would of ('ve) gone.
John and I did it.	John he and I done it.
Lay the book down there.	Lie the book down there.
Lend me five shillings.	Loan me five shillings.
Let him alone.	Leave him alone, leave him be.
Let the book lie there.	Let the book lay there.
I was reared on the farm.	I was raised on the farm.
Saw (past tense of *see*).	Seen.
Seem unable to do it.	Can't seem to do it.
Set the basket down.	Sit the basket down.
Sit on the carpet by the fire.	Set on the carpet by the fire.
The cup is burst (broken).	The cup is bursted, busted.
The hose has burst (broken open).	The hose has bursted, busted.
Want to come in, go out, climb up, and so on.	Want in, out, up, and so on.
We had a bountiful dinner.	We had a sumptuous repast. we had a beautiful dinner.
We had a pleasant (agreeable, delightful, happy) time.	We had a swell (elegant) time.
Where is he?	Where is he at?
Wish not to (do something).	I don't want to.

How adults may assist children in learning the English language. Grammar and language are hard for certain people because they do not realize their true nature and purpose. Many false notions have been spread abroad by those who have expected too much of children and the books they are studying. A few of these wrong ideas may be noticed briefly here.

1. Contrary to belief of many persons, the dictionary does not fix the standard of usage. Words change in meaning constantly. The makers of dictionaries hope to keep up to date in recording the use of words by careful speakers and writers. Such books merely follow the customs of good writers; they do not attempt to dictate to everybody.

2. Short words are not always preferable to long ones. Sometimes a large word is the sole one that expresses the right meaning. Children must be taught to select the right word, not necessarily the smallest one.

3. Our every-day expressions do not guide the

usage. Only those who make it a business to write and speak carefully have a right to judge which words are best to use. We look to the physician for advice as to our bodies; to the lawyer for advice as to our property; to the clergyman for advice as to our souls; and likewise should we not look to professional authors for advice as to the right use of language?

4. Informal and colloquial speech is sometimes preferable to formal and precise. Purists, however, believe that language should be kept to a certain set form. They advise us never to use words like *isn't, don't, won't;* yet many good authors use them, especially in conversational passages. Some tell us never to end any sentence with a preposition; and yet the good authors repeatedly break this rule. In fact, sometimes a small word that is emphatic *should* come at the close of the sentence. Which do you prefer of these sentences? *About what are you thinking?* and *What are you thinking about?* By avoiding the small word at the end, do we not bring about awkwardness at the beginning of the sentence? Many more expressions, homely in themselves, are to be chosen in spite of any objections by purists.

5. "Peppy" expressions are not necessarily good. Some speakers like to use newly-coined and slang words, just as some people, in other regards, enjoy being different and even fantastic. Slang is a lazy man's substitute for clear, good, living expressions. Much slang like "rubber neck" and other combinations soon passes into oblivion. Now and then a word sticks in good use. Invented expressions, too, attract many persons. Has the combination "stick-to-it-iveness" anything to recommend it? Why not use the good old word *persistence?* Must we speak of "jumping on" a person, when we have a legitimate word *insult,* which originally meant *to jump on?* If we desire to get away from worn, trite language, why not search out some of the expressive and picturesque words already in our vocabularies?

6. Children learn less rapidly by oral than by silent reading of books. Recent tests by several investigators prove this true. Parents, therefore, should encourage their little folks to read much in silence at home.

Enlarging the horizon of child life. Imagination helps children to create a world of their own making. Little folks live in the same world as grown-up persons, but they have in addition their own realm, a fairyland that is real enough to them. Adults often fail to realize this, and so expect their children to grow up too rapidly. Soon enough will our little folks emerge into the world of common day,—of every-day consciousness. We must not, therefore, be too eager to push them along; for they all too soon will abandon their play and their fairies for the life of study and business. To live in dreams, to grow gradually out of the play world, is their birthright.

Books are the portals into a world of fancy. Through them the child widens and widens his vision of the world and of human kind. Together with the school and the home, books form a third vital force in life. Books in English are stepping stones also to the knowledge of language and grammar. From the first few grades in school, they lead up and up to a summit of noble realization. Books give a love for good reading, knowledge of human nature, and zeal for progress. Through reading we acquire much of the grammar that we often miss in the school texts.

Some specific ends attained by early reading are these:

1. Training the imagination and broadening the heart interests.
2. Introduction to a new world of nature, language and history.
3. Preparation of a basis for further studies.
4. Self-expression through reciting, retelling stories, and imitating what they see and read.
5. Teaching of ideals of justice, humanity, and honor, leading to a fine sense of right and wrong.

Reading as an aid to language study. Fortunate indeed are those children who have learned the Mother Goose at their mother's knees. For such simple, primitive verses have a peculiar charm. Children do not fail to observe their faults, and yet the jingles, the pictures, and the quick turns of thought appeal to every little person's imagination. Twenty years or more change the point of view, but the grown-ups still recall with some longing the joys of hearing about Humpty Dumpty, Mother Hubbard and her Dog, Little Jack Horner, Jack and Jill, Old King Cole, Bo-Peep, and Simple Simon. Do what we may, go where we will, and these remain with us as echoes of a happy childhood.

Then follow naturally the fables, animal stories, and the tales of fairies. Children draw largely here on imagination, and they accept as true any little discrepancies of fact; for they look for the spirit, and do not bother about the trifles and inconsistencies. They do not question the marvelous growth of the bean stalk in *Jack and the Beanstalk.* Nor is it difficult to think of Humpty Dumpty as an egg. So their imaginations grow and grow, and become fit for service in adult life, where much depends on vision and foresight. All the world loves fables. The early races put themselves to school at telling fables of men and beasts. Children, also, love tales of animals and human beings. Thus we pass through the early days of love for Little Red Riding Hood, Puss in Boots, The Ugly Duckling, Little Black Sambo, The Three Bears, The Lion and the Mouse, Brer Fox, Uncle Wiggily, Black Beauty, and the long and impressive list of wholesome children's classics for reading in school and home. Then come, a few years later, the Uncle Remus Stories by J. C. Harris, *The Jungle Book* by Kipling, the stories of the Brownies in the many books by Palmer Cox, *The King of the Golden River* by John Ruskin, *The Wonder Book* by Hawthorne, the *Blue Fairy Book* and *Red Fairy Book* compiled by Andrew Lang, and many other works like these. Nor do we forget the simple narratives of our *Bible,* the *Arabian Nights,* all of *Aesop's Fables,* or *Alice in Wonderland.*

Poetry and the child. No childish life is complete without a love of poetry. Few children indeed really dislike verse. Later some of us in the schools grow to hate poetry for various reasons. Yet the race began literature on this earth with poetry, and good poems existed long before good prose, so far as our historical records and legends testify. Verse more than prose

appeals to imagination; hence, the child is at home when reading or hearing good poetry. Rhythm always charms the ear and makes the blood quicken in our veins; for do not the beats of the heart, the ebb and flow of the blood itself, show kinship with sound and motion rhythms? Rimes assist to fix the meanings and sounds of words, as every teacher and reading book seems to know. Narrative poems abound in good, strong life, action that is noble, and ideals that are worth contemplating. Every normal child finds a certain delight in the motion of good rhythms, a certain satisfaction of soul in reading of brave men and worthy ladies, a certain grace and beauty in rimes, words, and combinations of terms into short, telling phrases. For all these reasons, we must never forget our poetry in a stern world of business and science.

By the time the child is eight or ten years old, he should have learned some of the simple, heart-felt lines of Stevenson's *Child's Garden of Verses*, the story of *Little Boy Blue* and other children in the poems of Eugene Field, the noble and majestic *Hiawatha*, Longfellow's poem of Indian life, Tennyson's lilting *Song of the Brook*, Browning's galloping *How they Brought the Good News* and the fable of the *Pied Piper*, together with many simple lyrics by Aldrich, Lowell, Bryant, and Whittier. For humorous verse, which should by no means be slighted, he should know many poems like Cowper's *John Gilpin's Ride*, Lewis Carroll's *Hunting of the Snark*, the *Nonsense Anthology* compiled by Carolyn Wells.

Practical results of this early reading. Aside from the joy of knowing good literature, the moral value of reading noble books, and the entertainment derived from reading stories and poems, many definite practical results are noticed as ends of good reading. Before the child enters the upper grades in school, he should be able to accomplish all of these requirements:

1. To answer questions simply and directly.
2. To describe objects he has seen.
3. To narrate the main elements of any story he has read or heard.
4. To recognize the words that are common in our vocabulary.
5. To make up little stories and tell them to others.
6. To enter freely into language and other games that instruct.
7. To recognize good from bad literature.
8. To analyze carefully any selection from the books he had read.
9. To write with some degree of correctness and simplicity.

Ways of getting children interested. Before the reading book comes the oral narrative. Children compose and tell elaborate stories long before they can read a single page in print. Story reproduction forms a staple method in the kindergarten and first grades. All children respond quickly to direct questions on their reading. Take the pathetic tale of Little Red Riding Hood. The adult reads it slowly to the child. Then he is ready for several questions; such as, Who was Red Riding Hood? Where was she going? Why? How far was it? Whom did she expect to meet there? What was she taking? Who met her on the way? and so on. The object is always to get children to recognize and use words. This is the foundation of all language study. Next, the child may be encouraged to translate the story into his own words. Perhaps at first he may need a great deal of coaching and prompting. Then, again, he may be encouraged to make up similar stories, and to recognize similar ones in other books, or in other oral narratives.

In many schools and homes the story hour is a regular event. Abundant material for reading to children is available to all. At comparatively minimum cost, the home and school library may possess a number of such books from which a great variety of narratives may be drawn. Children love to acquire, save, and often read such books when they have reached the third grade. Some of the many good volumes are Ingfen's *One Thousand Poems for Children*, Baker's *Stories from Northern Myths*, Burt's *Poems Every Child Should Know*, and a similar book of *Prose*, Bryant's *Stories to Tell the Children*, Palgrave's *Child's Treasury of English Song*, Richard's *Five Minute Stories*, Poulsson's *Child Stories and Rhymes*, Baldwin's *Fifty Famous Stories Retold*, and Wiggin and Smith's *The Story-Hour*.

Bryant's *How to Tell Stories to Children* is an excellent work on the art of narration; it is published by Houghton, Mifflin Company.

Study of language and grammar through play. Games often provide a convenient method of interesting children in language. If they are combined with instruction on how to speak correctly, they make fine aids to the school teacher or parent. Some of the plays and games mentioned below will readily suggest others.

1. Acting. All children love to imitate. Dialogue is one of the best class-room methods of reviewing a story. Children may represent the three bears, little Red Riding Hood, and many others. Indeed any simple narrative having two or more characters may be put into play form in the class or home.

2. Games of guessing. Part of the story may be read for the pupils to arrange a convenient ending. Sentences may be written with blanks left in them for children to fill up with correct words. Some child may be sent out of the room, while others decide on some object to be guessed by him on his return. Only words in a certain list may be among those chosen as the object for guessing games. The idea in all such exercises is to train children to speak, recall, and spell certain words. Different other variations on the game of guesses may be originated by any teacher.

3. The game of likes and opposites. One child begins with some familiar word and asks another to give one of similar meaning, or one of opposite meaning. Some one writes all the words on the board for further study. Cross word puzzles even might be introduced as aids to learning synonyms and antonyms.

4. The game of related words. One person says, The ball is *round;* another, The ball is *red*, and so on. Trees, birds, nations, studies, and many other groups may be used to vary the exercise. The object is to collect lists of related objects, or a great variety of adjectives that might refer to a single article.

5. The game of sound families. One may

begin with a word like *at,* while others think of similar variations like *bat, mat,* and so on. Every good spelling book now arranges words by sound families, or by phonograms, as they are called.

6. The game of anagrams, which may be purchased at almost any store. This provides a valuable exercise in word groups.

7. The postal game. Postal cards, or slips of paper, are written and circulated among the members of the class. The object is to teach the proper forms for address, salutation, close, and the simple things one may put into a good card or letter. The teacher acts as scorer or critic.

8. Rapid reading game. A page of new material may be assigned for pupils to read. After a sufficient interval, they are questioned to find out how they understood it as a whole, how many new words the readers found, how many familiar names of a certain kind, and so on.

9. Word relay race. Several words are placed on the blackboard. The children are divided into small groups. At a given signal one of them takes a dictionary, looks up spelling, pronunciation, and meaning of a word in the list; then he passes the book to another; and so on. Two or more groups compete against each other.

10. Speed test game. Select a certain class of words,—like names of animals, nouns, adverbs,—and see which pupils or groups can collect the largest number of words in a specified time.

By the time the little folks have reached the grammar school, they should be well grounded in the foundations of language. The chief constructions of simple grammar should also be well learned by this age. Then comes the formal study of grammar in a more complex form. For the purpose of home study or for those who never have had opportunities to sift English grammar thoroughly, the following summary has been compiled. Much has been omitted in an attempt to boil the main principles down to lowest terms.

SENTENCES

A sentence is the expression in words of a single, complete thought. It is the smallest unit of composition. The individual sentence, however, may be composed of two or more ideas, depending on the number of parts or modifiers. *We learn,* as a sentence, contains two ideas: that of several people, including the speaker, and that of the process or act of learning. The relation or comparison of these ideas constitutes a sentence. In similar fashion every sentence is composed of smaller parts or ideas as expressed in words. A word in itself cannot make up a sentence, unless it is like *Yes* or *No,* with the rest understood from the context.

Thus, at the outset, one must learn the difference between an idea and a sentence. It is wrong to say that a sentence contains one idea; for that properly is the definition of a word, which is a symbol of an idea. It takes a group of ideas to make a sentence. *Children learn rapidly in school,* as a sentence, contains four related ideas, making up a single thought or complete unit. These are the ideas of those who learn, of the learning itself, the rate of learning, and the place where the children learn.

Ideas are of two kinds. Sometimes we think of definite objects—concrete things, as we call them. Again, we think of abstract or general qualities. One is material; the other is immaterial. *My hat* is concrete; so is *house,* if we have a particular one in mind, or a concrete idea of a house. On the other hand, *truth, principles, justice, sourness,* are abstract, immaterial conceptions or ideas. Midway between these two extremes lies a common ground, where the two meet; and so *house, hat, desk, ball,* though not in themselves complete, arouse ideas of something tangible. When we say, *My hat, our house, the teacher's desk, John's base ball,* we go as far as possible in making these objects particular, single, and unmistakable.

Sentences must be distinguished from fragments. Every good sentence must be complete in itself. It must have a subject and a predicate, definitely expressed or at least clearly understood. All the parts must harmonize in thought and grammar, so that the whole is complete, well-rounded, and definite. Fragments are of four kinds. 1. Relative clauses, without definite connection. *Which we did,* for example, is not a complete sentence, but a subordinate clause, even though the meaning is clear from the context. Nor must *who* or *what,* in relative clauses, be used independently; for they are not major or independent subjects. 2. Participial phrases must not be used as sentences. *John won the track meet. Being a good runner.* Here the last four words are a real part of the first group. Together both parts should make up the sentence, the last four words being set off from the rest, not by a period but by a comma. 3. Other phrases do not make complete sentences. *With the best of intentions* or *Decidedly the best* are not complete units in themselves, but evidently belong to some part of the sentence that is not here expressed. 4. Adverbial clauses, likewise, may not stand alone as sentences. *John won the prize in spelling. When he was in grammar school.* Here again the two groups of words make up a single sentence, and the second must not be cut away from the first. The same is true of the groups that follow: *John won the spelling prize. Though he is the youngest student in the class.* 5. Stray groups of words should not stand as sentences. For instance: *He was the best student in the class. Evidently. The sooner, the quicker. Best of all.* The last three groups are fragments. The first is a complete sentence.

Sometimes two or more sentences are joined wrongly together as if they were one single sentence. A good sentence, as we have just seen, must be complete, logically and grammatically. On the contrary, a good sentence must be *single,* as the word itself in the definition indicates. Different forms are here illustrated:

1. *He hitched old Dobbin to the cart and drove to town, here he purchased his supplies for the following month.* In this sentence we really have two different thoughts; hence a new division should begin with *here.* Notice that some compound sentences, with parts joined by use of a semicolon, are really single. One should be on his guard, however, against putting two unrelated parts together. Merely because one act or part of a process follows in time order does not make the two connected in any other manner.

2. *It rained hard all day, so we remained indoors.* This sentence is incorrectly written; for there are two distinct parts. The comma, then, should give way to a semicolon. This type of error is one of the commonest in writing, but all recent books on composition teach us to avoid it altogether. Here, again, the two parts must have some logical connection, or two sentences should be formed. Another correct form would be made by placing *and* after the comma.

The two correct sentences would thus be written:

It rained hard all day; so we remained indoors.

It rained hard all day, and so we remained indoors.

3. *He was stingy, though he was an old soldier.* This illustrates a third type of incorrect sentence, since it is illogical and absurd. There is no real connection, necessarily, between the two parts. At best we have here two sentences, or the foundation for two.

Good sentences may be classified in various ways. They may be

1. Long or short or average.
2. Declarative, interrogative, imperative, and exclamatory.
3. Loose, periodic, balanced.
4. Normal or transposed in order.
5. Simple, complex, compound.

1. In length, sentences vary with different writers. Macaulay tends toward a rather short sentence, well knit or balanced, Ruskin toward a very long flowing, loose sentence. Bacon, Emerson, and Stevenson write sentences of average length; Milton writes those that are long and involved, and sometimes Dryden follows his example. No limit can be mentioned as the average, though, roughly speaking, after twenty-five or thirty words, sentences become long. They vary from a single word like *Yes*, which answers a question, to forms of many complex and compound parts.

2. According to intention of the speaker, sentences may be grouped as follows:

a. A declarative sentence affirms or denies, as *Children learn rapidly. The lazy child falls behind the class; for he does not apply himself.*

b. An interrogative sentence asks a question, as—*In which grades do children learn most rapidly?* In this type the verb precedes the subject in most cases.

c. An imperative sentence makes a request, command, or entreaty, as *Children, learn your lessons.* The normal form omits the subject of the verb, which is in the second person.

d. An exclamatory sentence expresses unusual emotion or surprise, as, *How slowly that child reads!* This type is usually characterized by some word like *how*, or some preliminary interjection like *alas, oh, well.*

3. According to arrangement, with reference to termination of the main ideas, sentences are loose, periodic, and balanced.

Loose is the normal form. Many sentences show their meaning before the last word is heard or read.

Dr. Johnson's style, critics once said, is a model for young beginners.

My father recommended this style to me when I began to write letters for him.

All my doubts on the subject were set to rest, but I have since wondered indeed if father really was right in such matters.

In these good loose sentences, the first might end with the word *model;* the second with *style* or *me* or *write* or *letters;* the third with *rest* or *wondered* or *indeed* or *right.*

Many loose sentences, however, are too involved, too rambling, or too disjointed to be thought good in form. These are corrected by division into their several logical parts. For instance, take the extract that follows and note how many real thoughts are expressed therein. "When there is sap enough to fill the large kettles, the boiling begins, as the sap becomes thicker, it is poured into smaller kettles, until it becomes a dark brown syrup, some of this is sent to the market in gallon cans." This quotation from a student composition obviously falls into three natural sentences, the second of which begins with the word *as*, and the third with *some.*

Periodic sentences differ strikingly from loose sentences. Unlike the loose variety, they are complete only with the last word or small group; and the meaning is not entirely clear until the period is reached. *Aye, tear her tattered ensign down!* and *In the spring a fuller crimson comes upon the robin's breast*, are good examples. This kind is used often for emphasis, where the last words are specially important. When employed to excess, or with small, unimportant elements last, periodic sentences quickly become an affectation.

Once the balanced type of sentence was in great vogue. In terse, epigrammatic poetry like that of Pope, it long was popular. Many big and little authors were imitating Pope's style: *To err is human; to forgive, divine.* Many of the *Psalms* are balanced in sentence form, as *A false weight is an abomination to the Lord; but a just weight is His delight.* Men like Macaulay and Carlyle used it almost to excess.

One may see, then, from the preceding discussion that good sentences should follow certain recognized principles. A writer may easily check himself of some of the common faults by asking a number of questions.

1. Is the thought completely expressed?
2. Is there more than a single, complete thought in the sentence?
3. Is the thought there expressed exact and logical?
4. Are the parts arranged so as best to bring out the meaning?
5. Which kind of sentence is preferable,—loose, periodic, or balanced?

4. Normal order in the sentence is subject, verb, and rest of predicate. Many times, however, it seems best to place some modifier or the verb itself before the real subject. In the sentence *Birds fly southward in the autumn*, the order is normal; but place the phrase *in the autumn* first, and the order becomes transposed. In sentences like *Strike for your altars and your fires*, and other imperatives, the emphasis is gained by omitting the subject and placing the verb first. In a sentence like *Generous he was to a degree*, the predicate adjective comes first, making the fact of his generosity all the more prominent. Though the average sentence falls naturally into the regular or normal order, one

should always be on the lookout for chances to emphasize by varying the arrangement.

5. Grammatically, sentences are also classed as simple, complex, and compound.

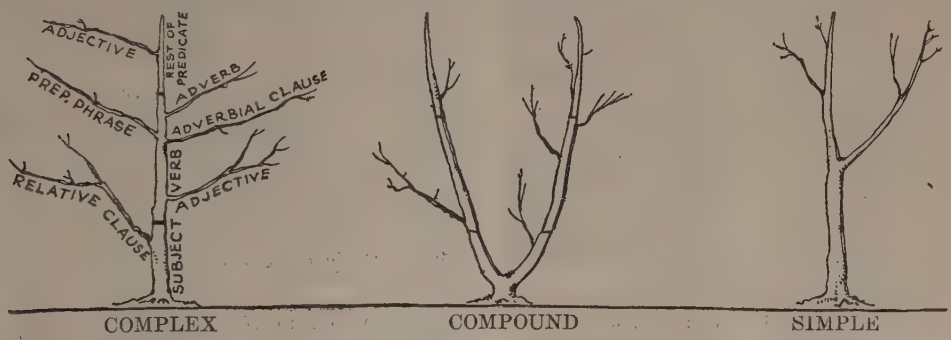
a. A simple sentence contains one statement in a single clause, without any subordinate clause. It has one predicate and one subject group, though either subject or predicate, or both indeed, may be compounded. *Flowers are plentiful here. Rains have been abundant this spring.* These are two simple sentences. If one says *Flowers and grass are abundant here,* the sentence is still simple; for its subject, though compounded, is still simple. *Flowers are abundant and beautiful this spring* has a compound predicate, but the sentence is still simple. *Flowers and grass are abundant and beautiful this spring,* though both subject and predicate are compounded, is still a simple sentence.

b. This last may be turned into a compound sentence by making a slight change. *Flowers are abundant, and grass is plentiful too this spring* is compound; for it has two complete subjects and predicates, combined independently each of the other set. Sometimes the compound sentence omits the conjunction, in which case the best punctuation, as already shown, is the semicolon. *Flowers are abundant; rain has been plentiful*—would illustrate.

c. A complex sentence is built up of one principal and at least one dependent clause. The second may not stand alone; for it is connected to the other and gets its status from the main clause. *Since rains have been abundant, flowers are plentiful this spring* is a good complex sentence. The first part, however, is the subordinate element, which in transposed order, often comes before the principal. *Since rains have been abundant* would be a mere fragment, standing alone. Add to the first part, *and the sun has been hot,* and the sentence becomes compound in its complex element, but is still a complex sentence, having only one principal clause.

d. Different additional combinations are also possible. For instance, the sentence might be both complex in its first element and compound in the second, as *Since rains have been abundant, the flowers have grown, and the grass is much taller than usual this spring.* This is called a complex-compound sentence. Or, the first element might be compound, the second complex, in which case the sentence would be called compound-complex. Since these are only combinations of the other forms, it is not necessary to recognize them as separate and distinct types of sentences.

We have now seen how sentences are built up in their main elements. Later we shall analyze them into their clauses, phrases, and even into separate smaller word groups. For the present, it is enough to get a fundamental idea of the sentence and its chief divisions and forms. This may be expressed in visual language. For a sentence is much like a tree, having a main trunk, and various modifiers or branches. If we take subject, predicate verb, and object or other main part as the trunk, in different sections, the adverbs, adjectives, and other modifying words and groups seem exactly like branches as they shoot off from the main body of the tree. Just as there are twin trees, or two or more growing from the same roots, so there are compound sentences, connected at the root by some conjunction. Just as there are main trunks, and other branchings almost as large, but not independent, just so the complex sentence has one main and at least one large dependent part. All this may be put in form of a pictorial illustration, as noted below:



Phrases and Clauses. Larger parts within sentences are called phrases and clauses. Though often confused, they are easily distinguished when one gets the chief distinction between them. Phrases do not contain either subject or predicate; while clauses have both, but are not complete sentences as such. A phrase never could be a complete sentence, but a clause could, if arranged properly. *While he was here, he bore a good reputation* contains both principal and subordinate clause. The first could stand as a sentence if *while* were omitted; the latter, as it stands could be a sentence, if it were detached from the rest.

As to form both phrases and clauses may be simple, complex, and compound.

1. Simple phrase,—We came *in the afternoon.* The last three words are a prepositional phrase.

2. Complex phrase,—We came *in the afternoon of the last day.* Here the last four words modify the other, preceding prepositional phrase.

3. Compound,—We came *in the afternoon* and *in the way appointed.* These two prepositional phrases are coordinate.

Infinitives are also used frequently in phrases. Any prepositional or infinitive phrase may have one of three uses.

1. As adjectives,—The man *in the moon* looked down too soon. Here the italicized words modify *man* as a single adjective.

2. As adverbs. Any of the illustrations given just above shows the adverb use, as *in the afternoon* modifies the verb *came*.

3. As substantives, that is, as subject of a verb. *To err* is human shows an infinitive as subject of the verb.

Clauses are classified in the same way as to form and use.

1. Simple clause,—*That he would come* is doubtful. The emphasized words are here used as substantive, subject of *is*. The clause is simple since it contains one main part.

2. Complex clause,—*When he came*, it was evident he would not tarry. Since the italicized words modify the verb, they are used adverbially. The clause is complex because it is subordinate to the rest of the sentence, or to the principal clause.

3. Compound clauses,—*That he would come or that he would not* was doubtful. Being on the same footing, these clauses are coordinate; and they are principal clauses, both being subject of *was*. They are thus substantive clauses. He *that would come* illustrates an adjective clause, since the emphasized words modify *he* as an adjective.

Clauses are also named according to their *rank* in the sentence. They are principal (main or independent), subordinate (or dependent), and coordinate.

1. A main clause is one that has subject and predicate, and is not dependent on any other part of the sentence.

2. A subordinate clause depends on a main or principal clause. It may not be written separately. *When man proposes*, God disposes. The italicized words are a subordinate clause, while the rest of the sentence is the main clause.

3. Coordinate means one of at least two. For any coordinate clause, there is, of course, another corresponding one. *Man proposes, but God disposes.* Here are two main coordinate clauses. Two subordinate clauses may also be coordinate if on the same footing.

Classification of the Parts of Speech. Various functions are recognized in the use of words. Some name or point out material and immaterial ideas. Some show action. Others modify or describe. Still others connect. One part of speech is independent of all others in a sentence. According to these functions, then, the following classification may be made:

1. **Name words** like nouns and pronouns.

2. **Action words** like verbs. These are, in turn,

a. Finite, as all regular parts of the verbs.

b. Non-finite, as infinitives and participles. These last may not stand alone, without other related verbs, in a sentence. In other words, every sentence must contain a finite verb, expressed or definitely understood.

3. **Modifiers,** as adjectives and adverbs.

4. **Connectives,** as prepositions and conjunctions.

5. **Independent,** as interjections and extra-grammatical words which are called expletives and which have no grammar connection with the rest of a sentence in which they form a part. In the sentence, *There are many kinds of truths,* the word *there,* for instance, is usually called an expletive.

Each part of speech has certain characteristics called **properties.** Any change or modification of a word is a property. Thus number is a property of both nouns and verbs. Inflection is the name given to any change or variation in words to show their grammatical connections. Other words used in classifying parts of sentences are also defined, below.

1. **Declension** is the inflection of name words.

2. **Comparison** is the inflection of adjectives and adverbs, or modifiers.

3. **Conjugation** is the inflection of verbs. A short form, in which only a certain part like one person in each tense is given, is called a synopsis.

4. **Parsing** is the naming of all the properties of a word, with its construction, and rules governing its use.

5. Syntax is the construction of a word or group of words with reference to the sentence in which it occurs.

6. Analysis is a division of a sentence into its parts to show the construction and syntax of all.

7. Diagramming is the representation of the analysis in visual form by means of related lines or other devices.

NOUNS.

Ordinary name words are called nouns. These name a general class without specific reference to individual members, as *boy, man, city, house, walk.* Or, they name a certain person or object that is separated from the general class, as *John Paul Jones, Henry, Washington Opera House, Wilson Plan, League of Nations.* The first group is called common or general; the second, proper or individual.

1. Common nouns, then, designate a group or class generally.

2. Proper nouns designate only certain, particular individuals.

Sometimes one kind becomes the other in use. The common noun *boy*, necessarily, becomes part of the proper name, *Mill Boy of the Slashes.* In the sentence *Birds fly southwest,* the last word is certainly a common noun; it is proper in the sentence, *Birds live in the Southwest in winter.* The same distinction lies in the use, *Birds fly southward in autumn, because they find the climate in the South more congenial than in the North.* In one case, only a general direction is meant; in the other, a definite locality or region. Again, in the sentence, *Daniel was a wise interpreter,* the name is proper; but in the sentence *A Daniel come to judgment,* it is certainly common, and perhaps should be written with a small initial letter.

Since proper names are definite and conventional, they do not fall into different sub-classes. On the other hand, common nouns may be either abstract, or collective, or simple class names.

1. Abstract nouns usually name attributes and qualities. Some of the many words in this class are *bitterness, death, goodness, foolishness, knowledge, valor,* and *warmth.* By personification they become proper.

2. A collective noun groups individuals into a class, which is thought of as a unit. Gram-

matically a collective noun is singular, taking a singular verb.

A few of the many are *committee, company, government, bevy, herd, group, swarm.*

Note: In England many such words are thought of as plurals, such as *committee, company, government;* and the sentence *The committee are* or *The Government are* is common.

3. Class nouns include the hundreds of common words like *day, desk, house, window, men, clothes.*

Properties of nouns. All nouns have four properties; these are person, number, gender, and case.

1. Both singular and plural nouns have three persons, first, second, and third. In the first person, a noun is used only in apposition (usually with a pronoun) or in an absolute construction: I, *Ozymandias,* am king of kings. The second, or person spoken to, is common in direct address: *Ozymandias,* you are king of kings. Most nouns belong to the third person, or person spoken of, as commonly used: *Ozymandias* is king of kings.

2. Number is the property of a noun which shows whether an object is single or more than one. The two numbers recognized in English are singular and plural. These are shown in various ways.

a. By change in the ending of the word, such as by addition of *s* or *es* to the singular to indicate the plural. Desk, desks; box, boxes; ax, axes; church, churches; boy, boys.

b. By changing the main part of the word or the root. Thus: *man, men; woman, women; goose, geese; tooth, teeth; mouse, mice; ox, oxen; foot, feet.*

c. By irregular end changes, as *y* to *i* when *es* is added, as in *cry, cries; fly, flies; lady, ladies; glory, glories;* or by changing *f* or *fe* to *v* when *s* is added, as in *calf, calves; half, halves; beef, beeves;* or by adding *s* only instead of *es* to words ending in *o,* as in *canto, cantos; quarto, quartos; two, twos; solo, solos.* One must learn whether these words end in *oes* or *os,* since no rule includes all, without many exceptions.

d. By adding *s* alone to most proper names. It is a common blunder to write these plurals of personal names with an apostrophe. The correct forms are, *Mary, Marys; Brown, Browns; White, Whites; Henry, Henrys.* Some names already ending in *s* follow the regular rule in adding *es* for the plural. The correct forms are: *Jones, Joneses; Dickens, Dickenses; Edwards, Edwardses.*

e. By adding the apostrophe and *s* to make the nominative and objective plural of letters, signs, symbols, and figures. Thus: mind your *p's* and *q's;* cross your *t's* and dot your *i's;* 3 *9's; *'s; the's; x's.* These forms must not be confused with the possessive case. They illustrate the only forms using the apostrophe for any cases except the possessive.

f. By pluralizing the important part of compound words. *Attorneys-at-law, chess-men, courts martial, commanders-in-chief, spoonfuls, cupfuls, wagon-loads, foemen, hangers-on, knights-errant.* Some in this class add *s* to both parts of the compound: *knights-templars* (or *knights-templar*).

Irregularities in number. Exceptional to the rules, or to any of the six classes of plurals already mentioned, several groups show peculiar formations.

a. Certain abstract nouns conveying indefinite ideas of quantity, with no thought of measure or division into parts, always are thought of as plural. Some of them are *greatness, harshness, meekness, wisdom.* Now and then they may be pluralized by adding *s,* but in such cases a new meaning is apparent.

b. Many common words are plural in form, but singular in meaning and use. Thus: *ethics, news, molasses, physics, mathematics, riches, thanks.*

c. Many words are used only in the plural, as *alms, eaves, dregs, pincers, scissors, scales, colors* (the flag), *bitters* (medicine, plural of bitter).

d. Many words have two plurals, with different meanings.

singular	*first plural*	*second plural*
brick	bricks (individually)	brick (collectively)
cannon	cannons (individually)	cannon (collectively)
cloth	cloths (pieces of goods)	clothes (made into garments)
die	dies (stamping metals)	dice (cubes for gaming)
fish	fishes (individually), or	fish (in bulk)
foot	feet (to stand on)	foot (in compounds, foot-rule, footman)
genius	geniuses (individuals)	genii (spirits)
head	heads (individuals)	head (collectively for number of)
horse	horses (animals)	horse (mounted men)
index	indexes (tables of contents)	indices (as in mathematics)
medium	mediums (people)	media (means, things)
penny	pennies (number of)	pence (by value, or a measure)
shot	shots (loads fired)	shot (in bulk)
staff	staffs (as military)	staves (sticks)

e. Many foreign words adopted into English have two plurals, one foreign, the other English. Sometimes the foreign is technical or scientific; the native popular or general. A few of them are noted here.

singular	*foreign plural*	*English plural*
bandit	banditti	bandits
cherub	cherubim	cherubs
fungus	fungi	funguses
memorandum	memoranda	memorandums
nebula	nebulae	nebulas
nucleus	nuclei	nucleuses
seraph	seraphim	seraphs
stamen	stamina	stamens
tableau	tableaux	tableaus
virtuoso	virtuosi	virtuosos
vortex	vortices	vortexes

f. Foreign nouns with foreign plurals, without corresponding English forms.

singular	*plural*
alumnus	alumni (masculine)
alumna	alumnae (feminine)
analysis	analyses
antithesis	antitheses
axis	axes
bacterium	bacteria
basis	bases
crisis	crises
crucis	cruces
datum	data
ellipsis	ellipses
focus	foci
oasis	oases
parenthesis	parentheses
synopsis	synopses
thesis	theses

Gender is a property of nouns and pronouns related to sex. Four kinds of gender are usually recognized,—masculine, feminine, common, and neuter.

Nouns that represent a male object are said to be masculine. Likewise, those that represent feminine are said to be feminine. Since many words are used without thought of whether they apply to males or females, they are called neuter; and most words belong to this class, like *tree, house, pen, engine, grapes, water* and *street.* Another considerable class like *servant, person, one, somebody, worker, agent,* may indicate either males or females, as the context shows. These are called common; and they are used without any reference to sex.

English is fortunate in that natural and grammatical gender in our language usually are the same. By a sort of personification, some objects like *ships, cities, beauty, college* are said to be feminine; but this type of figurative use, except in poetry, seems to be on the decline at present. Some foreign languages do not follow logical gender in their nouns and pronouns In German, for instance, the word for *boy* is *neuter;* so is the word for *maiden* or *girl;* the word for *key* is masculine; so is *evening, distance, excursion, rising,* and many others that in English are neuter. In fact, in learning German and some other languages, one needs to know the gender of almost every word, and this is marked in the vocabularies. With but few exceptions in English, one knows at once whether a word is masculine, feminine,—either, or neither.

Gender is shown in English in three main ways according to the form of words.

1. Names are known usually to belong to males or females; for we have one set for men and another for women. A few like *Marion, Shirley,* and certain family names as bestowed names, do not in themselves indicate that the person bearing one of them is masculine or feminine.

2. Sometimes entirely different words are used.

masculine	*feminine*
bachelor	maid, spinster
beau	belle
billy-goat	nanny-goat
boy	girl
brother	sister
bull (ox)	cow
colt	filly
drake	duck
drone	bee
earl	countess
father	mother
gander	goose
husband	wife
king	queen
lad	lass
lord	lady
monk or friar	nun
son	daughter
sir	madam
stag	hind
tercel	falcon
wizard	witch

3 Sometimes feminine gender is shown by a slight change from the masculine ending.

masculine	*feminine*
actor	actress
administrator	administratrix
baron	baroness
count	countess
czar	czarina
don	donna
equestrian	equestrienne
fiance	fiancee
Francis	Frances
god	goddess
heir	heiress
infante	infanta
Marion	Marian (Marion)
signor	signora, signorina
testator	testatrix
widower	widow

4. Sometimes prefixes or suffixes show change in gender from masculine to feminine.

masculine	*feminine*
man-servant	maid-servant or woman-servant
peacock	peahen
salesman	saleswoman
guinea-cock	guinea-hen
tom-cat	tabby-cat

Case is determined largely by usage in a sentence, or by the syntax of a noun or pronoun. English recognizes only three cases, the nominative, possessive, and objective.

1. The nominative case has various ordinary uses, chief of which is to indicate that a certain word is the subject, but there are a number of others easily recognized.

a. Subject of a finite verb. *Grammar* is not a difficult study. *It* can be explained simply. The average *person* can understand it.

b. Predicate nominative (attribute complement), when the subject is nominative and the verb is some form of *be, seems, appears* or other link-verbs. Grammar is not a difficult *study.*

c. In apposition to the nominative subject. Henry of Navarre, the French *knight,* was brave. He is your brother, *Henry.* He, your *brother,* should willingly aid you.

d. Subject of an independent participle. *He* having permitted us, we entered the garden. In such sentences, the subject of the participle is different from the subject of the finite verb in the clause.

e. Complement of the participial form of the link-verb. He being our *guide,* we entered the garden.

f. In ordinary absolute constructions. *Child,* come here. Kind old *king!* The good old *days,* where are they? In such cases the construction is independent of the remainder of the sentence; or, as in the second example, it stands alone.

2. The possessive case shows actual ownership or continual possession. When possession is not real, or is temporary, most authorities advise us to use the phrase form. Especially in the case of inanimate objects, the *of* form should be used. Thus, *the streets of the city, mayor of the town, banks of the river* are preferable to *the city's streets, town's mayor,* and *river's banks.* Sometimes, as in the last instance here, the form may be changed from the possessive to the ordinary modifying adjective construction, as *river banks.*

a. The regular form of indicating possession is by the use of the apostrophe and *s. The boy's book, men's houses, the dog's ears.* This applies to both numbers.

b. Plurals ending in *s* already add the apostrophe without a second *s. Boys' games, authors' rights, homes' joys, sailors' snug harbors.*

c. Singulars sometimes also omit the second *s*, especially in words of more than one syllable.

d. Modern authors, however, tend to prefer to use the second *s* in the case of monosyllable proper names and some polysyllables also.

Thus: Burns's poems, Dickens's novels, Jones's store are well recognized among such forms.

Note: the possessive form *'s* is a remnant of an old case ending in English, which was either *es* or *is* for the genitive or possessive case. At present the *e* is replaced by the apostrophe. The possessive in modern English is the only case form consistently different from the others. Nominative and objective of nouns and most pronouns are identical.

e. As an English idiom the possessive case is often used before a participle, which itself has an object or other modifier. *His speaking ill* of them was wrong. *John's shouting to them* was effective.

Note: a common mistake lies in the use of the objective in such cases, as I do not like *him* going, which should be *his going*. Again, there is a difference between *John shouting* to them was effective, and *John's shouting*. In one case it is John that is effective; in the other his shouting. So much confusion results from awkward uses of this construction that one had best avoid it unless he is absolutely certain it is both correct and pleasing. Grammarians differ as to whether the possessive should be classed as the subject of the participle in a sentence like the first above (*His speaking*) or whether it should be called a possessive pronominal adjective.

f. To indicate common ownership by two persons or by a firm, the second name only needs the possessive form. *Reed and Barton's store* is correct, if the store is owned by the two men. Conversely, to indicate single ownership, the form must be used with each separate name in the series. *Men's and women's shoes, Boys' and girls' hats, Washington's and Lincoln's farewell address.* If the last word, *address*, is pluralized, it means that each man spoke more than one farewell address.

Likewise in compound terms like knight-errants, the last of the parts takes the apostrophe and *s*, or the apostrophe only for the plural possessive.

3. The objective case. The third case of the noun is used in several constructions, some of which give considerable difficulty. Below are found the various uses of the objective.

a. Object of a transitive verb. Intransitive verbs take no objects. This object is often called the direct object, or the object complement. God made the *country*, but man made the *town*. Strike up the *drum*. In this latter case *drum* is object of the verb phrase *strike up*, not of the preposition *up*.

b. Object of a preposition. He went to the *town*. Here *town* is the object of the word *to*, not of the verb.

c. Indirect object. Give *me* the book. Here *book* is the direct object, and *me* is another of somewhat different meaning. In many such cases the indirect object might be thought of as the object of a preposition not expressed, as here, Give the book *to* me, would be the full sentence. Notice that the indirect object occurs only when there is already a direct or regular object of the verb.

d. Adverbial objective. Another form somewhat resembling a prepositional phrase without the sign is the adverbial objective. This has to do mainly with measures of time, space, value, and the like. Some examples are: He walked *four miles* (that is a distance of four miles or *for* four miles); The bells rang *all night;* He went too *far*.

e. Subject of the infinitive. He wishes *John* to remain here. They took *Walter* to be a freshman. He wants *me* (to be) *punished*. Let *him* (to) remain. In all such cases the word following the verb is not the object; but is the subject of the following infinitive. All the sentence after the verb, not the noun or pronoun, is the object of the verb. This construction gives constant trouble, because students forget these facts. English, along with most modern languages, has the same idiom,—the subject of the infinitive in the objective case. Historically this construction is rather old; and it is not entirely possible to explain just why it has become idiomatic.

f. Objective complement. If the subject of the infinitive is always objective, and any predicate noun or adjective is used as a complement (or with the verb *be, seems, appears,* or link equivalents), then that complement must also be in the objective case. For, complements agree in case with the subject of the verb in the sentence. They took John to be *me;* here *me* is correctly objective, agreeing with *John*, which is objective, being used as subject of the infinitive.

Warning: The term *objective complement* must not be confused with *object complement*, as the regular object is sometimes called. Because of this possible confusion, due to similarity of the names, it seems wise not to use the term *object complement* at all.

g. False objects. Passive verbs do not take regular objects. Indeed the passive is much overused by ordinary writers. In the sentence *They called him John*, undoubtedly *John* is objective since the infinitive *to be* is understood. He was called *John* is a difficult sentence to construe; for *John* cannot be a real object of the passive. One may say that it remains in the objective form because it is a real objective case in the first sentence. The sentence *The teacher gave me a lesson*, may be changed to *I was given a lesson by the teacher*. In this case *lesson* remains in its old place, and looks like an object, though in all logic it is not. Notice incidentally that the indirect object *me* becomes the subject in the new sentence, while the old subject now becomes object of the preposition *by*.

Parsing of nouns. To explain a noun in any sentence, all the information should be kept in mind. The complete parsing must name these elements: 1, kind and subdivision if there is one; 2, person; 3, number; 4, case; 5, construction; 6, rule; 7, anything unusual.

TABULATION OF NOUN FORMS.

Kinds:

1. Common
   - a. Abstract
   - b. Collective
   - c. Class
2. Proper

Properties:

1. Person
   a. First
   b. Second
   c. Third
2. Number as shown by
   a. Change in ending of word
   b. Change in root
   c. Change irregularly
   d. Change of *y* to *i* with *es*
   e. Addition of *s* to proper names
   f. Addition of *s* to important parts of compounds.

   Number as shown irregularly
   a. No plural of some abstract nouns.
   b. Plural in form, singular in use
   c. Plural only
   d. Double plurals
   e. Foreign singular, foreign and English plurals
   f. Foreign singular, foreign plural
3. Gender: kinds
   a. Masculine
   b. Feminine
   c. Neuter
   d. Common

   Gender as shown in four ways
   a. Different personal names
   b. Different words
   c. Change in ending for feminine
   d. Prefixes and suffixes
4. Cases

   Nominative in
   a. Subject
   b. Predicate complement
   c. Appositives
   d. Subject of independent participle
   e. Complement with participle
   f. Absolute constructions

   Possessive in
   a. Regular singular forms
   b. Regular plural forms
   c. Singulars ending in *s*
   d. Proper names
   e. Possessive with participle or gerund
   f. Possessives in compounds

   Objective in
   a. Object of transitive verb
   b. Object of preposition
   c. Indirect object
   d. Adverbial objective
   e. Subject of infinitive
   f. Objective complement
   g. False objects

Parsing
1. Kind and subclasses
2. Person
3. Number
4. Case
5. Construction
6. Reason or rule for use
7. Anything unusual

PRONOUNS.

Sometimes a word points out an object without naming it. Such a term is used in place of a noun and is called a pronoun. The prefix *pro*, in this case, means *for* or *instead of*.

Pronouns are divided into three classes or kinds. They are **personal pronouns, interrogative pronouns,** and **relative (conjunctive) pronouns.**

1. Personal pronouns are used to avoid repetition of corresponding nouns. If one wishes to repeat the essential idea contained in a word, he may use a synonym of that word, or he may use one of the pronouns. For example, one may say *Houses* are costly these days; *they* have risen gradually in price for several years; or, he may say, *Houses* are costly. Such *buildings*, etc., using a synonym.

Corresponding to the three persons, in each number, there are pronouns, as follows:

a. First person, *I* and *we*.
Second, *you* or *thou* and *you*, or *ye*.
Third, *he*, *she*, or *it* and *they*.

You was once plural only, and so at present takes a plural verb; we understand from the context whether one or more than one person is meant. *Thou*, once the only second pronoun, is now used in poetry, in reverential address, or among certain sects like the Quakers. *Ye* is the corresponding plural, but it is less frequently used. Possessive forms are *my* and *mine*, *your* and *yours*, *thy* and *thine*, *his*, *hers*, *its*, and *theirs*. Separate objective forms are *thee*, *him*, *them*.

For convenience, the declension of personal pronouns may be represented in tabular form:

Singular

Nominative, first person, I; second, you, thou; third, he, she, it.
Possessive, first person, my; second, your, thine; third, his, her, hers, its.
Objective, first person, me; second, you, thee; third, him, her, it.

Plural

Nominative, first person, we; second, you, ye; third, they.
Possessive, first person, our; second, your; third, their.
Objective, first person, us; second, you; third, them.

b. Compound personal pronouns are formed by the addition of *self* to the simple forms just described. They are *myself*, *thyself*, *yourself*, *himself*, *herself*, *itself*, *ourselves*, *yourselves*, *themselves*.

They are used intensively and reflexively. *He himself* is to blame, *I myself* will do it; *we ourselves* decline the honor are examples of the intensive use, which is more emphatic, or used to distinguish between one person and another possible person who might but does not do something as specified. So, *I myself* may be taken to mean, I will do it, not someone else. Notice that at present grammarians consider it wrong to use the intensive form without the corresponding other pronoun. *Myself* did it is considered wrong. *He* and *myself* went should be *he* and *I* or *he* and *I myself*. The reflexive use, always objective, shows that the subject of a verb does something that affects or concerns himself. Thus: I hurt *myself;* they deceive *themselves;* the dog hurt *himself;* it hurt *itself*, illustrate. Sometimes in poetry or in certain peculiar idioms in English these distinctions are not maintained.

c. *It* is sometimes used in general or peculiar senses. We call the baby *it*, if we do not know whether the child is male or female,—but no mother feels complimented by this use. *It* is often used as a false subject; or to point out the fact that the real actor is unknown, or is general, that is typical of all persons. *It* is I; *it* is he: *it* is who or who is *it?* illustrate. *It* is human to err; *it* rains; *it* (whatever we see) seems to be a crow, are more general.

The habit of using *it is*, *there are*, and similar expressions frequently is one that speakers and writers should check.

2. Interrogative pronouns are used in questions. *Who* and *what* are the simple interrogatives. *Which*, though often called one of this class, in use really is an adjective; for it is always followed by some noun or pronoun that it modifies. *Which* book is it? *Which* one do you mean? *Which* do you want? In the last

of these illustrations *one* is understood after *which*.

Who is declined as follows:

Nominative, who
Possessive, whose
Objective, whom

Who is among the few words in English that have three forms for the corresponding cases. Though *whose* is recognized as the possessive form of *which*, some grammarians insist that *of which* should replace this form for the possessive.

Questions are either direct or indirect. *Who was it that came?* is a direct question, but *I know not who it was that came* is indirect. One asks the question; the other implies it. Otherwise there is no difference in the uses.

3. Relative pronouns, which also usually connect, are divided into three classes.

a. The simple relatives are *who, which, that,* and *as*. *Who* is used for reference to persons. In personification this pronoun also may refer to animals, but otherwise it may not. *Which* refers to animate or to inanimate things. As an adjective pronoun, it is used as in the sentence *which person* was it, but this is distinct from the relative use. *That* refers indefinitely to either animate or inanimate beings. After words like *Many, such, same, the like*, the pronoun *as* is used relatively; and in this connection does not change its form for the cases and is used for all persons and both numbers.

Examples:

Who is your aged friend?

The fox, *who* saw his enemy, calmly waited for him. (*Fox* here is personified.)

Whose coat is that? I do not know *whose* it is.

Whom do you wish to interview? Any person *whom* you desire to have speak for the firm. (Why is *whom* objective?)

Whom is it *that* you desire to see?

He is the person *that* is wanted. What animal was it *that* the fox desired to outwit?

It is the same *as* the others. Such articles *as* these should never be sold in bulk.

b. Compound relatives are made by suffixing *ever* or *soever* to *who* and *which*. *Whoever* will may come. *Whosoever* will may *come*.

c. *What* is a single double relative, since it is equivalent to two words *that which*, with *that* as the antecedent of *which*. For this reason, no other antecedent is necessary.

Syntax of Pronouns. So far as construction of the sentence is concerned, or the syntax of its parts, pronouns have various uses.

1. Personal and relative pronouns may have most of the uses of nouns. The main ones have already been discussed in relation to nouns. They are: a, subject; b, predicate complement; c, apposition; d, subject of a participle; e, complement with a participle; in the possessive case, most of the forms that are common; in the objective, a, object of verb; b, object of preposition; c, indirect object; d, subject of the infinitive. Relatives are not used in apposition or in absolute constructions.

Examples: *I* am the man; It is *I;* the donor, *I*, am pleased; *my* studying is all done for today; my studying *him* revealed his purpose; possessives—*my* house, the house is *his*, etc.; objectives—They found *him;* they went to *him;* they gave *him* the book; they took *him* to be *me*. (Here *me* is predicate objective, agreeing with *him*, objective subject of the infinitive.)

2. A pronoun agrees with its antecedent in person, gender, and number. The antecedent of a pronoun may be another pronoun, as *Everyone* should be careful of *his* books. One of the crudest blunders results from the use of the plural pronoun in reference to a singular antecedent. If one says, Every person should look out for *their* books, he is thereby guilty of using the plural *their* when the antecedent is *person*, a singular.

If the antecedent consists of two different words, one being masculine and the other feminine, the use of the masculine pronoun in reference is quite enough. It is stilted to say, Everyone should be careful of *his or her* books. Some purists defend this construction logically, but we must remember that *his*, like *its*, is sometimes used when the antecedent is not strictly in accord in gender.

Being a third personal word, a collective noun requires some corresponding pronoun like *it*. Here, once more, the plural must not be carelessly used for the singular, since collectives are treated always as singular words when they refer to a whole group as a unit.

3. Certain phrases like *it seems, he thought, we believe*, and *I know* are often parenthetical in a sentence; and hence do not affect the grammar of other parts.

He told us the plan *which he thought* the best one.

He spoke to those who *he thought* would help him.

They are the people, *it seems to me*, who should help.

This is the best article, *we believe*, that we have made.

The underscored words do not change the construction of the pronouns in these sentences.

4. Relative clauses fall into two classes, restrictive and explanatory.

a. A restrictive clause makes more particular or more narrow the meaning of the antecedent. Both the significance and the punctuation should be studied carefully.

Sailors *that are superstitious* will not set sail on Friday.

Oysters *that are stale* are poisonous.

Such restrictive clauses as these are used as adjectives that limit the meaning of the preceding nouns. They are not set off by commas, since an adjective or limiting word is not separated thus from the word it modifies. The first sentence says that some sailors are superstitious and these men will not sail on Friday; or those particular sailors (not all sailors), who are superstitious will not embark on Friday Those oysters that are stale (but not all oysters) are poisonous.

Now place commas before and after the restrictive clauses and see how the meaning changes. The first sentence now means that all sailors are superstitious and all sailors will not set sail on Friday; and the second that all oysters are stale and therefore poisonous. Both these statements, of course, are false.

b. An explanatory clause merely adds information. It is not absolutely necessary to the thought, but the restrictive clause is. To find out whether a clause is restrictive or explana-

tory, apply this test: if it may be omitted without essentially changing the thought, it is explanatory; otherwise, it is restrictive, since the meaning would be quite different if the clause were omitted.

Lincoln, who is called the Great Emancipator, loved his fellow men.

Washington, Father of his Country, lived a simple, kindly life.

The foregoing subordinate clauses are explanatory, descriptive, or non-restrictive. They may be omitted, without destroying the rest of the sentence meaning.

Errors in the use of Pronouns. Some errors in syntax of pronouns have been pointed out. These are summarized below, and additional mistakes are also noted:

1. A plural pronoun must not be used when the antecedent is singular. The use of *their* when the antecedent is *one, person, somebody, he,* or any other singular word should be especially condemned. Though a common blunder, it has nothing to justify it either in logic or idiom.

2. The use of the objective case as a predicate complement, when the subject is nominative, is equally wrong. Though we hear sentences like *It is me,* for the correct form *it is I,* almost every day, this construction has nothing to recommend itself, beyond the fact of commonness. We must remember that good language is not necessarily that of the great mass of people, but that used by those who write and speak as a profession,—the authorities, so to speak.

3. The third most common mistake is to use the nominative, after a preposition, for the objective case. They gave the books to Mary and *I* should, of course, be to Mary and *me.* This error usually occurs, as in the sentence just given, when the preposition has a double object, and the second one is wrongly put in the nominative case.

4. In modern English the pronoun *them* should not be used for *those.* In the Lord's Prayer, the older form is, "Forgive *them* that trespass against us." This is a survival of the old dative case (common in Old English), with the prepositional prefix *for* in *forgive.* Likewise, *them* should not be used for *those* as a pronominal adjective in sentences like this, Give me *them* books. In the forms, Give it to *them;* He gave *them* the books; Forgive *them;* for they know not what they do, the pronoun is used correctly.

5. *But what* should not be used for *but that* in sentences. I do not know *but that* the report is true is the correct form.

6. *Which* should not be used indefinitely for an idea, a whole preceding clause, or vague grouping of words. *He asked to bring the plans for the building, which he did* should be condemned; for *which* refers neither to *plans* nor to *building.* You will be safe in refusing to use *which* except for a definite antecedent that just precedes the pronoun, or at least when the antecedent may not be confused with some word intervening.

7. *And which* or *and who* should not be used in a sentence unless another preceding *which* or *who* has been used. Thus: He is a prosperous merchant, *and who* is respected by all. All such constructions are wrong, since the *who* introduces a subordinate construction, and this may not be coordinated with a principal; for only similar main or subordinate constructions may be coordinated.

8. *Whom,* the objective, gives no end of trouble, since this is among the few forms that differ as between nominative and objective cases. *Whom* is incorrect in the sentence, *Whom* do men say that I am, since it should agree with I, to which it is a predicate nominative. Men do say that I am *who,* is the normal order.

9. The subject of the infinitive is often mistaken for the object of the main verb. He took *him* to be me, the usual type of troublesome sentence, has *him* in the objective because it is subject of the following infinitive. Though the form would be the same, a student, in parsing, usually errs in saying that *him* is object of *took.* All the rest of the sentence after the verb is the real object. Again, in sentences of this kind, it is often said that *me* is object of *to be,* but this link-verb never takes objects. Sometimes, moreover, *I* is incorrectly written for *me* here.

10. In a dependent clause, the case of the pronoun is determined by its construction in the clause, not by its antecedent.

He is the man, *who* is to go. *Who* is nominative, subject of the verb *is.*

I am the one *who* is to go. (Not who *am* to go.)

11. When *than* is a conjunction, the pronoun following is often put into the wrong case. He is taller than *I,* but I am older than *he* is correct. The corresponding objectives would be wrong.

12. *He* is often used ambiguously in sentences that contain two nouns, either of which might be the antecedent of *he.* He asked him where the school is, and *he* said, "Turn to the right at the next corner." Evidently the second *he* refers to the person previously represented by the *him,* but the sentence does not make this relationship clear. English sadly needs a second pronoun for such cases. Most other languages, if not all, have two pronouns. In our language, we have to resort to cumbersome expressions like *the former, the latter,* or to some other synonym, to make the meaning unmistakable.

13. Most authors avoid using a *he* in sentences where only a possessive or objective has been used. Byron's poetry is full of vigor. *He* rushes on swiftly from scene to scene. Here the *he* has no real antecedent; for the antecedent must be nominative, and the only form used is a possessive.

14. Pronouns modifying the participle or gerund should ordinarily be in the possessive case, in sentences as *I do not like his doing this.* Evidently, I do not like *him* doing this is wrong; besides, it conveys a meaning not intended.

15. Plural pronouns should never be used to refer to singular nouns, as in the sentence, Our forefathers never heard of a *match,* whereas we use *them* every day.

16. Do not use a pronoun obscurely with its antecedent in parenthesis to make the meaning clear. This is a crude mistake. They told him of *his (John's)* good luck. Commonly, in all such sentences, the pronoun may be replaced by the appropriate noun, as, They told him of John's good luck.

17. The pronoun in a relative, subordinate clause does not affect the case of any other pronoun in the main sentence. Let *him* (not he) who will hear these words, lay them up in his heart.

TABULATION OF PRONOUNS AND THEIR USES.

Kinds:

1. Personal
   a. First, second, third, singular and plural.
   b. Compound personal pronouns, used intensively and reflexively.
   c. *It* in some special uses.
2. Interrogative
   Who and *which*.
   What as pronominal adjective.
3. Relative
   a. *Who, which, that, as.*
   b. Compound relatives: *Whoever, whosoever.*
   c. Double relative: *what.*

Syntax:

1. Personal and relative resemble nouns in syntax.
   a. Nominative about the same as that of nouns in use.
   b. Possessive similar.
   c. Objective about the same as that of nouns in use.
   (Relatives not used in apposition or absolutely)
2. Pronouns agree with antecedents in person, gender, and number.
3. Certain phrases like *it seems* do not affect syntax of the rest of the sentence.
4. Relative clauses are
   a. Restrictive or limiting (adjective) in use. They are not set off by commas, and are essential.
   b. Explanatory or non-limiting in use. They are set off by commas, and may be omitted usually without damage to the rest of the sentence.

Errors in Use:

1. Plural with singular antecedent.
2. Objective for nominative as complement.
3. Nominative with preposition.
4. *Them* misused for *those.*
5. *But what* misused for *but that.*
6. *Which* without definite antecedent.
7. *And which* or *and who* without previous *which* or *who.*
8. Whom in place of *who* or some other correct form.
9. Subject of infinitive mistaken for object of verb.
10. Case of *who* mistaken in dependent clause.
11. Objective instead of nominative after conjunction like *as.*
12. Use of *he* ambiguously.
13. Use of *he* when only a possessive of the antecedent has been given.
14. Use of *him* for *his* in gerund (participial) constructions.
15. Plural pronouns when only a singular word has been used that might be a possible antecedent.
16. Use of pronoun with explanatory noun in parenthesis.
17. Wrong use of pronoun in main clause by attraction to case of pronoun in relative clause.

Parsing of Pronouns. The outlines given just above will provide a review of the information about pronouns. In parsing or explaining the use of these words, one should cover the following items:

1. Kind. 2. Class and sub-class. 3. Antecedent or relation to other words. 4. Agreement in person, number, gender. 5. Case (pronouns need not agree with antecedents in case). 6. Use of the pronoun in the sentence. 7. Reason for its use. 8. Anything unusual or any correction needed.

ADJECTIVES.

Nouns and pronouns, as we have seen, designate ideas and concrete objects. Sometimes it is not enough to know a name or word, or to think of something as a whole; for we desire to know something of its limits or qualities. Certain words make a noun more definite or name its characteristics. These terms are called adjectives.

Adjectives may be defined as words that limit nouns and pronouns or that name some of their qualities. If we say the hill is *steep*, it may also be *long, slippery, icy*, or any one of several other things. We speak of the qualities of the noun. If we say *a* hill, *that* hill, or *many* hills, we designate them without naming any of their qualities. If we say *that* hill is *steep*, we use both classes of adjectives.

Adjectives, then, fall into two main classes. A descriptive adjective is one that refers to the quality of the word it modifies, as *tall* mountains, *fresh* streams, *gay* persons, *grave* old men, *wise* counsellors, *beautiful* ladies. **A limiting or definitive** adjective refers to an object or person to point it out or name it, without specifying any of its qualities, as *a* mountain, *mountain* streams, *no man's* land, *one hundred* guns, *many* old men, *several* gay youths. These two main classes will now be sub-divided and described more fully.

1. Descriptive adjectives divide into three classes:

a. Common, those that name well-recognized qualities of the nouns they describe, as *good* man, *vile* medicine, *insipid* water, *genial* judge, *fertile* plains. Hundreds of these common adjectives are in literary use in English.

b. Proper, those derived from place or personal names, as *Trojan* army, *Dobell's* solution, *Ciceronian* diction, *Elizabethan* age, *Macadam* roads. When the combination becomes familiar and is in good use, the adjective tends to be written with a small letter.

c. Participial, those that are derived from the verb in its present and past participles, as *growing* crops, *waning* moon, *playing* blocks, *deadened* sounds, *weakened* laws, *assumed* powers.

2. Limiting adjectives also divide into three classes:

a. Articles. These are *a*, used before words beginning with a consonant; *an*, before words beginning with a vowel, or *h* silent (usually) followed by a vowel; and *the*, the definite articular adjective, which points out a particular thing, or something well known or just mentioned.

b. Pronominals. These words are numerous, having four or five sub-classes, and some grammars class them as pronouns. Here they are placed among the adjectives, because of their limiting nature.

Some, called demonstratives, point out definitely, as *this, that, these, those, both.*

Some, called distributives, divide the noun into parts or refer to a number singly, as *each, every, either, neither.*

Some, called indefinites, do not specify which one or how many are included, as *all, any, some, few, certain, little, much, none* (singular or plural according to context).

Some, called interrogatives, that are used in questions, as *which* man? and *what* number?

3. Numerals. These adjectives have to do with number, either definitely, as *nine, forty-ninth, fourth, forty-fourth, third from the last;* or indefinitely, as a *few, several, many.*

Cardinals are regular numbers, like *one, twenty-nine, one hundred three, seventy-two.* Ordinals *first, ninth, one hundred third, seventy-second.* The distinction may easily be held in mind, if one remembers that ordinal has to do with the *order*, namely *first, second, third fourth, fifth*, etc.

Uses of adjectives in the sentence. Three chief ways of using adjectives are frequently distinguished. These are the direct, predicate, and resultant adjective uses.

1. Direct adjectives are those that modify the noun or pronoun in the usual way. These adjectives may be placed either before or after their substantives. A *wise* man; the man, *wise* and *good; tall* trees; trees, *tall* and *stately.* Though the normal position of the adjective is before the word it modifies, often it is placed afterward for certain emphasis.

2. Predicate adjectives are those that complete the meaning of the verb and refer to the subject. These occur with *be, seems, appears,* the main link verbs, so named because they link the subject and the predicate noun or adjective. The man is *wise* and *good;* trees are *tall* and *stately* in this wood.

3. Resultant adjectives are those that complete the meaning of a direct object, telling what results to the object. This construction is often used after verbs of making, naming, appointing, and the like.

They made him *president.*

They chose Harold the *secretary.*

The president appointed him a chief *justice.*

Some would supply the infinitive *to be* in such constructions; thus: They made him [to be] president.

Notice that the resultant (sometimes called factitive) adjective becomes a predicate nominative virtually in passive constructions, like,

He was appointed president. (He was president.)

He was chosen secretary. (He was secretary.)

In such cases the passives are thought of as if they were simple active link-verbs.

Comparison of Adjectives. We have already seen, first, that nouns and pronouns are often used without modifying words; and, second, that these may be described or limited by adjectives. Again, in the third place, the form of adjectives is changed so as to bring out different degrees of the qualities they represent. We say that something is *good*, another is *better*, and a third is *best* of all.

The process of varying the form of an adjective to show different degrees is called comparison. Adverbs, too, may be compared, as we shall see later. Three degrees are recognized, positive, comparative, and superlative. Just as things are compared when one is said to be greater than another, they may also be compared by saying one is less than another, and a third is least of the lot. Thus we recognize the minimizing form of comparison, as *good, less good, least good;* or, as more commonly, *good, worse, worst.*

The positive is the original, simplest form, as *good, wise, blue.*

The comparative is the form that expresses the idea of more, or that something is greater than another, as *better* men, *wiser* councils, *bluer* skies. Here the implication is that the men, councils, skies in mind are superior to others.

The superlative degree is the form that shows the highest, lowest, or greatest of all that are considered, as *best* men, *wisest* councils, *bluest* skies.

Different ways of comparing:

1. By changing the end of the word. Comparison here is regular.

positive	comparative	superlative
red	redder	reddest
rosy	rosier	rosiest
rare	rarer	rarest
sick	sicker	sickest

2. By employing the prefix. Long words often are compared by adding *more* for the comparative and *most* for the superlative, or *less* and *least.* A few common words use either the first or second methods of comparison.

positive	comparative	superlative
beautiful	more beautiful	most beautiful
beautiful	less beautiful	least beautiful
preferable	more preferable	most preferable
gracious	more gracious	most gracious
skilful	more skilful	most skilful
skilful	less skilful	least skilful

3. By employing different words, or irregularly.

positive	comparative	superlative
bad, evil, ill	worse	worst
far	farther, further	{ farthest, furthest farmost, farthermost
good	better	best
late	{ later (time) latter (position)	latest (time) last (position)
in (also adv.)	inner	{ inmost innermost
many (number)	more	most
much (quantity)	more	most
little	{ less (quantity) smaller (number, size)	least smallest
old	{ older elder	oldest eldest

4. Some adjectives are defective in comparison. Several of these have adverbs for their positive degree.

positive	comparative	superlative
[aft, adv.]	after	aftermost
[up, adv.]	upper	{ uppermost upmost
[out, adv.]	{ outer utter	outermost uttermost
[eld, obsolete]	elder	eldest
———	under	undermost
———	hither	hithermost

5. Some adjectives, already expressing ideas of fullness or completeness, cannot be further compared.

circular, round, full (logically), dead, empty, golden, perfect, square, everlasting, eternal, perpetual, universal, void.

To be sure, there is some tendency to compare words like *full, round, empty,* and other words logically in this class, but many grammarians and authors carefully avoid using anything but the positive degree. Terminations like *-ish, -ock, -kin* have virtually the effect of comparison, as in *greenish, hillock, bullock, mannikin, bunnikin.*

One and *other*. These two pronominal adjectives (or adjective pronouns) may be declined as shown below:

	singular	*plural*	*singular*	*plural*
Nom.	one	ones	other	others
Poss.	one's	ones'	other's	others'
Obj.	one	ones	other	others

Notice that these pronouns take the regular apostrophe in both singular and plural, but that they are almost alone among pronouns in this respect. Others like *ours, hers, his, theirs* do not take the apostrophe.

ERRORS IN THE USE OF ADJECTIVE.

1. Adjectives and adverbs should not be confused in use. Some forms for both parts of speech are the same, but in other instances the distinctions are worth observing.

He looks *good* means He looks like a good man. As such it is correct. It should not be used for He looks *well*, that is, in good health.

I *sure* was pleased, glad, sorry, etc., combinations frequently heard, are vulgarisms for I *surely* was pleased, and so on.

Less refers to quantity; *fewer* to number. *Less* people were present, therefore, is incorrect.

Most must not be used for *almost*. *Almost* all people is correct; so is *most* people, but not most all people, where the adjective is wrongly used for the proper adverb.

Many hesitate as to whether to use an adjective or adverb in a given construction. If the word refers to the subject, expressing some quality of the subject, the adjective is proper; if, on the contrary, it relates to the verb, and expresses some quality of the action, the adverb is proper. We feel *cold* (adjective) is correct; so We feel *coldly* (adverb) on that subject, is also correct; but the meanings are quite different. He looks *bad* (a bad man) may be true enough, but should not be used for He looks *badly* (in poor health). Silk feels *smooth* (is smooth to the touch), and it does not feel *smoothly* in any case.

2. Adjectives should keep to their own proper meanings. Good writers use epithets carefully. They do not speak of *splendid* dinners; *nice* furniture; *elegant* days; *awful* fine people; *grand* cakes. All these words have their own meaning, as any dictionary points out; they must not be used vaguely or incorrectly, without precise regard to actual significance. Every adjective should describe its noun or pronoun simply, accurately, picturesquely.

3. Adjectives agree with their nouns also in number. Plurals must not be used with singular nouns or vice versa. I do not like *those kind* of people is obviously incorrect. It should be either *that kind*, or *those people*. *These here, those there*, likewise, are evidently wrong in phrases like *These here* baskets, meaning *these at hand;* for in such cases *here* and *there* are superfluous, since *these* and *those* point out objects at hand and at a distance respectively.

4. Comparative and superlative are often confused. The comparative is used when two are compared, the superlative when more than two are. Hence, Which one of the two is *best* is an evident blunder.

5. *Each* and *every*, in a sentence make any corresponding noun singular; and so the verb must also be singular.

Each should be careful of his book.

Each man *goes* to work at eight.

Every person at some time *is* liable to a fine.

Many a man *longs* for his country, when he is abroad.

6. The articular adjective especially should be repeated if two nouns in a sentence are to be taken separately. Thus *a* black and white dog indicates only one animal; if two are meant, the sentence must read *A* black and *a* white dog. We found *the* secretary and *the* treasurer busy in the office, if two men are meant; if one, the second *the* may be omitted.

7. Mixed comparisons should be avoided. *Our team is as good if not better than last year's* is not only ungrammatical but decidedly awkward. One complete comparison should be made before the second is begun. Thus: Our team is *as good as last year's, if not better.*

8. In using the comparative degree, one must not include the subject of comparison (first member) in the class with the thing it is compared with (second member), Thus it is wrong to say, Washington was *greater than any general* of the Revolution, because the second member of the comparison includes Washington himself, since he, too, was one of the generals. It is right to say, Washington was greater than any *other* general of the Revolution. The wrong form is both logically and grammatically inadmissable

In comparison, one must remember, a single thing is likened to another, similar thing. Two different objects cannot be compared; but they may be contrasted, that is, the dissimilarities may be pointed out.

In using the superlative degree, the original member should be *included* in the second part of the comparison, or in the large group. Washington was the *greatest* of all generals of the Revolution, both in grammar and logic, is correct. So is, Our team is the *best of all* our conference,—including the team itself.

Parsing of Adjectives. To parse adjectives we should give the

1. Kind; 2, class and subclass; 3, comparison; 4, degree and reason; 5, relation to noun or pronoun; 6, rule for construction.

TABULATION OF ADJECTIVES AND USES.

Kinds:
1. Descriptive
   a. Common
   b. Proper
   c. Participial
2. Limiting
   a. Articles
   b. Pronominal
   c. Numerals

Uses:
1. Direct adjectives
2. Predicate adjectives
3. Resultant adjectives

Comparison:
1. By changing the endings
2. By using a prefix
3. By using different words
4. Defective comparison
5. Adjectives not compared

Errors in Use:
1. Confusion with adverbs
2. Improper meanings

3. Disagreement with their nouns
4. Confusion of comparative and superlative
5. *Each* and *every*
6. Failure to repeat article with two nouns
7. Mixed comparisons
8. Ungrammatical comparisons

VERBS.

We have already seen that nouns and pronouns are name words, and that adjectives are modifying or descriptive words. No sentence is possible, however, without a verb; in fact, this is about the only part of speech rarely dispensed with in the sentence. We can get along well enough when subjects are understood, and many nouns stand without modifiers; but it is not possible to infer a verb, except when it or an equivalent is expressed near by.

Verbs are words that express the idea of action. Such a statement must be taken somewhat broadly; for some verbs have to do with states of rest, being, condition, and some (especially the non-finite infinitive and participle) infer or assume action without definitely asserting it. This definition must also apply to questions and other forms that vary from straightforward statements.

Verbs according to meaning, or completeness of assertion. Some verbs tell enough about the subject; others relate the subject to another word or group called an object. The first class may stand alone; the second must have help of the object to complete their meaning. Verbs that have no object are called intransitive; others are transitive, a word which means "passing over," from *trans*, the prefix meaning *across* or *over*, and the Latin word for *go* or *pass*, with an English termination. Since *in* means *not*, it is easy to remember that intransitive means no object is required. On the other hand, one easily sees that a transitive verb is a bridge over which the idea of the subject passes to join the object. Strictly speaking, a transitive verb does not "take" an object; it rather carries the thought begun in the subject over to the related object.

Transitive verbs:
The president *signed* the bill.
In spring we *plow* the fields.
Young boys *love* to play ball.
Worry not work *kills* men.

Intransitive verbs:
It *rains*.
John *plays* well.
Worry not work *kills*.
Animals *live* in the wilds.
The field *has been plowed*.

Some verbs may be either transitive or intransitive according to the meaning intended in the sentence. We *study* hard and we *study* arithmetic illustrate, the latter being transitive. Worry not work *kills* also contains a transitive verb, but the last sentence under transitive verbs above contains an object of *kills*.

Verbs are regular and irregular. They will now be discussed.

1. Regular verbs form their past and past participles by the addition of *-ed, d* or *t* to the present form: *climb, climbed, climbed; wish, wished, wished; bless, blessed (blest), blessed (blest)*.

2. Irregular verbs form their past and past participle by some change in the vowel of the words themselves. These are often called strong verbs to distinguish them from the regular forms ending in *ed, d*, or *t*, which are called weak. In our earliest English several classes of strong verbs changed the vowels in different manners; and many of these forms exist today. Each class had its pattern verb, like *drive, choose, bind, shake, fall*, and *bear*. With certain changes in spelling, these classes have come down to modern times, but we usually list all irregular verbs in one group, noting some of the variations from the pattern. Of one hundred fifty fairly common strong verbs, some of the chief ones are listed below. A few are reserved for a special list containing variations from the normal types.

present	*past (preterit)*	*past participle*
abide	abode	abode
bear	bore	born, borne
beat	beat	beaten
begin	began	begun
bid	bade, bid	bidden
bind	bound	bound, bounden (old)
bite	bit	bitten
blow	blew	blown
break	broke	broken
chide	chid	chidden
choose	chose	chosen
cleave (split)	clove, cleft / clave (old)	cloven, cleft
cling	clung	clung
crow	crew, crowed	crowed
dive	dived, dove	dived
drink	drank	drunk, drank (new)
fly	flew	flown
forsake	forsook	forsaken
get	got	got, gotten (new)
hang	hung / hanged (executed)	hung, hanged
hew	hewed	hewn
hide	hid	hidden, hid
kneel	knelt, kneeled	knelt, kneeled
lay (to place)	laid	laid
lead	led	led
lie (to recline)	lay	lain
make	made	made
mean	meant	meant
pass	past, passed	past, passed
say	said	said
seek	sought	sought
sit	sat	sat
smite	smote	smitten, smit
sow (scatter)	sowed	sown, sowed (new)
stand	stood	stood
steal	stole	stolen
stay (to cause to stop)	stayed	stayed
stride	strode	stridden
strive	strove	striven
swear	swore	sworn
swim	swam	swum
swing	swung	swung
take	took	taken
think	thought	thought
throw	threw	thrown
wear	wore	worn
weave	wove	woven
wind	wound	wound
work	worked / wrought (poetic)	worked / wrought

3. In the list below are given certain other verbs that vary from the strong or the weak types. Some have double parts, one strong, the other weak; some are alike in all three parts; some are defective in one or more parts; some have different verbs or spellings altogether in either the past or past participle. The verb *am, be* shows the most irregularities, since it is made up of not less than three different verbs from as many distinct older English dialects. This composite origin explains the different

forms, some of which go back eventually to ancient Latin and Greek.

present	*past (preterit)*	*past perfect*
am, be	was	been
clothe	clothed, clad	clothed, clad
do	did	done
dream	dreamed, dreamt	dreamed, dreamt
go	went	gone
have	had	had
hit	hit	hit
hurt	hurt	hurt
knit	knit, knitted	knit, knitted
let	let	let
light	lighted, lit	lighted, lit
quit	quit, quitted	quit, quitted
set	set	set
shut	shut	shut
spell	spelled, spelt	spelled, spelt
beware	————	————
can	could	————
do (auxiliary)	did	————
have (auxiliary)	had	————
may	might	————
must	must	————
ought	ought	————
shall	should	————
will (auxiliary)	would	————
will (to wish, decide, bequeath)	willed	willed

Principal and Auxiliary Verbs. According to whether they are complete in themselves, verbs are called principal and auxiliary.

1. A principal verb is one that expresses the idea completely, as to time and assertion. The verbs in the lists already given are mostly principal. Boys *play* ball, boys *played* ball are complete assertions, having principal verbs. Boys *can* play, *do* play, *will* play, *have played*, *shall have* played are assertions modified by the attached or helping verbs.

2. An auxiliary verb is one that helps another with reference to mode and tense,—or manner and time of the assertion. All the chief auxiliaries with their present and past tenses, are here given; *be (was)*, *do (did)*, *have (had)*, *shall* and *will (should* and *would)*, *can (could)*, *may (might)*, and *must (must)*. Sentences given here illustrate their principal forms. I *was going*, he *did go*, he *had gone*, he *will have gone*, he *has gone*, I or we *shall go*, he or they *will go;* we all *should go*, he *would go* if he were asked; he *could*, I *can go* now, they *may go*, he *might go* if he got a chance.

Notice that auxiliaries are used in many different senses:

a. *Do* and *did* are mainly emphatic, as I *do promise*, he *does like* to play football; he *did* not *do* it, I *did tell* you that before.

b. Ability or permission. You *can do* it (are able), and you *may* do it (have permission). This distinction,—*can* for ability, *may* for permission,—is carefully maintained by all good writers and speakers.

c. Continued action. They *are building* the house; they *were* still *working* on it. Here the action is continued in the present, and was continued in the past in these two sentences. The use of *are* or *were*, in such cases, is called the progressive form of the verb.

d. Time. Somewhat different, and often hard to distinguish from the progressive forms, are those which merely denote an element of time, as They *are taking* it seriously; they *were coming* home; they *will refuse* to come; they *will be coming* here soon.

e. Necessity or determination is expressed by *must*, and by the verbs *shall* and *will*, as We *must*, they *must*, all *must;* you *shall* do this (that is, I shall force you if it is necessary), I *will* do it (I feel that I must do it). We often say *He should do this*, meaning he is morally obligated to do it; one *should respect* the aged. We also say, in about the same meaning, I *ought to go;* he *ought to find* out.

f. Willingness, I *will go* with you gladly; I *would gladly* pay you if I had the money.

g. Custom. He *would* always *do* this (he was in the habit of doing it). We *would go* always if we could (it was our habit to go whenever we could). He *would be doing* it is sometimes used in a similar meaning.

h. Completeness at a certain time. The work *is finished, has already been finished, will be finished* tomorrow, *was finished yesterday.*

SHALL AND WILL. Many persons in speaking, and not a few in writing, often confuse the uses and meanings of *shall* and *will.* Several things may be remembered to avoid confusions.

1. Always the point of view is that of the one speaking. He is the one who wishes, promises, determines, or merely thinks that he is going to follow a certain course of action.

2. *Shall* has the ideas of futurity, expectancy, contingency, or something that may be wished for or hoped, or planned, but still may not come to pass, because of forces beyond the power of the one speaking.

Will has the idea of determining. To *will* something is to do all in one's power to bring it to pass, or to carry into execution a plan over which the speaker has complete control. Notice that *will* is more absolute than *shall*, depends less on futurity (often indeed has nothing to do with the future), but sticks to the present intention.

3. *Shall* with the first person expresses mere possibility or something that may or may not come to pass. *Shall*, from the point of view of the speaker, when used of the second and third persons means determination. *Will*, with the first person, is used to express determination, and with the others, mere futurity.

I shall go; we shall go (I and we expect to go, but may not).

I will do it; we will do it (I and we either promise to do it, or determine to do it).

You shall go; he shall go; they shall go (I am going to make them, if they will not voluntarily).

You, he, she, it, they will go (I expect they are going, but here again they may not).

Tabulated, the complete forms are as follows:

Futurity or possibility. (The speaker does not will it, nor can he bring it to pass necessarily).

singular	*plural*
I shall (should)	we shall (should)
you will (would)	you will (would)
thou wilt (wouldst)	they will (would)
he, she, it will (would)	

Determination, Promise, Willing (The speaker can choose and is able to determine).

singular	*plural*
I will (would)	we will (would)
you shall (should)	you shall (should)
thou shalt (shouldst)	they shall (should)
he, she, it shall (should)	

4. *Should* and *would* are used in a similar way as just illustrated. The chief rules that apply to *shall* apply likewise to *should;* those that apply to *will* apply likewise to *would.* Both *should* and *would* are used in conditions. If one is in doubt as to whether the conditional form as used is correct, all he has to do is to translate the word into the corresponding direct form. Thus: he said he *would* go,—Is this correct? What would the original be? If he were promising, it would be, He says he *will* go; if mere future, it would be, He says he *shall* go. The meaning, then, determines the form to be used.

Questions normally employ the form expected in the answer. These sentences illustrate,—

Shall you go? Answer expected is, I *shall* (I expect to) or *Yes.*

Will you go? Answer expected is, I *will* (Yes, I promise); or (I have made up my mind to go).

5. In subordinate clauses *shall* and *should* are used correctly for all persons.

If he shall come, I shall rejoice.

If he should come, I should rejoice.

Notice, finally, that *should* often means *ought,* expressing the idea of obligation. *Would* sometimes means a customary action.

He *should* do this (he ought to do it).

He *would* always fail in arithmetic (customary for him to fail).

Properties of verbs. Verbs change in various ways to adjust themselves to different shades of the ideas they express. These changes are called properties; or, more accurately, they bring out the different properties. Voice, mode, tense, person, and number are the five properties of verbs commonly mentioned. These will now be explained.

1. Voice shows whether the subject of the verb acts or is acted upon. Two voices are recognized,—the active, and the passive.

a. The active voice speaks of the subject as doing something, or being in a certain relationship.

Troy *fell* after a siege.

Falling walls *are* dangerous.

Do you *like* algebra?

Will you *pass* this examination?

I *will assist* you in preparing for it.

Both transitive and intransitive verbs may have voice. A verb does not need an object to express the idea of action. In *Troy fell after a siege,* there is much action asserted, but the verb has no object. Some grammarians, however, inform us that intransitive verbs have only the active voice, since an intransitive verb, logically, may not be changed into a passive.

b. The passive voice speaks of the subject as acted upon.

Troy *was destroyed* by a stratagem.

Bricks *were strewn* all about.

Algebra *is made* too difficult sometimes.

This examination *will be passed* by you.

You *will be helped* by these questions.

Transitive verbs make their passives by adding the past participle to some form of the verb *be* or *is. Was destroyed* consists of the past of *be,* followed by the past participle of *destroy; is made* is the present, singular, with *made,* the past participle. We should be on guard against mistaking a form like He *was going,* for a passive. Here the verb is progressive, past, active, not passive; it shows the action as continuing, and the subject as acting, not acted upon.

c. In certain idiomatic construction active and passive are interchanged. The hotel *is building* is the active voice for the passive, *is being built,*—and many good authors prefer the first of these two expressions. The guests *are* not yet *arrived,* for The guests *have* not yet *arrived,* a form rejected by many as being awkward.

One is always safe in avoiding a passive construction unless the subject is really acted upon, or changed definitely, or at least the receiver of some attention from the verb. For a long time newspaper *funny* men have ridiculed sentences like A pleasant time *was had,* for The company *had* a pleasant time. *Can be seen, could be seen,* are rather illogical expressions for *one can see, one could see,* and so on. Used rightly the passive fills a real place in English grammar, but the genius of our language prefers the active in every case where it is allowable.

Mode in English. Not all statements are made as the truth. Mode is the manner of relating a thought to reality. It may be real, possible, doubtful, contingent or something else, hoped or wished for,—according to the number of modes in English. Some of the older languages had several more modes than our language recognizes. In English three modes are usually classified, indicative, subjunctive, imperative. These are the finite modes, but two others that are non-finite (or in-finite) are the infinitive and the participle, which are usually discussed with verbs.

1. The indicative mode asserts something as true or not true, or questions if it be true. I came an hour ago. The others have not yet arrived. How long have you been here?

2. The subjunctive mode expresses doubt as to whether something is real or true, or certainty that it is not true as supposed. So thought and reality are compared. In English the subjunctive mode is now used less and less frequently. Certain constructions need to keep up the distinction which this mode brings out.

a. Conditions that express something as not true, on which something else depends.

If he *were* here, he would assist us. *(But he is not here* is the inference).

If *he had been* here, he would have helped us.

Here *were* is past subjunctive and *had been* is past perfect. If the past is used, the condition is not true *in the present;* if the past perfect is used, it was not true *in the past.*

Other forms of the same sentences are, O, that he *were* here! and O that he *had been* here. Both these are also contrary to the facts, for he is not here now, and he was not in the past. Apart from the sentences just given, the subjunctive mode is usually distinguished by the conjunctions *if, though, lest, unless, except, whether, till,* when they are used in *subordinate* clauses.

b. Another form is found in the sentence, If it *be* true, then we shall have to arrange differently. This expresses a doubt whether it is true or not, and the present subjunctive is used for this purpose.

In a few other occasional sentences, the subjunctive may be used, but most authors avoid all except the two just mentioned. In forms, the subjunctive conjugation once differed largely from the indicative; at present, however, the present and past show all the important variations, and they are known by the *be* and the *were*, in place of the *am (are, is)* and *was* and *were* of the indicative.

The potential form in English is characterized by the auxiliaries *can, could, may, might, must, could, would,* and *should.* We prefer to call these words ordinary auxiliaries, and so to abandon the use of the term potential mode altogether. The potential shows the relationship between powers or permission and reality.

Can you *do* it? I can, but *may* I? (ability, permission)

Could you believe it? I suppose I *might.* (possibility)

I *would* enjoy seeing the ocean again. (wish)

You *must* not go now. Yes, I *should.* (duty)

May you be happy. (wish)

May there be no moaning of the bar. (wish)

3. The imperative mode expresses the idea of determination on the part of some person other than the speaker. One is entreated or commanded, and he may or may not respond.

Let him *go* his way. Pray, *tell* me why. *Let* there be no crossing of bridges now. *Go* thy way in peace! Ill luck *be* ne'er thy lot.

The imperative mode is used in principal clauses, just as the subjunctive is mainly used in subordinate constructions.

4. Non-finite modes of the verb do not express or assert any action, but take it for granted from the sentence as a whole. They are the infinitive and the participle, to be treated later in a separate section.

Tense is the third property of verbs. Not all actions take place at the present time; for some occurred in the past, and some will probably occur in the future. Tense is that property of the verb which shows the time of the action, being, or state of being. It is not a fancied or possible relation, but an actual one. Tenses are of two general kinds, primary and secondary, and each has another minor division.

1. Primary tenses are present, past, future, illustrated by the forms, I *go,* I *went,* I *shall go;* I *see,* I *saw,* I *shall see;* I *lie,* I *lay,* I *shall lie.*

a. Present denotes that the action goes on now, or is habitually going on, that is, continuous. It has three forms, the progressive, which shows that the action is still in progress, as I *am plowing;* the simple, I *plow,* habitual action or one true at all times; and the emphatic, I *do plow.* Something universally true is expressed in the present, as, The chemist showed us how water is *composed* of hydrogen and oxygen; he said that God *is* always good.

b. Past tense indefinitely states that something happened at a time before the present moment, as I *went,* which does not tell the exact time of the going except that it was in past time.

c. The future states that something is likely to happen after the present moment. It is like the past in not stating definitely when the event will occur.

2. The Perfect tenses (secondary) to the primary, show that the action happened at a relatively definite time.

a. The present perfect states that something began at some indefinite time in the past and continued up to the present. I *have gone;* they *have* already chosen; we *have sent* the message are fair examples.

b. The past perfect tense states that something occurred before some second event in the whole past. I *had gone* before he *came;* we *had sent* the message before we *received* the countermand. This combination really divides the past into two portions.

c. The future perfect tense states that something will occur before some second event occurs in the future. Within a month, I *shall have* completed this work; By the end of the year we *shall have* learned considerable about grammar. One event in the future is to be entirely completed before another begins.

Like the present, these tenses have more than a single form.

Simple past: I went; progressive, I was going; emphatic, I did go.

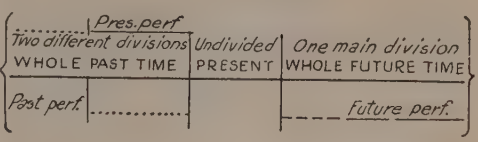
Future: I will go; progressive, I will be going.

Present perfect: I have gone; progressive, I have been going.

Past perfect: I had gone; progressive, I had been going.

Future perfect: I shall have gone; progressive, I shall have been going.

The time relationships among the various primary and secondary tenses may be shown by a simple line diagram. Let the middle line, in various divisions, represent whole past, present (relatively short), and the whole future. Notice the past may be divided into parts and the future into similar ones, but not so many. For convenience parallel lines are drawn to show the division of the past and future into their parts, which are to be thought of as divisions of the main line itself. Dotted lines represent indefinite time; dashes represent the part of the future that leads up to future perfect; upright lines represent the end of the time concerned.



Verbs in the indicative mode have all the tenses named above; in the subjunctive, they have present, past, and past perfect, and others occasionally, with little variation from the indicative, except as described already; in the imperative, only the present; in the infinitive, present and present perfect; in the participle, present and present perfect.

4, 5. **Person and number**, are the fourth and fifth properties of verbs. Three persons and both singular and plural number are represented. Non-finite forms do not show any changes to represent person and number. No particular changes to show person and number exist beyond the present tense. Some verbs having *it* as a subject are used impersonally, as Can *it* be true? *It* grows colder.

Inflection of Verbs. The different changes that show voice, mode, tense, person, and number are called collectively, inflection. Synopsis is the inflection of a verb in all forms, but in a single person and number only, as a sample of the whole.

Inflection of the Verb Be. Present, be; past, was; present participle, been.

INDICATIVE MODE.

Present.

Singular.	*Plural.*
I am	we are
you are, thou art	you are
he, she, it is	they are

Past.

I was	we were
you were, thou wast	you were
he, she, it was	they were

Present Perfect.

I have been	we have been
you have, thou hast been	you have been
he, she, it has (hath) been	they have been

Past Perfect.

I had been	we had been
you had, thou hadst been	you had been
he, she, it had been	they had been

Future.

I shall be	we shall be
you will be, thou wilt be	you will be
he, she, it will be	they will be

Future Perfect.

I shall have been	we will have been
you will (thou wilt) have been	you will have been
he, she, it will have been	they will have been

SUBJUNCTIVE MODE.

(*If* is often used with the subjunctive)

Present.

I be	we be
you be, thou be	you be
he, she, it be	they be

Past.

I were	we were
you were, thou wert	you were
he, she, it were	they were

Present Perfect.

I have been	we have been
you have been, thou have been	you have been
he, she, it have been	they have been

Past Perfect.

I had been	we had been
you had been, thou hadst been	you had been
he, she, it had been	they had been

IMPERATIVE MODE.

second person, be, do you be — be, do you be

Participle.

present	Perfect
to be	to have been

Infinitive.

Present	Past
being	having been, or been

Do you be in the imperative is the only emphatic form of *be*. The solemn or familiar form with *ye* in the plural is omitted because it is now practically obsolete. All forms of *be* are intransitive.

Synopsis of a Regular Verb. For the sake of showing all forms of a verb, both active and passive, the regular verb *call* is taken as typical. This verb is either transitive or intransitive Since the third person singular is the only form that shows variation, this is given in the synopsis.

ACTIVE VOICE.

Indicative.

Present Simple	Present Progressive	Present Emphatic
he calls	he is calling	he does call

Present Solemn
he doth call

Past Simple	Past Progressive	Past Emphatic
he called	he was calling	he did call

Future	Future Progressive
he will call	he will be calling

Present Perfect	Present Perfect Progressive
he has called	he had been calling

Future Perfect	Future Perfect Progressive
he will have called	he will have been calling

Subjunctive.

Present Simple	Present Progressive	Present Emphatic
(if) he call	(if) he be calling	(if) he do call

Past Simple	Past Progressive	Past Emphatic
he called	he were calling	he did call

Present Perfect	Present Perfect Progressive
he have called	he have been calling

Past Perfect	Past Perfect Progressive
he had called	he had been calling

Imperative.

Present Simple	Present Progressive	Present Emphatic
(you) call	(you) do be calling / (you) be calling	(you) do call

Infinitives.

Present Simple	Present Progressive
to call	to be calling

Past Simple	Past Progressive
to have called	to have been calling

Participles (Gerunds).

Present	Past	Past Progressive
calling	having called	having been calling

PASSIVE VOICE.

Indicative.

Present	Present Progressive
he is called	he is being called

Past	Past Progressive
he was called	he was being called

Future	Present Perfect
he will be called	he has been called

Past Perfect	Future Perfect
he had been called	he will have been called

Subjunctive.

Present	Past
(if) he be called	(if) he were called

Present Perfect	Past Progressive
(if) he have been called	(if) he were being called

Past Perfect
(if) he had been called

Imperative.

Present	Present Emphatic
(you) be called	(you) do be called

Infinitives.

Present	Past
to be called	to have been called

Participles.

Present	Past
being called	having been called, or called

In the conjugation given above, the reverential or solemn forms like *He hath been called* are omitted. The second person has a corresponding *art, wast, hast, hadst, wilt; thou be, wert, hadst been; mayst, mightst, mayst, have been, mightst have been* for the various tenses of the indicative, subjunctive, and potential. These are now rarely used except in poetry and in prayers.

Notice that the sign of the subjunctive in the past progressive for the third person is *were*. This is singular and must not be confused with the *were* of the past indicative.

If is often used with the subjunctive; to illustrate, it is placed before some of the forms given above, and should be understood as possible before all of them. Since the subjunctive is commonly used in subordinate clauses like *If he were only here, he would aid*, words like *if* are used as the subordinating conjunctions.

Some grammarians do not recognize the potential, which differs little from the indicative, except in regard to the use of the auxiliaries *may* and *might*, *could* and *would*, *can*, and the rest.

Parsing of a Verb. To parse a verb is to show its form as used in a sentence. This should include,—

1. Class (transitive or intransitive; regular or irregular).
2. Principal parts.
3. Voice.
4. Mood.
5. Tense.
6. Person and number.
7. Construction and comment on any peculiarities.

Errors in the Use of Verbs. Among the many errors in the use of verbs, or the relation between verbs and their subject, the majority fall into the classes named below.

1. Errors in regard to number.

a. Since *each, every, many a, either, neither* are all singular pronouns, the corresponding verbs must be singular. Notice well these correct forms:

Each person *is responsible* for his own actions. (The pronoun referring to *each* must be singular.)

Every person *is* his own architect.

Many a man does not *realize* his ambitions.

Either he or *I am* wrong; *neither* of us *may be right.*

b. Words joined to prepositional phrases may not be a part of a main subject. John, together with his brother, *is* here. We must remember that *with, together with, in addition to*, are not conjunctive expressions.

c. Collective nouns may take a singular or a plural verb. If they express the idea of unity, or of a group taken as a whole, they must be plural; if they express the idea of the varied individuals in the group, they must be singular. Ordinary collective nouns take singular verbs; and yet a writer or speaker sometimes prefers to think of the parts individually.

The committee *is* ready to report; the Senate *is* in session; the mob *seems* bent on destruction.

British writers are likely to say the committee *are*, the government *are*, parliament *are*.

d. Two singular subjects joined by *or* take a singular verb. The same applies to *nor*. Either *he* or *I am* mistaken. Neither beast, bird, nor fish *is* here in this desert.

e. If the subjects are of different numbers, the verb agrees with the nearer or nearest. *He* or his friends *have* come. In such instances, custom dictates that the plural be placed last; and so the verb is usually plural.

f. In case of two pronouns, the verb agrees with the nearer. Neither he nor I *am* pleased.

g. *Don't* is often incorrectly used for *doesn't*. Since this word means *do not*, it must not be used except with plurals, or with *I*, that is, where the original verb is actually *do* not; while doesn't is confined to the third person singular. *Aren't* is a proper plural form, but there is no such word as *ain't*.

h. Syncopated forms like those mentioned are colloquial. In writing and speaking they are not used, except in quotations in which the original speakers may have used these forms; and then it is pedantic to correct them in dialog that is quoted.

i. When *there* begins the sentence, followed by the real subject of the verb, the subject and verb must agree; for *there*, being independent (an expletive) has nothing to do with the number of the verb.

There *are* many kinds of steel; the real form is, Many kind of steel *are* (exist). *There* is diagrammed by itself. In such sentences a frequent error is the use of the singular verb followed by a plural subject. Use, *there is, there are, it is, it was* sparingly in such sentences

j. Some illiterate people often use the subjunctive *you be* for the indicative *you are*.

k. Though *you* is always construed as singular or plural, according to context, the verb is always plural,—*you are, you were*, etc. Our grammar does not recognize the forms *you is* and *you was*.

1. Plural words in titles of books do not make the verb singular. *Emerson's Essays* is an inspiring volume; Thackeray's *English Humourists* has been a popular study of the eighteenth century writers.

We say, however, *Emerson's Essays* are interesting to thoughtful people. Here the essays are thought of singly, and not as a collection as found in a title name.

2. Errors in regard to tense mainly:

a. Sequence of tenses should be carefully observed. Ordinarily the tense of the subordinate clause corresponds with that of the main clause. This does not mean that it is the same tense, but it is relative as to time. First, if the time is the same, the tense should be similar. Second, if the time is anterior to that of the main part, it should represent this priority. Third, if the time is subsequent to that of the main clause, the verb should represent that time relationship. More often the times correspond.

He said that *he would go.* (Indirect discourse.)

He said that he *will go.* (If the time of going is still in the future.)

He said that he *was going.* (Probably the time of going is now past.)

He said that he *had intended to go.* (That is, he expected to go at some time before the time of the *said.*)

I am not sorry that I *went*. (I went in the past; I am glad now that I went.)

b. Infinitives cause much trouble in regard to time relations.

He *wanted to go* is correct; whereas, *He wanted to have gone* could not be correct, since the time of the infinitive is previous to the time of *wanted*. We *want* to do something in the future or at least in the present. The direct form, present, is, He *wants to go*.

I am sorry not *to have gone* is also correct. It means that I am now sorry that I could not go at some previous time.

I am sorry not *to go* is likewise correct, but the meaning is different. It means I am now sorry that I cannot now go, or cannot go at some time after the present.

c. Transitive and intransitive verbs are frequently confused. *Raise* and *rise*, *lay* and *lie*, *set* and *sit* give rise to the most trouble.

Raise is transitive and requires an object. We *raise* potatoes, grain, hogs, and dust.

Rise is intransitive and does not require an object. We *rise* in the morning; so does the sun.

Lay is transitive and requires an object. We *lay* the book down, concrete roads, bridges, and many other things. Hens *lay* eggs.

Lie is intransitive and requires no object. We *lie* down at night; the dog *lies* on the rug by the fire; books *lie* on the table. *Lie* means to rest upon or recline.

Set is transitive and requires an object. We *set* the jug on the table; we *set* bread, saws, and so on.

Sit is intransitive and requires no object. We *sit* by the fireside; the chair *sits* on the rug; the dog *sits* on his haunches.

(Other forms arise to represent the various tenses, but these can be made when one knows the principal parts of these verbs as they are given in the list in a previous section.)

d. Use the present for expressing the idea of truths that are universal or always the same.

He showed us that an airplane *is* heavier than air (not *was*)

Our teacher showed how water *runs* uphill through a siphon (not *ran*).

e. Do not use the present tense for the present perfect. It is not idiomatic in English to say, *I am already here five weeks*, for *I have been here already for five weeks*. The use of the present in certain cases for the future is a well-established idiom, as *I am to be here for five weeks* for *I shall be here for five weeks*.

f. One tense or number may not be inferred from the use of some other in the same sentence. It is wrong to say, I always *have* and *will do* this. A much less awkward form is I always *have done* this and *will do* it.

g. Nor should the conditional be used for the simple indicative. I *should be glad to see* you, ought to read, *I shall be glad to see* you.

h. Nor should the indicative be used for the idiomatic subjunctive.

First, in conditions contrary to fact, as, If he *were* wise, he would not sell his property now (not *was wise;* since the inference is that he is not wise). Second, in statements implying considerable doubt, as If it *be* true, then I give up (but it may not be true). Here the indicative *is* does not express the right shade of meaning.

i. *Shall* and *will* are frequently confused. For discussion of the correct uses see the preceding discussion.

j. No adverb, phrase, or other word should split the two parts of the infinitive. *To plainly see* should be *To see plainly*. Some good authors have sought to justify the split infinitive, but the majority of speakers and writers avoid it as being hardly necessary.

3. Errors in the Meaning of Verbs. Some common mistakes in the use of certain verbs have already been mentioned in the list beginning on page 36, and some in the list of homonyms, doublets, and other words later Now all we need do is collect a few examples to show how these errors may be classified.

a. Wrong combinations. Among the familiar ones are *can't seem* (for *seems not*), *don't think* (for *think* something is *not* as stated), *hadn't ought* (a foolish duplication for *ought not*), *had have* (for a doubtful past construction), *would of*, a phonetic spelling for *would've (have)*, *remember of* with object (for *remember* simply).

b. Doubtful usages. Some words are always striving to break into good society. Newspaper men and others who must write compactly are tempted to invent verbs to replace awkward or long combinations. Some of these not yet fully accepted by good writers are *suicided* and *Sundayed* (for *committed suicide* and *spent Sunday*), *suspicioned*, *electrocuted* (for similar expressions), and *enthuse* (for show enthusiasm).

Principal parts are sometimes confused. Many persons do not realize that *hanged* is the accepted term for legal execution, not *hung*. He *was hung* is, therefore, incorrect; he *was hanged* is correct. Many do not realize that the form *proven* for demonstrated is dialectic and a Scotch legal term never fully adopted into English. It is *proved* is, therefore, the correct expression.

Sometimes active and passive forms are confused. *Graduate* seems to give typical trouble. Purists still assert that a person *is graduated* by the school, which form is literally correct. Taking the word thus strictly by derivation, then, *He graduated* is wrong, even though it is used by almost every adult, and is found in good authors.

Many homely or colloquial expressions are inadmissible in careful composition. Words like *underhanded* (for *underhand*), *second-handed* (for second-hand), *preventative* (for the correct *preventive*) show a tendency toward reduplication or doubling of certain parts of words. *Bursted* and *busted (burst)* and *dassent* (for *dare not*) are familiar variations that good use never could sanction. *Fix* (for *repair*) is another distorted meaning. *Show up* is a familiar but wrong term for *appear*. Yet it is correct in the sentence, "It is how you *show up* (act) at the show-down that counts."

Claim is often wrongly used for *assert*, *expect* for *suppose*, *leave* for *let*, to give permission, *loan* for the verb *lend*, *indulge in* for *partake of*, *learn* for *teach*, *wait on* for *wait for* or *to court* (as in some localities), and *partake of* for *eat*.

TABULATION OF VERBS.

Kinds:

1. Transitive and intransitive
2. Regular and irregular (weak and strong)

3. Principal and auxiliary (8 uses of auxiliaries)
4. *Shall* and *will*
5. *Should* and *would*

Properties:

1. Voice
   a. Active
   b. Passive
   c. Interchangeable
2. Mode
   a. Indicative
   b. Subjunctive—conditions contrary to fact; implication of doubt
   c. Imperative
   d. Non-finite (Infinitive, Participle)
3. Tenses
   a. Primary,—present, past, future
   b. Secondary,—present perfect, past perfect, future perfect

4, 5. Person and Number
6. Inflection of *be*
7. Inflection of *call*

Errors in the Use of Verbs:

1. Errors in regard to number
   a. Plural used for singular
   b. Plural used with prepositional phrase
   c. Plural with collective nouns
   d. Plural with *or* and *nor*
   e. Wrong verb with different numbers
   f. Wrong verb with two pronouns
   g. Don't for doesn't
   h. Syncopated forms
   i. Wrong use of *there*
   j. Subjunctive for indicative
   k. Singular with *you*
   l. Plural with names of books

INFINITIVES AND PARTICIPLES.

Participles and infinitives are the non-finite forms of the verb. Some grammarians have refused to call them verbs at all; but they have most of the properties exactly as regular finite verbs. In addition both infinitives and participles have many of the constructions of nouns, adjectives, and adverbs. No other words have such a variety of uses; and for this reason alone, participles and infinitives should be well understood by every adult.

1. First of all, let us illustrate the elements that are common between finite and these non-finite forms. Like regular verbs, participles and infinitives may be regular and irregular, transitive and intransitive, active and passive. They likewise have mode, in that they assume even though they do not plainly assert action; some of the tenses; but the same form for all three persons and both numbers.

He was known *to have gone.* Here the perfect infinitive of an irregular verb is illustrated. He was glad *to have repaired* the roof. In this case the perfect infinitive of a regular verb is illustrated. *Having gone* and *having repaired* are the corresponding participial forms.

He came *to visit* his old *friend.* Here the present infinitive has an object. *Visiting* his *friend,* he found some old letters. This illustrates the corresponding participle with an object. Past perfect forms are *to have visited* and *having visited. To be visited, to have been visited; being visited* and *having been visited* are the passive participles and infinitives.

So it is evident from these examples given above that the non-finite forms are intransitive and transitive, regular and irregular, active and passive, just the same as ordinary verbal constructions.

2. Mode is a property of the infinitive and the participle. It is to assume, but there are no indicative and subjunctive; for the participial form is on a similar footing in itself with these modes.

3. Tenses of the infinitive and participle are limited to the present and the present perfect. In use these do not follow the same plan as the tenses of finite verbs. Since the non-finite are subordinate constructions, never principal, the time of the participle and infinitive must depend largely on that of the main verbs. Certainly the present infinitive form takes its time from the rest of the complex sentence, as shown in the following sentences:

I should like *to go* (present, agreeing with *should*).

He went to find out what was *to happen* (present as future, since the time is after that of the main verb).

He will go *to find out* (future, agreeing with future verb).

He went *to find out* (past, agreeing with past verb).

On the other hand, the time of the present perfect infinitive is anterior to the time of the main verbs, as shown in the following sentences:

I would like (now) *to have gone* (past). That is, I am now sorry that I did not go at some past time.

He was sorry not *to have gone.* Both are past, and the time of *to have gone,* is previous to that of *sorry.* That is, he was sorry (past) that he did not go at some anterior time,—one before the time of the main verb.

Participles, in like manner, take their time from that of the chief verbs, as shown in the following sentences:

He passed by me *running* rapidly. Here he comes *running* rapidly. He will have to come *running* rapidly if he catches us. Here the participle, agreeing with the main verb, is past, present, and future in time, respectively. In every case, however, it is the present form that is used, since the participle has no regular past and no regular future.

He passed us *having run* more rapidly. Here he comes *having run* more rapidly than we have. He will have to come quickly *having run* more rapidly than we have. From these examples it is evident that the time of the *perfect* participle is previous to that of the main verb. In each of the three sentences he had to run rapidly before he overtook the rest. So it is seen that the time of the past participles, in every case, is prior to that of the main verb.

4. Person and number of infinitives and participles. No changes in the non-finite forms are made to indicate person and number. No matter whether the person is first, second, or third, and the number singular or plural, the participle and infinitive remain the same.

Subject of the infinitive. Much has been written to explain the case of the subject of the infinitive. In English and in most other modern languages it is in the objective; and in both Greek and Latin it is in the corresponding accusative case. We say that the construction is idiomatic, but we cannot explain just why it should be thus. Customarily we use the nominative or first case as the subject of a finite verb; customarily also we use the objective as subject of an infinitive. Some have sought to explain the idiom on the ground of similarity to the construction in which an object is in the

objective case. Surely careless persons are most likely to explain an infinitive subject as an object of a preceding verb where the two may be confused. They allowed *him* to go illustrates. Here *him* must not be called the object of *allowed*, but the subject of *to go;* therefore, it is objective, not because it is object of anything, but because it is subject of an infinitive. In fact, the whole group (*him to go*) is object of the verb, not the single word *him*.

The subject of an infinitive may be a noun, pronoun, participle, another infinitive, or a group of words:

1. We want *George* to study music abroad.
2. We think *him* well prepared (*To be* understood).
3. Do you not believe *rowing* to be great sport?
4. He likes *to row* to exercise all the muscles.
5. He thinks that to row with the school crew to be the height of any boy's ambition. (*That* perhaps should be omitted.)

The subject of a participle is a noun or pronoun in different constructions:

1. Noun also subject of verb: *John*, seizing the oar, began to row vigorously.

Notice that here the subject is expressed but once, but that, if the subject of the participle differs from that of the main verb, both must be clearly expressed.

Coming up the street, *the trees* swayed from side to side in the wind. Because the subjects are not the same, this sentence is absurd. As *we were coming* up the street, *the trees*, etc. is the correct form.

2. Noun also object of a verb; We saw *John seizing* the oar.

Notice the meaning of this sentence is not the same as that of the sentence that says *John's seizing* the oar.

3. Noun or pronoun used also as predicate nominative: He is *a man trusted* with any sum; he is *one trusted* in the bank. (*Trusted* is the perfect participle.)
4. Object also of a preposition: Go *to* the *man standing* behind the first window.

In apposition also:

5. In apposition: the *cashier*, that *man standing* behind the first window, is the person I mean.

All the nouns and pronouns have double constructions in these sentences; we are interested in them especially because they are used as subjects of participles.

Sign of the infinitive. *To* is the sign of both the present and present perfect infinitives. Usually it is not recognized as a preposition; for, if it were, the verb would be its object. Many verbs customarily omit the sign; some of these are, *make, let, see, hear*, and sometimes *dare, need*, and *help*.

Let him (to) *do* it; let me (to) *see;* let him (to) *dare;* make him (to) *help;* we need not (to) *go*.

Sometimes *in order to* is used in place of the simple sign *to*.

Participles are known by their ending in -ing and by their use.

Infinitives and Participles as Nouns. From the study of non-finite forms used as verbs we now pass to consider infinitives and participles as nouns in various constructions. Infinitives used as nouns are often called verbal nouns; participles similarly used are called gerunds. Yet these names are loosely used or interchanged by many writers.

Specimen sentences showing infinitives and participles as nouns:

1. Subject:

To shop delights most ladies.

Shopping is not a delight for some men.

We think *to study* hard disagreeable (*To be* understood).

We believe *studying* mathematics to be distasteful to many.

2. Object:

We hate *to shop*.

We hate *shopping*.

We like shopping except *to wait* for parcels.

We like shopping except for the *waiting* for parcels.

3. Predicate Nominative:

To study hard is *to learn* thoroughly.

Studying hard is *learning* thoroughly.

4. Objective Complement:

He ordered the cellar *to be filled up*.

He saw the workmen *filling* it *up*.

5. Appositively:

To study hard, *to work* every day, brings results.

Studying hard, *working* every day, brings results.

6. Independently:

To be perfectly frank, I do not like German.

The work *being finished*, the workmen packed up their tools.

7. Predicate Objective: They took him to be *me*. Here *me* is objective because the case must agree with the subject of the infinitive, and the subject is objective.

Infinitives and Participles as Adjectives. Non-finite forms are used in several ways as adjectives and other parts of speech. The examples show various uses of modifiers having adjective force:

1. Predicate adjective:

We are *to go* today.

We want those boys (to be) *punished*.

The house is *to be sold*.

Sleet is *cutting*.

Distinction must be remembered between the use of the participle in *Sleet is cutting* and *Knives are cutting*. In the latter case the verb is present indicative progressive, made up of both these words. *Cutting* here is not a participle.

2. Participle as regular adjective: The *driving* sleet cuts the skin; the *lowing* herd winds slowly o'er the lea; the book *lying* on the table over there is an algebra; the man *sitting* on the fence is a tramp.

Notice that the participial phrase is often used as an equivalent of a relative clause, as *The book lying* for The book, *which is lying* on the table; *The man sitting* for *The man who is sitting*.

3. Participle as factitive adjective: He made his remarks (to be) *displeasing*.

Some prefer to construe this participle as an objective complement with *to be*, having as its objective subject *remarks*.

Infinitives and Participles as Adverbs and Prepositions.

This is the best *to use*. Here *to use* qualifies the predicate adjective *best*.

That iron is *freezing* cold. *Freezing* modifies the adjective *cold*.

If it is true, I should like *to know* it. *To know* is here an adverb of purpose.

Regarding participles, there is much confusion. *Regarding* is used as a preposition.

During the day, some animals sleep. *During* is used as a preposition.

ERRORS IN THE USE OF INFINITIVES AND PARTICIPLES.

1. Use of the perfect for the present infinitive. I was sorry not *to have gone*, already explained, is correct if the time of the possible going was anterior to that of the main verb; otherwise the sentence should read, I was sorry not *to go*.

2. Use of nominative as subject of the infinitive. The normal subject of the infinitive, by English idiom, is placed in the objective case. He wants *him* to go.

3. Use of nominative for predicate objective with infinitive. *They thought him to be we, should be us*, since the case of the noun or pronoun in the predicate after the link verb must be the same as that of the subject, and here the subject is objective.

4. Confusion of progressive finite form with participle as predicate nominative adjective.

Progressive: he is going; he is running; he is interesting us.

Participial adjective: he is interesting; the problem is confusing.

5. Participles without definite substantives.

Right: Coming toward the shore, the wind blew a gale.

Wrong: Coming home, the wind blew furiously.

Right: As we were coming home, the wind blew furiously.

Wrong: Being seven years of age, my grandfather brought us here.

Right: When I was seven, my grandfather brought us here.

Note: if the participle and the main verb have the same subject, the latter need be expressed but once. *John coming* home *lost* his way.

If the subjects are different, both must be expressed, as in the sentences just given above.

If the participle is used independently, its subject, as well as that of the main verb, must be expressed. John *having failed* to arrive on time, *they did* not wait for him.

6. Participles should not be used with *thus* to add a phrase at the end of a sentence. He did not arrive home on time, *thus delaying* the meal. *Thus* may be omitted; or the two parts may be made coordinate.

Parsing of Infinitives and Participles. Nonfinite forms of the verb should be treated in a way similar to finite verbs.

1. Class.
2. Subclasses.
3. Principal parts of verb.
4. Form found as to properties.
5. Construction and rule.
6. Any peculiarities.

Tabulation of Infinitives and Participles.

1. Elements common to regular verbs
   a. Transitive and intransitive
   b. Regular and irregular
   c. Active and passive
2. Mode: they assume rather than assert
3. Tenses
   a. Present
   b. Perfect
4. Person and number: unchanged throughout

Subjects of Infinitives and Participles

1. Of infinitives, always in objective
   a. Noun
   b. Pronoun
   c. Participle (gerund)
   d. Clause
2. Of participles a noun or pronoun
   a. Noun also subject of verb
   b. Noun also object of verb
   c. Noun also predicate nominative
   d. Noun object of preposition
   e. Noun also in apposition

Sign of the Infinitive

To, sometimes omitted
In order to

Sign of the Participle

Ending *-ing* and use

Infinitives and Participles as Nouns

1. Subject
2. Object
3. Predicate Nominative
4. Objective Complement
5. Appositively
6. Independently
7. Predicate Objective

Infinitives and Participles as Adjectives

1. Predicate adjective
2. As regular adjective (participles)
3. As factitive adjective (participles)

Infinitives and Participles as Adverbs and Prepositions

Errors in the Use of Infinitives and Participles

1. Perfect for present infinitive
2. Nominative as subject of infinitive
3. Nominative for predicate objective of infinitive
4. Participles without substantives (misrelated)
5. Confusion of progressive indicative with participle in predicate
6. Participles with *thus* at end of sentence (trailing)

ADVERBS.

Adverbs qualify verbs, adjectives, other adverbs, prepositions, clauses, and even whole sentences. Sometimes, furthermore, a single adverb like *yes, no, certainly* stands for an entire sentence, but this happens only when the rest is easily inferred. Shall you go? *Yes*, [I shall]. Will you go with us? *Yes*, [I will].

Classes of adverbs as to use. According to their general uses in English, adverbs are divided into two broad classes, simple and conjunctive, and these will now be explained.

1. Simple adverbs modify, but do not connect. Ordinary ones relate to measures of time, means of doing something, or other modifying conditions, such as might be mentioned in answer to questions like *how, when, how long*, and *how many*. Others ask questions directly or indirectly, and so are named interrogatives and indirect interrogatives, as illustrated below.

a. Ordinary class is illustrated by We have been here *a year; how* long it seems! We arrived *here* safely.

b. Interrogatives, as *How* old is Ann? *When* did you arrive? and *how* long will you remain?

c. Indirect interrogatives are found in subordinate clauses, they being used as subject, complement, object, subject of infinitive, and the

like. I am asking, *Where* is he now? I know *where* he ought to be, and *how* he should reach there.

2. Conjunctive adverbs both modify and connect. These again are divided into two groups, regular and relative.

a. Regular conjunctives connect an adverbial clause to a verb, adjective, or adverb. Do *as* I say, not *as* I do. Here *as* modifies say and connects *I say* to *do*.

b. Relative conjunctive adverbs resemble relative pronouns, in that they join a substantive and an adjective clause that modifies the substantive. I know the spot *where* the best orchids grow, but now is not the time *when* I should tell you where it is. The subordinate clause *where the best orchids grow* is joined to the main sentence by the conjunctive adverb *where*, and the whole modifies *spot*. Likewise, *when I should tell you* is joined by the conjunctive adverb *when* to the noun *time*.

Adverbs classified as to meaning. According to the ideas or measures expressed, adverbs fall into several classifications.

1. Adverbs of time tell when, how long, while, or how frequently. Some of them are *After, before, forever, heretofore, lately, monthly, recently, soon, sometimes, subsequently, nowadays, by and by, now and then.*

2. Adverbs of place, some of which are *Above, afar, about, behind, close by, down, hither, nigh, wherever, somewhere, nowhere, thereby,* and *whence.*

3. Adverbs of manner, answering the question how, or in what manner, some of which are *As, at length, anyhow, somehow, nohow, considerably, extensively, merely, nearly, namely, silently, wholly, likewise,* and *separately.*

4. Adverbs of degree, telling how great or much, how little or how extensive, some of which are *Also, besides, enough, even, farther, immensely, partly, partially, nearly, somewhat,* and *very.*

5. Adverbs of cause, giving reasons, or telling why, some of which are *Hence, then, therefore, consequently, it follows that, wherefore.*

Some adverbs may not readily fall into these classes, and therefore may be explained by themselves. *Yes, no, truly,* and others might be included.

Single adverbs and adverb phrases. Two or more words are often combined to make a single adverb, which should be explained and diagrammed as a single word. *By and by, here and there, up and down, through and through, hither and yon, day and night, at least, now and then,* and *at random* are some of the many.

Adverbs and expletives. Sometimes words that are adverb in form, but not really in significance, occur at the beginning of sentences. Many writers call these *expletives* and parse them as unconnected with the sentence. *There* are many kinds of steel gives an example. One may not say that the sentence means, Many kinds of steel are *there* (that is, in a certain place). *Why,* I think not. Here, too, it is difficult to explain *why* as a real adverb.

Comparison of adverbs. Adverbs and adjectives are compared in about the same ways. Like adjectives adverbs add *er* and *est* for the comparative and superlative; or use some prefix like *more* and *most;* or use the termination *ly.* It is a common blunder to say that all adverbs end in *ly;* for it is doubtful if even a majority of them so terminate.

Parsing of Adverbs should include these steps: 1, Kind; 2, subclasses if any; 3, comparison; 4, degree used; 5, relation to rest of sentence and rule; 6, anything unusual.

Errors in the Use of Adverbs.

1. Adverbs are often overworked. Some writers constantly use *very, grandly, gorgeously, terribly, only, mostly,* and many superlatives in ordinary senses. Meaning should, of course, suit the word used. If one constantly overuses adverbs, he at last will be like the boy who cried "Wolf, wolf," when there was no wolf; and when there is real need of a strong expression, none will come to his aid.

2. *Only, also, alone,* and other adverbs are often misplaced. Every modifier should be placed near the word it limits. Sometimes it should be placed just before, sometimes after. At any rate, it should not remain near some other word so as to be mistaken as to its real reference.

According to position *only* in a sentence conveys several distinct meanings. *Only* he lost his way. He *only* lost his way. He lost *only* his way. He lost his *only* way. He lost his way *only.* These may mean, taken in order, Everything went well, except that he lost his way. He and nobody else lost his way. He lost his way but not his money or anything else. He lost the only way there was. He lost his way and nothing more; this is similar to number three, but *only* at the end is doubly emphatic.

3. Adverbs should not be placed between *to,* the sign of the infinitive and the verbal part. They are often placed in the midst of verb phrases, as If he would *only* come. Split infinitives like One ought to *carefully* watch these words should read One ought to watch these words carefully.

4. If the natural position of the adverb is before the verb and adjective, the emphatic position is after them in any given case.

5. *Nor* is the correlative that goes with *neither.* In all other cases, however, *or* is the proper word following a first negative, as *either . . . or; not . . . or; never . . . or,* etc. Notice that *nor* is frequently used in the sense of *and nor,* as *Nor* is this true,—something is not true, and something else is not true.

6. Double negatives lead to considerable confusion of meaning. Some wrong expressions are I *can't hardly* see; we *scarcely never* go; we *could not* find *only* a few; we *cannot scarcely* get out of here.

Notice that a certain combination of negatives in English is idiomatic, established by long usage. It is *not improbable* means that it is rather probable. It is *not unlikely* that we shall go, means that it is rather likely, or we rather think we shall go. In these expressions, *not* or some equivalent is combined with a word having some negative prefix like *not, un, il, ig, in, ir.*

7. Adverbs and adjectives are often confused in meaning and use. Under errors in the use of adjectives, some of them have been mentioned. Below is found a list of words often confused.

adverbs	adjectives
nicely	good
poorly	ill
probably	likely
very	real
somewhat	some
well	good
previously	previous
above	foregoing
above	preceding
above	above-mentioned
near by	neighboring
promptly	prompt
differently	different
well, etc.	first-rate

Illustrations in sentences:

right	wrong
I am in good health (well)	I feel nicely
He is feeling ill	He is feeling poorly
He will probably come	He will likely come
The cake is very good	The cake is real good
I am somewhat better	I am some better
I feel well (not ill)	I feel good (not ill)
It happened previously	It happened previous
The foregoing sentences illustrate	The above sentences illustrate
He does well in school	He does first-rate in school
He acted differently	He acted different

Note: *Different* and *differently* are followed by *from*, not by *than*, as He acted differently *from* the others.

TABULATION OF ADVERBS.

Classes as to Use

1. Simple
   a. Ordinary
   b. Interrogative
   c. Indirect interrogative
2. Conjunctive
   a. Regular
   b. Relative

Classes as to Meaning

1. Adverbs of time
2. Place
3. Degree
4. Manner
5. Cause
6. Odd adverbs

Single Adverbs and Phrases, *by* and *by, here* and *there*
Adverbs and Expletives, *there, why*, etc.

Comparison of Adverbs

1. By adding *-er* and *-est*, to positive
2. By use of prefix *more* and *most*
3. Irregularly
4. By adding *-ly*

PARSING OF ADVERBS.

Errors in Use of Adverbs

1. Overworked adverbs
2. Misplaced
3. Split infinitives
4. Out of position
5. Correlatives wrong
6. Double negatives
7. Adverbs and adjectives confused

List
Illustrative sentences

PREPOSITIONS.

A preposition shows how its own object is related to some other part of a sentence. It is connective in use, governs an object, and has a definite antecedent, which may be almost any part of speech. Relative pronouns, some adverbs used as conjunctions, and all conjunctions show relationship, but they are not related to any substantive as a preposition is, since they do not govern any objects. The preposition and its object together are called a prepositional phrase.

Kinds of prepositions.

1. Simple, consisting of one word, like *About, above, after, among, before, beside, between, beyond, by, down, except, into, since, until, under, within.*

2. Phrasal, consisting of two or more words combined in use as if they were a single word. Most writers recognize a preposition phrase as such a group of words; but this must not be confused with a prepositional phrase, as defined above, which consists of a preposition (single or phrasal) plus its object. Some combinations may be both prepositional and preposition phrases. *To the extent of* three miles, illustrates; for the italicized words are used as a single preposition and so are a preposition phrase, and they plus *three miles* make up a prepositional phrase.

Some preposition phrases are, *Because of, in order to, from above, according to, alongside of, in opposition to, in consequence of, in addition to, with regard to, in front of, by means of.*

3. Participles that become prepositions, without retaining their verbal meanings, like *concerning, touching, resembling, following,* and many others, used in phrases as *Concerning* this point; as *touching* the matter in hand; *resembling* the others; *following* the leader.

Objects of prepositions may be almost any major part of speech.

1. Noun: Let us go to *school.*
2. Pronoun: Let us go to *him* and confess.
3. Adverb: Until *now* I did not believe it; they lost the money between *here* and *there.* Many adverbs of place fall into this type of construction as objects of prepositions.
4. Adjective: We are through with them for *good;* take her for *good* or *bad, better* or *worse.*
5. Infinitive: Do you do anything but *stare* at the board? (*To* is omitted before *stare*).
6. Participle: Some callers never think of *going* early.
7. Clause: What does he care what we think of him? How could he after *that which you said?*

In similar ways a preposition may connect its own phrase to a noun, pronoun, verb, adjective, adverb, or some other combination in a sentence.

Prepositions, Adverbs, and Verbs. Frequently the object of a preposition is omitted, not being felt as necessary, and the preposition itself becomes an adverb virtually if not actually.

This is nothing to wonder *at.*
This is something to be thankful *for.*

Feeling the awkwardness of some constructions with *go, visit,* and other verbs, certain speakers say, This is a good place to go (to), or This is a good place to eat (in). Neither grammar nor logic can justify such a phrase, without a preposition.

Sometimes a word which might be used as either a preposition or an adverb attaches itself inseparably to the verb. Such a phrase should be explained and diagrammed as if it were a single verb or a regular verb phrase. Do you like to be *laughed at?* People *laugh at* all inventors for a time. Here *laugh at* has the sense of ridicule. He *ran away* with the money, in a

similar manner is equivalent to he *absconded* with the money.

Parsing of Prepositions includes 1, the kind; 2, relation to object and to rest of sentence; 3, reason or explanation.

Errors in the Use of Prepositions. On the whole prepositions are rather carelessly used. The main errors fall into four or five well-defined classes.

1. Prepositions wrongly chosen. Each of these words has its own appropriate meaning, which must be strictly accounted for. The list given below includes some proper combinations about which there seems to be some misunderstanding.

absolve from	depend from (literally)
accord with	differ with (person in views)
acquit of	differ from (in traits)
adapted to (thing)	get from (not off)
adapted for (purpose)	keep off (not off of)
agree with (person)	like to (not for to)
agree to (plan)	liken to
angry at or toward	live in, at (not to)
attend to (something)	need of
attend upon (person)	profit by
beg of, from (not off)	profit in (share)
buy from (not off)	sympathize with (person)
compare with	sympathize in (a loss)
conform to	taste for (art)
correspond to (thing)	wait for (person, thing)
correspond with (person)	wait on (to serve, court)
depend on (figuratively)	

2. Sets of prepositions often confused in use. *Among* should be used in referring to more than two persons or to groups of persons or things. *Between* should be used of two, or between two groups having a definite relationship.

At indefinitely refers to a place where, as He lives *at* Washington, but it might be in the suburbs or near by. *In* is used definitely for within a certain prescribed area. He arrived *at* Washington yesterday and will remain *in* the city four days.

Back of is not in good repute for *behind*.

Beside means literally *by the side of* and should be so used. *Besides* means *in addition to*, as both preposition and adverb. More people *besides* (adverb), More people *besides* us make this mistake (preposition).

But what should not be used for *but that*, in a sentence like, Nobody is present *but that* will agree with me.

By is used for the active force or agent; *with* for the means. He was hit *by* a crazed man *with* a hot poker.

Differ, different from is the idiom in America; in England *different to* is well established. *Different than* is always wrong.

Except is now used as a preposition, to which the corresponding conjunction is *unless*. Good use insists that these be not confused.

In should be used in mentioning objects enclosed in a certain space. *Into* should be used in case of motion from one space to a second. One goes from one room *into* another; he is *in* a room while he chooses to remain.

Like, the preposition, should not be used as a conjunction. *As if* properly connects one clause with another. It seems *like* it would would rain is incorrect for It seems *as if* it would rain.

Of, often used possessively, is also found in the idiom *to die of a* disease, as He died *of* pneumonia. *From* and *with* are not in good use in this phrase. In most cases *from* should be used to imply separation, as He obtained the book *from* us, not *of* us. *Of* an afternoon for during an afternoon is well established by usage. We take a walk *of* an afternoon.

Upon is used rather literally for position, *Upon* the mountain top we await the sunrise. *On* is used more generally and less literally. *Onto* is a needless substitute for *upon*.

Without means literally *on the outside*, or *except*. *Unless* means *were it not that* or *if not*. They should not be confused.

3. Prepositions improperly omitted or inserted.

Of what use is this? It is *of* no use. In these instances *of* must not be omitted. It is best to be sure of the English idiom before omitting a natural preposition.

We remember all that. I admit what you tell me. *Of* should not be inserted after *remember* and *admit*. Transitive verbs do not require prepositions before their objects.

In a group of objects, one preposition may be sufficient for the entire list; if more than one is used, all the objects should have prepositions expressed. The repetition of a single preposition adds emphasis. Have you been *to* New York, London, and Rome? Emphatic: Have you been *to* New York, *to* London, and *to* Rome?

4. Prepositions are sometimes improper at the end of the sentence. Sometimes the preposition adds force at the end of a sentence. Since the last word or group in a sentence is especially emphatic, any word in that position receives more than ordinary interest. If this interest is natural and justified, the preposition may be said to be used correctly at the end. When it is unnecessary and weak, it should certainly not be placed last.

Bacon says, Houses are built to live *in*, not to look *at*. How could this sentence be phrased any more forcefully?

I do not like to be laughed *at*. Could this be stated any more effectively by placing the preposition elsewhere?

On the other hand, the older books on rhetoric used to print this sentence, "A preposition is a poor word to end a sentence *with*." Here *with*, however, is not a poor word because it is a preposition, but more truly because it is superfluous, no matter what part of speech it is.

TABULATION OF PREPOSITIONS.

Kinds
1. Simple
2. Phrasal
3. Participles as prepositions

Objects
1. Noun
2. Pronoun
3. Adverb
4. Adjective
5. Infinitive
6. Participle
7. Clause

Prepositions as Adverbs

Errors in Use of Prepositions
1. Prepositions wrongly chosen
2. Sets often confused
3. Improperly omitted
4. Improperly used at end of sentence

CONJUNCTIONS.

Conjunctions connect words and parts of sentences, without having any other function. Verbs connect and assert action, being, or state.

Infinitives and participles connect and assume action. Prepositions connect and assume relation, and also govern substantives called their objects. Unlike all the rest, conjunctions merely connect.

Kinds of Conjunctions.

1. Coordinating, those which connect clauses and phrases of the same rank or grammatical construction. They may connect either principal or subordinate clauses, but not principal and subordinate at the same time. Some of the chief sub-classes may now be described.

a. Additive, such as *and, likewise, besides, moreover, first, second,* and so on (in series).

b. Adversative, such as *but, yet, still, nevertheless, on the contrary.* These always show that a succeeding part of the sentence takes a different turn in thought and meaning from the one before.

c. Alternative, such as *or, nor, either, neither, else.* These suggest the possibility of a choice between two or among several thoughts or plans.

d. Correlative, *either . . . . or; neither . . . . nor; both . . . . and; not only . . . . but also; whether . . . . or.* This group consists of the alternative conjunctions arranged in pairs to show a choice between two groups or among several.

e. Conclusive, such as, *therefore, hence, accordingly, so, thus,* and *then.* When properly used these show that a certain thought or conclusion grows out of what has been previously stated or done. In logic and mathematics these conjunctions are familiar signs of reasoned conclusions.

2. Subordinating conjunctions are used only in minor clauses to join them to the principal or major clauses. Some of the main sub-classes may now be described.

a. Causal, such as *because, for, since, inasmuch as.*

b. Conditional or concessive, such as *if, though, although, unless, except.*

c. Purposive, such as *that, so that, in order that, lest* (to introduce something that one would avoid).

d. Relating to time and place, such as *where, whence, when, while, until, before, after.*

Other words or groups, especially adverbs, are used as conjunctions on occasion, but these are not important enough to need emphasis here.

Parsing of conjunctions includes, 1, class; 2, subclass; 3, use and rule.

Errors in the Use of Conjunctions are not numerous. A few may be recalled.

1. Confusion of main kinds. When a coordinating conjunction is confused with a subordinating, it is because one has mistaken the nature of the clauses connected. In the use of any conjunction one must decide, first of all, what the grammatical construction is.

Under errors in using prepositions, the *and which, and who* constructions have been noticed.

Wrong: The new cement road is a great convenience, *and which* saves several miles.

Right: The new cement road is a great convenience and saves several miles.

In the *wrong* sentence, a subordinate is coordinated with a principal clause, a form forbidden by the laws of both logic and grammar.

Sentences like *He was cruel and was an old soldier* need not be mentioned here, since the trouble lies in putting two unrelated ideas together, and not in using a wrong conjunction. Such a jumbled sentence should be broken up into parts.

2. Correlative conjunctions should be rightly placed in the sentence. Aviation still is dangerous *both* in reference to control of the plane *and* landing—here the correlated elements are not clearly brought out. A better arrangement is, Aviation still is dangerous in reference *both* to control of the plane *and to* making good landings.

3. Confusion of conjunctions and other parts of speech. Already we have learned that certain prepositions are sometimes used for conjunctions,—*like* for *as* or *as if; except* and *without* for *unless; but what* for *but, but that,* or *that.*

Do *like* I do is wrong for Do *as* I do. He looks *like* me is correct.

Try *and* do this is wrong for the meaning Try *to* do it or See if you can do it. So is Try *and* go for Try to go. Sometimes in such phrases it is difficult to decide whether *and* has its own real force or whether it is misused for *to.* Usually the meaning is clear enough.

As is wrong for the conjunctive *that,* in sentences like I do not know *as* I shall go for I do not know *that* I shall go.

Whether (not *if*) is the proper correlative for *not.* I do not yet know *whether* or *not* I shall go is correct, whereas I do not know *if* I shall go or not should be condemned. Notice, however, in such sentences the phrase *or not* may be omitted, as in I do not know *whether* I shall go.

TABULATION OF CONJUNCTIONS AND USES.

Kinds:
1. Coordinating, which connect like clauses
   a. Additive
   b. Adversative
   c. Alternative
   d. Correlative
   e. Conclusive
2. Subordinating
   a. Causal
   b. Conditional or concessive
   c. Purposive
   d. Relating to time and place
   e. Other words or groups

Parsing of Conjunctions

Errors in Use of Conjunctions
1. Confusion of kinds
2. Misplaced correlatives
3. Confusion with other parts of speech

INTERJECTIONS.

Some exclamatory sentences begin with small words that express strong emotion. These terms are called interjections, since they are thrust in, interjected, between sentences or between parts. Ranging all the way from mild oaths and expressions of contempt, they at last often express calls for attention, as *holla, hallo,* and ship, *ahoy.* Sometimes they are used for a countersign or a rallying call.

Interjections have no special properties, do not relate to any other words in the sentence where they occur, and are parsed and diagrammed as independent parts of speech.

No classification is necessary, and the only one possible is a division of the various exclamatory

words according to their purpose, or the type of emotion expressed.

Some of the chief words are *Ah, alack, alas, avaunt, bravo, eh, fudge, ha, heigh-ho, hush, indeed, la, look, pshaw, tut, shoo, what,* and *zounds.*

Many others are readily identified as the favorite exclamations of our friends, and these run all the way from *goodness gracious* to *Whaddy yuh know about that?*

Older rhetorics and grammars advise school girls and the rest to use exclamations sparingly. In literature the list has shown a marked falling off in the last generation. Sentimental exclamations especially have come into great disrepute.

In punctuating exclamations, two courses are open: either place a comma after the exclamatory word itself or place it after the whole sentence. Except when the exclamation has no evident bearing on the entire sentence, a growing vogue dictates that the mark be placed at the end of the sentence.

ANALYSIS AND DIAGRAMS OF SENTENCES.

Already a brief analysis of the sentence and its parts has been made in the division headed *Sentences.* Having covered the salient principles of the various parts of speech, we are now ready to consider the structure of the whole sentence, its clauses, phrases, and single words.

Analysis shows how the different parts of the sentence are related. It dissects the larger units. Altogether analysis classifies, separates, and arranges all the clauses and phrases. No more beneficial exercise has been adopted to clarify one's thoughts on the subject of English grammar.

Sometimes analysis takes considerable explaining and many words to show the entire story of a sentence. For this reason a convenient device known as the diagram has been invented to show the analysis in visual form. No other purpose is accomplished by the diagram than to save time and to make the entire relationship in the sentence plain almost at a glance. Thus the diagram is something like a bird's-eye view of a sentence. Of late diagrams have been neglected in our elementary schools. Children do not always understand the syntax or arrangement of the sentence parts. For this reason alone, if for none other, diagrams should be made a small part at least of all grammar school study in English. Formerly some teachers and schools over-developed diagramming, to the neglect of other instruction; and so the method fell into considerable disrepute. Yet the pendulum has probably swung too far in the opposite direction.

Parts of Sentences according to Function. According to the part they take in expressing thought, the various word groups in a sentence may be classified as follows:

1. Subject
2. Predicate verb
3. Complements of verb
   a. Nominative (attributive)
   b. Objective (infinitive)
4. Other verb adjuncts
   a. Object (direct)
   b. Indirect object
   c. Adverbial objective (measuring)
   d. Object of make, etc. (factitive)
   e. Subject of infinitive
   f. Objective in apposition
   g. Retained object (in passive cons.)
5. Adjective modifiers
6. Adverbial modifiers
7. Noun clauses
8. Independent words and groups
9. Conjunctions

1. Subjects must be substantives,—nouns or groups of words used as nouns. A substantive is a word or more having the functions of a noun, or serving as subject, object, predicate nominative (attribute complement), and so on.

Noun: *Men* fly.

Pronoun: *We* fly in airplanes.

Infinitive: *To fly* for long was the ambition of inventors.

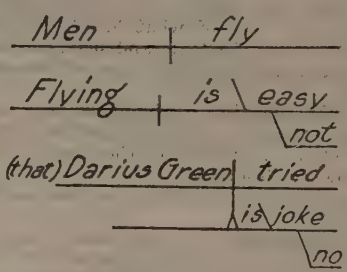
Infinitive phrase: *To fly successfully* is now possible.

A gerund (participial noun): *Flying* is not easy.

An adjective as noun: The *brave* only tried to fly.

Clause as noun: *That Darius Green tried* is now no joke.

Diagrams:



This style of diagram is simple and convenient; some that are labored and elaborate are no more clear or convincing. Let the subject and predicate verb be placed on a horizontal line, with an upright line cutting the horizontal. An object is shown by letting the upright come down to the horizontal, without cutting it. A predicate noun is nominative after the link-verb *is;* this relationship is shown by a slanting line toward the left. An objective complement is shown by placing the word after the regular object and slanting the line toward the right. A clause used as subject of a verb may be placed on a bracket, as shown above. For the present we leave the word *that* in abeyance. Other parts of this scheme of diagrams will be shown as we proceed to different modifiers.

This plan of diagrams resembles the main features in the Reed and Kellog grammars as published by the C. E. Merrill Company. They are used here by permission.

2. Predicates consist of all sentence parts that do not belong to the subjects. It is a mistake to call the verb the predicate, if the predicate is complex. Let us consider the verb first.

a. Some verbs, including most intransitives, constitute the whole predicate, as John *runs,*

children *learn*, we *ride*. Others require some helping word, which may be either a complement or an object of some sort. Complements may be of different elements as shown below:

Noun: Brutus was *a Roman*.

Pronoun: It is *I*.

Adjective: Brutus is *honorable*.

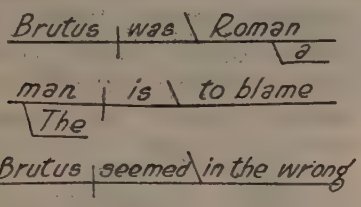
Infinitive phrase: The man is *to blame*.

Prepositional phrase: Brutus seemed *in the wrong*.

Noun clause: He appears to be *whatever they say of him*.

3. A complement has been given various names. Some grammarians call it a predicate noun, adjective, phrase, or clause. Since it refers to the subject, some call it a subjective complement. Since it completes the predicate verb, some call it a predicate nominative (agreeing with the subject). Since it often gives an attribute of the subject, some call it an attribute complement. No single name seems to win complete favor.

Diagrams:

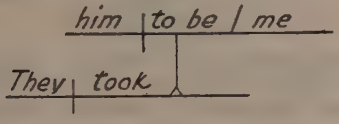


b. Objective complement is found in connection with infinitives having objective subjects according to idiom.

They took him to be *me*.

They took John to be *wise*.

Diagram:



4. Objects or direct objects, as they are often named, are sometimes classed as complements and called object complements. Since this last name is likely to be confused with objective complements, just described above, it is allowable to place them in a separate division. An object may be:

Noun or pronoun: All men desire *immortality*. Do all attain *it*?

Infinitive: Most men desire *to live*.

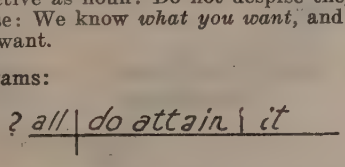
Infinitive phrase: Men desire *life to continue forever*.

Gerund: We enjoy *living*.

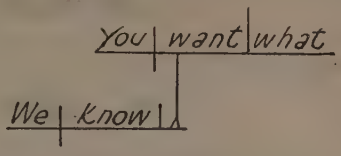
Adjective as noun: Do not despise the *rich*.

Clause: We know *what you want*, and that is all we want.

Diagrams:



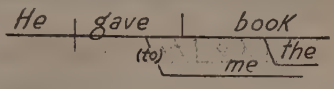
Note: Usually diagrams do not distinguish between a declarative and an interrogative sentence. To show the question form, a mark might be used, either after *it* or before the subject.



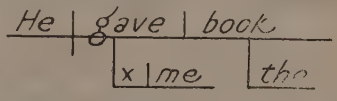
What you want is object of *know*, and *what* is object of *you want*.

b. Indirect objects resemble prepositional phrases with the prepositions omitted. In diagramming they are usually so treated.

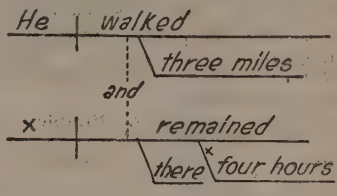
He gave *me* the book.



Note: *To* may be placed on the same line as *me*, leaving the oblique line vacant; or this line may be drawn straight down, in a box form, with *to me* on the horizontal.

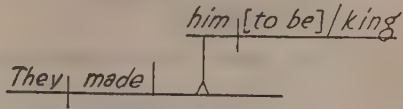


c. Adverbial objectives occur in sentences that mention units of time, distance, or other measures. He walked *three miles*, and remained there *four hours*.



Here *three miles* and *four hours* might be diagrammed as parts of prepositional phrases with the introductory word missing, as this diagram shows; or as simple adverbs. *Three* may be shown as modifying *miles*, and *four* as modifying *hours*, as cardinal adjectives.

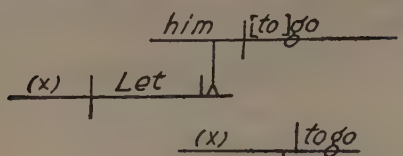
d. The factitive object occurs in sentences containing verbs of *making, naming, appointing*, or their like, and the direct object shows who was made, named, or appointed, while a second object tells what he was made, named, or appointed. The word *factitive* derives from the Latin root meaning *to make*. Many prefer to diagram the sentence as if *to be* were omitted,—



e. Sentences containing ordinary infinitives may be diagrammed in somewhat the same fashion.

Let him go. (Both subject and infinitive sign omitted).

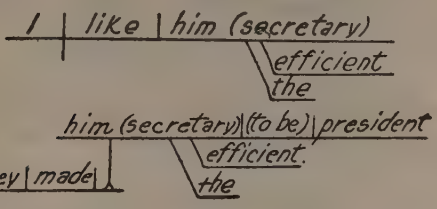
Would you like to go?



f. Sometimes a word or group is appositive to a direct or infinitive objective.

I like him, the efficient *secretary*.

They made him, the efficient *secretary*, president.

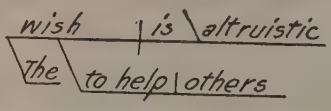


g. Retained objects are mentioned in the case of passive verbs. When the sentence, They made him *president*, is changed into the passive, He was made *president*, the word which was the factitive object in the active is retained, or seems still to be in the objective case.

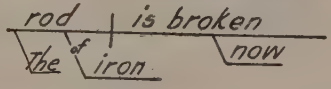
For want of a better name, it is called a retained object, since a passive verb may not logically have an object. Some grammars advise one to turn the passive into an active verb before diagramming the sentence. The sentence in the active would be diagrammed as the last one above is arranged.

5. Adjective modifiers. Simple adjectives give us little difficulty, either in parsing or in diagramming. Various combinations of words, however, may be used to modify nouns and pronouns as adjectives. Some of these will now be noted.

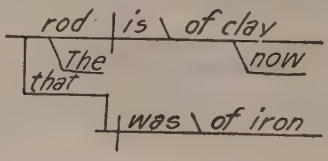
a. Infinitive. The wish *to help others* is altruistic.



b. Prepositional. The rod *of iron* is now broken.

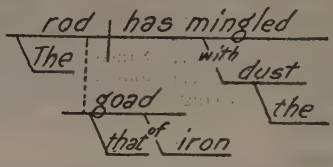


c. Adjective clause. The rod that was of iron is now of clay.



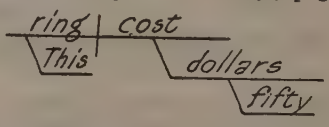
Here the connective nature of *that* may be represented by running part of the upright line horizontally and by placing the relative pronoun upon this line.

d. Sometimes it is difficult to distinguish an appositive use from a restrictive like the phrase *that was of iron*. Usually the form of the sentence guides us sufficiently, as in The rod, *that goad of iron*, has mingled with the dust. Here the phrase is non-restrictive and clearly appositional. For a discussion of restrictive and non-restrictive clauses see section on adjectives. In the diagram, an appositive may be shown by using parenthesis, or by continuing the upright line straight down to the appositive part, as shown here:

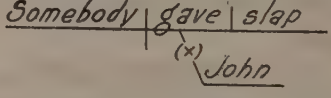


6. Adverbial modifiers. Ordinary adverbs are easily distinguished, but some of the phrases used to modify adverbs, adjectives, or verbs are not always recognized as adverbial in nature. Some of these are the following:

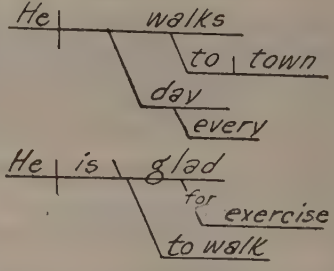
a. Adverbial objective. See *4c*, page 161.



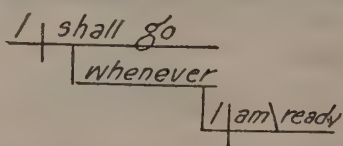
b. Indirect object, or object with *to* or *for* omitted. See *4b* above.



c. Prepositional or infinitive phrase. He walks *to town* every day. He is glad *of the exercise*. He is glad *to walk for exercise*.



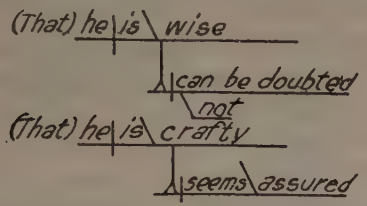
d. Adverbial clause. I shall go *whenever I am ready*.



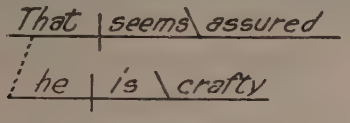
According to the adverb used, adverbial clauses are easily recognized as clauses of place, time, manner, degree, cause, and so on.

7. **The noun clause.** Already in 5 and 6 adjective and adverbial clauses have been mentioned among the various forms. A noun clause is similar, except that it is used as a noun in several ways:

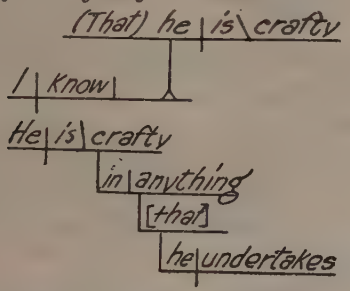
a. As subject of the sentence,—That he is wise cannot be doubted; that he is crafty seems assured.



That is treated as an introductory expletive, having little connection with the sentence, except logically. Notice another type of sentence, in which *that* may be taken as subject of the verb, and *he is crafty* in apposition to *that*.

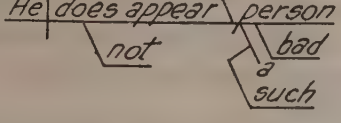


b. As object, I know *that he is crafty;* or is crafty in *anything he undertakes.*

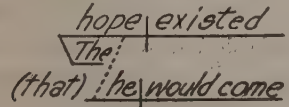


In anything [*that*] *he undertakes* is a prepositional phrase modifying *crafty* as an adverb; *that* understood connects *he undertakes* with *anything*, and *that he undertakes* modifies the noun *anything* as a restrictive adjective clause.

c. As a predicate nominative or attribute complement, as in He does not appear *such a bad person. Appear* is often used as a linking verb, and so the noun clause following [*to be*] *such a bad person* must be a nominative construction.

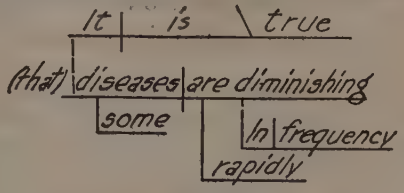


d. As an appositive, as in The hope, *that he would come,* long existed.



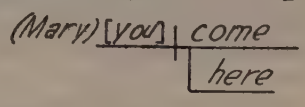
Noun clauses are introduced by relative pronouns and adverbs used conjunctively, such as *who, which, what, that* (often omitted), *whoever, whatever, where, when, whether.*

Some noun clauses are logical, if not grammatical, subjects of the verb, as It is true *that some diseases are rapidly diminishing in frequency.* In the diagram, however, it is customary to represent this clause as appositive to the grammatical subject, which, in the sentence just printed, is *It.*

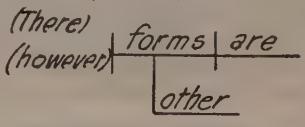


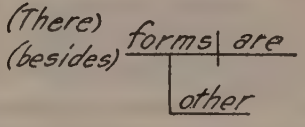
8. **Independent words and groups** are diagrammed independently. They may be placed at one side, as in the sentence just diagrammed; or connected with the sentence by dotted lines, but not placed on the same footing. Some of the independent expressions follow below:

a. A word in direct address,—*Mary,* come here; *child,* what are you doing? In the first sentence *you,* the subject, is understood.

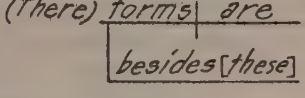


b. A parenthetical word used to connect the thought of one sentence (but not the grammar) with a preceding one,—There are, *however,* other forms. There are, *besides,* other forms.

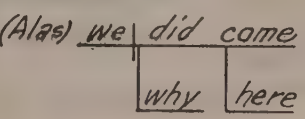




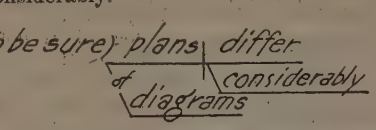
Even short sentences, like these, may have two expletives, or independent elements. If the second sentence just shown appears without punctuation, *besides* may be taken as a preposition governing *these* understood.



c. Interjections anywhere in the sentence,—*Alas,* why did we come here?



d. Phrases having no grammatical connection with the sentence,—*To be sure*, plans of diagrams differ considerably.

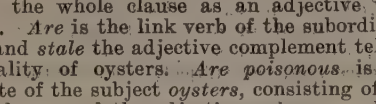


OTHER COMPLEX AND COMPOUND CONSTRUCTIONS.

1. Oysters that are stale are poisonous.

Analysis:

This is a complex declarative sentence, of which the principal clause is *Oysters are poisonous*, and the subordinate, *that are stale*. The subordinate clause is used as a restrictive adjective phrase, modifying oysters and explaining what oysters are poisonous. The sentence says merely that some oysters are stale, and that those that are stale are poisonous. Oysters is the simple subject without modifiers, except the relative clause *that are poisonous*, which is composed of the relative pronoun *that*, used to connect the whole clause as an adjective with *Oysters*. *Are* is the link verb of the subordinate clause and *stale* the adjective complement telling the quality of oysters. *Are poisonous* is the predicate of the subject *oysters*, consisting of the link verb *are* and the adjective *poisonous*, showing the quality of stale oysters *(oysters that are stale)*.



Parsing further explains the syntax of the individual words. *Oysters* is a common, class noun, neuter gender, third person, plural number, nominative case, agreeing with the verb *are*, and subject of the predicate assertion *are poisonous*.

Are is an irregular, intransitive, link verb, active, indicative, present tense, third person and plural number, agreeing with its subject *oysters* and connecting the subject with the predicate adjective *poisonous*.

Poisonous is a descriptive, predicate adjective, positive degree, showing the quality of *oysters*, with which it agrees in plural number and nominative case. Compared: poisonous, more poisonous, most poisonous; poisonous, less poisonous, least poisonous.

That is an indefinite, relative pronoun, used to connect its antecedent *oysters* with *are stale*, the subordinate clause *that are stale* being used restrictively to show that not all oysters are stale. *That* agrees with *oysters* in third person, plural number, neuter gender. It is also subject of the verb *are* and has a predicate adjective *stale*.

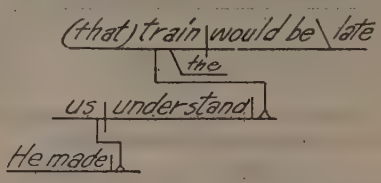
Are and *stale* need not be parsed, since they vary little from the similar words in the same sentence.

2. He made us understand that the train would be late.

Analysis.

This is a complex declarative sentence, of which *He made us understand* is the main and *that the train would be late* is the subordinate clause. *He* is the simple, unmodified pronoun subject of the main clause; *made* is the transitive verb, having as its object the infinitive [to] *understand*, etc.; *us* is the simple pronoun subject of the infinitive, in the objective case, according to idiom (not object of *made*). *Understand*, the infinitive with the sign omitted, has, as object, the subordinate clause entire. *That* is an introductory independent word (expletive), having no close connection with the sentence, except to introduce the subordinate clause, which has the phrase *the train* as a subject and *would be late* as the verb, which is future in meaning with reference to the verb in the main clause. *The* is a simple articular adjective, definite class, modifying *train; would be* is the predicate verb, corresponding to the direct *will be; late* is predicate adjective, nominative case, agreeing with *train*.

In sequence of tenses, *would be* follows the time of the main verb which is past, and *understand* follows the time of *made*, and so the present infinitive is used to show similar time.



Except for the possibility of confusing the three parts, this sentence could be diagrammed all on one line.

Parsing:

He is a simple, third personal pronoun, singular, nominative, subject of *made*.

Made is the past tense of *make, made, made;* it is third person singular, agreeing with its subject *he*, irregular weak form, transitive, active, having as an object the infinitive construction *us understand*, etc.

Us is subject of the infinitive *understand;* hence is in objective case (not object of *made*), plural, personal pronoun, simple (not compound).

Understand, infinitive, without the sign, present form, agreeing in time with that of the verb in the main clause, and with its subject *us*, in first person, plural number.

That is an expletive, being introductory, and having no direct bearing on the sentence. The subordinate clause needs no conjunction.

Train is a common noun, neuter gender, third person, singular number, nominative, subject of verb *would be*.

The, definite articular adjective modifying *train*.

Would be, conditional or subordinate clause form of *will be*.

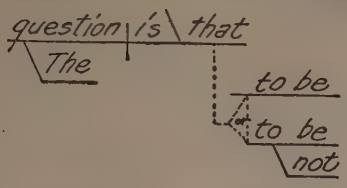
Late, descriptive predicate adjective, nominative to agree with subject of *would be*. Comparison: *late, later, latest*.

3. To be or not to be, that is the question.

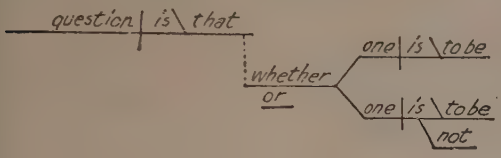
Analysis.

This simple declarative sentence has *that is the question*, as its main sentence element, with *to be or not to be* in apposition with that. The normal form of the sentence may be considered

as *The question is that*, in which *question* is the simple subject modified by the adjective *the*; *is* the link verb, intransitive, with *that* as a predicate adjective, nominative case to agree with the subject *question*. *To be or not to be* is an infinitive phrase, composed of two alternative elements, joined by the conjunction *or*, the second *to be* modified by the negative adverb *not*.

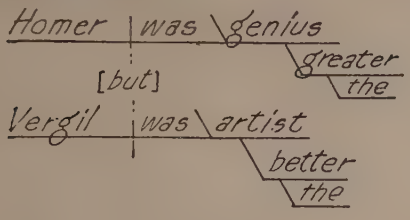


So far as parsing is concerned, nothing new is found in this sentence except the construction of *to be* and *not to be*. These are equivalents of nouns. If the sentence is taken to be equivalent to *The question is whether one is to be or not to be*, it may be diagrammed:



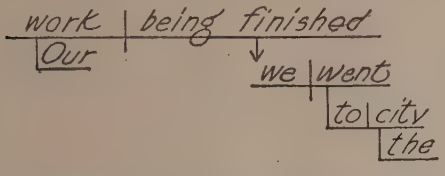
4. Homer was the greater genius: Vergil the better artist.

This sentence is compound, with the conjunction omitted. The two clauses are *Homer was the greater genius* and *Vergil was the better artist*. These parts give no special difficulty, for the analysis is similar to that of other sentences already explained.



5. Our work being finished, we went to the city.

This sentence contains an independent participial phrase attached to a simple sentence.



Diagraming independent elements. Some words or groups in sentences have only a logical connection with the rest. Though there are several kinds of these, the only two that give much difficulty in diagrams are the *expletive* and *independent participial phrases*. For expletive words a method of arrangement has been shown on page 163 in section 7; another on page 164 in section 2. Some books prefer to place expletives on dotted lines, others to place them in parentheses, still others to write them alone without underlining. Independent participial elements are not quite so simple to arrange. One plan is shown under sentence 5 on this page, where the arrow, pointing to *we went to the city* shows that the element, *Our work being finished*, is an independent participial prase. Parenthetical elements, and words and phrases used in apposition, may be treated in a similar way. Whatever plan for analysis or diagraming is used is not so important as is the consistent use of the scheme adopted. To use one line, or symbol, or arrangement for two different constructions is always confusing.

Analysis compared with diagraming. From the specimens shown, one may readily observe the comparative advantages of diagrams. They indeed show the sentence analysis in a form easily grasped by the eye, while all the relationships are instantly apparent. On the contrary, analysis in written form is more lengthy, therefore more cumbersome and not so easily seen as a whole. One who can analyze a sentence can ordinarily diagram it, if he has a plan for diagrams in mind; for the diagram is only a vizualization of the analysis.

Parsing. This form explains each word in the sentence with relation to its classifications and use. It is, therefore, more elaborate than analysis or diagraming. For instance, compare the diagraming of the sentences on page 164 with the parsing of the same ones.

Take the sentence *He made us understand that the train would be late*. Notice, for example, that the diagram as printed on page 164 is economical of space, whereas the analysis takes four times as much printing. The analysis is also not easily understood at a glance.

We may now sum up the advantages of studying grammar by means of analysis, diagrams, and parsing.

1. All forms show relationships clearly and simply. Diagrams are the best of the three forms for showing constructions; parsing for showing both constructions and word classifications; analysis is the literary equivalent of diagrams.

2. They teach one to keep in mind the theory of grammar.

3. They teach one to be alert toward unusual constructions that the average reader often overlooks.

4. They teach one to be regular and neat in arranging one's work, though they should never be made a mere exercise in drawing straight lines or in fancy writing.

5. Irregular forms teach one to be resourceful in showing relationships among sentence elements.

6. All three forms teach one to be logical and systematic; yet they should not be taught as an end in themselves, but as an aid to the intelligent study of the much neglected subject of good old English grammar.

BOOKS FOR FURTHER STUDY OF GRAMMAR.

Elementary grammars are numerous and are to be found in our schools and libraries. Most book publishers of texts have them listed. For the more advanced student, however a number of books might be recommended, of which only a few may here be specified. R. H. Bell: *The Changing Values of English Speech.* George O. Curme: *College English Grammar.* H. W. Fowler: *The King's English.* Otto Jespersen: *The Philosophy of Grammar.* Kittredge and Farley: *Advanced English Grammar.* G. P. Krapp: *Modern English.* T. R. Lounsbury: *Standard of Usage in English.* Brander Matthews: *The Parts of Speech.* J. D. M. Meikeljohn: *The English Language.*

RACES OF MANKIND
OUTLINE OF WORLD HISTORY
OUTLINE OF AMERICAN HISTORY
DICTIONARY OF HISTORY
IMPORTANT WARS
WORLD WAR
PICTORIAL HISTORY
ADMINISTRATIONS

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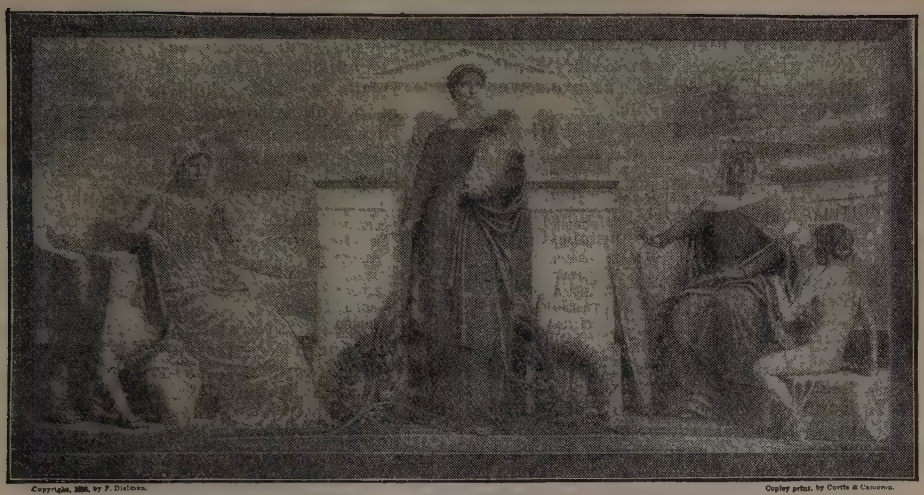
HISTORIC AMERICA

Fort Mackinac, Michigan
San Xavier Mission, Tucson, Ariz.
Plymouth Rock, Plymouth, Mass.

House of Cornwallis Surrender, Yorktown, Va.
Old Church, Jamestown, Va.
Old Mission, Santa Barbara, Calif.

BOOK III.

HISTORY.



HISTORY.
A Mosaic Painting in the House Reading Room, Congressional Library, Washington.
By FREDERICK DIELMAN.

RACES OF ALL MANKIND. COURSES AND CURRENTS OF THE WORLD'S HISTORY IN GRAPHIC OUTLINE. DICTIONARY OF HISTORICAL PERSONAGES AND EVENTS. IMPORTANT WARS OF HISTORY. WARS OF THE UNITED STATES AND CANADA.

RACES OF MANKIND.

A general classification of the races of mankind, showing their distinctive features, is as follows:—

I. CAUCASIAN: Europe; north Africa; south Africa; southwest and central Asia; parts of Siberia, India, Indo-China, Malaysia; Polynesia; Australia and America; numbering about 800 millions.

Distinguishing features of these are:—
Oval or round heads.
Skin, white, but is sometimes yellow or brown.
Hair, long, straight or curly, light or dark, but never kinky; full beards.
Cheek bones, not prominent.
Teeth, straight and even.
Eyes, blue, gray, brown, black.
Language, derived from the Sanskrit.

There are several types:—

(*a*) The **Teutonic** family of 223 millions.
1. **English** and **Scotch**, or Anglo-Saxons, in Great Britain, North America, Australia, south Africa, and elsewhere, numbering 126 millions.
2. **Germans** in Germany, Austria, Switzerland, Baltic provinces of Russia, Luxemburg, North America, and elsewhere, numbering nearly 77 millions.
3. **Scandinavians** in Sweden, Denmark, Norway, numbering 10½ millions.
4. **Dutch** in the Netherlands (Holland), south Africa, and the Dutch colonies of Java, Sumatra, and Guiana, numbering about 6⅓ millions.
5. **Flemings** in Belgium and its provinces, numbering 3⅔ millions.

(*b*) The **Slavs**, numbering 132 millions, and including—
1. **Great** and **Little Russians** in Russia, and **Ruthenians** in Galicia and east Hungary, numbering 93¼ millions.
2. **Poles, Kassubians**, and **Masovians** in Russian Poland, west Galicia, on the southern and eastern borders of Silesia, Posen, East and West Prussia, and Pomerania, numbering 17 millions.
3. **Czechs** or **Tchecks, Moravians, Slovaks** in Bohemia, Moravia, Silesia, and northern Hungary, and numbering 8¼ millions.
4. **Wends** in Saxony and Prussian Lusatia, numbering 100,000.
5. **Servians** and **Croats** in Servia, Croatia, Dalmatia, Saxonia, Banat, Bosnia, Montenegro, and the Herzegovina, numbering 8¼ millions.
6. **Slovenes** in south Styria, Carniola, south Carinthia, Istria, and Görz and Gradiska, numbering 1⅛ millions.
7. **Bulgarians** in Bulgaria and Eastern Roumelia, numbering 4 millions.

(*c*) **Lithuanians** and **Letts** (closely related to the Slavs) in West and East Prussia and the Baltic provinces of Russia, numbering 4 millions.

(*d*) **The Romano-Greeks**, numbering 165 millions, and including—

1. **French, Provençals**, and **Walloons** in France, west Switzerland, Belgium, eastern Canada, Algiers, etc., and numbering 46 millions.
2. **Spaniards** and **Catalans** in Spain, Central America, South America, Philippines, West Indies, and elsewhere, numbering 50 millions.
3. **Portuguese** in Portugal, Portuguese colonies, and Brazil, and numbering 20 millions.
4. **Italians** in Italy, Corsica, south Tyrol, Trieste, Istria, Dalmatia, and Görz and Gradiska, numbering 33½ millions.
5. **Rhaeto-Romanic** and **Ladins** in east Switzerland and south Tyrol, numbering 100,000.
6. **Friulians** in the Italian Friuli, and near Görz and Gradiska on the Isonzo, numbering 400,000.
7. **Roumanians** or **Daco-Roumanians** in Roumania, Bukowina, Bessarabia, Hungary and east Servia, numbering 10 millions.
8. **New Greeks** in Greece, and Turkey in Europe and Turkey in Asia, numbering 5 millions.

(*e*) **Kelts**, including the **Erse** or **Irish** in Wales, Ireland, Scotland, and the **Armoricans** or **Bretons** in Brittany and the Channel Islands, numbering 9¼ millions.

(*f*) **Albanians** in Albania, numbering 1½ millions.

(*g*) **Armenians** in Armenia, Russia, Asia Minor outside of Armenia, Persia, Europe, and the United States, numbering about 3 millions.

(*h*) **Iranians** or **New Persians** in western Asia, the Caucasus, Armenia, Kartvelia, the Kurds, Ossetes, Grusians, Georgians, Lesghians, Circassians, Afghans, and Tajiks, numbering 22 millions.

(*i*) **Hindus, Mahrattas**, etc., of the East Indies, numbering over 255 millions.

(*j*) **Semites**, distinguished by a dark or brown complexion; black and, sometimes, curly hair, thin lips and aquiline noses, numbering 30 millions.

1. **Arabs** and **Bedouins** in Arabia and northern Africa.
2. **Hebrews** or **Jews**, all over the world.
3. The few descendants of the ancient Chaldeans, Syrians, Phœnicians, Babylonians, and Assyrians, now living in southwestern Asia.
4. **Abyssinians** and **Nubians** of Abyssinia, Geez, Tigrê in east Africa.

(*k*) **Hamites** or **Berbers**, distinguished by a dark or brown complexion; thin, black hair and beards; sometimes closely resembling the negro type, numbering about 20 millions.

1. **Berbers, Moors, Kabyles**, and **Tuaregs** of Morocco, the Copts of Egypt and Abyssinia, and the people of Dongola, Beja, and Saho.
2. **Gallas** and **Somalis** of east Africa.

II. MONGOLIAN: Tibet, central Asia, Mongolia, Siberia, Manchuria, Korea, Japan, Formosa, China, Indo-China; parts of Irania, Armenia, and Caucasia; most of Asia Minor; parts of Russia, Finland, Lapland, the Balkan peninsula, and Hungary; most of Malaysia, the Philippines, and Madagascar; 596 millions.

Distinguishing features of these are:—
Heads, variable, short or broad.
Skin, yellowish or light brown.
Hair, black, coarse, lusterless; scanty beards.
Cheek bones, very high.
Eyes, small, black, oblique.

(*a*) **The Finnish-Ugrian** people, closely related to the Caucasian race and numbering nearly 16 millions.

1. **The Finns**, Karelians, Livonians, Esthonians, and Kurlanders of northern Europe.
2. **Magyars** and **Szeklers** of Hungary and Transylvania.
3. **Samoyeds**, Mordvinians, Tcheremissians, Voguls, Ostyaks, Votyaks, Lapps, and Tchudi of northern Russia.

(*b*) **Mongolians** proper, numbering 42 millions, and living in northern and northeastern Asia: the Buryats, Manchus, Ainus, Tunguses, Yakuts, Kalmuks; the Bokharans, Uzbeks, Ottomans or Osmanlis, Kirghiz, Turks, Turkmen or Turcomans, Tatars or Tartars, Bashkirs, Tchuvashes, Karakalpaks, and others of central Asia.

(*c*) **South Mongols**, numbering over 450 millions, and including the Chinese, Anamites, Cochin-Chinese, Siamese, Burmese, and others.

(*d*) **The Japanese** and **Koreans**, numbering about 58 millions.

(*e*) **The Tibetans**, and other tribes in the Himalayas, numbering 7 millions.

(*f*) **The Malays** of the Malacca peninsula and of the island of Sumatra.

1. **The Tagals** of the Philippines.
2. **The Javanese**, Sundanese, Achinese, and Battas of Java and Sumatra; also the Hovas of the eastern half of Madagascar.
3. **The Dyaks**, Alfurese, and Macassars of Borneo, Celebes, and adjacent islands.

III. AMERICAN INDIANS, the aborigines of America, numbering about 40 millions, distinguished by—

Skin, yellow or copper-red.
Hair, black, straight, bristly; beardless.
Nose, strong, prominent, and aquiline.

1. **In North America** the best-known tribes are the Athabascas, Sioux, Iroquois, Crees, Dakotas, Delawares, Mohawks, Iowas, Blackfoots, Chippeways, Natchez, Hurons, Comanches, Apaches, Utahs, Pawnees, Cherokees, Moquis, etc.
2. **In Central America** the Zapotecs, Aztecs, Mayas, Otomis, etc.
3. **In South America** the Caribs, Quichuas, Chimus, Tupis, Patagonians, Araucanians, etc.

IV. THE ETHIOPIAN OR NEGRO RACE, found in Africa, Australia, and America, distinguished by—

Skin, brown or deep black.

Hair, stiff or woolly, scanty beards.
Lips, thick.
Nose, flat and broad.

1. **Negroes** proper, in north and central Africa, numbering about 70 millions: the Fulbe or Fulahs, Hausas, Sonrhai, Nyam-Nyams, Ashantis, Dahomeys, Fantis, Tibbus, Wadais, Masais, Yorubas, Mandingos, Wolofs, and others.
2. **The Bantu Nation,** numbering 27 millions, found in south and southeast Africa: Kaffirs, Zulus, Bechuanas, Swahilis, Hereros, Marutses, and others.
3. **Papuans** and **Melanesians** of New Guinea, New Caledonia, and adjacent islands; also the Negritos of the eastern portion of the Philippines.
4. **Polynesians,** Australians, Micronesians, and Maoris of Australia, New Zealand; and the Polynesian and Melanesian Islands.

V. THE UNCLASSIFIED PEOPLES.

1. **The Basques** of the Pyrenees and the shores of the Bay of Biscay in Spain and France, numbering about 600,000, and thought to be descendants of the ancient Iberians of Spain.
2. **Dravidians** of Hindustan and the Dekkan, numbering about 68 millions, and thought to be descended from the original primitive people of India.
3. **Singhalese** of the Island of Ceylon, akin to the Dravidians, and numbering about 2 millions.
4. **The Kamtchadales,** Yukagirs, Eskimos, Tchuktchees, Aleutians, and other tribes of the Arctic regions of America and Asia.
5. **Hottentots** and **Bushmen** of southwest Africa, distinguished by yellowish-gray skin, low forehead, woolly hair; prominent cheek bones, thick lips; small, flat nose.
6. **Gipsies,** a strange, nomadic people scattered over all of Europe, western Asia, and north Africa.

Prehistoric Man.—The oldest remains of man are believed to be those discovered in the late Pliocene deposits of the Silo River in Java by Dr. Eugene Dubois in 1892. These bones in their fossil state are known scientifically as those of *Pithecanthropus erectus.* Man in this stage could walk erect, his hand was well developed and adapted to make such rude weapons as were found by Noettling in the Pliocene beds of Indo-China. His cranial capacity of 950 cubic centimeters places him little above the orang-utan with 500 cubic centimeters, and far below the highest type of civilized man with from 1,500 to 1,600 cubic centimeters. By the early Pleistocene times man had spread over nearly all of the habitable globe prior to the oft-recurring invasions of ice in the glacial periods in the northern and southern hemispheres. The theory now held by the majority of ethnologists states that men in these earlier days were all alike, and the division and subdivision into the races known to-day are the result of man's adaptation to his surroundings. What is true of the effect of climate, soil, diet, heredity, and time upon other animals of the earth is true of their effects upon man.

Southwestern Asia is regarded as an original abode of man. It is so regarded because it has been the center of the civilizations of earliest times. Certain it is that this region was a kind of privileged area or favored region within which man soonest attained his highest development.

The territory most favorable to man's development is called a culture zone. Within such areas man has attained his highest degree of civilization; outside of them man has lagged behind, as is proved by the inhabitants of nearly all of the tropical and south temperate lands. The culture zone of the eastern hemisphere lies between 25 degrees and 50 degrees N. Within it are found the homes of the races who for a definite period in the world's history have been foremost in culture and civilization: Babylonian, Egyptian, Assyrian, Persian, Indian, Chinese, Ægean, Hellenic, Phœnician, Etruscan, Roman, and later European. Within it also are found the homes of the highest forms of religion known to the world: Jewish, Buddhist, Christian, and Mohammedan. From it also have emanated the three great inflecting languages: Hamitic, Semitic, and Aryan. These sum up the highest proof of the theory that all living forms are the product of their environment. Opposed to these instances of high development are the savages of central and southern Africa, east Malaysia, New Guinea, Australasia, Melanesia, and Fuegia. To these may be added those races whose history is marked by changes from barbarism to civilization and back again to barbarism: Indo-Chinese, people of the Dekkan, central Arabians, Tibetans, Mongolians, Siberians, and the people of the table-lands and Arctic stretches in the western hemisphere. It is noticeable that in the new world the culture zone approaches the equator more nearly than in the eastern, because of the greater height of land in that region of the western world.

Population of the Earth by Races.

Race.	Countries.	Number.
Caucasian or White	Europe, North Africa, South Africa, Asia, Australia, America	800,000,000
Mongolian or Yellow	Central Asia, China, Japan, Russia, Caucasia, Malaysia	596,000,000
American or Red	North and South America	40,000,000
Negro or Black	Africa, Australia, West Indies, New Guinea, Southern U. S.	210,000,000
Total of the World		1,646,000,000

Proportion of the Races.

Caucasian,	48.6 per cent.
Mongolian,	36.2 per cent.
American,	2.4 per cent.
Negro,	12.8 per cent.
Total,	100.0 per cent.

COURSES AND CURRENTS
OF THE
WORLD'S HISTORY IN GRAPHIC OUTLINE.

A SURVEY OF THE RECORDED EVENTS IN THE HISTORY OF MANKIND IN ALL COUNTRIES FROM THE EARLIEST TIMES TO THE PRESENT DAY. ARRANGED SYNTHETICALLY TO SHOW THE GREAT MOVEMENTS OF EVENTS, THE ACTORS, THE TIMES AND COUNTRIES IN WHICH THEY LIVED. DESIGNED FOR COMPARISON, CONTRAST, QUICK REFERENCE, AND TO DISPLAY A CHRONOLOGICAL OUTLINE OF THE HISTORY OF ALL NATIONS.

A. PREHISTORIC TIMES.

B. PERIOD OF RECORDED EVENTS.

I. The Earliest Civilizations.

1. From the earliest known Records to the Age of Abraham (B. C. 4700-2200).
2. From the Age of Abraham to the Death of David (B. C. 2200-993).
3. From the Death of David to the Time of Cyrus (B. C. 993-558).
4. From the Time of Cyrus to the Time of Xerxes (B. C. 558-480).

II. The Greeks and Romans.

1. From the time of Xerxes to Hannibal (B. C. 480-200).
2. From Hannibal to the Death of Caesar (B. C. 200-44).
3. From the Death of Caesar to the Death of Alaric (B. C. 44-A. D. 410).

III. Middle Ages.

1. Death of Alaric to Coming of Charlemagne (410-768).
2. Coming of Charlemagne to the Death of Hildebrand (768-1085).
3. Death of Hildebrand to the Fourteenth Century (1085-1300).
4. Fourteenth Century to the Invention of Printing (1300-1450.)

IV. The Renaissance.

1. From the Invention of Printing to the Reformation (1450-1517).
2. From the Reformation to the Abdication of Charles V. (1517-1556).
3. From the Abdication of Charles V. to the Assassination of Henry IV. of France (1556-1610).

V. Period of Political Unrest.

1. From the Assassination of Henry IV. to the Death of Oliver Cromwell (A. D. 1610-1658).
2. From the Death of Cromwell to the Death of Louis XIV. of France (1658-1715).
3. From the Death of Louis XIV. to the Coming of George Washington (A. D. 1715-1775).
4. The Time of Washington (1775-1799).

VI. The Age of Science, Mechanical Progress and Democracy.

1. From the Beginning of the Nineteenth Century to the Introduction of the Railway (1799-1830).
2. From the Time of Stephenson to the Election of Lincoln (1830-1860).
3. From the Election of Lincoln to the Founding of the German Empire (1860-1871).
4. From the Founding of the German Empire (1871) to the Present Day.

A. PREHISTORIC TIMES.

Prehistoric Times.—The period, no one knows how long, which preceded the earliest recorded events is divided into two parts:—

I. The Paleolithic, or Old Stone, Age.
II. The Neolithic, or New Stone, Age.

Behind the Paleolithic Age is a long period in the life of man when his development was so slight and so slow that he had not yet reached even that low stage which the old flint weapons indicate.

The Paleolithic, or Old Stone, Age is marked by the remains of weapons, implements, and utensils of rough flint and other stones, found over all the world. These flint remains were followed by such implements as needles, awls, daggers, fish-hooks, and heads of harpoons, made from bone, horn, and ivory, sometimes ornamented with crude drawings.

The Neolithic, or New Stone, Age followed after what the majority of students believe to have been a long interval. In this period instead of merely chipping the flint and leaving the weapon rough, men ground and polished the surfaces and edges; they made fire by striking flint and by rubbing wood; knew the arts of pottery and weaving; created memorials such as barrows, cairns, cromlechs, and dolmens, to their dead; and built such dwellings as those of the lake-dwellers of Switzerland, northern Italy, and southern Germany.

The relics of these periods tell us nothing of the story of human life; present to us no names, no persons, no events; define no periods of time. This Prehistoric time has ended at widely different periods in different countries. While man emerged from its darkness in the valleys of the Nile and of the Tigris and Euphrates about 4800 B.C., it was not until the discovery in 1492 A.D., by Columbus, that the prehistoric period of America ended. There are a few remote points in the world where truly historic or written records are yet unknown.

B. PERIOD OF RECORDED EVENTS.

B. C.

From the earliest known records to the time of Abraham, B. C. 4700-2200.

Dates given for the earliest events in the history of the world can be only approximate. Since the explorations in Egypt after 1890, and the discoveries made in the Temple of Abydos by the world-famous Egyptologists, M. Amelineau, M. J. de Morgan, Professor Petrie, and Professor Quibell, our knowledge of dates is much more exact. Those given in the table are upon the authority of the archæologists mentioned.

For 250 years many have been guided in the earliest dates of history by what is known as Usher's system of chronology, which places the date of the Creation of the World at 4004 B.C. Of the value of this system to the student of the present day and in the light of the advances of the past 250 years, no further commentary need be made than to give, in his own words, the opinion of such an eminent authority as Mr. E. A. Wallis Budge, M.A., Litt.D., D.Lit., Keeper of Egyptian and Assyrian Antiquities in the British Museum. In his recently published "History of Egypt" he says in Vol. I., page 4, note: "James Usher was born in Dublin on January 4, 1580, and died on March 20, 1656, at Reigate in Surrey. He was a contemporary of Camden, Selden, Sir Thomas Bodley, and Sir Thomas Cotton. Between 1650 and 1654 he published 'Annales Veteris et Novi Testamenti,' in which he propounded an impossible chronology for the Bible. This system was unfortunately inserted in many editions of the Bible with most disastrous results, for thereby it gained an authority which it should never have enjoyed. The system is worthless and has proved a stumbling-block to many honest inquirers into Bible history."

Authorities for the earlier dates in the first period of history are as follows:—

1. W. M. Flinders Petrie, D.C.L., LL.D., Edwards Professor of Egyptology in University College, London, Member of the Imperial German Archæological Institute, Member of the Society of Modern Antiquities.
2. E. A. Wallis Budge, M.A., Lit.D., D.Lit., Keeper of Egyptian and Assyrian Antiquities in the British Museum, Author of "History of Egypt."
3. Robert William Rogers, Ph.D. (Leipzig), D.D., LL.D., F.R.G.S., Professor in Drew Theological Seminary, Madison, N. J.; Author of "History of Babylonia and Assyria."
4. The Rev. Archibald Henry Sayce, Professor of Assyriology at Oxford; Author of "Egypt of the Hebrews and Herodotus," "The Early History of the Hebrews."
5. J. N. Larned, "Seventy Centuries of the Life of Mankind."
6. Ploetz: "Epitome of Universal History."

Breasted's "History of Egypt" gives these earlier dates very much later than any of the other authorities.

Egypt.

PREDYNASTIC AGE.

1. Archaic age of primitive civilization.
2. Period of small and local kingdoms.
3. Two kingdoms formed:
   (*a*) Nile Valley to the Delta, and known as "The South"
   (*b*) The Delta, known as "The North"

In the tombs of Abydos were found a list of the kings of the North and of the South, but nothing more is known of them than their names.

DYNASTIC AGE.

4800 First dynasty of kings, about 4777-4514 B. C. (Petrie).

Menes, the first king of the first dynasty, consolidated the two kingdoms into one; king of the North and South, first lord of all Egypt.

Menes founded Memphis.

Tombs at Naggadah, near Coptos, and one near Abydos are filled with objects bearing the name of Menes.

4700 **Athothis**, second king, built at Memphis, and wrote medical works.

4650 **Uenefes**, fourth king, built pyramids near Kokhome, perhaps at Sakkara.

Great plague raged in Egypt.

4600 **Semempses**, seventh king, credited with many wonders in his reign.

Pestilence in Egypt.

Second dynasty of Egyptian kings, about 4514-4212 B. C., according to Petrie.

4500 **Boethos**, first king of the second dynasty.

Chasm opened near Bubastis and killed many.

4400 **Kaiechos**, second king, founded bull worship at Memphis.

Babylonia.

DYNASTY OF THE KENGI.

Babylonia inhabited by a Sumerian people well advanced in civilization.

En-shag-Kush-ana, lord of the Kengi (old name of early Babylonians), reigned at Erech, the capital, and was patesi or chief priest to the great god En-lil at the temple of Nippur. His reign was some time prior to 4500 B. C.

The Sumerians or Kengi conquered Enne-Ugun, the king of the Kish to the north, and took rich spoil.

Babylon was composed for the next 2,000 years of a varying number of more or less independent states. Nippur, Lagash, Ur, Eridu, Erech, and Larsa in the south, Sippar, Agade, Kish, and Babylon in the north, were the prominent early cities of Babylon.

DYNASTY OF SHIRPURLA (SEMITES).

The kingdom of Shirpurla, with its chief city, Sungir (the Shinar of Genesis xi.), was in full power and dignity in 4500 B. C.

Urukagina, the first king of Shirpurla as yet known, built and restored temples, and supplied his city with water by canal.

Lugal-shuggur, a successor of Urukagina.

Gursar, a successor of Lugal-shuggur.

Gunidu, son of Gursar.

Ur-Nina, son of Gunidu, built temples with lumber brought from Sinai, about 4466 B. C.

Akurgal, son of Ur-Nina, about whom no records are yet found.

E-anna-tum, son of Akurgal, fought a bloody battle against the Gishban and commemorated his victory over them by erecting the famous stele of the Vultures (now in the Louvre) in the temple of Nun-Sungir.

B. C.	Egypt.	Babylonia.
4400	**Apis** worshiped at Memphis; **Mnevis**, at Heliopolis; and the sacred goat at Mendes.	Ur and Uruk freed from the Semitic invader by the preceding battle.
	Binothris, third king, legalizes female succession to the throne.	En-anna-tuma I., the brother of E-anna-tum.
4200	Third dynasty, about 4212 to 3998 B. C. (according to Petrie).	Entemena, son of the preceding, of whom there is a silver vase with an inscription, found at Nippur.
	Sesokhris, seventh king, said to have been over eight feet in height.	En-anna-tuma II., son of the preceding, about 4100 B. C., is the last of the line of Shirpurla until its revival, 300 years later.
	Libyans revolted in reign of **Nekheropes**, but submitted through fear caused by increase of the moon (probably after an eclipse).	DYNASTY OF ERECH.
4150	**Tosorthros**, second king, a great physician, and built the first houses of hewn stone.	**Ukush**, a patesi of Gishban, was the founder of this line.
	Copper tools for workmen introduced.	
4100	Workmen organized into groups and trades.	
	Stone architecture begun.	
4000	Fourth dynasty, about 3998 to 3721 B. C., according to Petrie.	**Lugal-zaggisi**, son of Ukush, made Erech his capital of the now united Babylon, and Nippur remained the religious center. About 4000 B. C. extended his empire to the Mediterranean Sea. Claims to rule from the Persian Gulf to the Lake of Van.
	Sneferu, first king, built a temple and pyramid at Medum, forty miles south of Cairo.	Kings ruling at Lagash since about 4400
		Nippur the religious center of Babylon.
		Rulers pay homage to the god of Nippur and ascribe their victories to him, hence the value of the excavations at Nippur.
3900	**Khufu** or **Kheofs**, second king, built the pyramid at Gizeh.	**Lugal-Kisalsi**, son of the preceding, was king when the line was obscured by that of Agade.
	Alabaster quarry opened near Tel-el-Amarna.	Lagash loses its prominence.
	Temple and pyramid built at Gizeh by **Khafra**, third king.	Agade becomes the center of a northern kingdom.
3800	Temple and pyramid built at Gizeh by **Menkaura**, fourth king.	DYNASTY OF AGADE.
	Fifth dynasty, about 3721 to 3503, according to Petrie.	**Shargani-shar-ali**, known as **Sargon I.**, about 3800 B. C., conquered Dur-il Dilmun, an island in the Persian Gulf; the Elamites; extended his empire into northern Syria, and procured cedar from Lebanon. He built the great temple of Ekur to the god Bel in Nippur, and the temple of Eulbar to the goddess Anunit in Agade.
	Pyramid building followed by kings of this dynasty.	
3700	**Ptah-hotep**, author of a book of moral precepts, lived in this dynasty.	
	Sixth dynasty, about 3503 to about 3335 B. C., according to Petrie.	**Sargon I.** gives this city a commanding prominence.
3500	**Meryra**, third king, the most vigorous of all prior to the twelfth dynasty.	A period of peace during which the arts and civilization flourished.
	Pyramids built at Sakkara by kings of this dynasty.	Lugal-ushumgal, a vassal of Sargon, sat on the throne at Shirpurla Lagash, in 3800 B. C.
	Merenra, fourth of this line. Mummy of king found in pyramid at Sakkara (1880).	**Naram-Sin**, son of Sargon I., ruled about 3750 B. C. He invaded Apirak, killed King Rish-Adad, and carried the people into captivity.
	Seventh to tenth dynasties extend from about 3322 to 2778 B. C., according to Petrie.	
3300	Lists of kings during this period are very imperfect.	Invasion of Magan, near Sinai; temples built at Nippur, Agade, and Sippar; outer wall, Nimit-Marduk, at Nippur begun.
	Canal cut at Asyut by **Thety I.**, and irrigation installed.	**Binganishar-ali**, son of Naram-Sin, the last of the line of Sargon known to us.
3100	Thebans in a highly independent state and war frequently with the royal forces.	
3000	Seat of government changed from Memphis to Herakleopolis.	**Gudea**, a chief of Agade, builds palaces at Tel- lo.
		Statues of **Gudea**, of colossal size, made from dolorite brought from Arabia; still exist.
2800	Eleventh dynasty from 2985 to about 2778 (Petrie).	A dynasty at Ur rules over Sumer or northern Babylonia, and Accad or southern Babylonia.
	Twelfth dynasty from about 2778 to 2565.	**Urgur and Dungi**, the two kings of Ur known in this dynasty, build, restore, and enlarge temples in many of the religious centers.
	Amenemhat, first king, one of the most vigorous administrators in all Egyptian history.	
	Extensive building conducted in all parts of Egypt.	
2750	Nubia conquered by Egyptians; foreign expedition by **Usertesen I.**; temple at Heliopolis built.	
	Sinaitic peninsula again ruled by Egypt.	
	Temple of Osiris at Abydos built by **Usertesen II.**	
2650	**Usertesen III.** built pyramids, and made a canal on the Nile to aid in his expedition against Ethiopia.	
	A hymn to **Usertesen III.** was found at Kahun on a papyrus.	
2600	Pyramid at Hawara by **Amenemhat III.**	
	Mines of copper and malachite in the Wady Maghara; and quarries of Turrah near Cairo worked.	
	Part of ancient Lake Moeris reclaimed by **Amenemhat III.**	
	Thirteenth dynasty, a period of obscurity, from 2565 to 2112 B. C.	
2500		**Isin** takes a commanding place among Babylonian cities and is the home of a dynasty of six kings.
2400	**Neferhotep** repaired the temple at Abydos.	
	Statutes of **Ra-Kha-nefer** found on the island of Arqo near the Third Cataract.	
2300		**Hammurabbi** makes Babylon the leading city which held power during eight distinct dynasties, until 538 B. C.
		Hammurabbi perfects the canal system and lays foundations for the future greatness of Babylon.
		Kingdom of Larsa, the modern Senkereh, founded.

From the Time of Abraham to the Time of David, 2200-993? B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	TIGRIS-EUPHRATES VALLEY.	SYRIA. Phœnicians and Hebrews.	OTHER COUNTRIES.	GREECE.
2200	Astronomy known in Chaldæa. **Nur-Adad** and his son and successor, **Sin-iddin**, built temples in Ur. **Sin-iddin** built a temple to the sun-god at Larsa and dug a canal between the Tigris and the Shatten-Nil Canal.	Fourteenth dynasty, an obscure period, from 2112 to 1928 B.C.	**An-ma-an**, the first king of the second Babylonian dynasty, 2150. **Chedorlaomer** or **Kudur-Lagamar**, the Elamite, leads in an Elamite invasion. Peace endures after the reign of **Hammurabbi** until the end of the second dynasty. **Nimrod** or **Belus** rules, 2200. Nineveh built by Asshur.	Groups of Aramean clans from Arabian desert wandered northward and settled in Palestine and Syria. Combinations for defense among nomadic clans mark first union among Hebrews. Abraham leaves Ur of the Chaldees.	Chedor-Laomer, of Elam, 2131.	Aryan tribes settled in Greece, 2200. Crete, leader of states in power; great temple at Knossos.
2100		**Hyksos** or **Shepherd Kings** invade and conquer Egypt, (2098-1659 B. C.). First Hyksos settlement, 2084. Dynasty XVI. of Shepherds, 2084-1659.	Nineveh capital under **Ninus**, 2070. **Ninus** conquers Babylonians, Armenians, Persians, Bactrians, and all Asia Minor, 2059.		Kassite invasion of Babylonia, 2058.	Uranus arrives in Greece, 2042.
2000	Geometry used in Egypt about this date. Beginning of art in Cyprus and Troy. Gold used as money in Egypt. Phonetic writing in China.		**Semiramis**, mother of Ninyas, rules and beautifies Babylon; invades Libya, Ethiopia, and India, 2000-1975. **Ninyas** kills his mother, 1965.		Hittites in Babylonia, 1937. Birth of Sebekkhu, 1917. Asiatics visit Khnumhotep II. 1901.	Inachus, king of the Argives, 1910.
1900		HYKSOS KINGS Salatis, 1826-1807. Bnôn, 1807-1763.	**Aralius** rules, 1897.			
1800			The Third Babylonian or Kassite dynasty (1783-1207) begins. The Kassites, an invading people, lower the standard and retard the development of Babylonian civilization. **Gandish**, the first king of the Kassite dynasty, 1783.	Phœnicia conquered by Egypt, 1800.	Apakhnan, 1763-1726. Apophis, 1726-1665.	Arcadians emigrate to Italy, 1710. Pelasgi hold the Peloponnesus. Civilization begins in Mycenæ.
1700	"The Observations of Bel" written. An ancient book from which a large part of our knowledge of ancient astronomy is derived.	Hyksos kings driven out of Egypt by **Aahmes** or **Amosis**, 1684-1659.		Hittites oppose further Egyptian conquests in Palestine.	Iannas, 1665-1615. Midian migration, 1650. Aseth, 1615-1566.	
1600	Egyptian art at its height. Chronology of the Arundelian marbles begun, 1587.	Thothmes III., 1591-1565, conquers Palestine, Phœnicia, and Syria. The Egyptians invade Habesh, Arabia, Phœnicia, and Syria, 1524-1488.		Joseph in Egypt. Jacob with his sons migrates to Egypt, 1550? Hebrew tribes settle in Goshen. Period of Hebrew oppression by Pharaohs begins in Egypt.	War in Syria, 1523. Northern India is conquered by the Aryans, 1505-1000.	Golden age of Mycenæ, 1600. Areopagus established, 1504. Deluge of Deucalion, 1504.
1500	Tomb of Rekhmara built.	Egyptus reigns and gives name to country, 1485. Amenhotep II. Amenophis IV. Sethos reigns in Egypt, 1438-1388.	**Agum-Kakrime**, the seventh Kassite king, builder and restorer of temples. **Belochus** rules, 1446.	Tyre sends out first colonies from Phœnicia, Byblos, Sidon, Sarepta, and Aradus, leading cities of Phœnicia, 1500.	Wars in Syria, 1483-1462. KINGS OF MITANI. Artatama, 1475-50. Shutarna, 1450-1420. Dushratta, 1420-1390.	Hellenes hold the Peloponnesus; Dorians, Æolians, Ionians, and Achæans, 1500. First Olympic games at Elis, 1450.
1400	Tel-el Amarna tablets written. Sethos makes first canal from the Red Sea to the Nile, 1333. Sethos or Sesostris builds hypostyle hall.	Nineteenth dynasty 1388-1269. **Rameses II.** The Greek **Sesostris**, regarded by some as the oppressor of the Hebrews, 1388-1322.	Assyria becomes independent, 1320. **Shalmaneser I.** founds Calah, 1320.	Tel-el-Amarna letters ask aid by viceroy of Jerusalem from King Amenophis IV. of Egypt against the Hebrews, 1400.	HITTITE KINGS. Seplel, 1370. Merasar, 1340. War in Syria, 1318. Mutallu, 1310.	Corinth founded, 1384.

From the Time of Abraham to the Death of David, 2200-993? B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	TIGRIS-EUPHRATES VALLEY.	SYRIA. Phœnicians and Hebrews.	OTHER COUNTRIES.	GREECE.
1400	Egyptian art begins to assume Asiatic form, due to conquest and influx of foreigners. Probable date of first library in Egypt.	Accession of Meneptah or Merenptah, the supposed Pharoah of the oppression, 1322-1302.		Exodus from land of Egypt, 1320? Ten Commandments given at Sinai. Hebrews mentioned in inscription at Thebes by Meneptah.		Eleusinian mysteries instituted, 1396. Isthmian games, 1326.
1300	Bucklers used.	Dynasty Twenty, 1269-1244. **Rameses or Ramessu III.**, king, 1269-1244. Egyptians invade Habesh, Arabia, Palestine, Syria.		**Joshua** leads Hebrews into Canaan, 1250?	Hittite treaty, 1275. Philistine migration, 1250. Lydia ruled by the Attyadae to 1229? Sandonide or Heraclide dynasty of Lydia, 1229-724.	
1200	Gate of Lions built at Mycenæ. Mariner's compass said to have been invented in China, 1115.	Decay of the empire under later Rameses.	**Tiglath-pileser I.** (1115-1105), real founder of Assyrian Empire. Conquers from Bagdad and Babylon to the Mediterranean.	Coast cities under tribute to Tiglath-pileser I.	Chow dynasty begins with Woo Wang.	Trojan War 1194-1184. Dorian migration. Return of the Heraclidae, 1103. Period of degradation in Greece.
1100	Dictionary of the Chinese language compiled.	High Priests take throne, 1100. Twenty-first or Tanite dynasty, 1091-961. King Hirhor or Smendes, first king. Tanis the seat of government. Egyptians lose supremacy over Ethiopia, where the kingdom of Napata or Meroe was formed, 1090?	Assyrian Empire in state of decay for two centuries, beginning 1100.	Philistines subjugated land west of the Jordan, 1070. **Saul** first Hebrew king, 1055?-1033? **David** king of Judah, 1033?; of all Israel, 1026?-993? Jewish kingdom at its acme of power. Jerusalem taken from the Jebusites and made royal city of the Jews, 1025.	Powerful empire of Bactria formed 1100? Feudal system developed in China.	Formation of the Hellenic states begins about 1100. Codrus, last king of Athens, 1068? Medon, son of Codrus, first life archon, 1067?
1000	Destruction of Grecian art completed by barbarians. Temple of Hera at Olympia built. Asbestos cloth is made by Egyptians. The loadstone obtained from Asia by the Greeks.			Absalom's revolt and death. Voyages of the Phœnicians to Ophir, Gades and Britain.		Ionians settle in Asia Minor, 1000-900? Birth of Homer (?) *c.* 1000. Before this date a system of writing existed in Greece. The Greeks adopt the Phœnician alphabet.

From the Death of David to the Time of Cyrus, 993?-558 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	TIGRIS-EUPHRATES VALLEY.	SYRIA. Hebrews.	OTHER COUNTRIES.	GREECE.
993?	The "Iliad" and "Odyssey" produced. New Tyre, on an island, and Old Tyre joined by earth fillings under Hiram, the friend of Solomon. Temple of Jehovah built by Solomon. New palace at Jerusalem. Ivory brought to Solomon from Tarshish. Commerce of the Hebrews very extensive. Assyrian architecture, building, sculpture, and literature at its height after 930.	Twenty-second Dynasty, 961-940. **Shishak**, 961-940. Invades Judea and plunders the Temple at Jerusalem, 949.	Brilliant epoch in Assyrian history begins, 930-626. Babylonians constantly at war with Assyrians down to 710.	**Solomon**, 993?-953? Rehoboam, king, 953? Rebellion against Rehoboam; afterwards two Hebrew kingdoms: Judah, loyal to **Rehoboam**, and Israel, the revolting tribes, under Jeroboam (953-927). Abijah, king of Judah (932?-929), takes Bethel and other cities from Jeroboam. Asa, king of Judah, 929-873. Nadab, king of Israel (927-925), slain. Baasha, king of Israel, 925. Elah, son of Baasha, slain by Zimri.	Zoroaster or Zarathushtra lived about 1000? in Persia. Ethbaal or Ithobalus, high priest of Astarte, murdered Phales, last of the line of Hiram, and becomes king of Tyre, 917?	Rhodians begin navigation laws, 916.
900	Beginning of civilization in Mexico and Central America.		Assyrians invade Persia in the ninth century.	Omri, king of Israel, 899. Ahab, king of Israel (877?-853). Contest of the prophets with the idolaters.	The Phœnicians become subject to the Assyrians, 850.	Constitution and laws of Lycurgus 820?

From the Death of David to the Time of Cyrus, 993-558 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	TIGRIS-EUPHRATES VALLEY.	SYRIA. Hebrews.	OTHER COUNTRIES.	GREECE.
900	Breastplates invented by Jason. Art of alphabet writing by Phœnicians, 900.		**Asshur-natzirpal or Sardanapalus reigns in Assyria, 886-858.** Shalmaneser II., king of Assyria (858-823), wins a victory over Ahab, king of Israel, and allies, at Karkar. Later subjugates Jehu. Rammannirari, the king of Assyria (810-787), captures Damascus and makes Samaria and Philistia tributary. Sammuramit, or Semiramis, was his queen.	Famine in Israel; predicted by Elijah. Miracles of Elisha. Jehoshaphat, king of Judah, 873-848. Ahaziah, king of Israel (853-851). Jehoram, king of Judah (848-844), marries Athaliah. Joram, king of Israel (851-843), assassinated by Jehu. Ahaziah, king of Judah (844-843), slain by Jehu. Jehu, king of Israel (843-815), slays Jezebel and sons and grandsons of Ahab. Athaliah, queen of Judah, 843-837. Joash, king of Judah (837-797), purchases retreat of Hazael, king of Syria.	Carthage founded, 850 Decline of Phœnician power in Tyre.	Pheidon, eminent sculptor, flourishes, 900.
800	Solar eclipses recorded in Assyria, 763. Extension of Greek colonies in the Mediterranean and Black seas, 750. The Chaldeans first observe an eclipse of the moon at Babylon, 721. Roman calendar of ten months reformed and made twelve, 710. Priesthood, augurs, and vestals instituted in Rome, 710.	Twenty-third dynasty, 800. Sebacon invades Egypt, 735. Twenty-fifth dynasty, 730. Ethiopians, under Shabak, conquer Egypt, which they govern for 58 years, 730. Sennacherib's invasion, 705.	Tiglath-pileser II. or Pul (745-727) subjects Babylonia to Assyria, 730. Shalmaneser IV. (727-722) suppresses revolt of Phœnician cities and Israel. Sargon (722-705) destroys the kingdom of Israel, conquers Samaria; subdues revolts in Armenia, Media, and Babylonia, uniting the latter to Assyria; receives tribute from Arabia, Egypt, and Cyprus. Sennacherib (705-681) subdues revolts in Babylonia; unsuccessful in war with Egypt and in the siege of Jerusalem, (700); loses his supremacy over Syria.	Amaziah, king of Judah (797-792), murdered at the capture of Jerusalem by the Israelites. Uzziah, king of Judah, 792-740. Judah becomes tributary to Assyria to escape Damascus and Israel. Jeroboam II., king of Israel (790-749), gives Israel a brief revival of power. Israel made an Assyrian province by Pul, 741. Hoshea, last king of Israel, defeated and captured by Shalmaneser IV., 734. Hezekiah, king of Judah (728-697), allied with Egypt to evade tribute to Assyria. Israel destroyed by Sargon of Assyria, 722.	Romulus, king of Rome, 753. Caeninians defeated; first triumphal procession in Rome, 748. Rome taken by the Sabines; Sabines incorporated with the Romans 747. Romulus ordains Circensian games, 732. Romulus said to have been killed, 716. Numa Pompilius, king of Rome, 715-673. Media made subject to Assyria, 710. Deioces reigns as subordinate prince in Media, 708.	First Olympiad, 776. Until this date the archons of Athens were elected for life; now chosen for 10 years only, 752. First Messenian War, 743-723. Syracuse founded by Archias, 734. Sybaris founded, 721. Tarentum founded by Phalanthus of Sparta, 708.
700	Samians (Greek colonists) discover Spain, 700. The library of Asshur-bani-pal founded at Nineveh, 630. First Athenian code of laws promulgated, 621. Thales calculates eclipses, 610. Highest development of Assyrian art. Capitol at Rome founded, 615.	Assyrians, under Esarhaddon invade Egypt and abolish Ethiopian rule there. Egypt divided into 20 governments, the ruler of each bearing the title of king, but to a certain extent under Necho, ruler at Memphis, 672. Tirhakah rallies Ethiopians, and expels Assyrians, 670. Asshur-bani-pal expels Tirhakah, 667. Egypt for 20 years devastated by Assyrians and Ethiopians. Twenty-sixth dynasty, 653-525. Psamethik, son of Necho, unites the Egyptians and founds a strong monarchy and rules over it at Sais. Resists successfully Assyrians and Ethiopians alike, 653-610. Carries on wars with Syria, Phœnicia, and Palestine.	Esarhaddon (681-668) suppresses revolt of Babylonia, reconquers Syria, Phœnicia, Cyprus, Judah, and part of Arabia; in 672 takes Egypt from the Ethiopians. Asshur-bani-pal or Sardanapalus (668-626) defends Egypt against Ethiopia, but loses it in revolt of Psamethik (653), confirms power in Syria, Arabia, Cilicia, and Babylonia, conquers Elam and receives tribute from Lydia. Medes revolt, 640. Irruption of the Scythian tribes, 632. Sarakos (626-608?) struggles desperately with Cyaxares of Media and Nabopolassar or Nabu-ablautzar (governor of Babylon since 625). After a long siege Nineveh is taken and destroyed. Assyrian Empire ends, 606.	Sennacherib besieges Jerusalem, in vain 700. Manasseh, king of Judah (697-642), introduced the worship of Astarte at the temple and indulged in heathen practices in opposition to the prophets; carried captive to Babylon, but restored. Josiah, king of Judah (640-609). Reaction against idolatry. Jeremiah the prophet. Judah ravaged by the Scythians, 632. Battle of Megiddo; Josiah is slain and Judah becomes subject to Egypt, 609. Phœnicia subject to Egypt, 608. On defeat of Necho at Carchemish, Judah and Phœnicia become subject to Babylonia, 605.	Tullus Hostilius, king of Rome (673-641), destroys Alba Longa, transfers its inhabitants to Rome. Wars with Veii and Fidenæ. Jimmu Tenno, first mikado of Japan, 660-585. Phraortes rules Media (655-633); makes it independent of Assyria (640); conquers Persia, Armenia, and other countries. Ancus Marcius king of Rome, 641-616 Cyaxares reigns in Media (633-593); in alliance with Babylon after a desperate struggle ends Assyrian Empire, 626-608. Ostia, at mouth of the Tiber, built, 627. Gautama, founder of Buddhism, born, 624. Tarquinius Priscus, king of Rome, 616-578. War between Lydians and Medes, 610.	After this date there were nine archons chosen each year, serving one year only, 682. Sea fight, the first known to history, between Corinthians and inhabitants of the island of Corcyra, 664. Greek settlement at Naucratis in Egypt, 660. Byzantium built, 657. Second Messenian War, 645-628. Solon, 638-558. Insurrection of Cylon, 624? Draco gives Athens a severe code of written laws, 621.

From the Death of David to the Time of Cyrus, 993?-558 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	TIGRIS-EUPHRATES VALLEY.	SYRIA. Hebrews.	OTHER COUNTRIES.	GREECE.
700	Attempt to cut a canal from the Nile to the Red Sea. Phœnicians circumnavigate Africa for Necho. Hanging gardens of Babylon. Bridge over Euphrates.	Necho the son of Psamethik, king (610-595). Undertakes expeditions to Syria. Defeats Josiah, king of Judah, at Megiddo (609). Defeated at Carchemish; loses Asiatic conquests.	Assyria becomes a Median province, 606. Nebuchadnezzar defeats Necho near Carchemish, 605. Nebuchadnezzar is king of Babylon, 604. Babylon takes lead with Media.			
600	Approximate date of the school of philosophy in Greece. Thales teaches the spherical form of the earth, 600. Æsop's *Fables*.	Psamethik II. king, 595-589. Fruitless expedition against Ethiopia. Hophra or Apries, king, 589-570. Egypt devastated by Nebuchadnezzar 579-572. Aahmes or Amasis, king (570-526), makes alliance with Greece (569). Erects many fine buildings.	Jerusalem destroyed by the Babylonians, under Nebuchadnezzar, 586. Nebuchadnezzar besieges Tyre, 586-573. Cyrus, king of Persia, 558-529. Median supremacy passes to Persia.	Attempt of Judah to revolt suppressed, Jehoiakim slain, and many captives carried to Babylon, 597. With aid of Egypt, Judah again tries to gain independence. Jerusalem destroyed and the inhabitants, including the prophet Ezekiel, carried captive to Babylon, 586. The Babylonian Captivity, 586-537.	Media the most powerful monarchy of Asia, 600. First census of the Roman state taken, 566. Astyages, last king of the Medes, 593-558. Servius Tullius, king of Rome, 578-534. Wars with Veii.	First sacred war, 600-590. Reforms of Solon, 594. Seven sages of Greece—Thales, Solon, Bias, Chilo, Cleobulus, Periander, and Pittacus, 590. Pisistratus rules in Athens, 560. Emigration of Athenian nobles to Thracian Chersonese.

From the Time of Cyrus to the Time of Xerxes, 558-480 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	EGYPT.	PERSIAN EMPIRE.	ROME.	GREECE AND MACEDONIA.	OTHER COUNTRIES.
558	Buddhism introduced into India, 557. First sundial at Sparta erected about 545. Temple of Artemis at Ephesus built. Callimachus, eminent Greek architect, flourished. The air supposed by Anaximenes of Miletus to be a self-existent deity, the first cause of everything, 530. Phamenides of Elea said to have discovered the identity of morning and evening star, 520-460. Couriers common in Persia, 510. Laws of ostracism established, 510. Temple of Capitoline Jupiter dedicated, 509. Temple of Zeus at Ægina begun, about 508.	Pythagorus visits Egypt, 536. Egypt made tributary by Cyrus, 535. Psamethik III., king, defeated by Cambyses at Pelusium. Egypt becomes a Persian province, 525.	Persian Empire, including Persia, Assyria, and Media, founded by Cyrus, 558. Conquest of Lydia by Cyrus, 554?. Cyrus captures Babylon, 538. Belshazzar, 538. Cyrus ends captivity of Jews, 537. Building of new temple begun at Jerusalem, 535. Death of Cyrus and accession of Cambyses, 529. Cambyses (529-522) conquers Egypt and makes it a Persian province, 525. Darius I., king of Persia, 521-485. Haggai, 520. Zechariah, 519. Darius conquers India, 518. Dedication of the second temple at Jerusalem, 516? Invasion of Europe by Darius, 513. Darius crosses the Bosporus on bridge of boats and marches to the Danube, 508.	Tarquin the Proud, 534. The Tarquins vanquished, 509. Republic consuls, 509. Capitol finished, 507. Dictators 501.		Confucius (551-478) born in China, in the reign of Sing-wang.
500	Behistun rock containing records of Darius' reign, 521-485. All the arts flourish in Greece, 480-330. Temple at Agrigentum begun, 480. Daphnis and Mycon, Greek architects, flourish about 450. Xerxes builds a bridge of boats across the Hellespont.	Egypt revolts: subdued by Xerxes, 487.	Athens provokes wrath of Darius, 500. Ionians revolt and burn Sardes, 500. Mardonius of Persia invades Greece. Conquers Thrace and Macedonia, 493. Darius sends an army of 500,000 into Greece, (490). Defeated at Marathon. Egypt revolts; subdued by Xerxes, 487. Death of Darius; Xerxes accedes, 484.	Battle of Lake Regillus: Latins defeated, 496. Tribunes chosen, 494. First secession of Plebs, 494. League formed between Romans and Latins, 493. Coriolanus is banished. With the Volscians he besieges Rome. Retires at his mother's rebuke and wife's entreaties, 491. The first agrarian laws, 486.	Pisistratus dies, after a long rule at Athens, 527. The Pisistratidæ expelled from Athens; democracy established, 510. Republic under Cleisthenes, 509. Sparta at war with Athens, 506. Graeco-Persian wars, 500-449. The first Persian expedition against Greece, 493 (492?). Persian fleet nearly destroyed by a storm near the promontory of Athos, and army suffers defeat. The second Persian expedition against Greece, 490. Miltiades defeats the Persians at Marathon.	Lydia united with the Persian Empire. 549. Death of Buddha, the reformer of India, 543. Cyrus makes war on the Babylonians and adds the Babylonian Empire to the Persian Empire, 539-538. Phœnicia becomes subject to Persia, 538. Cambyses of Persia (529-522) conquers Egypt by the battle of Pelusium and Egypt becomes a Persian province, 525. Darius quells a revolt of the Ionian Greeks who had captured and burned Sardes, 500-494.

From the Time of Xerxes to the Time of Hannibal, 480-200 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	GREECE AND MACEDONIA.	ROME.	OTHER COUNTRIES.
480		Third Persian expedition against Greece under Xerxes, 480.		Persian War against Greece, 480.
		Thessalians and Bœotians submit to Persians, 480.		War of the Carthaginians, allied with Selinus, against the other Greek cities in Sicily, 480.
		Battle of Thermopylæ, 480.		
		Indecisive sea fight at Artemisium, 480.		
		Battle of Salamis, 480.		
		Fourth Persian expedition against Greece, 479.	Gens Fabia withdraw from Rome, 479, and are destroyed by the Etruscans at Cremera, 477.	
		Battle of Platææ, 479.		
		War of Greeks against Persians, 479-449.		
		Battle of Mycale, 479.		
	Hanno of Carthage explores west Africa to Cape Palmas, 470.	State offices of Athens opened equally to the four classes, 478?	Tribune of the people murdered for calling the two consuls to account, 473.	Carthaginian army under Hamilcar defeated by Gelon of Syracuse and Theron of Agrigentum, 480.
		Reduction of Byzantium, 478.	The lex Publilia or Publilian law places election of the plebeian magistrates in the hands of the comitia tributa, 471.	Carthaginians buy peace to save their cities of Panormus, Solœis, and Motye, 480.
	Temple of Theseus built at Athens.	Themistocles rebuilds Athens, 478.		Confucius died, 478.
		Hellenic confederacy with Athens at its head formed, 477?		
	Long walls of Athens completed, 457-455.	Rivalry of Themistocles and Cimon, 477.	Plague throughout Italy, 463.	Artaxerxes I., Longimanus, king of Persia, 465-424.
		Cimon leader at Athens, 467?	Civil discord in Rome renewed, 460.	Egyptian revolt against Persia suppressed, 462-455.
	Phidias, greatest Grecian sculptor, flourished, 442.	Battle of the Eurymedon, 465.	Tribunes of the people increased from five to ten, 457.	Beginning of the decay of the Persian Empire. Revolts of soldiers. Hiring of mercenaries, 455.
		Age of Pericles, 465-429.		
		Third Messenian War, 464-456.	Cincinnatus, dictator, 457.	
	The battering ram first employed by Pericles, 441.	War of the Spartans and Bœotians against Athens, 457-445.		
		Armisticé between Athens and Sparta for five years, 451?		
	The Parthenon restored, 438.	Death of Cimon, 451?	Decemvirs appointed, who drew up ten tables of laws, 451.	
		Battle of Salamis in Cyprus, 449.		
	Meton sets up a sundial at Athens, 433.	Thirty years' peace between Athens and Sparta, 445.	Two more tables added, making the twelve tables, 450.	
		Athens controlled by Pericles, 444-429.	Consulate and tribunate re-established, 450.	
		Peloponnesian War, 431-404.		
		Five invasions of Attica by the Peloponnesians, 431-425.	Laws of the consuls Valerius and Horatius established, 448.	
		Plague at Athens, 430.	Two quæstors appointed, 447.	
		Death of Pericles, 429.	Canuleian law legalizing marriage between patricians and plebeians, 445.	
	Statue of Nike erected.	Mytilene destroyed by Athens, 427.	Military tribunes with consular power created and open to the plebeians, 443.	
		Surrender of Platææ, 427.		
		Battle of Amphipolis and death of Brasidas, 422.	Office of censor, a patrician office, created, 444.	
		Peace of Nicias, 421.		
		Battle of Mantinea, 418.	Spurius Mælius, a rich plebeian, accused of aiming at royal power, slain, 439.	Xerxes II. of Persia ruled one month and a half and was killed by his brother Sogdianus, who reigned six and a half months and was slain by his brother, who became king Darius II., 424-405.
		Capture of Melos by Athenians, 416.		
		Athenian expedition against Syracuse under Alcibiades, Nicias, and Lamachus.		
		Last nine years of the Peloponnesian War, known as the Decelean War, 413-404.		
		Peloponnesian fleet defeated near Miletus, 412.		
		Democratic constitution at Athens overthrown by the oligarchs, 411.		Egyptians revolt against Persia and secure their independence for sixty years, 414-354.
		Alcibiades recalled, 411.		
		Sea fight at Abydos, 411.		
		Battle of Cyzicus, Peloponnesian fleet annihilated, 410.		Wars between Carthage and Greeks in Sicily, 409-339.
		Battle of Notium, 407.	War with the Etruscans and siege of Veii, 405-396.	
		Battle of Arginusæ, 406.		
		Battle of Ægospotami, 405.		Artaxerxes II., king of Persia, 405-362.
		Surrender of Athens and end of war, 404.		
		Government at Athens by Thirty Tyrants, 404-403.		
		Moderate democracy restored, 403.		Cyrus attacks his brother Artaxerxes II. of Persia and is slain at Cunaxa, 401.
		Retreat of the 10,000 under Xenophon, 401-400.		
400	The Erechtheum completed. Hippocrates makes the first great advances in the medical science, 400.	Socrates executed at Athens, 399.	Latium invaded by Gauls, 391.	Retreat of the Greek 10,000 after Cunaxa, under Xenophon, 400.
		War between Spartans and Persians, 399-394.	Battle of the Allia, 390.	
		Corinthian War against Sparta, 395-387.	Rome taken and plundered by the Gauls, 390.	Conquest of Rome by the Senones under Brennus, 390.
		Battle of Cnidus, 394.		
		Battle of Coronea, 394.	Civil contests renewed, 390.	
		Peace of Antalcidas, 387.	Licinian rogations proposed to relieve debtors, 376; passed in 367.	
	Mencius, Chinese teacher, flourished, 372-288.	War between Thebes and Sparta, 379-362.		
		Battle of Leuctra, 371.	Four wars with the Gauls, 367-349.	
		Thebans, under Epaminondas, invade Peloponnesus, 370, again, 369, and a third time, 367.	L. Sextus Lateranus, the first plebeian consul, 366.	
		Battle of Cynoscephalæ, 364.		
		Fourth invasion of the Peloponnesus by Thebans, 362.	Prætor, a new patrician magistrate, installed, 366.	
		Battle of Mantinea, 362.		
		Rise of Macedonian power under Philip, 359-336.	Curule ædile added, 366.	
		Social war of the Athenian league against Athens, 357-355.	Patricians ceased to exist as a specially privileged class.	
	Temple of Athene Alea erected at Tegea.	Second Holy War against the Phocians, 355-346.	Wars with revolted Latin cities, 362-358.	Artaxerxes III., king of Persia, 362-338.

From the Time of Xerxes to the Time of Hannibal, 480-200 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	GREECE AND MACEDONIA.	ROME.	OTHER COUNTRIES.
350	Lyceum in Attica built, 342.	Demosthenes delivered first Philippic, 351.	Wars with Etruscan cities, 358-351.	Carthage gains supremacy over the western half of Sicily 339.
		Philip destroyed Olynthus, 348.	War with the Volsci and Aurunci, 350-345.	Artaxerxes III. of Persia poisoned and followed by Arses, 338-336.
	Aristotle, the philosopher writes. Science of plants originated by Theophrastus, 340.	Peace of Philocrates, 346.	Treaty of commerce between Rome and Carthage, 348.	
		Philip of Macedon elected to the Amphictyonic Council in place of the Phocians, 346.	First war with the Samnites, 343-341.	Arses, king of Persia, murdered to make room for Darius III., Codomannus, 336-330.
		League of Hellenic States under Athens against Philip, 343.	Great Latin War, 340-338.	New Tyre, island city of Phoenicia, captured by Alexander the Great, 332.
		Third Holy War, against Amphissa, 339-338.	Dissolution of the Latin League, 338.	The Jews subject to Alexander the Great, 332-323.
	Art of burning colors into wood or ivory said to have been invented by Gausias of Sicyon, 335.	Philip defeats the allied Thebans and Athenians at Chaeronea, 338.		Darius III. of Persia murdered by the satrap Bessus while fleeing from Alexander the Great after Gaugamela, 331.
		Peace of Demades, 338.		Destruction of the Persian Empire, 330.
		Philip leader of the Grecian forces against Persia, 338.		The Punjab invaded by Alexander the Great, 327.
		Murder of Philip, 336.		Greek kings of Bactria included part of India until driven out by Scythian invaders.
		Accession of Alexander the Great, 336-323.		Ptolemæus I., Soter, king of Egypt, 323-283; capital at Alexandria.
	Aristotle founds the first private library, 334.	Alexander leads Greeks against Persia, 334.		Jews subject to the Ptolemies, 323-198.
	Pytheas of Massilia, explores Thule, the North Sea, Scandinavia. Nearchus of Macedonia sails from the Indus to the Red Sea, 330.	Battle of the Granicus, 334.		Phoenicia a part of the Graeco-Macedonian monarchy until 323.
		Battle of Issus, 333.		Phoenicia a part of the kingdom of the Seleucidae, 323.
		Alexander conquers Syria, Phoenicia, Tyre, Palestine, and part of Egypt; founds Alexandria.		Chandra-gupta founds the empire of Magadha in India, 317-291.
		Persian army defeated at Gaugamela or Arbela, 331.		Wars between Carthage and the Greeks, 317-275.
		Alexander in Persia, 331-328.		Seleucus I., Nicator, founds the kingdom of Syria, and rules from Seleucia on the Tigris, 312-281.
		Alexander invades India to the Hyphasis after the battle of Hydaspes, 326.		Carthaginians defeat Agathocles, tyrant of Syracuse, 306.
	Expedition of Alexander the Great to Iran, Turan, India, 329-325.	Alexander's fleet and army go down the Indus, 325.	Second Samnite War, 326-304.	Island of Rhodes an independent state after the battle of Ipsus, 301.
		Nearchus discovers entrance to Persian Gulf, 325.	Caudine Pass, 321.	Pontus recognized as an independent state by the victors at Ipsus, 301.
		Alexander returns to Persis and thence to Susa, 324.		
	Sugar found in India by Nearchus, admiral of Alexander, 325.	Death of Alexander at Babylon, 323.	Etruscans take part against Rome, 312.	
	Appian Way begun by Appius Claudius, 312.	Wars of the Diadochi (successors of Alexander), 323-276.	Battle of Vadimonian Lake, 310.	
		Lamian War, 323-322.	Romans first use a fleet, 309.	
		Demetrius Poliorcetes takes Athens several times, 307-295.	Battle of Bovianum, 305.	
300	Art of painting introduced into Rome from Etruria by Quintus Fabius.	Aetolian League formed, 281.	Third Samnite War, 298-290.	Ptolemæus II., Philadelphus, king of Egypt, 285-247, and husband of Arsinoe, founds the museum of the Alexandrine library.
	Euclid does the first real work in geometry, 290.	Achæan League renewed, 280.	Battle of Sentinum, 295.	
	Egyptians explore the east coast of Africa, 290?	Invasion of the Gauls, 278.	Hortensian law passed, 286?	Kingdom of Pergamon, with capital at Pergamus in Mysia, founded by Philetærus (283-263), who was governor under Lysimachus.
	Library at Alexandria founded, 284; partly destroyed by Cæsar, 47.		War between Rome and an Italian League, 285-282.	
	Earliest known lighthouse built was the Pharos of Alexandria, 280.		War with Tarentum, 282-272.	Senones exterminated by Romans; defeat of the Boii on the Vadimonian Lake, 283.
	Colossus of Rhodes, 280.		Pyrrhus defeats Romans at Heraclea, 280.	Antiochus I., Soter, second king of Syria, 281-261.
	Aristarchus promulgates theory that the fixed stars and the sun are immovable; determines distances of the sun and moon from the earth, 280.		Battle of Asculum, 279.	Confederacy of the Galatians in Asia Minor, composed of the three tribes, Trocmi, Tectasages, and Tolistoboii, founded in 278.
			Battle of Beneventum, 275.	Macedonia and Greece ravaged by a Brennus, 278.
	Silver first coined in Rome, 269.	Antigonus Gonatus, king of Macedonia, 277-239.	First Punic War, 264-241.	Bithynia, with capital at Nicomedia, founded by Nicomedes, 277-250?
	The air-gun first made by Ctesibius of Alexandria, 250.		Agrigentum taken by Romans, 262.	Carthaginians compel Pyrrhus to leave Sicily, 276, and defeat him at sea on his way home, 276.
	Recipes for preparation of medicine first put into book form by Mantias, 250.		Romans win first naval victory at Mylæ, 260.	Açoka, grandson of Chandragupta, reigns over Magadha, 263-226.
			Naval victory for the Romans at Ecnomus, 256.	Açoka, the friend of Buddhism.
			Regulus captured at Tunes, 255.	Eumenes I., king of Pergamon, 263-241.
		Last attempt of Greece to throw off the Macedonian yoke, 263-260.	Panormus taken by Romans, 254.	Antiochus II., Theos, third king of Syria, 261-246.
				End of the Chow dynasty, 255.
				Tsin dynasty in China, 255-206.

From the Time of Xerxes to the Time of Hannibal, 480-200 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	GREECE AND MACEDONIA.	ROME.	OTHER COUNTRIES.
300		Sicyon, freed from its tyrants by Aratus (251), joined the Achæan League. Corinth, freed by Aratus from Macedonian control, joined the Achæan League, 243. Sparta in the hands of a wealthy oligarchy, 241. Agis IV. of Sparta assassinated for attempting reforms, 241? Demetrius II., king of Macedonia, 239-229. Cleomenes III. of Sparta (235?-221) introduced reforms, conquered Argos and Mantinea; and waged successful war against the Achæan League, 227-221. Antigonus Doson, king of Macedonia, 229-220.	Hasdrubal defeated at Panormus, 251. Carthaginians win the sea fight at Drepanum, 249. Hamilcar conducts successful campaign in southern Sicily for six years, 248-242. Roman victory at the Ægatian Islands, 241. War with the Illyrians, 229-228. Rome supreme in the Adriatic Sea, 228.	Parthians revolted from Persia under Arsaces, who became king, 250(?)-247. Parthians conquered all lands between the Euphrates and the Indus, and thus kept the Greeks and Indians apart, 250.
	Temple of Janus closed, 235.	Sparta defeated in the battle of Sellasia. 221.	Cisalpine Gaul subdued, 225-222.	Zeilas, king of Bithynia, 250-228.
	Great Chinese wall built, 211-204.	War between the Achæan and Ætolian League, 220-217.	Gauls defeated at Telamon, 225.	Ptolemæus III., Euergetes, king of Egypt, made a temporary conquest of Caria, Lycia, Cilicia, and Cyprus, 247-221.
	Eratosthenes determines the circumference of the earth and the sun, 210.	Philip V. (III.), king of Macedonia (221-179), formed an alliance with Hannibal against the Ætolian League, supported by the Romans, and brought on the First Macedonian War, 214-205.	Second Punic War, 218-201. Hannibal of Carthage crosses the Alps, 218.	Arsaces I., king of Parthia, succeeded by Arsaces II. (247-214), who fully secures Parthian independence.
	Literature and art of painting encouraged.	First Macedonian War, 214-205.	Hannibal defeats the Romans at the Trebia, 218. Roman army severely defeated at Lake Trasimenus, 217. Quintus Fabius Maximus dictator, 217. Battle of Cannæ, the greatest defeat the Romans ever suffered, 216. Carthage forms alliance with Philip V. of Macedon, 216. Hannibal defeated at Nola, 215. First Macedonian War, 214-205. Syracuse taken and plundered, 212. Both Scipios defeated and slain by the Carthaginian army in Spain, 212. Capua surrendered to Rome, 211. Hasdrubal slain at Sena Gallica, 207.	Seleucus II., fourth king of Syria, 246-226. Attalus I., king of Pergamon, 241-197. Cisalpine Gaul leagued against Rome, 238. Prusias I., king of Bithynia, with whom Hannibal sought refuge, 228-183. Seleucus III., fifth king of Syria, 226-222. Antiochus III., the Great, 222-187. Ptolemæus IV., Philopater (221-205). The monarchical power began to decline. Arsaces III. of Parthia (214-196) resisted Antiochus the Great. Che-wang-te (246-210) built the Chinese wall, extended the empire to the sea; and defeated the Mongols; great destruction of books by his order, 213. Dynasties of East and West Han, 206 B. C.-221 A. D. Brilliant period of Chinese history. Ptolemæus V., Epiphanes (205-181), Egypt grew more dependent upon Rome. Spain a Roman province, 205.
		Philopœmen, "the last of the Greeks," led the Achæan League against the Spartans and defeated them at Mantinea, 206.	Scipio consul, 205, carried the war into Africa, 204, and won the battle of Zama, 202. Humiliating peace for Carthage, 201.	

From the Time of Hannibal to the Death of Julius Caesar. 200-44 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
200	Archimedes discovers his famous laws: "Law of the Lever" and "Law of Archimedes."	Second Macedonian War, 200-197. Philip driven from Central Greece, 200. Romans joined by Ætolians and Achæans, 199. Flamininus subdues Epirus and defeats Philip at Cynoscephalæ, 197. Romans declare the Greek states free and independent, 197. War with Antiochus III. of Syria, 192-189. Antiochus defeated at Magnesia, 190. Death of Scipio Africanus, 183.	Achæan League joins Romans against Philip V., 200. Second Macedonian War, 200-197. Jews subject to the Seleucid kings of Syria, 198-167.
	Attalus, king of Pergamus, makes books with leaves of vellum. Discovery of parchment; until this time papyrus was used.	Higher offices in Rome become more and more the privilege of the nobility and wealthy, 180. Third Macedonian War, 171-168. Destruction of the Macedonian monarchy, 168. Perseus defeated in the battle of Pydna, 168. Third Punic War, 149-146. Capture and destruction of Carthage, 146. Fourth Macedonian War, 148-146. Achæan War, 146. Battle of Leucopetra, 146. Corinth destroyed by order of the Roman senate, 146.	Eumenes II., king of Pergamon (197-159), founder of the library of Pergamus. Philip V. forced by the defeat at Cynoscephalae to abandon the hegemony of Greece, 197. Romans supported their friends in Greece and often arbitrated between them, 197.
	Nicomedes invents the curve known in mathematics as the *conchoid*. First library in Rome.	Dictatorship practically disappears, 146. Civil War with the Numantines, 143-133. Numantia taken and destroyed, 133. First Servile War, 135-132. Civil disturbances under the Gracchi, 133-121. Slave trade in Rome extensive, 133. Gracchus proposes that the Licinian agrarian law be re-enacted, 133. Tiberius Gracchus tries to secure election to the tribunate in violation of the constitution; he, with 300 followers, killed by the optimates under P. Scipio Nasica, 133.	Boii power broken at the battle of Mutina and northern Italy rapidly Romanized, 193. Philopœmen forced the Spartans to re-enter the Achæan League, 192. Antiochus III., the Great, of Syria, defeated by the Romans at Magnesia, 190. Deinocrates incited the Messinians to revolt and Philopœmen slain, 183. Death of Hannibal, by suicide, at Bithynia.
	Eudoxus of Cyzicus attempts to circumnavigate Africa.	Public lands partly divided under the Licinian law, 133-129. Plebeian consuls chosen, 132. Pergamus becomes a Roman province called Asia, 129. Balearic Isles subjected to Rome, 123	Power of the Achæan League declined, 183-146. Greece made a Roman province, 147.

From the Time of Hannibal to the Death of Julius Caesar. 200-44 B. C.

B. C.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
200	Astronomy first placed on a scientific basis by Hipparchus.	C. Sempronius Gracchus elected tribune of the people against the will of the senate, 123, and again in 122. Gracchus distributes grain to the people at the expense of the state, 122. Civil strife in Rome between followers of Gracchus and the optimates, 121. Gracchus and Fulvius slain, 121. War against the Cimbri and Teutones, 113-101. Great German migration to the west and south, 113. Jugurthine War, 111-105. Cimbri cross the Rhine, 109. Helvetians press into Gaul, 107. Marius consul five times in succession, 104-101. The Cimbri cross the Pyrenees, 104. The Cimbri, Teutones, and Helvetians invade Italy, 102. Battle of Aquæ Sextiæ, 102. Cimbri annihilated at the battle of Vercellæ, 101. Second Servile War, 103-99.	Prusias II., king of Bithynia, 183-149. Mithridates I. founded the empire of the Parthians, 174-136, and ruled Media, Susiana, Persia, Babylonia, and Bactria. Attalus II., king of Pergamon, 159-138. Nicomedes II., king of Bithynia, 149-91. Romans in the Achæan War at Leucopetra, 146. Corinth captured and destroyed by the Romans, 146. All the Greek cantons were subject to the Roman governor of Macedonia, 146. (Peloponnesus and central Greece did not become the Roman province of Achaia till about the year 27.) Attalus III., king of Pergamon, 138-133, gave his kingdom and treasures to the Romans.
	Hero of Alexandria invents and improves formulæ for area of triangle.		
100		Marius consul for the sixth time, 100. Reforms by Drusus led to his assassination, 91. Marsian or Social War in Italy, 91-88. Citizenship extended to the Latins and other Italians, 90, and afterwards extended to all Italians who applied for it, 89. First Mithridatic War, 88-84. Civil War between Sulla and Marius, 88-82. Athens conquered by Sulla, 86. Marius consul for the seventh time, 86. Battle of Chæronea, 86; battle of Orchomenus, 85. Sulla defeats the younger Marius and has himself appointed dictator in Rome for an unlimited time, 82. Reign of terror in Rome; 10,000 slaves made citizens (Cornelians), 82. Second Mithridatic War, 83-81.	Strife between Jews and the Pharisees and Sadducees after 100. Sujin (97-30), tenth Mikado of Japan, introduced marked reforms. Nicomedes III., king of Bithynia, 91-75, bequeathed his kingdom to Rome. Phraates III. (Arsaces XII.), king of Parthia, 69-60. Pompeius called to help the Pharisees against the Jews, makes the Jews tributary to Rome, 63. Suevi, under Ariovistus, defeated by Cæsar, 58. Wars of Vikramaditya, native prince of India, against Scythians, 57. Cæsar makes two expeditions to Britain, 55 and 54. Cæsar's two expeditions cross the Rhine, 55 and 53. Phraates III. in war with Rome, 54.
	The Tabularium built, 78.	War against Sertorius, 80-72. Sulla voluntarily resigns dictatorship, 79. War against the pirates, 78-67. Third Mithridatic War, 74-64. Revolt of Spartans, 73. War of the Gladiators and Third Servile War, 73-71.	
	Cicero's orations, 60. Scaurus builds in Rome a theater to accommodate 30,000 spectators, 58. Coal known in Britain, 55. Pompey the Great erects first stone theater in Rome. Latin dictionary compiled by Varro, 50. Destruction of Alexandrian library, 47. Julius Cæsar reforms the calendar, making each year equal to 365¼ days, 46.	Conspiracy of Catiline, 64-62. First speech of Cicero against Catiline, 63. Catiline defeated and slain at Pistoria, 62. First Triumvirate—Pompey, Cæsar, and Crassus, 60. Pompey governs Spain, 60. Cæsar consul, 59; conquest of Gaul by Cæsar, 58-51. Crassus killed by the Parthians, 53. Pompey consul without a colleague, and given dictatorial power, 52. Civil War, 49-46. Cæsar crosses the Rubicon, 49. Cæsar dictator of Rome for 11 days, and afterward consul, 49. Battle of Pharsalus; Cæsar defeats Pompey, 48. Pompey murdered in Egypt, 48. Cæsar consul for five years, tribune for life, 48. Alexandrine War under Cæsar, 48-47. War against Pharnaces, son of Mithridates, closed by Cæsar in a five days' campaign (Veni, vidi, vici), 47. Fought in Africa against the followers of Pompey, 47-46. Battle of Thapsus, 46. War against the sons of Pompey, 46-45. Battle of Munda, 45. Cæsar consul for ten years (45); dictator and censor for life, 44.	

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

B. C.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
44	Romans extend geographical knowledge and commerce to Central Asia, 36.	Assassination of Cæsar in the senate, 44. Second Triumvirate—Antonius, Octavius, and Lepidus, formed, 43. Cicero murdered; several hundred senators and 2,000 equites outlawed. War between the triumviri and the republican party led by Brutus and Cassius, 43-42. Battle of Philippi; suicide of Cassius and Brutus, 42. Antonius ravaged Asia and Syria; and followed Cleopatra to Egypt, 42. Civil War of Perusia between Octavius and Lepidus against Marcus Antonius and Fulvia, 41-40. Octavius supreme ruler of Italy, 40; and administered affairs in the West; Antonius in the East; and Lepidus in Africa. The triumviri pacify Pompeius by making him ruler over Sicily, Sardinia, probably Corsica, and the Peloponnesus.	Herod the Great recognized by the Roman Senate as a dependent king of the Jews, 40.

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

B. C.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
44	Pantheon at Rome built, 27. Dances introduced on the Roman stage, 22. Livy writes, 20. Lake of Constance discovered by Tiberius; Brenner Pass, by Drusus, 15. Theater of Marcellus, begun by Julius Cæsar, completed by Augustus, 13.	Sicilian War between the triumvirs and Sextus Pompeius, 38-36. War between Octavianus and Antonius, 31-30. Antonius and Cleopatra defeated at Actium, 31. Octavianus makes Egypt a Roman province after the suicide of Antonius and Cleopatra, 30. Roman Empire established; Octavianus, the first emperor, as Cæsar Octavianus Augustus, 31 B.C.-14 A.D. Spain conquered, 19. Birth of Christ, four years before our era, 4? B.C. Temple of Janus closed, about 4 B. C. Seneca, 3 B. C.-65 A. D.	Parthia ruled by ten monarch from 37 B. C. to 107 A. D. Antonius makes war on Phrates IV., of Parthia, 36. Drusus conquers Rætia and Noricum, 15. Expeditions of Drusus from the Rhine, 12-9.
A. D.			
1	Strabo writes on geography, 5. Diodorus writes on history, 5. Philo of Alexandria, philosopher, flourishes, 20. Birth of Pliny, the Elder, 23. Persius, the poet, born, 34. Electricity used as medicine, 43. Bricks introduced into England by the Romans, 44. Magnifying power of convex glasses and concave mirrors, and the prismatic colors produced by angular glass, mentioned by Seneca, 50.	Forces of Quintilius Varus annihilated by the Germans under Arminius in the Teutoburg Forest, 9? Pannonia (southwestern part of Hungary) a Roman province, 10. Tiberius (Claudius Nero), second emperor of Rome, 14-37. Germanicus led three expeditions against the Germans, 14-16; recalled and sent to Armenia, 17-19. Caligula, third emperor of Rome, 37-41. Claudius or Tiberius Claudius Nero, 41-54. Conquest of Britain commenced (43) under command of A. Plautius and T. Flavius Vespasianus; southern part of Britain became a Roman province. Following provinces incorporated: In Africa, Tingitana, Mauretania, Mauretania Cæsariensis (42); in the east, Lycia (43), Judæa (44), Thracia (46). Claudius adopts L. Domitius and appoints him his successor; L. Domitius takes name of "Nero," at his adoption. Claudius poisoned by Agrippina, 54. Nero (54-68) proclaimed imperator by the prætorians; guided during the first five years of his reign by the præfectus prætorio Burrus and his teacher, Seneca. Law against informers. Nero poisoned his step-brother Britannicus (55), had Agrippina put to death (59); drove away his wife Octavia, whom he afterwards executed (62), and married Poppæa Sabina. War with Parthians and Armenians, 58-63. King Tiridates of Armenia forced to acknowledge supremacy of Rome. Suetonius Paulinus suppresses revolt in Britain, 61. Large part of Rome destroyed by fire (64); Christians and Jews accused by Nero of setting fire to the city. First persecution of the Christians, 64. Rome rebuilt on a large scale, 64, Conspiracy of Piso discovered (Seneca), 65. Revolt in Gaul (C. Julius Vindex) and in Hispania citerior, where the governor, Sulpicius Galba, was proclaimed and acknowledged imperator, 68. Nero flees and commits suicide on estate of one of his freedmen, near Rome, 68. Galba, 68-69. Otho, 69. Vitellius (69) proclaimed imperator by the legions on the Rhine; defeats Otho near Cremona, and enters Rome. The three Flavian emperors, 69-96. Vespasianus (69-79); proclaimed imperator first in Alexandria, then in Palestine, where he was directing war against the Jews, in revolt since 66; transferred military command to his son, Titus, and went to Rome, via Alexandria. Discipline in the army and order in the finances restored. Senate reorganized. Revolt of Batavians under Julius (Claudius?) Civilis, 69-71; suppressed by Cerealis. Jerusalem captured by Titus, 70. Triumphal arch of Titus in Rome. Amphitheatrum Flavium (Colosseum) erected. Agricola prepares for complete subjugation of Britain, 78. Titus, 79-81. Informers punished. Eruption of Vesuvius, 79; Herculaneum and Pompeii buried. Death (79) of the elder Plinius, leader of the Roman fleet at Misenum. Rome visited by fire and plague, 80. Domitianus (81-96), planned campaign against the Chatti (83). Roman boundary wall between the Rhine and the Danube begun. Agricola conducts successful campaigns in Britain (81-84), extending Roman power as far as Scotland; recalled by the jealous Domitian. Unsuccessful wars against the Dacians, 86-90; peace of Decebalus purchased by a yearly tribute. Death of Agricola, 93. Persecution of philosophers, Jews, and Christians, 93. Domitianus murdered by the freedman Stephanus, 96. Nerva and his adopted family, 96-192. Nerva (Marcus Cocceius Nerva) (96-98), a senator, raised to the throne by the murderers of Domitian; recalled exiles; reduced taxes; repealed the law of treason; adopted Trajan, whom he appointed his successor. Trajan (98-117), born in Roman colony of Italica in Spain; first person not an Italian to occupy the throne of the Cæsars.	Judæa becomes a part of the Roman provinces of Syria, 6. Expeditions of Germanicus to avenge Teutoburg massacre, 14, 15 and 16. Galilæa independent of Rome until 32. Peræa independent of Rome until 33. Judæa a dependent kingdom under Herod Agrippa I., 41-44. Judæa a Roman province in 44. Claudius reduces Britain south of the Avon and Severn, 43. Boadicea, Queen of the Iceni defeated by the Romans, 58 Revolt of the Jews against Rome, 66-70. Jerusalem destroyed by Romans under Titus, 70. Keiko (71-130), twelfth mikado of Japan. Indo-Scythians defeated at the battle of Kahror by the Guptas and allies, 78. Agricola builds a wall from Firth of Forth to the Firth of Clyde, 78-84. Agricola carries Roman war into Scotland, 78-85. Armenia is lost to Parthia, 90
	Glass used in making windows, 79. The monumental type of triumphal arch, invented by the Romans, first given in perfection in the Arch of Titus, 81. Library of Apellicon sent to Rome from Athens by Sulla, 83. Agricola, a Roman, sails around Britain, 84. Ulpian library of Trajan established in the Forum of Trajan, 98. The forum of Trajan built, 98-117.		

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

A. D.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
100	Plutarch writes his "Lives," 100. Trajan's column, 113. Ptolemy writes a treatise on optics, 120. Detrianus, Greek architect, restored Pantheon, built mausoleum of Hadrian, bridge of St. Angelo. Aelian bridge built by Hadrian, 136. Temple of Venus and Roma; represents height of Roman art during Hadrian's reign. Samian ware, a glossy, red enamel made by the Romans, 150. Claudius Ptolemy (Egypt.) completes his geography and atlas. Temple of Jupiter built at Baalbec. The places and distances of the planets discovered by Ptolemy, 161. Equestrian statue of Marcus Aurelius, 180.	First war against the Dacians (101-102), caused by Trajan's refusal to pay the tribute promised by Domitian. Trajan captured fortress of the king Decebalus, forcing him to conclude peace and cede a part of his territory. Second war against the Dacians (105-107); stone bridge across the Danube built at Turnu Severinu by Trajan, who, crossing the river, conquered the Dacians. Decebalus committed suicide. Imposing games at Rome, in which it is said that 10,000 gladiators appeared. Dacia (eastern Hungary, Moldau, Wallachia, Transylvania) a Roman province. Many colonists (from whom the present Roumanians are descended) settle in Dacia. Judæa, to the northern end of the Red Sea, and the region east and south of Damascus taken possession of by the governor of Syria (105) and made the Roman province of Arabia (Arabia Petræa). Column of Trajan at Rome completed, 113. Wars of Trajan with the Parthians (114-116); Chosroës driven from Armenia. Mesopotamia, Armenia, Assyria (including Babylonia), made Roman provinces. Seleucia and Ctesiphon on the Tigris conquered by Trajan, who appointed a king over the Parthians. Death of Trajan at Selinus (Trajanopolis) in Cilicia. Hadrian (117-138); abandoned new provinces of Assyria, Armenia, and Mesopotamia; restored peace in Mœsia; began his progress through all the Roman provinces with a visit to Gaul, 121. Magnificent buildings in Rome, including the Athenæum. Wall of defense against Picts and Scots built in Britain. The jurist Salvius Julianus begins collection of edicts of the prætors (edictum perpetuum). Revolt of the Jews (132-135) because of the establishment of the colony of Ælia Capitolina. While ill, Hadrian adopted L. Ælius Verus, and appointed him Cæsar, who died first. Hadrian then adopted T. Aurelius Antoninus on condition that the latter should adopt his nephew, M. Annius Verus, under the name of Marcus Aurelius, and L. Commodus Verus, son of the deceased Cæsar, Ælius Verus. Antoninus Pius (Titus Aurelius Antoninus Pius), 138-161. Marcus Aurelius (161-180); a Stoic philosopher; reigned until 169 in common with Lucius Verus, his brother by adoption. War against the Parthians (162-165), under command of L. Verus, whose legatees burned Seleucia and Ctesiphon, conquered Artaxata, and appointed a king in Armenia. Part of Mesopotamia again became a Roman province. Famine and plague in Italy, 166. War with the Marcommani and Quadi, 166-180. Conquest of the rebel Avidius Cassius in Syria, 175. Triumph in Rome, 176. Death of Marcus Aurelius in Vindobona (Vienna), 180. Commodus (180-192); purchased peace of the Germans by a tribute; intrusted the government largely to the præfectus prætorio; murdered by his intimates. Imperators appointed mainly by the soldiers, 193-284. Pertinax murdered by the prætorians, 193. Didius Julianus placed on throne by the prætorians, 193. Septimius Severus (193-211) proclaimed by Illyrian legions, recognized by the senate, and maintained himself against Clodius Albinus in Gaul and Pescennius Niger in the East, the other pretenders. Through the jurist Papinianus, improvements were made in the administration of justice. Successful campaigns in Mesopotamia.	Splendid period of Palmyra, 105. Northern Korea conquered by the Chinese, 109. Hadrian's wall built from the Tyne to the Solway Firth, 121. Chosroës (Arsaces XXV.), king of Parthia (107-121), tries to retake Armenia and is punished by Romans under Trajan. Rebellion of Jews against Romans; great slaughter and dispersal of survivors, 132-135. Vologeses III. (Arsaces XXVII.) of Parthia (149-192), involved in war with M. Aurelius of Rome, is completely subdued. Legendary date of introduction of Christianity into Britain by the conversion of Lucius, king of the Trinobantes, 180. Parthia loses northern Assyria to Rome during reign of King Vologeses IV., 192-213.
200	Temple of Sun, at Baalbec, built, 200. Triumphal Arch of Septimius Severus marks beginning of decline in Roman art, 203. Baths of Caracalla, 215. Herodian, the Greek historian, writes, 225.	Expedition to Britain against the Scots, 208; Roman wall restored. Death of Septimius Severus at Eboracum (York). Caracalla (211-217); murdered his half-brother and co-regent Geta: also Papinianus and thousands of others. That higher taxation might be imposed, Roman citizenship was conferred upon all inhabitants of the provinces, by the Constitutio Antoniana. Provinces systematically plundered; unsuccessful wars against the Goths in Dacia; inhabitants of Alexandria cruelly treated; plundering expedition against the Parthians. Caracalla murdered. Macrinus, 217; bought peace from the Parthians. Elagabalus (218-222); proclaimed imperator by the soldiers; government conducted by his mother and grandmother; murdered by the prætorians. Severus Alexander (222-235); advised by the jurists Julius Paullus and Domitius Ulpianus; the latter killed during a mutiny of soldiers. Severus Alexander conducts war in the East (226-233), caused by dissolution of the Parthian (Arsacidæ) monarchy and establishment of the new Persian empire of the Sassanidæ by Artakshatr (Artaxerxes). Murder of Severus Alexander. Maximinus Thrax (235-238), a Thracian, raised to the throne by the soldiers. German townships devastated. Gordianus I. (237), a senator; proclaimed imperator by the legions in Africa; his son, Gordianus II., co-regent. Both defeated by the præfect of Mauretania, the son falling in battle, the father committing suicide. Senate at Rome elected the senators Pupienus Maximus and Cælius Balbinus, Augusti, also the young grandson of Gordianus I. Maximinus Thrax killed by his own soldiers at siege of Aquileia. The two imperators appointed by the senate, Balbinus and Pupienus, murdered by prætorians at Rome. Gordianus III. (238-244), sole imperator. War with the Persians 241. Philippus Arabs, co-regent in 243, murdered Gordianus III., 244.	Jingu-Kogo (201-269), empress of Japan, led an army into Korea and subdued it. Severus adds to wall of Hadrian, 210. Artabanus III. (Arsaces XXX.), last king of Parthia, 215-226. Artaxerxes I., king of Persia (226-240), defeats and slays Artabanus, the last king of Parthia, at Hormuz, 226. Parthia absorbed by the Sassanidæ, or New Persian empire, 226-641. Epoch of the three kingdoms of China, 221-265. Religion of Zoroaster restored in Persia, 227. Sapor I., king of Persia (240-271), makes successful war against Rome, 241-244.

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

A. D.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
200	Churches built under ground by Christians, in Rome, 250-260.	Philippus Arabs (244-249). Peace with Persia. Thousandth anniversary of foundation of Rome celebrated, 248. Mœsian and Pannonian legions revolt and proclaim one of their officers imperator.	
	Longinus, Greek author, writes his criticisms, 255.	Decius (249-251), sent by Philippus to subdue the mutiny, forced by the legions to accept title of imperator; defeated and killed Philippus in battle of Verona.	
		General persecution of Christians, 250.	
		Fabianus, bishop of Rome, a martyr.	
		Goths defeated by Decius, who fell in battle, 251.	
		Gallus (251-253), elected by the legions; has his co-regent, Hostilianus, son of Decius, put to death.	
		Fatal pestilence throughout the empire.	
		Gallus deposed by the conqueror of the Goths, Æmilianus (253), who four months later was killed by his soldiers.	
		Valerianus (253-260); general of legions in Germania and Gaul; his son, Gallienus, co-regent. War with the German bands. Unsuccessful expedition against the Persians. Valerianus defeated at Edessa, captured and made the slave of King Artaxerxes.	Wuti consolidates the Chinese Empire and founds the dynasty of Tsin, 265.
		Gallienus (260-268). Many pretenders to the throne. Invasions of the barbarians. "Time of the thirty tyrants." Tetricus pretender in Spain and Gaul; Odenathus (of Palmyra) in Syria. Mesopotamia won from Persia by Odenathus, whom Gallienus recognized as co-regent for the East. Murder of Odenathus (267), after which Palmyra was ruled by his consort, Zenobia.	
		Gallienus besieged Mediolanum, and was there murdered by the contrivance of the pretender Aureolus, who himself was put to death by Claudius II. (268-270), raised to the throne by the soldiers. Alamanni and Goths defeated.	
	Erection of a new wall around Rome, including the enlarged imperial city, commenced in 271, completed in 276.	Aurelianus (270-275). Province of Dacia sacrificed to the Goths. Many Roman colonists transported to Mœsia, a portion of which was now called Dacia (Aureliana). Alamanni and Marcomanni defeated (victory on the Metaurus). Aurelian, "Restorer of the universal empire," defeated Zenobia at Antiochia and at Edessa, conquered Syria, besieged and demolished Palmyra, captured Zenobia, and reconquered Egypt, 273; defeated and captured Tetricus at Chalons, 274; murdered on an expedition against the Persians.	Ojin (270-310), mikado of Japan, still worshiped as the God of War. Hormisdas, king of Persia 271-272. Zenobia defeated by Aurelian 272.
		Tacitus (275) elected imperator by the senate; defeated the Alani; died after three months. His brother Florianus, striving for the succession, was defeated by Probus, 276-282.	Varahran I., king of Persia, 272-275.
		Alamanni, Burgundians, Franks, and Vandals driven back by Probus, who entered Germany and strengthened the wall between the Rhine and the Danube.	Varahran II., king of Persia, 275-292.
		Many Germans enrolled as mercenaries in the Roman army.	Korean civilization introduced into Japan, 285.
	Swamps drained and roads and canals built by the Roman soldiers, who in resentment against such work murdered Probus, 282.	Carus (282-283), the præfectus prætorio, succeeded; appointed his sons Numerianus and Carinus Cæsars, and later Augusti; overcame the Sarmatians; killed (by lightning?) on an expedition against the Persians, after the capture of Ctesiphon.	
		Numerianus (284) accompanied his father to the East; murdered by his father-in-law.	
	Beginning of Diocletian era, 284.	Carinus (284), who had stayed in the West, fought, at first successfully, against Diocletianus (284-305), whom the soldiers had proclaimed imperator. Carinus eventually murdered by his own troops.	Independence of Britain under Cerausius, 286-294.
		Diocletian ruled the East from his court at Nicomedia in Bithynia, intrusting the West to his co-regent, Maximianus, 285.	Varahran III., king of Persia 292.
		Constantius Chlorus appointed a Cæsar by Diocletian, and given the government of Spain, Gaul, and Britain, Maximianus receiving that of Italy and Africa, 292. Galerius, also made a Cæsar by Diocletian, appointed to the government of Illyricum, including Greece and Macedonia, 292.	
		Revolt of Egypt quelled by Diocletian; and one in Britain, by Constantius, 296.	
		Galerius fought against the Persians, at first unsuccessfully, but gained an important victory in 297, and again extended the frontiers to the Tigris.	Narses, king of Persia (292-301), drives Tiridates from Armenia, 296; and is defeated by the Romans, 297.
		Insurrection in Africa put down by Maximianus.	Tigris, the general boundary between Persia and Rome, 297.
		The Alamanni defeated by Constantius.	
300	Some of the leading principles of optics known to the Platonists, 300.	General persecution of the Christians (303), but discouraged in his province by Constantius.	Monachism begins in Egypt, 305.
		Diocletian, having obliged Maximianus to resign, abdicated (305) and retired to Salonæ in Dalmatia.	Britain re-subdued.
		Constantius and Galerius raised to Augusti.	Early Christian martyrs in Britain, c. 310.
		Maximinus and Severus appointed Cæsars, the former receiving Syria and Egypt, the latter Italy and Africa.	
		Death of Constantius in Britain (306), following which his son, Constantine, assumed title of Cæsar and control of his father's provinces, Spain, Gaul, and Britain; fought successfully against the Bructeri and Franks.	
		Maxentius chosen imperator (306) by the prætorians at Rome, his father, Maximianus, resuming his previous dignity.	
		The Cæsar Severus, created Augustus by Galerius, proceeded to Italy (307) to attack Maxentius; but, deserted by his soldiers, he was slain at Ravenna. In his place Galerius appointed Licinius co-regent and Augustus, and Constantine assumed the same title.	
		Maximianus captured in Massilia and slain by order of Constantine, 310.	Hormisdas II., king of Persia, 301-309.

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

A. D.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
300	Water system commenced in Rome by Appius Claudius, 313.	Death of Galerius, 311. War between Constantine and Maxentius. Constantine issues edict in favor of Christians, 311. Maxentius defeated by Constantine at Turin, and at Saxa Rubra, four miles from Rome, and drowns while attempting to cross the Tiber, 312. Constantine became a protector of the Christians, but continued a catechumen until his death. Alliance between Constantine and Licinius, 313. Constantine fought against the Franks, Licinius against Maximinus, who was defeated and committed suicide in Tarsus. Constantine and Lucinius the only rulers in the empire (313-323), the first in the West, the second in the East. In a conflict (314) between the two, Licinius was defeated and forced to cede to Constantine Achaia, Illyricum, and Macedonia. Second war between Constantine and Licinius, 323. Licinius, defeated at Adrianople and Chalcedon, surrendered in Nicomedia, and by order of Constantine was executed, 324. Constantine (the Great) sole ruler, 323-337. Christianity recognized by the State and favored at the cost of paganism. First general (œcumenic) Council of the Church at Nicæa, in Bithynia, 325. Arianism rejected, and the doctrine of Athanasius of Alexandria declared a dogma of the Church by the Symbolum Nicænum. Constantine chose Byzantium (Nova Roma, Constantinopolis) for his capital, 330. Empire redistricted. Four great prefectures of Gallia, Italia, Illyricum orientale, Oriens, divided into 13 dioceses, these into 116 provinces. New hierarchy of officials, seven superior court officers. New arrangement of taxes. Council of state (consistorium principis). Constantine cruel in his family. Through the plots of his wife, Fausta, herself afterwards put to death, his eldest son, Crispus, and one of his nephews were executed. Before his death. Constantine divided the administration of the empire among his three sons as Augusti and two nephews as Cæsars; after his death (337), in Bithynia, his son Constantius caused the death of the two Cæsars. Empire divided at Constantinople by the three sons of Constantine, 337. Constantinus II. (337-340) given the West (prefectures of Gallia, Italia, and a part of Africa). Constantius (337-361) given the East (the prefecture Oriens). Constans (337-350) given part of Africa and prefecture of Illyricum orientale. Constantius fought indecisively against the Persians. Constantinus II. attacked Constans and fell at Aquileia. Death of Constans, 350. Empire again united by Constantius, after defeat of the usurper Magnentius, 353. Julianus, appointed Cæsar, defeated the Ripuarian Franks and the Alamanni; assigned the Salian Franks lands in northern Gaul. Paganism restored, 361. Death of Constantius (361) on an expedition against Julianus (361-363), whom the legions had proclaimed Augustus Julianus, known as the apostate for his adherence to the heathen philosophy; defeated the Franks and Alamanni; restored frontier fortresses which had been erected against them; defeated the Persians at Ctesiphon; on his return, died of a wound, 363. Jovianus (363-364), a Christian, raised to the throne by the soldiers. Christianity reinstated in the privileges granted by Constantine. Greater part of Mesopotamia ceded to the Persians. Valentinianus I. (364-375) raised to the throne by the legions. Appointed as co-regent first his brother, Valens (364-378), who governed the East from Constantinople; later, his son, Gratianus (367-383), who governed the West. Upon the death of Valentinianus I., Gratianus acknowledged as co-regent for the West, his half-brother, Valentinian II. (375-392), whom the soldiers had proclaimed imperator. Beginning of migration of Teutonic tribes, 375. Death of Valens at Adrianople in battle against the West Goths, 378. Theodosius (379-395), appointed co-regent by Gratianus, and given charge of the East; became a Christian; fought successfully against the West Goths, but was compelled to accept them as allies in their homes in Thrace and Mœsia. Death of Gratianus (383) in battle against Clemens Maximus (383-388), whom the legions in Britain had proclaimed imperator. Theodosius recognized Maximus as co-regent on condition that Valentinian II. retain Italy. Valentinian, driven from Italy (387) by Maximus, fled to Theodosius, who returned with him, captured Maximus at Aquileia, and slew him. Paganism proscribed, 390. Uprising in Thessalonica (390) put down with great cruelty by Theodosius, for which he was excluded by bishop Ambrosius of Milan from Christian communion, until he had done penance. Valentinian II. murdered by Arbogastes, 392. Eugenius, set up by Arbogastes, killed in battle with Theodosius at Aquileia, 394. Arbogastes commits suicide. Empire reunited under Theodosius, 394-395. Death of Theodosius, 395. Division of administration into an eastern and a western section becomes a permanent division of the empire, 395. The eastern portion of the empire was ruled by Arcadius, with Rufinus, imperial vicar. Capital, Byzantium or Constantinople.	Sapor II., king of Persia, 309-379(?) Edict of Milan, 313. Christianity introduced into Africa, 330. Persian war with Rome, 337-350. Second Persian war with Rome, 359-363. Western shores of Britain ravaged by Scots from Ireland, 360. Great earthquake in Egypt, 365. Third Persian war with Rome, 371-376. Beginnings of the migration of the northern Teutonic tribes, 375. Huns cross the Volga, 375. Huns conquer the East Goths. The Huns invade Russia, 376. Battle of Adrianople; Valens defeated and slain by the West Goths, 378. Artaxerxes II., king of Persia, 379-383. Sapor III., king of Persia, 383-388. Armenia divided between Persia and Rome, 385. Varahran IV., king of Persia, 388-399. Alaric, leader of the West Goths, lays waste Macedonia, Illyria, and Greece, 395. Stilicho attacks the West Goths, but they elude him, 396. War of Britons with Picts and Scots, 396. Isdigerd I., king of Persia, 399-419 or 420.
	Art of miniature-painting, imperfect among the Greeks, applied to Christian uses, 350.		
	Basilica of San Paolo fuori le Mura built at Rome, 388		
	San Lorenzo at Milan built, 390.		

From the Death of Caesar to the Death of Alaric, B. C. 44-A. D. 410.

A. D.	DISCOVERIES, ARTS, CRAFTS.	ROME.	OTHER COUNTRIES.
400	Triumphal arch of Theodosius built, 405. First use of bells in Europe, 405. Public schools established by Theodosius at Rome; attempted restoration of learning, 420.	The western portion was ruled by Honorius (395-423), and the Vandal Stilicho was appointed his guardian and chancellor. The enemies of Stilicho defamed him to Honorius, who caused him to be murdered (408). Rome was the capital, but after 402 Ravenna was the royal residence. Last triumph at Rome, 404. Alaric at Rome, 408-410. Romans leave Britain, 409-420. Sack of Rome by Alaric, 410. Disintegration of Roman Empire. Beginning of barbarian kingdom, 410-451.	Stilicho fights a drawn battle with Alaric at Pollentia, 402. Stilicho annihilated fighting bands of Germans under Radagais at Fæsulæ, 404-406. Burgundians settle on the Middle Rhine, 406-413. Salian Franks settle in northern Gaul, 408. Bands of Vandals, Suevi, and Alani, after defeat by the Franks, settle in Spain, 409. Honorius renounces the sovereignty of Britain and withdraws Roman legions, 409-420. Death of Alaric at Cosenza in lower Italy, 410.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	PERSIA.	ROME.		TEUTONIC TRIBES.			
		Western Empire.	Eastern Empire.	Britons.	Franks.	Visigoths (West Goths).	Vandals.
410	Varahran V., 419 (420)-440. The pretender Chosroës slain. Christians persecuted. War with Rome; peace (422), Varahran promising to end the persecution. Seven thousand Persian captives ransomed by Acacius, bishop of Amida. Beginning of wars with the Ephthialites, a people probably of Tibetic or Turkish stock, living beyond the Oxus. Invading khan surprised, defeated, and slain. Tatars punished in their own country. Isdigerd II., 440-457. War with Rome declared; peace immediately concluded. Nine years' war with the Ephthialites; their final defeat in their own country. Isdigerd's efforts to convert Armenia to Zoroastrianism caused religious war; Christians defeated, 455 or 456. Armenia forcibly converted. Isdigerd II. defeated by the Ephthialites. Civil war between Hormisdas and Perozes, sons of Isdigerd II.; Perozes (459-483 ?) victorious. Great famine, 466?. Unsuccessful war and ignominious peace with the Ephthialites, 464-465. Armenian revolt under Vahan.	Joannes, emperor, 424. Valentinian III., emperor, 425-455. Government by his mother, Placidia, as regent, at first. Origin of Venice, 452. Valentinian III. murdered by Petronius Maximus, 455. Petronius Maximus, emperor, 455; killed just before the capture and 14 days' plunder of Rome by the Vandals, 455. Eudoxia, widow of Valentinian, compelled to marry Petronius Maximus, 455. Genseric at Rome, 455. Avitus, usurping emperor (455-456), deposed by Recimir. Majorianus, emperor (457-461), placed on the throne by Recimir and deposed by him. Libius Severus, emperor (461-465), placed on the throne, and probably deposed by Recimir.	Theodosius II., 408-450. Government carried on by Pulcheria, sister of Theodosius II., 414-446. Death of Theodosius II., 450. Huns exact repeated contributions. Pulcheria again ruler with Marcianus, emperor, 450-457. Leo the Thracian, emperor, 457-474. Unsuccessful expedition against Vandals in Africa, 468.	Angles and Saxons summoned by the Britons to aid in repelling Picts and Scots, 449; founded eight states,—Sussex, Wessex, Essex, Kent, East Anglia, Mercia, Bernicia, Deira; last two later united to form Northumbria. Hengist and Horsa, Jute chiefs, land in Thanet, 449. Country between the Thames and Andredsweald gradually conquered. East and West Kent.	Treves taken from Rome. Large territories on the Meuse and the Scheldt held by the Franks as the suzerains of Rome. Franks fought under Aetius against Attila on the Catalaunian fields (Battle of Chalons), 451.	Led by Athaulf (410-415) to Gaul. Athaulf married sister of Honorius, in Narboune. 414. Athaulf, pursued by the imperial general Constantius, proceeded to Spain; subdued Barcelona; was murdered. 415; his successor, Sigric, murdered. Walja, king, 415-419. Treaty with Honorius concluded. Walja fought for Rome against Alani, Vandals, and Suevi; obtained a grant of southern Gaul under Roman supremacy. Kingdom of Tolosa (415-507) founded by Walja; capital at Tolosa (Toulouse); soon independent. Aid the Romans against Attila, 451. Theodoric I., king of the West Goths, slain in battle on the Catalaunian fields, 451.	Vandals and part of the Alani taken to Africa by King Genseric (Geiseric), 429. Genseric successful over Roman governor Bonifacius; brief peace, 435; conquest of Carthage, 439. Vandal kingdom in Africa, 429-534; capital, Carthage (St. Augustinus, bishop of Hippo Regius, d. 430). Plunder by their fleets the coasts of lower Italy and Sicily, 440. Pillage of Rome for fourteen days, 455. Control islands of the western Mediterranean and entire northern coast of Africa as far as Cyrene.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	PERSIA.	ROME. Western Empire.	ROME. Eastern Empire.	TEUTONIC TRIBES. Britons.	Franks.	Visigoths (West Goths).	Vandals.
410	Ephthialites again attacked by Perozes, who was defeated and slain. Balas (Persian, Valakhesh or Volgases), 483?-487. Tribute probably paid to Khush-newaz, the Ephthialite khan. Armenia pacified. Edict of toleration. Fire altars destroyed. Kobad, son of Perozes, first reign 487?-498. Victorious war with the Khazars, a people of uncertain race, living between the Don and the Volga. Kobad and many others converts to the ascetic and communistic doctrines of Mazdak, a high priest of Zoroaster, which causes disorders in Armenia and Persia. Kobad deposed. Zamasp (brother of Kobad), 498-501.	Government of Rome by Recimir, 465-467. Anthemius, emperor (467-472), placed on the throne by Recimir. Olybrius, emperor, 472. Death of Olybrius and Recimir, 472. Glycerius placed on the throne by the Eastern court, 473. Julius Nepos (474-475) appointed by emperor of the East. Romulus Augustulus (475-476), last of the imperial line in the West, placed on the throne by his father, Orestes, prominent among the mercenaries. Odovaker (Odoacer) deposed Romulus Augustulus, 476. War between Odovakar and Theodoric the Great, 489-493; Odovakar defeated. Battle of Aquileia (489); of Verona (489); of the Adda. (490). Theodoric takes the title of king of Italy (493-526), and makes Ravenna his capital.	Theodoric a hostage at the Eastern court, 462. Zeno, emperor (474-491), after a brief regency for his son Leo II. Zeno suppresses the rebellion of Basiliscus by the aid of the Ostrogoths, 475-477. Zeno encourages Theodoric to wage war on Odoacer, 488. Anastasius I., emperor, 491-518.	South Saxons (Ælle, Cymen, Cissa, Wlencing), land at Cissanceaster (477) and conquer region south of the Andredsweald. Ælle first Bretwalda of Britain. Storm of Anderida, 491; inhabitants massacred. West Saxons, under Cerdic and Cynric, found important settlement on southern coast west of the Andredsweald, 495.	Childeric at Paris, 464. Battle of Soissons, 486; Roman governor Syagrius defeated by Salic Franks under the Merovingian Chlodwig (Chlodowech, Clovis, 481-511). Frankish kingdom in northern Gaul. Chlodwig sole ruler of all the Franks; victory over the Alamanni, 496. Chlodwig and the Franks converted to Catholic Christianity; Chlodwig baptized by Remigius, bishop of Rheims. 496.	Thorismund, 451-453. Theodoric II., 453-466. Euric, 466-483. Alaric II., 483-507.	Decay of kingdom after death of Genseric, 477. Hunneric (477-484), son of Genseric, persecutes the Catholics; wars against the Moors of Africa. Guntamund, 484-496. Thrasamund, 496-523. The Vandals aided by the Goths resist the Moors of Tripoli.
500	Escape of Kobad to the Ephthialites and return at head of an army. Voluntary resignation of Zamasp. Second reign of Kobad, 501-531. Support of Mazdak withdrawn. War declared against Eastern Empire for its refusal to fulfill its agreement to aid in the defense of the pass of Derbend, in the Caucasus, the common route of the nomadic tribes in their invasions of the Eastern Empire and Persia. Amida sacked, 502. Peace impelled by an Ephthialite invasion, 507. Anastasius, emperor of the East, erected fortress of Daras, twelve miles from Nisibis. Second war with Eastern Empire, 524-531; Persians at first victorious, but defeated by Belisarius in the battle of Daras, 528. Chosroës I., Anushirwan ("The Just"; son of Kobad), 531-579; possibly the greatest of the Sassanid kings.	Amalasuntha, daughter of Theodoric, becomes regent for her son Athalaric, 526-535.	Justin, emperor, 518-527. Justinian I., emperor (527-565); law codified in form known as the *Corpus Juris Civilis* (Tribonianus). Schools at Athens closed, 529. Code of Justinian published, 529. Parties of the circus: whites, reds, blues, greens; sanguinary contests ("Nika"), 532.	Royal title assumed by Cerdic and Cynric, 517. Battle of Mons Badonicus, 520; repulse of Saxons attributed by Cymric traditions to Arthur, king of the Silures. Saxons in Essex, 527. Angles, 527.	Chlodwig vanquished the Burgundians at Dijon, and made them tributary, 500; overcame the West Goths at Vouillé or Voulon, near Poitiers (507), but was defeated by them at Arles. Death of Chlodwig. Kingdom divided, 511. Theoderic I. (Thierry, 511-533), Childebert I. (511-558), Chlodomer (Chlodomir, 511-524), and Chlotar I. (Clotaire, 511-561), the four sons of Chlodwig, ruled from the court camps of Metz, Paris, Orléans, and Soissons. Theoderic I. conquered kingdom of the Thuringians, 530-532; northern part given to their allies, the Saxons; southern part retained by the Franks. Two younger brothers of Theoderic I. overcame the Burgundians, 530-532.	Defeated by the Franks at Vouillé or Voulon, near Poitiers, 507. Are victorious over the Franks at Arles, 507; retain control of Septimania (coast between the Rhone and Pyrenees). Spanish possessions and those in southern Gaul governed (507-526), by Theodoric the Great for his grandson, Amalaric, 507-531. West Gothic (Visigothic) kingdom in Spain, 507 (526)-711. Amalaric assassinated, 531. Theudis rules in Spain, to which the Visigothic empire was limited, 531-548.	Hilderic (523-530), son of Hunneric Hilderic deposed by Gelimer, 530. Power in Africa destroyed by Belisarius (533-534), general of Justinian, Eastern emperor. Gelimer captured.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	DISCOVERIES, ARTS, CRAFTS.	PERSIA.	EASTERN EMPIRE.	TEUTONIC TRIBES.			
				Britons.	Franks.	Visigoths (West Goths).	Ostrogoths (East Goths).
500	Greek School of painting, 500.	Peace with Rome (533); 11,000 pounds of gold paid by Rome for fortification of the Caucasus; Daras to retain its fortifications, but not to be Roman headquarters; recent conquests surrendered by each; *eternal* friendship and alliance (causing this peace to be called the "endless peace").	Belisarius, 535-560.				Kingdom in Italy founded by Theodoric the Great (493-526); residence, Ravenna, sometimes Verona.
	Boethius writes his geometry and arithmetic, which formed the basis of mediæval mathematics, 510.	War declared against Rome, 540.					Cassiodorus, the historian.
	Pamirs and Punjab visited by Hoe-sing of China, 518-521.	Antioch captured, 540.					
	Anthemius of Lydia and Isidorus of Miletus build church of St. Sophia at Constantinople, 525-537.	Ransom exacted from chief cities of western Asia Minor.	Campaigns of Belisarius against the Vandals in Africa, 533-534; and the East Goths in Italy, 540, 544-549.		Provence obtained, 536.	Theudis assassinated, 548.	A part of southern Gaul added (507) to the kingdom by Theodoric the Great, who also governed (507-526) the Spanish possessions and Gallic lands of the West Goths.
	Benedict (480-543) forms his first monastery on Monte Cassino, in central Italy, 529.	Truce concluded, 545.					
	Code of Justinian published, 529.	War (549) with the Lazi (people of ancient Colchis), who were aided by Rome.	Church of St. Sophia, built by Constantine (Hagia Sophia), burned and magnificently rebuilt.		Supremacy over Bavaria and Swabia upon fall of East Gothic kingdom, 555.		
	Procopius says that eggs of silkworms were brought from China by monks, about 530.	Petra captured by the Romans and Lazi, 551.	Empire's decline under successors of Justinian.	Modern Berkshire conquered by Cynric, 534-556.			
	The *Aqua Paola* aqueduct at Rome restored by Belisarius, 537.	Chosroës's expedition to Arabia (562) against the Christian kingdom founded there early in the sixth century by the Abyssinians; Abyssinians expelled and country left to the control of Saif, leader of the native Homerites, after whose murder Arabia became a Persian province.	Persians, and, later, Arabs, conquer a part of the African and Asiatic provinces.	Wessex made powerful by Ceawlin (556-591 [3]), later called the second Bretwalda of Britain. Battle of Deorham, 577. Power of Ceawlin extended to the Severn.	Kingdom reunited under Chlotar I. (558-561), who survived his three brothers.		
	Farm labor on Sunday prohibited by the Council of Orleans, 538.	Expedition of Chosroës to India?	Narses destroys kingdom of the East Goths, 555. Exarchate.	Cymry of Cornwall (Devraint) separated from those of West Wales.			
	Earliest reference to wooden coffin in England, 542.	Unsuccessful invasion of Dezabul, khan of the Turks, who had conquered the Ephthialites, and became an ally of the Eastern Empire.	Almost entire Exarchate conquered by Longobards (Lombards); Calabria, Naples, Venice, Ravenna, retained by Eastern Empire.	East Saxons settle north of the Thames. Camulodunum (Colchester) sacked. Small kingdom established near the Wash.			
	Bells first known in France, 550.	Peace with Rome (563): Rome to receive Lazica and to make an annual payment to Persia; Christians in Persia permitted exercise of their faith; commercial intercourse between the empires limited to certain marts and roads; diplomatic intercourse to be free; Daras to keep its fortifications; arbitration to settle future disputes; allies of either party included in the peace; Persia to maintain the Caspian Gates alone; the peace concluded for fifty years.	Death of Belisarius and of the Eastern emperor Justinian, 565.	Middle Saxons settle about London.	Death of Chlotar I., 561.		
	Notation by nine digits and zero, called Arabic figures, known in Hindustan, 550.	Victorious wars with the Khazars and Ephthialites.	Justin II. emperor, 565-578.	East Angles occupy region north of the East Saxons, the forest, and the great fens about the Wash.			
	Silkworms reared in Constantinople, 551.	Mohammed or Mahomet, 570-632.	War with Persia renewed, 572.	North Angles settle Deira and Bernicia (547), north of the Humber. Central Yorkshire conquered.	Kingdom divided (561) among grandsons of Chlodwig: Charibert I. (561-567), Chilperic I. (561-584), Guntram (561-593), Sigibert I. (561-575).		
	Quills used for pens, probably about 553.		Tiberius Constantinus, emperor, 578-582.	Under Ida, "the flame bearer," conquests of the Angles extended to the Esk.			
	Fifth great council of the Church at Constantinople, 553.			Angles occupied (early in sixth century), the present counties of Leicester, Lincoln, Northampton, Nottingham, and Warwick; later united in the kingdom of Mercia (Cridda), 582?.		Kingdom of the Suevi in Spain united with that of the West Goths, 585. Converted to Roman Catholic Church, 587.	
	Monastery of Iona founded by St. Columba, in Scotland, 563.						Totila defeated and slain by Narses, general of Justinian, at Taginæ or Busta Gallorum, 552. Kingdom destroyed by Narses, 555.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	DISCOVERIES, ARTS, CRAFTS.	PERSIA.	EASTERN EMPIRE.	TEUTONIC TRIBES.			Other Countries.
				Britons.	Franks.	Lombards.	
500		War declared on Persia (572) by Justin, emperor of the East. Syria devastated by Chosroës, 572. Fall of Daras, 573. Empire divided into four governments. Fixed land tax in place of former variable tax on produce; tax collectors under supervision of the priests. Improved irrigation. Army reformed. Foreigners protected. Learning encouraged. Revision of laws of Artaxerxes. Shah-na-meh, or Book of the Kings, the basis of Firdusi's epic. Fables of Pilpay and game of chess introduced from India. Death of Chosroës in Mesopotamia, 579. Hormisdas IV. (Hormazd), 579-589; son of Chosroës; ruled wisely at first, but became the worst of Persian kings. Invasion by Maurice, emperor of the East, 579. Persians defeated at Constantia, 581. Alternate victory and defeat. Invasion (589) by Khazars, Arabs, and the great Khan of the Turks; the last defeated and slain by the Persian general, Bahram. Hormisdas invades Lazica and provokes war with Rome, 589. Defeat of Bahram on the Araxes. Bahram, insulted by the king, revolts. Hormisdas deposed and murdered, 589. Chosroës II., Eberwiz, 589-628. War with Bahram. Chosroës II. driven from the kingdom. Crown assumed by Bahram (Varahran VI.), 590-591. Chosroës II. restored to the throne by a Roman force. Flight of Bahram to the Turks.	Persians invade Byzantine territories, 572, and continue a war for 19 years. Maurice, emperor, 582-602. Period of decline caused by deficient or unfortunate rulers who drained upon the resources of the empire, and following the Persian War by a burden of taxation, and inroads by Slavs and Avars from the north.	Britain divided by 575 between Cymry and Teutons, by a line drawn almost north and south midway of the breadth of the land. Kingdom of Northumbria formed (588), by enforced union of Deira and Bernicia under Æthelric, king of Bernicia. Æthelbert, king of Kent, later named the third Bretwalda, ruler over East Anglia, Essex, Middle Britain, 590-616; married Catholic Christian princess Bertha, daughter of Charibert, king of the Franks. Augustine, legate of Pope Gregory the Great, arrived, 597. Kent converted. Quarrel between Augustine and the British church (form of the tonsure, date of Easter). East Saxons converted. Laws of Æthelbert. East Angles revolt against efforts for their conversion. Middle Britain subjugated (about 610-617) by Rædwald of East Anglia, later called the fourth Bretwalda.	Death of Charibert I., 567; his territory equally divided among his brothers: Austrasia, capital Rheims, population mostly German; Burgundy, capital Orléans; Neustria, capital Soissons; population of the two latter divisions Romano-Celtic or Romance. Family divisions and frightful wars. Feud of Brunhilde of Austrasia, daughter of Athanagild, king of the West Goths, and Fredegunde of Neustria (597), slave, and later wife, of Chilperic I. Decay of the Merovingian power following a period of anarchy.	Alboin (?-573) destroys kingdom of the Gepidæ on the lower Danube; leads the Longobards (Lombards) into Italy, which he conquers as far south as the Tiber, 568. Almost the entire exarchate of the Byzantines conquered. Kingdom of the Longobards in Italy (568-774) established. Cleph, son of Alboin, king (573-574?), pushes conquests to lower Italy and establishes independent Longobardian duchies, but rules helplessly amid anarchy. After an interregnum of about ten years Authari or Flavius, king (583-590), institutes an admirable form of government. Conversion of the Longobards to Christianity begun through the influence of Theodelinde, wife of Authari. Theodelinde, wife of Authari, unites the Lombards to the Church. Agilulf, (590-615). From his time may be dated the beginning of civilization among the Longobards.	Actual history in India remains practically blank from about 400 A. D. until the Mohammedan Period. Previous to 590 north China was ruled for about 200 years by a Tungusic family called Toba. Simultaneously with the growth of the Toba Tunguses in north China, a power called the Jeujen had sprung up in the desert region, and was at the height of its power probably about 585-590. Yang Kian, Chinese general of the Chow dynasty, succeeds (590) once more in unifying China by founding the Suy dynasty which rules 590-618.
	Suicide a crime, and those committing it denied funeral services and decent burial, 578. The eight musical modes begun by St. Ambrose and known as the "Gregorian modes" completed by Pope Gregory (590-604). Block-printing said to have been invented by the Chinese. Saddles were known in England, probably 595.						
600	Paper made from cotton, 600. The oath in judicial proceedings said to have been introduced into England, about 600.	War with Phocas, murderer of Maurice, 603-610; Daras captured; Armenia, Galatia, Phrygia, and Syria devastated; Antioch sacked.	Gregory I. (the Great), bishop of Rome (590-604). Beginning of the Papacy.				Mohammed's flight (Hegira) from Mecca to Medina 622.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	DISCOVERIES, ARTS, CRAFTS.	PERSIA.	EASTERN EMPIRE.	TEUTONIC TRIBES, Britons.	Franks.	Lombards.	Mohammed and the Caliphate.
600	Sugar brought into Europe from Asia, 625. Cotton cloth known in Arabia, 627. Bronze throne of Dagobert, now in the Louvre, made about 630. First convent in England erected at Folkestone, 630. Enameling on gold and metals carried to high degree of perfection, 630. Byzantine styles predominate in articles of furniture, 630. Carvings in ivory, including cups and vases, made with some degree of artistic excellence, 630. Consular diptychs or folded two-leaved tablets of ivory are known to date from this time and earlier, 630. During the dark ages many of the processes of industrial arts were lost; notably those of pottery and glass. An Alexandrian library said to have been burned by the caliph Omar I., 640. Latin first taught in England. Mass in Latin introduced into England. It is said that the caliph Omar opposed a plan for cutting a canal across the isthmus of Suez.	Cappadocia invaded, 612. Damascus captured, 614. Jerusalem sacked, 615. Persian general Shahr-Barz captures Alexandria and Pelusium; Egypt subjugated, 616. Chalcedon captured, 617. Persian camp within a mile of Constantinople. Rhodes and Ancyra captured, 620. Limits of empire under Darius I. again attained. Romans land in Gulf of Issus; Shahr-Barz defeated, 622. Retreat of Chosroës. Romans winter in Albania. Battle of the Sarus, 625; Shahr-Barz defeated. Alliance of Chosroës with the Avars. Unsuccessful attack on Constantinople. Battle of Nineveh, December 12, 627: Persians defeated. Flight of Chosroës. Persian troops at Ctesiphon, under two of the king's sons, mutiny. Chosroës captured and murdered, 628. Kobad II. (Siroës), 628-629 (?). Peace with Rome concluded on a basis of exchange of captives and conquests. Death of Kobad. The throne was usurped by Shahr-Barz, but before two months he was murdered by his own troops. Purandocht and Azermidocht, daughters of Chosroës II., reign. Period of anarchy; throne held successively by nine or ten nobles. Isdigerd III. (632-641 [651]), grandson of Chosroës II., last Sassanid king. Struggle against the caliphs Abu-Bekr and Omar. Kaled's expedition to Hira, 633; Persians defeated. Arabs capture entire region west of the Euphrates, their devastations extending throughout Mesopotamia.	Heraclius, emperor, 610-641. Heraclius sails to Lazica and invades Armenia, 623. Jerusalem recovered from the Persians by Heraclius, 628. Constans II., emperor, 641-668. Pope Martin seized and banished by Constans, 653.	Battle of Chester, 607; Cymry of Strathclyde defeated by Æthelfrith of Northumbria, who, extending his realm to the sea, separated Strathclyde from Wales. Battle of the Idle; Æthelfrith defeated and slain by Rædwald. Eadwine of Northumbria (617-633) supreme over all Teutonic Britain except Kent; the fifth Bretwalda. Eadwine converted, 627. Mercians revolt under Penda (627-655); in alliance with Cadwallon of Wales are victorious over Eadwine at battle of Heathfield, 633. Death of Eadwine. Penda of Mercia supreme (633-655) over East Anglia, Essex, and Middle Britain. Battle of the Hevenfeld, 635; Cadwallon defeated by Oswald of Bernicia. Conquest of Deira. Oswald of Northumbria, later called the sixth Bretwalda, supreme over Kent, Sussex, Wessex, Essex. Conversion of Northumbria by Irish missionaries. Contest over East Anglia between Oswald and Penda; the former defeated and slain in battle of the Maserfeld, 642. East Anglia, Wessex, Deira, under Penda. Battle of the Winwæd, 655; Penda defeated and slain by Oswiu, brother and successor in Bernicia of Oswald. Oswiu of Northumbria, the seventh Bretwalda, supreme (655-659) over all Teutonic Britain except Kent, Sussex, and Wessex.	Brunhilde seized, tortured, and dragged to death by a wild horse, 613. Majores domus become powerful; at first, superintendents of the royal household; later, leaders of the feudal retainers; hereditary claim to the office acquired first in Austrasia, later in Neustria, by the Pipins (Carolingians), of pure German blood. Kingdom divided (622-678), with several temporary unions: (1) Austrasia, chiefly German, divided by the Scheldt from (2) Neustria (Romance, northern France to the Loire) and Burgundy. Bretagne independent, Vasconia and Aquitania nearly so. Dagobert, 628. Battle of Testri (near St. Quentin), 687; Pipin of Héristal, major domus of Austrasia, victorious over major domus of Soissons (Neustria), and made sole major domus of entire kingdom of the Franks.	Rothari (636-652) famous for declaring code of Lombard laws, 644. Lombards assimilate with and are refined by contact with the Italians.	Mohammed victorious in Arabia, 629. Death of Mohammed, 632. Abu-bekr, father-in-law of Mohammed, caliph, 632-634. Collection of the Koran, afterwards enlarged by the transcription of the Soona, an oral tradition. Believers separated into Soonees, who accepted this addition, and Sheeahs, who rejected it, and considered Ali, son-in-law of Mohammed, his only rightful successor. Wars with the Persians and the Eastern Empire. Omar (634-644), founder of Arabian domination in the East; assumed title of Emir-al-Mumenin ("Prince of the faithful"), afterwards held by all the caliphs. Syria (Damascus 635), Palestine, Phœnicia, subjugated. Empire of the Sassanidæ (New Persians) destroyed by the battle of Nehavend, 641. Egypt conquered by Amroo, general of Omar. Alexandria captured. Othman (Osman), 644-656. Northern Africa conquered Rhodes captured. Othman murdered during an uprising, 656. Ali (Mohammed's son-in-law) (656-661); not generally recognized.

From the Death of Alaric to the Time of Charlemagne, 410-768 A. D.

A. D.	DISCOVERIES, ARTS, CRAFTS.	PERSIA.	Mohammed and the Caliphate.	EASTERN EMPIRE.	TEUTONIC TRIBES. Britons.	Franks.	Lombards.
600	Organs introduced into churches, 660. I-tsing, of China, travels through Java, Sumatra, India, 671-695. Bæda, 672?-735; "Historia ecclesiastica gentis Anglorum." French glass-makers installed at Wearmouth, England, by St. Benedict, 675. Greek glass workmen called to France, 677. Cædmon, ?-680. French glaziers at work in York, England, 699. Byzantine mosaics and marble used in churches.	Persian army of 120,000 levied. Battle of Cadesia, 636; Persians defeated by Sa'ad Ibn Abi Wakas; royal standard (Durufsh-kawani) lost. Mesopotamia invaded by Sa'ad, 637. Ctesiphon captured. Battle of Jalula; Persians defeated. Susiana and Persia proper invaded by Arabs, 639; Hormuzan, Persian general, captured. Sa'ad recalled. Persian army of 150,000 raised. Battle of Nehavend, 641. Fall of Sassanid power. Persia hereafter governed by the caliphs. Isdigerd III. a fugitive for ten years; murdered, 651.	Muawwiyah proclaimed himself caliph in Syria. Civil wars. Ali murdered. Sooneite or Sunnite Ommiads obtained caliphate, 661-750. Muawwiyah I., great-grandson of Omeyyah, 661-680. Residence of the caliphs transferred from Medina to Damascus. Caliphate made hereditary.	Constantine IV., emperor, 668-685. Sixth General Council of the Church at Constantinople, 680. Justinian II., emperor, 685-711. Justinian II., banished (695), and restored, 704. First doge of Venice elected, 697.	Revolt of Mercia under Wulfhere, 659. Kings of Northumbria henceforth sovereigns of local power only. Rivalry between Rome and the Irish missionaries. Oswiu convened a council which decided in favor of Rome. The English church organized by Theodore of Tarsus, archbishop of Canterbury, 669. Ine, king of Wessex, 688-726. Kent subjugated, 694.		
700	Embalming among the Egyptians probably ceased about 700. First mention made in history of the navy of Franks, 728. First public pharmacy erected by Al-Mansur, the Arabian, 745. A clock is said to have been sent by Pope Paul I. to Pipin, king of Franks, about 760. Astronomy and geography cultivated by the Arabs, 760.	Conquest of Byzantine Africa as far as Atlantic ocean completed by the governor Musa about 700. Islam accepted by the Berbers, who, with the inhabitants of Greek, Punic, and Roman descent, became amalgamated with the Arabians under the name of Moors. Moors in Spain, 711-1492. Battle of Xeres de la Frontera on the plains of the Guadalquivir, 711; kingdom of the West Goths (Spain) destroyed by Tarik, a general of Musa. Province of the caliphate in Spain. Country of the Basques penetrated and Gaul invaded. Battle between Tours and Poitiers, 732; Arabians defeated by Charles Martel. Greatest extent of the caliphate under the last of the Ommiads, including southwestern Asia, northern coast of Africa, part of the Spanish peninsula, Narbona in southern France, Corsica, Sardinia, the Balearic Isles. Constant wars with followers of Ali. The Abbassides, 749-1258. Residence, Bagdad. Merwan II., last Ommiad caliph, overthrown (750) by Abul Abbas, great grandson of an uncle of the prophet. All the Ommiad princes (90) murdered except one, Abd-er-Rahman, who fled to Spain and founded there (756) the caliphate of Cordova. Most brilliant period of Moorish civilization, 756-1031.		Philippicus Bardanes, emperor, 711-713. Leo the Isaurian, 717-741. Worship of images prohibited. Contest over images, 726-842. Separation of Greek and Latin Churches, 729. Last confirmation of a Papal election by the emperor of the East, 731. Constantine V., emperor, 741-775.	Wars with the Cymry of Cornwall, 710. Laws of Ine, the oldest West Saxon code. Ine abdicated, 726. Boniface (Winfrith), apostle of the Germans. Willibrod, missionary to the Frisians. Cuthbert, bishop of Lindisfarne; Wilfrith, of York. Benedict Biscop, abbot of Wearmouth. Æthelbald of Mercia supreme (733-752) over all England south of the Humber. Battle of Burford (Oxfordshire), 752; the West Saxon Cuthred victorious over Æthelbald of Mercia. Teutonic Britain divided into three great kingdoms, Mercia, Northumbria, Wessex. Strathclyde conquered for Northumbria by Eadbehrt, 756. Offa, king of Mercia, 757-794.	Eudes, duke of Aquitaine, asks aid of Charles, son of Pipin, against Arab invaders. Arabs defeated near Tours by Charles Martel (major domus 714-741), 732. Pipin the Short (752-768), son of Charles Martel, raised upon the shield at Soissons, as king of the Franks. Pope recognized as head of the church by the Concilium Germanicum, 742. Childeric III., last Merovingian king, deposed and placed in a monastery, 751. Pipin and his sons Charles and Karlmann are anointed as kings of the Franks by Pope Stephen III., 752; Carolingians in France, 752-986. Pipin repulsed Aistulf, king of the Longobards, who threatened the Pope. Gift to the Pope of the Pentapolis (Ancona, Fano, Rimini, Pesaro, Sinigaglia), the Exarchate of Ravenna, Ferrara and Bologna; foundation of the papal states thus laid. Pipin patricius of Rome.	Grimoald duke of Beneventum, seizes the throne and completes conversion of the Longobards. Liutprand (712-744) raised the Lombards to highest prosperity. Aistulf (750-756); effort to conquer Rome defeated by Pipin, king of the Franks, who completes the extinction of the exarchate of Ravenna. Pipin, the Short, invades Italy and restrains the Lombards, 754-755. Charlemagne sends his wife back to her father, King Desiderius, 756-774. Charlemagne invades Italy and overthrows Lombardy, 774.

From the Time of Charlemagne to the Death of Hildebrand, 768-1085 A. D.

A. D.	Discoveries, Arts, Crafts.	Franks Under Carolingians.	England.	Eastern Empire.	Caliphate.	Other Countries.
768	In the eighth century the progress in discoveries, arts, and crafts was very slight, especially during the last half of the period. The Byzantine and Basilical styles of architecture which rose in the sixth century, the one in the East and the other in the West, continued to flourish side by side, the Byzantine style undergoing some minor changes in its development. In sculpture, painting, science, and invention, the century is practically a blank.	Charles the Great (Charlemagne), 768-814; sole ruler after the death of his brother Karlmann, 771. War with the Saxons, 772-804. Eresburg captured, Irminsul destroyed, 772. Sons of Karlmann fled to Desiderius, king of the Longobards, who, upon refusal of the Pope to crown them, occupied the Pentapolis and threatened Rome. Pavia captured. Desiderius placed in a monastery. Charlemagne king of Italy (i. e., the kingdom of the Longobards, northern and central Italy), 774. Sigiburg captured, 775. Saxons west of the Elbe conquered. Eresburg destroyed by the Saxons, who were resubjugated, 776-777. First May-field (assembly) in the Saxon land at Paderborn. Wars with Spain, 778. Saragossa subdued. Frankish rear-guard defeated upon return by Roncevaux, or Roncesvalles. Death of Roland, margrave of the Breton coast. Fresh outbreak of the Saxons upon news of Charlemagne's defeat in the Pyrenees, 778; put down by an army of Alamanni and East Franks. Battle of Bocholt on the Aa, 779; Charlemagne victorious. Saxons subdued, 780; accept Christianity. General revolt of the Saxons under Widukind or Wittekind. Frankish army defeated. Slaughter of 4,500 Saxons on the Aller, 782; result, a formidable uprising, 783. Charlemagne successful at Detmold and on the Hase. Surrender (785) of Wittekind, who became a Christian. First landing of Danes, 787. Second revolt of the duke Tassilo; result, duchy of the Bajuvariæ (Bavarians) disestablished, 788. Wars with the Slavs and the Northmen. Wiltzi defeated by Charlemagne, who proceeded to the Peene, 789. War with the Avars, 791-799. Uprisings among Saxons in the North, who took refuge with the Danes. War with the Danes, 793-804. Frankish march invaded by Gottfried, king of Denmark. Coasts of the German Ocean harassed by Danes. King's Ring, principal camp of the Avars, stormed, 796.	Mercia: Oxfordshire won from Wessex, 777 (?); Welsh kingdom of Powys conquered; Offa's dyke from mouth of the Dee to that of the Wye; laws of Offa. First recorded landing of the Northmen in Britain on coast of Devonshire, 787; invasion, 789-866.	Boundaries extended both in Asia and Europe; administration reformed; commerce encouraged; and colonies planted by Constantine V., 741-775. Monasteries dissolved, 770. Leo IV., son of Constantine, emperor, 775-779. Constantine, son of Leo, emperor (779-797), with Irene, his mother, as regent. Irene has her son blinded and deposed, 780, and reigns until 803. The accession of a woman a pretext for transferring the crown from the Eastern Empire to the Western.	Abd-er-Rahman I. (756-788) receives the caliphate of Cordova in Spain from the Arab chiefs. Saracens expelled from Southern Gaul, 759. Caliphate in Spain divided into six provinces. Residence of Abbasside caliphs transferred from Damascus to Bagdad, 750. Al-Mahdi, caliph at Bagdad, 775-785. Spanish march established by revolting Christians, after 778. Al-Hadi, caliph at Bagdad, 785-786. Harun-al-Rashid, caliph at Bagdad, 786-809. Bagdad the center of learning and civilization. The height of power and splendor of the eastern caliphate. Hisham I., ruler of caliphate at Cordova, 788-796. Al-Hakem I., ruler of caliphate at Cordova, 796-812.	Military feudalism in Japan. Persia becomes the center of Abbasside rule after 750. Arabia loses the pre-eminence which Mohammed had given it and yields to Persian greatness. Many principalities enjoying complete independence arise in Arabia Inroads of the Tatars in China almost incessant from 763 to 780. Mohammedan invasion of India. Capital of the Japanese empire, the home of the mikado and the kuge, permanently fixed at Kyoto, near Lake Biwa, 794.

Cynewulf, early English author, writes two short poems.

Christianity introduced into Saxony by Charlemagne, 785.

Learning encouraged by Charlemagne, who founded schools, monasteries, and cathedrals, 790.

Irish monks visit Iceland, 795.

From the Time of Charlemagne to the Death of Hildebrand, 768-1085 A. D.

A. D.	Discoveries, Arts, Crafts.	Franks Under Carolingians.	England.	Other Countries.
768		Frankish empire annexed the country between the Raab and the Ems, 796. Kingdom of the Avars soon destroyed. Pope Leo III., driven from Rome (799) by relatives of his predecessor, went to Charlemagne's camp at Paderborn; re-established in Rome by Charlemagne.		Western Africa or Mauretania separated from Egypt and formed into a Mohammedan kingdom by Idris, 789.
800	Couriers instituted by Charlemagne, 800. Canonization instituted by Pope Leo III., 800. St. Mark's at Venice begun, 800.	Office of Emperor of the West revived by Charlemagne, who was crowned emperor by Leo III., on Christmas Day, 800. Ludwig, son of Charlemagne, strengthened the Spanish march, 801. Charles, eldest son of Charlemagne, repulsed the Danes, who retreated beyond the Eider, 808. Charlemagne conducted in person war against Gottfried, king of Denmark, 810. Gottfried murdered by his own servants. Peace with the Danes. Saxony north of the Elbe retained by the Frankish kingdom. Wends conquered. Charlemagne's residences were Aachen (Aix-la-Chapelle), in Austrasia, Ingelheim, and Nymwegen. Imperial rescripts (capitularii). Men of all rank, both laymen and churchmen, members of the assemblies. Alcuin a resident at the court of Charlemagne.	Ecgberht, king of Wessex, 802-837: Cornwall made tributary; Beornwulf of Mercia defeated at battle of Ellandune, 825; Essex and all England south of the Thames subjugated. Ecgberht overlord of Northumbria and Mercia, 828; submission of Wales, 828. All England south of the Forth, except, possibly, Strathclyde, united under Ecgberht.	Barcelona taken from the Moors by the Franks, 801. Nicephorus I., Eastern emperor (802-811), tributary to Harun-al-Rashid. Bulgarians invade the Eastern Empire and slay Nicephorus I., 811. Leo V., the Armenian, Eastern emperor (813-820), defeats the Bulgarians. Michael, the Amorian, Eastern emperor (820-829), loses Crete to the Saracens. Beginning of the Moslem conquest of Sicily, 827. Theophilus, Eastern emperor (829-842), in constant war with the Caliphs. Mohammedans conquer Messina in Sicily, 833. Netherlands invaded and Utrecht sacked by the Northmen, 835. Antwerp burned and Flanders sacked by the Northmen, 836.
The emperor Charlemagne establishes postal service, 807.		Counts of the border districts; governors of counties; imperial messengers, who periodically visited different parts of the empire to hear complaints, which they reported, with suggestions and observations, to the emperor.		Northmen make their first expedition up the Rhine, 837. Asia Minor invaded by the Caliph Motassem, 838. Amorian War, 838.
Clergy large owners of land, and dominant in state affairs.		Ludwig the Pious (Louis le Débonnaire), son of Charlemagne, 814-840. Bernhard, nephew of Ludwig, king of Italy under supremacy of Ludwig, revolted, was captured and slain. Empire divided among sons of Ludwig, 817: Lothar given the imperial crown and the greater portion of the empire; Pipin, Aquitania; Ludwig, Bavaria.		Woo-tsung, emperor of China (841-847); temples destroyed, nunneries and monasteries closed; all foreign priests banished. Northmen sail up the Seine and sack Rouen, 842. Theodora, empress of the East, 842. Michael III., Eastern emperor, 842-867.
Romualdus, French architect, flourishes, 830. He built the cathedral at Rheims.		New division of the empire (829) giving Karl, youngest son of Ludwig, the royal title and Alamannia. Rebellion of three elder sons of Ludwig; civil war. Ludwig the Pious deserted by his troops on the Field of Lies, near Colmar, Alsace, 833; captured (public penance in the church at Soissons); soon liberated by his son Ludwig, and established upon the throne, 834. Death of Pipin, 838; his part of the empire divided between Charles and Lothar, at which Ludwig rebelled. Death of Ludwig the Pious, 840.	England under West Saxon kings, 828-1066. Sheppey devastated by the Northmen, 834. Ecgberht repulsed by the Danes, 834. Battle of Hengestesdun, 836; Ecgberht victorious over Danes and Welsh. Death of Ecgberht, 837. Æthelwulf, son of Ecgberht, 837-858. Picts and Scots united, 843. Kenneth II., Scotland.	Ludwig, the German, 843-876. Wars with the Slavs, Charles the Bald, and Northmen. Simultaneous attack by Northmen upon all three Frankish kingdoms. Dublin taken by the Northmen under Olauf, 852. Eastern or Byzantine Empire ruled by the Macedonian line (867-1057). Magyars, Bulgarians, and Arabs attack the empire. Jarls or Vikings defeated at Hafurstfjord, 872. Rolf Ganger in Neustria, 876. Charles the Fat, son of Ludwig, 876-887; emperor, 881; king of the West Franks, 884; united again the monarchy of Charlemagne, except Burgundy; deposed by East and West Franks; abdicated, 887. Syracuse captured by the Saracens, 878.
Catechisms said to have been compiled in the ninth century, perhaps as early as 835.				
Arabian literature at its height, 840.				

From the Time of Charlemagne to the Death of Hildebrand, 768-1085 A. D.

A. D.	Discoveries, Arts, Crafts.	Franks Under Carolingians.	England.	Other Countries.	Caliphate.	Scandinavia.
800	Norsemen explore Faroe Islands and round the North Cape of Europe, 860. Naddod, Norseman, discovers Iceland, 861. Coast of Greenland explored by Gunnbjörn, a Norseman, 870. Drunkenness made an offense punishable by death by Constantine, king of Scots, 870. Time was measured in England by burning candles which lasted twenty-four hours, 886.	Battle of Fontanetum (Fontenay or Fontenaille), 841; Lothar defeated by Ludwig and Charles. Bi-lingual oath of Strassburg, 842. Treaty of Verdun, 843; imperial dignity retained by Lothar, who received the central Frankish lands (bounded by the Alps and Rhine in the east, the Rhône, Saône, Meuse, Scheldt in the west, and Frankish Italy); Ludwig the German given eastern part of the Frankish lands (between the Elbe and the Rhine), from which in time the German nationality developed: Charles the Bald given western part of Frankish lands, from which the French nationality gradually developed. **FRANCE AND SPAIN.** Carolingian kings of the Franks, 843-987. Charles the Bald, 843-877. Jura, Meuse, Ourthe, French-German boundary. Normans in France, 860-932. Fiefs made hereditary, 877. Ludwig the Stammerer (Louis II., le Bègue), 877-879. Ludwig III. (Louis III.), in northern France, 879-882. Karlmann (879-882) in Aquitaine. Rebellion of Boso, duke of cisjurane Burgundy, 879. Ludwig victorious (881) over Northmen at Saucourt (Ludwigslied). Ravages of Northmen increase. Karlmann ruler of entire kingdom, 882-884. Charles the Fat of Germany (884-887) chosen king by the nobles; whole empire united. Deposed.	London and Canterbury captured by Danes, 851. Danes winter in Sheppey for the first time, 855. Æthelbald, son of Æthelwulf, 858-860. Æthelberht, brother of Æthelbald, 860-866. Æthelred I., brother of Æthelberht, 866-871. Northmen invade and conquer different parts of the country, 866-1003; settlement in Northumbria. Danes in East Anglia, 866; in Mercia, 868; conquer and settle East Anglia, 870. St. Edmund, king of the East Angles, a martyr. Croyland and Peterborough sacked. Danes in Wessex, 871. Nine battles with the Danes (871), who were defeated at Æscendun by Æthelred and his brother Ælfred. Ælfred the Great, 871-901. Guthorm, Danish king in East Anglia, entered Wessex, 876. Danes settled in Northumbria, 876. Lands in Mercia divided among the Danes, 877. Wessex ravaged by Danes, 878; defeated at Ethandun. Treaty of Wedmore between Ælfred and Guthorm; Danes abandoned Wessex, but received East Anglia and a part of Mercia; London retained by Ælfred. The greater part of England held by the Danes; called "Danelagh." Peace in Wessex, 880-893. Laws revised; judicial department separated from the executive. Fleet created, 882. Several Welsh provinces submit. Danes invade Kent, 893; defeated at Buttington.	Arnulf of Carinthia, 887-899, grandson of Ludwig, the German, defeated Northmen at Löwen, 891; allied with Magyars in invasion of Hungary, 893; crowned emperor, 896; founder of kingdom of Moravia. Ludwig, the child, Arnulf's grandson, 899-911; internecine feuds in Franconia. Conrad successful. Image worship fully restored in Eastern Empire.	Al-Mamun, son of Harun-al-Rashid, caliph at Bagdad, 813-833. Abd-er-Rahman II. (821-852), caliph at Cordova. Government of Mohammedan Spain was the best in Europe at the time.	Godfrey, king of Jutland, in contest with Charlemagne. Halfdan the Black, king of Norway, 841-863; subjugated many petty kings. Dublin conquered by Olauf of Norway, 852. Discovery and settlement of Iceland, by Norwegians, 860-875, etc. Gorm the Old (about 860-935), first king of all Denmark; persecuted Christianity until forced by Henry I. of Germany to desist. Harald Haarfager, king of Norway, 860-933; son of Halfdan; completed conquest of Norway and introduced feudal system. The Jarls defeated at Hafurstfjord, 872. Great migration of the Jarls, the most famous of the vikings. Erik Emundsson, king of Sweden, made important conquests in the East; died 885?. Slavs subjugated by Swedes. Settlement of Swedes around Novgorod, the foundation of the future Russian Empire.
900	Alfred the Great establishes a mint at Oxford (879), and builds a fleet of galleys, 897. Arabic figures brought into Arabia from Hindustan, 900. Horn used for window lights in England, 900. Mints established in England, 928.	Northmen under Rolf (Rollo) obtain permanent foothold on the Seine (Normandy), 911?; feudal sovereignty over Brittany. Treaty of St. Claire sur Epte. Rollo baptized under name of Robert. Battle of Soissons, 923; Robert, duke of France, brother of Eudes, previously proclaimed king, slain. Charles III. imprisoned by Herbert of Vermandois; died, 929. Flight of Eadgyfu (Edwina), wife of Charles III., with her son Ludwig IV., to her brother Æthelstan, king of England. Death of Rudolf of Burgundy, 936. Louis IV., 936-954.	Death of Ælfred, 901. Eadward the Elder, son of Ælfred, 902-925. Fortresses erected along Mercian frontier. The Five Boroughs (Derby, Leicester, Lincoln, Nottingham, Stamford) conquered by Æthelflæd, "Lady of the Mercians," daughter of Ælfred the Great. Mercia added to Wessex. Essex and East Anglia conquered. Strathclyde and all the Scots submit, 924. Eadward lord of all Britain; died, 925. Æthelstan, son of Eadward, 925-940. League of Danes, Scots, and Welsh crushed, 926. League renewed, but shattered by defeat of the allies at battle of Brunanburh, 937. Eadmund, brother of Æthelstan, 940-946. Scots and Danes revolt. The Five Boroughs and the Danelagh reconquered. Malcolm, king of Scots, given Cumberland as a fief.	Mohammedan invasion of India, 900. Five Chinese dynasties (Later Leang, Later Tang, Later Tsin, Later Han, Later Chow), 907-960. Independent states in Szechuen, Ho-nan, and other provinces of China. Conrad I. of Franconia, 911-918, elected by nobles. Henry I., the Fowler, 919-936. Otto, the Great, king, 936.	Abd-er-Rahman III., ruler of Cordova, 912-961; assumed title of caliph, 929. The *emir al omra* (935) given entire secular power; the caliph the spiritual head. Egypt independent under Fatimites, 969.	Erik Blodöxe king of Norway, 930-934. Haakon, king of Norway, *c.* 930-961. Harold Bluetooth (Blaatand), king of Denmark, 935-985. War between Norway and Denmark.

From the Time of Charlemagne to the Death of Hildebrand, 768-1085 A. D.

A. D.	Discoveries, Arts, Crafts.	France and Spain.	England.	Italy and Germany.	Scandinavia.
900	Triangular masonry bridge at Croyland abbey, probably built about 930. Cotton grown and manufactured in Spain, about 950. Linens and woolens manufactured in Holland, 950. Candlesticks used in Britain in the days of king Edgar, 959.	Ludwig from Beyond Seas (Louis IV., d'Outremer), 936-954; recalled by the nobles. Civil war between the king, Hugh the White, or Great, and Otto, king of Germany. Lothar, (954-986); son of Ludwig; influenced by Hugh Capet, son of Hugh the Great. Invasion of Otto II. of Germany. Ludwig V. (Louis le Fainéant), 986-987. With his brief and troubled reign the direct line of Charlemagne is extinct.	Eadmund murdered, 946. Eadred, brother of Eadmund, 946-955. Rebellion of the Danes quelled, 954; final submission of the Danelagh. Eadwig, nephew of Eadred, 955-959. Dunstan, abbot of Glastonbury, driven from the country. Eadgar, the under king of Mercia, 958-975; brother of Eadwig; Dunstan, the true ruler, recalled, 958. Large fleet maintained. Laws revised.	Magyars ravage Germany, 908; defeated Ludwig near the Lech, 910. Tribute paid to the Magyars. Deadly feuds in Franconia; Rudolph, bishop of Würzburg, of the family of Conrad of Hesse, against Adalbert of Babenberg. Conradines victorious. Adalbert slain in front of his castle. Death of Ludwig the Child, 911. Crown refused by Otto the Illustrious, duke of Saxony. Conrad I. of Franconia, 911-918; elected by the nobles. Incursions of Slavs, Magyars, and Danes. Incessant war between Conrad I. and West Franks and with his own subjects in the effort to obtain their acknowledgment of his sovereignty. Lotharingia, except Alsace, annexed to kingdom of the West Franks. Kings and emperors of the Saxon house, 919-1024. Henry I., the Fowler, 919-936; unificator of the German empire. Arnulf, duke of Bavaria, and Burkhard, duke of Alamannia (Swabia) forced to recognize Henry's supremacy. Fresh invasion of the Magyars (Hungarians), 924. Nine years' truce with Magyars; peace in Thuringia and Saxony procured by payment of tribute. Lotharingia recovered, 925. Otto I., the Great, 936-973.	Harold of Denmark forced by Otto II. of Germany to consent to introduction of Christianity, 975. Svend Forked Beard (Tveskjaed), king of Denmark, 985-1014. Greenland discovered and settled by Erik the Red of Norway, 985. Vinland (America) seen by Bjarne, visited by Leif and others, 986-1011. Harald Graafell, Hakon Jarl, king of Norway, 988-995. Tributary Wends successfully revolt against Denmark. Olaf, the Lapp king, 993-1024; first Christian king of Sweden. Svend of Denmark in England, 994. Olaf Tryggvasson, king of Norway, 996-1000.
	A "London bridge" said to have existed in 978. Arabic numerals introduced into Spain, 980. Greenland rediscovered (983) by Erik the Red, who colonizes Greenland, 985. Arabic numerals introduced into France by Gerbert, 991.	Capetian dynasty, direct line, 987-1328. Hugh Capet, 987-996. In 987, six great principalities (later called Lay Peerages): Aquitaine, Burgundy, Champagne, Flanders, Normandy, Toulouse. Feudal nobles very powerful. Paris the new capital. Charles the Carolingian captured.	Battle of Maldon against the Danes, 991; Brihtnoth, ealdorman of the East Saxons, slain. Ten thousand pounds raised by a special tax (Danegeld) to buy off the Danes, 991. Kent devastated (994) by Swegen (Svend) and Anlaf (Olaf Tryggvasson), who were paid 16,000 pounds. Almost incessant ravages of the Northmen, 997-1015.		War of Swedes with St. Olaf of Norway. Knut the Great (1016-1035), king of Denmark and England; most of his time spent in England. Norway reunited under St. Olaf (II.), 1015-1030.
1000	The clock escapement said to have been invented in the eleventh century; sometimes ascribed to Gerbert, about 1000. Newfoundland, Nova Scotia, coast of New England, discovered by Leif Erikson, son of Erik the Red, 1000?.	Robert II., 996-1031. Incessant wars with the nobles. Rising of the serfs, 997. Suffering of the entire country as a result of the papal edict upon Robert II. because of his marriage with his cousin, Bertha of Burgundy.	Northmen given 24,000 pounds, 1002. All (?) Danes in England massacred (November 13, 1002), by order of Æthelred. Feudal system introduced into Scotland, 1008. Northmen given 36,000 pounds in 1007, 48,000 pounds in 1012. Death of Swegen, 1014; succeeded by his son Cnut (Canute). Danes again in possession of that part of England acquired in 878 by treaty of Wedmore. Death of Æthelred, 1016. Cnut chosen king by Danish party in England. Eadmund Ironside, son of Æthelred, chosen king by English party. Many battles between Danes and English, 1016. Eadmund defeated at Assandun; peace concluded. Eadmund given East Anglia, Essex, Wessex, London, and nominal overlordship of England; Cnut given Mercia and Northumbria. Death of Eadmund, 1016. Cnut king of England, 1016. Danish supremacy over England, 1016-1042. Cnut, 1016-1035. England divided into four governments: Wessex, under Cnut; East Anglia, Mercia, Northumberland under jarls or earls. Huscarls, Cnut's personal following. Cnut in Rome, 1027. Laws of Cnut, 1028. Malcolm, king of Scots, subjugated, 1031. Harold, son of Cnut, 1035-1040.	Roman revolt, 1001. Death of Otto III., 1002. Henry II. (the Saint), 1002-1024; son of Henry the Quarrelsome of Bavaria; elected king after the murder of his rival Eckard, margrave of Meissen. First expedition to Italy against Ardoin of Ivrea, 1004. Henry crowned king of Italy at Pavia, 1004. Wars with Boleslav, king of Poland, 1004-1018; Poland retained Lusatia, but was forced to give up Bohemia. Bishopric of Bamberg founded, 1007. Power of the church increased. Monasteries reformed. Public peace vigorously enforced. Henry crowned emperor at Rome, 1014. Ardoin submits, 1014; dies in a monastery, 1015. Normans settle in Italy, 1015. Rudolf III., last king of Burgundy (Arles), resigned in favor of Henry, who to secure this inheritance, went to war, 1016-1018. Wars with the Grecians in lower Italy, 1022. Death of Henry II., July 15, 1024. Franconian or Salian emperors, 1024-1125. Princes of all the tribes present for the first time at an election, 1024. Conrad II., 1024-1039. Rebellion (1025-1030) of Ernest, duke of Swabia, who claimed Burgundy (Arles) as the personal heir of Henry II. Conrad II. crowned king of Italy at Milan, 1026; Ravenna and Pavia compelled to submit. Conrad II. crowned emperor, 1027. The Eider made the boundary between Denmark and Germany, the former receiving Schleswig.	Hardeknut (Hathacnut) succeeded Knut, his father, in Denmark, 1035-1042. The Graagaas, or book of the law (Norway). War of Danes with Magnus of Norway concluded by the agreement that whoever outlived the other should inherit his kingdom.
	A London bridge built of wood, 1014; partly burned, 1136. Buschetto da Dulichio, Italian, architect of the cathedral of Pisa; flourished, 1016. Science of optics greatly advanced by Alhazen, 1025. The scale of musical intervals, the *gamut*, mentioned by Guido Aretino, a Tuscan monk, 1025.	Rise of the kingdom of Castile, 1020-1230. Famine, 1030-1032. Normandy given the Vexin on the Seine. Dissolution of the Caliphate of Cordova, 1031. Henry I., 1031-1060. Many petty Moorish kingdoms in Spain, 1031-1086.			Harold of Denmark forced by Otto II. of Germany to consent to introduction of Christianity, 975. Greenland discovered and settled by Erik the Red of Norway, 985. Vinland (America) seen by Bjarne, visited by Leif and others, 986-1011. Harald Graafell, Hakon Jarl, king of Norway, 988-995. Tributary Wends successfully revolt against Denmark. Olaf, the Lapp king, 993-1024; first Christian king of Sweden. Svend of Denmark in England, 994. Olaf Tryggvasson, king of Norway, 996-1000. Knut proclaimed king of Norway, 1028. Magnus the Good, son of Olaf, king of Norway, 1035-1047.

From the Time of Charlemagne to the Death of Hildebrand, 768-1085 A. D.

A. D.	Discoveries, Arts, Crafts.	France and Spain.	England.	Italy and Germany.	Scandinavia.
1000	Mohammedan architecture reaches final fixed types, eleventh century; the golden age of the architecture of this people dates from the tenth century.	Exploits of The Cid, 1034-1090. Rise of the kingdom of Aragon, 1035-1258.	Harthacnut, son of Cnut, 1040-1042. Godwine, earl of Wessex. Siward, earl of Northumberland. Leofric, earl of Mercia. Eadward, the Confessor, son of Æthelred, 1042-1066.	Poles under Mieczeslav II. devastated Germany to the Saale, and carried 10,000 prisoners to Poland. Hungarians unsuccessfully attacked, 1030. Ernest, duke of Swabia, slain in battle, 1030.	Magnus, king of Denmark, 1042-1047.
		Truce of God (Treuga Dei), limiting the days available for warfare to eighty a year: introduced by the clergy, 1041.	Norman influence supreme at court. Godwine exiled, 1051; recalled (1052) and caused a general banishment of the French; died, 1053. Wales subjugated by Harold, earl of Wessex, 1063.	Conrad II. victorious over the Poles, forcing them to surrender their prisoners; Lusatia restored to the empire, 1031. Mieczeslav a vassal of Conrad II., 1032. Death of Rudolf III. of Burgundy, 1032.	Svend Estridsen, king of Denmark, 1047-1074; nephew of Knut. Emund Gammle (the Old), last king of the Upsala line, in Sweden; died about 1056.
	The curfew bell introduced into England, 1068.	Norman conquest of Sicily, 1060-1093.	Harold, earl of Wessex, shipwrecked on coast of Normandy (1064), became vassal of William, duke of Normandy, and promised to secure to him the succession to the English throne? Death of Eadward, 1066. Harold, earl of Wessex elected king, 1066. Succession claimed by William, duke of Normandy. Yorkshire invaded by Harold Hardrada, king of Norway, and Tostig, brother of Harold of England; invaders defeated and slain at battle of Stamford Bridge, September 25, 1066.	Burgundy won from Odo, count of Champagne, heir of Henry II., and united with the empire; later the Romance portions along the Durance, Isère, Saône, and Rhône, were annexed to France. Small fiefs made legally hereditary in Italy; this was the custom in Germany. Second expedition of Conrad II. to Italy, 1036. Death of Conrad II. at Utrecht, 1039. Henry III. ("the Black"), son of Conrad II., 1039-1056. Imperial power at its height.	Stenkil, king of Sweden, 1056-1066.
	Rise of Romanesque style of architecture in the eleventh century; it began in Germany, Italy, and France, later extending into England and Spain.	Philip I., 1060-1108. Normans conquer England, 1066. Vow of celibacy required of all priests, 1073.	Battle of Hastings or Senlac (October 14, 1066), between William of Normandy and Harold of England; Harold defeated and slain. Eadgar Ætheling, grandson of Eadmund Ironside, chosen king; soon submitted, with the chief men, to William. Norman kings, 1066-1154. William the Conqueror (1066-1087) elected king. Anglo-Saxons ill-treated and robbed of their estates. Northumbria and Mercia unsubmissive. Rebellion in the north aided by a Danish fleet under Swegen, 1068; Danes bought off by William, and insurgents crushed. Northumberland devastated by fire and sword. English revolt (1071) under Eadwin and Morkere; Eadwin defeated and slain; Morkere sought refuge with the outlaw Hereward at Ely, which was captured. The four large earldoms abolished, 1071. Shire the largest political division; sheriffs in each appointed by the king. Continental feudalism induced. Norman barons placed over lands of the English nobility. English Church reformed and organized by William. Mutiny of Norman barons in England soon quelled, 1075-1076. Rebellion of the conqueror's son Robert in Normandy, 1077-1080. Odo, bishop of Bayeux, William's brother, imprisoned for intrigue. Invasion from Denmark and Norway averted, 1085.	First expedition of Henry III. to Rome, 1046-1047. Synod compelled by Henry III. to depose the three rival popes (Sylvester III., Gregory VI., Benedict IX.), each accused of simony. Suidger, bishop of Bamberg, appointed Pope as Clement II. Henry III. crowned emperor by Clement II., Christmas, 1046. Three German popes in succession after Clement II. appointed by Henry III. Drogo, son of the Norman Tancred of Hauteville, invested with Apulia. Rebellion of Godfrey the Bearded, duke of upper Lotharingia; his province given (1049) to Alsatian count Gerhard, ancestor of house of Lorraine. Second Roman expedition, of Henry III., 1055; death at Gozlar, 1056. Henry IV., 1056-1106; his mother, Agnes of Poitou, regent. Carinthia given to Berthold of Zähringen; Bavaria to Saxon count Otto of Nordheim; Swabia to Rudolf of Rheinfeld. Henry IV., abducted from Kaiserswert to Cologne by Archbishop Anno, 1062. Archbishop Anno compelled to share administration of the empire with Adalbert, archbishop of Bremen (1065), against whom the princes conspired. Imperial Diet at Tribur, 1066. Adalbert banished from court for three years; death, 1072. Otto of Nordheim, duke of Bavaria, deposed; Bavaria given to his son-in-law Welf, son of Azzo of Este. Magnus, duke of Saxony, a prisoner. Saxon uprising; Henry's flight from the Harzburg, 1073; humiliating peace; the Harzburg destroyed. Contest with Pope Gregory VII. (Hildebrand), 1073-1085. Celibacy of the clergy strictly enforced.	Seventeen years' war of Denmark with Harold Hardrada of Norway ended in 1064. Harald III., Hardrada, king of Norway, founded Opslo (Christiania); slain at battle of Stamford Bridge, England, 1066. Magnus II., king of Norway, 1066-1069.
	Tide mills in use in Venice, 1078.				Wars for two hundred years between the Gauta and the Svea, Sweden.
	Omar Khayyám, a Persian astronomer, proposes a reform of the calendar similar to that later accomplished by Pope Gregory XIII.: error in this proposed calendar, one day in 5,000 years; error in Gregorian calendar, one day in 3,325 years, 1079.				Taking of Malta by the Normans, 1091.
					War of Danes with the Wends. Olaf, king of Norway, 1069-1093.
	Church of St. Mark's at Venice completed, 1085.	Domination of the Almoravides in Spain, 1086-1147.			Harold Heyn, king of Denmark, son of Svend, 1077-1080. St. Knut, son of Svend, king of Denmark, 1080-1086.

Death of Hildebrand to the Fourteenth Century, 1085-1300 A. D.

A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1085	Compilation of the Domesday book, the record of a statistical survey of England in 1085-1086. It contains populations, information regarding ownership, state and area of cultivation, etc.	Oath of fealty from all under tenants to the king direct, 1086.		Hermann of Salm set up as king by the Saxons; abdicates and dies, 1088.	Peter of Amiens (the Hermit, c.1050-1115) preaches the Crusade, 1095.	Nobles of Sweden attain supremacy in the Diet.	Seljuk supremacy in the East, 1080.
		William II., the Red, 1087-1100: second son of William the Conqueror.	Normandy invaded by William II. of England, 1090.		Bands led by Peter, Walter of Pacy, Walter Senzaveir, and others, nearly annihilated in Hungary and Bulgaria.		
				Saxons, assured of their ancient privileges, submit.	First Crusade, 1096-1099.	Olaf Hunger, king of Denmark, 1086-1095.	
		Death of Lanfranc, 1089.	Peace with England, 1091.		Bishop Adhemar of Puy, first to take the cross at Clermont, papal legate.		
	A history of the kings of England from 449 to 1125 by William of Malmesbury, who was born 1095.	Revolt of the Norman barons in favor of Robert, eldest son of the Conqueror, quelled by aid of the English, 1090.	Normandy again invaded by William II., 1094.	Third expedition of Henry IV. to Italy, 1090-1097; generally unsuccessful except capture of Mantua.	Nicæa surrendered, 1097. Crusaders victorious over sultan Kilij Arslan at Dorylæum, 1097.	Erik Ejegod, king of Denmark, 1095-1103.	
	Norwich cathedral, Anglo-Norman architecture, begun 1096.	Donald Bane, 1093-1098.			Antioch besieged 1097-1098.		
	Church of St. Saturnian, Romanesque style of architecture, dedicated, 1096.	Policy of confiscation, lessening power of the nobles, begun by William II., 1095.	Philip I. excommunicated, 1095.		Crusaders in Antioch besieged by Kerboga. Seljuk army defeated.		Empire of the Seljuks separated into several small sultanates, 1092.
	The first formal duel in England between William, Count d' Eu, and Godfrey Baynard, 1096.	Edgar, nephew of Eadgar Ætheling, king of Scotland, 1098-1107.		Rebellion of Conrad, son of Henry IV., 1092.	Death of Bishop Adhemar of Puy, 1098.	Magnus III., Barfod, king of Norway, 1095-1103.	Portugal becomes a Castilian fief under Henry of Burgundy, 1095.
		William II. partially successful in attempt to conquer Maine, 1098.	Normandy pledged by Robert to William II. of England for 10,000 marks, 1096.		Storm of Jerusalem; terrible massacre, July 15, 1099. Kingdom of Jerusalem established.		
	Painting on glass practised in France and Germany, 1100.	William II. is threatened with excommunication, 1099.		First crusaders, under Peter the Hermit and Walter of Perejo, cross Germany, 1096.	Sultan of Egypt defeated at Ascalon by Godfrey of Bouillon, Protector of the Holy Sepulcher, 1099.	Orkneys, Hebrides, and Dublin conquered by Norwegians.	Wars in Spain of Ruy Diaz, called by Arabs the Cid; died 1099.
1100	England's public records first regularly kept by order of Henry I., 1100.	Henry I., Beauclerc, 1100-1135.	Disastrous crusade of French princes and knights, 1101.	War with Conrad (dies, 1101).	Death of Godfrey, 1100.	Death of Magnus of Norway in Ireland, 1103.	
	Basilica of St. Clement's at Rome rebuilt, 1108.	Charter issued, restoring the "Law of Edward the Confessor."		Henry V., son of Henry IV., 1106-1125.		Ejsten, Sigurd, Olaf, sons of Magnus, rule in conjunction in Norway.	Alphonso I. of Aragon, 1105-1134.
		Invasion of Robert of Normandy, son of the Conqueror, 1101.	War with Henry I. of England and Normandy, 1101-1119.	Henry V. excommunicated.		Niels, king of Denmark, 1105-1135.	John the Good, Byzantine emperor (1118-1143), fought the Seljuks, Hungarians, Servians, and Armenians.
	It is said that tolls were first paid by vessels passing the Stade on the Elbe, 1109.	Rebel barons punished.		German princes revolt; Saxons victorious at Welfesholze, 1115.	Baldwin I., king of Jerusalem.	Pilgrimage to Jerusalem by Sigurd of Norway, 1107-1110.	
	Stone bridge erected at Bow, near Stratford, about 1109.	Henry invaded Normandy, 1104.	Louis VI., the Fat, 1108-1137.	War of the investiture ended, by Concordat of Worms, 1122.		Death of Ejsten and Olaf of Norway.	
	Moorish tiles introduced into Italy, 1115.	Battle of Tinchebrai, 1106; Robert defeated and imprisoned.	Battle at Brenneville, 1119; Louis VI. defeated by the English.	Lothar of Saxony, 1125-1137; crowned by Pope Innocent II.		Sigurd sole ruler of Norway, 1122.	
	Cathedral of Pisa, Italy, completed, 1118.	Death of Henry's son William by sinking of the "White Ship," 1120.	Count of Flanders murdered, 1127.	Feudal homage of Bohemia.	Acre, Berytus (Beirut), Sidon, Tripolis, conquered with the aid of Genoa and Pisa.	Magnus the Blind, son of Sigurd, king of Norway, 1130.	
	Tournaments were probably introduced into England, about 1125.	David I., Scotland, 1124-1153.	Letters of franchise granted to cities and towns by Louis VI., 1135.	Wends driven back.		Wars over the succession in Denmark.	
	Mint said to have been established at Winchester by Henry I., 1125.	Death of Henry I., 1135.	Marriage of the king's son Louis (VII.) with Eleanor, heiress of Gascony, Guyenne, and Poitou, 1137.	Mittelmark conquered by Albert the Bear, and called Brandenburg.		Erik Emun, king of Denmark, 1134-1137.	
		Stephen of Blois, 1135-1154.		House of Hohenstaufen, 1138-1254.		Half the kingdom of Norway ceded (1134) to Harald Gille, who comes from Ireland and claims to be a son of Magnus Barfod.	
	Granting of charters in England by Henry I., 1132.	Charter of Oxford, 1136.	Louis VII., 1137-1180.	Conrad III., 1138-1152.	Death of Baldwin I., 1118.		
		Battle of the Standard, 1138.		Ghibellines and Guelfs, 1140-1495.			
		Matilda landed in England, 1139.		Death of Henry the Proud, 1139; Saxony claimed by his son, Henry; Bavaria, by his brother, Welf VI.	Baldwin II.; dies, 1131.	Civil war in Norway.	Aragon and Catalonia united, 1137.
		Civil War, 1139-1142.					
		Battle of Lincoln, 1141; Stephen defeated and captured.					

Death of Hildebrand to the Fourteenth Century, 1085-1300 A. D.

A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1100	Cistercians in England.	Matilda elected "Lady of England" by the clergy. War between Stephen and Matilda. Death of Robert of Gloucester, 1147.	Eleanor divorced; married Henry of Anjou (later king of England), conveying to him Gascony, Guyenne, and Poitou, for which Henry did homage to Louis.	Battle of Weinsberg, 1140; Conrad victorious. Death of Leopold of Austria, Oct. 18, 1141; Bavaria given to his brother, Henry Jasomirgott.	Fulco of Anjou; dies, 1143. Edessa conquered (1144) by Emadeddin ('Imaded-Deen) Zenki, emir of Mossul; conquered and destroyed by his son Noureddin (Noored-Deen), 1146.	Erik Lamb, king of Denmark, 1137-1147. Sven III. made king of Denmark, 1147. Bonder dynasty, Sweden, 1150-1250.	Saladin, 1137-1193. Tatars spread over China. The kingdom of Portugal founded, 1139. Manuel Comnenus, Byzantine emperor (1143-1180), left the affairs in bad condition.
	Chemistry introduced into Spain by the Moors, about 1150.	Henry of Anjou landed in England, 1153. Henry recognized as heir to the crown. House of Anjou (Plantagenet) in the direct line, 1154-1399.		Frederick of Swabia, nephew of Conrad, elected by the princes. Frederick I., Barbarossa, 1152-1190. Diet at Merseburg.	Second Crusade, 1147-1149; without result; leaders, Conrad III. of Germany, Louis VII. of France.	Erik IX., the Saint, king of Sweden, 1150-1162. Christianity introduced in every part of the kingdom of Sweden.	Invasion of Spain by the Almohades, 1146-1232.
	Edrisi of Sicily produces his geography, 1154.	Henry II., 1154-1189.		Convention of Constance between Frederick and the Papal See, 1153.	Louis and the French nobility sail from Pamphylia for Antiochia.	Waldemar I., the Great, king of Denmark, 1157-1182.	
	The exchequer (bureau for assessing and collecting taxes), reëstablished.	Resumption and restoration of estates. Ireland given to Henry II. by a bull of Adrian IV., 1157.	Louis VII. married Constance of Castile (his second wife), 1154.	First expedition to Italy, 1154-1155. Frederick crowned king of Italy in Pavia; emperor at Rome.			Wars of Gen and Hei, rivals in Japan, 1156-1185.
	Manufacture of silk encouraged in Sicily, c. 1146.	Unsuccessful Welsh war, 1158. Scutage introduced.		Diet at Würzburg, 1157.	Common soldiery reach Cilicia by land, and are annihilated by hunger and the enemy.		
	Convent church at Alcobaça, Portugal, built, 1148-1222.	Second Welsh war, 1163. Contentions between Henry II. and Becket. Danegeld abolished. Constitution of Clarendon, 1164.		Homage to the imperial power (Holy Roman empire) by nearly all states of the West. Royal crown given by Frederick to the Bohemian duke Vladislav.		Wends conquered by the Danes.	
	Large quantities of sugar brought into Europe from Asia, 1150.	Becket tried and condemned; fled to France. Third Welsh war, 1165. Assize of Clarendon, 1166.		Second expedition to Italy, 1158-1162. Milanese revolt. Quarrel between the emperor and the pope. Alliance between Alexander III. and the Lombard cities.	Conrad goes by sea from Constantinople to the Holy Land (1148) and, with the French, unsuccessfully attacks Damascus.	Magnus V., king of Norway, 1161-1184.	
		Dermod, king of Leinster, Ireland, fled (1167) to Henry II.		Third expedition (1163) to Italy, without an army.		Archbishopric of Upsala, Sweden, established, 1163.	
	Notre Dame cathedral of Paris built, 1163-1214.	Becket returned to England; quarreled with the king; murdered by knights of Henry's court, 1170. Henry's expedition to Ireland, 1171.		Fourth expedition to Italy, 1166-1168; Paschal III. conducted to Rome by Frederick. Lombard League (1167) between cities of Lombardy and those of the Veronese March.	Baldwin III., king of Jerusalem; dies 1162.		
		Richard of Clare (Strongbow) made earl of Leinster.		Guelfs and Ghibellines united.	Amalric; dies, 1173.	Ancona, on island of Rügen, captured by the Danes, 1168.	
		Southeastern part of Ireland submitted to Henry.		Waldenses, 1170. Great Council of Venice, 1172.			Leon and Castile separated again, 1157.
	Origin of the public funding system in Venice, 1171.	Absolution of Henry, 1172.		Fifth expedition to Italy, 1174-1177; Lombardy entered over Mont Cenis.		Revolt in Skaania subdued by the Danes.	
		Revolt of Henry's eldest son, Henry, and general league of English and French lords, William the Lion of Scotland, and Louis VII., against the king.		Battle of Legnano, 1176.	Pilgrimage to Jerusalem by Henry the Lion, 1172.		William the Lion, Scotland, 1165-1214.
		Scotch invasion, 1173.		Reconciliation of the emperor and the pope, 1177.			Strongbow in Ireland 1169-1170.
	The leaning tower of Pisa built, 1174-1350.	Penance of Henry II. at Becket's tomb, 1174.		Henry the Lion put under ban of the empire and his fiefs declared forfeited, 1180.			
		William captured; released upon acknowledgment of Henry's suzerainty, 1175.		Peace with the Lombard cities at Constance, 1183.			
	The Canterbury cathedral choir rebuilt, 1174-1184.			Bremen, Hamburg, Lübeck, in time become free cities.			

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A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1100	Chapter house at Bristol, Anglo-Norman architecture, built, 1155-1170. Football first mentioned in England, 1175. Late old *London Bridge* commenced by Peter of Colechurch, 1176. A bridge 3,000 feet long, with 18 stone arches, built over the Rhône at Avignon, 1180. Paris streets first paved by Philip Augustus, 1184. Church of San Michele at Lucca, Italy, built, about 1188. Mosque of Old Delhi, India, commenced, about 1190. Insurance said to have been in use in Italy, 1194. Standard weights and measures provided for England by the sheriffs of London, 1197.	Assize of arms, 1181. Militia service restored. Death of Henry the Younger, 1183. Conspiracy of Henry's sons, Richard and John, with Philip of France, 1189. Humiliation and death of Henry II., 1189. Richard I., Cœur-de-Lion, 1189-1199; away from England during most of his reign. Scotch king released, 1189. Eleanor, Richard's mother, regent during his crusade and imprisonment by the emperor. Jews persecuted. War caused by intrigues of the king's brother John and Philip of France; quickly suppressed after Richard's return, 1194. Richard in France at war with Philip. John Lackland, 1199-1216; recognized in England, secured Normandy.	Philip II., Augustus, 1180-1223. War with the count of Flanders, 1185; county of Vermandois and city of Amiens won by Philip II. (Third) Crusade with Richard Cœur-de-Lion. Philip attacked Normandy (1190), but with little success. Death of Richard Cœur-de-Lion, 1199. Philip took up but did not prosecute the claims in Normandy of Arthur, Richard's nephew, against Richard's younger brother John.	Sixth expedition to Italy, 1184-1186; peaceful. War between Henry, son of Frederick, and Henry the Lion; concluded, 1189. Henry VI., son of Frederick, 1190-1197. First expedition to Italy, 1191. Henry goes to Naples to rescue from Tancred the inheritance of his wife, Constance. Naples unsuccessfully besieged. War with Henry the Lion, 1192-1194. Second expedition to Italy, 1194. Henry threatened with excommunication (1194) for withholding from the pope the estates of Matilda. Diet at Würzburg, 1196. Third expedition to Italy, 1197. Philip of Swabia, youngest son of Frederick Barbarossa, 1198-1208. Otto IV. of Brunswick, son of Henry the Lion, 1198-1215 (1218). War for the crown between the house of Hohenstaufen and of Welf, 1198-1215.	Baldwin IV.; death, 1184. Baldwin V.; death, 1186 (not of age). Veit (Guy) of Lusignan; captured at Tiberias. Acre and Jerusalem conquered (1187) by Saladin (Salah-ed-Deen). Guy of Lusignan regains freedom and besieges Acre for two years, 1189-1191. Third Crusade, 1190-1192; conquest of Acre (St. Jean d'Acre) or Ptolemaïs; leaders, emperor Frederick I., his son Frederick of Swabia. Frederick I. conquered Iconium; drowned in the Calycadnus, Cilicia, 1190. Richard Cœur-de-Lion, king of England, and Philip II. of France go by sea to the Holy Land, 1190; reach Acre, 1191. Death of Frederick of Swabia, 1191. Acre compelled to surrender, July 1191. Philip quarrels with Richard; returns to France, 1191. Armistice with Saladin. Coast from Acre to Joppa given to the Christians.	Sverre, king of Norway, 1177-1202. Knut VI., king of Denmark, 1182-1202; son of Waldemar. Wends aided by the emperor Frederick I., 1184. Hither Pomerania and part of Mecklenburg submit to the Danes. Knut, "king of the Slavs." Expedition of the Danes to Esthonia. Lübeck and Hamburg conquered by the Danes. Adolf of Holstein captured by the Danes.	Alexius II., Byzantine emperor, 1180-1183. Andronicus I., Byzantine emperor, 1183-1185. Cyprus an independent sovereignty, 1184. Battle of Danno-ura in Japan; the downfall of the house of Hei, 1185. Angelus dynasty in the Byzantine empire, 1185-1204. Isaac II., Byzantine emperor, 1185-1195. Bulgaria, led by John Asen, revolts against the Byzantine empire and founds a new realm, capital at Tirnova, 1186. Alexius III., Byzantine emperor, 1195-1203.
1200	Troubadours flourish in England, Spain, and Italy, 1200-1300. Chimneys introduced in England, 1200. The *London Bridge* (begun, 1176) completed, 1209. Heavy cavalry covered with coat of mail; some horsemen had visors and skullcaps. Franco of Cologne invents "rests" in music, 1220. Robert de Lusarche, French architect, designed cathedral of Amiens; flourished, 1220.	Death of Arthur while in John's power, 1203. John lost Anjou, Maine, Normandy, Touraine, and a part of Aquitaine; restricted henceforward to his English kingdom. Death of Hubert Walter, archbishop of Canterbury, 1205. Disputed election. Stephen Langton elected archbishop of Canterbury by command of Innocent III., 1207; refused by John. Interdict upon England, 1208. John finally submits, receives Langton, and accepts his kingdom as a fief of the papacy, 1213. Barons refuse to follow John to France, 1213. John defeated at Bouvines, Flanders, 1214.	Quarrel between Philip II. and Innocent III.; Philip submitted, 1200. Philip again attacked Normandy. Fall of Chateau Gaillard. Normandy submitted, 1204. Summons to appear for trial on account of the murder of Arthur disobeyed by John; his fiefs declared forfeit. Storming of Beziers, 1207. County of Toulouse, conquered by Simon of Montfort, 1211-1215. War in Flanders with the feudal lords, supported by the cities, victorious at Bouvines, 1214.	Philip assassinated at Bamberg by the count palatine, Otto of Wittelsbach. Otto IV. crowned at Rome by Innocent III., 1209. Quarrel with the pope, who put forward Frederick, son of Henry VI., as anti-emperor, 1212. Battle at Bouvines, 1214; Otto IV., in alliance with England, defeated by Philip II., Augustus. Death of Otto IV. at the Harzburg, May 10, 1218. Frederick II. (also king of the two Sicilies), 1212-1250; opposes spiritual supremacy; was crowned German king in Aachen, 1215; promises to undertake a crusade. Henry, son of Frederick II., given Swabia, 1217; elected king of Rome, 1220.	Fourth Crusade, 1200-1204; Latin empire, 1204-1261; directed originally against Egypt; undertaken at instance of Pope Innocent III.; leaders, powerful French barons, Baldwin, count of Flanders, Boniface, marquis of Montferrat. Crusaders besiege Zara, in Dalmatia. Constantinople captured. Emperor unable to fulfill promise to the crusaders of union of Greek Church with that of Rome and large payments of money. Constantinople on fire. Greek populace revolt. Death of Isaac. Alexius murdered by Greeks. Constantinople again captured, partly burned.	Waldemar II., the Conqueror, king of Denmark, 1202-1241. Haakon III., king of Norway, 1202-1204. Guttorm the Child, king of Norway, 1204. Inge Baardsen, king of Norway, 1204-1217. Holstein granted as a fief to Waldemar's nephew, Albert of Orlamund. Oesel and a large part of Prussia conquered by the Danes. Waldemar II., of Denmark recognized Frederick II. as emperor and received a cession of all conquests in Germany, north of the Elbe and the Elde. Haakon IV., king of Norway, 1217(1223)-1262; crushes rivals.	Hojo family supreme in Japan, 1200-1333. Isaac II., Byzantine emperor (restored), 1203-1204. Alexius IV., Byzantine emperor, 1204. Alexius V., Byzantine emperor, 1204. Constantinople taken and sacked, 1204; Latin empire established (1204-1261). Latin line of Byzantine emperors, 1204-1261. Baldwin I., Latin emperor, 1204-1205. Mongols subjugate southern Russia, 1206. King John invades Ireland, 1210.

Death of Hildebrand to the Fourteenth Century, 1085-1300 A. D.

A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1200	Guido of Siena, first recognized Italian painter, flourishes, 1221.	Alexander II., Scotland, 1214-1249.	Philip's son Louis made unsuccessful expedition to England, 1216.	Frederick leaves Germany for fifteen years; renewed promises made to Innocent III. (feudal supremacy of papal chair over his hereditary domain, crusade); crowned at Rome by Honorius III.	Latin empire established, 1204; Baldwin, emperor	Expedition of the Danes to Esthonia, 1219.	Genghis Khan (1206-1227) invades the Kin provinces of China, 1213; died, 1227.
		London occupied by the confederated lords, 1215.			Venetians given many coast districts and islands.		
		Magna Charta granted by John at Runnymede, June, 1215.	Siege of revolted Toulouse; death of Simon of Montfort, 1218.	Henry, son of Frederick, crowned king at Aachen, 1222.	Marquis of Montferrat made king of Thessalonica.	The Dannebrog, or national standard of Denmark, 1219.	Kublai Khan, 1216-1294.
		Pope declared the Magna Charta null and void.			French dukes in Achaia, Athens, etc.		
	Franciscans arrive in England, 1224.	Langton suspended.			Greek empire established at Nicæa by Theodore Lascaris.		Arabians defeated at Tolosa, 1212.
		Crown declared forfeited by the French party among the barons and bestowed by them upon Louis, son of Philip of France.	Louis VIII., 1223-1226.	Promise of a crusade renewed, 1225.		Power of the clergy weakened in Norway.	Henry of Flanders, Latin emperor, 1206-1216.
				Diet at Cremona, 1226.			
		Louis comes to England, 1216.		Disputes with the Lombard cities, 1226.	Empire of Trebizond established on coast of the Pontus Euxinus by a descendant of the Comnenes.		Peter of Courtenay, Latin emperor, 1216-1219.
	Drainage of London first provided for by legislative enactment, 1225.	Death of John Lackland, October 19, 1216.	Fresh crusade against the count of Toulouse, whose lands had been declared forfeit.	Crusade begun, but broken up by a contagious disease, 1227.		Erik Eriksson Læspe, king of Sweden, 1223-1250; Birger Jarl the actual ruler.	Yolande, Latin emperor, 1219-1221.
		Henry III., of Winchester, 1216-1272; son of John; coronation secured by the English party.		Emperor placed under the ban by Gregory IX., 1227			
		William Marshall regent, 1216-1219.		Battle of Bornhövede, 1227. Danes are decisively defeated.			Robert, Latin emperor, 1221-1228.
		French fleet defeated off Thanet.	Louis IX. (St. Louis), 1226-1270.	Crusade of Frederick II., 1228-1229.	Children's Crusade, 1212; thousands of French and German boys, many of whom died on the way, many sold into slavery.	Waldemar II. of Denmark and his son captured (1223) by Henry, count of Schwerin, and imprisoned for three years in the castle of Danneborg, Hanover.	Ogdai, son of Genghis Khan, Mongol emperor in China, 1227-1241.
	Zinc mentioned by European writers, 1231.	Louis gives up contest and returns to France.		Papal (key) troops driven by Frederick from his dominions, 1229.			
		Magna Charta twice reissued in a modified form.	Blanche, mother of Louis, regent during his minority; quelled revolt of the barons.	Peace with the pope at San Germano; ban removed, 1230.	Fifth Crusade, 1216-1220; Jerusalem regained for a short time; leader, Frederick II., emperor of the West.	Waldemar of Denmark obtained release from imprisonment by the count of Schwerin, by renunciation of his conquests south of the Elbe and in the Slavic countries and by payment of a large ransom.	John of Brienne, Latin emperor, 1229-1237.
		Death of William Marshall.		Legislation of Frederick in his Sicilian kingdom, 1230-1240; feudal relations regulated; representation of the cities.			
		England governed by Peter des Roches, Pandulf the papal legate, Hubert de Burgh the justiciary, and Archbishop Langton.		Rebellion of King Henry, in alliance with the Lombard cities and the lower German nobility, 1234.	Crusade of Andrew II., king of Hungary, 1217; without result.		Ferdinand III., Leon, and Castile, 1230-1252.
	Gunpowder first used in cannon by the Chinese, 1234.	Second coronation, 1220.	Inquisition as regular tribunal established by Pope Gregory IX.	Henry submits; imprisoned.			Fall of the Kin dynasty in China, 1232.
		Langton superseded Pandulf as legate, 1221.		Reconciliation with the Welfs.			
		Third reissue of the charter, 1223.		Diet at Mainz.			
			County of Toulouse between the Rhone, the sea, and the Pyrenees, acquired, 1229.	Enactment of a public peace; first law published in German as well as in Latin.	Egypt unsuccessfully attacked (1218-1221) by John of Brienne, "king of Jerusalem."		Baldwin II., Latin emperor, 1237-1261.
	Church of San Antonio, at Padua, built, 1237-1307.	Beginning of Henry's personal government, 1227.		Successful campaign against the Lombards, 1236.		Renunciation of Waldemar of Denmark annulled by the pope.	Retreat of Moors to Granada, 1238.
			Unsuccessful wars in France, 1232.	Frederick the Warlike of Austria, a follower of the rebel Henry, deposed and put under the ban, 1236.			Kiev devastated by the Mongols, 1239.
			Sancerre, Chartres, Blois, ceded by Theobald of Champagne and Navarre, 1234.	Diet at Speier, 1237.	Frederick II. goes by sea to Acre; receives from sultan Kameel (El Kámil) Jerusalem (where he crowned himself), Nazareth, a strip of land to the coast, and Sidon, on condition of a ten years' truce, 1229.	Battle of Bornhœved (Bornhövede), 1227; Waldemar of Denmark defeated in his attempt to regain Holstein.	
		Fall of Hubert de Burgh, 1232; of Peter des Roches, 1234.		Conrad, second son of the emperor, crowned German king, 1237.			
				Battle of Cortenuova, 1237.			
	Wall tiles, domestic pottery, and vases mentioned in a charter of James I. of Aragon to the Saracens of Xativa, 1239.	Great council henceforward called Parliament.	Macon purchased, 1239.	War of Frederick II. with Popes Gregory IX. and Innocent IV., 1239-1250.		Kingdom of Denmark divided among Waldemar's three sons, Abel receiving Schleswig.	Mongols defeat the Germans in the battle of Wahlstatt, 1241; then ravage Hungary.

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A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1200	A pharmacopœia and a list of equivalent drugs published by Nicholas Præpositus, 1240-1250.	Enormous sums of money exacted by the pope.	War with the nobles and their ally, Henry III. of England, 1242-1243; Louis IX. victorious.	Frederick excommunicated, 1239.	Jerusalem captured by the Kharesmians, 1244.	Death of Waldemar II. of Denmark, 1241.	Novgorod becomes important as a commercial republic, in fact, almost independent of Russia, though continuing to assert allegiance; only part of Russia to withstand the invasions of the Mongols (1239); finally submitted.
	Cathedral of Siena, Italy, begun.	Only Aquitaine and Gascony of the French possessions of the Angevines retained by Henry.		Death of Gregory IX., 1241.		Civil war, strife for the succession, in Denmark,	
	Tiles first made by the English, probably about 1246.		Albigenses exterminated, 1244.	Flight of Innocent IV. (1243-1254) to Lyons.			
	The first concordance of the Bible made under Hugo de St. Caro, 1247.	Alexander III., Scotland, 1249-1285.		Emperor deposed by the pope.		Erik, king of Denmark, 1241-1250.	
	Arnolfo, Florentine architect (1232-1310), began abbey and church of Santa Croce, Florence.	Return of Simon of Montfort, earl of Leicester, from the government of Gascony, 1253.	Marriage of Charles of Anjou, the king's brother, and Countess Beatrice, 1246.	Spiritual princes elect Heinrich Raspe (1246-1247), landgrave of Thuringia.			
	Cotton cloth made by the Chinese, 1250.	Richard, of Cornwall, king of the Romans, 1256-1271.		Heinrich defeated at Ulm by Conrad; dies, 1247.	Sixth Crusade, 1248-1250; without result; leader, Louis IX of France (St. Louis).	Clergy become powerful in Sweden; forbidden to take oath of allegiance to the king, 1248; celibacy introduced.	
	The mariner's compass was known to the Swedes, 1250.	Parliament of Oxford, 1258.	(Sixth) Crusade of St. Louis, 1248-1250; Blanche regent.	William of Holland (1247-1256), second anti-king; no authority in Germany.	St. Louis captures Damietta, 1249; defeated by the Ayoubite sultan Toorán-sháh (Almoadan) on an expedition against Cairo, 1249; cut off from Damietta; captured with entire French army, April, 1250.	Folkunger dynasty, Sweden, 1250-1365.	
		Provisions of Oxford, a list of grievances presented by the barons.		Frederick defeated before Padua, 1248.		Waldemar, king of Sweden, 1250-1275; son of Birger Jarl.	Alfonso III., king of Portugal, 1248.
		War between the king and the barons, 1262; arbitration of Louis IX., 1264.		Battle of Fossalta, 1249.		Abel, king of Denmark, 1250-1252.	
		Provisions of Oxford annulled.		Treason (?) of Frederick's chancellor, Peter of Vinea, 1249.		Towns of Denmark began to send representatives to the council (Danehof).	
	Earliest complete clock made by a Saracen mechanic, probably about 1250.	War renewed.	Henry of England given Périgord, the Limousin, and southern Saintonge; renounced claim to Normandy, Anjou, Maine, Poitou, northern Saintonge, Touraine.	Death of Frederick II., 1250.	Treaty of peace delayed by overthrow of the Ayoubites by the Mamelukes.	Christopher, king of Denmark, 1252-1259.	Alfonso X., the Learned (1221-1284), king of Castile and Leon (1252-1282), author of the code of laws known as *Las Siete Partidas;* not officially promulgated as national law until 1348. The Alfonsine astronomical tables compiled under his direction.
		Battle of Lewes, 1264; Henry III. and his son Edward defeated.		Conrad IV., son of Frederick, 1250-1254 (anti-king; William of Holland).		War in Denmark concerning Schleswig, the king claiming it to have been a personal fief, the descendants of Abel, an hereditary fief.	
	The police system in London may be said to have begun about 1253.	Treaty (Mise of Lewes), 1264; native counselors presented; new council arranged by a parliament in which there were added to the clergy and nobility four knights from each shire.	Wager of battle prohibited.	Conrad fought for his realm in Italy since 1252.			
				Hanseatic League (union of seaports and cities between the Baltic and the Elbe), 1241-1669.			
	Rubruquis reaches Karakorum, the ancient seat of the Mongol empire, 1254.	Council of Nine.	Feudal jurisdiction limited.	Separate alliance between Lübeck and Hamburg.	St. Louis coasts along Palestine; fortifies Acre and other coast cities; returns to France, 1254.	Stockholm founded, 1255.	Lahore taken by the Moguls with great carnage, 1241.
	An association of French surgeons, Collége de St. Côme, organized by Jean Pitard, 1254.	Parliament of Simon of Montfort, January 20, 1265; first parliament to which representatives of the boroughs were called.		William of Holland slain in battle with the Frisians, 1256.		Large duchies assigned by Birger of Sweden to his other sons.	
		Edward released.	Right of appeal to the king from the feudal courts in all cases established.	Interregnum in Germany, 1256-1273.		Contention in Denmark with the Archbishop Jacob Erland.	
		War renewed.		Richard, earl of Cornwall (England), elected by a part of the princes; crowned at Aachen; recognized only along the Rhine.	Latin empire destroyed by Michael Palæologus of the Nicæan empire, 1261.	Erik Glippingsen, king of Denmark, 1259-1286.	End of caliphate at Bagdad, 1258.
		Battle of Evesham, August 4, 1265; Earl Simon defeated and slain.		Alfonso X. of Castile elected by the other princes; never came to Germany.		Norway made influential among European nations.	
		Death of Henry III., November 16, 1272.	Arles, Cahors, Foix, and Forcalquier acquired, 1262.	Manfred, son of Frederick II., chancellor of the two Sicilies for the minor king Conradin, son of Conrad IV.; later (1258), king.	A new crusade openly preached, 1263.	Iceland conquered by Norway, 1260.	Seat of government in China transferred to Pekin, 1264.
	Marco Polo visits central Asia, China, India, Persia, 1271-1295.	Edward I., Longshanks, 1272-1307; devotes a year to Gascony; crowned in England, 1274.		Charles of Anjou given the crown by the pope.	Mohammedans take Antioch, 1268.	Submission of Greenland to Norway.	
				Battle at Beneventum, 1266; Charles of Anjou conquers and slays Manfred.		Haakon of Norway defeated in expedition against Scotland; died, 1262.	Byzantine empire restored by the Palæologi, 1261-1453.
	St. Peter's College, Cambridge, founded by Hugh de Balsham, 1284.	Court separated (1275) into three tribunals: Exchequer, King's Bench, Common Pleas.	Second (seventh) crusade and death of St. Louis, 1270.	Charles of Anjou king of Naples and Sicily.	Seventh Crusade, 1270; without result; leader, Louis IX. of France (St. Louis).	Magnus Lagabœter, son of Haakon IV., king of Norway 1262-1280.	Michael VIII., Byzantine emperor, 1261-1282.
							Andronicus II., Byzantine emperor, 1282-1328.

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A. D.	Discoveries, Arts, Crafts.	England.	France.	Italy and Germany.	Crusades.	Scandinavia.	Other Countries.
1200	Andrea da Pisa, Italian architect (1273-1349), designed castle of Scarperia, and the bronze doors of the Baptistry at Florence.	Financial, legal, and legislative reforms. England's first commercial treaty signed with the Flemings, 1272. Conquest of Wales, 1276-1282.	Philip III., le Hardi (the Rash), 1270-1285. Philip IV., le Bel (the Fair), 1285-1314. Civil (Roman) law introduced and developed. Ecclesiastics ineligible to parliament, 1287.	Conradin accompanied Frederick of Baden (Frederick of Austria) to Italy; defeated on Lago di Celano, 1268; put to death at Naples.	Nazareth captured by Prince Edward (later king Edward I.) of England, 1271.	The Hebrides and Isle of Man ceded to Scotland by Norway. New code of Norwegian laws collected and published, 1264-1279. Death of Birger Jarl of Sweden, 1266.	Henry Crassus, king of Navarre, 1270. The Mongol or Yuen dynasty established in China, 1275.
	Florence Academy of Fine Arts founded, 1270. Velvet was known probably as early as 1272.	Prince Llewellyn forced to cede the coast as far as Conway, 1277.		Genoa powerful under Doria, 1270-1284.		Waldemar, king of Sweden, imprisoned (1275) by his brother Magnus, duke of Södermanland.	Missionaries introduced into China by Marco Polo, 1275. Nicholas III., 1277-1280.
	First English gold coin struck, probably about 1275. Cathedral of Strassburg, Germany, nave finished, 1275. Clock placed in the old palace yard, London; it remained until the 16th century.	Llewellyn and his brother David rebel, 1282. Death of Llewellyn, 1282. David hanged, drawn, and quartered, 1283. Wales annexed to England, 1284. Title "Prince of Wales" hereafter given to heir of the crown. Over 16,000 Jews expelled from England, 1290.	Edward I., of England, renounces his claims to Normandy and receives 10,000 livres from Philip. Strife between English and Norman sailors, 1292-1293. La Rochelle sacked. Edward I. of England surrenders Guienne to Philip as security. Edward's fiefs declared forfeited.	Rudolf of Hapsburg, 1273-1292. Ottocar of Bohemia defeated in the battle of Marchfeld, 1278; the result was the establishment of the Hapsburg dynasty in Austria.	At Tunis, Louis IX. and the greater part of the army are victims of disease.	Magnus, king of Sweden, 1279-1290. Erik, priest-hater, king of Norway, 1280-1299. War between Denmark and Norway over dowry of Ingeborg, mother of Erik of Norway.	Peter III., king of Aragon (1276-1285); conquers Sicily, 1282. Reign of Diniz or Dionysius I. in Portugal, 1279-1325; "the father of his country"; he built 44 cities or towns. Sancho IV., king of Leon and Castile, 1284-1295.
	Spectacles said to have been invented about this date by Salvinus Armatus of Pisa, 1280. The "great conduit," the first cistern of lead in London, built, 1285. Clock costing £30 put up at Canterbury cathedral, 1292. Roger Bacon said to have been familiar with the magnet's property of pointing to the north, 1294. The camera-obscura said to have been constructed by Roger Bacon.	Baliol, heir to Scottish throne, becomes king of Scotland, 1292. Revolt of Madoc in Wales, 1294. War with France, 1294. War with Scotland, which joined France. Berwick captured, 1296. Scots defeated at Dunbar, 1296. Crown resigned by Baliol, 1296. Scotch coronation stone carried to London, 1296. Scots under Sir William Wallace revolt, 1296-1298. Barons refuse to follow Edward to Flanders, 1297. Reissue of the Great Charter and the forest charter, 1297. Truce with France, 1298. Scotland invaded by Edward, 1298. Battle of Falkirk, 1298; defeat of Scots. Appeal to the pope, who claimed suzerainty over Scotland.	England (1292-1297) defeated in Gascony and Flanders. Quarrel with Pope Boniface VIII., 1296-1304. Ecclesiastical property taxed. The Flemings defeated at Furnes, 1297. Peace with England concluded, 1299. Flanders annexed to France.	Papal states recognized by the emperor Rudolf of Hapsburg, 1278. Sicilian vespers, 1282; all the French in Sicily massacred. Naval power of Pisa destroyed by Genoa, 1284-1299. Peter of Aragon king of Sicily; Charles of Anjou limited to kingdom of Naples. Boniface VIII., 1294-1303.	Mamelukes storm Acre (Ptolemais), 1291. Christians abandon their last possessions in Palestine (Berytus, Sidon, Tyre), 1291.	War (1284-1285) between Norway and the Hansa towns. Erik of Norway defeated. Erik Menved, king of Denmark, 1286-1319. The queen mother regent in Denmark, 1286. Birger, son of Magnus, king of Sweden, 1290-1319. Torkel regent in Sweden, 1290-1306. Haakon V., king of Norway, 1299-1319.	Joanna of Navarre marries Philip the Fair of France, 1284. Crown of Navarre united to that of France, 1284-1328. Margaret of Scotland, 1285-1290. The last sultan of the Afghan slave dynasty assassinated, and sultan Jelal-ud-din ascends the throne, 1290. League of the Forest Cantons, Switzerland, 1291. James II., king of Aragon; surnamed the Just, 1291. Ferdinand IV., king of Leon and Castile, 1295-1312.

Fourteenth Century to the Invention of Printing, 1300-1450 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	The East.
1300	Paper made from rags, 1300. Glass mirrors first made at Venice, 1300. Introduction of Arabic figures into England, about the year 1300. Oldest known Chinese work treating of ceramic art, 1325. Glass windows, 1345. First gold wire made in Italy, 1350. William de Wykeham, English architect, flourishes. Built New college, Oxford; rebuilt part of Winchester cathedral; and planned a portion of Windsor castle, 1375.	Bruce, king of Scotland, 1306-1329. Edward II., 1307-1327. Bannockburn, 1314. Edward II. deposed and murdered, 1327. Edward III., 1327-1377. Mortimer and Queen Isabella rulers until 1330. Peace of Northampton. David II., Scot., 1329-1370. Edward III. claims the French crown. Baliol seizes crown of Scotland, 1332. War renewed, 1332-1363. David Bruce gains Scottish throne, 1341. Battle of Neville's Cross, 1346; Crécy, 1346. Black Death, 1348-1349. Battle of Poitiers, 1356. Peace of Bretigny, 1360. Robert II., Scotland, 1370-1390. Black Prince dies, 1376. Richard II., 1377-1399. Tyler's rebellion, 1381. Robert III., Scotland, 1390-1406. Richard II. deposed and imprisoned, 1399. House of Lancaster, 1399-1461.	Quarrel between Philip IV. and the pope renewed, 1301-1305. Parliament of Paris, 1302-1771. Papal residence removed to Avignon, 1309-1376. Order of Knights Templars abolished, 1312. Louis X., the Quarrelsome, 1314-1316. Philip V., the Tall, 1316-1322. Charles IV., 1322-1328. House of Valois, 1328-1498. Philip VI., 1328-1350. Hundred Years' War with England, 1339-1453. English victory at Sluys, 1340. Calais captured by English, 1347. John II., the Good, 1350-1364. Charles V., 1364-1380. Du Guesclin, constable of France, 1370. Charles VI. (1380-1422) king when 11 years old; being seized with madness, the dukes of Burgundy and Berry are regents, 1392.	Henry VII., 1308-1313. Conflict for 12 years between Ludwig of Bavaria (1314-1347) and Frederick the Fair of Austria (1314-1330) for the crown of the Holy Roman Empire, at the end of which time they are joint sovereigns until the death of Frederick. The Swiss Cantons rebel against the claims of Austrian supremacy; battle of Morgarten (1315); Swiss independence. Emperors of the Luxemburg-Bohemian line, 1347-1437. Charles IV., 1347-1378. Persecution of the Jews, 1349. The Golden Bull of Charles IV. made the fundamental law of the empire, 1356.	Osman I. founded the supremacy of the Osman (Ottoman) Turks in Asia Minor about 1300. Urchan, son of Osman I., 1326-1359. Tamerlane, 1336-1405. Murad I., 1359-1389. Adrianople residence of the sovereigns, 1365. Bajazet I., son of Murad I., 1389-1403. Battle at Nicopolis, 1396; Bajazet victorious over the allied French, Hungarians, and Poles.
1400	Beginning of the period of the "Renaissance," culminating with Michelangelo and Raphael. Prince Henry, of Portugal, encourages Portuguese voyages of discovery, 1415-1460. London streets paved, 1453.	Henry IV., 1399-1413 Battle of Shrewsbury, 1403. Prince James of Scotland captured, 1405. Henry V., 1413-1422. War with France, 1415-1420. James I., Scotland, 1423-1437. Henry VI., 1422-1461. Wars between England and Scotland, 1434-1436.	Henry V. of England captures Harfleur, and wins the battle of Agincourt (1415). Rouen captured (1417); treaty of Troyes (1420); Henry marries daughter of Charles VI. and becomes regent and heir of France. Charles VII. (1422-1461), at first recognized south of the Loire only; in the north, Henry VI., infant son of Henry V., is acknowledged king, the duke of Bedford regent. Siege of Orleans (1428); raised by Joan of Arc (1429); Charles crowned at Rheims (1429). Joan of Arc burned at Rouen, 1431.	Wenzel, eldest son of Charles IV. (1378-1400), deposed, 1400. Rupert, count palatine, 1400-1410. Sigismund, 1410-1437. Council of Constance, 1414-1418. John Huss burned, 1415. Hussite War, 1419-1436. Battle of Prague, 1420. Emperors of the House of Hapsburg, 1438-1740. Albert II., son-in-law of Sigismund, 1438-1439. Frederick III., last emperor crowned at Rome, 1442-1493. Printing practised by Gutenberg, 1450.	Battle at Angora, 1402. Bajazet I. defeated and captured by Timur Lenk (Tamerlane). Death of Bajazet I. in Tamerlane's camp, 1403. Mohammed I., 1413-1421. Murad II., 1421-1451. Mohammed II., 1451-1481. Conquest of Constantinople by Mohammed II., 1453; Eastern Empire destroyed.

From the Invention of Printing to the Reformation, 1450-1517 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	America.
1450	Cut metal type invented by Gutenberg of Mentz, 1450. Cast metal type first used, 1450. First certain date of copper-plate engraving, 1461; said to have been known in Germany, 1450. Arquebus, an old form of hand firearm, in use, 1465. Gunther Zainer introduces printing in Augsburg, 1468.	Cade's rebellion, 1450. Wars of the Roses (Red Rose of Lancaster, White Rose of York), 1455-1485. Battle of St. Albans, 1455. Battle of Bloreheath, 1459. Battle of Northampton, 1460; York victorious. Battle of Wakefield, 1460. Battle of Mortimer's Cross, 1461. Second battle of St. Albans, 1461. House of York, 1461-1485. Edward IV., 1461-1483. Battle of Towton, 1461. Hedgeley Moor and Hexham, 1464. Battle of Stamford, 1470. Battle of Barnet, 1471. Battle of Tewkesbury, 1471. Death of Henry VI. in the Tower, 1471.	English expelled from France, 1453. Louis XI., 1461-1483. Pragmatic Sanction of Charles VII. revoked. Conspiracy of League of Public Weal (1464); battle of Montlhéry; treaty of Conflans, 1465. Edward IV. of England, in alliance with Burgundy, invaded France, 1475. Bayard, 1476-1524. War of Charles the Bold with the Swiss cantons. Charles the Bold defeated in the battles of Granson, 1476; Murten (Morat), 1476; defeated and slain in battle of Nancy, 1477.	Wars with France caused by the marriage (Aug. 18, 1477) of Frederick's son, Archduke Maximilian, with Mary, daughter and heiress of Charles the Bold, duke of Burgundy. Duchy of Burgundy lost to France, 1477. War with the Netherlands.	

Fourteenth Century to the Invention of Printing, 1300-1450 A. D.

A. D.	Spain and Portugal.	Italy.	Russia.	Scandinavia.	Other Countries.
1300	Peter IV., king of Aragon, 1336-1387; suppressed the power of the nobles. In Castile, war between Peter the Cruel (1350-1369) and his brother, Henry of Trastamara (1369-1379); Peter aided by England, Henry by France. Peter the Cruel of Castile defeated and slain by his brother Henry, 1369. The Schism, 1378. Legitimate line of Burgundy in Portugal became extinct, 1383. Illegitimate Burgundian line in Portugal, 1385-1580. John of Gaunt in Spain, 1386. Ceuta and Tangiers captured by Portugal. Voyages and discoveries under the patronage of the Infant, Henry the Navigator (1394-1460) of Portugal.	Dante Alighieri banished from Florence, 1302. Milan under the Visconti as imperial viceroys from the time of the emperor Henry VII., 1308-1313. Death of Dante Alighieri at Ravenna, September 14, 1321. Struggle of Venice and Genoa, 1350-1381. Conspiracies in Venice; the doge Marino Falieri executed, 1355; the Council of Ten. Tyrants in Italy, 1364-1380. Naples under the elder line of Anjou until the death of Joan I., 1382; under the younger (Durazzo) until the death (1435) of Joan II., 1386-1435. Decline of Genoa. Venice powerful. Corfu acquired by Venice, 1387. Florence powerful. Milan under the Visconti as dukes since 1395.	Kiev conquered by the Lithuanians, 1320. Moscow the national center. War with the Tatars, 1380. Moscow burned, 1388. Tamerlane invades Russia, 1395.	Magnus Smek, king of Sweden, 1320-1363; of Norway, 1320-1350. Christopher II., king of Denmark, 1320-1334; driven out by Geert, count of Holstein, but returns. Waldemar IV., king of Denmark, 1340-1375. Haakon VI., king of Norway by his father's gift, 1350-1380. Copenhagen plundered by the Hanseatic League. Albert of Mecklenburg, king of Sweden, 1365-1388. Olaf, king of Denmark, 1375-1387; his mother, Margaret, regent; king of Norway, 1380-1387. Margaret, queen of Norway and Denmark, 1387; and of Sweden, 1388-1397. Union of Calmar, 1397; uniting Norway, Sweden, and Denmark. Erik, king, 1412-1439. Danes renounce allegiance, 1438; and the Swedes in 1439. Flight of Erik to Gothland, 1439. Christopher of Bavaria elected by the Danes, 1439-1448. Union of Calmar broken by Sweden after the death of Christopher, 1448. Christian I., king of the Union, 1448-1481.	Woo-tung, emperor of China, 1307-1311. Jin-tsung, emperor of China, 1311-1320. Hojo family in Japan exterminated, 1333. Casimir the Great of Poland, 1333-1370; made Poland a power in Europe. Swiss Confederation, 1351. Hung-woo (1368-1398), founds the Ming dynasty in China. Louis the Great of Hungary, 1370-1384; period of Poland's greatest power. Turks buy off the Mongols from the Punjab. Winkelried at Sempach, 1386. Poland and Lithuania united by Hedvige's marriage with Jagellon (Vladislav II.), 1386-1434. House of Luxemburg in Hungary, 1387-1437. Tartary subjugated by China. Yung-lo, emperor of China, 1403-1425. Famous battle of Grunwald or Tannenberg, 1410. Polish victory over Teutonic knights. Philip the Good, duke of Burgundy, 1419-1467. Vladislav III., king of Poland (1434-1444), defeated and slain by the Turks at Varna.
1400	Alphonso V., of Aragon and Naples, 1416-1458. Porto Santo and Madeira discovered by Portuguese, 1418-1419; Cape Verde, 1445; Azores, 1447.	Medici family acquired princely rank in Florence about 1400. Sicily again united with Aragon, 1409. Naples conquered by Alfonso V. of Aragon, 1435. Venice, the three terrible state inquisitors, since 1439. Line of the Visconti in Milan became extinct, 1447. Milan a republic; power seized by Francesco Sforza (husband of a daughter of the last Visconti), who became duke of Milan, 1450.			Vladislav Postumus, king of Poland with John Hunyadi regent, 1444-1458. Ching-tung, emperor of China (1436-1465), captured by Tatars, 1450. Swiss confederacy practically independent, after the victory over the Germans at Ragaz, 1446.

From the Invention of Printing to the Reformation, 1450-1517 A. D.

A. D.	Spain and Portugal.	Italy.	Russia.	Scandinavia.	Other Countries.
1450	Marriage (1469) of Ferdinand the Catholic of Aragon (1479-1516) and Isabella of Castile (1474-1504), before either ascended the throne. Ferdinand and Isabella joint rulers, 1479-1504.	Ferdinand I., king of Naples, 1458. Death of Cosimo (Cosmus) de' Medici, "father of his country," 1464.	Ivan III., the Great, 1462-1505; founder of the united monarchy.	Danes elect Christian of Oldenburg, while the Swedes elect Charles Knutson. Charles compelled to resign Norway to Denmark. Charles Knutson loses Sweden through an insurrection, 1457. Christian I. crowned king of the three kingdoms, but obliged to contend with Charles Knutson for the throne of Sweden, and, after the death of Charles, with Sten Sture, to whom had been committed the administration of the kingdom of Sweden, 1470.	Constantinople taken, 1453. Turks defeated at Belgrade by John Hunyadi of Hungary, 1456. Hungary powerful. Matthias Corvinus, king of Hungary, 1464-1490. Ching-hwa, emperor of China, 1465-1488. Peace of Thorn (1466) ended war between Prussia and Poland. Poland's greatest extent. First regular assembly of the states-general in the Netherlands, 1477; followed by the "Groot Privilegie" or Magna Charta of Holland.

From the Invention of Printing to the Reformation, 1450-1517 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	America.
1450	Caxton's press in England, 1474.	Edward V., April-June, 1483. Richard, duke of Gloucester, regent.	Death of Louis XI., 1483.	Frederick III., at war with Matthias Corvinus, king of Hungary, driven from Austria; restored by Maximilian after the death (1490) of Corvinus.	Landing of Columbus on Guanahani, one of the Bahama Islands, Oct. 12, 1492; Cuba, Oct. 28.
	Printed musical notes first used, 1476.	Richard III., 1483-1485.	Extinction of the House of Anjou.		First colony (Navidad) on Haiti.
	Watches first made at Nuremberg, 1477.	Murder of the princes in the Tower, 1483.	Charles VIII., 1483-1498.		Second voyage of Columbus, 1493-1496.
	A kind of large pistol, called the "petronel," came into use, 1480.	Battle of Bosworth Field, 1485.	Charles marries Anne of Brittany, 1491.	Death of Frederick III., 1493.	Land—Prima Vista, Cape Breton Island (?), Newfoundland (?)—discovered by John and Sebastian Cabot, 1497.
		House of Tudor, 1485-1603.			South America discovered by Vespucci, 1497.
		Henry VII., 1485-1509.		Maximilian I., 1493-1519; first took the title of "Roman emperor elect."	Third voyage of Columbus, 1498-1500.
		Battle at Stoke, 1487.	Houses of Orléans and Angoulême, branch line of house of Valois, 1498-1589.		Second voyage of Vespucci, 1499-1500.
		James IV., of Scotland, 1488-1513.	Louis XII., 1498-1515.	Diet of Worms, 1495; perpetual public peace.	Columbus accused at court, sent in chains to Spain (1500), but released immediately upon his arrival, and treated with distinction.
		War with France caused by the annexation of Brittany by Charles VIII., 1491.	Naples conquered (1501) by Louis XII.	Aulic Council established, 1501.	Newfoundland discovered by Cortereal, 1500.
1500	The clock first made use of in astronomy, 1500?	Henry VIII., 1509-1547.	French defeated on the Garigliano, 1504.		Voyage of Vespucci under a Portuguese commander, 1501.
	First coach brought from Scotland to France, 1501?	War with France, 1512-1514.	Holy League formed (1511) by Venice, Ferdinand, and the pope, to drive the French from Italy.	League of Cambray (1508) between Maximilian, Pope Julius II., Ferdinand the Catholic, and Louis XII., against Venice.	Fourth and last voyage of Columbus, May 11, 1502-Nov. 7, 1504.
	Sugar refining introduced into Europe by a Venetian, 1503.	Battle of Guinegate, France, 1513; Henry VIII. and Emperor Maximilian victorious.	Battle of Novara; French defeated by the Swiss.		Columbus shipwrecked at Jamaica, 1503.
	English shillings first made, 1503-1504.		Peace with the pope, Spain (1513), the emperor, and Henry VIII., 1514.		Death of Columbus at Valladolid, 1506.
	Discovery of Madagascar by the Portuguese, 1506.	Battle of Flodden Field, 1513; James IV. of Scotland (allied with France) defeated and slain.	Francis I, 1515-1547.	Pope's withdrawal from League of Cambray.	Florida explored by Juan Ponce de Leon, 1512.
	Solis, Spaniard, reaches La Plata, 1516.	James V., of Scotland, 1513-1542.	Swiss defeated and Milan reconquered by the victory of Marignano, 1515.	Diet of Cologne, 1512.	Pacific ocean discovered by Vasco Nuñez de Balboa, 1513.
		Thomas Wolsey made cardinal and chancellor, 1515; papal legate, 1517.	Treaty of Geneva, 1515. Treaty of Fribourg, 1516.	Maximilian joins the Holy League against France, 1513.	
			Concordat with the pope, 1516.		

From the Reformation to the Abdication of Charles V., 1517-1556 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	America.
1517		Henry VIII. given title "Defender of the Faith," by Pope Leo X.	Meeting of Francis I. and Henry VIII. near Calais, 1520; "Field of the Cloth of Gold."	Beginning of the Reformation, 1517.	Hudson Bay discovered by Sebastian Cabot, 1517
	Circumnavigation of the globe by Magellan's expedition, Sept. 20, 1519-Sept. 6, 1522.	Wolsey sentenced; pardoned; died, 1530.	Order of Jesuits founded by Ignatius Loyola, 1534.	Luther's ninety-five theses nailed upon the church at Wittenberg, 1517.	Cortez, Spaniard, conquers Mexico, 1519-1521.
		Henry's divorce from Catharine of Aragon pronounced by Cranmer, Archbishop of Canterbury; annulled by the pope.	Wars with Charles V.	Charles V., 1519-1556.	
	The musket said to have been used in the armies of Charles V., 1521.	Henry VIII. married Anne Boleyn, Jan. 25, 1533; excommunicated.	Political rights of the Parliaments restricted.	Luther excommunicated, 1520.	
		Act of Supremacy, 1534.		Diet of Worms, 1521.	
	Insurance policies first used in Florence, 1523.	Reformation in England.	Calvin at Paris, 1532-1534.	Ban of the empire pronounced against Luther.	Magellan Strait sailed through by Magellan, 1520.
		Mary, queen of Scotland, 1542-1567.		First war of Charles V and Francis I., 1521-1526.	
	Manufacture of soap begun in London, 1524.	Ireland made a kingdom, 1542.	Brittany annexed to France, 1532.	Battle of Pavia, 1525.	De Soto discovered the Mississippi River, 1528.
		Battle of Solway Moss, 1542.	Protestants persecuted.	Peasants' War, 1525.	
	Ballot box said to have been used in electing aldermen in London, 1526.	France invaded, 1545.	Death of Francis I., 1547.	War with the Turks, 1526-1532.	Pizarro conquers Peru, 1532-1533; rules, 1533-1536.
		Edward VI., 1547-1553.	Henry II., son of Francis I., 1547-1559.	Louis II., king of Hungary, slain in battle of Mohacs, 1526.	
	Spinning wheel invented by Jergens, 1530.	Mary the Catholic, 1553-1558.	Growing power of house of Guise.	Second war of Charles V. and Francis I., 1527-1529.	
			War with Charles V., 1552.	Peace of Cambray, 1529.	
	First portable clock made, 1530?	Catholic bishops restored.		Diet at Augsburg, 1530.	Canada discovered by Jacques Cartier, 1534.
		Execution of Lady Jane Grey (1554) and her husband.		Peace of Nuremberg.	
		Protestants persecuted, 1555.		Fourth war of Charles V. and Francis I., 1542-1544.	
		Cardinal Pole, Archbishop of Canterbury and papal legate, 1556.	Bishoprics of Metz, Toul, and Verdun seized.	Peace of Crespy, 1544.	
				Council of Trent, 1545-1563; not attended by Protestants.	
				Battle of Mühlberg, 1547.	
				Peace of Augsburg, 1555.	
				Abdication of Charles V. at Brussels, 1556.	

From the Invention of Printing to the Reformation, 1450-1517 A. D.

A. D.	Spain and Portugal.	Italy.	Russia.	Scandinavia.	Other Countries.
1450	Spanish inquisition, 1481-1525. Conquest of Granada (capital of the last Moorish kingdom in the peninsula), Jan. 2, 1492. Golden Age of Portugal. Acquisitions in America for the crown of Castile. That part of world not possessed by any Christian prince divided between Spain and Portugal by a bull of Pope Alexander VI., 1493. Emanuel the Great of Portugal, 1495-1521. Discovery of the ocean route to the East Indies by Vasco de Gama, 1498.	Cyprus given to Venice by Catharine Cornaro, 1489. Alexander VI., pope, 1492-1503. Death of Lorenzo de' Medici, 1492. Invasion by Charles VIII. of France, 1494. Peter de' Medici driven from Florence. Savonarola excommunicated; executed, May 23, 1498.	Republic of Novgorod subjugated, 1478. Mongol supremacy in Russia overthrown by Ivan Vasilovitch, 1480.	Sten Sture, administrator of Sweden, 1470-1520. Battle of Brunkeberg; Christian defeated, 1481. Death of Christian I., 1481. Succession of John of Denmark (1481-1513). Union of Calmar renewed (1483), but John could never establish himself firmly in Sweden. Birth of Gustavus Vasa, 1496.	Hung-che, emperor of China, 1488-1506. Hungary and Bohemia united under Ladislaus II., 1490-1516. Philip the Handsome, sovereign of the Netherlands, 1493-1506. Ching-tih, emperor of China, 1506-1522.
1500	Conquest of Cuba, 1500. Conquest of Naples for the crown of Aragon, 1501-1504. Death of Isabella, 1504. Conquests on the coasts of Barbary, 1505-1510. Treaty of Villafafila: Philip regent, 1506. Death of Philip, 1506. The League of Cambrai, 1508-1509. Ferdinand again regent Holy League against France, 1511-1513. Conquest of Navarre, 1512-1515. Death of Ferdinand, 1516. Charles I. (V.), 1516-1556.	Naples conquered by Louis XII. of France and Ferdinand the Catholic, 1501-1504. Julius II., pope, 1503-1513. Naples an appanage of Spain since 1504. The Medici restored in Florence by victory of the Holy League, 1512. Leo X., pope, 1513-1521.	Ivan IV., Russian czar, 1533-1584.	Christian II., king of Denmark and Norway (1513-1523), seeks allies for the purpose of reducing Sweden.	Louis II., last king of Hungary and Bohemia, 1516-1526.

From the Reformation to the Abdication of Charles V., 1517-1556 A. D.

A. D.	Spain and Netherlands.	Italy.	Scandinavia.	India.	Other Countries.
1517	Revolt in Castile suppressed; absolute monarchy established, 1518-1522. Charles I. of Spain, king of Germany and emperor-elect, as Charles V., 1519-1556. Reformation in the Netherlands, 1521-1555: severe measures for repression instituted 1523. Persecution and extermination of the Moors in Spain, 1524. The Pragmatic sanction, 1549. Abdication of the throne of the Netherlands by Charles V.; the accession of Philip II., 1555.	Medici a second time expelled from Florence, 1527. Genoa freed from French supremacy (1529) by Andrea Doria, who gave the republic a new constitution. Alexander de'Medici appointed hereditary ruler in Florence by Charles V., 1530. Cosimo (Cosmus) de' Medici, duke of Florence, 1537. Inquisition established by Pope Paul III., 1542. Unsuccessful conspiracy of Fiesco in Genoa, 1547. Pope Paul IV. (Caraffa), 1555-1559.	War waged upon Sten Sture by Trolle, who was captured, 1517. Christian II. and French allies repulsed near Brännkirka, 1518. Massacre of Stockholm, 1520. Successful insurrection by Gustavus Vasa, 1521-1523. House of Vasa in Sweden, 1523-1654. Gustavus I., Vasa, king of Sweden, 1523-1560. Throne of Sweden made hereditary. Christian II. deposed. Frederick I. (his uncle), king of Denmark and Norway, 1523-1533. Union of Calmar dissolved, 1523. Denmark and Norway united. Spread of Reformation. Feuds of the counts in Denmark, 1533. Christian III., son of Frederick I., king of Denmark, 1536-1559.	Mughal (Mogul) Empire, 1526-1761 (1857). Battle of Panipat, 1526; sultan of Delhi defeated by Babar, a descendant of Tamerlane. Rajputs of Chittor defeated, 1527. Humayun, son of Babar, 1530-1556. Sher Shah, Afghan ruler of Bengal, expelled Mughals from India. Return of the Mughals under Humayun's son Akbar, 1556. Afghans defeated by the Mughals at Panipat, 1556.	Soliman II., the Magnificent, sultan of Turkey, 1520-1566. Turks at war with the Hungarians, 1521-1526. Portuguese established at Macao, China, about 1522. Battle of Mohács, August 29, 1526. Turks at war with Charles V., 1526-1532. Rival kings of Hungary, 1527. Turks before Vienna 1529. After 1541 Hungary divided into three parts. Tatars under Yen-ta invade China in the reign of Kea-tsing, 1542. Japanese fleet harasses the coast of China.

Abdication of Charles V. to the Assassination of Henry IV. of France, 1556-1610 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	America.
1556	First step in photography—effect of light on horn silver observed by Fabricius, 1556. Tobacco brought into Europe possibly from Mexico, 1559. Copper mines discovered in England, 1561. Peaches brought from Persia into England, 1562.	Loss of Calais, 1558. Elizabeth, 1558-1603. Thirty-nine articles adopted, 1563. Abdication of Mary, queen of Scots, 1567. Drake sails around the world, 1577-1580. James VI., of Scotland, 1578-1625. Risings in Ireland, 1579-1580. Battle of Zutphen; death of Sir Philip Sidney, 1586. Babington conspiracy against Elizabeth, 1586. Mary, Queen of Scots, beheaded, 1587. Defeat of the Spanish Armada, 1588. Rebellion in Ireland, 1597.	War with Philip II. of Spain, 1556-1559. Francis II., 1559-1560. Charles IX., 1560-1574. Catharine de' Medici regent. Wars of the Huguenots, 1562-1598. Night of St. Bartholomew, 1572. Henry III., 1574-1589. Holy League, 1576. War of the Three Henrys, 1585-1589. House of Bourbon, 1589-1792. Henry IV., 1589-1610. Battle of Ivry, 1590. Edict of Nantes, 1598.	Ferdinand I., emperor, 1556-1564; king of Hungary and Bohemia since 1526. Constant warfare over Hungary, a great part of which was lost to the Turks Maximilian II., 1564-1576. War with the Turks and with Zapolya, prince of Transylvania. Death of Sultan Soliman II. before Sigeth, 1566. Truce with Selim II., 1566. Reaction against Protestantism. Rudolf II., 1576-1612.	Slaves brought by the English to America, 1563 Frobisher's voyages, 1576, 1577, 1578. Drake touches the west coast of North America and claims the country between 38° and 42° N. for England, 1579. Sir H. Gilbert claims Newfoundland for England in right of the discovery by the Cabots, 1583. Raleigh's settlement on Roanoke Island, 1585; expedition to Guiana, 1595.
1600	Forks in use on Continent about 1600 Dutch reach Australia, 1601. Silk cultivated in England, 1604. The telescope introduced into England, 1608.	House of Stuart, 1603-1649. Union of the crowns of England and Scotland James I. of England and VI. of Scotland, 1603-1625. Gunpowder plot, 1605. Pilgrims to Delft, 1609.	Henry IV. assassinated by Ravaillac, 1610.	Protestant Union (1608) led by Frederick IV., elector Palatine. Catholic League (1609) led by Maximilian, duke of Bavaria. Rudolf forced by his brother Matthias to cede Austria, Hungary, and Moravia.	Champlain sails up St. Lawrence, 1603; founds Quebec, 1608; discovers Lake Champlain, 1609. Port Royal, Nova Scotia, founded by French, 1605. Jamestown settled, 1607. Hudson skirts coast from Newfoundland to Chesapeake Bay; sails up Hudson River in search of a northwest passage, 1609.

From the Assassination of Henry IV. to the Death of Cromwell, 1610-1658 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	France.	Germany.	America.
1610	Logarithms invented by Napier, 1614. W. Baffin, of England, enters Baffin Bay, 1616. Napier perfects the theory of decimal fractions, 1617. First horses in Massachusetts. 1629-1630.	Weakening of loyalty by the unpopularity of James. Charles I., 1625-1648. Petition of Right, 1628. The Long Parliament, 1640-1653. Battle of Edgehill, 1642. Marston Moor, 1644. Naseby, 1645. Charles I. beheaded, 1649. Montrose beheaded, 1650. Commonwealth under Oliver Cromwell, 1653-1658.	Louis XIII., 1610-1643. Maria de' Medici, regent, 1610-1617. Cardinal Richelieu, 1624-1642. The French Academy founded, 1635. War with Spain, 1635. Louis XIV., 1643-1715. Cardinal Mazarin, 1643-1661. Disturbances by the Fronde, 1648-1653.	Matthias, 1612-1619. Thirty Years' War, 1618-1648. Ferdinand II., 1619-1637. Battle of Prague, 1620. Wallenstein, 1625-1634. Siege of Stralsund, 1628. Battle of Lützen, 1632. Ferdinand III., 1637-1657. Treaty of Westphalia, 1648.	St. Johns, N.F., settled. 1613. Dutch on Hudson, 1614. Pilgrims at Plymouth, 1620. Dover, N. H., settled, 1623. English in N. Scotia, 1624. Maine settled, 1625. Swedes in Delaware, 1627. Salem settled, 1628. Maryland settled, 1634. Connecticut settled, 1635. Providence settled, 1636. Delaware settled, 1638. Montreal founded, 1642. N. Carolina settled, 1653.

From the Death of Cromwell to the Death of Louis XIV. of France, 1658-1715 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	America.	France.	Germany.
1658	Versailles built, 1661-1687. Marquette and Joliet discover upper sources of Mississippi, 1673. Rebuilding of St. Paul's cathedral begun by Wren, 1675. La Salle sails on the Great Lakes, 1679; Father Hennepin sails up the Mississippi, 1680; La Salle takes possession of the valley for Louis XIV., and calls it Louisiana, 1682.	Richard Cromwell, protector, 1658-1659. Restoration of monarchy, Charles II., 1660-1685. Corporation act, 1661. Act of uniformity, 1662. War with Holland, 1665-1667. Great Plague in London, 1665. War with France, 1666-1667. Treaties of Breda, 1667. Declaration of Indulgence, 1672. Test act, 1673. Titus Oates plot, 1678. Habeas Corpus act, 1679. Whigs and Tories, 1679. Rye House plot, 1683. James II. king, 1685-1688. Monmouth's rebellion, 1685.	François de Laval, bishop of New France, 1659. South Carolina settled, 1659. Charter of Connecticut granted, 1662. Grant of Carolina to Earl of Clarendon, 1663. Charter of Rhode Island and Providence Plantation, 1663. Grant to James, duke of York and Albany, of the New Netherlands, from the Connecticut to the Delaware, 1664. New Amsterdam surrendered and name changed to New York, 1664. Acadia restored to France, 1667. Hudson Bay Company incorporated, 1670. Kingston, Canada, founded, 1673. King Philip's War, 1675-1678. Bacon rebellion in Virginia, 1676. La Salle in the West, 1678. New Hampshire separated from Massachusetts, 1680. Hennepin's discoveries on the Mississippi, 1680. Pennsylvania granted to William Penn, 1681.	Peace of the Pyrenees ends war with Spain, 1659. Louis XIV. assumes personal government on the death of Mazarin (1661). Colbert controls the finances, 1662-1683. War with Spain over the Netherlands, 1667-1668. Triple Alliance of England, Holland, and Sweden compels Louis to sign peace of Aix-la-Chapelle, 1668. War of conquest against Holland, 1672-1678. Peace of Nimeguen restores Dutch possessions and establishes peace of Europe, 1678-1679. Louis at the height of his power, 1680. Revocation of the Edict of Nantes, 1685.	Leopold I., emperor. 1658-1705. First war with the Turks (1661-1664) ended by a truce for twenty years. War of the empire against Louis XIV., 1674-1679. Second war with the Turks, 1682-1699. Hungarian conspiracy foiled, 1683. Vienna unsuccessfully besieged by the Turks, 1683. Turks defeated at Mohacs, 1687.

Abdication of Charles V. to the Assassination of Henry IV. of France, 1556-1610 A. D.

A. D.	Spain and Netherlands.	Italy.	Scandinavia.	India.	Other Countries.
1556	Philip II., 1556-1598. Moors and Protestants persecuted. War of liberation of Netherlands, 1568-1648. Battle of Lepanto, 1571. Pacification of Ghent, 1576. The Union of Utrecht, 1579. Independence of Netherlands declared, 1581. Spanish Armada, 1588. Philip III., 1598-1621.	Venice lost commercial supremacy through the discovery of sea route to India. Galileo Galilei (1564-1642) taught at Florence. Turks took Cyprus from Venice, 1573. Gregory XIII. (1572-1585) revised the calendar. Sixtus V. (1585-1590) suppressed the bandits in the papal states.	Erik XIV. of Sweden. John III. of Sweden. Augsburg Confession was received at Upsala, 1530. Christian III. (1534-1559) of Denmark and Norway, completes the work of the reformation. Frederick II. of Denmark and Norway, 1559-1588. Christian IV., of Denmark and Norway, 1588-1648. Sigismund of Poland in Sweden, 1593-1604. Charles IX., of Sweden, 1604-1611.	Akbar the Great of India, 1556-1605. Akbar's empire includes India north of the Vindhya Mountains, 1594.	Oki-Machi, mikado of Japan, 1558-1588. Turkish power declines after the death of Soliman II., 1566. Lung-King, emperor of China, 1567-1573. Poland seizes Livonia. Moscow burned by the Crim-Tatars, 1571. Poland an elective monarchy, 1572-1791. Rudolph elected king of Hungary, 1575. Western Siberia conquered by Russia. Jesuits ordered from Japan, 1588. Feodor (1584-1598), last sovereign of House of Rurik. Boris Godunoff chosen czar of Russia by the nobles (1598-1605). Christianity preached in China by Ricci, 1603. Iyeyasu (1603-1616), first Tokugawa shogun of Japan (1603-1868). Demetrius, the impostor, crowned in Russia, 1605. Revolt and civil war in Russia, 1606-1610. Moscow taken by Ladislas of Poland, 1610.
1600	Moors (500,000), expelled from Spain. Twelve years' truce with Holland, 1609.				

From the Assassination of Henry IV. to the Death of Cromwell, 1610-1658 A. D.

A. D.	Spain and Netherlands	Italy.	Russia.	Scandinavia.	Other Countries.
1610	Spanish-Netherlands War renewed, 1621. Philip IV., 1621-1665. Death of Maurice, 1625. Frederic Henry, 1625-1647. John DeWitt grand pensionary of Holland, 1653	War of the Mantuan succession, 1627-1631. Venice struggles with the Ottomans.	Michael Feodorovitch (1613-1645) founds the house of Romanoff. Growth of Russian and decrease of Polish power. Alexis, 1645-1676. Code of laws introduced by Alexis. Victories of Russians over Polish, 1654.	Gustavus Adolphus, 1611-1632. Oxenstierna, 1583-1654. Sweden obtains Riga and Livonia from Russia, 1617-1621. Tilly defeated by Gustavus, 1631. Christina, 1632-1654. Charles X., 1654-1660.	Waning power of Turkey. Independence of Portugal, 1640. Fall of the Ming dynasty in China, 1644. Cretan War with Turkey, 1645-1669.

From the Death of Cromwell to the Death of Louis XIV. of France, 1658-1715 A. D.

A. D.	Spain and Portugal.	Italy.	Scandinavia.	Russia.	Other Countries.
1658	By the Peace of Pyrenees war with France is ended, and Louis XIV. marries Maria Theresa, daughter of Philip IV., 1659. Death of Philip IV., 1665. Charles II., of Spain, 1665-1700. Louis XIV. claims the Spanish Netherlands, and declares war (1667-1668), by which Spain loses 12 fortified towns. Peace of Lisbon, 1668 By the second war (1672-1678) Spain lost to France several possessions	Turks defeated by the Venetians, 1661 and 1662. Germany and France help Venice. Turks retain Candia, 1669 Savoy makes war on Genoa, 1670. Dutch and Spanish fleets in the Mediterranean, 1676.	Charles X., Gustavus of Sweden, invades Denmark successfully, 1658; unsuccessfully, 1658-1659. Frederick III. (1648-1670) of Denmark receives absolute authority, 1660. Charles XI., king of Sweden, 1660-1697. Peace of Oliva between Sweden and Poland, 1660. Peace of Copenhagen between Sweden and Denmark, 1660, by which Denmark cedes all of the southern peninsula. Peace of Kardis between Sweden and Russia, 1661. Sweden, an ally of France, defeated by the elector of Brandenburg at Fehrbellin, 1675. Sweden, by the treaty of St. Germain-en-Laye, receives all conquests made by Brandenburg in Pomerania, 1679.	House of Romanoff gives Russia strength and influence. Feodor III., 1676-1682. Little or White Russia reconquered from Poland. Death of Feodor, 1682. Ivan and Peter, czars, 1682-1696. Sophia, elder sister, guardian. War with China, 1684-1689. Russia joins Holy League, 1686. First Russo-Turkish War, 1687. Sophia sent to a convent by Peter the Great, 1689. Death of Ivan, 1696. Peter sole ruler, 1696-1725.	Aurungzebe (1658-1707), Mughal emperor in India. Hindu kingdom of the Mahratas formed in the Dekkan, 1660 and later. Kang-he (1661-1721), emperor of China, conquers Tibet and Formosa. Bombay ceded to England in the dowry of Catherine of Braganza. John Casimir of Poland abdicates, 1668. John Sobieski, king of Poland, 1674-1696. Tsunayoski, emperor of Japan, 1681-1708. Holy League formed, 1684. Holy War against the Turks, 1684-1696.

From the Death of Cromwell to the Death of Louis XIV. of France, 1658-1715 A. D.

A. D.	Discoveries, Arts, Crafts.	England and Scotland.	America.	France.	Germany.
1658	College of William and Mary chartered, 1692.	Revolution; landing of William of Orange, and flight of James, 1688.	Charter of Massachusetts forfeited, 1684.	France opposed by the League of Augsburg in a war against the Palatinate, 1688-1697.	Eugene victorious at Zenta, 1697.
	Bank of England, 1694.	Declaration of Rights, 1689.	Sir Edmund Andros governor of New England, 1686-1689.		
	University of Halle, 1694.	William III. (1689-1702) and Mary, 1689-1694.	King William's War with the French, 1689-1697.		
	First fire insurance office, 1696.	War with France, 1689-1697.	Port Royal seized by Sir William Phips, 1690.		
		Bill of Rights, 1689.	Salem witchcraft persecutions, 1692.		
		Battle of the Boyne, 1690.		Mastery of the sea passes to England from France by the victory of La Hogue, 1692.	Peace of Carlowitz (1699) gives Hungary and Transylvania to Austria and Morea to Venice.
		Massacre of Glencoe, 1692.	Andros governor of Virginia and Maryland, 1692.		
		Peace of Ryswick ends war with France, 1697.	Frontenac's expedition against the Iroquois, 1693, 1696, 1697.		
1700	Yale College founded, 1701.	Act of Settlement, 1701.	Peace with the Iroquois, 1701.	French and Bavarians defeated at Blenheim by Eugene and Marlborough, 1704.	Frederick III. takes the title of Frederick I., king of Prussia, 1701.
		War of the Spanish succession, 1701-1714.	Queen Anne's war with the French, 1702-1713.		
		Anne, queen, 1702-1714.	Province of Pennsylvania erected, 1703.		Joseph I., son of Leopold, emperor, 1705-1711.
	Newcomen's steam engine, 1705.	Gibraltar taken, 1704.	Port Royal taken by an English fleet, and name changed to Annapolis, 1710.	Villeroi defeated at Ramillies, 1706.	
		Victory at Blenheim, 1704.			Charles VI., 1711-1740.
	Discovery of Herculaneum, 1708.	England and Scotland united as Great Britain, 1707.	Louisburg founded, 1713.	French excluded from Italy, 1706.	
		Peace of Utrecht, 1713.		Vendome defeated at Oudenarde, 1708.	
		House of Hanover or Brunswick, 1714.	Hudson Bay and Straits, Nova Scotia, Newfoundland, and St. Christopher ceded to England by France, 1713.	French humbled at Malplaquet, 1709.	War of Turks with Venice, 1714-1718.
		George I. king, 1714-1727.			

From the Death of Louis XIV. to the Coming of George Washington, 1715-1775 A. D.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	America.	France.	Germany.
1715	First ships built at Quebec, 1715.	Jacobite rebellion in Scotland, 1715-1716.	New Orleans founded, 1718.	Louis XV. king (1715-1774), Philip, duke of Orleans, regent (1718-1723).	War of Turks with the emperor, 1716.
		Septennial parliaments instead of triennial, 1716. First Septennial parliament, 1717.	Government by proprietors overthrown in Carolina, 1719-1729.		Eugene conducts the war in Hungary; Belgrade taken, 1717.
		Triple alliance of England, France, and Holland against the Pretender, 1717.	William Burnet, governor of New York (1720) obstructs trade of the French.	Policy of Louis XIV. abandoned. Joins the triple alliance with England, 1717.	Peace of Passarowitz, 1718.
		Quadruple alliance of England, France, the emperor, and Holland to enforce the Peace of Utrecht, 1718.	New England wars with Indians, 1724.	Joins the quadruple alliance, 1718.	Emperor joins the quadruple alliance, 1718.
	First stage between Boston and New York, 1732.	War with Spain, 1718.	Abenakis take Berwick; colonists burn Norridgewock, 1724.	War with Spain, 1718-1720.	Pragmatic sanction planned to secure a succession, 1720.
	College founded at Princeton, New Jersey, 1738.	South Sea Bubble bursts, 1720.	Treaty of peace between Massachusetts and eastern Indians, 1726.	Financial distress through the South Sea Bubble, 1720.	Short-lived alliance with Austria and Spain to support it, 1725.
		George II., king, 1727-1760.	Burnet governor of Massachusetts, 1728.	Duke of Bourbon administers affairs, 1723-1726.	War of the Polish succession, 1733-1735.
		Porteous riot in Edinburgh, 1736.	Carolina divided into North and South Carolina, 1729.	Cardinal Fleury in control, 1726-1743.	Peace of Vienna, 1735.
		War with Spain, 1739-1748.	Georgia settled in 1733, under Oglethorpe.	Joins Spain and Sardinia in support of Stanislaus, in the war of Polish succession, 1733-1735.	Unsuccessful war with the Turks, 1736-1739; Peace of Belgrade, 1739.
			King George's War between England and France, 1744-1748.		
			Louisburg taken by Pepperell, 1745.	Joins Bavaria and Spain in the war of the Austrian succession against Austria (1741-1745).	Death of Frederick William I., of Prussia 1740.
	First paper in Canada, 1752.	Battle of Fontenoy, 1745.	Cape Breton restored to the French by the treaty of Aix-la-Chapelle, 1748.		
		Second Jacobite rebellion, 1745.	Ohio Company formed, 1748.		Frederick II., the Great, 1740-1786.
	Franklin's electrical experiments, 1752.	Battles of Prestonpans (1745) and of Culloden (1746).	Halifax founded, 1749.	With Bavaria invades Austria and Bohemia and takes Prague, 1741, but was there besieged.	
			Peace with the Six Nations concluded by Governor Clinton of New York, 1751.		Male line of Hapsburgs broken by death of Charles VI., 1740.
	England adopts the Gregorian calendar, 1752.	Peace of Aix-la-Chapelle, 1748.	Georgia becomes a royal colony, 1752.	Louis XV. invades Holland, 1744.	Maria Theresa, 1740-1780.
			Washington treats with French regarding settlements in the west, 1754.		
	British Museum founded, 1753.	Clive in India, 1750.	Union of the colonies proposed by Franklin at Albany, 1754.	With the Bavarians takes Munich, 1745.	War of the Austrian succession, 1741-1745.
			Old French and Indian War, 1755-1763.	Victorious at Fontenoy, 1745.	First Silesian war, 1740-1742.
			Massachusetts troops take Forts Beausejour and Gaspereaux in Acadia, 1755.		Charles VII., 1742-1745.
		Seven years' war with France, 1755-1763, carried on in America, Europe, India, and at sea.	Exile of the Acadians ("Evangeline") from Acadia, 1755.		Battle of Dettingen, 1743.
			Defeat and death of Braddock at Fort du Quesne, 1755.		Second Silesian war, 1744-1745.
		Black Hole at Calcutta, 1756.	French defeat at Lake George, 1755.		Francis I. (Lorraine-Tuscany), 1745-1765.
			Massacre at Ft. William Henry, 1757.		Peace of Dresden, 1745: of Aix-la-Chapelle, 1748.
		Battle of Plassey, 1757.	Battle of Plains of Abraham (Quebec); Death of Wolfe and Montcalm, 1759.		

Photos 1, 2, 5, 7, 9 from Keystone View Co.; 3, 6, 8 from Ewing Galloway; 4 from Brown Bros.

EARLY CHARACTERS IN AMERICAN HISTORY

Lord Calvert (Lord Baltimore)
Gov. Winthrop (Mass.)
Roger Williams

General Ogelthorpe
Rev. Cotton Mather
William Penn

Hendrick Hudson
Capt. John Smith
Peter Stuyvesant

Photos, 1 from Brown Bros.; 2, 3, 7, 8, 9 from Keystone View Co.; 4, 5, 6 from Ewing Galloway.

FAMOUS AMERICAN FRONTIERSMEN

Daniel Boone
Capt. William Clark
Gen. Sam Houston

Major Robert Rogers
John C. Fremont
Gen. G. A. Custer

John Sevier
Capt. Merriweather Lewis
William F. Cody ("Buffalo Bill")

From the Death of Cromwell to the Death of Louis XIV. of France, 1658-1715 A. D.

A. D.	Spain and Portugal.	Italy.	Scandinavia.	Russia.	Other Countries.
1658	Spain joins the Augsburg League against France, 1689.	Peloponnesus or Morea taken by Venice, 1685-1687.	Charles XII., king of Sweden, 1697-1718.		Calcutta founded, 1686.
			Frederic IV., king of Denmark, 1699-1730.		Augustus II., king of Poland, 1697-1733.
					Fall of the Ottoman power in Europe began with the treaty of Carlowitz, 1699.
	First Partition Treaty divides the Spanish possessions, 1698.			Peter I., the Great, journeys in Europe, 1697-1698.	
1700	Second Partition Treaty, 1700.	Italy a seat of war in the War of the Spanish Succession.	Northern War (1700-1721) between Sweden and Russia.	Petrograd, (St. Petersburg) founded, 1703.	Jesuits in China, 1700.
	Death of Charles II., 1700.	Eugene invades Italy, 1701.	Secret alliance of Russia, Denmark, and Saxony against Sweden.		
	Philip V., 1701-1746.	Battle of Luzzara, 1702.	Peace of Travendal between Sweden and Denmark, 1700.	Charles XII. of Sweden invades Russia, 1708.	Bahadur Shah, Mogul emperor in India, 1707-1712.
	War of the Spanish succession, 1701-1713.	Eugene victorious at Turin and French driven from Italy, 1706.	Swedes victorious at Narva, 1700.		
			Peace of Altranstädt, 1706.	Russia victorious at Pultowa, 1709.	Jahandar Shah, Mogul emperor in India, 1712-1713.
	Spanish monarchy dismembered, 1713.	War of Turks with Venice, 1714-1718.	Swedes defeated at Pultowa, 1709.		
			Charles in Turkey, 1709-1714.		
			Prussia, Saxony, Denmark, Hanover, and Russia in league against Sweden, 1714.	Peace of the Pruth with Turkey, 1711.	

From the Death of Louis XIV. to the Coming of George Washington, 1715-1775 A. D.

A. D.	Spain and Portugal.	Italy.	Scandinavia.	Russia.	Other Countries.
1715	Philip punished adherents in Spain of Charles, archduke of Austria.	Dukes of Savoy and Piedmont called kings after the peace of Utrecht.	Pomerania taken, 1715; and Wismar, 1716.	Finland conquered, 1715.	Rajputana independent of the Moguls, 1715.
	Old constitutions and old rights withdrawn.	Savoy compelled by the quadruple alliance to exchange Sicily for Sardinia.		Peter the Great visits Denmark, Holland, and France, 1716.	Muhammad Shah, 1719-1748.
	Sardinia seized (1717) and Sicily (1718) caused the quadruple alliance to be formed against Spain, 1718.		Charles XII. assassinated, 1718.		Dekkan independent under the governor, 1720-1748.
	Sicily and Sardinia evacuated, 1720.				Yung-ching, emperor of China, 1721-1735.
	Spain supports the Pragmatic sanction of Emperor Charles VI.		Ulrica Eleanora, queen of Sweden, 1719; placed the power in the hands of her husband, Prince Frederic of Hesse-Cassel, 1720-1751.		Yoshimune, Japanese shogun, 1717-1744.
					Christians expelled from China, 1723.
				Russia restored Finland to Sweden, 1721.	Turks unite with Russia in an attack on Persia, 1723.
	Spain supports Stanislaus in the war of the Polish succession, 1733-1735.	Revolt of Corsica against Genoa, 1730.	Christian VI. of Denmark, 1730-1746.	Peter succeeded by his wife, Catherine I., 1725-1727.	Oudh enjoys independence, 1732-1743.
	Don Carlos secures Naples and Sicily, 1738.	Baron Neuhof of Westphalia took the title of King Theodore I. of Corsica, 1736.		Menschikoff in control.	Kien-lung, emperor of China, 1735-1795.
		Medici family extinct in 1737.		Peter II., 1727-1730.	Nadir Shah, of Persia, drives out the Turks, 1736; invades India and sacks Delhi, 1739.
	Spain joins France and Bavaria against Austria in the war of the Austrian succession, 1740-1748.	Paoli's Corsican revolt, 1755.	Sweden's unsuccessful war with Russia, 1741-1743.	Anna Ivanovna, 1730-1740.	
			Peace of Abo, 1743.	Ivan IV., 1740-1741.	
	Ferdinand VI., 1746-1759.				Turks defeated at Kars, 1744.
					France and England carry the war to India, 1744-1748.
					French take Madras (1746) and hold it until the peace of Aix-la-Chapelle.
	Joseph I., Emmanuel, king of Portugal, 1750-1777.	Naples and Sicily governed by the Spanish Bourbons; Ferdinand receiving them in 1759.			Mogul emperors mere puppets after 1748.
					Ahmad Shah, emperor in India, 1748-1754.
	Carvalho, marquis of Pombal, minister to Joseph.				Clive defends Arcot against the French, 1751.
					Ahmad Shah Durani, Afghan ruler at Kandahar, makes five invasions of India.
	Lisbon earthquake, 1755.	Genoese call in the French to subjugate Corsica, and cede it to them in 1768.	Adolf Frederic, king of Sweden, 1751-1771.		French and English at war in India, 1756-1763.
	Jesuits banished from Portugal, 1759.				Black Hole of Calcutta, 1756.
					Battle of Plassey, 1757.
					Clive, governor of Bengal, 1758.

From the Death of Louis XIV. to the Coming of George Washington, 1715-1775 A. D.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	America.	France.	Germany.
1715	Potatoes planted in France, 1761. Spinning-jenny invented by Hargreaves, 1767. Arkwright's invention for spinning, 1769. Cut nails introduced, 1774. Mule spinner invented by Crompton, 1779.	George III., king, 1760-1820. Peace of Paris, 1763. Stamp Act passed, 1765. Townshend Acts, 1767. Lord North, minister, 1770-1782. Boston Port Bill passed, 1774.	Montreal and all Canada surrendered to England, 1760. Peace of Paris, 1763. Pontiac's conspiracy, 1763. Twenty-eight delegates meet in New York to resist the Stamp Act, 1765. Stamp Act repealed, 1766. Boston massacre, 1770. Destruction of 342 chests of tea in Boston harbor, 1773. Kentucky settled by Daniel Boone, 1773. Continental Congress at Philadelphia passes a declaration of rights, 1774.	Seven Years' War with England, 1756-1763. France beaten almost everywhere and loses all Canada. Corsica annexed, 1769. Dauphin marries Marie Antoinette, 1770. Louis XVI., king, 1774-1793. Turgot minister of marine and finance, 1774-1776.	England allied with Prussia, 1756. Seven Years' War, 1756-1763. Battle of Minden, 1759. Joseph II., emperor, 1765-1790.

Time of Washington and Development of Canada, 1775-1799.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	Germany.
1775	Gas balloon by Montgolfier, 1783. Fitch's steamboat, 1786. First mechanical patent in the United States, 1790. Whitney's cotton gin, 1792. Rocky Mountains crossed by Mackenzie, 1793. Vaccination, 1796. First French newspaper in Canada, 1798.	War of Independence of the Colonies in North America, 1775-1783. War between Great Britain and France, 1778-1783. Gibraltar defended by Elliott, 1779-1782. War between Great Britain and Spain, 1779-1783. Lord George Gordon riots, 1780. Russia, Denmark, Sweden (1780), Prussia, Austria (1782), Portugal (1783), Spain, and France, form the Armed Neutrality against British Right of Search. War between Great Britain and Holland, 1780-1783. Surrender of Lord Cornwallis at Yorktown, 1781. Peace of Versailles and Paris, 1783. Representative institutions granted to Canada, 1791. United Irishmen, 1792. French republic declares war, 1793. Jay treaty with the United States, 1794. England seizes Dutch possessions in the East, 1795. Spain declares war, 1796. Battle of the Nile (Abukir Bay), 1798. Great Irish Rebellion, 1798.	Battles of Lexington and Concord, 1775. Ticonderoga taken by Ethan Allen, 1775. Mecklenburg Convention, 1775. Washington commander in chief at Boston, 1775. Battle of Bunker (Breed's) Hill, 1775. Siege of Boston, 1775. Evacuation of Boston, 1776. Declaration of Independence adopted July 4; signed August 2 and after, 1776. Battle of Trenton, 1776. Battles of Princeton, Bennington, Saratoga, Brandywine, 1777. Burgoyne surrenders, 1777. Articles of Confederation are adopted, 1777. Alliance with France, 1778. British leave Philadelphia, 1778. Battle of Monmouth, 1778. Paul Jones victorious at sea, 1779. Treachery of Benedict Arnold, and hanging of Major Andre as a spy, 1780. Battle of King's Mountain, 1780. Battle of Cowpens, 1781. Siege of Yorktown and surrender of Lord Cornwallis, 1781. Independence of the United States recognized by Holland (1782); Sweden, Denmark, Spain, and Russia, 1783. Treaty of Versailles, 1783. Washington's farewell to the army, 1783. Shays's Rebellion in Massachusetts, 1787. Constitutional Convention meets at Philadelphia, 1787. Constitution signed (1788) except by North Carolina (1789), and Rhode Island (1790). First Congress meets at New York, 1789. Washington, president; John Adams, vice-president, 1789-1793. Indian war, 1790-1795. Vermont admitted, 1791; Kentucky, 1792. Washington and Adams re-elected, 1792. Washington proclaims neutrality in the war between France and England, 1793. Whisky insurrection in Pennsylvania, 1794. Tennessee admitted, 1796. Washington's farewell address, 1796. John Adams, president; Jefferson, vice-president, 1797. X. Y. Z. affair in France, 1797. Death of Washington, 1799.	Necker, minister of finance, 1776-1781. Benjamin Franklin, United States minister to France, 1778. Rochambeau sent with 6,000 men to aid America, 1780. Calonne, minister of finance, 1783-1787. Great extravagance at court and enormous debt. De Brienne, minister of finance, 1787-1788, when Necker was recalled. Beginning of the French Revolution, 1789. National Assembly formed from States-General, 1789-1791. Tennis-court oath, 1789. Bastille stormed and destroyed, 1789. Lafayette commands the new National Guard, 1789. Tricolor adopted, 1789. Emigration of nobles begins, 1789. Peasant uprisings in the provinces, 1789. Outbreak of Paris mob; royal family, saved by Lafayette, go to Paris, 1789. Constitution accepted by the king, 1790. Flight and capture of the king, 1791. Legislative Assembly, 1791-1792. Tuileries stormed, 1792. War with the First Coalition, 1792-1797. Massacre of royalists, 1792. National Convention, 1792-1795. Monarchy abolished; France a republic, 1792. King executed, 1793. Committee of Public Safety, 1793. Reign of Terror, 1793-1794. Queen executed, 1793. Government of the Directory, 1795-1799. Napoleon commands the army, 1795.	War of the Bavarian Succession, 1778-1779. Peace of Teschen, 1779. Joseph II. reigned alone, without his mother, Maria Theresa, as co-regent, 1780-1790. Joseph's attempted reforms were revolutionary and stirred up much opposition; the League of German Princes, 1785. Frederick William II. of Prussia, 1786. Leopold II., emperor, 1790-1792. Belgians in the Austrian Netherlands revolted at Joseph's reforms, but were put down by Leopold, 1790. Old constitution and privileges restored by Leopold. Prussia concludes a treaty with the Turks to force favorable concessions from Austria and Russia, 1790. Austria and Prussia form an alliance against the French disturbances, 1792. Francis II., 1792-1806. French revolutionists declare war against Austria, 1792. Lafayette, fleeing from Paris, imprisoned by Austrians in Olmütz until 1796. Austrians victorious at Neerwinden, 1793. Austrians defeated by Pichegru, 1793.

From the Death of Louis XIV. to the Coming of George Washington, 1715-1775 A. D.

A. D.	Spain and Portugal.	Italy.	Scandinavia.	Russia.	Other Countries.
1715	Charles III., 1759-1788.	Tuscany controlled by Austria, 1765-1859.		Elizabeth, 1741-1762.	Battle of Plassey, 1757.
	War between Spain and Portugal, 1762-1778.			Peter III., 1762.	
				Catherine II., 1762-1796.	
				Catherine's war against the Turks, 1768-1774.	First division of Poland, 1772, among Russia, Austria, and Prussia.
			Gustavus III., king of Sweden, 1771-1792.		
	Jesuits expelled by Aranda, 1767.		Crushed power of the nobles, 1772.		
		Jesuits expelled from Rome, 1773.			Warren Hastings governor of Bengal, 1772-1774; governor general of India, 1774-1785.

Time of Washington and Development of Canada, 1775-1799.

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1775	Spain allies with France and declares war on England, 1779.	Tuscany concludes peace with France, 1795.	Invasion by Americans, 1775.	Russia proposes the armed neutrality at sea (1780) for the protection of commerce during the American war.	Lord Pigot governor and commander in chief of Madras, 1775.
					Period of peace in Poland, 1776-1792.
		Savoy and Nice annexed to France, 1796.	Americans driven out of Canada, 1776.	Russia takes Crimea, 1783.	Hastings repels Hyder Ali's invasion of the Carnatic, 1780; defeats the alliance of the Nizam, the Mahratas, and Hyder Ali.
	Spain retained Minorca and Florida by the Peace of Paris, 1783.		Boundary between Canada and United States first settled, 1783.	Catherine's second war with the Turks, 1787-1792.	Kokaku, mikado of Japan, 1780-1816.
		Napoleon's campaign in Italy, 1796.			Tippoo Sahib, 1782-1799.
			Migration of British Loyalists to Canada, 1784.	Sweden's war with Russia, 1788-1790, concluded without gain to Sweden.	Hastings recalled, 1785; impeached, 1788; acquitted, 1795.
	Charles IV., king, 1788-1808.	Whole of Lombardy conquered, 1796-1797.			War on Tippoo, sultan of Mysore, by Lord Cornwallis, 1791-1792.
			St. John, N. B., incorporated as a city, 1785.	Suwarrow takes Ismail, 1790.	Conquest of the Gorkhas and Nepaulese by China, 1792.
		Peace with the Pope at Tolentino, 1797; Romagna, Bologna, and Ferrara given to France.	New Brunswick made a separate province, 1785.	Peace of Jassy, 1792.	Second division of Poland, 1793.
	Revolutionists in France declare war against Spain, 1793.			Gustavus III. assassinated, 1792.	Kosciuszko leads a Polish revolt, 1794.
		Mantua surrenders, 1797.	Canada divided into Upper and Lower, 1791.	Second division of Poland, 1793.	Third and last division of Poland, 1795.
				Kosciuszko leads a Polish revolt, 1794.	
		Bonaparte crosses the Alps, 1797.	First election in Canada, 1792.		
	Spain loses Santo Domingo to France, 1795.	End of republic of Venice, 1797.		Third and last division of Poland, 1795.	
			Abolition of slavery, 1793.		
		Roman republic, 1798.			
				Kurland added to Russia, 1795.	
			Jay's treaty with United States, 1794.		
					Kiaking, emperor of China, 1796-1820.
		Kingdom of Naples becomes the Parthenopæan republic, 1799.		Paul I., czar of Russia, 1796-1801.	Napoleon's war in Egypt, 1798.
					Seringapatam captured and Tippoo slain, 1799.

Beginning of the Nineteenth Century to the Introduction of the Railway, 1799-1830.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	Germany.
1799	Webs of paper, 1798.			War with the Second Coalition, 1799-1802. Government of the Consulate, 1799-1804. Napoleon consul for 10 years.	Austria, in the Second Coalition, opposes Napoleon, 1799-1801. Archduke Charles defeats Jourdan and compels him to lay down his command, 1799. Austrians defeat Scherer, Moreau, and Massena.
1800	Volta's electric battery, 1800. Steel pens, 1803. Trevithick's locomotive, 1804. Fulton's *Clermont*, first successful application of steam to navigation, 1807. McGill University founded, 1811. Storage battery, 1812. Stephenson's locomotive, 1814. Davy's safety lamp, 1815. Lachine canal built, 1821-1825. Erie canal finished, 1825. Quincy, Mass., railway finished, 1827. Friction matches, 1827.	Malta taken, 1800. Legislative union of Great Britain and Ireland, forming the United Kingdom, 1801. Battle of Copenhagen, 1801. Peace of Amiens, 1802. War with France renewed, 1803. Emmet's rebellion in Ireland, 1803. England, Russia, Austria, and Sweden, form Third Coalition against France, 1805. Battle of Trafalgar, 1805. Ministry of All the Talents, 1806-1807. Berlin Decree, 1806. Abolition of slave trade, 1807. Orders in council, 1807. Russia declares war, 1807. Convention of Cintra, 1808. Peninsular War, 1808-1814. Prince of Wales regent, 1811. War with the United States, 1812-1814. Treaty of Vienna, 1815. Battle of Waterloo, 1815. George IV. king, 1820-1830. Thistlewood's conspiracy, 1820. Ashantee War, 1824. Burmese War, 1824-1826. English at Navarino, 1827.	Congress met first at Washington, 1800. Thomas Jefferson, president; Aaron Burr, vice-president, 1801. Tripolitan War, 1801-1805. Ohio admitted, 1802. Louisiana purchase ($15,000,000), 1803. Hamilton killed by Burr in a duel, 1804. Thomas Jefferson, president; George Clinton, vice-president, 1805. Jefferson's embargo act, 1807. Burr tried and acquitted of treason, 1807. Embargo repealed except as to England and France, 1809. James Madison, president; Clinton, vice-president, 1809. Louisiana admitted, 1812. War declared against Great Britain, 1812-1814. James Madison, president; Elbridge Gerry, vice-president, 1813. Treaty of Ghent, 1814. Hartford convention in opposition to the war, 1814. War with Algiers, 1815. James Monroe, president; D. D. Tompkins, vice-president, 1817-1825, two terms. Era of good feeling. Mississippi admitted, 1817. Seminole War, 1817. Illinois admitted, 1818. Alabama admitted, 1819; Maine, 1820. Missouri Compromise, 1820. Monroe Doctrine enunciated, 1823. John Quincy Adams, president; John C. Calhoun, vice-president, 1825-1829. "Tariff of abominations," 1828. Andrew Jackson, president; Calhoun, vice-president, 1829-1837.	Campaign in Italy, 1800. Napoleon crosses the Alps, 1800. Battle of Hohenlinden, 1800. Napoleon consul for life, 1802. Napoleon emperor of the French, 1804-1814. Code Napoleon, 1804 Third Coalition makes war on France, 1805. Confederation of the Rhine, 1806. Battle of Jena and Auerstadt, 1806. Battle of Eylau, 1807. Peace of Tilsit, 1807. War between Napoleon and Great Britain in Spain and Portugal, 1808-1814. War with Austria, 1809. Peace of Vienna, 1809. Holland annexed to France, 1810. War with Russia, 1812. Retreat from Moscow, 1812. Napoleon abdicates and retires to Elba, 1814. Congress of Vienna, 1814-1815. Louis XVIII., 1814-1824. Napoleon returns to Paris, 1815. Napoleon sent to St. Helena, 1815. Death of Napoleon, 1821. Charles X., king of France, 1824-1830.	Austrians defeated at Marengo, 1800. Peace of Lunéville, which marks the abolition of the old Holy Roman Empire, 1801. Austria joins the Third Coalition against Napoleon, 1805. Whole Austrian army, 30,000, surrenders to Napoleon at Ulm, 1805. Murat takes Vienna Austrians and Russians defeated at Austerlitz, 1805. Peace of Pressburg, 1805. Francis II. abdicates the crown of the Holy Roman Empire, 1806; end of the old German Empire; Francis I., 1804-1835. German Empire dissolved, 1806. Austria appeals to the Germans to oppose Napoleon, 1809. Archduke Charles defeats Napoleon at Aspern and Essling, 1809. Napoleon defeats Charles at Wagram, 1809. Austria declares war on France, 1813. Napoleon defeated at Leipzig, 1813.

From the Time of Stephenson to the Election of Lincoln, 1830-1860.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	Prussia.	Austria.
1830	Manchester and Liverpool railway opened, 1830. First steamship to cross Atlantic, 1830. Chloroform, 1831. McCormick reaper, 1831. First railway in Canada, 1836. Bunker Hill monument dedicated, 1843. Morse's telegraph line between Baltimore and Washington, 1844	William IV. king, 1830-1837. First Reform Act passed, 1832. Slavery abolished throughout the empire; indemnity of $100,000,000, 1833. Victoria queen, 1837-1901. Rebellion in Canada, 1837; *Caroline* burned. People's Charter drawn up at Birmingham, 1838. Opium war with China, 1839-1842. Queen marries Albert, 1840. Upper and lower Canada (Ontario and Quebec) united, 1840.	Webster's reply to Hayne on states-rights, 1830. Tariff Act, 1832. Nullification Act in South Carolina, 1832. Compromise Tariff Act, 1833. Seminole War, 1835. Arkansas admitted, 1836. Michigan admitted, 1837. Martin Van Buren, president; R. M. Johnson, vice-president, 1837-1841. Commercial panic, 1837. Gag resolutions, 1838-1839. Sub-treasuries established, 1840. W. H. Harrison, president; John Tyler, vice-president, 1841. Death of president and succession of Tyler, 1841. Ashburton treaty settles northeastern boundary dispute, 1842. Dorr rebellion, 1842. Florida admitted, 1845. Texas annexed, 1845. James K. Polk, president; George M. Dallas, vice-president, 1845-1849.	Algiers taken by the French, 1830. July Revolution: the three days of July (27, 28, 29), 1830. Charles X. abdicates, 1830. Louis Philippe, king of the French, 1830-1848. Louis Napoleon attempts to gain throne; sent to America, 1836. Second attempt of Louis Napoleon, 1840. Napoleon's remains reinterred in Paris, 1840. Ministry of Soult and Guizot follows that of Thiers, 1840-1848.	Foundation of the German customs union — Zollverein, advocated by Prussia in 1818, 1833. Frederick William IV., 1840-1861. Alliance against the demands of the Turks, 1840. Revolutionary movements caused by influence of the French revolution, 1848.	Ferdinand I., emperor, 1835-1848. Metternich, chancellor of state. Alliance against Mehemet Ali, 1840. Uprising in Vienna, Metternich driven from the city, 1848; followed by a second and a third uprising. Citizens and students controlled the city.

Beginning of the Nineteenth Century to the Introduction of the Railway, 1799-1830.

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1799		King of Naples returns and abolishes the Cisalpine republic, 1799.		Russia joins the Second Coalition against Napoleon, 1799; withdraws, 1800.	
1800	By the Peace of Lunéville Spain loses Louisiana to France, 1801. Spain allied with France against the Third Coalition, 1805. Spanish and French fleets defeated at Trafalgar, 1805. Portugal refuses to join the Continental system; seized by Junot; royal family fled to Brazil, 1807. Napoleon seizes throne of Spain for his brother Joseph, who becomes king, 1808. Peninsular War, 1808-1814.	Napoleon's second campaign in Italy, 1800. Genoa capitulates, 1800. Cisalpine republic restored, 1800. Napoleon victorious at Marengo, 1800. Tuscany given to Parma and becomes Etruria, 1800. Neapolitan possessions and island of Elba given to France by peace of Florence, 1801. Sardinian fortresses annexed to France, 1802.	Manitoba first settled, 1811. War of 1812-1814. Invasion of Canada by Americans, 1812. Americans repulsed, 1812. Americans secured control of Upper Canada, 1813. Americans gave up attempts to conquer Canada, 1814. Treaty of Ghent, 1814.	England forces Denmark to withdraw from northern convention, 1801. Alexander I., czar of Russia, 1801-1825. Russia joins the Third Coalition, 1805. Defeated at Austerlitz, Russians retreat, 1805. Sweden joins the Third Coalition against Napoleon, 1805. Russia joins Prussia against France, 1806-1807; defeated at Eylau, 1807. Alliance of Denmark with France, after loss of fleet, 1807. Peace of Tilsit, 1807. Sweden surrenders most of Finland and Aland to Russia, 1809. Gustavus IV. of Sweden deposed, 1809; crown given to Charles XIII., 1809-1818. Bernadotte crown prince of Sweden, 1810. Napoleon invades Russia, 1812.	Wellington defeated the Sindhia at Assaye, 1803. Miranda in Venezuela, 1804. Lord Minto, governor general of India, 1807-1813. Mehemet Ali and the Mamelukes, 1811. United Netherlands, 1813. War with the Gurkhas of Nepal, 1814-1815. William I., Netherlands. 1815-1840. Argentine Confederation, 1816. Last Mahrata war, 1817-1818. Chile independent, 1818. Mexico independent, 1821. Greek war of freedom, 1822-1829. Brazil independent, 1823. Lord Amherst, governor general of India, 1823-1828.
	Corunna; death of Moore, 1809. Battle of Salamanca, 1812. Battle of Vittoria, 1813. Ferdinand VII., 1814-1833. Constitution of 1812 restored by uprising of liberals, 1820. Revolutions and civil wars in Spain, 1820-1834.	Napoleon king of Italy, 1805; and Eugène Beauharnais, viceroy of Naples. Piedmont, Parma, and Piacenza given to France, 1805. Bourbons in Naples dethroned, 1805. Tyrol subdued, 1809. Kingdom of Two Sicilies restored, 1814. Austria invades Italy, 1821.	First Indian treaty, 1817. First Canadian bank, 1817. The Family Compact, 1820-1837. Northeast boundary of U. S. settled, 1827.	Burning of Moscow, 1812. Sweden joins Russia and England against France, 1812. Nicholas I., czar of Russia, 1825-1855. Russian fleet at Navarino, 1827. Russo-Turkish War, 1828-1829. Russians take Varna, 1828. Peace of Adrianople, 1829.	First Burmese war; England secures Assam, 1824-1826. Peru independent, 1825. Bolivia under Bolivar, 1825. Missolonghi taken by the Turks, 1826. Sir William Bentinck, governor general of India, 1828-1835. Suppression of the sati or suttee (widow-burning) and of the thagi or thugs (assassins). Dom Pedro, emperor of Brazil, 1831-1889. Leopold, king of the Belgians, 1831-1909.

From the Time of Stephenson to the Election of Lincoln, 1830-1860.

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1830	Dom Pedro of Portugal delegates crown of Brazil to Pedro II., 1831. Civil war in Spain follows the death of Ferdinand VII., 1833-1840. Don Carlos in Spain, 1833-1839. Civil war in Portugal, 1836.	Uprisings in Modena, Parma, and Romagna quelled by Austria, 1831. Death of Pope Gregory XVI., 1846. Pius IX., his successor.	First Railway, 1836. Insurrection in Lower Canada, 1837. Rising in Upper Canada, 1837. Outbreak of rebellion in both provinces, 1837-1838. First daily paper, 1840.	Russia suppresses revolt in Poland, 1830. Warsaw captured, 1832.	India thrown open to European trade and settlement encouraged, 1833. East India Company's exclusive trading privileges in China cease, 1834. Emperor of China forbids opium trade; 20,283 chests destroyed, 1839. Refusal to pay indemnity on this brought on the first war with Great Britain (Opium War), 1840-1842.
	Espartero supported claims of Isabella II. against Don Carlos, brother of the king. Insurrection in Barcelona, 1843. Espartero overthrown, 1843.	Revolt in Naples secures a liberal constitution, 1848. Sicily in revolt, subdued, 1848.	Responsible government, 1841. Union of two provinces as Canada, 1841. Opening of first united Parliament, 1841. Ashburton treaty, 1842. Oregon boundary treaty, 1846.		Canton, Amoy, Fuchau, Ningpo, and Shanghai opened to British trade by the treaty of Nanking, 1842. Hongkong ceded to Great Britain, 1842. Cushing treaty between China and the United States, 1844.

From the Time of Stephenson to the Election of Lincoln, 1830-1860.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	Prussia.	Austria.
1830	Gold discovered in California, 1848. Corliss engine 1848. Telegraphic communication between France and England, 1851. Great industrial exposition at Hyde Park, 1851. Magazine rifle, 1854. Safety matches, 1855. Rubber dental plate, 1855. First Atlantic cable laid, 1858.	Total repeal of corn laws, 1846. Famine in Ireland, 1846-1847. Rebellion in Ireland (O'Brien and Mitchell), 1848. Chartist riots, 1848. Navigation laws repealed, 1849. Roman Catholic hierarchy established in England, 1850. Clayton-Bulwer treaty with the United States 1850. Crimean War, 1853-1856. Treaty of Paris, 1856. War with China, 1856-1860. Indian Mutiny, 1857-1858. India transferred to England, 1858. Property qualifications of members of parliament abolished, 1858. Jews admitted to parliament, 1858. Queen proclaimed sovereign of India, 1858.	Iowa admitted, 1846. Wilmot proviso, 1846. Mexican War, 1846-1848. Oregon boundary settled, 1846. Wisconsin admitted, 1848. Zachary Taylor, president; Millard Fillmore, vice-president, 1849. Fugitive Slave law, 1850. Fillmore, president, on death of Taylor, 1850. Franklin Pierce, president; William Rufus King, vice-president, 1853-1857. Gadsden purchase, 1853. Treaty with Japan, 1854. Fishery rights secured by treaty with Great Britain, 1854. Republican party formed, 1854. Kansas-Nebraska bill, 1854. James Buchanan, president; J. C. Breckinridge, vice-president, 1857-1861. Dred Scott case, 1857. Minnesota admitted, 1858; Oregon, 1859. John Brown's raid at Harper's Ferry, 1859.	Revolution of February, 1848. Louis Philippe abdicates in favor of his grandson, Count of Paris, 1848. France a republic, 1848-1851. The days of June—insurrection in Paris, 1848. Louis Napoleon Bonaparte, president of the republic, 1848, afterwards, by coup d'état, president for 10 years (1851); and then as Napoleon III., emperor, 1852-1870. France shares in the Crimean war against Russia, 1854-1856. War of France and Sardinia against Austria, 1859.	Prussia cooperates with other German states in the German National Assembly to promote union, 1848-1849. Constitution for German Empire completed, 1849; but rejected. Alliance of the three kings (Prussia, Hanover and Saxony), 1849. Prussia swears allegiance to the new constitution, 1850. Prince of Prussia becomes regent, 1857 and 1858.	Archduke John of Austria chosen president of the German National Assembly, 1848. Slavonic Congress at Prague, 1848. Abdication of Ferdinand I., 1848. Francis Joseph I. emperor of Austria, 1848. War with Sardinia, 1848-1849. Hungarian revolt under Kossuth, 1848-1849. New constitution adopted, 1849. Kossuth governor of the Magyars, 1849. Hungarians defeated, and capitulated, 1849. War with France and Sardinia, 1859.

From the Election of Lincoln to the Founding of the German Empire, 1860-1871.

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	Prussia.	Austria.
1860	Antiseptic surgery, 1861. Second industrial exhibition at London, 1862. Telegraphic communication between America and England completed, 1866. Dynamo electric machine, 1866. Dynamite, 1866. Great exhibition in Paris, 1867. Suez canal opened, 1869. Pacific railway, 1869. Westinghouse air brake, 1869. Celluloid, 1869.	Mason and Slidell taken from the British mail steamer, *Trent*, 1861. Death of the prince consort, 1861. Cotton famine, 1862-1863. Maori War in New Zealand, 1863-1869. Ionian Isles ceded to Greece, 1864. Insurrection in Jamaica, 1865. Second Reform bill extends the franchise, 1867. Fenian uprisings in Ireland, Chester, and Clerkenwell, 1867. Dominion of Canada formed by the union of Ontario, Quebec, New Brunswick, and Nova Scotia, 1867. Abyssinian expedition under Lord Napier, 1867. Irish church disestablished and disendowed, 1868. Irish land act passed, 1870. National education established by law, 1870.	Abraham Lincoln, president; Hannibal Hamlin, vice-president, 1860. South Carolina secedes (1860) followed by Mississippi, Florida, Alabama, Georgia, Louisiana, and North Carolina (January, 1861); Texas (February); Virginia (April); Tennessee, and Arkansas (May). Confederate States of America formed at Montgomery, Ala., February 8, with Jefferson Davis, president; Alexander H. Stephens, vice-president. Kansas admitted, 1861. Fort Sumter fired on by the Confederates, April 12, 1861, and surrendered, April 14. McClellan succeeds General Scott as commander-in-chief of the Union forces, 1861. Emancipation Proclamation issued, 1863. Grant commander-in-chief, 1864. Nevada admitted, 1864. Lincoln re-elected president; Andrew Johnson, vice-president, 1864. Lincoln assassinated, 1865. Andrew Johnson, president, 1865. Amnesty declared, 1865. Civil Rights bill passed over the president's veto, 1866. Nebraska admitted, 1867. Reconstruction Act over the president's veto, 1867. Alaska purchase, 1867. President Johnson impeached, but acquitted, 1868. Terms of amnesty widened, 1868. U. S. Grant, president; Schuyler Colfax, vice-president, 1869-1877. Fifteenth amendment ratified, 1870.	Mexican expedition by France, England, and Spain, 1861-1867. England and Spain withdraw, Napoleon III., expecting the United States to be broken up in civil war, planned a monarchy in Mexico. Puebla taken by French, 1863. Crown of Mexico offered to Maximilian, brother of Francis Joseph of Austria. United States orders the French troops to withdraw, 1867. Maximilian carried on the war alone and was captured, tried, and shot, 1867. Franco-German War, 1870-1871. (For details of battles see Important Wars of History.)	William I., king of Prussia, 1861-1888. Constitutional difficulties over reorganization of the army cause resignation of the ministry, 1861. Von Bismarck president of the ministry, 1861. Especial care given to the army. War with Denmark, 1864. Prussians storm Düppel and capture it. Prussians defeat the Danes in the island of Alsen. War with Austria, 1866. Prussians invade Bohemia. Peace of Prague, 1866. North German Confederation formed, 1867. Franco-Prussian War, 1870-1871.	New constitution with separate diets for the united monarchy, 1861. Francis Joseph summons German princes to consider a reorganization of Germany, 1863. War with Denmark, 1864. Peace of Vienna. War with Prussia, 1866. Austrian victory at Trautenau. Austria consents to be left out of the reorganization of Germany. Francis Joseph crowned apostolic king of Hungary, 1867. The Ausgleich of 1867 recognizes Austria and Hungary as separate states under a common head.

From the Time of Stephenson to the Election of Lincoln, 1830-1860.

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1830		Anarchists and republicans rule in Rome; city besieged for two months and captured by the French, 1849.	Victoria, B. C., founded, 1843. Oregon boundary treaty, 1846. Riots in Montreal, 1849.	Wars of Schleswig-Holstein against Denmark, 1848, 1849, and 1850-1851. Treaty of London closes the war, 1852.	Hienfung emperor of China, 1850-1860. Tai-ping rebellion, 1850-1864. Turkish fleet at Sinope, 1853.
	Death of Godoy, 1851.	Mazzini at Rome, 1849.	Postage stamps introduced, 1851. First American Y. M. C. A. at Montreal, 1851.	Russians cross the Pruth, 1853. Crimean War, 1854-1856.	Commodore Perry of the United States navy enters Yedo (1853) and concludes a treaty with Japan, 1854.
		Pope returns to Rome from Gaeta, 1850. Gioberti in Italy, 1852.	Reciprocity treaty with United States, 1854.	Russians repulsed at Silistra, 1854. Siege of Sebastopol, 1854-1855.	Persian war, 1856-1857.
	Death of Don Carlos in exile, 1855.	Sardinian war with Austria, 1848-1849.	Gold found in British Columbia, 1858. Decimal coinage, 1858. Ottawa, capital of Dominion, 1858.	Siege of Kars, 1855. Alexander II. emperor of Russia, 1855-1881.	Chinese war with Great Britain and France (*Arrow* affair), 1856-1860. Surrender of Peking, 1860.
		Sardinia joins France against Austria, 1859. Battle of Magenta, 1859. Battle of Solferino, 1859.	First railway bridge across St. Lawrence, 1859.	Treaty of Paris, 1856.	Yokohama, Hakodate, and Nagasaki opened to trade, 1859.

From the Election of Lincoln to the Founding of the German Empire, 1860-1871.

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1860	Spain supports Napoleon III. in the Mexican expedition, 1861.	Victor Emmanuel receives from Napoleon III. Lombardy and takes Tuscany, Parma, Modena, and papal legations; giving up Savoy and Nice to France, 1860.	Winnipeg founded, 1860. Victoria bridge opened, 1860.	Emancipation of Russian serfs, 1860.	First Japanese embassy sent to the United States, 1860. Tunchi emperor of China, 1860-1875.
	Withdrew with England, 1862.		Nova Scotia and New Brunswick join confederation, 1866. Invasion by Fenians, 1866.	Death of Frederic VII. of Denmark, 1863. Christian IX. king of Denmark, 1863-1906. Insurrection in Poland, 1863.	George king of Greece, 1863. French in Mexico, 1864. Rebellion in China suppressed by England; Nanking taken by "Chinese" Gordon, 1864. Shimonoseki (Japan) bombarded by English, French, Dutch and American ships to avenge an attack, 1864. Indemnity $3,000,000 of which the United States receives $785,000.
	Spanish revolution at Cadiz, 1868. Serrano insurgent, victorious; Queen Isabella flees to France and is deposed, 1868.	Garibaldi marched on Palermo, 1860. Sicily and Naples united to Sardinia, 1860. Victor Emmanuel king of Italy, 1861.	First meeting of Parliament at Ottawa, 1866. Dominion of Canada formed, 1867.	War of Austria and Prussia against Denmark, 1864.	Keiki, the last shogun, resigns, 1867. Maximilian shot in Mexico, 1867.
	Bourbon house deposed, crown offered to the prince of Hohenzollern, 1870. Duke of Aosta, second son of Victor Emmanuel, elected king under title of Amadeus I., 1870-1873.	Death of Cavour, 1861. Florence capital of Italy. Venice united to Italy, 1866. Italy becomes the sixth great power, 1867. Vatican council, 1870.	Red River rebellion, 1869-1870. Addition of Northwest Territories and Manitoba, 1870; British Columbia to confederation, 1871. Treaty of Washington, 1871. School act passed, 1871. Departure of last battalion of British troops from Quebec, 1871. Fenian riots suppressed, 1871.	Russian advance in Asia, 1864-1877.	War between Brazil and Paraguay, 1868. Mikado restored; end of dual government, 1868. Abolition of feudalism in Japan, 1871. Introduction of western civilization into Japan begins, 1871.

From the Founding of the German Empire to the Present Day, 1871-

A. D.	Discoveries, Arts, Crafts.	Great Britain.	United States.	France.	German Empire.	Austria-Hungary.
1871	Ontario Ladies' college founded, 1874. Centennial exhibition at Philadelphia, 1876. Telephone, 1876. Portland cement, 1876. Phonograph, 1877. Edison introduces electric lighting, 1878. International exposition at Paris, 1878. Industrial exhibition at Ottawa, 1879. Royal Canadian Academy of Arts, 1880. Brooklyn bridge opened, 1883. White squadron or new steel navy of the United States begun, 1883. Linotype machine, 1884. Canadian Pacific Railway opened, 2,905 miles, 1887. International exposition at Paris; Eiffel tower, 984 feet, 1889. World's Columbian fair at Chicago, 1893. Submarines in French navy, 1893. Nansen's expedition, 1893-1896. Manchester ship canal opened, 1894. North Sea-Baltic canal opened, 1895. X-rays, 1895. Wireless telegrapny, 1896. Gold discovered in the Klondike, 1897.	Alabama claims settled by the treaty of Geneva, 1872. Vote by ballot established, 1872. Ashantee War, 1873-1874; Kumassi taken by Wolseley, 1874. Suez canal shares bought from the khedive of Egypt, 1875. Queen, empress of India, 1877. Treaty of Berlin. England takes Cyprus, 1878. Zulu War, 1878-1881. Afghan War, 1878. Irish Land League, 1879. Boers revolt, 1880-1881. Surrender of Transvaal, 1881. Irish Coercion Act, 1881; Land Act, 1881. Murder of Lord Cavendish, 1882. Alexandria bombarded, 1882. Tel-el-Kebir taken and Arabi's rebels routed, 1882. War in the Sudan 1883-1885. Gordon arrives at Khartum, 1884. South African Republic erected, 1884. Mahdi captures Khartum and slays Gordon, 1885. Home Rule bill defeated, 1886. Queen's jubilee, 1887. Heligoland given to Germany in exchange for Zanzibar, 1890. Free Education bill, 1891. Home Rule bill again defeated, 1893. Jameson raid in South Africa, 1895. Irish Land Act, 1896. Kitchener in Egypt, 1896. Queen's 60th anniversary, 1897. The Mahdi defeated and slain in Egypt, 1899. Canada extends a tariff preferential to Great Britain of 25 per cent., 1889; increased to 33⅓ per cent. in 1900. Old age pensions in New Zealand, 1898. Black Week, 1899.	Civil Service Commission authorized, 1871. Treaty of Washington settles Oregon boundary, fishery dispute, and Alabama claims with Great Britain, 1871. Colorado admitted, 1875. Custer's troops massacred by Indians (Sitting Bull), 1876. Electoral commission appointed to decide presidential election, 1876. Rutherford B. Hayes, president; W. A. Wheeler, vice-president, 1877-1881. Specie payments resumed, 1879. James A. Garfield, president; Chester A. Arthur, vice-president, 1881. President Garfield shot, July 2; died September 19, 1881; succeeded by Arthur. Chinese laborers forbidden admission for ten years, 1882. Civil Service bill, 1883. Grover Cleveland, president; T. A. Hendricks, vice-president, 1885-1889. Presidential succession law, 1886 Strikes and riots suppressed by civil and military force, 1886. Bering Sea complications, 1886. Interstate Commerce Act, 1887. Department of labor created, 1888. Australian ballot introduced, 1888-1889. Department of agriculture created, 1889. Benjamin Harrison, president; Levi P. Morton, vice-president, 1889-1893. Oklahoma settled, 1889; territory, 1890. North Dakota, South Dakota, Montana, and Washington admitted, 1889. Samoan treaty signed, 1889. Anti-trust (Sherman) law, 1890. Idaho and Wyoming admitted, 1890. McKinley Tariff Act, 1890. Strikes in Idaho, at Homestead, Pa., and in Tennessee suppressed by martial law, 1892. People's Party nominates for presidency, 1892. Grover Cleveland, president; Adlai E. Stevenson, vice-president, 1893. Wilson-Gorman Tariff Act, 1894. Rebellion in Cuba, 1895. Venezuela-British Guiana dispute settled by commission, 1896. Utah admitted, 1896. William McKinley, president; Garret A. Hobart, vice-president, 1897-1901. Dingley Tariff Act, 1897. Spanish War, 1898. Hawaii annexed, and territorial government provided, 1898. Philippine insurrection, 1899-1902. Aguinaldo captured, 1901. Samoan Islands divided between the United States and Germany 1899.	France a republic (third time), 1870 to the present day. Uprising of the Commune, 1871. Rule of the Socialistic Commune, March 28-May 22, 1871. Second siege of Paris by Marshal MacMahon, 1871. Thiers elected president, 1871. Death of Napoleon III. in England, 1873. Thiers forced to resign and MacMahon elected, 1873, and made regent for seven years as "President of the Republic," 1873. Republican constitution passed, 1875 Death of Thiers, 1877. MacMahon resigns: succeeded by Grévy, 1879-1887. Jesuits ordered to disband, 1880. Death of Gambetta, 1882. French occupancy of Madagascar opposed by natives, 1883 President Grévy re-elected, 1885. Expulsion of the French princes, 1886. President Grévy resigns, 1887. Sadi-Carnot, president, 1887. Boulanger removed from the army for political intrigue; but elected to the Chamber of Deputies, 1888, flees from government investigation, 1889. Electoral reform, 1889. Franco-Russian agreement, 1891. Triple alliance renewed, 1891. French protectorate over Dahomey, 1892. Panama scandal in France, 1892-1893. President Sadi-Carnot assassinated, 1894 Casimir-Perier, president, 1894. Dreyfus affair, 1894. Casimir-Perier resigns through criticism, 1895. Felix Faure, president, 1895. French protectorate over Madagascar assured, 1895; and a colony is formed, 1896. Dreyfus affair revived; and pardon extended, 1898-1899. Clash with England over Fashoda, 1898. Death of President Faure, 1899. Emile Loubet, president, 1899.	William I., emperor of Germany, 1871-1888. Imperial Parliament adopts constitution, 1871. German troops leave French territory, 1873. Congress of Berlin adjusts Anglo-Russian difficulties in the East, 1878. Defensive alliance with Austria, 1879. Conference of Berlin to enforce provisions of the Congress upon the Porte, 1880. Reichstag rejects Bismarck's proposed tobacco monopoly, 1882. Alliance with Austria and Italy, 1883. Frederick III. emperor, 1888. William II., emperor, 1888. Von Moltke resigns from the command of the army, 1888. Bismarck resigns, 1890. Von Caprivi chancellor, 1890. Von Hohenlohe chancellor, 1894. Naval increase in Germany, 1895. Lèse-majesté prosecutions, 1895. Social democrats increase in the Reichstag, 1898. Death of Von Bismarck, 1898. German emperor visits Constantinople and the Holy Land, 1898. Caroline Islands ceded by Spain, 1898. Germany receives two of the Samoan Islands by treaty with United States, 1899.	Turkey cedes Bosnia and Herzegovina to Austria, 1878. Bismarck concludes a defensive alliance a Vienna, 1879. Lectures in Bohemian established in the University of Prague, 1881. Disturbances in Bosnia, Herzegovina and Dalmatia quelled, 1882. Forms triple alliance with Germany and Italy, 1882. Prevents Bulgaria from invading Servia, 1885. Franchise extended, 1896. Jewish faith recognized by Hungarian law, 1896. Czech language made equal to German in Bohemia, 1897. Ausgleich or compromise renewed, 1899. Empress of Austria assassinated by an anarchist, 1898.

From the Founding of the German Empire to the Present Day, 1871-

A. D.	Spain and Portugal.	Italy.	Canada.	Russia and Scandinavia.	Other Countries.
1871	Sagasta, prime minister, 1871. Amadeus resigns the crown, 1873. Spain a republic; anarchy and civil war reign, 1873-1874.	Rome capital of Italy, 1871. Death of Victor Emmanuel, king of Italy, 1878. Humbert I., king of Italy, 1878-1900. Death of Pope Pius IX., 1878. Leo XIII., pope, 1878.	San Juan Island settled by British herders, 1872. Lord Dufferin, governor general, 1872-1878. Prince Edward Island in Confederation, 1873. Parliament prorogued, 1873. New ministry, Oct. 23, 1873. Destructive fire, St. John, N. B., 1876. Supreme Court of Canada, first session, 1876. Bread riots in Montreal, 1876. Trouble with Orangemen, 1877.	Turko-Russian War, 1877-1878. Plevna taken, 1877. Storm of Kars, 1877. Peace of San Stefano, 1878.	Bulgarian insurrection, 1874-1876. Kwangsu emperor of China, 1875-1908. First railroad opened in China, Shanghai to Woosung, eleven miles, 1876. Rebellion in Satsuma, Japan, 1877.
	Restoration of monarchy, Alfonso XII. king, 1875-1885. Don Carlos declared a usurper; flees to England, 1875.	Death of Garibaldi, 1881.	Conservative ministry formed, 1877.	Responsible ministry act passed in Norway, 1884.	War between Chile and Peru, 1878-1883.
	Alfonso XII. insulted by mob in Paris, 1883. Hereditary house of peers abolished in Portugal, life and elective peers, 1885. Earthquakes in Spain; great loss of life, 1885. Death of Alfonso XII., queen Maria Christina regent, with Canovas, Campos, and Sagasta, prime ministers in turn, 1885. Alfonso XIII. born, 1886.	Italy joins Triple Alliance with Germany and Austria, 1883. Unfriendly relations with John of Abyssinia, 1885. Italian army increased to 252,000, 1887. Death of Dupretis, 1887. Crispi, Rudini, and Giolitti, successors.	Canada and United States fishery commission meet at Halifax, awarding $5,500,000 to Canada, 1877. New ministry, 1878. Marquis of Lorne, governor general, 1878-1883. The National Policy, a protective tariff adopted, 1879. Northwest territories divided, 1882. Marquis of Lansdowne, governor general, 1883-1888. Riel's rebellion, 1885.	Activity of nihilists in Russia, 1880. Alexander II. murdered in St. Petersburg, 1881. Alexander III., emperor of Russia, 1881-1894. Alexander consecrated at Moscow, 1883. Merv and Sarakhs annexed, 1884.	Jakub Beg defeated and assassinated, 1877. Thessaly to Greece, 1880. New constitution established in Japan, 1882. Arabi Pasha's rebellion, 1882. Korea opened to trade, 1883. Russians attack Pendjeh, 1884. Revolt in Bulgaria, 1886. Constitution of Japan proclaimed, 1889. First International Conference of American Republics, 1889-1890. Wilhelmina, queen of the Netherlands, 1890.
	Death of Dom Luis of Portugal, 1889. Carlos I., king of Portugal, 1889. Anglo-Portuguese treaty, 1891. Revolt in Cuba, 1895. Spanish-American War, 1898. Treaty of Paris, 1898. Spain cedes Caroline Islands to Germany, 1899.	Papal jubilee, 1888. King Milan abdicates, 1889. Bank scandal, 1893. Defeat at Adowa by Menelek of Abyssinia, 1896. Strikes and riots, 1898.	Town of Vancouver totally destroyed by fire, 1886. Unrestricted reciprocity with United States established, 1887. Baron Stanley, governor general, 1888-1893. Earl of Aberdeen, governor general, 1893-1898. Franco-Canadian treaty, 1894. Opening of Sault Ste. Marie Canal, 1895. Earl Minto, governor general, 1898-1904.	Harsh laws enforced against the Jews in Russia, 1890. Radicals gain control in Norway and advocate universal suffrage, 1891. Nicholas II., emperor of Russia, 1894. Nicholas II. consecrated at Moscow, 1896. Sven Hedin of Sweden journeys in central Asia, 1899-1902.	Matabele War, 1893. Chinese-Japanese War, 1894-1895. Battle of Yalu river, 1894. Nasr-ed-din, shah of Persia, assassinated, 1896. Port Arthur leased by China to Russia for 25 years, 1898. Weihaiwei leased to England 1898. Khartum occupied, 1898. Open-door policy in China, 1899. First meeting of The Hague Peace Conference, 1899.

From the Founding of the German Empire to the Present Day, 1871-

A. D.	Discoveries, Arts, Crafts.	Great Britain.	Belgium, The Netherlands.	France.	German Empire.	Austria-Hungary.
1900	First train from Cairo to Khartum; first Zeppelin airship; Paris exposition, 1900. Passenger steam turbine ship; victorium discovered by Sir William Crookes; Cleopatra's emerald mines explored, 1901. Rhodes scholarships founded; "Jubilee" diamond found in South Africa, 971¼ carats; Pacific cable from Canada to Australia; radium discovered by Mme Curie, 1902. Cape to Cairo railway completed to near the Zambesi, 1903. Sir William Ramsay discovered radiothorium, 1905. Danish expedition to e. Greenland under L. Mylius Erichsen of Sweden, 1906. Sven Hedin in s. Tibet; discovered new lakes, rivers, and mountains, 1907. Dr. Kaznakoff and Captain Kosloff visited e. Tibet, 1908. Lieutenant Shackleton reached 111 statute miles from the South Pole, 1909. Mme. Curie discovered polonium, 1910. Sir James Dewar solidified oxygen, Roald Amundsen discovered South Pole Dec. 14, 1911. Capt. Robert F. Scott and 4 others reached South Pole Jan. 18; all perished on their return journey in March; Assouan dam completed; parasite of dumdum discovered by W. S. Patton of British Indian Service, Feb. 14, 1912. Wilkitsky, a Russian, reported discovery of a large body of land beyond 80° N. and 102° E. 1913.	Imperial penny postage, 1898; Australia in 1902. South African War, 1899-1902; Colenso; Methuen defeated at Maagersfontein, 1899. Cronje defeated at Paardeberg; Orange Free State and South African Republic annexed; Commonwealth of Australia instituted, 1900. Death of Queen Victoria, Jan. 22; Edward VII., king, 1901-1910. Peace in South Africa concluded, 1902. Durbar at Delhi; Education Bill; Irish Land Bill, 1903. Anglo-French treaty; North Sea incident; Anglo-Tibetan treaty, 1904. Anglo-Japanese alliance renewed, 1905. Anglo-Russian convention, 1907. Old Age Pensions Act; two cent postal rate with the United States, 1908. Treaty at Washington for settling disputes between Canada and the United States; radium from refuse of a Cornwall mine; Woman's Suffrage agitation, 1909. Death of King Edward; George V., succeeded; South African Union, Herbert J. Gladstone, governor general, Louis Botha, premier, 1910. King George and Queen Mary crowned; Lords accept Veto Bill; strikes of seamen, dock-laborers, and railway employees; Insurance Bill passed; opium agreement with China; Durbar at Delhi, 1911. Government control of telephone lines; loss of the Titanic; coal miners' strike; Minimum Wage Bill; National Health Insurance Act; militant methods by suffragettes; peace conference unsuccessful, 1912. Welsh Disestablishment Bill became a law May 21; Home Rule became a law May 26; acts of violence by suffragettes, 1914. Great Britain sent an ultimatum to Germany, Aug. 3, asking that the neutrality of Belgium be respected; declared war upon Germany, Aug. 4, 1914; upon Austria, Aug. 12; upon Turkey, Nov. 5, 1914. Bombardment of Dardanelles begun Feb. 20; Lusitania sunk by German submarine, May 7; Coalition Cabinet, May 25, 1915.	Annexation of Congo State by Belgium; ship canal from the sea to Bruges opened, 1900. Municipal systems of insurance against unemployment instituted in Belgium, 1900-1904. Marriage of Wilhelmina, queen of Holland and Duke Henry Frederick, of Mecklenburg-Schwerin, 1901. Popular opposition to plural vote in Belgium caused demand for constitutional revision. Strike of 350,000 men to force universal suffrage unsuccessful, 1902. Enactment in Belgium to compensate workmen for injurious accidents, 1903. Famous laws against railroad strikes in The Netherlands successful, 1903. Second meeting of The Hague Peace Conference, October 18, 1907. Reforms in Belgium; treaty for the maintenance of the *status quo* on the North Sea, 1908. New military law in Belgium; reforms in the government of the Congo announced. Heiress to the throne of The Netherlands, Princess Juliana, born. Death of Leopold of Belgium; Albert I. succeeded, 1909. Territory along the Congo River open to freedom of trade, 1910. New Dutch tariff law, 1911. Rioting in Belgium over elections, June 2, 1912. Strike for manhood suffrage in Belgium by 200,000 workers, April 14; compromise accepted April 22, 1913. Germany's demand for free passage of German troops through Belgian territory refused; the King of Belgium asked diplomatic intervention to safeguard the integrity of Belgium, Aug. 3; German troops invade Belgium, Aug. 4; Liège attacked, Aug. 5, 1914; fall of Liège, Aug. 7; destruction of Louvain, Aug. 19; surrender of Brussels, Aug. 20; fall of Antwerp, Oct. 9, 1914.	Association laws for religious orders, 1901. Panama Canal and equipment sold to the United States; strikes at Marseilles, 1902. Separation of Church and State agitated, 1903. Anglo-French treaty concerning Africa and Newfoundland; religious orders forbidden to teach for ten years, 1904. Law for separation of Church and State passed, 1905. Fallières elected president; Morocco question referred to the powers; Dreyfus restored to rank and promoted; Papal encyclical forbids French Catholics to form *Associations Cultuelles*, 1906. Destructive floods in France, 1910. Greenwich time adopted in France and Algeria; troops sent to Morocco to quell rebellion of tribesmen; champagne riots; agreement with Germany by ceding part of French Congo; France assumed protectorate of Morocco; seamen's strike, 1911. Review of 72 war airships near Paris; settlement of Moroccan question with Spain; extensive naval program, 1912. Raymond Poincaré president; extensive increase in military defense authorized, 1913. Upon Germany's declaration of war upon Russia, Aug. 1, France, as Russia's ally, prepared for war, and as Germany had occupied Luxemburg, France declared that a state of war already existed, Aug. 2. Invasion of France through Luxemburg and through Belgium commenced, August 2; German armies enter France, Aug. 24; seat of government removed to Bordeaux; German advance checked at the battle of the Marne; government is restored to Paris, 1914.	Von Bülow chancellor, 1900-1909. The Elbe-Trave Canal opened, 1900. Industrial depression, 1901-1902. Veteran pension fund; new tariff law; Triple Alliance renewed, 1902. Child labor law, 1903. War with African colonies 1904-1905. Kaiser visited sultan of Morocco 1905. Industrial code amended; juvenile courts, 1908. Women admitted to all universities; Dr. Von Bethmann-Hollweg, chancellor, 1909. Alsace-Lorraine granted a constitution, 1910. The Agadir incident; free hand given France in Morocco for portion of French Congo, 1911. Triple Alliance renewed, 1912. Increased military and naval preparations, 1913. Germany backed Austria's demands upon Servia and asked Russia to stop mobilizing, July 30; declared war upon Russia, Aug. 1; sent troops to French border, Aug. 2; demanded that Belgium should allow free passage to German troops, which was refused, Aug. 3; war upon Germany declared by Great Britain, Aug. 4; Germans attack Liège Aug. 5; Servia declared war upon Germany, Aug. 6; Japan Aug. 23, 1914.	Renewal of Triple Alliance, 1902. Language struggle, 1902-1909. Concert with Russia for reforms in Macedonia, 1903-1904. Legislation deadlocked in Hungary, 1904-1906. Hostility to Serbo-Bulgarian customs convention, 1905. Male suffrage in Austria universal, 1906. "Greater Servia conspiracy," 1908-1909. New customs treaty; Bosnia and Herzegovina annexed; trouble with Servia; settled by Russia's recognition of annexation, 1908-1909. Archduke Franz Ferdinand heir apparent; Hungary demands universal suffrage, 1910. Large expenditures for armament, 1911. Social Democrats were against Balkan interference, 1912. The crown prince, Franz Ferdinand, and his wife shot in Bosnia, June 28; Austria, claiming evidence of Servian complicity, sent an ultimatum to Servia, July 23; Austria pronounced Servia's reply unsatisfactory and declared war upon Servia, July 28; declared war upon Russia, Aug. 6, upon Great Britain Aug. 13, 1914; upon France and Belgium, immediately afterward.

From the Founding of the German Empire to the Present Day, 1871-

A. D.	Spain and Portugal.	Italy and Greece.	Balkan States.	Russia and Scandinavia.	Other Countries.
1900	Alfonso XIII. assumes government, 1902. Death of former queen, Isabella II., 1904. Marquis de Segouzac explores a portion of Morocco, and visits the headwaters of the Draa in Africa, 1905. Alfonso XIII. marries Princess Victoria of England, 1906. Son born to the king and queen of Spain, 1907. Carlos I. of Portugal and crown prince assassinated; Manuel II., king of Portugal, 1908. Revolution in Portugal; King Manuel expelled, a republic formed; Theophile Braga, provisional president; "Padlock Bill" passed in Spain, Dec., 1910. New ministry in Spain, April; first constitutional assembly in Portugal, religious liberty, April 19; royal family banished, June 19; first president elected in Portugal June 21; the constitution of Portugal signed, Manoel de Arriaga, the first president under it, elected Aug. 24; labor troubles in Spain; whole kingdom under martial law Sept.; exclusion of the religious orders from Portugal Oct.; the republic of Portugal fully recognized, Oct., 1911. Premier Canalejas of Spain assassinated, Nov. 12; Moroccan question settled with France, Dec. 19, 1912. Elections in Spain place Liberal party in power Mar. 8; attempted assassination of King of Spain, April 13, 1913. Portugal pledged support to Great Britain, in the European war Aug. 8, 1914.	King Humbert I. assassinated; Victor Emmanuel III., king of Italy, 1900. The Zanardelli ministry, 1901-1903; labor troubles, 1901-1905. Renewal of Triple Alliance, 1902. The Giolitti ministry, 1903-1905, 1906-1909, 1911; silver Jubilee of pope Leo XIII.; death of Leo XIII., Pius X., pope, 1903. Attempts to reconcile the church and state, 1904. International Institute of Agriculture, 1905. Violent eruption of Mt. Vesuvius, 1906. Destructive earthquake in Sicily and Calabria; a Jewish mayor elected in Rome, 1908. Dreadnoughts constructed, 1909. Trial in Italy of 36 Camorrists; King George of Greece issued decree for revision of Greek constitution; dispute between Italy and Argentina concerning quarantine satisfactorily settled; strained relations between Italy and Turkey; Italy issued ultimatum, which was rejected; war declared by Italy; Tripoli bombarded and captured by Italian war ships; all Turkish positions advanced upon; Tripoli and Cyrenaica annexed to Italy, 1911. Camorrists found guilty — society disbanded; the Balkan crisis and Italian victories force Turkey to seek peace by giving up her African possessions to Italy; Greece mobilized troops, declared war upon Turkey, captured Salonika; fighting by Greeks and Turks near Janina; conflict between Greek and Turkish fleet near the Dardanelles; more fighting near Janina; Turkish peace proposals rejected, 1912. Greeks capture Janina; King George assassinated; Constantine accedes to throne; allies sign treaty of peace at London; trouble with Bulgaria; Greece and allies victorious; Peace of Bucharest; Crete annexed to Greece, 1913. Italy declared neutrality in the European war, Aug. 3, 1914. Italy denounced Triple Alliance, May 4; declared war on Austria, May 22; disastrous earthquakes in Italy, 1915.	Ellen M. Stone abducted by Macedonian brigands, 1901. King and queen of Servia assassinated; Peter I. king, 1903. Constitution given Montenegro, 1905. Sultan of Turkey restores constitution; Turkish parliament opened. Race struggle in Macedonia; Bosnia and Herzegovina annexed to Austria-Hungary; "Greater Servia" conspiracy. Bulgaria independent; Ferdinand is king. Young Turks deposed Abdul Hamid; Mahmud V., sultan, 1908-1909. Montenegro became a kingdom, 1910. Insurrection in Albania; put down with great cruelty, 1911. Coalition of the Balkan states; Montenegro declared war on Turkey, followed by Bulgaria, Servia, and Greece; success of the allies overwhelming; Turkey appealed to the Powers; armistice is signed and negotiations begun; Powers agree on autonomy of Albania and Servian access to Adriatic, 1912. Young Turks overthrow ministry; Balkan war reopened; Turks defeated on the Gallipoli; Montenegrins victorious in the west, the Greeks in Epirus; Turkey again appeals to Powers; allies accept mediation with concessions by Turkey; Servian victory in Albania; Adrianople surrendered; defeat of Turks at Tchatalja; Montenegrins took Scutari; terms of Powers accepted. Difficulties among allies; Rumania joins other allies against Bulgaria; Turks retake Adrianople. Peace between Bulgaria and other allies signed at Bucharest; William of Wied selected as ruler of Albania, 1913. Insurrection in Albania; abdication of Prince William. Servia received an ultimatum from Austria, alleging Servian complicity in the assassination of the crown prince (July 23) asking reply within 48 hours; Servia agreed in the main to Austria's demands but asked arbitration upon some points, July 25: Austria characterized Servia's answer as evasive and dishonest, July 27; war declared upon Servia, July 28; bombardment of Belgrade, July 29, 1914.	Russian made the official language of Finland. First election in Norway with universal suffrage, 1900. Swedish military service compulsory, 1901. Massacre of Jews at Kishinev. Famine in Sweden, 1902. Expedition of Baron Toll of Russia to Arctic regions, 1903. War between Russia and Japan, 1904-1905. (See Important Wars of History.) Russian exploring expedition in northern Russia reached Lake Yessie and explored the Kotui and Severnaya rivers. Union between Sweden and Norway dissolved 1905. Death of Christian IX. king of Denmark; succeeded by Frederick VIII. Haakon VII. crowned king of Norway. Amundsen sailed through the Northwest Passage from west to east, the second time it has been done, 1906. First Russian Duma, 1906; second, 1907; third, 1907; fourth, 1912. Death of Oscar II., king of Sweden; Gustav V. succeeded, 1907. Expulsion of Jews from Russia, 1910. Russo-Chinese difficulty settled. New suffrage law in Sweden. Russian Naval bill provides for fleet in the Baltic and additions to Black Sea fleet; Russian troops in Persia; Russian treaty of 1832 abrogated by the United States; Russia and Turkey agree on independence of Persia, 1911. British troops in Persia. Women granted offices in Norway. Swedish women eligible for election. Death of Frederick VIII., king of Denmark; succeeded by Christian X., 1912. Serf class abolished in the Caucasus by Russia, 1913. Russia asked delay in regard to Austria's ultimatum to Servia, which was refused; Russia notified Austria that invasion of Servia could not be allowed; mediation by the Kaiser between Russia and Austria futile; the Czar called all reservists to colors. Germany demanded of Russia to stop mobilizing, which Russia did not heed; Germany declared war upon Russia, Aug. 1, 1914.	Boxer uprising in China; siege and relief of legations; sudden and rapid development of newspapers in China; measures to check consumption of opium in China; Baron von Ketteler, German minister, slain in Peking, 1900. Abd-er-Rahman, ameer of Afghanistan, died; Habibulla Khan succeeded. Edicts for educational reform in China, 1901. Manchurian convention; Russo-Chinese treaty concerning Tibet. Tibet entered by English, 1902. Holy war in Arabia, 1903. Russo-Japanese War, 1904-1905. (See Important Wars of History.) Violent earthquake in northern India; 20,000 killed. Sixteen ports in China opened to commerce of the world; Chinese boycott of American goods, 1905. Sixty cities in China opened to foreign settlement, 1906. Dr. Jaeger and Herr Oehler conduct detailed examination of the region between Kilimanjaro and the Victoria Nyanza in East Africa, 1907. Pu Yi (Hsuan-tung) emperor of China, 1908-1912. Opening of diamond fields in German Southwest Africa. Habibulla Khan, ameer of Afghanistan, took title of king, 1909. China adopted decimal coinage; first popular national assembly; Manchurian treaty between Japan and Russia signed; Korea annexed to Japan, 1910. Queue cutting in China; gates of Canton closed; $50,000,000 loan to China; riots; grand council abolished; cabinet of 10 members created; Chinese rebellion; constitution granted; Chinese revolutionists formed cabinet; regent resigned; China adopted Western calendar; Mongolia independent; new Chinese money, gold standard adopted. Persian parliament employed American financiers. W. M. Shuster head; deposed Shah of Persia marched on Teheran but soon suffered defeat with other insurgents; Prince Albert of Monaco granted a constitutional form of government, 1911. After much friction with Russian officials, Mr. Shuster was dismissed and left Persia. Emperor Pu-Yi abdicated throne of China; Chinese republic proclaimed; Yuan Shih-Kai made provisional president; equal suffrage; first Chinese cabinet and constitution. Death of Mutsohito, emperor of Japan; succeeded by Yoshihito. Northern Manchuria independent, 1912. First Chinese parliament; republic recognized; Yuan Shih-Kai elected president; expelled 300 members of parliament as obstructionists, 1913. Japanese diet passed vote of censure on government, Feb. 5; Japan, as an ally of Great Britain, declared war against Germany (Aug. 20) and proceeded to take Tsing-Tau and the fortifications at Kiau-Chau by siege; surrendered Nov. 13, 1914. Turkey joins Germanic alliance and begins war against the entente powers, Nov. 7, 1914. Japan demands concessions from China, 1915.

From the Founding of the German Empire to the Present Day, 1871–

A. D.	Discoveries Arts, Crafts.	Great Britain	Spain and Portugal	France	Germany
1915	Transcontinental telephone service established in U. S.	Independent Labor Party refuses to support war. Frequent strikes throughout year. Winston Churchill resigns after failure of Dardenelles expedition becomes apparent. MacDonald, laborite, denounces alliance with Russia and France. Cabinet reconstructed.	Revolution in Portugal Spanish Cabinet resigns.	Briand becomes Premier Oct. 29, with strong cabinet including Bourgeois, Painlevé, Viviani and Clementel. Radical socialist oppose government's war aims.	Food situation becomes serious as year advances. Herr Hasse, socialist member of Reichstag, denounces German war profiteers, and demands peace. Anti - socialist demonstrations.
1916	French complete Marseilles-Rhone Canal, Alaskan Railway project under construction.	Parliament passes conscription Act. Sinn Feiners start rebellion in Ireland. Sir Roger Casement executed. Lloyd George Chancellor of Exchequer forces Asquith out of office. War Council formed on bipartisan basis.	Portugal seizes German and Austrian vessels. War on Portugal declared by Germany.	Decline of franc causes uneasiness. War council formed of Briand, Ribot, Lautey and Lacáze, Government of decree is virtually substituted for parliamentary government. Radical Socialists support Stockholm Socialist Congress.	Socialist leader Karl Liebknecht is expelled from socialist party, for refusal to support war. Food dictatorship is established. English blockade is effective. Germany can get food only from neighboring states. Germany promises Poles autonomy. Reform of Prussian electoral laws.
1917	Invention of Liberty Motor.	An Imperial War Cabinet is formed of representatives of British Colonies. Refusal of South Irish to enlist (being previously exempted from Conscription Act), causes bad feelings. Sinn Feiners under leadership of De Valera continue to give trouble.	Serious strikes in Madrid.	Briand resigns because of criticism of war policies. Ribot becomes Premier followed in few days by Painlevé. Socialists demand France denounce all imperialistic aims. Clemenceau succeeds Painlevé whose ministry lasted two months. Malvy and Caillaux accused of spreading German propaganda.	Socialists demonstrations continue. Laws against Jesuits repealed. Chancellor announces Germany will not make peace on "no indemnity" basis. Erzberger leader of Catholic or "Centrists" denounces submarine warfare. Michaelis succeeds von Bethmann-Hollweg as Chancellor. Harden's Journal Die Zukunft suppressed. Socialists force out Michaelis. Von Hertling becomes Chancellor.
1918	First fabricated steel ship launched.	Electoral Reform Act passed. Labor Party demands social legislation, including nationalization of public utilities and coal. Coalitionists win at general election. Sinn Feiners get 73 seats, wiping out old Nationalist party. Irish convention is held.		Execution of Bolo Pasha takes place. Caillaux is banished for five years. Charter of Bank of France is renewed for 25 years. Debt of France 170 billion francs.	Revolution breaks out in Oct. Ludendorf resigns. Kaiser accepts reforms demanded by Reichstag. Kaiser resigns. Revolutionists take Berlin. Universal suffrage laws enacted. All states of Germany become democracies by end of year.
1919	Airplane flight across Atlantic. Discovery of the non-explosive, Heltum gas.	Glasgow shipyard riots. Labor unrest.	Spain joins League of Nations. Royalists revolution in Portugal	Attempt is made to assassinate Clemenceau Feb. 19. Versailles Treaty ratified Oct. 2. Press censorship abolished. Financial difficulties November election won by the ministry. Radicals defeated.	Ebert becomes the first president of the German Republic Scheidemann Premier. President elected by the people for term of seven years. Reichstag elected for term of four years. Ministry responsible to Reichstag. Liebknecht killed in a riot. Extreme radical "Spartacides" attempt to overturn government. National Assembly meets at Weimar. Scheidemann resigns June 21, succeeded by Gustave Bauer.
1920	Great progress in telephotography. Radio much improved. Ford Motor Co. of Detroit, open Technical Institute.	Martial law in Ireland. Irish Home Rule bill does not go into effect because of disorders in Ireland. Profiteering in coal leads to increasing demands for nationalization. Russian negotiations for re-opening of trade, France and Great Britain disagree on foreign policy, especially regarding occupation of Ruhr. Egyptian nationalists cause trouble.	Industrial unrest in Spain. Reforms are promised. Former King Manuel II renounces claim to throne of Portugal.	Radical socialists gain in power as conditions become worse. Exchange of Ambassadors with Germany takes place, the first since 1914. France concludes treaties with Czecho-Slovakia and Poland. Sends officers to instruct Polish army. Feeling against Germany high because of failure to live up to treaty. Deschanel elected president over Clemenceau, retires because of ill health. Millerand chosen President.	Frequent attempts at revolution. Great disorders in Ruhr because of French occupation. No ministry succeeds in obtaining the confidence of Reichstag. Mark continues decline, unemployment increases.

From the Founding of the German Empire to the Present Day, 1871–

A. D.	Austria & Hungary	Italy	Japan	Russia	China	Other Countries
1915	Count von Berchtold resigns as Premier succeeded by Baron von Rajescz. Food situation remains serious. Minority races especially Bohemians hinder prosecution of war. Count Karolyi urges government to make peace.	Earthquake Jan. 13, in Abruzzi district, results in loss of 30,000. Italy enters war to gain Trentino and part of Dalmatian coast.	Elections in House of Representatives result in victory for military party. Army greatly increased. Japanese exports greatly increased. Okuma reconstructs cabinet.	Pro-German Party in control most of year. Charges made that this element is responsible for defeat of army.	Japan makes demand for special concession; China compelled to yield on most points. Japanese dominant in Shantung Peninsula.	Bulgaria makes war on Serbia. Terrible massacre of Armenians.
1916	Austrian Prime Minister Count Stürgkh assassinated Oct. 21. Emperor Francis Joseph, who has been on the throne since 1848 dies Nov. 21. His grand-nephew Charles, becomes Emperor. Radical opposition in Hungarian Parliament led by Count Karolyi demand sweeping reforms. Economic conditions become worse.	Italy insists on her claim to Dalmatian coast and her Allies agree to recognize it. The Salandra Cabinet resigns and Boselli becomes Premier. Italians capture Goriza.	Disorders throughout the year. Attempt made to assassinate Count Okuma. Child Labor act passed forbidding employment of children under 15 years for more than 12 hours per day. Okuma resigns as Premier. Count Terauchi forms Cabinet. Russia and Japan come to accord regarding Asiatic interests.	First income tax law is passed. Public school appropriations increased. Premier Sturmer regarded as pro-German. Prof. Miliukoff becomes recognized leader of "Reformers." Rasputin, monk whose influence was used in interest of Germany, murdered Dec. 31. Foreign Minister Sazanoff, who stood for firm war policy, resigns.	Monarchy temporarily restored. New rebellion compels Yuan Shi-Kai to restore Manchu dynasty. Attacks by Chinese soldiers on Japanese garrison results in Japan making more demands including the policing of Inner Mongolia. U. S. sympathy with Chinese.	
1917	Bohemian question becomes acute. Emperor issues Amnestry Proclamation June 30 pardoning persons convicted of hindering the war. In Hungary Count Tisza, reactionary Premier, resigns succeeded by Count Andrassy, a Liberal. The Ausgleick (constitutional agreement between Austria and Hungary) is renewed. Czechs accuse government of bringing on the war. Poles and Jugo-Slavs show discontentment.	Boselli ministry resigns after great defeat of Italians by Austria and Germany. Orlanda becomes Premier.	Special interest in South Manchuria and eastern Inner-Mongolia asserted making Chinese question acute. Elections result in victory for military party led by Terauchi.	Duma convenes Feb. 7. Food riots, Strikes. Czar abdicates in favor grand Duke Michael, Prince Lvoff forms cabinet. Duma abolished. Council of workmen and soldiers assemble. Kerensky Premier. Bolsheviki force Kerensky out. Lenin and Trotsky dictators. Republic established.	Imperialistic plot re-establishes the Manchu Dynasty. War declared against Germany. Chinese coolies sent to France. China asks suspension of Boxer indemnities. Japan loan to Chinese.	King Constantine of Greece abdicates. Greece joins Allies. U. S. enters War.
1918	Mutinies in army, occur with increasing frequencies. Czechish soldiers desert breaking up regiments. The von Seidler and Hussarek ministries fall. Austria asks for armistice Oct. 29 and it is granted Nov. 3. Czechs and Slovaks form a republic, Serbs, Slovenes, Croatians form kingdom of Jugo-Slavia.	Baron Sonnino, Foreign Ministry, favors policy of territorial expansion. Opposed by Socialists. Labor disturbances frequent.	Terauchi ministry forced out and Kei Hara of the constitutional party becomes Premier.	Feb. 29 Russia withdraws from war by signing treaty of Brest-Litovsk. Russia gives up Baltic Provinces and Finland. Ukranian independence recognized. Russian royal family murdered. Rule of terror inaugurated.	Civil war continues and anarchy exists. Sun Yat-Sen sets up rival government at Canton. Empire established for ten days, but Tuan restores the republic. China accused of favoring Germans.	Anatolia becomes part of Turkey.
1919	Austrian elections show Socialists and Christian Socialists to be strongest parties. Communist in Hungary, led by Bela Kun, succeed in getting hold of governments.	Cabinet resigns because of too moderate views on annexations. Nitti, new Premier, demands entire Dalmatian coast including Fiume. Vatican removes ban against Catholics taking part in Italian elections. Catholic party wins 100 seats in election.	Trade with U. S. exceeds that of any other country. Suffrage agitation due to very limited suffrage.	Admiral Kolchak and General Denekin lead unsuccessful anti-Bolshevik attack. Many of nobility executed. Lenin recognized as dictator of Russia.	Japan forces more concessions including extension of lease of Port Arthur. Trouble between China and Japan breaks out at Versailles Peace Conference.	Greece and Jugo-Slavia make alliance for mutual interest. Turkish Nationalists ask U. S. to act as mandatory. Mustapha Kemel appears as leader of Nationalists.
1920	Situation in Austria grows worse. Horthy becomes leader of Austria.	Premier Nitti resigns succeeded by Giolitti. Agrarian revolts frequent. Labor Unions take over industries in imitation of Bolsheviki.	Passage of California land act causes bitter feeling against U. S. Korean uprising severely repressed Siberia is evacuated.	Bolsheviki strengthen their hold on Russia. General Wrangel holds out against Bolsheviki greater part of year. Sebastapol is captured by Trotsky.	Over 1,000,000 Chinese soldiers engaged in Civil wars. Canton and Peking governments fighting for supremecy.	Bad feeling in Bulgaria over loss of Dobrudja with 70,000 Bulgarians and Macedonia with 100,000 Bulgarians. Thomas Masaryk becomes President of Czecho-Slovakia.

From the Founding of the German Empire to the Present Day, 1871–

A. D.	Discoveries, Arts, Crafts	Great Britain	Spain and Portugal	France	Germany
1921	Wireless telephone extended. Second Simplon tunnel completed.	Laborites gain seats in Parliament. Unemployment increases. Imperial Conference decided self-governing colonies shall have part in English foreign policy. Prince of Wales visits India.	Spanish troops beaten in Morocco. Premier Dato assassinated. Revolution in Portugal.	Leygues ministry falls and Briand forms cabinet based on following principle: No concession to Germany; English alliance. Briand attends Disarmament Conference in U. S.	Julius Wirth succeeds Fehrenback as Chancellor. Erzberger assassinated. Government suppresses militarists. Peace signed with U. S.
1922	Radio becomes popular in all walks of life. Attempted ascent of Mt. Everest. Einstein theory of relativity announced. Extensive archeological explorations and discoveries in North Africa and Near East. Tomb of King Tut-Ankhamen discovered.	Lloyd George's coalition ministry being deserted by Unionists resigns Oct. 19. Lloyd George's policy results in strained relations with France. Conservatives win at general election, Andrew Bonar Law becomes Prime Minister. Irish Free State established. Northern Ireland and Free States sign peace compact. Parliament recognizes Egypt as independent Kingdom.	Spanish military failures in Morocco. Portugal has nine ministerial changes in one year.	Briand ministry resigns Jan. 12, unable to meet demand of forcing Germany to live up to treaty. Premier Poincare states policy will be to deal with Germany alone, even though it means break with England, France declines. Clemenceau visits United States. Woman suffrage passed by Deputies, defeated in Senate.	Reparations Commission decides Germany must pay 720,000,000 gold marks in 1922 and 1,450,000,000 in goods. Walter Rathenau, Foreign Minister, assassinated June 24. Government unable to cope with labor disturbances. Wirth resigns Nov. 14. Cuno becomes Chancellor, forms anti-Radical Cabinet.
1923	Dr. Banting of University of Toronto discovers "insulin" treatment of diabetes. First Transcontinental Air Service was established by the U. S. Government. Shandaken tunnel carrying water to city of New York completed, one of the longest tunnels in the world.	Bonar Law resigns because of ill health May 20. Stanley Baldwin becomes Premier. Great Britain and U. S. at odds over enforcement of prohibition. Unemployed number over 1,000,000 placing heavy burdens upon the government pension law. Parliament dissolved. Elections result in party majority.	Spanish army revolts and demands cabinet resignation. Extensive strikes in Barcelona. Spain claims victory in Morocco. Senor Tuxeira Gomes becomes President of Portugal. Portugal issues first internal loan.	Occupation of the Ruhr completed in spite of liberal opposition. Poincare receives almost unanimous support. Ex-President Wilson states France is violating the Versailles Treaty. Royalist party becomes stronger. Heads of Krupp works sentenced, fined and imprisoned for inciting riot.	The mark becomes worthless causing immense loss to speculators. New currency rentenmark is issued. Policy of passive resistance to French adopted. Cuno resigns succeeded by Stresemann as Chancellor. Bavarian reactionaries take over government, Ludendorff being leader.
1924	Carter opens the coffin of King Tut-Ankhamen. Diesel engine perfected.	Baldwin ministry is overthrown by Liberals and Laborites, Ramsay MacDonald forms England's first labor ministry. Disturbances occur in the Irish Free State. National Debt reduced by more than $3,000,000,000 since 1919. Great Britain protests against gun elevation on Japanese and U. S. vessels as violating the Washington conference. Labor party is defeated. Elections result in sweeping victory for Conservatives. Baldwin again Premier.	Spain completely defeated in Morocco. Spanish provinces revolt.	French reduce troops in Ruhr. May elections result in defeat of National Bloc. Poincare's ministry ends. President Millerand resigns when all of new dominating bloc refuses to form ministry with him. Doumergue is elected President. Herriott becomes Premier. Caillaux and Malvy pardoned by Parliament. France agrees to evacuate Ruhr within one year. First Soviet Ambassador received.	Leaders of Rhine separatist movement lynched. Reichstag is dissolved Mar. 13. The Dawes report recommends establishment of a new German Bank of issue, partly supervised by foreigners; arrangement of budget that includes reparation, higher taxes, foreign loan of 200,000,000 bond issues on German railroad and industries. New Reichstag accepts Dawes report. Germany makes request to join League of Nations.
1925	Roosevelt brothers following in footsteps of famous father, on exploration trip into Western China and Thibet. Amundsen flies within 157 miles of North Pole.	Further reforms in House of Lords. Demonstration against Balfour in Damascus. Prince of Wales visits Africa.	President Gomes of Portugal resigns. Congress refuses to accept resignation. General Primo de Rivera virtual dictator of Spain. End of Riff War.	Premier Herriott refused confidence of Chambers, resigns. Painlevé becomes Premier with Briand as minister of Foreign Affairs.	President Ebert, first President of German Republic, dies. Field Marshall von Hindenberg accepts nomination and is elected President.
1926	Prof. B. S. Hopkins discovers new element illinium.	General strike fails. Dominions placed on equal status.		Poincare stabilizes currency.	Admitted to League of Nations.
1927	McMillan starts on eleventh trip to the North.	House of Lords proposes reduction of number, abolition of hereditary membership, and greater voice in policies. Cosgrove re-elected in Irish Free State.	New Assembly in Spain, but virtual dictatorship continues. Further disturbances in Portugal put down.	Business becoming stable and finances more certain. Proposes to outlaw war with U. S.	Takes part heartily in League of Nations. Accepts compulsory arbitration under World Court.
1928	Louve *Mona Lisa* declared a genuine da Vinci. Louvain library restored. Centennial of Shubert, famous composer.	Commons again rejects Prayer Book revision. Frees 250,000 slaves in Sierra Leone. Thames floods parts of London. King George gravely ill. Dr. C. G. Lang new Archbishop of Canterbury.	Primo de Rivera more powerful in Spain.	Returns to gold standard. Stops easy divorces for Americans. Proposes to U. S. a new treaty against war. Vainly tries to ban U. S. films.	Mueller, Socialist chancellor, conciliates former enemies. Regaining foreign commerce.
1929	Byrd finds new land in Antarctic. Einstein reports new theories.	Labor party under Ramsay MacDonald wins in general election. Lloyd George with Liberals holding balance of power. In thirty years the Labor party has increased from 2 to 288 seats. Dawes received as Ambassador to Gt. Britain. Disarmament question in foreground.	Opening of Ibero-American exposition in Seville.	Second Dawes Reparation Committee meets in Paris. Final settlement. Outstanding participants: Young for U. S.; Schact, Ger.; Stany, Eng.; Moreau, Fr.; Francqui, Bel. Kellogg pact for outlawing war signed in Paris.	Ratifies Kellogg peace treaty. May day riots serious. Final reparations settlement. Under Dawes plan was 595 millions per year. Under Young plan 487,600,000 per year and established *total* sum.

From the Founding of the German Empire to the Present Day, 1871–

A. D.	Austria and Hungary	Italy	Japan	Russia	China	Other Countries
1921	Strong sentiment manifest for union with Germany. Economic conditions chaotic. Kronen declines.	Giolitti ministry resigns June 27. Anti-Socialist group known as Fascisti becomes prominent. Italy and France adopt divergent foreign policies and unpleasant incidents occur in both countries. Treaty made with Russia.	Dead-lock between Japan and China over Shantung continues. Japanese in League of Nations insist upon concession in China. Crown Prince Hirohito becomes Regent. Japan takes part in Washington disarmament conference; accepts 5-5-3 naval ratio.	Lenin modifies communist system to satisfy peasants. Destructive famines prevail. Congress gives $20,000,000 for Russian relief. Bolshevik leaders repudiate old Russian debt, ruining credit of Russia. Trotsky denounces Washington conference.	German property in China restored to its owners. Southern Republic under Sun-Yat-Sen holds out. Liang Saishyi, noted banker, becomes Premier.	Situation in Bulgaria improves as compared with Balkan countries. Cost of living in Czecho-Slovakia decreases. Turks under Kemel defeat the Greeks in Asia Minor. Treaty of Sevres is abrogated because of Franco-English split.
1922	League of Nations undertakes to rescue Austria from bankruptcy. Loans $135,000,000. League appoints commissioner-general to supervise expenditures.	Fascisti become best organized group and precipitate civil war. Mussolini, Fascisti leader, becomes Premier when King fears for safety of dynasty. Mussolini adopts stern measures to put down he opposition.	New Cabinet under Admiral Kato, liberal, is ormed. Army is reduced and general anti-militarist measures adopted. Siberia is evacuated by Japanese troops.	Government operation of industries fails and the leasing system is tried. Lenin admits foreign capital is necessary. Severe famines continue. Bolshevik kill many of the middle class who remain in Russia.	Internal conditions grow more chaotic. General Wu has success against rival government in Canton.	Greek army in Asia Minor wiped out. Constantine overthrown. Prince George becomes King. Britain breaks off diplomatic relations with Greece. Trouble between Poland and Lithuania over possession of Vilna. Turks depose Sultan.
1923	Conditions in Austria improve under administration of League of Nations. Anti-Semitic riots occur in Vienna. Pan-German element loses support as more hopeful feeling prevails. 50,000 superfluous government officers dismissed.	Mussolini grows stronger and his rule becomes complete dictatorship. Socialists are suppressed. Relations with Vaticanimproveand Catholics rally to Mussolini's support. Fasci ti reo ganization of the army under General Diaz. Italian arliament ratifies a mament limitations treaties which were negotiated at Washington. Eruptions of Mts. Etna, Vesuvius and Stromboli.	Premier Kato dies Aug. 23. Count Yamamato becomes Premier. Greatest earthquake of modern times on Sept. 1st, followed by fire results in death of over 200,000 persons and immense destruction of property in Tokio and Yokohama.	Commercial treaty with Germany signed. Conflict between Government and church. New constitution adopted July 4. Trouble with Great Britian over Bolshevist propaganda in India. U. S. Secretary of State, Hughes, states Russia is still an outcast among nations. Harvests in Russia improve. U. S. withdraws help as Bolshevists export wheat. Lenin announced as President of U. S. of Russia.	Bandits capture foreigners and hold them for ransom. European powers discuss advisability of intervening in Chinese affairs. President Li Yuanhung is forced out of Peking China by the militarists. Sun-Ya-Sen reestablishes the Canton government.	Agrarians gain in Bulgaria. Premier Stambuliski peasant leader is killed. King Boris supports the revolution. Elections in Greece result in victory for Venizelist party who favors a republic. King George leaves Greece. Trouble with Italy over the Janina murders nearly leads to war. Rumania adopts new constitution.
1924	Austria and Rumania make commercial treaty with "Most favored nation" basis. Conditions continue to improve in Austria and Hungary.	By treaty with Yugo Slavia, Fiume becomes Italian territory. The King confers upon Mussolini the title Prince of Monteneyoso. Fascisti win in April elections.	The new immigration law of U. S. excluding the Japanese by name results in anti-American demonstrations throughout Japan. The ministry loses in the May elections.	Lenin dies, and the power passes to Trotsky. Russia resumes commercial relations with many countries. Foreign capital actively sought. Premier Rykoff admits spreading Communist propaganda in England, France, U. S. Trotsky goes into "exile."	Disastrous floods wipe out many villages. Civil war breaks out near Shanghai, endangering lives and property of foreigners. General Chang Tsolin, war lord of Manchuria, declares against the Peking government. China again involved in a general war. Riots throughout all China. Soviet propaganda causes trouble in China.	Czecho-Slovakia increases in prosperity. Alliance with France causes criticism. Venizelos returns to Greece,is elected President of National Assembly. Forced to resign because of illness. People vote to establish a Republic. Soviet - Russia formally recognized by Greece. Premier Theunis of Belgium resigns Apr. 5. Count Poullet forms new cabinet.
1925	Jeremiah Smith of Boston becomes financial director of Hungary and puts budget in order. Czecho-Slovakia accuses Hungary of not disarming. Issue shelved in League of Nations.	Mussolini speaks against Pan-Germanism annexation of Austria. Women granted suffrage in Italy.	July 1st, 1925 recommended as "Humiliation Day" in Japan to commemorate U. S. immigration act of July 1st, 1924, barring Japanese.	Bolshevists seek further outside capital, changing Communist program. Land is again leased to peasants.		
1926	Austrian sentiment strongly favors uniting with Germany.	Attempted assassination of Mussolini.	Bolshevik propaganda fails. Continues to accept American ideas.	Private enterprise more freely recognized.		Bulgarian irregulars cause trouble with Greece.
1927	Great riot in Vienna with many deaths, due to conflict between reds and facisti.	Capital punishment restored. Treaty with Albania arouses Yugo-Slavia.	Emperor Yoshihito dies and is succeeded by Hirohito. Crisis in financial affairs.	Proposes disarmament to League of Nations. Warns Poland against seizure of Lithuanian territory.	New generals and new disorders appear. Civil war continues.	Persia abandons culture of opium. King Ferdinand dies in Rumania.
1928	Economic improvement.	Fascist Council granted legal status.	Trouble with China in Shantung. Flier circles globe in 36 days.	Gorky back from exile. Favors only complete disarmament of nations.	Nationalists in control. Will abrogate unequal treaties.	King Alexander announces Dictatorship for Yugo-Slavia. Riots in Rumania. Egypt abolishes slavery.
1929	Ignaz Seifel resigns as chancellor, Dr. Ernest Streeruwitz elected.	Mussolini holds 9 out of 14 cabinet places. Reaches accord with Vatican.	Prime Minister Tanaka states dominant point in foreign policy is friendly relations with U. S.	Deep unrest among peasants. Many exiles. Trotsky's supporters arrested. Monarchists active.	New uprisings against Nationalists. Difficulties appear on Mongolian border. Threats of war with Russia.	Turkey grants religious freedom. Rumania under Premier Maniu assured new outlook.

Events in America in the Twentieth Century.

A. D.	Discoveries, Arts, Crafts.	United States.	Canada.	Latin America.
1900	1900. Value of artificial ice made in U. S., $14,000,000. Borchgrevink, British explorer, reaches lat. 78° 50′ south via Victoria Land. Duke of the Abruzzi reaches lat. 86° 33′ north, via Franz Josef Land.	1900. Samoan treaty ratified, January 16. Hay-Pauncefote treaty signed, February 5. Gold Standard Currency bill signed, March 14. General MacArthur succeeds General Otis in the Philippines, April 7. Civil government in Porto Rico, April 12. Charles H. Allen, first civil governor of Porto Rico, April 12. General MacArthur issues a proclamation of amnesty to the Filipino insurgents, June 15. McKinley renominated at Philadelphia, June 21. Fire around the dock of Hoboken causes the loss of many lives and of $10,000,000 of property, June 30. Bryan renominated at Kansas City on free silver and anti-imperialism, July 5. Civil government established in the Philippines by a second commission of five, William H. Taft, president, September 1. Strike in the anthracite coal regions of Pennsylvania, September 13 to October 13. Population of the United States by the 12th census, 76,303,387, without Porto Rico or Philippines. Tornado at Galveston, Tex., caused the loss of 7,000 lives and of $30,000,000 of property, September 8. McKinley re-elected 292 to 155, November 6.	1900. Parliamentary elections result in victory for the Liberals. Great fire at Ottawa, April 26. Forest fires in northern Ontario destroy millions of dollars' worth of timber. Fenians attempt to dynamite a lock on the Welland Canal. Many Canadians engage in the South African war. Immigration question debated; prejudice against admission of foreigners. Earl of Minto, governor general, travels in western Canada.	1900. General Diaz re-elected president of Mexico. Serious earthquake at Caracas, Venezuela. The Chilean cabinet resigns. Insurrection in Salvador under Castro, who attempts to seize the presidency; Castro found guilty and shot. Boundary between Costa Rica and Colombia settled by President Loubet of France. Revolution in Entre Rios, Argentina. Revolution in Colombia: severe fighting in and around Panama; order restored after 6 months. Unsuccessful attempt on the life of General Alfaro, president of Ecuador. Disorder in Venezuela; severe engagements near Bolivar City, where rebels are defeated.
1901	1901. Thirty-seven torpedo boats included in the United States navy. M. Santos-Dumont, Brazilian scientist, invents a dirigible balloon.	1901. Army Reorganization Bill signed, February 2. Army canteens closed by the War Department, February 4. First session of the Territorial Legislature of Hawaii begun, February 20. United States Steel Corporation incorporated, February 25. Aguinaldo captured by General Funston, March 23. Pan-American Exposition at Buffalo, May 1 to November 2. Jacksonville, Fla., fire destroys property worth $10,000,000, May 3. Hall of Fame inaugurated at New York, May 30. General Chaffee, military governor of the Philippines, June 22. William H. Hunt, governor of Porto Rico, July 23. Fourteen thousand steel employees strike, August 10. McKinley fatally shot at Buffalo, September 6; died September 14. Roosevelt succeeds as 26th president. Isthmian Canal treaty between the United States and Great Britain signed, November 8.	1901. Serious fire in Montreal, loss $3,000,000. R. L. Borden chosen leader of the Conservative party to succeed Sir Charles Tupper, defeated in elections of 1900. May 24th made a public holiday by Parliament; called "Victoria Day." Population, 5,369,666. Capital first applied to the production of iron on a large scale. Steady growth of the Free Trade sentiment. The Earl of Minto makes an official trip through the Maritime Provinces. Act passed for the establishment of a branch of the Royal mint at Ottawa.	1901. Colombian liberal troops surrender at Colon. New cabinet in Chile. Riesco president of Chile. Revolution in Venezuela. Diplomatic relations resumed between Venezuela and France. The consul general from Ecuador assassinated at Valparaiso, Chile. Gen. J. Santos Zelaya re-elected president of Nicaragua. Second International Conference of American Republics in Mexico, 1901. 1901-1902. War between Venezuela and Colombia.
1902	1902. Alternating current locomotive runs 99½ miles per hour. Wireless messages sent across the Atlantic, by Marconi. Value of total gold product of the world, $295,000,000. The laying of the British Trans-Pacific cable completed at the expense of Great Britain, Canada, and Australia; length 7,755 miles. Return of the Baldwin-Ziegler polar expedition after an absence of only one year: reached latitude 80° 25′. Peary reaches 84° 17′ north latitude, in western hemisphere.	1902. Presidential election in Cuba, January 1. Prince Henry of Prussia visits the United States, February 23 to March 11. Imports from Philippines to pay 75% of usual rates, March 8. Act to reclaim arid public lands, June 17. Rochambeau statue dedicated at Washington, May 24. Isthmian Canal act; president authorized to build Panama canal if French rights could be bought for $40,000,000, June 28. Act for civil government in the Philippines; provision for legislature of two houses; one elected house; two resident commissioners in the United States; right to bear arms and to trial by jury withheld, July 1. Anthracite coal workers of Pennsylvania strike, May 12 to October 21. Samoan controversy decided against the United States, by King Oscar of Sweden, October 21. Wu Ting-fang, minister from China, recalled, October 27. Reciprocity treaty with Newfoundland signed, November 8. Reciprocity treaty with Cuba signed, December 11; in force, December 27, 1903. A permanent Census Bureau created.	1902. Alaskan boundary still unsettled. Industries barely escape disaster as the result of the Pennsylvania coal strike. Discussion in the House concerning the buying of controlling interests in Canadian railways by United States capitalists. Formation of companies for the production of electrical power from Niagara Falls. The Canadian Northern Railway obtains permission to construct a transcontinental line. Decline in value of gold production; value, 1901, = $18,000,000; 1902, = $12,000,000. Terrible accident on Grand Trunk Railway at Wanstead; twenty-eight persons killed. Strike of street railway employees in Toronto; militia called to preserve order. Canadian-Australian cable completed.	1902. Germany, Great Britain, and Italy attempt to collect claims of Venezuela; Puerto Cabello bombarded. General Mendoza, Venezuelan revolutionist, defeated; revolution ended. Leaders of the insurgents in Colombia surrender to the government. The volcano Santa Maria, in Guatemala, active. Civil war in Colombia ended; treaty of peace between the insurgents and the government. The Venezuelan fleet seized by British and German fleets. The Venezuelan government appeals through the United States for arbitration of European claims. Cuban republic formally established; Estrada Palma elected president.

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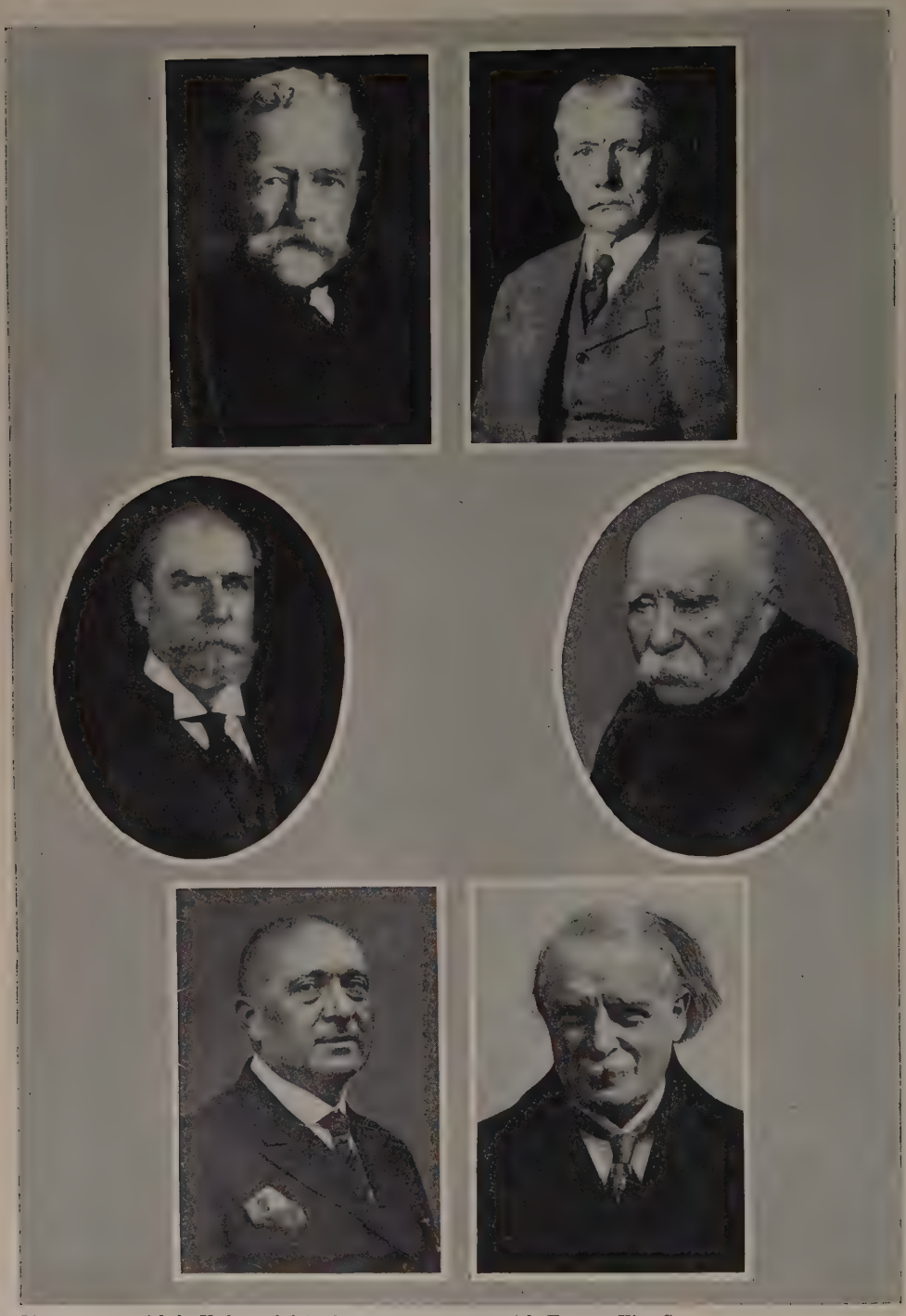
FAMOUS STATESMEN—I

Patrick Henry
Stephen A. Douglass
Abraham Lincoln

Benjamin Franklin
Henry Clay
Prince Otto von Bismarck

Thomas Jefferson
John C. Calhoun
Daniel Webster



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FAMOUS STATESMEN—II

Henry Cabot Lodge
Charles Evans Hughes
Rene Viviani
Elihu Root
Georges Clemenceau
David Lloyd George

Events in America in the Twentieth Century.

A. D.	Discoveries, Arts, Crafts.	United States.	Canada.	Latin America.
1903	1903. William Ziegler of New York sends out, under Anthony Fiala, an Arctic expedition. Valuable and extensive deposit of mica discovered in Colorado.	1903. Panama Canal treaty between the United States and Colombia signed, January 22. Department of Commerce and Labor created, February 14. Reciprocity treaty between Cuba and the United States ratified by Cuba, March 11; and by the United States, with amendments, March 19. Great floods at Topeka, Kan., drown more than 200 persons and destroy much property, May 31. Pacific cable completed, July 4. President Roosevelt sends a message around the world in 12 minutes. Chicago celebrates the hundredth anniversary of settlement, September 26-October 1. Three million dollars damage by floods at Paterson, N. J., October 9-11. Republic of Panama recognized by the United States, November 6. Purchase of friars' lands in the Philippines agreed to, December. Iroquois Theater, Chicago, burned, 600 lives lost, December 30.	1903. Settlement of the Alaskan boundary question. Silver mines discovered in Cobalt, Ontario. Landslide at Frank, Northwest Territories; eighty persons killed, entire village submerged; loss = $1,000,000. Severe fire in Ottawa; 200 houses and much lumber destroyed; loss = $3,000,000. The Chamberlain tariff proposals. Canadian industries not so prosperous as in previous years; exchange reports show notable decrease; large speculative house fails. The rights of Canada to Germany's "most favored nation" tariff clause withdrawn by the latter government.	1903. Trouble between Venezuela and Colombia referred to Hague Court of arbitration for settlement. Senate of Colombia rejects Panama Canal treaty. Panama, formerly a dependency of Colombia, asserts its independence, and is recognized by the United States. Canal treaty with United States ratified by Panama. Revolution in Honduras.
1904	1904. A cataract surpassing in size and beauty that of Niagara discovered on the Iguassu river in South America: height, 210 feet; width, 13,123 feet. New satellite of Saturn discovered; named Phoebe. Tin found in the York region of Alaska.	1904. United States Supreme Court decides that Porto Ricans are not aliens, January 4. Commercial treaty between China and the United States ratified, January 13. Fire in Baltimore destroys $70,000,000 of property, 2,500 buildings, and burns over 140 acres, February 7, 8. Fire in Rochester, N. Y., causes losses of $3,200,000, February 26. Wisconsin State Capitol burned at Madison, February 27. Excursion steamer, *General Slocum*, burned in the East River, New York, with loss of more than 1,000 women and children, June 15. United States sends war ships to Turkey; demands as to treatment of American citizens and schools in Turkey complied with. Earl of Dartmouth lays corner stone of Dartmouth Hall at Dartmouth College, October 26. Statue of Frederick the Great, presented by Emperor William II. of Germany, unveiled at the Army War College at Washington, D. C., November 19. Agreement between Secretary Taft and President Amador settles differences between United States and Panama, December 2. Sherman Act enforced in Northern Securities case.	1904. Plan for transcontinental railway; anticipated date of completion, 1911. Preferential trade scheme with Great Britain favored. Revision of the militia laws; division of the Dominion into military districts. $10,000,000 fire in Toronto. Doukhobors on the march. General elections in Quebec, Prince Edward Island, Nova Scotia; Liberal victories. Lord Grey succeeds Lord Minto as governor general. Industries prosperous after the falling off in 1903; value of gold product = $16,400,000. Restriction of Chinese immigration. Anglo-French treaty. Sale of Magdalen Islands.	1904. Venezuelan diplomatic difficulties with the United States. Treaty with Panama, concerning canal, ratified by United States. Boundaries of United States territory on the Isthmus defined. The Hague Arbitration Court, to which the claims against Venezuela were referred, decides against Venezuela. Manuel Amador inaugurated as president of Panama. Porfirio Diaz re-elected president of Mexico; Ramon Corral, vice-president. Don José Pardo proclaimed president of Peru. The Venezuelan government seizes asphalt properties belonging to the United States. Last American soldiers withdrawn from Cuba.
1905	1905. The second Hudson river tunnel completed; it is 15 ft. in diameter and 5,780 ft. long. The first turbine Atlantic liner, built at Belfast, crosses from Liverpool to Montreal. Luther Burbank succeeds in originating new plant life, roots and flowers.	1905. Santo Domingo agrees to allow the United States to preserve order, to collect its revenues, and finance its affairs, January 21. Beef Trust declared illegal by the United States Supreme Court, January 30. Insurance investigation begun in New York, April 3. Body of John Paul Jones discovered in Paris by Gen. Horace Porter, April 14; and brought to the United States and interred at Annapolis, July 24. Yellow fever at New Orleans, July 20. Theodore Roosevelt, president, 336 electoral votes; Parker, 140. Charles W. Fairbanks, vice-president. Panama canal property bought from the French company, April 27. International Railway Congress at Washington opens, May 8. John Hay, secretary of state, died, July 1; Elihu Root succeeded. Treaty of peace between Russia and Japan signed at Portsmouth, N. H., September 5. Prince Louis of Battenberg arrives at Annapolis, November 1. Work begun on Panama canal. Senate annuls arbitration treaties with foreign powers.	1905. The provinces of Alberta and Saskatchewan created. Bill passed providing annual pension of $3,500 for all cabinet ministers and ex-ministers who had been five years in office. Negotiations completed for the manning of Canadian fortifications with Canadian troops. Rapid economic advance of northern Ontario owing to the development of silver resources. Boundary dispute between Quebec and Newfoundland. Report of explorations in Hudson Bay region; traces of coal found. Misunderstanding between Canada and the United States regarding water boundaries. Presbyterian, Methodist, and Congregational sects are strongly in favor of union.	1905. Venezuela agrees to prefer claims of Germany and Great Britain to the amount of $26,000,000. The Panama railroad purchased by United States. Venezuela and Brazil settle long-standing boundary dispute. Steps taken by Italy to force Venezuela to a settlement of Italian claims. President Morales, of Santo Domingo, leaves the capital. Gen. Cipriano Castro is re-elected president of Venezuela for term of 6 years.
1906	1906. Robert E. Peary of the United States reaches 87° 6′ n. lat., the record of farthest north.	1906. Hepburn Act regulates railway rates. Pure Food and Drugs Act. Battle of Jolo, Philippines, March 8; 600 Moros killed. Earthquakes and fire at San Francisco, Cal., destroy property worth $400,000,000, April 18-21.	1906. The Canadian members of the International Waterways Commission report the maintenance of Niagara to be a national matter.	1906. Earthquake at Valparaiso. Hostilities between Salvador and Guatemala. Insurrection in Cuba.

Events in America in the Twentieth Century.

A. D.	Discoveries, Arts, Crafts.	United States.	Canada.	Latin America.
1906	1906. Atmosphere of the earth calculated by Prof. T. J. J. See to be 131 miles in height.	1906. Standard Oil Co. indicted for receiving rebates; United States intervenes to preserve peace in Cuba by second military occupation; Brownsville, Tex., riots. 1907. Pure Food Law in effect; Reed Smoot sustained as senator; Jamestown Tercentenary Exposition; revelations of methods in Colorado strikes of 1903, 1904; Standard Oil Company fined $29,240,000; judgment set aside by U S. Circuit Court of Appeals in 1908; first Philippine legislative assembly; Oklahoma a state; U. S. fleet sailed around the world (Dec. 16, 1907-Feb. 22, 1909).	1906. Departure of last British garrison; diamonds found in Canada; noticeable increase in number of immigrants.	1906. Earthquake and fire at Valparaiso, Chile. President Morales of Santo Domingo impeached.
1907	1907. Captain Mikkelson and Mr. Leffingwell reach 71° 17′ n. lat.; steel cars are extensively used; steam engines discontinued in U. S. elevated railways; *Mauretania's* first trip across the Atlantic, 5 d., 5 h., and 10 m.	1908. Conference of governors at Washington; United States remitted claim to $11,000,000 of Boxer uprising indemnity from China; death of Ex-president Grover Cleveland; two-cent postal rate between the United States and Great Britain; House adopts resolution fixing boundaries of Colorado, New Mexico, and Oklahoma. 1909. Congress voted $800,000 for relief of earthquake sufferers in Italy; Battleship fleet returns to Hampton Roads; President William H. Taft and Vice-president James S. Sherman inaugurated; U. S. troops evacuated Cuba; 700,000 acres of government land opened to settlement in Washington, Montana, and Idaho; Alaska-Yukon Pacific Exposition at Seattle, Wash.; Cape Cod Canal begun; Payne Tariff Law signed; President Taft and President Diaz of Mexico met at El Paso, Texas; United States acts against Nicaragua; new copyright law. 1910. Tariff Commission appointed; Statehood Bill, Railroad Bill, Postal Savings Bank Bill, Campaign Publicity Bill, passed; Civil service for second class postmasters. 1911. Postal Savings Banks in operation; Commerce Court organized; Panama Canal fortifications begun; Treaty with Honduras; Japanese treaty ratified; Treaty with Nicaragua; Treaty with Great Britain and Russia, abolishing pelagic sealing, for 15 years; Canadian Reciprocity Bill passed; Arbitration treaties with France and Great Britain signed; Russian treaty of 1832 abrogated. 1912. New Mexico and Arizona made states; first presidential primary; Children's Bureau created; Bristow amendment to the constitution passed; Eight-hour Bill for government employees passed; Commerce Court abolished; Pension Bill; two new stars on flag; Americans victors in Olympic games; Panama Canal Bill; Committee of Industrial Relations appointed; Cunningham claims canceled; Civil Service extended to include fourth-class postmasters. 1913. Parcels post in operation; pension agencies discontinued; XVIth amendment ratified; Department of Labor created; Immigration Bill and Webb Liquor Bill passed over veto; inauguration of Woodrow Wilson and Thomas R. Marshall; 63d Congress in extra session; XVIIth amendment ratified; California anti-alien land act; Governor Dunne of Illinois signed bill giving suffrage to women for statutory offices; U. S. District Court of Utah sanctions dissolution plan for Union Pacific-Southern Pacific Railroad; President Wilson outlines his Mexican policy before Congress; Governor Sulzer impeached by N. Y. Assembly, tried and removed from office; Underwood Tariff Bill signed; arbitration board of 41 Eastern railroads and their trainmen filed an award of 7% increase in wages to trainmen, about $6,000,000 a year; Hetch-hetchy-Bill and Federal Reserve Bill signed. 1914. Alaska Railroad Bill passed; alcoholic liquors for drinking prohibited in U. S. Navy, April 5; "Tampico incident," April 10; resolution justifying use of "armed forces of the United States to such an extent as may be necessary to obtain from General Huerta the fullest recognition of the rights and dignity of the United States" passed, April 20; seizure of Vera Cruz by U. S. war vessels, April 21; Volunteer Army Bill passed, April; U. S. troops sent to Colorado mines, April 29; mediation offer of Argentina, Brazil and Chile accepted; Federal Reserve Banks established; declaration of neutrality with belligerents in European War. 1915. Peace treaties providing arbitration completed with 26 nations; increasing violations of neutral rights by the allies and by Germany. President Wilson protests to warring nations. German submarine sinks Lusitania, 2000 non-combatants perish, including 110 Americans.	1908. Sovereign Bank of Canada goes into liquidation; Japanese agreement; government loan of $40,000,000 to western farmers; Province of Alberta purchases the Bell telephone system within her boundaries; Province of Manitoba buys Bell system; mint at Ottawa opened. 1909. A treaty signed at Washington to provide for the settlement of questions in dispute between Canada and the United States, January 11; first Canadian navy; 16 dreadnoughts planned; Canadian loyalty emphasized by formation of King's Colonials Yeomanry, to serve in any part of the world under permission of home government. Georgian Bay Canal project and workings far advanced. 1910. Canadian Pacific Railway wreck; one of the worst in Canadian history; caused by an avalanche at Roger's Pass, May 5; anti-Trust bill in Dominion Parliament; new Fisheries Treaty with United States. 1911. Duke of Connaught appointed Governor General, Jan. 29; installed, Oct. 13; reciprocity pact before the people, July 29, rejected, Sept. 21; Laurier ministry ended; new census; new ministry, Oct. 6; 12th Parliament, Nov. 15; 15 experimental farms and stations established. 1912. New district, "Patricia," in Ontario, April 21; Opium and Drugs act; Seed Control act; Dry Docks act, Oct.; Dominion Medical Council; new department created to deal with external affairs and all matters relating to foreign consular service; Naval policy reversed; 3 Canadian battleships to be added to Royal Navy. 1914. The Canadian Pacific liner *Empress of Ireland*, on her way from Quebec to Liverpool, with 1360 passengers and a crew of 413, was rammed amidships by a Norwegian collier during a fog in the early morning, and sank within a few minutes in the St. Lawrence, near Father Point, P. Q. Of the passengers 1024 were lost and 211 of the crew, May 29.	1907. Boundary between Panama and Costa Rica settled; Tehuantepec National Railroad opened; Chilpancingo and Chilapa, Mex., destroyed by earthquake; protocol signed by Central American states for permanent peace. 1908. Guatemalan Northern Railway opened; President Castro of Venezuela declines request of United States to arbitrate claims; General Simon elected president of Haiti. 1909. The Yaqui Indians end a thirty-five years' war with Mexico; revolution in Nicaragua; Transandine Tunnel opened; extended government control of railways in Mexico. 1910. Cartago, Costa Rica, destroyed by earthquake; cyclones in Cuba; naval mutinies in Brazil; boundary disputes between Peru and Brazil, Peru and Chile, settled; Putumayo rubber scandals in Peru; Diaz inaugurated president of Mexico for the eighth term. 1911. Revolution in Haiti; revolution in Mexico; peace pact signed; Diaz resigned; Earthquake in Mexico City, Francisco I. Madero elected president. 1912. Revolutions in Central America; U. S. gunboats and marines at Dominican Republic, Haiti, and Nicaragua; Chilian railroad over the Andes; negro uprising in Cuba over elections, U. S. intervention; Peru reorganized navy; Indians in Brazil made citizens; Mexican revolution continued; Chile and Peru at peace. 1913. President Madero resigned; assassinated, Feb. 23; Gen. Huerta, provisional president; opposition "constitutional" government announced by Gov. Carranza of Coahuila; civil war between the factions, with much fighting, in which the insurgents are generally successful. 1914. A successful revolution in Peru; Benadides is made president; revolution in Haiti; Gen. Oreste Zamor became president. Clash between United States and Mexico; the United States seizes Vera Cruz; good of A B C mediators accepted; President Huerta flees Mexico; Carranza, Villa, and Zapata factions battle for control. 1915. Civil War in Mexico continues.
1908	1908. The East River Tunnel opened; Wilbur Wright flies 1 h. 54 m. in aeroplane; Hudson River Tunnel opened; wireless communication between San Francisco and Hawaii.			
1909	1909. Pacific entrance of Panama Canal open, February 2; R. E. Peary reports discovery of North Pole, April 6; Stovaine and strychnine successfully used as an analgetic in surgery; Dr. W. L. Dudley of Vanderbilt University explains phenomenon of the aurora borealis.			
1910	1910. Halley's comet passed the sun, May 18.			
1911	1911. Multiplex telephone; phosphate beds in Montana; wireless between San Francisco and Japan, Oct. 6; wireless between Nova Scotia and Italy, 4000 miles, Nov. 19.			
1912	1912. Spinal meningitis serum discovered by Dr. Simon Flexner; largest deposit of radium in world discovered in Colorado, Sept. 23.			
1913	1913. Germ of infantile paralysis discovered by Dr. Simon Flexner; wireless communication between Eiffel Tower, Paris, and Arlington, Va., March 22.			
1914	1914. Colonel Roosevelt explores an unknown Brazilian river.			

Events in America in the Twentieth Century.

A. D.	Discoveries, Arts, Crafts.	United States.	Canada.	Latin America.
1915	1915. Germans prove the effectiveness of the cruising submarine as an instrument of war.		1915. 4 Canadian brigades, outflanked by 150,000 Germans at Ypres, hold their position and save Calais from capture.	
1916	1916. Elie Metchnikoff, great scientist and associate of Pasteur, dies at Paris.	1916. Pres. Wilson appoints Louis Brandeis, radical, to the U. S. Supreme Court. Sec. of War Garrison resigns because of disagreement with Pres. Wilson. Germans continue their policy of sinking U. S. merchant ships. Cong. appropriates nearly 300 millions for army. U. S. buys Danish West Indies. 7 railroads file injunction suits against Adamson 8 hour law. Woodrow Wilson elected Pres. of U. S. for second term, being opposed by Supreme Court Justice, Chas. E. Hughes. Newton Baker becomes Sec. of War. 1917. U. S. declares war against Germany, Apr. 6. War appropriations total over 7 billions.	1916. Parliament buildings at Ottawa destroyed by fire. Nearly 400,000 Canadians volunteer in the cause of the Allies. Prohibition movement gains, especially in western provinces. Manitoba and Alberta give vote to women. Conscription debated in Parliament.	1916. Carranza is recog. nized by the U. S. and Latin America governments. 19 Americans killed at Santa Ysabel. Policy of confiscating church property adopted by Mexico.
1917	1917. Auguste Rodin, one of the greatest sculptors of all times, dies in France, Nov. 27, aged 77.	Selective Draft Act passed. Gen. Pershing given command of U. S. Expeditionary force. First Liberty Loan of 2 billions over-subscribed. American Merchant Marine tonnage reaches nearly 12 million tons. Exports and imports of U. S. total 9 billions of dollars. Cong. passes 18th Amendment to Const. Supreme Court upholds Oregon Minimum Wage Law, and Adamson Law, giving Congress right to regulate hours and wages in the interest of public. First U. S. Tariff Commission appointed. 1918. U. S. Supreme Court declares unconstitutional Child Labor Act.	1917. Greatest cantilever bridge in the world completed at Quebec; 640 feet long; weight 5,400 tons. Conscription Act passed by Dominion Parliament after bitter opposition from French Canadians. Explosion of munitions ship at Halifax results in loss of 1,500 lives and property damage of $50,000,000.	1917. Mexico adopts new Constitution with many radical features, including expropriating of land of religious orders. Many Catholic regular clergy leave Mexico. Carranza elected Pres. of Mexico. Brazil breaks relations with Germany. Chile and Argentine adhere to neutral policy.
1918	1918. Excavations in New Mexico reveal new light on Indian life in the Pueblo region. Total eclipse of the sun occurs, June 8.	Influenza carries off 350,000 persons in U. S. from Sept. 15 to Dec. 4. "Compulsory Work" laws passed by many state legislatures. Winter of 1917-18 coldest recorded. Railroads of U. S. come under government control, with Sec. of Treasury McAdoo, Director General. Cost of living doubles in ten-year period. Expenditures of Rockefeller Foundation total over 15 millions for 1918. U. S. shipbuilding increases by 2 millions of tons during year. W. G. McAdoo resigns as Sec. of Treasury, and is succeeded by Carter Glass. Pres. Wilson's "Fourteen Points" accepted by warring nations as basis for ending war. Nov. 11, Armistice signed. 50,000 U. S. soldiers lost during year. 1919. New Child Labor Act passed by Cong. Andrew Carnegie dies.	1918. Draft riots in Quebec marked by rioting and bloodshed. French-Canadians resist the Draft Act. Canada sends 250,000 troops over seas.	1918. A peaceful year in Mexico, judged by Mexican standards. Old dispute between Peru and Chile over Tacna-Arica boundary becomes acute.
1919	1919. Capt. John Alcock and Lieut. A. W. Brown, English officers, cross the Atlantic Ocean by airplane, a non-stop flight of 1,960 miles.	Gov. prosecutes I. W. W. and continues policy of deportation. Theodore Roosevelt dies, Jan. 6. Year marked by many strikes and lock-outs. U. S. government expenditures for year over 6 billions. King Albert of Belgium visits U. S. English Prince of Wales makes first visit to U. S. Senate refuses to ratify Versailles Treaty, embodying League of Nations. Relations between Pres. Wilson and Republican leaders of Cong. reach breaking point. Demand that U. S. intervene in Mexico becomes insistent. Supreme Court upholds prohibition amendment. 1920. 18th (Prohibition) Amendment becomes effective Jan. 16.	1919. First step toward permanent nationalization of railroads when the Grand Trunk is taken over by government. Canadian deaths in war announced as 96,680. Sir Wilfred Laurier, noted Liberal leader and past Premier, dies. Feeling between French and English Canadians due to lack of support of war on part of French heightened by return of soldiers from Europe.	1919. Outbreaks against citizens of U. S., in Mexican oil-fields. Carranza shows inability to preserve order. Civil War again breaks out, with Gen. Villa leading the revolutionists.
1920	1920. Dr. J. O. Arnold of Sheffield Univ., inventor of vanadium, announces a new steel process.	Pres. Wilson awarded the Nobel Peace Prize of $40,000. U. S. Captures first place in Olympic games held in Brussels, Belgium. Railroads of country restored to owners under guarantees of Esch-Cummins Act. Railroad Labor Board established. Pres. Wilson struck down with serious illness while on tour speaking for League of Nations. Sec. of State Lansing dismissed by Pres. Wilson, and is succeeded by Bainbridge Colby. Warren G. Harding of Ohio elected Pres. of U. S., and Calvin Coolidge, V. Pres., defeating Jas. M. Cox and Franklin D. Roosevelt, Democrats. U. S. Supreme Court declares U. S. Steel Corporation not in violation of Sherman Act. U. S. refuses to act as mandatory power for Armenia.	1920. Sir Robert Borden, Conservative, resigns as Prime Minister. Western Canadian provinces go "dry." England grants Canada separate diplomatic representation to U. S. Large oil deposits discovered in western Canada.	1920. Chile adopts program of social legislation, including regulation of liquor traffic, tax on wealth, minimum wage, arbitration of labor disputes. Mexico. Revolt led by Generals Obregon and Gonzales results in overthrow and assassination of Carranza. Obregon becomes Pres. U. S. refuses recognition.

Events in America in the Twentieth Century

A. D.	Discoveries, Arts, Crafts	United States	Canada	Latin America
1921	Prof. Michelson of the Univ. of Chicago announces the diameter of the star Betelgeuse as 300 million miles. Madame Curie, discoverer of radium, visits the U. S.	Pres. Harding calls Limitation of Armaments Conference to meet in Washington. General Leonard Wood's administration of affairs in the Philippines meets opposition there. 1920 census gives population of continental U. S. as 105,710,620. New Federal Budget system put into operation with Gen. Chas. Dawes as Director General. Stringent Immigration Law goes into effect, designed to discourage immigration from southern and eastern Europe. The so-called Agricultural Bloc makes its presence felt in both houses of Congress. Pres. Harding appoints Wm. H. Taft Chief Justice of U. S. Supreme Court to succeed Edwin D. White, who died May 19.	Liberal party gains control of Parliament, with W. MacKenzie King as Premier. Movement toward complete autonomy grows. Process of railway nationalization continues, caused by over-expansion of railroads.	Dispute between Peru and Chile over Tacna-Arica boundary reaches crisis. U. S. continues to withhold recognition from Obregon. Mexico puts heavy tax on oil leases and oil exports causing protest from Americans interested in oil industry. Colombia accepts $25,000,000 from the U. S. in reparation for loss of Panama.
1922	Dr. Banting and associates at Toronto University discover successful treatment for diabetes. New serum to be known as Insulin.	U. S. Supreme Court declares invalid second Child Labor Law. Fire in Astoria, Oregon, destroys $15,000,000 worth of property. Strike of coal miners involves over 500,000 men and lasts for five months. Congress passes Fordney-McCumber Tariff Act. Republicans lose seats in Congress in Nov. elections. Farm bloc to hold balance of power. 34 men killed in explosion of U. S. dirigible Roma, Feb. 21. Senate ratifies treaties and agreements resulting from Limitation of Arms Conference. Supreme Court holds that labor unions may be sued for damages done during strikes.	Premier King wins over National Progressives and strengthens the ministry. Policy of reducing navy to save expense is adopted. Canada and U. S. agree to take naval vessels from Great Lakes.	Tacna-Arica dispute between Peru and Chile settled by arbitration, Pres. Harding acting as arbiter. Colombia engages financial expert from U. S. Relations between U. S. and Mexico involved. 900 killed in Chilean earthquake.
1923	New element named Hafnium isolated by Copenhagen, Denmark, scientist.	Pres. Harding dies, Aug. 2. Calvin Coolidge becomes President. Agreement with Great Britain over Debt Refunding; total of $4,600,000,000 to be paid. Okla. legislature removes Gov. Walton. New York state legislature, by repealing Mullan-Gage Act, refuses to help U. S. enforce prohibition. U. S. contributes over $10,000,000 for aid of Japanese earthquake sufferers.	Government stimulation of immigration brings in average of 16,000 a month. Liberal party under Premier King loses seats at by-elections. Government adheres to low-tariff policy despite strong effort of high staff. Whole military establishment put on peace basis.	Cuban Congress by resolution, warns U. S. to keep hands off. U. S. gives formal recognition to Obregon. Expulsion of Papal Legate from Mexico result of strong anti-clerical feeling. Mexico and Venezuela sever diplomatic relations.
1924	Transmission of photographs by telephone successfully accomplished.	U. S. Government sells arms to Obregon to help put down the de la Huerta rebellion. U. S. army aviators circumnavigate the globe by air-plane. Oil scandal results in resignation of Sec. of Navy Denby, and Attorney General Dougherty. Failures among wheat-state banks assume alarming proportions. Woodrow Wilson dies, Feb. 3. New Japanese exclusion policy disturbs relations with Japan. "Two-Percent" Immigration Law becomes effective. Congress passes Bonus Bill. Amendment to U. S. Const. gives Congress power to regulate child labor passes Congress. U. S. receives first envoy from Irish Free State.	Emigration to U. S. alarms Canadian government. Western provinces restore sale of liquor, under government supervision. Canada co-operates with the U. S. to stop liquor smuggling across border.	Great Britain breaks off relations with Mexico because of expulsion of British agent. General Calles, choice of Obregon, elected Pres. of Mexico. Military coup d'état in Chile results in flight of Pres. Alessandri.
1925	McMillan on trip to North Pole. Prof. R. A. Millikan discovers new rays far more powerful than X or Gamma rays.	Severe tornado centering in Indiana and Illinois visits Middle West. Senator LaFollette of Wisconsin dies, leaving Farm-Bloc without a leader. Santa Barbara, California, visited by severe earthquake. Also Montana and Idaho.	Prohibition losing in Canada. Serious coal strike in Nova Scotia.	Isle of Pines treaty ratified. Becomes part of Cuba. Misunderstanding with Mexico over American property rights.
1926	Richard Byrd, U. S. Navy, flies from Spitzbergen to the Pole and back; Roald Amundsen and two companions fly across Pole to Alaska. Dr. W. D. Coolidge makes a new Cathode tube.	Air commerce act passed by Congress. Treasury surplus allows $400,000 cut in income taxes. War debts adjusted with Italy, Belgium, and four other nations, excepting France. Florida east coast hit by hurricane, killing 372 and doing a hundred millions of damage.	MacKenzie King elected Prime Minister of Canada. Vincent Massey first Canadian Minister to U. S.	Arbitration fails to settle Tacna-Arica dispute. Brazil gives notice of withdrawal from the League of Nations. Foreign policy of U. S. makes Monroe Doctrine unpopular.
1927	Col. C. A. Lindbergh first to fly alone across Atlantic.	Disastrous floods occur in Mississippi Valley and Vermont. Serious riots among coal miners in Colorado. Seventieth Congress opens.	First U. S. Minister appointed. Formal opening of Peace Bridge over Niagara, connecting Buffalo, N. Y., and Fort Erie, Canada.	Pres. Calles ruthlessly puts down political uprisings. Dwight L. Morrow appointed Ambassador to Mexico.
1928	Great development in movietone and television.	Farmer co-operatives sold two billion worth of produce. Baumes Laws in N. Y. sent 65 habitual criminals to prison for life. U. S. led in Pan-Amer. Congress at Havana. C. E. Hughes elected to Court of International Justice. Hoover made good-will tour to Latin-America. Flood drowned 200 in California.	Canada begins an era of industrial expansion.	Obregon assassinated in Mexico. E. P. Gill provisional president. New Constitution in Guatemala. Moncada, Liberal, new president of Nicaragua. Bolivia and Paraguay agreed to arbitrate boundary dispute.
1929	Rapid expansion of trans-Atlantic communication.	Kellogg-Briand treaty signed. Extra session of Congress called for farm relief and tariff revision. Wickersham leads committee on law enforcement. Dawes appointed Ambassador to Great Britain. U. S. through Young, Morgan and Lamont takes leading part in final settlement of World War reparations.		Mexican revolution crushed. Gomez retires from dictatorship of Venezuela. Religious difficulties settled in Mexico.

DICTIONARY OF HISTORY.

Comprising great battles, leaders, and outlines of countries.

ABBAS-MIRZA (*ab-bas' meer'za*) (1783-1833). Persian prince. Commanded the Persian army in two unsuccessful wars against Russia, by the first of which (1813) Persia lost possessions in the Caucasus, and by the second (1826-1828) most of her Armenian territory.

ABD-EL-KADER (*abd'el-kah'der*) (1807-1883). Emir of Algeria, soldier and patriot. From 1831 until 1847 he fought the French, who had driven the Turks out of Algeria, and won even their admiration. He surrendered and was imprisoned in France until released and pensioned by Napoleon III. in 1852. He died in Damascus.

ABDICATION.

Sulla, Roman dictator, voluntary.....B. C. 79
Emperors Diocletian and Maximian, of Rome, wearied with dominion, of their own accord retired from the throne.....A. D. 305
Stephen II., of Hungary, voluntary, from a bed of sickness; assumed the habit of a monk and died the same year.....1131
Albert the Bear, of Brandenburg, voluntary.....1168
John Balliol, of Scotland, compelled by Edward I. of England 1296
Richard II., of England, forced to abdicate.....1399
Eric VII., of Denmark, and XIII., of Sweden, virtually deposed 1439
Amadeus VIII., of Savoy, abdicated to become a priest 1440
Charles V., as ruler of the Netherlands, in favor of his son, Philip.....Oct. 25, 1555
Charles V., as emperor of Germany, voluntary....1556
Charles V., as king of Spain, in favor of his son, Philip.....Jan. 16, 1556
Charles I., as king of England, forced from the throne by Cromwell.....1649
Christina, of Sweden, desired the freedom of private life, and abdicated though she wished still to exercise her sovereign rights.....June 6, 1654
John Casimir, of Poland, voluntary; retired to a cloister.....1668
King James II., of England, through fear of his subjects, fled from the throne.....Dec. 11, 1688
Frederick Augustus II., of Poland (Augustus the Strong) compelled by Charles XII., of Sweden..1706
Philip V., of Spain, voluntary, in favor of his son; resumed crown in the same year on the death of his son.....1724
Victor Amadeus II., of Sardinia, voluntarily abdicated 1730
Amadeus, abdicated to marry the countess of San Sebastian. Afterwards repented and on attempting to regain power was imprisoned and died.....1732
Stanislaus Lesczynski, under foreign compulsion, abdicated the throne of Poland.....1735
Charles, of the Two Sicilies, voluntary, on accession to the throne of Spain as Charles III.,.....1759
Poniatowski, of Poland, compelled by foreign influence to abdicate.....1795
Charles Emmanuel II., of Sardinia, unable successfully to cope with the French, abdicated.....1802
Francis II., emperor of the Holy Roman Empire, resigned that title.....August 6, 1806
Charles IV., of Spain, forced to abdication in favor of his son.....Mar. 19, 1808
Charles IV., restored by Napoleon, then abdicates in favor of Napoleon.....May 11, 1808
Joseph Bonaparte, of Naples (for Spain), at request of Napoleon.....June 1, 1808
Gustavus IV., of Sweden, compelled....Mar. 29, 1809
Louis Bonaparte, of Holland, refused to treat that country as a province of France and abdicated the throne.....1810
Napoleon I., of France, compelled.....Apr. 5, 1814
Again compelled to abdicate.....June 22, 1815
Victor Emmanuel I., of Sardinia, on account of revolutionary movement.....Mar. 13, 1821
Pedro IV., of Portugal (Pedro I., of Brazil), in favor of his daughter.....May 2, 1826
Charles X., of France, abdicated in the face of a revolution.....Aug. 2, 1830
Pedro I., of Brazil (IV., of Portugal), in favor of his son, Pedro II.,.....Apr. 7, 1831
William I., of Holland, in favor of his son, William II.....Oct. 8, 1840
Louis Philippe, of France, compelled by the people, in favor of his grandson, the count of Paris; not accepted.....Feb. 24, 1848
Ferdinand of Austria, abdicated as a direct result of the Revolution.....Dec. 2, 1848
Ludwig of Bavaria, at the outbreak of the Revolution, in favor of his son, Maximilian II.....1848
Charles Albert of Sardinia, defeated by the Austrians at Novara (March 23, 1849) in his struggle for Italian independence, abdicated.....1849
Francis II., of the two Sicilies.....1860
Isabella II., of Spain.....September, 1868
Napoleon III. 1870
Amadeus of Spain, second son of Victor Emmanuel II., of Italy, was elected king in 1870, but felt impelled to abdicate.....Feb. 11, 1873
Prince Alexander, of Bulgaria, after the revolution of Sofia (1886), abduction to Reni on the Danube, and his restoration by a counter revolution, was forced to abdicate.....Sept., 1886
Milan I., of Servia, in consequence of a quarrel with his queen, Natalie, yielded the throne to his son, Alexander.....Mar. 6, 1889
Pedro II., of Brazil, forced by people....Nov. 15, 1889
Oscar II., throne of Norway.....June 7, 1905
Emperor of Korea.....1907
President Nord Alexis, of Haiti, forced...Dec. 2, 1908
President Castro, of Venezuela, forced by revolutionists to abdicate.....Dec., 1908
Sultan Abdul Hamid II., of Turkey, forced by revolution of "Young Turks".....April, 1909
Mohammed Ali Mirza, shah of Persia...July 16, 1909
President Zelaya of Nicaragua abdicated Dec. 16, 1909
Emperor of Korea.....1910
Manuel II., of Portugal, dethroned by revolutionists, 1910
Emperor Pu Yi, of China, abdicated....Feb. 12, 1912
Sultan Mulai Hafid, of Morocco.....Aug. 14, 1912
Nicholas II., of Russia.....1917
William II., Emperor of Germany.....1918
King of Saxony.....Nov. 11, 1918
Charles, Emperor of Austria.....Nov. 12, 1918
King of Bavaria.....Nov. 16, 1918
Constantine, King of Greece 1922

ABUKIR. (1) August 1, 1798. Battle of the Nile (see 212). (2) July 25, 1799. After the defeat of the French in the battle of the Nile, Napoleon ordered the remaining sailors to form a marine brigade, and thus increased his army. With these troops he met the Turks at Abukir, on the coast of Egypt, and although at first driven back and almost routed, Napoleon rallied his men and completely overpowered the Turks, both sides sustaining fearful loss.

ACADIA. A vague term derived from "Cadie, a place of abundance," in the Indian tongue. Applied in the charter of Henri IV., King of France, to territory extending from Pennsylvania to upper St. Lawrence, granted to Samuel de Champlain (1604). The Acadians were mostly prosperous farmers, as shown by 916 persons owning 1,648 horned cattle, 1,910 sheep, 1,164 swine, and harvesting 12,300 bushels of grain (1693). Almost wholly uneducated, primitive to a degree, yet the testimony of all governors, both French and English, declares them quarrelsome, and constantly at war with each other. When England captured Beausejour (1755) they were given the choice of becoming British subjects unmolested as to their possessions or of migrating. They declined to do either, and were shipped in British transports to English colonies in Pennsylvania, Virginia, Maryland, Massachusetts, North Carolina, and Georgia, and their sorrows and sufferings have been immortalized in Longfellow's "Evangeline."

ACHAEAN LEAGUE. Twelve cities of Achaia, the northern part of the Peloponnesus bordering on the Corinthian Gulf, formed a league with Helice at the head. When that city was destroyed by an earthquake in 373 B. C., Aegium took its place. Wars following the death of Alexander the Great broke up the league in 290 B. C. In 280 B. C. a new league was formed, which grew to include ten cities. This is the Achaean League proper. When in 242 B. C. the Macedonian garrison was driven from Corinth, the efforts of the league were directed against Macedon. The league was dissolved by defeat by Mummius the Roman in 146 B. C., when Greece lost its independence and became a Roman province.

ACRE (anciently, Ptolemais). Acre, in Syria, has been the scene of several conflicts. (1) In 1187, during the Third Crusade, Acre was taken from the Christians by Saladin. After a siege of nearly two years, Acre was retaken by the Crusaders led by Richard I., July, 1191. (2) In 1291, during the Seventh Crusade, Acre was stormed and taken by the Mamelukes, and 60,000 Christians were slain. (3) 1799. For many weeks Napoleon besieged Acre, making frequent assaults, but as the English who held the town were reinforced by Sir Sidney Smith, the French failed to capture the place and retreated.

ACTIUM. On the west coast of Greece. In the naval battle (September 2, 31 B. C.) Augustus became master of the Roman Empire by the defeat of Mark Antony and Cleopatra—Augustus had 260 galleys or ships against 220 of Mark Antony's and 60 of Cleopatra's. The latter, becoming frightened, fled and Antony followed her.

ADRIANOPLE. (1) 323. The two rulers of the Roman Empire, Constantine and Licinius, having declared war against each other, fought a battle at Adrianople, in Turkey, in which Constantine was victorious. (2) A second battle was fought at Adrianople in 378, when the Goths defeated and slew Valens, emperor of the Roman Empire.

AEGATIAN ISLES. 241 B.C. During the First Punic War, a naval battle was fought near the Aegatian Islands, off the west coast of Sicily. C. Lutatius Catulus, the Roman consul, won a brilliant victory over Hanno, commander of the Carthaginian fleet. As a result of this battle the Carthaginians gave up their claims to Sicily and paid the Romans a large indemnity.

AEGOSPOTAMI. In 405 B.C. the Spartans, led by Lysander, sailed for the Hellespont and began to harass the Athenian ports. The Athenian fleet pursued them and anchored near the Aegospotami, a river flowing into the Hellespont. When least expected, Lysander attacked the Athenians, and totally defeated them, only a few of the ships escaping.

AFRIKANDER BUND (*boond*) or **BOND.** An association of Afrikanders (whites born in South Africa) to promote their interests. Though formed in 1879, it dates under the name from 1880. It supported the policy of Cecil Rhodes until the Jameson raid in 1895. It urged a more liberal policy on Kruger, yet sympathized with the Boers in the war. In December, 1900, at Worcester, Cape Colony, it demanded that the Boer republics be independent and denounced the war.

AGE OF REASON. A period during the French Revolution when Christianity was mocked, reason set up as the only true deity, and the bishops wore liberty caps instead of miters. Hebert was a leader. Formal dedication of the system was held at Notre Dame, November 10, 1793, where a painted woman represented the goddess. The Montagnards were accused of schism and many were executed (1794). At the Feast of the Supreme Being (June 8, 1794), France restored Christianity through Maximilien Robespierre

AGINCOURT. Village in France near which the famous battle of that name was fought between Henry V. of England and the French. Disease and privations had decimated his small army, and returning to England for reinforcements he encountered 50,000 French opposing his 14,000 men. The French insisted on absolute surrender. Henry decided to fight at those odds. The French charged and the rain of long English arrows broke the line while the English infantry with long billhooks and hatchets charged on the encumbered men at arms, slaughtering great numbers. Those who could not run away perished; the French nobility was almost annihilated; the English losing only 1,000 men. Shakespeare has immortalized the battle by Henry V.'s speech in his play of *Henry V.*

AGRAMONTE, IGNACIO (1841-1873). Cuban revolutionist in the war of 1868 against Spain; secretary of the provisional government (1869); commanded the Cuban forces in Camaguey; then became commander in chief. Killed in the battle of Jimaguayu.

AGRIC'OLA, CNAEUS JULIUS (37-92). Roman general and statesman of great ability. Elected consul in 77. Governed Britain 78-85, being the first to completely subdue its people, to establish among them some degree of civilization, and to circumnavigate the island.

AGRIPPINA. One of the most heroic and virtuous of women. Daughter of Agrippa and Julia; wife of Germanicus, whom she accompanied on all of his campaigns. Had nine children, one of whom was the emperor Caligula; and another was Agrippina, who was one of the most detestable women that ever lived. The mother openly accused the emperor Tiberius of having brought about the murder of her husband and she was banished to an island near Naples where she died from voluntary starvation (33).

AGUINALDO (*ah-ge-nahl'do*), **EMILIO** (1870-). Leader of insurrections in the Philippines against Spain and the United States. Educated at a Dominican college in Manila. For prominence in the outbreak of 1896, he went to Hongkong and consented to permanent exile should Spain make a large payment. In 1898 he returned to Manila, presumably to aid the United States in the war against Spain; but after the battle of Manila, organized and led with great ability an extended insurrection. Instituted a provisional government and in July, 1898, appealed to the Powers for a recognition of Filipino independence. Captured, after continued warfare, on March 23, 1901, by Brig. Gen. Fred Funston, and took oath of allegiance to the United States on April 2, 1901.

ALABAMA CLAIMS. Claims made by the United States against Great Britain for damage done to northern commerce during the Civil War by the Alabama and other cruisers built and fitted out in England contrary to the Foreign Enlistment Act of that country. The whole question was referred by the Treaty of Washington to a board of arbitration consisting of Charles Francis Adams (United States), Sir Alexander Cockburn (England), Baron d' Itajuba (Brazil), Jacob Staemphli (Switzerland), and, as chairman, Count Federigo Sclopis (Italy). The award was that a sum of $15,500,000 be paid by England to cover all cases of damage.

ALAMO, FORT, BATTLE OF. Fought between a large force of Mexicans under Santa Anna and a small band of Americans and Texans under Col. W. B. Travis, and including the famous Col. David Crockett and Col. James Bowie, after whom the Bowie knife was named. The siege lasted from February 23 to March 6, 1836, during the war for Texan independence. The fort was finally taken by the Mexicans after a loss of over 500 and the whole American force was slain. "Remember the Alamo" became the war cry of the Texans.

AL'ARIC. Great leader of the Visigoths; appeared first in 394. He led the Gothic forces of Theodosius in his war with Eugenius; invaded Thrace, Macedonia, Thessaly, and Illyricum in 395; was stayed in his course by Stilicho, who defeated him in two battles; and Arcadius afterward attempted to buy his good will by making him governor of Illyricum in 396. In 401 he invaded northern Italy but was stopped by Stilicho, and Alaric was bought off by promises of tribute from Honorius. On the death of Stilicho, Honorius failed to keep his promise and Alaric took Rome, and left only on payment of 5,000 pounds of gold and 30,000 of silver. He again besieged Rome in 409. The Romans were starved into submission, but Alaric was so enraged by a perfidious attempt to fall upon him at Ravenna that he advanced a third time on Rome in 410 and gave it over to a three days' sack by his people. He then tried to pass to a conquest of Sicily and Africa, but his ships were useless and he returned. He died at Cosentia in Bruttium in 410.

ALBANY. Capital of New York State, on west bank of Hudson river. Claims to be second permanent settlement within the 13 colonies. The Italian navigator, Verrazano, sailed up the Hudson (1524); trading post established near Albany (1540); really continuous occupation from discovery by Henry Hudson (1609), which was followed by Dutch traders establishing a station on Castle Island under name of Fort Nassau (1614); trading station removed to mainland under name of Beverwyck (1617); called Albany on transfer of New Netherlands to England (1664), in honor of the duke of York and Albany, afterwards James II.; chartered as city (1686); first general Congress of all the colonies to discuss plan of union (1754); Burgoyne's campaign directed against the city (1777) as key to northern situation; 20 years headquarters of state government; permanent state capital (1797).

ALDEN, JOHN (1599-1687). One of the Pilgrim Fathers; born in England, married Priscilla Mullens. A magistrate for over fifty years, and outlived, at Duxbury, Mass., all the other signers of the Mayflower compact; the subject of Longfellow's poem.

ALEMANNI (or **ALAMANNI**). Military confederacy of German tribes found about the beginning of the third century on the lower and middle Main. They were driven beyond the Rhine by Maximinus, but after his death again invaded Gaul, and, although defeated

by Postumus, continued their inroads, being driven back repeatedly. They were finally defeated by Julian (357). In the fourth century they crossed the Rhine, extending as far west as the Vosges and south to the Helvetian Alps. The confederated nation is spoken of as Alemanni and Suavi or Suevi, in the fifth century. In 496 their power was broken by Clovis, who made them subject to the Franks, the southern part of their territory being formed into the duchy of Alemannia. That part of the duchy lying east of the Rhine was later called Swabia. While from the Alemanni the French have given the name of Allemands and Allemagne to Germans and Germany in general, their real descendants are the inhabitants of northern Switzerland, Alsace, and part of Swabia.

ALESIA. 52 B.C. The siege of Alesia, in central France, by Caesar, was the greatest achievement of his invasion; 80,000 Gauls were forced to surrender and their leader taken to Rome as a prisoner, where he was put to death.

ALEXANDER NEWSKI or NEVSKI (1220-1263). Russian hero and saint, son of Prince Yaroslav of Novgorod. Struggled valiantly against the Mongols until that people conquered the Russians in 1240. Then fought against Danes, Swedes, and Teutonic knights, receiving his surname from a brilliant victory over the Swedes on the Neva (1240) near the present St. Petersburg. In 1246, upon the death of his father, he became Prince of Vladimir. Throughout his whole life he remained a vassal of the Tatars or Mongols. His memory was honored by Peter the Great, who in 1723 established a magnificent monastery on the site of his great battle, and in 1725 founded the knightly order of St. Alexander Nevski.

ALEXANDER, WILLIAM (1726-1783). An American major general, known as "Lord Stirling," because he claimed to be the rightful heir to the title. He was a stanch patriot during the War of Independence and fought in many battles.

ALEXANDRIA. (1) In 48 B.C., Caesar came to Alexandria, in Egypt, and attempted to settle the dispute over the throne. His presence troubled the citizens and caused a great uprising, in which a part of the city was destroyed, including the famous library. (2) 215. At a most unexpected time, Caracalla ordered a general massacre of the people at Alexandria, and thousands were consequently slaughtered. (3) When, in 296, the Roman provinces in Africa revolted, Diocletian entered Egypt and laid siege to Alexandria. The city defended itself for eight months, and when it surrendered thousands of the people were slaughtered or exiled. (4) During the Napoleonic Wars, Alexandria was occupied by the French (1798), and many of the inhabitants massacred. (5) On March 21, 1801, the English encountered the French at Alexandria, and after a six hours' fight defeated them and captured the city. (6) About 1882 the hostility against foreigners in Alexandria had reached a point where the European powers felt they must interfere and, on July 11th, the bombardment began. The forts around the harbor were destroyed by the English fleet, and finally the Egyptians surrendered. But before the English could take possession, thousands of the foreign residents had been massacred by the merciless Orientals, and it was some time before the rebellion could be suppressed.

ALGERIAN WAR. Between Algiers and the United States (1815). The dey of Algiers had captured an American vessel, reducing her crew to slavery. Not long after, the American fleet, under Decatur, captured the largest ship in the Algerine navy, after a battle of 25 minutes. An Algerine brig was captured, and the frightened dey, on Decatur's quarter deck, signed a treaty "surrendering all prisoners on hand, making certain pecuniary indemnities, renouncing all future claim to any American tribute or presents, and the practice, also, of reducing prisoners of war to slavery."

ALHAMA. February 28, 1482. The Christians, led by Ponce de Leon, surprised the Moors at Alhama, near Granada, in Spain, and captured it. Its loss occasioned much mourning on the part of the Moors, which was expressed in a famous ballad.

ALHAMBRA. Fortified palace of the Moorish kings of Granada. In the ninth century a citadel called al-Hamra was here located. When Granada became the capital of what remained of the Moorish dominions in Spain, this citadel was rebuilt by King Mohammed Ibn-el-Ahmar and his successors (1248, 1279, 1306, 1354). A large part of the Alhambra was destroyed by Charles V., to make room for an unsightly Renaissance building, and it was still further mutilated by Philip V. Queen Isabella II. partly restored it, but fire caused damage in 1890.

ALKMAAR (October, 1799). During the first French Revolution, the English-Russian army, under the duke of York, was defeated by the French at Alkmaar, a town of Netherlands, and compelled to surrender.

ALLEN, ETHAN (1737-1789). American soldier, leader of the "Green Mountain Boys"; famous for his capture of Fort Ticonderoga (1775), where he forced the commander to surrender "in the name of the Great Jehovah and Continental Congress." He was taken prisoner near Montreal (1775) and sent to England; sent back as a prisoner to Halifax, then to New York, where he was released (1778); became a lieutenant colonel of the Continental army in Vermont.

ALMA. September 20, 1854. A brilliant victory was won on the banks of the Alma, in the Crimea, by allied British and French forces, led by Raglan and St. Arnaud, over the Russians, led by Menschikoff.

ALMAGRO, DIEGO DE (about 1475-1538). One of the Spanish conquerors of Peru; said to have been found an infant in the streets of Almagro. He helped Pizarro in the conquest of Peru (1533); quarreled with Pizarro over a division of powers and was defeated in a furious battle (1538) and put to death. When Pizarro was murdered (1541), Almagro's son, Diego, was proclaimed governor of Peru, but was defeated by the royal forces (1542) and put to death.

ALMANSA. April 25, 1707. During the War of the Spanish Succession, a battle was fought near Almansa, in Spain, between the allied forces, led by Galway, and the French, commanded by Berwick. The allies were completely overpowered and many taken prisoners; while they were obliged to deliver to France the prisoners taken at Hochstadt.

ALVA, FERNANDO ALVAREZ, DUKE OF (1508-1583). Spanish general and statesman. Became Prime Minister. Notorious for his bloodthirsty tyranny in the Netherlands, where he boasted of having caused the execution of 18,000 men. Termed "the hangman of the Netherlands" by Häusser, the German historian.

AMBERG. August 24, 1796. The French, led by Jourdan, were defeated near Amberg, in Bavaria, by Archduke Charles.

AMHERST, JEFFREY, BARON (1717-1797). British general who succeeded Abercrombie as commander-in-chief of the English forces in America. Successfully led an expedition against Ticonderoga and Crown Point (1759). Personally commanded at Montreal, forcing the French to surrender to England Canada and all its dependencies (1760), for which services he was made a Knight of the Bath and appointed governor general of British North America. Unable to suppress Pontiac's conspiracy, he returned to England (1763). Absentee governor of Virginia (1763-1768); appointed governor of Guernsey in 1770; privy councillor (1772); acting commander-in-chief of British army (1772-1782, 1783-1793); commander-in-chief (1793-1795); field marshal (1796).

ANDERSONVILLE PRISON. At a village in Sumter Co., Ga., 62 miles south of Macon, where from February 15, 1864, until April, 1865, 49,485 Federal prisoners were confined by the Confederates. The men were confined within a tract of 22 acres, subsequently enlarged to 27 acres, without shelter from sun and frost and in the most filthy, unsanitary conditions. Sometimes 33,000 Federal soldiers were crowded into this space. Over 12,800 or 26 per cent. of the total number confined died. The prison superintendent Wirz was, after court-martial, hanged for causing the death of the prisoners by his neglect.

ANDRE, JOHN (1751-1780). English spy, hanged for connection with the Arnold treason. Captured by Montgomery at St. John's (1775); exchanged (1776); captain (1777); major (1778); captured near Tarrytown, September 23, 1780, with incriminating writings of Arnold concealed in his boots. Tried by court-martial and hanged at Tappan, New York (1780).

ANGLO-SAXONS. The name given to the combined low German tribes, the Angles, Saxons, and Jutes, who, according to tradition, under their leaders, Hengist and Horsa, landed in England or Britain in 449. They came at the invitation of the inhabitants, who could not defend themselves against the attacks of the Picts and Scots of the north who came down upon them in hordes on the withdrawal of the Roman legions from Britain for home defense in 410 by the emperor, Honorius. They drove out the invaders and took the country for themselves. They established the kingdoms of Sussex (South Saxons), Wessex (West Saxons), Essex (East Saxons), Middlesex (Middle Saxons), Northumbria, Kent, and Mercia, the seven divisions sometimes known as the Saxon Heptarchy. They were combined under King Egbert, the first king of all England (827).

ANNAPOLIS. Port of entry in Maryland, 37 miles from Washington; county seat Anne Arundel County. Capt. John Smith visited site (1608); settlement by Puritans (1649); called "Providence," then "Proctor's," "The Town," "Anne Arundel Town," and finally, in honor of Queen Anne, "The Town of Annapolis." Capital moved from St. Mary's (1694); a city (1708). One of first free schools organized (1710), which developed into St. John's College (founded 1789); resolutions of sympathy with Boston passed (1774), and the brig Peggy, laden with tea, publicly burned. Washington surrendered his commission as commander in chief to Congress sitting temporarily at Annapolis (1783); United States Naval Academy founded (1845); seat of extensive oyster canning establishments, this being its chief industry.

ANTIETAM (September 16, 17, 1862). Lee and the Confederate survivors of the battle of South Mountain moved south and took a position near Sharpsburg, between the Antietam and Potomac, where they were joined by Jackson and his men, who had taken Harper's Ferry. Other reinforcements increased Lee's command to 40,000. On September 16 a force of about 70,000 Federals led by McClellan encamped on the opposite bank of the Antietam, and in the evening attacked the Confederates and fought until dark. The battle raged all day on the 17th, both sides losing heavily. During the night of the 18th the Confederates withdrew and moved toward Martinsburg, Va. McClellan's loss in the battle was 12,469. Lee's total loss was 13,533.

ANTIGONUS (about 380-300 B. C.). A most famous general under Alexander the Great. On the latter's death Antigonus received as his share Phrygia, Lycia, and Pamphylia. He plotted for control of all of Asia and greatly extended his empire, but fell at Ipsus before the armies of Lysimachus and Seleucus.

ANTIOCH. Ancient capital of the Hellenistic kings of Syria, on the Orontes, founded about 300 B.C. by Seleucus Nicator. The most magnificent of the 16 cities of that name built by him and named for his father, Antiochus. Communication with all the maritime cities of the West was afforded by its harbor, Seleucia, while for the merchandise of the East it became a very great market. Noted also for its grand public buildings and for its luxury. Antioch became the center of Gentile Christianity, the place of Paul's first ministry, from which he set out on missionary journeys through Asia Minor and Greece. Here occurred the first conflict between Jewish and Gentile Christians, which resulted in the Apostolic council at Jerusalem about 51 A. D. In 538 A. D. the Persians destroyed the city, which was rebuilt by Justinian. In the seventh century Antioch was conquered by the Saracens; recovered in the ninth century by the Greeks, under Nicephorus Phocas; but again fell into the hands of the Mohammedans (1084). In 1098 it was besieged and taken by the Crusaders, and until 1268 was held by the Christians. Antioch has suffered terribly from earthquakes, one destroying it in 256 B. C., and another in 1872, causing great havoc. The modern town called Antakiyeh is much smaller than the ancient city.

ANTIPATER (400-319 B. C.) Distinguished Grecian general under Philip of Macedon and Alexander the Great. On the death of Alexander he received Macedonia as his share; was obliged to defend it against Greece in the Lamian War (323 B. C.). He defeated the Athenians and others at Crannon (322 B. C.), and demanded that Demosthenes, the great orator, be given to him, but Demosthenes escaped this fate by poisoning himself.

ANTONIO, BATTLE OF (August 18, 1813). Between the Royalists and Independents, in Mexico; the Independents being defeated.

ANTWERP. (1) 1576. Antwerp was entered by the Spaniards, during the Spanish Fury, and sacked for three days. Thousands of the citizens were slain, houses were destroyed, and large sums of money carried away. (2) In 1584 Antwerp was besieged by the duke of Parma, and in August, 1585, was obliged to capitulate. The decline of Antwerp dates from this event, as many of the merchants and industrious citizens immediately moved to other cities. (3) When the king of Holland rejected the decision of the Conference, in 1832, the French and English laid siege to Antwerp, and on December 24th the citadel surrendered, and the following year the treaty of peace between Belgium and Holland was signed.

APACHE WAR (1885). Raids in the southwestern portion of New Mexico, made by Apache Indians from Arizona.

APPOMATTOX. Town in Virginia where General Lee surrendered the Confederate army to General Grant, ending the long Civil War (April 9, 1865).

AQUITANIA. Territory between Pyrenees and the Garonne; home of Iberian tribes. Conquered by Clovis, king of the Franks (507); later an independent duchy; conquered by Charlemagne; again obtained independence; united to France by marriage of Louis VII. and Eleanor of Aquitania (or Guienne). She divorced Louis and married Henry II., bringing Aquitania under English rule; again united to France (1451).

ARABIA. First settlement unknown; earliest records show Semitic tribes in residence. Inhabited by Himyarites (1500 B. C.) in the south; earlier Arab traces in southwest. Next came the Sabaean kingdom lasting to about 500 A. D., when independence was obtained. High rate of civilization evident. For 200 years without settled government; only Abyssinia obtaining foothold (529-605). Western tribe of Koreish, of noble descent and great wealth, became perpetual guardians of the sacred Kaaba at Mecca; were won to Mohammedanism; became exceedingly prosperous (632-656). With the spread of Mohammedanism Arabia declined; when the seat of Mohammedan power moved from Damascus to Bagdad a great realm rose in the west and the magnificent rôle of Arabia ended. Overrun by Egypt, Turkey, Portugal; last native ruler in Yemen (1871); the Wahabi rulers grew in importance from the seventeenth century; obtained possession of Mecca (about 1800); power broken (1811-1818); effective assertion of Ottoman supremacy prevented by the struggle between the Sultan of Turkey and the Viceroy of Egypt (1840), giving Wahabi monarchy new lease of life.

ARBELA. One of the decisive battles of the world (331 B. C.), between Alexander the Great of Macedonia and Darius of the Persians. It was Oriental supremacy against Greek culture and civilization. Tradition gives Alexander 40,000 foot and 1,000 horse, Darius 1,000,000 foot and 40,000 horse. Darius made every preparation in his own favor. Alexander depended on discipline and the wonderful Macedonian phalanx, which gave the impregnable "bayonet square" to England. The Greeks cut the traces of the chariot horses; penetrated the Persian lines and at the decisive moment charged the Persian center. The demoralized Asiatics gave way; Darius' nerve failed and he led the disastrous retreat. Thus was saved the dominance and language of the Greeks for 1,000 years; the effect to endure forever.

ARGYLL, ARCHIBALD CAMPBELL, EIGHTH EARL OF (1598-1661). Scottish Covenanter; defeated by Montrose; executed for treason.

ARISTA, MARIANO (1802-1855). A Mexican general in command of the Mexican Army of the North (1846). Badly defeated by General Taylor at Palo Alto (May 8th) and Resaca de la Palma (May 9th); minister of war (1848); elected president of Mexico (1851); resigned to prevent a revolution (1853) and was banished. Died in Europe.

ARMADA (1588). A huge Spanish fleet called "The Invincible Armada," sent by Philip II. of Spain to conquer England, was met and defeated by a smaller English fleet and further destroyed by a terrific storm which drove the ships northward to disaster and wreck.

ARMED NEUTRALITY. An agreement of European powers headed by Russia, that "free ships make free goods," first proclaimed by Prussia (1752), then by France (1778). The adoption of these in 1780 placed England in diplomatic hostility to the powers of Europe, for she insisted upon her right of search.

ARMINIUS. Decisive battle of the world (9 A. D.), named after the great German who precipitated the struggle against the Romans, then "masters of the world." With magnificent discipline in the army, but rotten socially, autocratic Rome ruled the moral, clean-lived Germans. Arminius brought the warring divisions under one head; defeated the Romans by guerrilla tactics ending in an unexpected attack; broke the Roman power, securing forever the independence of the Teutonic race and its mighty descendants.

ARMOR. Shields were the primeval armor; developed by use of leather, skins, and metals in varied forms. Helmets, cuirasses, greaves, and bronze shields were worn by the Greeks (about 927 B. C.). The Orientals used quilted linen corselets. The Romans wore modified Greek armor, which they lightened by using bronze instead of iron in the body armor, and by sewing iron rings on leather for a cuirass. The

shield was of wood, covered with leather, and the rim was metal. The shield was the only armor of the early Germans, but learning the necessity for more by coming in contact with Roman weapons, they adopted some of the Roman armor. The sale of byrnies (shirts of mail) outside his realm was repeatedly forbidden by Charles the Great, any merchant disobeying to forfeit all his property. A byrnie must be owned by every large landowner, who forfeited his benefice if appearing without it. Knights endeavored to cover every portion of their body with metal armor, but foot soldiers and attendants were protected chiefly by gambesons. Armor developed most rapidly and became most perfect in the period beginning with the twelfth century, when the use of the crossbow became common, and the Crusaders encountered the armies of the East. The grand hauberk was first substituted for the byrnie, and in the fourteenth century, plate armor. For the eleventh century's small, conical-shaped helmet a much larger cylindrical one was used, covering both head and face, only a few openings for sight and air being left when the visor was down. Plate armor entirely covered the body. Thus armorial bearings were necessitated for identification, since the knight became unrecognizable by his complete covering of armor. Wood was still used for shields, elm apparently preferred. Horses were sometimes partially protected by plates of armor. Armor developed with the improved forms of the crossbow and the longbow, but proved of little value when gunpowder came into use, and was generally discarded except by the very wealthy who as late as the end of the seventeenth century wore coats of mail, and by certain troops of cuirassiers, traces of armor being still retained by some of them.

ARMS (Egyptian). In the earliest period arrows made of a reed tipped with bronze were used. Straight, double-edged weapons of bronze, tapering from hilt to point, were carried by the swordsmen; and at this time the spears used were fitted with bronze-shaped heads.

ARMS (Primitive). The first weapons used were probably clubs, stones, axes, and flint arrowheads. Characteristic implements of the earliest period are axheads of many different kinds of stone, varying greatly in size and shape. Flint spearheads, arrowheads, and especially knife-daggers, show exquisite workmanship. The last, particularly those of Scandinavian origin, display what is technically known as "ripplefiaking" on their edges. When bronze came into use, shields, spearheads, axes, daggers, and swords were made of that metal. During the Early Iron Age in central Europe, iron swords were made in exact imitation of the leaf-shaped sword of the Bronze Age. A bronze sword, double-edged, long and sharp, the hilt and scabbard set with gold or silver studs, was used in Greece during the Heroic Age. Two kinds of sword were used by the Romans about the first century B. C.—the gladius, short and double-edged, and the spatha, long and single-edged. But their principal weapon was the pilum, a wooden shaft with a strong iron head, similar to a modern pike. This could be hurled like a javelin, and used as a bayonet or to ward off blows of the sword. Not long before the Norman conquest iron was used for most weapons,—broadswords with or without guards, and the curved blade called seax, with sheaths of leather or wood. Of great importance were the mace-heads of iron and bronze. Two swords, dagger, and spear were borne by the Norman knight. In England, archery was encouraged by statute. Toward the close of the twelfth century the crossbow, at first prohibited by papal decree, came into use and in the thirteenth century archers and crossbowmen increased, while the longbow appeared in the fourteenth century, with which the English excelled. The invention of gunpowder in the fourteenth century naturally decreased the use of the earlier weapons.

ARNOLD, BENEDICT (1741-1801). An American general, whose services for his country were marred by treason. Securing from Washington command of the important fortification of West Point, he entered into treasonable negotiations with the British, attempting to betray it into their hands. Through the capture of Andre this plot was disclosed. He later became a British colonel.

ARNOLD, CONWAY HILLYER (1848-1911). Rear admiral United States navy; born in New York; graduated United States Naval Academy (1867); commanding 3d squadron Atlantic Fleet (1908); retired 1910.

ARNOLD VON WINKELRIED (*ar'nold-fun-vin'kle-reet*) (-1380). A Swiss peasant. Tradition says that the breaking of the phalanx of the Austrians was accomplished at the battle of Sempach by his collecting several spears of the enemy and pressing them into his breast. A monument was erected in his honor on the battlefield in 1886. There is a question as to his reality.

ARTEMISIUM. 480 B.C. For three days the Greek and Persian fleets engaged in a conflict near Artemisium, in Euboea. The Greeks showed superior genius but were unable to sustain such heavy losses, and when news of the Persian victory at Thermopylae reached them they retreated.

ARTEVELDE (*ar-te-vel'deh*), **JACOB VAN** (*c.* 1290-1345). Flemish patriot. Was elected commander of the Ghent forces, after assisting the people in their strife against Louis, Count of Flanders. In 1335, with aid of the English, he ejected Louis. Served as ruler nine years.

ARTEVELDE, PHILIP VAN (1340-1382). Son of Jacob. Leader of the Flemings against Count Louis. Defeated the Count's forces, but later was conquered, and killed in battle at Roosebeke, Nov. 27, 1382, by the forces of Charles VI. of France.

ARTILLERY. (1) Term applied to projective arms on carriages not fired from hand or shoulder; (2) to troops serving such arms; (3) to scientific treating of guns, their service, and the organization and administration of personnel. Early cannon were naturally crude and are said to have been first used at Crecy; first regimental establishment by William III. (1689-1702); used largely during French religious war (sixteenth century); improved by Gustavus Adolphus (seventeenth century); explosive shells introduced by Dutch and English; Napoleon I. outlined and used text-book tactics of present day; shrapnel invented by Major Shrapnel (1803); Congreve rockets by Sir W. Congreve (1806); rifled siege guns proved inefficient in Crimean War; improved in Italian War (1859); receiving greatest advance during American Civil War (1861-1865) and the Franco-German War (1870); smokeless powder and increased size of cannon being most recent innovations.

ASSYRIA, KINGDOM OF. The country between and about the Tigris and Euphrates rivers. Kingdom took its rise about 2084 B. C., under Ninus, who was called Assur. After an existence of about one thousand two hundred and sixty-four years it came to an end with Sardanapalus.

ATHENS. Mighty city whose founding is lost in tradition. Named after the Goddess Athene. Its earliest record is the memory of Eleusis regarding its independence (683 B. C.). Famed for its great civilizing growth; its magnificent code of laws considering the poorer citizens, the wise Solon reforming the constitution on a democratic basis that recognized four classes of citizens according to wealth and legitimacy. Prospered marvelously in commerce, art, and war; produced men like Solon, Phidias, Sophocles, Aeschylus, and the culture they gave to succeeding generations. Was mistress of the Aegean (480-430 B. C.), but declined and merged into the history of Greece.

ATLANTA. Capital of Georgia, 294 miles northwest of Savannah. Known as the "Gate City"; largest city in the state; commercial metropolis of northern section; important railroad center of the South. First settlement (1839) called Terminus from its being terminus of the Georgia railroad, completed (1845). Incorporated as town of Marthaville (1843); present name adopted (1845); chartered as a city (1847). Of rapid growth, population being 15,000 (1861); an important Confederate city. Objective point of General Sherman's campaign (1864); several great battles fought, until Sherman by flank movement compelled Hood to evacuate (1864); Sherman took possession ordering civilians to leave within five days, turning city into vast military camp; practically destroyed city by fire when leaving it for Savannah later in the year. Became capital of Georgia (1878). The celebrated Cotton States and International Industrial Exposition took place here (1895-1896).

AUGUSTA. Capital of Maine, on Kennebec river. First permanent settlement when Plymouth Company built Fort Western (1754); was known as Cuhnoc from the earlier Indian village. Incorporated as Hallowell (1771); then Harrington (1797); then Augusta; capital of state (1831); incorporated as city (1849).

AUSTERLITZ. Town in Moravia; scene of a signal victory of Napoleon I. against allied Russian and Austrian armies, thwarting plan to cut off the French from Vienna. Allies fled in disorder losing half their army of 84,000 men. French army numbered 70,000.

AUSTRIAN SUCCESSION, War of (1740-1748). On October 20, 1740, the male line of the Hapsburgs became extinct with the death of Charles VI., whose daughter, Maria Theresa, assumed the government. Other claimants appeared, and the War of the Aus-

trian Succession began. An old claim of the Hohenzollerns upon Silesia was revived by Frederick II. of Prussia, who conquered that country. England took the part of Austria, while France supported the elector of Bavaria, who, assuming the title of Archduke of Austria, was crowned King of Bohemia at Linz and Prague, and, in 1742, elected emperor as Charles VII. But the Hungarians stood loyally by their queen, who was, however, forced to yield Silesia to Prussia at the Peace of Breslau (1742). Two years later Frederick renewed the war by coming to the assistance of the emperor, whose enemies had overrun his dominions. In January, 1745, Charles VII. died, and Maria Theresa's husband (Francis, Duke of Lorraine) was elected Roman emperor as Francis I. Prussia was confirmed in the possession of Silesia by a second treaty of peace (1745), and in 1748, at the Peace of Aix-la-Chapelle, Austria was obliged to cede Parma, Piacenza, and Guastalla to Don Philip of Spain. But the existence of the Austrian monarchy was secured by these sacrifices.

AUTTOSE TOWNS (November 29, 1813). With 950 of the Georgia state militia, Brig. Gen. John Floyd determined to avenge the massacre at Fort Mims, and early on November 29, 1813, attacked two Auttose villages in Georgia. After a desperate struggle the Indians were defeated and fully 200 slain, and their dwellings burned.

AUX CANARDS (July 12, 1812). The first battle during the War of 1812 occurred near the Aux Canards, a tributary of the Detroit river. A division of General Hull's forces under Colonel Cass encountered the British four miles below Fort Malden, and after a short skirmish drove them back to the fort.

AVARICUM. 52 B.C. When the Gauls began to revolt against Roman rule, Caesar immediately put himself at the head of an army and crossed the Alps. Avaricum (modern Bourges, in France) was taken, burned, and many of the inhabitants slain.

AVERYSBORO (March 15, 1865). Early in 1865 Sherman left Savannah and the adjacent forts in charge of General Foster and started north to join Grant near Richmond. At Averysboro, N. C., Sherman's advance division led by Slocum was met by Hardee, who wished to keep him engaged until reinforcements arrived. The fighting took place during a hard storm, and resulted in the Confederates being driven to Smithfield with a loss of 865 men. The Federals lost 678 men.

AZTECS. The name commonly applied to all ancient semi-civilized tribes of Nahuatlan stock in Central America and southern Mexico; correctly given to seven allied tribes occupying the valley of Mexico and its immediate vicinity, where, according to tradition, they migrated together from the north. Tenochtitlan, now the city of Mexico, became the capital of the chief tribe, which by successive wars of conquest gradually acquired control over nearly all the tribes of southern Mexico. Thus the Mexican Empire was built, which flourished for perhaps two centuries, until 1521, when it was overthrown by Cortez. The Aztecs were noted for their cruelty and the bloody character of their religious rites, but still possessed a high degree of culture. In villages near the City of Mexico are some of their descendants who yet retain their ancient language.

BAALBEK. Ruined city in ancient Coele-Syria, once the chief seat of sun worship, as its name implies. During the Seleucid dynasty the Greeks changed the name to its Greek equivalent, Heliopolis. Baalbek was once the most magnificent of Syrian cities, filled with beautiful monuments, fountains, and palaces. Now it is but an insignificant village, famous only for its ruins. It was made a Roman colony by Augustus, who placed a garrison there. The oracle at Baalbek was so highly regarded that it was consulted by the emperor Trajan, second century, before beginning his second Parthian campaign. A great temple was built by Antoninus Pius, 138-161, the platform and superstructure being of a much earlier date. This temple afterwards became a Christian church, and was turned into a fortress in the wars which followed the sacking of the city by the Arabs, 748. In 1400 the city was plundered completely by Timur. In 1759 a terrible earthquake destroyed what remained of the city after the devastations from the Arabs, Tatars, and Turks.

BABYLON. The capital of Babylonia from about 2300 B. C. when Hammurabbi united under one head the South Mesopotamian States. Babylon became the most important city of the Euphrates valley, its political supremacy causing the pagan god of Babylon, Marduk, to be made the head of the Babylonian pantheon. The city reached its highest glory between 1800 and 538 B. C. (the fall of the Neo-Babylonian monarchy), rulers of this period rivaling each other in fortifying and beautifying the city. Sennacherib, King of Assyria, in 689 B. C. destroyed Babylon, but it rose to new glory under Nabopolassar and Nebuchadnezzar. This second Babylon is the famous city celebrated by classical writers. For its history, see BABYLONIA, with which it is closely woven.

BACON, NATHANIEL (1648-1676). An English colonist of Virginia who led "Bacon's Rebellion."

BACON'S REBELLION. An uprising of Virginian colonists in 1676 against Governor William Berkeley on account of excessive and unfair taxes, hampering of commerce, and refusal of protection against the Indians. Bacon took the lead, defeated the Indians twice, captured and destroyed Jamestown, imposed "Bacon's Laws" for the correction of abuses. The rebellion is now regarded as a forerunner of the War of Independence.

BAD AXE (August 2, 1832). After the battle on Wisconsin Heights, the Indians fled toward the Mississippi river, pursued by the allied forces of Atkinson, Henry, and Dodge. On August 1st the steamboat Warrior, coming to relieve the whites, was sighted by the Indians. In answer to their signals with white flags, the Warrior opened a heavy fire, killing 23 of the Indians. On the morning of August 2d Atkinson's army caught the Indians in the valley of the Bad Axe river. A sharp conflict followed, in which the Indians were scattered and about 200 of their number slain. Black Hawk escaped, but returned later and surrendered at Prairie du Chien.

BADEN-POWELL, ROBERT STEPHENSON SMYTH (1857-). An English major general, who, during the Boer War, held the town of Mafeking for 215 days with a force of 1,200 men against Boer assaults, famine, and sickness until relieved (May 18, 1900). In 1900 he became chief of the South African Constabulary, a force of 1,200 men.

BAINBRIDGE, WILLIAM (1774-1833). American naval officer. Captain in 1800; conveyed tribute to the Dey of Algeria; commander of the Philadelphia in the Tripoli War (1801-1805); ran aground and with 300 men was imprisoned until the close of the war; commodore (1812) of the Constitution, Hornet, and Essex, captured the British frigate, Java; attached to the navy yards for several years; chief of the board of naval commissioners (1824-1827).

BAKER, EDWARD DICKINSON (1811-1861). An American soldier. Of English birth he came to United States in 1816; prominent politician and lawyer of Springfield, Ill., from which state he was sent to Congress in 1844. Resigned in 1846 to serve in Mexican War in which, at the battle of Cerro Gordo, he commanded a brigade. In 1860 was chosen as United States Senator from Oregon. Enlisted in Federal army at outbreak of Civil War, as colonel; was slain at battle of Ball's Bluff, Va. (Oct. 21, 1861).

BALAKLAVA. October 25, 1854. Thirty thousand Russians attacked the English at Balaklava, a small town in the Crimea, hoping to gain possession of the harbor. They easily defeated the Turks, who defended part of the works, but the British troops, led by Sir Colin Campbell, withstood every attack. The Russians were finally obliged to retreat, but as they retained some of the ground previously occupied by the enemy, they claimed the victory. It was during this battle that the famous Six Hundred made their charge.

BALKAN INDEPENDENCE. By the treaty of Berlin (1878), Bosnia, including Herzegovina, was given to Austria for permanent occupation; Montenegro secured the seaports of Antivari and Dulcigno; Servia was proclaimed an independent principality, receiving the district of Old Servia on the upper valley of the Morava; Roumania became independent, ceasing to pay tribute to the Porte, but was obliged to give back to Russia the land between the Pruth and the northern mouth of the Danube received from that country in 1856 and acquiring in return, from Bulgaria, the large but marshy Dobrudscha district, including the port of Kustendje on the Black Sea; Bulgaria was subjected to the suzerainty of the sultan, and divided into two parts, losing besides Dobrudscha the northern or Bulgarian part of Macedonia, the Bulgarians dwelling between the Balkans and Adrianople being separated from their kinsmen north of the Balkans in a province called Eastern Roumelia, which was to remain Turkish under a Christian governor nominated by the Porte with the consent of the Powers. In time of war Turkey was allowed to occupy the passes of the Balkans. Attempts were made to form a Balkan Confederation to resist Russian aggression, after the conclusion of the great war of 1878. But so much bitterness among the rival races was aroused by the revolt of Eastern Roumelia,

followed by the Servo-Bulgarian War and the powers' chastisement of Greece that for many years nothing more was heard of a Balkan Confederation. In 1885 the two Bulgarias were united under Prince Alexander, a union toward which the czar of Russia displayed great hostility, and which resulted in a brief war between Servia and Bulgaria during the closing months of 1885. Prince Alexander and the Bulgarian army overpowered the larger Servian army, and only the intervention of Austria-Hungary prevented them from invading Servia. In the hope that Russia would become more friendly, Prince Alexander abdicated, September, 1886. His successor was chosen in July, 1887,—Prince Ferdinand of Coburg, whom the Powers, including Russia, failed to recognize until 1896, when Prince Ferdinand's son, Boris, was received into the Greek Church. The National Assembly (Sobranje) confirmed Boris as heir to the title. Servia was proclaimed a kingdom in 1882. A liberal constitution was promulgated by King Milan, who, on March 6, 1889, abdicated in favor of his son, Alexander I. In 1893 Alexander dispensed with a regency, beginning a high-handed personal rule which aroused the hostilities of his people and on June 11, 1903, he and Queen Draga were murdered. The Skupshtina elected Prince Peter Karageorgevitch, who had been in exile, king as Peter I. Montenegro never came under Turkish rule, and has always been independent. Roumania was declared and recognized as a kingdom in 1881. Balkan unity is prevented by the jealousy between Bulgaria and Servia, and the hereditary hostility between the former and Greece augmented by the desire of both for the possession of Macedonia.

BALTIMORE. Metropolis of Maryland. Founded by the expansion of trade and increase of population demanding a port at the head of the Chesapeake. Petition to the Provincial Assembly praying for the erection of a town on the north side of Patapsco river, 14 miles from the bay, resulted in a bill being passed to that effect (1729). In the race for supremacy of trade Baltimore forged ahead; was responsible for the zeal and energy of Maryland in the War of Independence, making the valor of the "Maryland line" immortal. Foreign commerce was cut off but local manufactures and shipping stimulated local merchants engaging extensively in the world's trade, making "Baltimore clippers" world famous. Attacked by land and water (1812) but successfully defended. During bombardment of Fort McHenry, Francis Scott Key composed "The Star Spangled Banner." The Chesapeake & Ohio Canal and the Baltimore & Ohio Railroad were carried forward by local enterprise; first telegraph line in United States was between Baltimore and Washington; industry, trade, and commerce suffered during Civil War, communication with South was cut off and Western trade diverted into other channels. A mob attack on a Massachusetts regiment (1861) inflamed the country and led to Federal occupation. At the close of the war the city quickly rose to its natural importance. Has finest system of grain elevators in the country.

BANNOCKBURN, BATTLE OF. Fought three miles from Stirling between 30,000 Scotch under Robert Bruce and 100,000 English under King Edward II., when the latter were routed with a loss of 30,000 slain (June 24, 1314). By this victory Bruce secured his throne and the independence of Scotland.

BANQUO (eleventh century). A Scottish warrior and ancestor of the house of Stuart. In 1066 he joined Macbeth in a conspiracy against Duncan and was slain by Macbeth treacherously.

BARBAROSSA (RED BEARD), HORUK (1473-1518). A celebrated Turkish corsair, native of Mitylene. Became commander of the fleet of the emir of Tunis; in 1515 made himself sovereign of Algiers. He was conquered and slain by the Spanish general Gomarez near Oran, in 1518. His brother, Khair-ed-Din, with Turkish assistance, seized both Algiers (1519) and Tunis (1533); the following year he was made chief admiral of the Turkish fleet by Sultan Solyman II.

BARBERINI. A celebrated Italian family of the seventeenth century, their prominence dating since the pontificate of Maffeo Barberini (Urban VIII., 1623-1644). Enraged by the growing avarice and power of the Barberini, war was waged upon them by the families of the Medici, Este, and Farnese (1641-1644), who defeated them. They were forced to flee to France under Pope Innocent X. The precious library collected by Francesco Barberini was sold to the pope (Leo XIII.), in 1902, except the great works of art retained in the patrimonial palace of Rome.

BARCLAY DE TOLLY, MICHAEL (1761-1818). A Russian general, descendant of the old Scottish family to which Robert Barclay, the Quaker, belonged; participated in successive Russian wars; in 1812 was appointed commander-in-chief. His reputation as a general was based upon the auspicious part he took in opposing Napoleon's advance into Russia in 1812. He commanded the Russian division of the allied armies at Dresden and Leipzig; afterwards became prince and field marshal.

BAREBONES PARLIAMENT. A derisive name given to the "Assembly of Nominees," called by Cromwell on July 4, 1653. It took its name from a member named Praise-God Barebones. It passed many good laws and dissolved December 12, 1653.

BARKER, ALBERT SMITH (1843-1916). Rear admiral (retired) United States navy; first one in this country to fire high explosives in shells; born at Hanson, Mass.; attended naval academy (1859-1862); served in West Gulf blockading squadron (1861-1863); lighthouse inspector, 8th district (1878-1881), 2d district (1886-1889); at outbreak of war with Spain was a member of the Board of Strategy; commandant navy yard, Norfolk (1899-1900), navy yard, New York (1900-1903); commander-in-chief of North Atlantic fleet (1903-1905); retired (March 31, 1905).

BARKSDALE, WILLIAM (1821-1863). A Confederate officer in the Civil War; served in the Mexican War; represented Mississippi in Congress (1853-1861); a pro-slavery Democrat; resigned and took command of the Thirteenth Mississippi Volunteers, rose to brigadier general and fell at Gettysburg.

BARMECIDES (flourished eighth century). A prominent Persian family who came into power under the Abbasides, caliphs of Bagdad. Khalid-ibn-Barmek, one of them, was prime minister to the first two Abbasides. Yahya, son of Khalid-ibn-Barmek, possessing a character of great repute, was appointed minister by the renowned Harun-al-Raschid upon his coming into power to the caliphate (786). By his military knowledge and skillful municipal management he added greatly to the prosperity of the reign, the Caliph bestowing upon him the title of "Father." His four sons gained much influence with him in the government, arousing the hatred of the caliph to such an extent that he commanded that the prominent members of the family be put to death, and forbade the mention of their names under great penalty.

BARNET. April 14, 1471. During the Wars of the Roses, in England, the Yorkists, under Edward IV., and the Lancastrians, under the earl of Warwick, met at Barnet, in Hertfordshire. The contest was severe, but finally the Lancastrians were routed and Warwick slain.

BARNETTE, WILLIAM JAY (1847-). Rear admiral United States navy; born at Morrisville, N. Y.; graduated United States Naval Academy (1868); served in Asiatic fleet; member of general board (navy) (1902-1904), of army and navy joint board (July, 1903-June, 1904), and again of both boards (January, 1906); superintendent naval observatory Washington, D. C. (1908).

BARNEVELDT (*bar'neh-velt*), **JAN VAN OLDEN** (1547-1619). A Dutch statesman; became advocate general of the province of Holland (1585) and head of the republican party in opposition to Maurice of Nassau, whose oppressions he successfully restrained, thus bringing to an issue a twelve years' temporary peace with Spain (1609). Chosen "grand pensionary" of Holland; allied himself with the Arminians, opposing Maurice's upholding of the Gomarists (Calvinists), a sect receiving recognition by all classes of Holland; was illegally arrested, imprisoned (1619), and though innocent, was sentenced to death by approval of the Synod of Dort.

BARRAS, PAUL FRANCOIS JEAN NICOLAS, COMTE DE (1755-1829). Soldier of the French Revolution. Born in Provence. Active in the charges upon the Bastille (1789), and the Tuileries (Aug. 10, 1792); as member of National Convention voted for execution of King Louis XVI.; declared against the Girondists, May 31, 1793; was chosen commander-in-chief by Convention, they practically vesting him with a dictatorship for a time. Restrained with great determination the designs of the Royalists and cruelties of the Jacobins; October 5, 1795, reappointed commander-in-chief, he, aided by Napoleon, repressed decisively the movements of both sections. He was elected one of the five members of the Directory (1795) and practical dictator (1797). His pretentious extravagance led to his overthrow (1799). He died in Paris.

BARRY, JOHN (1745-1803). American naval officer, born in Ireland; settled in Philadelphia (1760); commanded the Lexington (1776); captured the tender, Edward, the first ship ever taken by a commissioned officer of the United States navy; commanded the Raleigh (1778); captured two English vessels on the Alliance (1781); was the first senior officer with the rank of commodore after the reorganization of the navy in 1794. Known as "Fighting Jack Barry."

BASTILLE. 1789. During the French Revolution Paris was at the mercy of the mob. A host of revolutionists surrounded the Bastille, and its defenders, unnerved at the sight of such a crowd, surrendered without resistance. The fighting was done at random, and in the excitement many lives were lost.

BATES, JOHN COALTER (1842-1919). American soldier, born in Missouri; lieutenant in the Federal army (1861); on Meade's staff from Gettysburg to the close of the war; captain in 1863; colonel in 1892; in service among the Indians for thirty years; on the board that adopted the Krag-Jorgensen rifle; brigadier general of volunteers in Spanish War; major general during Santiago campaign; military governor of Cienfuegos (1899); Philippines (1899); negotiated a treaty with the sultan of Sulu; commander of the Department of Southern Luzon (1900); retired (1906).

BATON ROUGE (August 5, 1862). From New Orleans, Admiral Farragut moved on and occupied Baton Rouge, on the Mississippi river above New Orleans, where he placed Gen. Thomas Williams in command. On August 5, 1862, General Breckinridge with the Confederate gunboat Arkansas appeared before the city and ordered its surrender. In the conflict which followed, the Confederates were defeated with a loss of 453 men. The Federals lost 383 men.

BATTERING RAM. An engine of war, consisting of a beam of wood having on one end a mass of iron or bronze, resembling the head of a ram, which was used in ancient times and in the Middle Ages. The place and time of its invention are unknown. Ezekiel mentioned it. It was received from the Greeks by the Romans. The battering ram in its simplest form was carried and impelled by the hands of the soldiers. Later it was suspended on a frame and made to swing; while another form moved on rollers. Ropes imparted the alternating motion. A wooden roof (testudo) was constructed to protect those working it, the whole being mounted on wheels. The length of the beam varied from 60 to 120 feet, the head sometimes weighing more than a ton. At times 100 men were required to impel the machine. Hardly any wall could resist its long-continued blows.

BATTLE-AX. From the remotest antiquity to the present day this weapon has been used in warfare. Battle-axes of stone or bronze were followed by those of iron or steel. A great variety of sizes, weights, and lengths of handle have been and are still used. That of the Franks, the Francisca battle-ax, was often used as a missile. One with a long handle is called a poleax.

BAUTZEN. May 20, 21, 1813. The battle of Bautzen, a town in Saxony, was fought between the French, under Napoleon, and the allied Prussian and Russian forces, under Blucher and Wittgenstein. By very careful and well-planned movements Napoleon forced the allies to retreat and captured Bautzen.

BAVARIA, HOUSE OF (Germany). In the contention for the throne between Louis the Bavarian and Frederick of Austria the former prevailed and ruled (1314-1347) until his death, when Charles IV. of Luxemburg ascended the throne.

BAYARD, or more properly BAYART, PIERRE DU TERRAIL, CHEVALIER DE (1476-1524). One of the most gallant of heroes of the Middle Ages; received his knighthood at battle of Fornuovo (1495), where he first achieved great honor; fought consecutively against Spaniards, English, and Italians and gained great distinction, winning such a successful victory for Francis over the Milanese as to incite the young king to beg for, and obtain, knighthood at his hands. During an attack in which France and Milan were engaged at the passage of Sesia (1524), he was fatally wounded. One of the purest characters of the Middle Ages, and known as "le chevalier sans peur et sans reproche."

BAYEUX TAPESTRY. A web of white canvas 204 feet long, 20 inches wide, containing embroidered scenes from the invasion and conquest of England by William the Conqueror (1066) done in colors with woolen thread. It is in the public library at Bayeux, France. It contains 1512 figures in 72 subjects with Latin inscriptions. Valuable as giving details of the events more vividly and graphically than literature does. It deals with the life of Harold, Edward the Confessor, the Norman Invasion, Battle of Hastings, and Harold's death. Said to have been done by Matilda, wife of William the Conqueror.

BAYONNE DECREE. Napoleon pretended to help the United States commerce in 1808 by ordering that no vessels flying the American flag should enter the ports of France, Spain, Italy, and the Hanse towns. He argued that such vessels would either be flying false colors, or violate the laws of the United States and so help England. Over 300 American vessels were confiscated and sold for the benefit of the French treasury under this decree.

BAZAINE, FRANCOIS ACHILLE (1811-1888). A French marshal. Won distinction by his services in Algeria, in Crimean War, in Spain, and Italian campaign (1859); engaged in French expedition to Mexico (1862), and in 1863 held supreme command of their forces; was at head of Third Army Corps near Metz at declaration of war with Germany; led forces in Franco-Prussian War, retreating to Metz, where he surrendered, after all attempts to escape proved futile, on Oct. 27, when 173,000 men with three marshals and 6,000 officers, became prisoners of war. Accused of being a traitor, by the voice of the nation in 1873, was tried by court-martial and sentenced to death, but was committed to 20 years' imprisonment in the Isle of St. Marguerite. He escaped in August, 1874, going to Madrid, where he died.

BEAUFORT (February 3, 1779). After the state of Georgia had been subdued, the British turned their attention to South Carolina. Colonel William Moultrie was put in command of an American army and sent to Beaufort to check the advance of the British. At the approach of Major Gardiner and his British troops, Moultrie advanced and offered battle. In less than an hour the British retreated with the loss of half their number.

BEAUHARNAIS (*bo-ar-nay'*), **EUGENE DE** (1781-1824). A French general. Son of the Vicomte de Beauharnais. Gained high military honors and in his campaign in Egypt (1804), became general of a brigade. The following year received title of prince and appointed viceroy of Italy; declared later by Napoleon as his adopted son and heir to Kingdom of Italy; shared in the honors of Wagram, and during war with Austria, and in the retreat of Moscow, his great cleverness secured for the French army safety from complete annihilation. His conduct at the victory of Lützen (1813) was highly commended. After the downfall of Napoleon he returned to Bavaria.

BEAUHARNAIS, HORTENSE EUGENIE (1783-1837). The accomplished adopted daughter of Napoleon, Queen of Holland, and Countess of Len; born in Paris; married Louis Bonaparte in 1802, and was the mother of Napoleon III.

BEAUREGARD, PIERRE GUSTAVE TOUTANT (1818-1893). A Confederate general in the Civil War; born in New Orleans; graduated from West Point (1838); distinguished in the Mexican War; superintendent of West Point (1860); resigned to enter the war for the South (1861); began the Civil War by the bombardment of Fort Sumter (April 12, 13, 1861); defeated McDowell at first Bull Run (July 21, 1861); next day made a general. On the death of A. S. Johnston on the second day of Shiloh (April 7, 1862) he took chief command. Defended Charleston (1863); commanded at Petersburg (1864); surrendered with General J. E. Johnston to Sherman (April 26, 1865). President of Jackson and Mississippi railroad (1865-1870). Adjutant general of Louisiana (1878); some years manager of the Louisiana Lottery.

BEAVER DAM (June 24, 1813). An American regiment led by Boerstler was sent to capture Beaver Dam, the present town of Homer, Canada, near the western shore of Lake Ontario. The Americans were met at Beaver Dam creek by Lieutenant Fitzgibbon, who ordered his opponent to surrender. Boerstler, believing there was a large army accompanying the British, surrendered 542 prisoners.

BELGRADE, TURKS DEFEATED AT. After the siege and fall of Constantinople, Mohammed II. tried to invade Hungary, but was defeated at Belgrade by the Hungarians under Janos Hunyady in 1456.

BELISARIUS (about 505-565). A general under Emperor Justinian. In 530 he gained a victory over a Persian army twice as large as his own. He put down a rebellion in favor of a new emperor. Hypatius,

killing 30,000 of the rioters at Constantinople. In 534 he gained Africa from the Vandals and took King Gelimer prisoner. He also took Sardinia and the Balearic Islands on his way home. He was made consul in 535. In the same year he conquered Sicily; in 536 all of the cities of southern Italy, except Naples; he entered into Rome and held it for a year against the Goths; he drove the Goths to Ravenna and took their king Vitiges prisoner. He was recalled by Justinian before he had completed his work. After a campaign in Persia, he was sent, in 545, to expel the Goths from Italy. His army was too small and as no reinforcements were sent him he gave up the command after three years and returned home. His rival, Narses, was appointed to his place. In 563, in spite of his faithful services he was accused of conspiracy by the emperor Justinian. It is said that his innocence was proved and that he was restored to full honor.

BELL, JAMES MONTGOMERY (1837-1919). An American soldier; born in Williamsburg, Pa.; served through the Civil War; on the frontier (1866-1898); in the Sioux wars (1876-1881); the Nez Percés War (1877); brigadier general of volunteers (1899); sent to the Philippines (1899); commander of Department of Southern Luzon (1900); and military governor of his district; chief of staff (1906-1910).

BELL-THE-CAT. Certain Scottish lords were considering how to remove from the favor of James III., the upstart mason, Cochrane, when to the inquiry "Who will bell the cat?" Sir Archibald Douglas replied, "That will I," thereby receiving the name of "Bell-the-cat."

BENNINGTON (August 16, 1777). In attempting to carry out his plan to get control of the Hudson River, Burgoyne encamped at Fort Edward after the victory at Crown Point; his army was in great need of horses and supplies. The Americans had collected at Bennington, a little village in Vermont, several hundred horses besides food supplies and ammunition. With the double purpose of winning over the many Tories here and supplying his army, Burgoyne sent 1,200 Hessians to Bennington, where nearly all were killed or captured by the militia under Col. John Stark.

BERESFORD, LORD CHARLES WILLIAM DE LA POER (1846-1919). British naval officer and parliamentarian; born in county of Waterford, Ireland. Entered navy as cadet (1859); rear admiral (1897); aide-de-camp to Queen Victoria (1896-1897). At Alexandria bombardment commanded the gunboat Condor, winning applause by flag signal, from entire fleet, "Well done, Condor!"; served with Nile column of Gordon Relief Expedition (1884); commanded naval brigade at Abu Klea, Abu Kru, and Metemneh battles; made Commander of the Bath; member of Parliament (1874-1880, 1885-1900); rear admiral of Mediterranean Squadron (1900-1902); Parliament (1902); admiral (1906) retired. With Lord Kitchener and Lord Roberts forms the popular military and naval trio.

BERING SEA DISPUTE. This international controversy in which Great Britain and the United States were chiefly concerned arose from the depredations on the seal fisheries of the North Pacific by unlicensed Canadian sealers. The Russian Government had directed the preservation of the seals for ninety years, the United States still continuing this care after the cession of Alaska in 1867, and leasing the business to the North American Commercial Company. The slaughter of the seal was carefully restricted to 100,000 seals annually, which in 1885 represented a capital of about $30,000,000, the government receiving a yearly revenue of $1,000,000 from its royalty of $10 per skin. Canadian and American capital in 1886 fitted out a fleet of vessels in British Columbia to hunt seals while feeding in the water beyond the three-mile territorial limit. This business increased rapidly, causing such depredations that the licensed slaughter was reduced to 21,000; which resulted in the ruling by Secretary Manning of the Treasury Department that Bering Sea, to the western limit of the Russian cession, was closed; that is, under the exclusive jurisdiction of the United States. American patrols seized Canadian schooners (for which in 1898 the United States paid Canadian shipowners $473,151.26, in accordance with a treaty made two years previous). Sir Sackville-West, then British Minister, protested; a circular letter having in the meantime been sent by Secretary Bayard to Great Britain, France, Germany, Japan, Russia, and Sweden, requesting coöperation to prevent the destruction of the industry. A court of arbitration was appointed which met in Paris, March 23, 1893. Their decisions were mainly against the United States, and were ineffectual, the whole matter being finally referred to the Anglo-American Commission, which, upon its indefinite adjournment in February, 1899, had reached no agreement, nor have any efforts been successful in preventing the wholesale destruction of the seals, and the extermination of the species seems unavoidable.

BERLICHINGEN (*ber'lik-ing-en*), **GOETZ VON** (1480-1562). German feudal knight born at Jagsthausen in Württemberg. A rebellious noble, he was twice put under the ban of the Empire (1512-1518). Served against Swabian League (1519); in the Peasants' War (1525), and, after the Swabian League dissolved, aided Charles V. (1542) against the Turks and Francis I. The story of his life furnished material for Goethe's drama.

BERLIN, CONGRESS OF. A European diplomatic Congress (June 13, 1878) to settle the Eastern question, which grew out of the Russo-Turkish War. The San Stephano Treaty was reconsidered; the boundaries of Bulgaria were cut down; eastern Roumelia was made a Turkish province (but it soon united voluntarily with Bulgaria); Crete was to be governed better; boundaries of Greece were defined; Bosnia and Herzegovina were placed under the administration of Austria-Hungary; Montenegro, Servia, and Roumania were declared independent and territory added to them; the Danube below the Iron Gate was neutralized; Russia kept most of her conquests in Asia; Great Britain held Cyprus for Turkey as a guarantee against further aggressions of Russia in Turkey in Asia.

BERTHIER (*ber-te-ay'*), **ALEXANDRE** (1753-1815). Born in Versailles. French marshal. Prince of Neuchatel and Wagram. Served under Lafayette in American War of Independence. Appointed major general of the National Guard of Versailles at declaration of French Revolution. In Egyptian campaign was Napoleon's chief of staff. Minister of war from 1799-1808. On return of Napoleon from Elba he retired to Bavaria and died by his own hand.

BICKNELL, GEORGE AUGUSTUS (1846–1925). Rear admiral (retired) United States navy; born at Batsto, N. J.; served as first lieutenant U. S. V. I. during Morgan raid in Indiana; graduated United States Naval Academy (1866); served on Iroquois, Asiatic fleet (1867-1870), and was at opening to trade of ports of Kobé and Osaka, Japan; in landing party which repelled Prince Hizen, and afterwards second in command of marines protecting Yokohama until order was restored; during war with Spain commanded U. S. S. Niagara, and served in Cuban and Porto Rican waters; commanded Monocacy, Shanghai, China (December, 1899); commandant naval station, Key West, Fla. (1902-1904); commanded Texas, flagship of coast squadron (October, 1904-June, 1906); commandant Pensacola Navy Yard (July, 1906-February, 1907); commandant navy yard, Portsmouth, N. H. (February, 1907); rear admiral (February 8, 1907).

BIG BETHEL (June 10, 1861). A detachment of the Federal forces at Fortress Monroe, Va., was put in command of Brig. Gen. E. W. Pierce and sent to disperse the Confederates at Big and Little Bethel, on the peninsula between the York and James rivers in Virginia. On June 10, 1861, the Union forces tried to surprise the enemy, but were unsuccessful, and in the skirmish which followed, the Federal troops were repulsed with a loss of 68 men.

BIG BLACK (May 17, 1863). After the battle of Champion Hills, Miss., Grant moved toward Vicksburg. On the west side of Big Black river, McClernand's corps encountered the Confederates under Pemberton, and after a desperate assault drove them to the Vicksburg fortifications. The total loss to the Federals was 279. The Confederates reported a loss of 2,250.

BLACK DEATH. An Oriental plague, caused by the presence of a specific microbe, and so named from the black spots which appeared in the skin as a result of subcutaneous hemorrhages; the victims living but two or three days after the attack. During the third century B. C., it appeared in Libya, Egypt, and Syria. About 542 it began in Egypt, and passing through Constantinople, spread throughout all Europe, lasting about fifty years. In the fourteenth century the plague desolated the world. In China 13,000,000 are said to have perished, and nearly 24,000,000 in the rest of the East; while in Europe the number is conservatively estimated as 25,000,000. The horrors of the time cannot be realized. Added to those attending the disease there was a terrible persecution of the Jews, who were killed by fire and torture in the belief that they had caused the pestilence by poisoning the public wells. The scarcity of laborers after the plague had subsided brought about a change in social conditions which finally resulted in the "reorganization of land-holding relations on the basis of rent, as between owner and tenant, and wages, as between farmer and laborer."

BLACK HOLE OF CALCUTTA. A dungeon 20 feet square, with only two small windows obstructed by a porch, into which 146 prisoners were confined (June 20, 1756) during the Indian Mutiny by Siraj-ud-Daula. Only 23 survived the night.

BLACK PRINCE. Edward, Prince of Wales, son of Edward III. of England and victor of Poitiers; died in 1376. The name was derived from the color of his armor. His son reigned as Richard II.

BLACK ROCK. (1) Black Rock, now a part of Buffalo, N. Y., was captured by the British on July 11, 1813. (2) The American militia which fled from Black Rock when the British captured it met reinforcements near Buffalo and returned to punish the invaders. After a brief conflict, the British were obliged to retreat with the loss of Lieutenant Bishopp. (3) In December, 1813, Black Rock was sacked and burned by the British. The inhabitants who could not escape were massacred and only one building was left standing.

BLACKSTOCK (November 20, 1780). General Sumter with a force of Americans, met the British under Colonel Tarleton, at Blackstock's plantation, Union District, S. C., and after a desperate struggle the British retreated with a loss of about 200 men.

BLACKSTONE, WILLIAM (? -1675). A New England colonist; the first white man to settle on the site of Boston, Mass. (1623). Sold his land (1634) and became the first white settler in Rhode Island.

BLACK WARRIOR. An American merchant vessel on her way from Mobile to New York called at Havana, Cuba, and was seized, her cargo confiscated, and her captain fined for alleged customs violations. Spain narrowly escaped a war in consequence. The cargo was restored, the captain's fine remitted and the vessel released (February, 1854).

BLACK WATCH. A famous Highland regiment, organized by the Earl of Athole (1688); became the 42d Regiment of the Line in 1739. They wore a dark colored tartan. Their career began with Fontenoy, and few regiments equal them in battle honors.

BLADENSBURG. In Prince George County, Md., 6 miles northeast of Washington. On August 24, 1814, a British force of 5,000 under General Ross and Admiral Cockburn defeated 3,500 untrained Americans under General Winder. The English lost 500; the Americans, 76. In 1820, Commodore Decatur was mortally wounded here in a duel with Commodore Barron. Once a noted dueling ground.

BLAKE, ROBERT (1599-1657). English admiral during Cromwell's time. In 1652 fought four naval engagements with the Dutch led by Tromp, De Ruyter, and De Witt; burned Tunis (1654); defeated the Spaniards at Santa Cruz (1657).

BLENHEIM. August 13, 1704. One of the decisive battles of history was fought between the old town of Hochstadt and the village of Blenheim, in Bavaria. The French and Bavarians numbered about 60,000; the English, German, and other allies, about 53,000, commanded by Marlborough and Prince Eugene. A brave charge of the allies broke the forces of the French and Bavarians, and about 14,000 fortified at Blenheim were obliged to surrender as prisoners of war. The defeat of the French at Blenheim changed the course of the war; the hopes of Louis XIV. were shattered; and more confidence was placed in the English. This battle is also called the battle of Hochstadt.

BLENNERHASSETT, HARMAN (1764-1831). A wealthy British emigrant (1797) to America, who bought the island bearing his name in Ohio river a few miles from Parkersburg, W. Va. Aaron Burr visited him in 1805 and involved him in his alleged treason, for which Blennerhassett was twice arrested, tried, and acquitted. He died in the island of Guernsey.

BLIGH, WILLIAM (1754-1817). An English admiral, sailed with Captain Cook on his second voyage around the world; commander of the Bounty (1787); on the passage from Tahiti to Jamaica, the crew mutinied and set the captain and 18 men afloat in the ship's launch. After three months of hardships they landed with loss of a single life at the Island of Timor, 3600 nautical miles from their starting point. The mutineers settled in Pitcairn Island.

BLOREHEATH. September 23, 1459. As the army of the Lancastrians, under Henry VI., were forming to make an attack upon the Yorkists, led by the earl of Salisbury, the latter fell upon them at Bloreheath, in Staffordshire, England, and completely routed them.

BLUCHER (*bloo'ker*), **GEBHARD LEBERECHT VON** (1742-1819). Prussian field-marshal, born at Rostock. Served for a brief time in the Swedish army, before entering the Prussian. Present in many actions against the French. Compelled to surrender after the fall of Lübeck (1806), but soon exchanged for the French general Victor. Given chief command in Silesia in 1813, and upon his victorious entry into Leipzig (Oct. 19), received the rank of field-marshal. Pursuing the French across the Rhine, the allies entered Paris, Mar. 31, 1814. Blücher's timely appearance at the battle of Waterloo contributed largely toward the victory that day. Received with great enthusiasm in England (1814), the University of Oxford conferring on him the degree of doctor of laws. Frederick William III. created him Prince of Wahlstadt, and in his honor instituted the Order of the Iron Cross.

BLUE LICKS (August 19, 1782). Nearly 200 Kentucky pioneers encountered a strong band of Indians at Blue Licks, on the Licking river, in Kentucky, and were defeated, losing 62 of their number.

BLUE, VICTOR (1865-). An American naval officer; born in North Carolina. Served on the Suwanee in the Spanish-American War; penetrated 72 miles within the Spanish lines and ascertained that the Spanish fleet was in Santiago harbor. Placed in command of the gunboat Alvarado, taken from the Spanish; took part in the attack on Manzanilla (1898); flag lieutenant in the Boxer troubles in China (1900); assigned to duty in the Philippines (1900-1901); inspector of equipment Cramp's shipyard (1901-1902); aid to Admiral Cooper, and aid to squadron commander of Asiatic fleet (1903-1904); in bureau of ordnance (1905); inspector ordnance, Newport News, Va. (1905-1907).

BOHEMIA. Country named from the Celtic people, Boii, who had settled there and were driven out in the first century B. C., by the advancing Marcomanni; these in turn gave place to a Slavic people in the sixth century. Christianity introduced in the ninth century. Became part of Moravian realm; bishopship of Prague constituted (about 1090); became part of Roman Empire of Germans; was one of most powerful realms in Europe (1253-1278); immigration of German artisans developed country; House of Luxemburg ruled (1310-1437); Hussite wars convulsed the country, sowing the seed of nationality as against Germanization and laying foundations of the Slav-German-Magyar State of Austria-Hungary. Crown became hereditary in House of Hapsburg, Bohemia losing political freedom and religious liberty. Thirty Years' War of Protestants against the Hapsburgs (1618-1648); Protestants losing; endured Hapsburg rule until Pan-Slavic insurrection (1848), suppressed by fortress cannon, but proving the first step in ceaseless struggle to regain autonomy. Strongly united on national issues against Germany, but divided among themselves, the Austro-Hungarian empire is threatened by the apparent impossibility of reconciling either feudal and clerical party or the radical and irreconcilable party of Czechs to present conditions.

BOII. Celtic people migrating into Gaul from northern Italy and region east of the Alps; gave name to Bohemia. Migrated to avoid Romans in Italy and Germans in Bohemia; settled by Caesar in Aedui.

BOLEYN or **BULLEN** (*boolen*), **ANNE** (1501-1536). Second wife of Henry VIII., mother of Queen Elizabeth, and daughter of Sir Thomas Boleyn. Secretly married to Henry on Jan. 25, 1533; crowned queen the following June; beheaded (May 19, 1536).

BOLIVAR, SIMON (1783-1830). A South American patriot; "The Liberator." In 1811 he joined the party in Venezuela who were trying to drive out the Spanish; won the freedom of the northwestern parts of South America. First president of Colombia (1819), comprising what is now Colombia and Venezuela; drove the Spanish out of Peru (1822); made dictator; resigned the latter office (1825); part of Peru became a separate state, named Bolivia in his honor.

BONHOMME RICHARD AND SERAPIS (September 23, 1779). John Paul Jones, in command of a squadron of three ships, of which the Bonhomme Richard was the flagship, opened battle with the English ships Serapis and Scarborough, under Captain Pearson, off the coast of Flamborough Head, England. The contest was sharp throughout, and with the Richard and Serapis lashed together the fighting was hand-to-hand. Finally, when both ships had caught fire and were almost destroyed, the Serapis surrendered; and, as the Scarborough had also been captured, the victory was complete.

BONNIVARD (*bo-ne-var'*), **FRANCOIS DE** (1496-1570). A Swiss patriot, hero of Byron's "Prisoner of Chillon." Became prior of St. Victor, near Geneva, in 1510, and aided the Genevese against the duke of Savoy, by whom he was imprisoned, at one time for two years, and later for six (1530-1536). Liberated

by the Genevese and Bernese, he returned to Geneva, where he received a pension, and died in honor.

BOONE, DANIEL (1735-1820). Famous American pioneer, born in Pennsylvania, but removed to North Carolina (about 1752) and later to Kentucky (1775). Noted for many daring exploits against the Indians, by whom he was captured February 7, 1778, taken to Detroit, and adopted into their tribe; but escaped the following June. Commandant of the Femme Osage District (1800-1804), under a commission from the Spanish authorities. Died in Missouri, but his remains were interred near Frankfort, Ky., in 1845.

BOOTH, JOHN WILKES (1839-1865). Assassin of Abraham Lincoln; born in Maryland; son of Junius Brutus Booth. An unsuccessful actor, he abandoned the stage in 1863. To avenge the defeat of the Confederacy, he formed a conspiracy against the life of President Lincoln, whom he mortally wounded on April 14, 1865, at Ford's Theater in Washington. Escaping from the building, Booth took refuge in a barn at Bowling Green, near Fredericksburg, Va. Discovered, he refused to surrender, and was shot after the barn had been fired. Later, most of his accomplices were captured, and four of them—Atzerodt, Herold, Payne (*alias* Powell), and Mrs. Surratt—were hanged.

BORDEAUX. (1) May, 732. The Moslems in their conquests did not overlook France, and in 732 Bordeaux was stormed and sacked by these invaders. (2) In 1653 revolution in Bordeaux reached such an alarming state that the king laid siege to the city. This movement encouraged the loyal party in the city and they were soon able to quell the disturbance. (3) During the latter part of the eighteenth century, France was kept busy suppressing revolts in the provinces. City after city was being seized. In 1793 the Republicans reduced Bordeaux; 15,000 of the inhabitants were thrown into prison, hundreds were guillotined, and the possessions and property of the citizens confiscated.

BORODINO. September 7, 1812. Borodino, a Russian village on the Moskwa river, was the scene of one of the most sanguinary battles of history. The French were commanded by Napoleon, the Russians by Kutuseff, and both armies numbered about 120,000. After an obstinate struggle the Russians retreated, leaving Napoleon an open road to Moscow. This battle is also known as the battle of Moskwa.

BOSCAWEN, EDWARD (1711-1761). An English admiral known as "Old Dreadnought." Was at Porto-Bello and Cartagena (1740); Cape Finisterre (May 3, 1747); defeated the French at Newfoundland (1755); took Cape Breton Island from the French (1758); defeated the French fleet at Lagos (August 18, 1759).

BOSTON. Capital of Massachusetts. Named after the town of Boston in England, where John Cotton, "the Patriarch of New England," was vicar for over 20 years at the fine church of St. Botolph (1612-1633). Built on peninsula known to Indians as Shawmut, or Sweet Water, and named Trimountain by the early colonists, from the three peaked top of one of its hills. First visited by exploring party from Plymouth (1621); colonists headed by John Winthrop located at Charlestown (1630); on invitation of William Blackstone or Blaxton, a "bookish recluse," colony moved to Trimountain (1630), where Blackstone had been living since 1626. Named Boston (1631); meeting house erected (1632) head of State street; Tremont street perpetuates "Trimountain." First grand jury met in Boston (1635); post office opened (1649); mint established (1651); printing office (1674); and the first newspaper in America, the *Boston News-Letter*, published (1704). Irritation against England began with the impress of seamen by the Home Government (1747); augmented by Stamp Act (1765); culminating in famous "Tea Party" in opposition to oppressive tax on tea. Boston Port Bill passed in retaliation (1774) by English Parliament closing harbor to commerce. At the outbreak of the Revolution Boston was occupied by British troops. Besieged by American army after skirmish at Lexington, and attempts to fortify Charlestown precipitated the Battle of Bunker Hill (1775). One of Washington's most brilliant exploits (1776) was the fortification of Dorchester Heights, forcing the evacuation of Boston by the English. Under cover of incessant cannonading at Roxbury, the heights overlooking the harbor were strongly fortified. When this was discovered at daylight, the English realized it would be impossible to take Dorchester Heights, and as their ships were exposed to the American guns, they retreated, leaving a large quantity of ammunition, cannon, and muskets.

BOSTON PORT BILL. An act passed March, 1774, by the British Parliament to punish Boston for the destruction of a cargo of tea (December 16, 1773). It was intended to close the harbor to commerce and move the capital to Salem and to make Marblehead a port of entry, until the owners of the cargo were indemnified for the destroyed cargo.

BOSTON TEA PARTY. December 16, 1773, a party of citizens of Boston, Mass., disguised as Indians, visited three ships in the harbor and threw 342 chests of tea overboard. It was a protest against taxation on the importation of tea, without representation.

BOTHA, LOUIS (1863-1919). A Boer commander who fought in the Kaffir campaign; was elected to the Volksraad at Pretoria; upon the outbreak of the Boer War with England in 1899, he was given a subordinate command but, upon the death of General Joubert (March, 1900), became commander of the Boer forces. He demonstrated great capacity by his victories at Spion Kop and Colenso; in 1907, Botha was chosen premier, and attended the conference of colonial premiers in London; premier of United South Africa (1910-1912).

BOULANGER (*boo-lan'zhay*), **GEORGES ERNEST JEAN MARIE** (1837-1891). French general, born at Rennes. Visited the United States as head of the commission to the Centennial celebration, and also led a French deputation at the celebration of the centennial of the battle of Yorktown. Served in Algeria, Italy, and Cochin China. Minister of war, January, 1886-May, 1887. Soon after was arrested for attacking his successor, and in March, 1888, was deprived of his command and placed on retired list. Elected deputy from a number of departments in 1888-1889. A coup d'etat was expected; but fearing persecution for conspiracy, Boulanger fled to Brussels. He was convicted by the Senate of malfeasance, and on September 30, 1891, committed suicide in Brussels.

BOURBON, HOUSE OF (France). Began with Henry IV., who by virtue of the Salic law became heir to the French throne on the assassination of Henry III., and continued in a direct line to the Revolution. Louis XVIII. and his brother Charles X. were also in the direct line. With the interruption of the Revolution and the empire, the dynasty continued from 1589 to 1848. The Bourbons were descended from the sixth son of St. Louis, brother of Philippe III. Their reign came to an end with the flight of Louis Philippe and the setting up of the Second Republic (1848).

BOURBON, HOUSE OF (Spain). Began in 1700 with Philip V., Duke of Anjou and grandson of Louis XIV. of France, who was named in the will of Charles II. of Spain as his successor. Continued until 1808 when Ferdinand VII. was forced by Napoleon to abdicate, but in 1813 Ferdinand VII. was restored, the dynasty continuing until the flight of his daughter, Isabella II., in 1868, and the setting up of a provisional government under the presidency of Serrano, which in 1874 gave way to Alfonso XII., son of Isabella II. His son, Alfonso XIII., now reigns.

BOURBON (Orleans Branch of). Gave to France one king, Louis Philippe, who ruled from 1830 to 1848; died 1850.

BOURBON (Vendome Branch of). Attained by the fortunes of war the thrones of Spain, Naples, and Parma.

BOVIANUM. (1) 305 B. C. During the Second Samnite War, the Samnites, led by Gellius, attempted to force the Romans to raise the siege of Bovianum, in Italy, but they were completely defeated and obliged to acknowledge Roman supremacy in Italy. (2) Bovianum was captured by Sulla during the Social War.

BOWS. Extensively used in ancient times by the Egyptians, Scythians, Parthians, and Thracians; and in the time of the Romans by the Balearic Islanders, Numidians, Cretans, and other foreign mercenaries. These last were not a part of the legion, but skirmishers, to fight here and there, and draw the enemy into action. Archers for this purpose were also encouraged by the Greeks. The use of the English longbow was encouraged from Edward I. to Charles I., and won at Crecy and Agincourt. Lapp bowmen were in the army of Gustavus Adolphus when he invaded Germany in 1630, and part of the allied army which took Paris in 1814 are said to have been Cossack bowmen. But firearms coming into more general use at the beginning of the seventeenth century, the war bow and shaft were quickly set aside.

BOXER REBELLION. In China, 1900, a widespread anti-missionary and anti-foreign uprising in Shan-tung and other provinces of Northern China was instigated by the Chinese society called Boxers. Many

European missionaries and native Christians were murdered. At first the dowager-empress and the Manchu element at court opposed the movement, but afterward encouraged it. Baron von Ketteler, German minister at Peking, was assassinated, several legations were destroyed, and over two hundred foreign refugees within the walls of the British legation, Peking, were besieged. A relief expedition composed of United States, British, French, German, Russian, and Japanese forces was organized at once. The Taku forts were bombarded and destroyed by the allies, and under Admiral Seymour of the British navy an unsuccessful advance on Peking was made. Again the allied troops advanced, fighting severely at Tien-tsin, Pei-tsang, and Yang-tsun, and finally relieving the besieged on August 14, 1900. The court fled from the capital, which remained in the possession of the allies until peace was signed on September 7, 1901.

BOYNE, BATTLE OF THE (July 11, new style; July 1, old style, 1690). Three miles west of Drogheda, Ireland. Between James II. and William III., resulting in the defeat of the former and the ascendency of Protestantism in England.

BOZZARIS (*bot'zah-ris*), **MARCOS** (*c.* 1790-1823). Famous Greek patriot and leader in the war for independence,—"The Leonidas of Modern Greece." Born at Suli, in Epirus. Slain while leading a successful attack at Karpenisi.

BRADDOCK, EDWARD (1695-1755). British general, born in Perthshire, Scotland. Appointed major general and commander of British regular and colonial forces in America in 1754. In 1755 advanced on Fort Duquesne, where Pittsburg, Pa., now stands, and owing largely to his contempt for colonial methods of warfare was surprised by the French and Indians and routed with great loss; 62 out of 86 officers, and 914 out of 1,373 men engaged being either killed or wounded, while the French loss was slight. Braddock was mortally wounded and died at Great Meadows.

BRADFORD, ROYAL BIRD (1844-1914). Rear admiral (retired) United States navy; born at Turner, Me.; graduated United States Naval Academy (1865); rear admiral (November 23, 1904); chief of bureau of equipment, navy department (1901-1903); commanded 3d squadron of North Atlantic fleet. Principal shore duties; instructor at naval torpedo station, Newport, R. I.; preparation of new naval regulations; organization of naval department electricity; naval attaché Paris Peace Commission (1898); member of many technical boards. Retired (July 22, 1906).

BRAGG, BRAXTON (1817-1876). Distinguished Confederate general; born in Warren County, N. C.; graduated from West Point, 1837; rendered distinguished service in the Mexican War. Appointed, with full rank of general, to A. S. Johnston's command, on the death of the latter. On June 20, 1862, replaced General Beauregard as commander of the Western Department, of which position he was relieved in December, 1863. In February, 1864, appointed military advisor to Jefferson Davis; assigned in 1865 to active service under J. E. Johnston. After the war, Bragg became chief engineer for the state of Alabama, and had charge of the improvements in Mobile Bay. Died in Galveston, Texas.

BRANDY STATION, or FLEETWOOD (June 9, 1863). In 1863 there were occasional skirmishes in the vicinity of Brandy Station, northwest of Fredericksburg, Va. On June 9 a body of Federal cavalry led by Generals Buford and Gregg encountered the Confederates there and were repulsed with a loss of 500 men. On August 1 Buford attacked the Confederate Stuart and forced him to retreat, but was afterward obliged to fall back. Between October 10 and 16 skirmishes were frequent. The total Federal loss was 866 men; the Confederates lost 523 men.

BRANDYWINE, BATTLE OF (September 11, 1777). Between 18,000 British under General Howe and 11,000 Americans under General Washington. The Americans, though defeated, withdrew in good order. Lafayette was severely wounded in the battle. Howe occupied Philadelphia (September 26, 1777), and the Continental Congress adjourned first to Lancaster, then to York.

BRASIDAS (fifth century B. C.) A famous Spartan general. Prominent during the Peloponnesian War; defeated Cleon at Amphipolis (422 B. C.), when both were mortally wounded.

BRAZITO (December 25, 1846). During 1846, the Americans took steps to get possession of New Mexico and California. By August 19, 1846, Sante Fe and all the surrounding territory had been taken. With a regiment of Americans, Colonel Doniphan was sent south to join Wool. On December 25, 1846, an army of Mexicans led by General Ponce de Leon, met the Americans at the Brazito river, a tributary of the Rio Grande. A short but obstinate fight ensued which resulted in the disorderly flight of the Mexicans.

BREITENFELD. September 7, 1631. In a battle at Breitenfeld, the Swedes, under Gustavus Adolphus, defeated Tilly and the Imperialists. As Breitenfeld is only five miles north of Leipzig, in Saxony, this battle is often referred to as a battle of Leipzig.

BREWSTER, WILLIAM (about 1560-about 1644). Went to Holland (1608); procured the grant in England along with Bradford (1619); a leader of the "Mayflower Pilgrims" (1620); and was the ruling elder at Plymouth, a teacher and a preacher until 1629.

BRIDGEWATER. See LUNDY'S LANE.

BRIER CREEK, GA., BATTLE OF (March 3, 1779). Between 1,500 Americans under General Ashe, and a rather larger force of British under General Provost. The Americans were defeated with a loss of 200 killed and wounded and 200 prisoners; the British lost 5 killed and 11 wounded. Augusta was thus restored to the British for a time.

BRILL. The Dutch, in their struggle against Spanish rule, gained their first victory at Brill, in Holland. There, on April 1, 1572, De la Marck and Treslong defeated the Spaniards and captured the town.

BRISTOL. September 11, 1645. With a force of 2,300 men, Prince Rupert had been sent to hold Bristol, an important city in the west of England. The Parliamentarians, led by Fairfax, promptly laid siege to Bristol and carried it by storm, and Prince Rupert was obliged to surrender the whole place.

BRISTOW STATION (August 27, 1862). On August 26, 1862, as Pope was awaiting reinforcements at Bristow Station, southwest of Washington, in Virginia, he was attacked and his stores destroyed by the Confederates led by Jackson. The latter then withdrew to Manassas. The following day Hooker reached Bristow Station, where he found the Confederates under Ewell. After a battle in which both sides lost about 300 men, Ewell was defeated, which forced Jackson to evacuate Manassas.

BROCK, SIR ISAAC (1769-1812). The "Hero of Upper Canada." Commander of all English troops in Upper Canada (1810); lieutenant governor of the provinces; captured Detroit (August 16, 1812) and received General Hull's surrender; mortally wounded in American attack on Queenston (October 13, 1812).

BROKE, SIR PHILIP BOWES VERE (1776-1841). An English admiral; commander of the Shannon in the famous battle with the Chesapeake (June 1, 1813), in which he was permanently disabled.

BROOKE, JOHN RUTTER (1838-1926). An American soldier; born at Pottsville, Pa.; served in the Union army; commanded the Department of Dakota (1888-1890); to Porto Rico in the Spanish-American War (1898); military governor of Porto Rico same year; military governor of Cuba and commanding general of the Division of Cuba (1899-1900); command of the Department of the East, Governor's Island, N. Y. (1900). Retired 1902.

BROWN, GEORGE (1835-1913). Rear admiral (retired) United States navy; born at Rushville, Ind.; served during the Civil War; agent of Japanese government in command of Japanese ironclad Stonewall (1867-1869); lighthouse inspector (1876-1878, 1881-1884); commandant navy yard, Portsmouth, Va. (1886-1889, 1893-1897); commander-in-chief of naval forces on Asiatic station (1889-1892); retired (June 19, 1897); rendered special service on western coast during war with Spain.

BROWNSON, WILLARD HERBERT (1845-). Rear admiral (retired) United States navy; born at Lyons, N. Y.; graduated United States Naval Academy (1865); served on the Blake in deep sea investigation (1882-1884); inspector of hydrography (1885-1889); commandant cadets, naval academy (1894); board of inspection and survey (1896-1898); during Spanish War commanded Yankee; superintendent United States Naval Academy (November, 1902-June, 1906); rear admiral (May 6, 1905); commanded 4th division of Atlantic fleet (July 8-August 15, 1906); special service squadron (August 15-October 15, 1906); commander-in-chief of Asiatic fleet (October 15, 1906-April 1 1907); chief of bureau of navigation since May 20, 1907; retired (July 8, 1907), but by order of president, kept on active duty.

BROWNSTOWN (August 5, 1812). A detachment of 200 men under Van Horne, acting as an advance guard to Captain Brush, who was on his way to relieve

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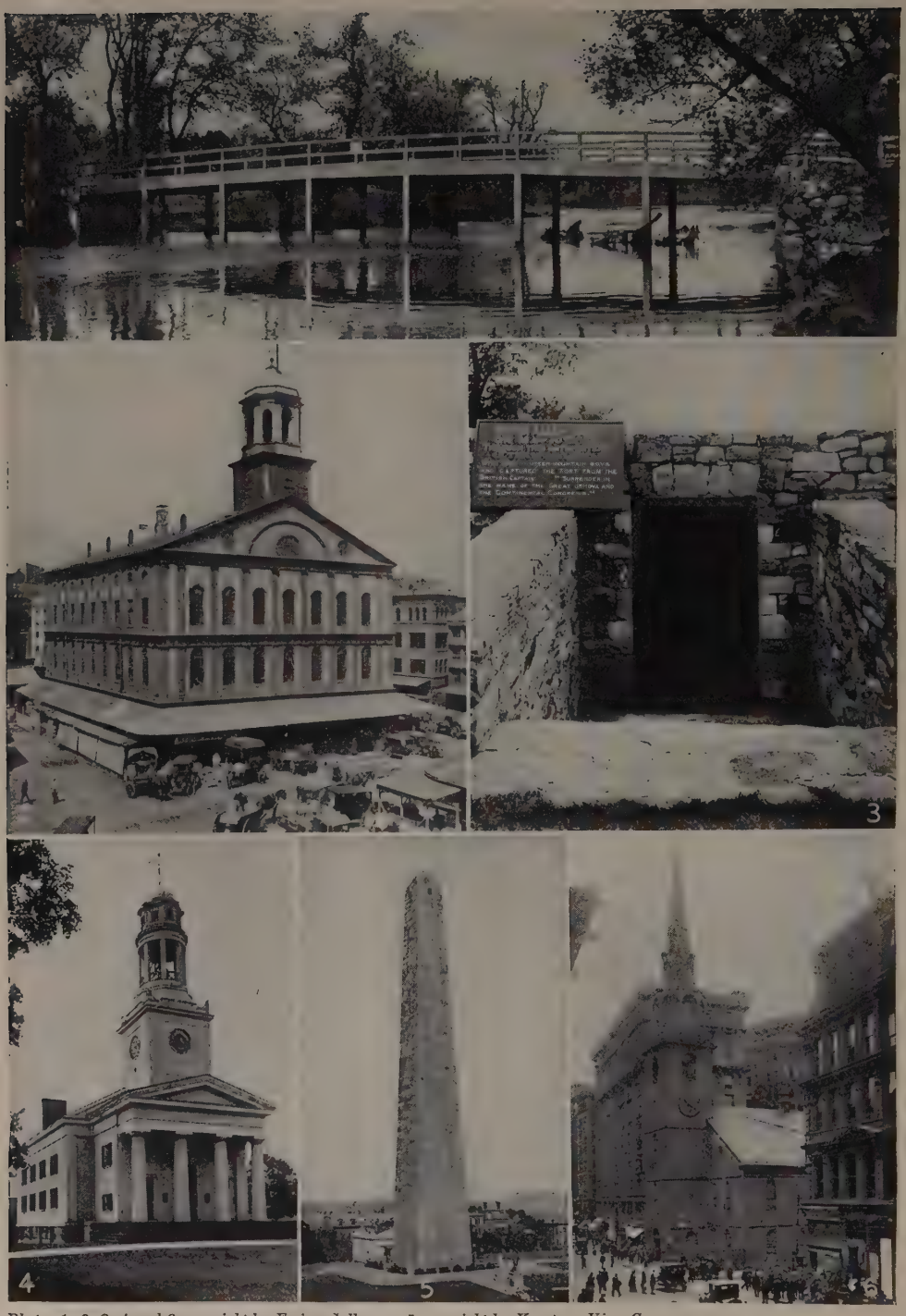
HISTORIC SCENES IN AMERICA—I

1 Oldest building in U. S. A., Postoffice, St. Augustine, Fla. 2 The Alamo, San Antonio, Texas. 3 Old city gate, St. Augustine, Florida, built 1702. 4 St. Carmel Mission, California. 5 Old slave market, St. Augustine, Florida.



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HISTORIC SCENES IN AMERICA—II

1 Old bridge, Concord, Mass. 2 Fanuel Hall, "Cradle of Liberty," built 1763, Boston, Mass. 3 Eathan Allen Gate, Fort Ticonderoga, New York. 4 Meeting House, Concord, Mass., where met Oct. 11, 1794, first provincial congress. 5 Bunker Hill Monument, Charlestown, Mass.; site of the battle on June 17, 1776. 6 Old South Church, Boston, Mass.

General Hull in Canada, was suddenly surrounded by a band of Indians under Tecumseh, near Brownstown, at the mouth of the Huron River, in Michigan. The Americans immediately retreated, losing 17 men killed and several wounded.

BROWNSVILLE RIOT. On August 13, 1906, members of three colored troops, B, C, and D, of the Twenty-fifth Infantry, stationed at Fort Brown, Texas, shot and killed citizens of the neighboring town of Brownsville. General Garlington, inspector general of the army, investigated, and finding that the perpetrators were by their comrades shielded from all discovery recommended to President Roosevelt that the three troops be discharged *en masse* without honor, a recommendation which the President adopted. By being "discharged without honor" the men were forever disbarred from enlisting in the army or navy and from employment in any civil capacity under the government. Many attributed General Garlington's decision to race prejudice, and much discussion was aroused over the affair. The confession of a negro soldier, later, apparently proved the negro regiments had been at fault, and that the action of the President had been correct. Further investigation followed and on April 6, 1910, the military court of inquiry rendered a verdict holding the negro soldiers of the 25th Infantry guilty.

BRUMMEL, GEORGE BRYAN (1778-1840). The famous "Beau Brummel," an Englishman of wealth and fashion. Becoming an intimate companion of the Prince of Wales (afterwards George IV.) he was for many years regarded by court society as an oracle on all questions of dress and etiquette. Finally losing the royal favor and oppressed by debt, he retired to Calais, and later to Caen, where he became British consul.

BRUNSWICK, HOUSE OF. Founded by Henry the Lion, of the House of Guelph, 1139, whose son Otho was German Emperor as Otho IV., and whose grandson Otho was in 1235 recognized as the first duke of Brunswick. During the next four centuries there occurred a confusing succession of "divisions, reunions, and ramifications." Ernst the Confessor, Duke of Luneburg, may be considered through his grandson Augustus as the progenitor of the modern elder ducal line of Brunswick (Brunswick Wolfenbuttel) which became extinct in 1884, and through his son William as the progenitor of the new younger ducal line of Brunswick-Luneburg (House of Hanover). Ernst the Confessor lived at the time of the Reformation. Ernst Augustus, Duke of Brunswick-Luneburg, was made ninth elector of the empire in 1692. In 1714 his son, George Louis, succeeded to the crown of Great Britain.

BUEHLER, WILLIAM GEORGE (1837-1919). Rear admiral (retired) United States navy; born at Philadelphia; entered United States navy as 3d assistant engineer (November 21, 1857); attained through successive promotions rank of chief engineer (November 10, 1863); an officer on U. S. frigate Niagara at the laying of first Atlantic telegraph, and received gold medal from New York Chamber of Commerce; served during Civil War; for four years, member of United States naval board of inspection, and twice member of examining board, naval engineers; in charge department of steam engineering, navy yard, Kittery, Me. (1894-1899); retired as rear admiral (1899).

BUELL, DON CARLOS (1818-1898). An American general, born in Ohio; graduated from West Point, 1841; served with distinction in the Mexican War; assistant adjutant general of various departments until the outbreak of the Civil War; appointed brigadier general of volunteers (May, 1861); succeeded Gen. W. T. Sherman in command of the Department of the Ohio (November, 1861); raised to rank of major general of volunteers (March 21, 1862); assumed command of Army of the Ohio (June 12, 1862), and was replaced by General Rosecrans (October 24, 1862). Was United States pension agent at Louisville, Ky. (1885-1889). Died near Rockport, Ky.

BUELOW, FRIEDRICH WILHELM, BARON VON (1755-1816). Prussian general in the War of Liberation, born at Falkenberg. Received from the king, in acknowledgment of his services, an estate worth $150,000 and the title of Count von Dennewitz. Led the column that first came to Wellington's aid at Waterloo. Died in Königsberg.

BUENA VISTA, BATTLE OF (February 22 and 23, 1847). In the Mexican War, 4,700 Americans under General Taylor defeated 17,000 Mexicans under General Santa Anna. This battle practically closed the northern campaign and, by keeping Santa Anna in the north, helped General Scott in the south.

BUFFALO. One of the most important United States ports on the Great Lakes, and the next largest city to New York in the Empire State. La Salle visited the site (1679) and built the first ship navigated on Lake Erie; a small vessel of 60 tons called "The Griffin." A trader named Winney settled (1792); Holland Land Company bought large tract and Joseph Endicott laid it out in townships (1798-1803); at first termed New Amsterdam but soon changed to Buffalo because of the immense bison herds visiting the adjacent salt licks. During the winter of 1813 British troops ravaged the neighborhood and threatened Buffalo; 2,000 disorganized American soldiers were put in command of General Hall, but when the British appeared 800 deserted. Hall held the British at bay until he was so outnumbered that he was obliged to retreat. The British occupied Buffalo, and demolished it. Township including present limits incorporated (1810); became a city with a population of 15,000 (1832); since 1857 noted for its commerce and manufactures. Pan-American exposition, at which President McKinley was assassinated (1901).

BULLER, SIR REDVERS HENRY (1839-1908). An English soldier, famous in the Ashantee, Kaffir, and Zulu wars (in the last he won the Victoria Cross for saving three comrades). In command of the British forces in South Africa and in the Boer War. Failed in his relief of Ladysmith, and was superseded by General Roberts.

BULL RUN. First important battle of the Civil War (July 21, 1861), in northeastern Virginia. Under Beauregard and Johnston the Confederates utterly defeated the Federals under McDowell, causing them to fly in disorder. Known as the Battle of Manassas by Confederates. In a second engagement (Aug. 29-30, 1862) the Confederates, under Lee, forced the Federals, under Pope, to retreat to Centerville.

BUNKER HILL. Battle in War for Independence (1775) at Bunker Hill, in Charlestown, Mass. Repulsing two British charges left the Americans without ammunition and they retreated before the third British charge. A shaft stands on the battle ground; General Lafayette was present at the laying of the foundation stone (1825), Daniel Webster delivering his famous oration, and again the chief speaker at its dedication (1843).

BURGOYNE, JOHN (1722-1792). English general in the War of Independence. Served (1775-1776) in America; returned in 1777; captured Ticonderoga (July 6, 1777); almost annihilated at Bennington by Stark (August 16); defeated by General Gates at Stillwater (September 19); decisively defeated at Saratoga (October 7); surrendered to Gates (October 17).

BURMESE EMPIRE. Settled about 500 B. C. by conquering emigrants from the Indian highlands on the northwest, progressing steadily until Kublai Khan received fatal reverse from Mongols in eleventh century. European traders entered in fifteenth century; Shans ruled Burmans for a time; Pegu dominant from 1580 to 1752, when Alompra of the Ava reorganized the Burmese Empire and founded Rangoon (1755), the commercial center of Burma. English East India Company established factory in Burmese territory; difficulties over trading privileges and frontiers (1824) led to war with England; treaty at Yandabo renounced claim to Assam and ceded Arakan and coast of Tenasserim to England. Treaty declared void by King Tharrawaddy (1837); England declared war, allied with the Peguans (1852) and Pegu, with the control of three principal rivers and the coast of Burma, became part of British Empire. Commercial treaty with England (1867); capital moved to Mandalay (1865). Owing to King Theebaw's tyranny and interference with trade the British invaded Burma, occupying Mandalay (1885), the king and queen being captured and taken to Madras. Burma passed under British control; annexation proclaimed (1886) as province of India under lieutenant governor.

BURNSIDE, AMBROSE EVERETT (1824-1881). American general; born at Liberty, Ind.; invented the Burnside breech-loading rifle (1866); entered the Union army in the Civil War; was at Bull Run, Newbern, N. C., Fort Macon, Antietam, Fredericksburg; served under Grant (1864); resigned (1865). Governor of Rhode Island (1866-1869); United States Senator (1875-1881).

BYZANTIUM. Situated on Thracian Bosporus. Founded by Dorian colonists (*c.* 660 B. C.). Great commercial center. Subjugated by Darius Hystaspis; later by Pausanias the Spartan; later joined Delian League; remaining loyal to Athens to 411 B. C., when

it joined Sparta. Taken by Alcibiades; recaptured by Lysander (405 B. C.); democracy reëstablished (390 B. C.) by Thrasybulus, the Athenian; treaty of friendship with Athens (*c.* 378 B. C.); leagued itself with Chios, Rhodes, and Caria in Social War (357 B. C.); again joined Athens when Philip of Macedon advanced against it (341 B. C.); retained independence until Celts imposed heavy tribute (278 B. C.), precipitating war with Rhodes under the burden of duties imposed; prospered through Roman and Mithridatic wars; besieged by Septimius Severus for three years, who captured, pillaged, and, later, rebuilt it; made capital of the Roman empire as Constantinople by Constantine I.

CABOT, JOHN (1450-1498?). Discoverer of North America; an Italian who became an English merchant. Under a commission from Henry VII. he set out with five ships fitted at his own expense to go to Asia by a northwest passage; he discovered the western continent, June 24, 1497, probably on Labrador; sailed along the coast for many leagues; in May or June, 1498, he again set sail, but nothing further is known of this expedition. **SEBASTIAN** (1475-1557), his son, was with him on his first voyage.

CABRERA, RAMON (1810-1877). Leader of the Carlist party, Spain; notoriously cruel.

CADE, JACK (? -1450). Leader of an insurrection which began in Kent, England, in June, 1450 (reign of Henry VI.). At Seven Oaks defeated a detachment of the royal army; entered London July 3, the king having retired to Kenilworth. The beheading of Lord Say and plundering of houses aroused the citizens, who defeated Cade and his followers in battle. On July 11 Cade was put to death.

CADILLAC, ANTOINE DE LA MOTHE (about 1660-1720). French military officer and founder of Detroit, Mich. (1701), with fifty settlers and fifty soldiers; governor of Louisiana (1712-1717).

CALAIS. (1) In August, 1346, during the Hundred Years' War, Edward III. of England laid siege to Calais, in northwest France. Six burgesses offered their lives as a ransom for the city, but on its surrender to the English, August 4, 1347, were spared by the queen. (2) The English were finally driven from France in 1558, when the duc de Guise captured Calais.

CALVERT, GEORGE, LORD BALTIMORE (about 1580-1632). British statesman, born at Kipling, Yorkshire. Appointed secretary of state (1619) by James I.; resigned in 1624; raised to the Irish peerage as Baron of Baltimore, 1625. Attempted to establish a settlement in Newfoundland, but difficulties from the hostility of the French and the severity of the climate caused him to apply for another grant, which was finally obtained, in Maryland. He died before the charter for this was issued, the grant devolving upon his son, Cecil.

CAMBRONNE (*kon-hron'*), **PIERRE JACQUES ETIENNE DE** (1770-1842). French general. Fought in the Vendée, 1792, and with distinction at Zurich, 1799; in the campaigns of the Empire, 1806-1813; accompanied Napoleon to Elba, 1814; at Waterloo, commanded a division of the Old Guard, where it is said he exclaimed, *"La garde meurt, et ne se rend pas"* ("The guard dies, but never surrenders"). He did surrender, was taken to London, severely wounded; tried by court-martial but acquitted; restored to his rank in 1820.

CAMDEN (August 16, 1780). Lord Cornwallis, leading a force of 2,000 British soldiers, defeated 3,000 Americans led by Gates at Camden, S. C. Baron de Kalb was killed. Also called battle of Saunders Creek.

CAMPUS MARTIUS (Field of Mars) at Rome. Used during the Republic as a military and athletic exercise ground. Public meetings and the constitutional assemblies were held here. Later it became crowded with public buildings and private residences. At present the district is known as "Campo Margo."

CANADA, DOMINION OF. There is no clear trace of when this name was given the important northern division of this continent. From Bjarni Herjuffson (986), Leif Ericson (1000), John Cabot (1497), and others up to Jacques Cartier (1534), many visited the east coast. England's claim was based on the Cabot voyage. Cartier discovered the St. Lawrence river and made the first settlements on the sites of Quebec and Montreal and about that period the Portuguese word Canada, signifying "a narrow strait," was used.

CANBY, EDWARD RICHARD SPRIGG (1819-1873). American general, born in Kentucky; graduated from West Point, 1839; served with distinction in both the Mexican and the Civil wars. Commanded city and harbor of New York during the draft riots, 1863; major general of volunteers, 1864; commanded military division of Western Mississippi, May, 1864-June, 1865; brigadier general, 1866; commanding Division of the Pacific (1873); was slain by Modoc Indians while conferring with them near the "Lava Beds" in Oregon.

CANNAE. (1) August 2, 216 B.C. During the Second Punic War a severe battle was fought at Cannae, a small village in Italy. The Romans numbered 90,000 men; while the Carthaginians, led by Hannibal, were only 50,000 strong. The Carthaginians, however, displayed better generalship and the Romans were annihilated, losing 80,000 men. (2) In 89 B.C., when the Social War was being waged in Italy, a battle was fought at Cannae between the Romans and their revolting citizens, in which the former were victorious. This was the last important battle of the war.

CANOSSA. A ruined castle in north Italy, twelve miles southwest of Reggio, where, in 1077, after three days' humiliation, Henry IV. obtained absolution from Pope Gregory VII.

CAPITOL. The citadel of ancient Rome and the site of the temple of Jupiter, the national sanctuary, situated on the Mons Capitolinus, the most famous, although the smallest, of the seven hills on which Rome was built. There are two summits, the south being the Capitolium proper, on which was the great temple of Jupiter, while the citadel was on the north; but the whole hill is often called the Capitol. To Tarquinius Priscus is attributed the foundation of the great temple of Jupiter Optimus Maximus, Juno, and Minerva; and to the consul Horatius its dedication, 509 B. C. The building consisted of three simple cells, one for each divinity, and was nearly quadrangular, having three rows of columns in front and one at each side, but none in the rear. The temple was burned during the civil wars under Sulla, was restored, and then destroyed during the Vitellian riots. Vespasian restored it, but it was again destroyed by fire after his death. Domitian restored it, his structure lasting to a late period of the empire, when it was so completely destroyed that little besides the foundation walls remain. State criminals were thrown from that part of the mount called the Tarpeian Rock. Other important structures on the Capitoline Mount were the temple of Jupiter Tonans, built by the emperor Augustus, and the Tabularium, built for the archives by Quintus Catulus 73 B. C., the imposing foundations of which still remain. The temple of Juno Montea was on the north summit, and, near by, the mint. It is now occupied by the Church of Santa Maria in Aracoeli, while on the south are dwellings, including the German embassy. The space between the summits is occupied by the Piazza del Campidoglio, on the site of the Tabularium is the Palazzo del Senatore, and on either side the museums of the Capitol and of the Palazzo dei Conservatori.

CAPRI. A beautiful rocky island at the southern entrance to the Bay of Naples. On ancient Capreae Augustus built palaces and aqueducts which were improved by Tiberius, who also built twelve villas in honor of the twelve gods, the ruins of which still remain. In the largest of these (Villa Jovis), Tiberius passed the last ten years of his life. Tradition says that he hurled his victims into the sea from precipitous rocks, 745 feet high, in the northeast corner of the island. During the Napoleonic wars the English seized Capri (1806) and built fortifications, some of which remain. The French under Lamarque captured it in 1808, but in 1813 it was retaken by the English, who restored the island to King Ferdinand IV. of Sicily.

CAPUA. (1) In 212 B.C., during the Second Punic War, the Romans, under Q. Fulvius and Appius Claudius, laid siege to Capua, near Naples, in Italy. Hannibal did his best to overcome the besiegers without, while the garrison made attacks from within the city, but their efforts were of no avail and Capua was finally obliged to capitulate. (2) July 24, 1501. During the struggle between Spain and France for supremacy in Italy, the French army seized Capua; 7,000 of the male inhabitants were murdered, and the women were insulted or taken away to amuse the court at Rome.

CARDIGAN, JAMES THOMAS BRUDENELL, SEVENTH EARL OF (1797-1868). Leader of the "Light Brigade" at the Battle of Balaklava (October 25, 1854).

CARISBROOKE. An Isle of Wight (England) village noted chiefly for its castle, which the Saxons are supposed to have built. In the eleventh century it was enlarged by the first Lord of Wight, in 1136 was captured by Stephen, and successfully resisted the French in the time of Richard II. It was enlarged and the present works added during the reign of Elizabeth. Charles I. took refuge in this castle in November, 1647, and was there imprisoned for thirteen months. After his execution his two children were confined in

the castle, and nineteen months later Princess Elizabeth died there. Extensive remains of the castle may still be seen. The ruins of a Cistercian priory founded in the twelfth century are near by, and also vestiges of a Roman villa.

CAROLINE. An American vessel seized off Grand Island by a party of Canadians (December 29, 1837), during the rebellion in Canada. War between the two countries was narrowly averted.

CARSON, CHRISTOPHER (1809–1868). Noted American hunter, trapper, and scout, familiarly known as "Kit Carson." Born in Kentucky, but removed to Missouri when only one year old; a guide to Frémont in his Rocky Mountain expeditions (1842–1844), and in his famous conquest of California (1846–1847), to which territory Carson conducted parties overland during the rush to the newly discovered gold fields (1849–1850); settled in New Mexico 1854, serving with ability as United States Indian agent at Taos; for services during the Civil War, was brevetted brigadier general; died at Fort Lynn, Col.

CARSON CITY. Capital of Nevada; near base of the Sierra Nevada. Founded (1858); became capital (1861); chartered as a city (1875). Population 2,100 (1900). Mining, lumbering, and agriculture.

CARTHAGE. (1) In 148 B. C. the Romans laid siege to Carthage, on the north coast of Africa. The Carthaginians bravely defended their city until in 146 B. C., when the Romans forced its surrender and destroyed it. (2) During an invasion of the Vandals, in 533, Carthage was the scene of a battle between the Romans, under Belisarius, and the Vandals, under Gelimer. After a sharply contested fight the Romans gained a complete victory and captured Carthage. (3) Carthage was for a long time besieged by the Arabs, who were conducting a war of conquest in Africa. It was finally taken by storm, 647; many of its inhabitants were slain and the city plundered by the soldiers. When assistance arrived from Constantinople and Sicily, the Arabs withdrew with their spoils, but, being reinforced, they returned and drove the fleet from the harbor, re-entered Carthage, and completely destroyed it.

CARTHAGE (July 5, 1861). From Boonville, the Confederates retreated into the southwestern part of Missouri. At Carthage, in Jasper Co., they encountered General Sigel, with a force of 1,500 men, and a battle ensued which resulted in the retreat of Sigel.

CARTIER, JACQUES (1494–1557). French explorer born at St. Malo. Selected by Admiral Chabot to lead expedition to northeastern coast of North America searching for passage to Cathay (1534); sighted Newfoundland; sailed south to Cape Breton; westward to Prince Edward Island, where he named the Bay of Chaleurs; skirted north of Anticosti, returning along Labrador. At Cape Gaspé he erected a cross and claimed possession of the country for France. Discovered St. Lawrence river, founding early settlement on sites of Montreal and Quebec. Approaching winter drove him to his ships. Suffered greatly from illness, cold, and privations, sailing for France in the spring (1536). Was captain general and pilot of fleet bringing Jean François de la Roque, Sieur de Roberval, as viceroy of the New World (1541). Missed Roberval's division and wintered near Cape Rouge, starting for France (1542) with what he erroneously supposed was gold ore. Was made seigneur de Limoilou and presented with a manor by the king.

CASEY, SILAS (1841–1913). Rear admiral (retired) United States navy; born in Rhode Island; graduated United States Naval Academy (1860); served during Civil War; lighthouse inspector (1876–1879, 1884–1885, 1887–1889); commandant League Island Navy Yard, Philadelphia (1897–1901); rear admiral (March 3, 1899); commander-in-chief of Pacific fleet (1901–1903); retired (September 11, 1903).

CASTILLON. July 17, 1453. The last battle of the Hundred Years' War was fought at Castillon, in southern France. The English, under Talbot, attempted to relieve Castillon, which was under siege by the French, but were surprised and defeated by a division of the French army, Talbot being slain. The result was the speedy occupation by Charles VII. of all territory held by the English, except Calais.

CATAPULTS. See ARTILLERY.

CATHOLIC LEAGUE (1576). Known as the "Holy League." Was an open and forcible criticism of Henry III., King of France, regarding his policy and actions towards the Catholics and Huguenots. Its avowed policy in the original manifesto was "to uphold the Catholic Church; to suppress heresy; and to maintain the honor, the authority, and prerogatives of the Most Christian King and his successors." Its real object was to substitute on the throne of France the family of Lorraine for that of Valois. The attempt failed.

CATULUS, GAIUS LUTATIUS. A Roman admiral who defeated the Carthaginians off Sicily in 241 B. C., during the first Punic War, and thus closed the war.

CAUDINE FORKS (321 B. C.). T. Veturius, with his Roman legions, was entrapped in the Caudine Forks, narrow mountain passes in Samnium, south Italy, by the Samnites, led by Pontius. After a hard fight to escape, the surviving Romans surrendered.

CAWNPUR (Cawnpore), India. (1) In July, 1857, during the Indian Mutiny, the residents of Cawnpur were besieged by the rebels. After defending themselves three weeks they were forced to surrender, and, although Nana Sahib promised to give them protection, they were all massacred in cold blood by the rebels. (2) December 6, 1857, 25,000 rebels fought a battle with the British, under Sir Colin Campbell, at Cawnpur, which resulted in the complete overthrow of the former. Nana Sahib vanished forever; successfully eluding even the wide reaching power of Great Britain.

CEDAR CREEK. On October 19, 1864, while Sheridan was in Washington, the Confederates under Early attacked his army at Cedar Creek, near Strasburg, Va., and took 1,500 prisoners. As the Federals retreated toward Winchester they were met by Sheridan, who ordered them to turn back. They found the Confederates in possession of the camp at Cedar Creek, and after a sharp conflict repulsed them. Both armies sustained heavy losses in the two engagements.

CEDAR MOUNTAIN, or CEDAR RUN (August 9, 1862). One of the most brilliant achievements of General Jackson was his victory with between eighteen and twenty thousand Confederates, over Pope and his Federal army of about 32,000 at Cedar Mountain, in Virginia. At first the Federalists were successful, but under the able leadership of Jackson, the Confederates rallied and drove the Federalists from the field. Later Sigel came with fresh troops and saved the day. Two days later Jackson retreated.

CERRO GORDO (April 18, 1847). During the war between Mexico and the United States, a battle was fought at Cerro Gordo, a mountain pass between Vera Cruz and the City of Mexico. The Mexican troops led by Santa Anna were defeated by General Scott, who was then able to march toward the City of Mexico.

CERVERA Y TOPETE PASCUAL, CONDE DE JEREZ, MARQUIS DE SANTA ANA (1833–1909). Spanish admiral commanding the squadron defeated at Santiago by Sampson and Schley (July 3, 1898). He was taken prisoner by Lieutenant Wainwright of the Gloucester; sent home to Spain, where he was court-martialed and acquitted (July 7, 1899).

CHADWICK, FRENCH ENSOR (1844–1919). Rear admiral (retired) United States navy; born in West Virginia; graduated United States Naval Academy (1864); on board Marblehead in pursuit of Confederate steamers Florida and Tallahassee (1864); naval attaché American embassy, London (1882–1889); chief of intelligence office (1892–1893); chief of bureau of equipment (1893–1897); commanded the New York and was Admiral Sampson's chief of staff during war with Spain and for "eminent and conspicuous conduct in battle" was advanced five numbers in rank; president naval war college, Newport (1900–1903); rear admiral (1903); commander-in-chief South Atlantic squadron (1904); retired (1906).

CHAERONEA. (1) 338 B. C. The Macedonian army of 32,000, under Philip, completely defeated and almost annihilated 30,000 Thebans, Athenians, etc., at Chaeronea, in Boeotia, during the Amphictyonic War. (2) In 86 B. C. Sulla, with an army of 30,000 Romans, gained a decided victory over the troops of Pontus, 90,000 strong, led by Archelaus.

CHAFFEE, ADNA ROMANZA (1842–1914). American cavalry officer; born in Ohio; served through the Civil War, winning promotion; afterwards in Texas and in campaigns against hostile Indians (1865–1891); captain (1865), major (1888), lieutenant colonel (1897); instructor of cavalry tactics at Fort Leavenworth (1894–1896) and later commandant of cavalry school at Fort Riley; entered Spanish American War as brigadier general of volunteers, distinguished himself at El Caney and was promoted to major general of volunteers; commanded the United States troops in the Peking relief expedition (1900); commander and military governor of the Philippines (1901–1902); lieutenant general and chief of staff (1904); retired (1906).

CHALONS. Decisive battle of the world, named after the French city near which it was fought (451). Attila, King of the Huns, wished to found an anti-Christian dynasty on the wreck of the Roman power. Given battle by the Romans and Gothic allies under Aëtius the Hun, his army was utterly crushed. tradition giving a loss of 300,000 men; the last great victory of Rome, but it broke the tidal wave of the barbarians, who had conquered westward from China to Italy, and saved civilization from possible extinction.

CHAMPLAIN, SAMUEL DE (1567-1635). Born at Brouage, France; studied navigation and chart making; entered army and served in Brittany as quartermaster of cavalry. Commanded the St. Julien in cruise to West Indies extending over two years, visiting Mexico City, New Granada, and other Spanish settlements. In his report of this voyage he suggests building a Panama canal (1603) "to shorten voyage to South Sea 4,500 miles." Accompanied expedition sent by Amyar de Chastes to choose site for settlement (1603); explored the St. Lawrence to the Lachine Rapids and the Saguenay for 40 miles. Came to Canada with De Monts (1604). Returned to France with discouraged colonists (1607); returning as lieutenant governor (1608) to hold that office until his death. He founded Quebec, and discovered Lake Champlain in 1609.

CHANCELLORSVILLE (May 1-4, 1863). With a Federal army numbering over 100,000, Maj. Gen. Joseph Hooker occupied Chancellorsville, Va., and began to harass the Confederates near Fredericksburg, where Lee was stationed with 90,000 men. On May 1, one of Hooker's divisions encountered the Confederates, and after a brief skirmish was driven back. May 2, an attack was made by the Confederates led by "Stonewall" Jackson, in which Jackson was mortally wounded and his men finally repulsed. On the 3d and 4th the fighting continued, and resulted in the retreat of Hooker with a total loss of 17,199 men. The Confederates lost 13,019 men.

CHANTILLY (September 1, 1862). After the battle of Manassas, Jackson followed Pope toward Centerville, Va., wishing to force his right wing toward Washington. On September 1 Jackson was met and repulsed at Chantilly, north of Centerville, by McDowell, Hooker, and Kearny, and Pope retreated to Washington. During his Virginia campaign Pope had lost 15,000 men, 30 guns, 20,000 arms, and a large quantity of supplies and ammunition. The Confederate loss was about 9,500 men.

CHAPULTEPEC (September 12-13, 1847). During the War between Mexico and the United States, Chapultepec, a small hill near the City of Mexico, was the scene of a conflict in which General Scott defeated the Mexicans, who retreated to the city. This was the last serious battle of the war, as Scott was able to advance on the City of Mexico and capture it.

CHARLESTON. Port of entry; largest city in South Carolina. English colony under Governor William Sayle settled three miles from present city (1670), and founded Charles Town in honor of Charles II. Public offices removed to site of present city (1680); Huguenot refugees arrived (1685-1686); 1,200 Acadian refugees (1725); 500 French refugees from Santo Domingo (1755). Was a chief city and third important seaport of United States (1775); first southern city to join Revolutionary movement. South Carolina Convention adopted first independent state constitution (1776); garrison on Sullivan Island repulsed attack by British fleet. City successfully defended against General Prevost (1779); its garrison of 7,000 after six weeks' fighting surrendering to General Lincoln with 16,000 men (1780); one of the greatest disasters of the war. British evacuated city (1782). Incorporated (1783); until 1790 was capital of the state. First bale of cotton shipped to Europe from this port (1784); was center of Nullification movement (1832); Democratic convention (1860), and state convention, passing the first ordinance of secession. Civil War opened by Confederate bombardment and capture of Fort Sumter (1861) in Charleston harbor. Unsuccessfully attacked by Federal fleet under Admiral Dupont (1863); city held by Confederates until their evacuation (1865). Great earthquake (1886), at that time the worst in the history of this country.

CHARTER OAK. The tree in Hartford, Conn., in which was hidden the charter of Connecticut, when Sir Edmund Andros came to Hartford to receive it, in 1687. The charter remained in this hiding place until 1689, when further concealment was made unnecessary by the deposition of Andros. The tree was blown down in August, 1856; then its age was reckoned as nearly 1,000 years.

CHEMULPO (February, 1904). Three days after the recall of the Japanese minister at St. Petersburg, the Russian fleet at Chemulpo, a seaport of Korea, was attacked by the Japanese, and troops were also landed near there. Two of Russia's warships were disabled and sunk.

CHERRY VALLEY (November 11, 1778). After threatening the inhabitants of Cherry Valley, in Otsego Co., N. Y., throughout the summer of 1778, the Indians, led by Joseph Brant, withdrew for the winter. They were met by a force of British, who persuaded them to return to Cherry Valley. On November 11th the inhabitants were completely taken by surprise and many were horribly massacred, while the houses and barns were burned.

CHESAPEAKE, THE. A 38-gun frigate of the American navy. In 1807, under the command of James Barron, she was stopped by the English frigate Leopard of 50 guns and four alleged deserters from the English navy taken from her. This affair caused much excitement in the United States, and is one of the incidents which led to the War of 1812. On June 1, 1813, under the command of Captain Lawrence, of 50 guns, she was taken by the English frigate Shannon of 52 guns under Captain Broke in Massachusetts Bay after a 15-minute engagement in which Lawrence was mortally wounded. The Chesapeake was taken to Halifax, N. S., and used as a British vessel until condemned in 1820.

CHESTER, COLBY MITCHEL (1844-). Rear admiral (retired) United States navy; born at New London, Conn.; graduated United States Naval Academy (1863); served in the Civil War; hydrographic inspector, coast survey (1880-1885); member of commission to select site for navy yard on Pacific coast (1888-1890); commandant cadets, United States Naval Academy (1891-1894); commander-in-chief of South Atlantic squadron (1897-1898); superintendent of naval observatory (1902-1906); commanded special service squadron to witness total eclipse of the sun (1905); retired (February 28, 1906); since 1906, on special duty in bureau of equipment.

CHICAGO. Named from Indian word for the wild onion, which grows abundantly in the neighborhood. Old rendezvous for Indian tribes and white traders. Marquette and Joliet there (1673, 1674, 1675); La Salle, Hennepin, and others came later; on a map published in Quebec (1685) it appears as Fort Chicagou. Jean Baptiste Point de Saible, a refugee from Haiti, regarded as the first settler (1779); selling his cabin to the French fur trader Le Mai, who sold it to John Kinzie (1804), the first white man of American birth to settle there. Government forced Indians to cede six square miles of land and erected Fort Dearborn at mouth of Chicago river (1795). Chicago incorporated as a town (1833) with 550 population and area of 560 acres. Chartered as a city with 4,170 population (1837). Fort abandoned (1837); demolished (1856). The development of Chicago, its great fire (1871), and subsequent meteoric career are chapters in a great national romance. With only 4,470 population in 1840 it ranked fifth in American cities in 1870 and was second in 1900.

CHICKAHOMINY. See GAINES'S MILL.

CHICKAMAUGA, BATTLE OF. "The great battle of the West" (September 19-20, 1863), near Chattanooga, Tenn., between a Federal army of 55,000 under General Rosecrans and 70,000 Confederate soldiers under General Bragg. General Thomas, in command of the Federal left, alone saved the Federal troops from an overwhelming defeat, and by his resistance gained the name of "The Rock of Chickamauga." The battle was won by Bragg, but the Federals held Chattanooga.

CHICKASAW BAYOU (December 27-29, 1862). In December, 1862, the Federals led by Sherman attacked the Confederates at Chickasaw Bayou, just above Vicksburg, Miss. The place was strongly defended by abattis and line after line of rifle pits. For three days the Federals struggled desperately and at times seemed almost successful, but were finally obliged to give up the attempt.

CHIOS (now Scio). (1) In 357 B.C. the Athenians sent a fleet of 60 ships to suppress an uprising in Chios, an island in the Greek archipelago. At the beginning of the attack, the leading Athenian galley was overpowered and Chabrias killed. This so discouraged the invaders that they abandoned the attack. (2) 201 B.C. The combined fleets of Rhodes and Pergamus defeated the Macedonian fleet commanded by Philip.

CHIPPEWA (July 5, 1814). Chippewa, a short distance above Niagara Falls, was the scene of a battle between the British commanded by Riall, and the Americans led by Brown, in which the latter were victorious.

CHOLERA (Asiatic Cholera). Originated in India, where it is endemic, its permanent home being in Calcutta and the southern part of Bengal. Epidemics of cholera occurred before the Christian era, but it has been endemic since 1817. In 1820 cholera first appeared in China; the next year in Arabia, Persia, and Mesopotamia, and in 1823, in Syria, Palestine, and on the shores of the Caspian. In 1826 the second epidemic started from the Ganges, passed through Persia and Astrakhan to Russia in 1830, and the following year to Poland, meantime extending through Mesopotamia, Arabia, Palestine, Egypt. From Russia it passed into Germany. Austria, Hungary, Wallachia, and Turkey were invaded, the epidemic reaching England in 1831. The next year brought by Irish emigrants to Quebec, it entered the United States by way of Detroit, Mich., and spread westward to the Pacific coast, and southward to New Orleans. Later epidemics occurred in 1841, 1863, 1871, 1883, 1891, and 1893. In 1848 and 1852 and from 1865 to 1868 the disease prevailed in America. In 1873 it appeared in New Orleans and the valley of the Mississippi river, and from Hamburg, Germany, a few cases were brought to the port of New York, in 1892. United States troops in 1899 found it in the Philippine Islands, where it has probably been often prevalent.

CHOTUSITZ (May 17, 1742). In a battle at Chotusitz, a small town in Bohemia, during the War of the Austrian Succession, the Austrians, led by Prince Charles of Lorraine, were defeated by the Prussians, under Frederick the Great, and retreated with a loss of about 7,000 killed and 12,000 taken prisoners.

CHOUTEAU (*shoo-to'*), **AUGUSTE** (1739-1829). American pioneer who made the first settlement on the site of St. Louis, under the direction of Pierre Laclède. Born in New Orleans, La. With his brother, Pierre, became a well-known fur trader in the West.

CHRYSLER'S FIELD (November 11, 1813). In the summer of 1813 it was resolved to send another expedition into Canada against Montreal. The American army was led by General Boyd, and as they proceeded they were constantly harassed by the British. At Chrysler's Field, near the St. Lawrence river, the two armies met in open combat, but owing to the fact that the American ammunition had given out they were obliged to retreat to their boats and leave the British in possession of the field.

CHURUBUSCO (August 20, 1847). During the war between Mexico and the United States, Santa Anna and his Mexican troops occupied Contreras. The Americans under General Pillow attacked them there and drove them into Churubusco, a village near the City of Mexico. A sharp battle was fought at Churubusco, in which the Mexicans were totally defeated.

CID, RUY DIAZ DE BIVAR. A descendant of one of the proudest families of Castile. A commander of royal troops under Sancho II. In the war between Sancho and his brother, Alfonso VI. of Leon, the Cid, by a wily stratagem, gained the victory for Sancho. When Sancho was assassinated, the Cid required his heir to clear himself of all suspicion of guilt in Sancho's death before homage could be rendered to him. This caused the king, Alfonso, to banish the Cid in 1081. He joined the Moors at Saragossa and fought against Christians and Moslems. He was reconciled with the king, Alfonso, for a short time, when he was again exiled. He now fought against the Moors and made himself lord of Valencia for five years. He died of grief over the defeat of a friend in arms in 1099. Many romances were woven around his name, and he is still one of the popular heroes of Spain.

CIRCASSIA. A region of the northwestern Caucasus. Since 1829 it has been nominally a part of Russia, whose sway was established (1864) only after a struggle of thirty-five years.

CIRRHA (590 B. C.) During the First Sacred War, the Athenians captured Cirrha, a town in northern Greece, and, as advised by the oracle, the newly acquired land was dedicated to the service of God.

CIRTA (the ancient name of Constantine). In 1836, Cirta, a fortified city of eastern Algeria, in Africa, was besieged by the French under Marshal Clausel. After an unsuccessful assault, in which many were killed, the siege was raised. The following year another attempt to capture Cirta was made by Danremont. He, however, was slain in an assault, but his successor succeeded in capturing the town by storm.

CISALPINE REPUBLIC. Name given to the state constituted in 1797 by the union of the Cispadane and Transpadane republics which Bonaparte had established in May, 1796, after the battle of Lodi. Bergamo, Brescia, Cremona, Lombardy, Mantua, Rovigo, Verona, the duchy of Modena, the principality of Massa and Carrara, and the three legations of Bologna, Ferrara, and Romagna were included in the Cisalpine Republic. By the victories of the Russians and Austrians the Republic was dissolved for a time in 1799, but after the victory of Marengo (1800) it was restored by Bonaparte with some constitutional changes and an increase of territory. It took the name of "Italian Republic" in 1802, and chose Bonaparte for its president, a deputation from the Republic conferring on him in 1805 the title of King of Italy. From then until 1814 it formed the Kingdom of Italy.

CISPADANE REPUBLIC. Established by Napoleon I. after the battle of Lodi (1796), and merged in the Cisalpine Republic the following year. Bologna, Ferrara, Modena, and Reggio comprised the Cispadane Republic.

CLARK, CHARLES EDGAR (1843-1922). Rear admiral (retired) United States navy; born at Bradford, Vt.; graduated United States Naval Academy (1863); (LL.D., University of Pennsylvania, 1905); served in Civil War; lighthouse inspector, 9th district (1887-1891); commanded battleship Oregon during cruise from San Francisco to Key West and in the battle of Santiago (July 3, 1898); for "eminent and conspicuous conduct" in this battle was advanced 6 numbers in rank; advanced 7 additional numbers and promoted rear admiral (June 16, 1902); governor of Naval Home, Philadelphia (1901-1904); president of naval examining and retiring board (1904-1905); retired (August 10, 1905).

CLAYTON-BULWER TREATY. Between the United States and England (April 19, 1850), negotiated by secretary of state John M. Clayton and Sir Henry Bulwer; ratified (July 4, 1850). To facilitate building an interoceanic canal across the Isthmus of Panama and to prevent encroachment by either power upon Central American territory; the neutrality of the canal assured by both powers. The treaty was formally annulled by the Hay-Pauncefote Treaty (ratified December, 1901).

CLEBURNE, PATRICK RONAYNE (1828-1864). A prominent Confederate officer in the Civil War; born in Ireland, emigrated to America (1849), settled in Helena, Ark. Commanded a brigade at Shiloh; wounded at Perryville; led a charge at Chickamauga; was at Missionary Ridge; killed at the battle of Franklin.

CLINTON, SIR HENRY (1738?-1795). British general in American Revolution. Born in Newfoundland. Member of Parliament (1772-1784), at the same time serving in the army in America. At the battle of Bunker Hill acted as major general, and upon the defeat of Washington's forces in the battle of Long Island took possession of the city of New York. Was leader of an expedition, December, 1779, to South Carolina; captured General Lincoln's army of 3,700 men at Charleston, May 12, 1780. Returned to England (1782); served again in Parliament (1790); was governor of Gibraltar from 1793 until his death (1795).

CLOOTZ, JEAN BAPTISTE, BARON (1755-1794), better known as "Anacharsis" Clootz. A Prussian enthusiast. Born June 24, 1755, at Gnadenthal, near Cleves. Educated in Paris, where he became imbued with extremely rationalistic ideas on politics and religion. Assumed the name and title, "Anacharsis Clootz, the Orator of the Human Race." He became a French citizen and in 1792 was elected to the National Convention. Guillotined (March 24, 1794).

CLOVER, RICHARDSON (1846-1919). Rear admiral (retired) United States navy; born at St. James College, Hagerstown, Md.; graduated United States Naval Academy (1867); in charge of survey of S. E. Alaska (1885-1886); hydrographer, bureau of navigation (1889-1893); chief of office of naval intelligence (1897-1898); naval attaché, London (1900-1903); president board of inspection and survey; member of national geographic society.

CNIDUS, BATTLE OF. Cnidus was a city in Caria in Asia Minor and one of the six cities of the Dorian League. In 394 B. C. the Athenians, under Conon,

with the assistance of the Persians, defeated the Spartans in a sea battle off Cnidus. This broke the power of Sparta in Asia Minor.

CODY, WILLIAM FREDERICK (BUFFALO BILL) (1846-1917). American scout during the Civil War. In 1865 contracted to supply buffalo meat to the men building the Kansas Pacific railroad, whence his name. A government scout again (1868-1872); elected to the Nebraska legislature; served in the Sioux War (1867); killed Chief Yellow Hand at Indian Creek; organized his "Wild West Show" (1883); took it to Europe (1887).

COLD HARBOR. (1) See Gaines's Mill. (2) June 1-3, 1864. Grant, in his campaign before Richmond, Va., crossed the Pamunkey river and fought his way to Cold Harbor, a short distance northeast of Richmond. On June 1 he made an attack upon the Confederates under Lee, but was repulsed with heavy losses. Skirmishing continued until the 3d, when in a general assault Grant was overwhelmingly defeated with a loss of 9,948 men. After lingering in the vicinity for over a week Grant withdrew, intending to approach Richmond from the south.

COLENSO (December 15, 1899). During the South African War, Buller attacked the Boers at Colenso, on the Tugela River in South Africa, and was defeated with heavy loss.

COLUMBUS, CHRISTOPHER (1446-1506). Born near Genoa; went to sea; conceived idea of westward passage to Asia but could get no backing. Finally Queen Isabella of Spain financed the Santa Maria and two other small vessels (1492), in which he reached the Bahamas, Cuba, and Haiti, after storm, mutiny, and hardship. Was greeted as a king on return to Spain; sailed thrice later; reached the mainland on third voyage, although preceded in this by the Cabots and, possibly, by Vespucci; unjustly accused and sent home in chains, but released on arrival in Spain. After fourth voyage lived in poverty and neglect; died of broken heart.

COMMITTEE OF PUBLIC SAFETY (France). Appointed April 6, 1793. At first consisted of nine deputies who were to confer in secret, have supreme executive power, with authority to spend certain sums of money without accounting for them, and to report weekly to the Convention. Three more members were added in June, Robespierre and Carnot joining after the fall of the Girondists. The Reign of Terror was inaugurated by this committee. July 27, 1794, it disbanded.

CONCORD (April 19, 1775). At the outbreak of the American Revolution a skirmish occurred at Concord, Mass., when an army of Englishmen entered the town and began to destroy the supplies which had not been carried to safety by the inhabitants. A small detachment which had been left to guard the bridge, was attacked by double their number of Americans, and, before they were ordered to retreat toward Lexington, several lives had been lost on both sides.

CONDE (*kon-day'*). One of the prominent families of France, a branch of the House of Bourbon. One of the greatest, Louis II. (1621-1686), known in history as "the Great Condé," fought a drawn battle at Seneffe with William of Orange. Succeeded Turenne as commander-in-chief of the army of the Rhine (1675).

CONFEDERATION OF THE RHINE, THE. An alliance of German princes formed July 12, 1806, under the protection of Napoleon; but dissolved (1813) as a result of his disastrous Russian campaign.

CONNAUGHT, ARTHUR WILLIAM PATRICK ALBERT, DUKE OF. Prince of the United Kingdom (1850-). Third son of Queen Victoria; created Duke of Connaught and Strathearn, and Earl of Sussex (1874), taking seat in House of Lords. Served in Egypt (1882); general (1893); commander in chief of forces in Ireland (1900); commander of Third Army Corps (1901). Is a member of the Six Nations Indians of Canada, being the only white man to receive such mark of affection; his Indian name is "Cousin Arthur." Governor general of Canada (1911-1916).

CONSTANTINOPLE. The importance of Constantinople, on the Bosporus, in Turkey, has been appreciated by many countries which have attempted to gain possession of the city. (1) From 668-675, and from 717-718, it was besieged by the Saracens, but, with its splendid equipment and plentiful supply of provisions, it was able to withstand both sieges with ease. (2) In the ninth to the eleventh century, the Russians made repeated attacks on Constantinople, but were unable to capture the city and lost thousands of troops and ships in their attempts. (3) The decline of Constantinople dates from 1081, when Alexius Comnenus gained the city through treachery and took the throne. The city was plundered by his followers and the inhabitants insulted without discrimination. (4) In 1204, during the Crusades, a large expedition of crusading filibusters attacked Constantinople by land and sea and finally entered the city. Their work of plundering knew no bounds; a large part of the city was burned; those who resisted were killed without mercy; and an immense booty divided among the invaders. (5) In 1453 a large army of Turks, accompanied by their fleet, appeared before Constantinople. On May 29 the guards at the gates were overpowered and the city entered. For three days the soldiers pillaged and murdered in every quarter; 40,000 are said to have been killed and 50,000 reduced to slavery.

CONSTELLATION—INSURGENTE (February 9, 1799). Capt. Thomas Truxtun was put in command of the new West Indian squadron, with the frigate Constitution as a flagship. Near the island Nevis, of the Leeward group, the French frigate Insurgente offered battle, and after a struggle which continued for an hour and a quarter, the French boat surrendered with 160 prisoners.

CONSTELLATION—VENGEANCE. On February 2, 1800, the United States frigate Constellation, commanded by Thomas Truxton, encountered the French Vengeance off Guadaloupe Island, in the West Indies. For several hours the vessels fought at close range, when finally the Vengeance withdrew.

CONSTITUTION—CYANE—LEVANT (February 20, 1815). The British frigate Cyane, and brig Levant, surrendered to the United States Constitution, commanded by Capt. Charles Stewart. The loss to the British was 77 men; to the Americans, 15 men.

CONSTITUTION—GUERRIERE. On August 19, 1812, a naval battle was fought off the coast of Massachusetts between the United States Constitution and the British Guerriere. The latter was completely wrecked and on the next day was set afire and blown up.

CONSTITUTION—JAVA (December 29, 1812). The American frigate Constitution, commanded by Bainbridge, encountered the Java off the coast of Brazil. After a battle of about one hour, the Java was totally defeated and forced to surrender.

CONTRERAS (August 20, 1847). When the Americans had captured many strongholds in Mexico, they put every effort toward the attack upon the City of Mexico. The Americans, 4,000 strong, led by General Twiggs, made their way toward the goal, and on August 19th assaulted Contreras. The next morning three battles were fought, at Contreras, Churubusco, and San Antonio, in which the Mexicans were completely routed and driven almost to the gates of the capital. The Americans lost in all 60 men, while the Mexicans lost 2,900 killed, wounded, and prisoners, besides a large amount of arms and ammunition.

COOK, FRANCIS AUGUSTUS (1843-1916). Rear admiral (retired) United States navy; born at Northampton, Mass.; graduated United States Naval Academy (1863); served in Civil War; lighthouse inspector, 11th district (1883-1886); inspector of ordnance, Boston (1890-1892); equipment officer, Boston Navy Yard (1892-1893); for "eminent and conspicuous conduct" while in command of the Brooklyn in battle of Santiago (July 3, 1898) was advanced 5 numbers in rank; member of naval examining and retiring board (1899-1903); rear admiral (March 21, 1903); retired (September 5, 1903).

COOPER, PHILIP HENRY (1844-1913). Rear admiral (retired) United States navy; born at Camden, N. J.; attended naval academy (1860-1863); served in Civil War; superintendent of naval academy (1894-1898); rear admiral (February 9, 1902); superintendent of 2d naval district (July, 1902-January, 1903); senior squadron commander Asiatic station (March, 1903); commander-in-chief Asiatic fleet (1904); retired (August 5, 1904).

CORBIN, HENRY CLARK (1842-1909). American soldier; colonel in Civil War (1865); brevetted brigadier general of volunteers (1866); honorably mustered out. Returned to regular army as second lieutenant (1866); appointed colonel (1890); lieutenant general U. S. A. and retired (1906). Filled many posts; was with President Garfield when he was shot; conducted army maneuvers at Manassas (1904); commander of Philippine Division (1904); Northern Division (1906),

CORDAY (*kor-day'*), **D'ARMONT, CHARLOTTE** (1768-1793). Born at Saint Saturnin in Normandy. Infuriated at the outrages suffered by her countrymen at the hands of Marat, she gained access to his house in Paris (July 13, 1793), and under pretext of denouncing some fugitive Girondists at Caen, stabbed him in the heart, after giving the information. She was immediately arrested, brought to trial, and guillotined.

CORINTH. (1) May 29, 1862. After the battles of Pittsburg Landing and the capture of Island No. 10, the Federal forces united and moved toward Corinth, Miss. At their approach the Confederates abandoned Corinth and fled with their stores and ammunition. (2) October 3-5, 1862. The desire of the Confederates was to capture the Federal headquarters at Corinth, and on October 2 a large force appeared and on the following day began fighting. The place was in command of Grant, and Rosecrans was placed in charge of the armies. For two days the fighting was kept up, and finally on the 5th the Confederates fled. The loss to the Federals during the battle was 2,359 men; the Confederates' loss was double that number. Detachments pursued the Confederates and at the Hatchie river a battery and several hundred men were captured, and the remainder scattered or drowned.

CORINTH. Ancient Grecian city, at the south end of the isthmus which connects the northern division of Greece with the Peloponnesus. Said to have been called "Ephyra" in early times. Its citadel, the Acro-Corinthus, an isolated hill 1,886 feet high, with precipitous sides, commands one of the finest views in Greece. At the northern foot of this hill, on a broad terrace nearly two hundred feet above the level of the isthmus, lay the city of Corinth. The growth of the city apparently occurred after the Dorian conquest of the Peloponnesus, and by the end of the eighth century B. C. Corinth was the chief trading city of Greece. The government was a strict oligarchy, under the leadership of the family of the Bacchiadae. But early in the seventh century a revolution occurred, and Cypselus became tyrant (*c.* 657 B. C.). The prosperity of the city increased under his rule and that of his son, Periander. Corcyra and Epidaurus were reduced, and Potidaea was established. The tyrants were overthrown about 582 B. C., and a moderate oligarchy established, which, although interrupted by democratic revolutions, apparently remained the usual form of government. Corinth became a member of the Lacedaemonian League, playing her part in the Persian Wars. Its commercial interests were seriously affected by the development of Athenian power, causing the city to be active in promoting the Peloponnesian War. Becoming jealous of Spartan rule, Corinth, after the fall of Athens, formed an alliance with that city and Thebes which resulted in the Corinthian War, 395 B. C. Afterwards Corinth returned to the Spartan alliance, supporting the city in the war with the Thebans under Epaminondas. In 335 B. C. Corinth was garrisoned by the Macedonians, who, with the exception of 242 to 223 B. C., when it was occupied by Aratus for the Achaean League, held the city until 196 B. C. Corinth was restored to the Achaean League when the freedom of Greece was proclaimed by the Romans, but having become the center of the last uprising of Greece against the Roman power, the Roman general, L. Mummius, utterly destroyed it (146 B. C.), and it continued in ruins until rebuilt by Julius Caesar a century later (46 B. C.). Afterwards it became the capital of the Roman province of Achaia, growing both prosperous and powerful, though never fully regaining its early importance. St. Paul planted a church here, to which he addressed two epistles. The city in 1458 was conquered by the Turks under Mohammed II.; captured in 1687 by the Venetians, and retaken in 1715 by the Turks, who held it until 1823. Corinth, reduced to ashes in the Revolutionary War and in 1858 destroyed by an earthquake, is now rebuilt in a more convenient situation on the shore of the Gulf of Corinth.

CORNWALLIS, CHARLES LORD (1738-1805). English general and statesman; served in the Seven Years' War and the American Revolution; was compelled to surrender at Yorktown, October 19, 1781. Becoming governor general of India, he finally crushed Tippu Sahib and dictated the treaty of Seringapatam. Appointed viceroy of Ireland, he quelled the rising of 1798. He returned to India as viceroy (1805).

CORONADO, FRANCISCO VASQUEZ (? -1549). A Spanish explorer who came to New Spain (Mexico) as governor of one of its provinces. Prompted by exaggerated reports of great cities at the north, in which great riches were said to exist, he secured command of an expedition to conquer the "Seven Cities of Cibola," believed to be the present pueblo of the Zuñi Indians in New Mexico; divisions of his company explored the region from this point to the Rio Grande, north to Kansas, and west to California; in 1542 he returned to Mexico, and wrote a description of his travels.

CORTEREAL, GASPAR (?1450-1501). A Portuguese navigator who with two small vessels, in the spring of 1500, touched the coast at the Azores, sailed north to Cape Race on Newfoundland, and thence to a land he named Terra Verde, perhaps Greenland, but was stopped by ice; returned to Lisbon before the end of the year; is said to have made two other voyages.

CORTEZ, HERNANDO (1485-1547). The famous conqueror of Mexico, a Spanish adventurer. In 1504 he went to Santo Domingo, where he joined the Spanish governor in quelling a native revolt; he was made chief officer in a successful expedition against Cuba in 1511, and in 1518 commanded another to the mainland, establishing the town of Vera Cruz in 1519; in November entered the City of Mexico; from that time until 1524 traveled throughout Mexico, subduing the Aztec tribes and subjugating Montezuma. Emperor Charles V. made him governor, captain-general, and chief justice of Mexico, and he rebuilt cities and towns; he went to Spain in 1528, returned to Mexico in 1532, and for ten years attempted further conquests, discovering in 1536 Lower California, while exploring the Pacific coast; other Saniards being given rights of discovery in Mexico displeased Cortez, and in 1539 he sailed back to Spain; was received with honor, but was unable to regain his possessions in the New World.

CORUNNA (La Coruña). January 16, 1809. The English forces, led by Sir John Moore, directed their course toward Corunna, a seaport on the northwest coast of Spain, where they were intending to embark. The attempt of the French army, under Soult, to prevent their embarkation led to a hard fight. The British withstood the French; Moore was fatally wounded.

COSSACKS. A military division of the people of Russia, whose homes principally are in the southern part of that country They are organized in eleven voiskos, or corps, the chief of which, the Don, became powerful about the close of the sixteenth century. Military training begins in boyhood; compulsory service in the stanista, or Cossack post, begins at seventeen; field service at twenty; continuing from twenty to twenty-five years. This service is divided into three classes,—active; on furlough with arms and horses; and on furlough without horses. Each voisko receives an allowance of land from the crown, and equips and clothes its soldiers. A distinctive uniform of dark green is worn by the Cossacks. They were instrumental in exploring and subduing Siberia.

COVENTRY (Warwickshire, England). Noted for the religious mysteries or plays acted here in the fifteenth century. A magnificent Benedictine monastery was founded at Coventry in 1044 by Earl Leofric and his wife, Lady Godiva. The latter is said to have ridden naked through the town, in fulfillment of a condition laid down by her husband, who had promised certain reforms, if his wife would perform such an act, supposing of course, that she would not do so. This ride of Lady Godiva was for many years celebrated by a procession. The town was incorporated in 1344. The beautiful cathedral of Coventry, with the ancient walls surrounding it, was demolished by Henry VIII. The famous meeting for the intended trial by battle between the dukes of Norfolk and Hereford, immortalized in Shakespeare's "Richard II.," took place here. In the fifteenth century, two memorable parliaments were held in the monastery; the one contained no lawyers, the other passed many attainders against the duke of York, etc. Coventry was famous in the fifteenth, sixteenth, and seventeenth centuries for woolens, broadcloths, caps, and blue thread bonnets.

CRECY. A small town in France, where a brilliant victory was gained (1346) by Edward III. of England with 35,000 soldiers over 75,000 French soldiers under Philip VI. Great numbers of the French nobility were killed. King John, the blind king of Bohemia, was so overcome by the utter rout that he had two knights interlace his bridle with theirs and rode to "strike a blow," being killed, with eleven other princes of Bohemia; in all 30,000 of the French army perished. The Black Prince, so called from the color of his armor, greatly distinguished himself for England, winning his spurs and knighthood; the crest of the slain king of Bohemia, three ostrich feathers with the motto "Ich Dien" (I serve), was adopted in memory of the victory, and has since been the crest of the English Prince of Wales.

CRICHTON (*krī'ton*), **JAMES** (1560-1585). "The Admirable Crichton." Accomplished scholar and expert swordsman; according to tradition, assassinated at Mantua by Vincenzo di Gonzaga, son of the duke of Mantua.

CROMWELL, BARTLETT JEFFERSON (1840-1917). Rear admiral (retired) United States navy; born near Springplace, Georgia; graduated United States Naval Academy (1861); served during Civil War; inspector of ordnance, navy yard, Philadelphia (1874-1878), navy yard, Portsmouth (1882-1884); commanded naval rendezvous, Philadelphia (1884-1885); captain of navy yard, Norfolk (1891-1894); member of naval examining board (1895-1898); commandant naval station, Havana, Cuba (1899); president of naval retiring board (1899-1900); rear admiral (March 3, 1899); commandant navy yard, Portsmouth (1900-1901); commander-in-chief of South Atlantic squadron (May-July, 1901), of European squadron (1901-1902); retired (February 9, 1902).

CRONJE (*kron'ya*), **PIET A.** (1835-1911). A Boer military commander of great ability in the war of 1899-1902; was sent as prisoner of war to St. Helena, May, 1900; was a member of the Transvaal executive council and chief native commissioner.

CROOKED BILLET (May 1, 1778). With only 53 able-bodied men, General Lacey occupied Crooked Billet, Montgomery Co., Pa. On May 1, 1778, he found himself surrounded by a large number of British, and without making a stand the Americans fled, only a few escaping the cruelty of the enemy.

CROSS KEYS (June 8, 1862). As Jackson and his Confederates retreated up the Shenandoah Valley they were followed by divisions of the Federal army under Generals Fremont and Shields. At Cross Keys, near Harrisburg, Va., a portion of Jackson's forces led by Ewell was overtaken. On June 8, 1862, a brief engagement occurred, and during the night the Confederates withdrew.

CROWN POINT (May 12, 1775). After the capture of Fort Ticonderoga, Col. Seth Warner, with a small force of Americans, made an attack on Crown Point, N. Y., on Lake Champlain. As the fort was defended by only 12 men, these were quickly overpowered and the place occupied by the Americans.

CTESIPHON. On the eastern bank of the Tigris. The Parthian kings commonly made this their winter residence, it finally becoming the capital of the Parthian kingdom. In 637 Ctesiphon was conquered by the Arabs, and later abandoned, its ruins furnishing material for the neighboring Bagdad. The ruins of Seleucia are on the opposite bank, and the two cities are together called El-Modein by the Arabs.

CUIRASS. First used of a jerkin, or leather garment for soldiers, so thick and strong that it was pistol proof, and even musket-proof. Later the name was given to a portion of armor made of metal,—a backplate and a breastplate hooked or buckled together, with a piece called culet or garde de reines joined to the back.

CUMBERLAND, WILLIAM AUGUSTUS, DUKE OF (1721-1765). An English commander. Born in London, 1721. Defeated by the French at Fontenoy (1745). Of his many battles, his one victory was that over the Young Pretender at Culloden (1746). Surnamed "The Butcher" for his cruelties.

CUSTER, GEORGE ARMSTRONG (1839-1876). One of the most daring of American soldiers. Born in New Rumley, Ohio. A distinguished character of the Civil War. Gained his first experience as an Indian fighter in Gen. W. S. Hancock's campaign against the Cheyennes (1867-1868). Later attacked a body of 6,000 Sioux with a force of 600 men at the junction of the Big and Little Big Horn; after a desperate struggle he and his companies were annihilated.

CUSTOZZA. (1) July 25, 1848. Radetzky, with an army of Austrians, gained a brilliant victory over the Italians at Custozza, a village near Verona, Italy. (2) On June 24, 1866, the Austrians, led by Archduke Albert, again defeated the Italians in a long and bloody battle at Custozza.

CUZCO. Ancient capital of the Incas of Peru. In 1534 a municipal government was established by Francisco Pizarro. During the siege by the Inca, Manco Capac, 1536, the town was almost destroyed. Almagro was beheaded here in 1538. The present university was founded in 1692.

CYNOSCEPHALAE. (1) 364 B.C. The Thebans, led by Pelopidas, defeated Alexander of Pherae and the Thessalians, in a battle at Cynoscephalae, in Thessaly. (2) In 197 B. C. Philip V. of Macedon was completely defeated by the Roman consul here. As a result of this victory Greece was freed from Macedonian authority.

CYRUS THE YOUNGER (? -401 B. C.). The second son of Darius Nothus. He is the hero of Xenophon's Anabasis. He led a rebellion against his elder brother, Artaxerxes Mnemon, in 404 B. C., and on its failure, though sentenced to death, was pardoned by his mother's intervention, and made a satrap of a province of Asia Minor. He left Sardis in 401 B. C. with a force of 100,000 Asiatics and 13,000 paid Greek soldiers under the pretense of punishing the robbers of Pisidia. Artaxerxes, being told of his brother's treachery, met him in a battle in Cunaxa, about 60 miles from Babylon. Cyrus was defeated and slain, though the Greek soldiers were victorious over those immediately opposed in battle to them. The retreat of the 10,000 Greeks through the highlands of Armenia back to the sea in the depth of winter forms the subject of Xenophon's Anabasis.

CYZICUS. (1) 410 B.C. During the Peloponnesian War, the Athenian fleet, commanded by Alcibiades, surprised Mindarus and the Peloponnesian navy at Cyzicus, in Asia Minor, and after a severe fight defeated them and almost destroyed the fleet. (2) In 74 B. C., during the Third Mithridatic War, the Romans under Lucullus surrounded the army of Mithridates, at Cyzicus, and, although the Roman army was smaller, it ultimately destroyed the forces of Mithridates.

CZECHS. Slavic people in the extreme northwest of Austria-Hungary. Their Carpathian home invaded by Avars, the Czechs entered Bohemia about 570, dispossessing the Marcomanni. They embraced Christianity in the ninth century. The Russian historian Nestor (1056-1116) first used the name Czech. At present the Czechs of Bohemia (Czechy proper), Moravia, and Prussian Silesia, with the Slovaks of north Hungary, number about 8,000,000.

DAHLGREN, JOHN ADOLF (1809-1870). An American naval officer, inventor (in 1850) of the Dahlgren gun; served on the Federal side in the Civil War; took Charleston, S. C.; commanded the South Pacific squadron (1866-1868); commanded the United States Navy Yard at Washington, D. C.

DAMASCUS. Largest city and capital of Syria in Asiatic Turkey. Founding lost in antiquity, but was seat of a kingdom and subjugated by David. Conquered by Assyria in eighth century B. C., and its people carried away and replaced by Assyrian colonists. Conquered by Pompey in 64 B. C., it became a dependency of Rome. At introduction of Christianity it was the seat of a bishopric. Taken by Mohammedans (635); besieged by Crusaders (1148); taken by Nureddin (1154); Saladin ruling and dying there (1193); conquered by Tamerlane and the Mongols (1401), it was burned but rebuilt. Taken by Turks (1516); by Egyptians (1832); restored to Turkey (1841). Christian massacre by Moslems (1860). It contains the "Street that is called 'Straight,'" in which St. Paul is said to have lived.

DAMIETTA. On November 5, 1219, Damietta, an ancient town of Lower Egypt, was captured by the Crusaders. In 1249 it was taken by Louis IX., and the following year given for his ransom as a prisoner.

DANES. First appeared on the eastern and southern coasts of England in 787; in 795 settled several coast towns of Ireland. Repeated invasions of England occurred after 832, their first winter on the island being that of 851; became firmly established there in 866. Partially subjected by Alfred the Great, but retained possession of East Anglia, Essex, Northumbria, and northeastern part of Mercia (878). Renewed invasions began in 991. Tribute money called Danegeld was paid by the Saxon king, Ethelred II., until a massacre of all the Danes in England (November 13, 1002), by order of that monarch. This was avenged by four expeditions of Sweyn, the Danish king, by whom the country was devastated and finally conquered (1013). Sweyn's son, Canute, contended for the supreme power with Ethelred and his successor, Edmund Ironsides, and upon the death of the latter became sole monarch of England (1016), Danish or Norse rulers continuing until 1042. Danish Norsemen also ravaged the western coasts of the mainland and visited destructively Spain, Andalusia, Africa, Balearic Isles, Italy, and Greece.

DANTON (*dahn-ton'*), **GEORGE JACQUES** (1759-1794). Born at Arcis-sur-Aube, October 28, 1759. Prominent leader of the French Revolution during its first years; gained the enmity of Robespierre and his followers, who caused his downfall. As an accomplice in a conspiracy for the restoration of the monarchy, he, with others, was seized and imprisoned, March 30, 1794, and was guillotined.

DARDANELLES. Narrow channel separating southeast Europe from southwest Asia. Crossed by Xerxes

in 490 B. C., to enter Europe; and by Alexander in 334 B. C., to enter Asia. The former crossed from the neighboring town of Abydos, on the Asiatic shore, opposite to Sestos, the strait at this point being 6,500 feet wide. Alexander crossed at nearly the same place, where also, in the ancient legend, Leander swam across each night to visit Hero.

DARE, VIRGINIA (1587-?). The first child born in America of English parents, at Roanoke, N. C., then a part of Virginia; granddaughter of John White, governor of the colony under Sir Walter Raleigh.

DARNLEY, HENRY STUART, LORD (1545-1567). A Scottish noble. Born December 7, 1545, at Temple Newsam, Yorkshire. The second husband of Mary, Queen of Scots. The conspiracy, through which he met his death, was planned by the Earl of Bothwell.

DARTMOOR MASSACRE (April 6, 1815). American prisoners of the War of 1812, confined in Dartmoor (England) Prison, were fired upon by a prison guard during a suspected mutiny or a tempt to escape. Seven were killed and sixty wounded. The British government made liberal provision for the families of the killed and for the relief of the wounded.

DAVITT, MICHAEL (1846-1906). Born in Straide, County Mayo, Ireland. Joined the Irish revolutionary movement in 1867, and in 1879 founded the Irish Land League, for which he obtained funds in the United States. Imprisoned at various times, being released on ticket of leave twice. Member of Parliament (1893, 1895-1899).

DAVOUT (*da-vo'*), **LOUIS NICHOLAS** (1770-1823). French marshal; born at Annoux, Burgundy. Served with distinction in the Revolutionary wars and in all of Napoleon's campaigns. Marshal of France, 1804; member of Legion of Honor, 1805; governor of Grand Duchy of Warsaw, after Peace of Tilsit; Duke of Auerstädt, 1808; Prince of Eckmühl, 1809. To him were largely due the victories of Auerstädt, Eckmühl, and Wagram. In 1819 he took a seat in the House of Peers. Died in Paris.

DAYTON, JAMES H. (1846-). Rear admiral (retired) United States navy; graduated United States Naval Academy (1866); commandant naval station, San Juan (October 11, 1899); captain of Naval War College (1903); afterwards president of naval board of inspection and survey; commanding Philippine squadron, Asiatic fleet (1906-1907); rear admiral (February 28, 1906).

DEARBORN, HENRY (1751-1829). American soldier; born at North Hampton, N. H. Entered the army as a captain (1775); served through the Revolution; taken prisoner at Quebec; secretary of war under Jefferson (1801-1809); appointed senior officer of the army in the War of 1812; took Toronto (then York) and Fort George; recalled in 1813; minister to Portugal (1822-1824).

DECATUR, STEPHEN (1779-1820). American naval commander, commanded a squadron during the War of 1812; made captain after making his daring dash into the harbor of Tripoli and burning the frigate Philadelphia, which had fallen into the hands of the Tripolitans (1804); defeated the Algerines (1815), putting an end to the enslaving of Americans by Algerian pirates.

DECELEA (413 B.C.). During the lull between the Sicilian War and the next outbreak of the Peloponnesian War, the Peloponnesians invaded Attica and seized a strong position at Decelea, 14 miles north of Athens. From this secure place bands were sent into all parts of the country for plundering. The occupation of Decelea by the Peloponnesians cut off Athens' most important source of supplies; part of Attica was under Peloponnesian control; and communication with Athens was endangered. The effect of this invasion was so important that it has given the name of the Decelean War to the whole last division of the Peloponnesian War.

DE KALB, JOHN, BARON (1721-1780). Officer in the American Revolution, commissioned as major general in September, 1777. Mortally wounded at battle of Camden, August 16, 1780.

DELHI, once a very important city of India, has been the scene of many disturbances. (1) 1297. Kuttugh Khan, in the First Mongol Invasion, met the Mohammedans at Delhi. In the early part of the battle the advantage seemed to be with the Mongols, but, being unable to keep their position, they were obliged to retreat and leave India. (2) In 1398 the Mongols again invaded India, led by Tamerlane. The Mohammedans, commanded by Mahmud Tughlak, attacked the Mongols, but were defeated and compelled to retreat to Delhi. Soon after, Tamerlane forced the city to surrender, plundered it, and made off with the spoils. (3) On September 11, 1803, a battle was fought at Delhi between 4,500 British, led by General Lake, and 19,000 Mahrattas, under Bourguin. After enticing Bourguin from his position, the British turned upon him and gained a decided victory. (4) In 1804 the Mahrattas, under Holkar, again appeared and besieged Delhi, but the British garrison bravely defended the city and finally Holkar was obliged to withdraw. (5) During the Indian Mutiny, the English, led by Sir Harry Barnard, laid siege to Delhi, which had been occupied by the rebels. For over three months the comparatively small British army kept up the siege, until finally, on September 14, 1857, a brilliant assault was led by Nicholson and the city captured. At the Durbar in 1912, Delhi was made the capital of India.

DEORHAM (577). The battle of Deorham, near Bath, England, was fought between the Britons and the West Saxons. The defeat of the former gave the Saxons possession of the lower valley of the Severn, and was an important step in their conquest of England.

DESMOULINS (*day-moo-lan'*), **BENOIT CAMILLE** (1760-1794). Born at Guise, Picardy. Journalist and one of the chief actors in the French Revolution. Voted for the death of the king; but became greatly desirous of moderation,—just and legal trials and less severe sentences. Twice defended by Robespierre when accused before the Jacobin Club, he was finally arrested and executed April 5, 1794.

DETROIT. Leading Michigan city. Site visited by Frenchmen (1610); by La Salle (1670); permanent settlement founded by Sieur de la Mothe Cadillac, the first governor of the surrounding French territory, who built Fort Pontchartrain (1701); trading village established. Occupied by English (1760); besieged (1763); Indians driven off and the only frontier post west of Niagara saved by heroic defense of Col. Robert Rogers and his band of "Rogers Rangers." Fort Lernault built (1778) to further protect 300 settlers in log cabins. During the Revolution it was headquarters of northwest British forces sending out Indian expeditions to ravage frontier. English abandoned fort (1796); name changed by Americans to Fort Shelby. Incorporated as a town (1802) by Legislature of the Northwest Territory; almost destroyed by fire (1805), only a warehouse and a bakery escaping. In 1812 an army of 1,330 British and Indians under Colonel Proctor and General Brock laid siege to Detroit, then occupied by 1,000 Americans commanded by General Hull. Without firing a gun, Hull surrendered the fort and all Michigan to the British. He was court-martialed and condemned to death, but was pardoned by President Harrison. Incorporated as a village (1815); chartered as a city by Legislature of Michigan (1824); capital of Northwest Territory (1805-1837); of state (1837-1847); supplanted as capital by Lansing.

DETTINGEN. (1) June 27, 1743. In a battle at Dettingen, in Bavaria, during the War of the Austrian Succession, the French, under Noailles, were defeated by the English, led by George II. This was the last battle in which an English ruler took personal command of his troops. This victory resulted in the evacuation of Germany by the French. The French lost about 6,000, the English and their allies only about 2,000.

DEUTSCH-BROD (1422). In a decisive engagement at Deutsch-Brod, a town in Bohemia, Ziska, commander of the Taborite division of the Hussites, defeated Sigismund and his German army.

DE WET, CHRISTIAN RUDOLF (1854-1922). Distinguished Boer commander and influential leader. Noted for gallantry in war between the Transvaal and the British in 1880-1881; in Boer War of 1899-1902, showed great daring and ability. With the other Boer leaders, he submitted to Lord Kitchener; signed the peace terms at Vereeniging (May 31, 1902).

DEWEY, GEORGE (1837-1917). A famous officer in the American navy; born at Montpelier, Vermont; was graduated from Annapolis Naval Academy in the class of 1858. At the outbreak of the Civil War Dewey was commissioned a lieutenant, serving on the Mississippi. He was present when the West Gulf squadron forced a passage up the Mississippi ahead of Farragut in 1862. He attained the rank of commodore in 1896 at the age of 59. In 1898, when war with Spain broke out, he was placed in command of the Asiatic squadron. He sailed from Mirs Bay, China, April 27, 1898, under orders to capture or destroy the Spanish

fleet. Admiral Montojo's fleet was in Manila Bay. On Saturday night, April 30, Dewey daringly entered the bay; engaging the Spaniards next morning he defeated them, and completely destroyed their fleet, having only nine wounded and not a single death. Manila, the chief Philippine port, was thus placed in his power. Dewey received the thanks of Congress and a handsome sword, with medals for his men. Rear admiral (1898); rank of admiral re-created to confer it upon him (1899); presided over the Schley inquiry (1901); commander in chief of the mobilized naval forces at the naval maneuvers (1902).

DICKINS, FRANCIS WILLIAM (1844-1910). Rear admiral (retired) United States navy; born at Beekmanville, N. Y.; graduated at United States Naval Academy (1864); served on Nicaragua Interoceanic Canal Surveying Expedition (1872-1873); head of department of yards and docks, navy yard, Washington (1890-1892); member of examining board (1902); commandant navy yard, Pensacola (1903-1904), League Island Navy Yard (Philadelphia) (1904-1905); rear admiral (June 17, 1904); commanded coast squadron, North Atlantic fleet (1905-1906); retired (1906).

DIESKAU, LUDWIG AUGUST, BARON (1701-1767). German officer in French army distinguishing himself in America. Born in Saxony; served in the Netherlands; brigadier general (1748). Sent to America as major general (1755) to command French troops in the French and Indian War. Ambushed near Fort George and defeated 1,000 men sent against him; deserted by many Indians and Canadians was utterly defeated by Sir William Johnson; severely wounded; held prisoner until 1763.

DORIA (*do're-a*), **ANDREA** (1468-1560). Distinguished Genoese admiral. Fought for various Italian princes; made captain-general of the galleys after Genoa was freed from the French (1529), and cleared northern Mediterranean of African pirates. In wars between the emperor and the French, commanded first a French fleet, but later, with his whole force, supported the emperor, thus hastening the deliverance of Italy from French domination. Entered Genoa without resistance, 1528; refused title of sovereign offered by the emperor; instituted new form of government which continued until the end of the Republic. Victorious over the Turks, 1532; at Tunis, 1535; served with distinction in disastrous expedition of Charles V. against Algiers, 1541. Died at Genoa.

DORR'S REBELLION. Thomas Wilson Dorr (1805-1854) of Providence, R. I., was elected governor by the "Suffragists" in 1842, while the "Landholders" elected Samuel W. King to the same position. Both were inaugurated. The Suffragists objected to the suffrage or right to vote being extended only to freeholders of land valued at $134 or bringing in a rental of $7 annually. They also wanted a fairer apportionment of representation than that which existed. Governor King proclaimed martial law. Dorr fled, was captured, convicted of high treason, and sentenced to death, afterwards commuted to life imprisonment, and was finally released in 1847. Part of what Dorr strove for was granted in the constitution which went into effect in May, 1843.

DOUGLAS (dug'las). Scotch family of great prominence. In 1175 and 1213 charters were witnessed by **WILLIAM OF DOUGLAS.** The first of the family to obtain knighthood was **SIR ARCHIBALD OR ERKENBALD OF DOUGLAS,** named in charters between 1190 and 1232. **GOOD SIR JAMES OF DOUGLAS,** Bruce's greatest captain in the War of the Succession, "Black Douglas," the "hero of seventy fights," was slain in Andalusia (1330) en route to the Holy Land with the heart of his royal master. His younger brother, **SIR ARCHIBALD L. DOUGLAS** (1296-1333), was made Regent of Scotland in 1333; invaded England the same year, but was defeated and slain at Halidon. **ARCHIBALD, EARL OF ANGUS,** surnamed Bell-the-Cat, filled some of the highest offices in the state.

DRAFT RIOTS IN NEW YORK (July 13-16, 1863). Caused by the Conscription Act (March 3, 1863) authorizing a draft from all able-bodied male citizens between the ages of twenty and forty-five, providing for exemption by the payment of $300. The mob rebelled, burned the provost marshal's office, sacked and burned the Colored Orphans' Asylum, the Tribune office was barely saved; the militia was called out; and the draft suspended. More than 1,000 were killed in the four days, and $1,500,000 of property destroyed. The draft was resumed on August 19th and peacefully completed.

DRAKE, SIR FRANCIS (1540-1596). An English naval hero; first English circumnavigator of the globe; raided Cadiz (1587); destroyed shipping in the harbor; was vice-admiral, under Lord Howard, against the Spanish Armada (1588); died on an expedition to the West Indies.

DREPANUM (249 B. C.). During the First Punic War the Carthaginians, under Adherbal, completely defeated the Romans, under Claudius, in a naval battle near Drepanum, a seaport town of Sicily.

DRESDEN, BATTLE OF (August 26-27, 1813). Fought near Dresden between 100,000 French under Napoleon and 150,000 allied Austrians, Russians, and Prussians under Prince Schwarzenberg. The allies were defeated and retreated into Bohemia after a loss of 7,000 or 8,000 on each side, the allies losing over 26,000 prisoners.

DREUX (December 19, 1562). The Huguenots, led by the prince de Conde, were defeated by the Catholics, under Montmorency, in a battle at Dreux, a town in the northwestern part of France, during the first civil war in France. The Huguenots were at first successful, but, carrying the pursuit too far, were attacked and overcome by the Catholics.

DREWRY'S BLUFF (May 16, 1864). One of the battles of the Civil War was fought at Drewry's Bluff, in the vicinity of Bermuda Hundred, in Virginia. The Federalists led by General Butler were attacked by the Confederates under General Beauregard at Drewry's Bluff and forced to retreat to Bermuda Hundred, where they were closely confined by the intrenchments of the Confederates.

DREYFUS (*dri'fus*), **ALFRED** (1859-). French artillery officer; born in Alsace. Arrested October 15, 1894, charged with selling military secrets to a foreign power (presumably Germany or Italy); convicted, publicly degraded from his rank, and sentenced to solitary confinement on the Ile du Diable, off the coast of French Guiana, where he was treated with great severity until his return to France (1899) for retrial by court-martial. Again convicted, but pardoned almost immediately by President Loubet. Completely vindicated at a retrial in 1906, he was reinstated in the army with the rank of major, and, on the very spot where he suffered degradation, received the cross of the Legion of Honor.

DRUSUS, NERO CLAUDIUS. Stepson of Emperor Augustus, and brother of Emperor Tiberius (38-9 B. C.). His great work was the subjugation of the Gauls, Germans, and other tribes. His promising career was cut short by his accidental death. He was given the title of Germanicus, which descended to his son.

DU BARRY, MARIE JEANNE BECU, COUNTESS 1743-1793). A beautiful French woman of obscure birth who for five years (1768-1773) ruled the king and the court. She retired from the court on the death of Louis XV. During the Revolution she lived in London. She returned to France and, by order of Robespierre, was guillotined.

DUEL. A single combat, following a challenge, fought with deadly weapons in accordance with the regulations of the code of honor, which are usually enforced by witnesses, called seconds. The practice probably originated in the judicial combats of the northern tribes that overthrew the Roman power, who settled all disputes by an appeal to arms, "invoking the deity to defend the right." The custom of the private duel arose in France early in the fifteenth century, becoming very prevalent during the reign of Francis I. From France the practice was introduced into England in the beginning of the sixteenth century, and spread rapidly, finding special favor in Ireland. The challenged had the choice of weapon, which was usually the rapier or the pistol. Dueling is illegal in the United States, strict legislation in regard thereto having been enacted after the Civil War. The Articles of War and Navy Regulations also forbid it. The practice here began early, the first duel reported taking place in Plymouth, Mass., in 1681. General Washington discouraged the custom. Dueling has always been considered an offense in the eyes of the law, sending a challenge a breach of the peace, while, if the opponent is killed, manslaughter or murder may be charged against both the survivor and the seconds. Dueling still prevails in France, though as a rule the consequences are trivial, owing to the conditions of the combat. In the German army, dueling is still the favorite way of avenging an insult, but among civilians it constitutes an offense. A feature of many German universities is the dueling among the students.

DUELISTS (Notable). Dukes of Norfolk, Richmond, York, Wellington; Lords Castlereagh, Lauderdale, Londonderry, Paget, Shelbourne, Talbot, Townshend; and Canning, Curran, Fox, Grattan, Hastings, O'Connell, Pitt, Sheridan, in Great Britain. In the United States, Charles Lee and John Laurens, Gen. Cadwallader, and Gen. Conway, Gen. McIntosh and Gwinnett,* of the Revolutionary period; also Commodore Decatur* and Capt. Barron, Aaron Burr and Alexander Hamilton,* Andrew Jackson and Charles Dickinson,* Benton and Lucas,* Henry Clay and John Randolph, De Witt Clinton and Swartout, Cilley* and Graves, David S. Terry and U. S. Senator Broderick.* (*Signifies killed or mortally wounded.)

DUGUAY-TROUIN (*du-gay-troo-an'*), **RENE** (1673-1736). Celebrated naval officer and privateer of France, born at St. Malo. Fought successfully against the Dutch and English; destroyed the Brazilian fleet off Lisbon (1709); captured Rio Janeiro (1711), extorting a ransom of $300,000. Knighted by Louis XIV.

DU GUESCLIN (*du-ga-klan'*), **BERTRAND** (1320-1380). A constable of France; the most famous soldier of his time; born near Dinans, Brittany. Captured at the battle of Auray; ransomed; fought in Spain for Henry of Trastamare against Pedro the Cruel; captured by Edward the Black Prince (1367); ransomed; made constable of France (1370); from that time fought successfully against the English in France. Died while besieging the fortress of Châteauneuf-Randon.

DUNOIS (*du'nwah*), **JEAN DE, BASTARD OF ORLEANS** (1403-1468). National hero of France; son of Louis, Duke of Orleans; born in Paris. Made a councilor and grand chamberlain by Charles VII. (1422). Relieved Montargis (besieged by the English, 1427); bravely defended Orleans until aided by Joan of Arc with whom he joined forces, and in an almost unbroken succession of victories, freed France from the English. Made lieutenant general of Normandy (1449); he expelled the English from that province, and, in 1451, from Guienne.

DUPONT, SAMUEL FRANCIS (1803-1865). United States naval officer; born at Bergen Point, N. J. Served in the Mexican War; placed in command of Philadelphia navy yard, 1860; distinguished himself in the Civil War, receiving the thanks of Congress and the rank of rear admiral (July 16, 1862) for establishing fourteen blockading stations along the southern coast; unsuccessfully attacked Charleston, S. C. (April, 1863); relieved by Admiral Dahlgren (July, 1863). Died in Philadelphia.

DUQUESNE (*du-kain'*), **ABRAHAM, MARQUIS** (1610-1688). Noted French admiral; born at Dieppe. Served under Louis XIII. in war against Spain; entered service of Sweden; became vice-admiral (about 1643); victories over united fleets of Denmark and Holland compelled Denmark to make peace; completely defeated united fleets of Spain and Holland commanded by De Ruyter, who was mortally wounded (1676); cleared the Mediterranean of Barbary pirates; bombarded Genoa (1684); made marquis by Louis XIV.

DUTCH SETTLEMENTS. In 1614 Holland took possession of the valley of the Hudson, and named it New Netherlands. Her claim extended north to the 45th parallel, east to Cape Cod, south to South (Delaware) River, no definite western limit being given, but that never extending many miles from the west shore of the Hudson. Practically, the Dutch country lay between the North (Hudson) and South (Delaware) rivers. In 1618 a fort was built at Bergen, N. J. On the site of an old fort just below Albany, the Dutch built Ft. Nassau, which later moved four miles down stream in the "green and silent valley of the Tawasentha." The first permanent colonists arrived at Manhattan in the spring of 1623. Ft. Amsterdam was built at what later became Bowling Green (New York City). Ft. Nassau was moved to the present site of Albany, its name being changed to Ft. Orange, and eighteen families settled in the neighborhood. This was the beginning of Albany. Another Ft. Nassau was built on South River, opposite the present Philadelphia. One party began the building of Ft. Good Hope (completed June, 1633) where Hartford now is, on the "Fresh River of New Netherlands" (the Connecticut); while still another settled "Wallabout," where the Brooklyn navy yard now is. Two shiploads of cattle, horses, swine, and sheep arrived in 1625. In 1626 Manhattan was purchased from the Indians by Gov. Peter Minuit for 60 guilders, equal in purchasing value to about $120.00. To encourage emigration to the New World, Holland granted a charter giving to any member of the Dutch West India Co. who should take or send out fifty settlers within four years the right to a large amount of land on any navigable river or bay in New Netherlands, such a proprietor to receive the honorary title of "Patroon." In 1631 Zwaanendael (Swandale) was settled a few miles above Cape Henlopen, N. J. But all were massacred by the Indians and the houses burned. Later colonists starved, and finally the settlement was given up. Michael Pauw, in 1630, secured for himself Hoboken, Jersey City, and Staten Island, which remained in his possession seven years. Land in what are now Albany and Rensselaer counties was, with the exception of Ft. Orange, secured by Killian Van Rensselaer. Rensellaerwyck was a successful settlement. Van Rensselaer's manor near Ft. Orange became Beverwyck. Yonkers was settled by Adrian van der Donck. Beaver Road Fort was established on the Schuylkill; and in 1641 a settlement was made at Hackensack. By the treaty of Hartford (Sept. 19, 1650), Gov. Stuyvesant practically abandoned all claim to New England territory and the boundary between the Dutch and English on Long Island was fixed from Oyster Bay to the Atlantic Ocean. New Amsterdam was incorporated as a city in 1653. Delaware was captured from the Swedes by Gov. Stuyvesant in 1655, the Dutch having attempted to settle Delaware in 1629. But in 1665 it was seized by the English, to whom the rest of New Netherlands (including New Amsterdam) had surrendered the year before (1664).

DUTLINGEN or **TUTTLINGEN.** November 24, 25, 1643. The Bavarians, led by Mercy, met the French at Dutlingen, on the Upper Rhine, in Germany, and completely defeated them. The German infantry in the French army was routed or captured, and the cavalry made a hasty retreat.

DYER, NEHEMIAH MAYO (1839-1910). An American naval officer; born at Provincetown, Mass. Entered the volunteer navy (1861); acting master and placed in command of the Randolph (1864); lieutenant commander (1868); commander (1883); captain (1897); commanded the protected cruiser Baltimore in the battle of Manila Bay (May 1, 1898); received the rank of rear admiral (1901) and was retired.

EAGAN, CHARLES PATRICK (1841-1919). An American soldier; born in Ireland. Entered the Federal army as first lieutenant (1862); mustered out (1865); appointed second lieutenant (1866) and by 1898 had risen to the grade of brigadier general and commissary general. During the Spanish-American War he was found to have issued canned meat rations for the forces in Cuba said to be unfit for food. In 1899 was tried by court-martial for using abusive language before the commission regarding General Miles, and sentenced to suspension from duty and honors for six years; later retired at his own request.

EARLY, JUBAL ANDERSON (1816-1894). American soldier; born in Franklin County, Va.; graduated from West Point (1837); served in the Seminole War (1837-1838); resigned from the army to practise law (1838); major of a regiment of Virginia volunteers in Mexican War; distinguished Confederate officer of the Civil War. After numerous successes, was defeated by Sheridan in the Shenandoah Valley (September-October, 1864), and by Custer at Waynesboro (March, 1865); removed from command by Lee, after reaching by successive promotions the rank of lieutenant general.

EASTERN QUESTION. The complications arising out of the relations of Turkey with the other European countries, which have existed from the middle of the eighteenth century. Its modern phase dates from the Crimean War (1853-1856), with the Congress of Paris (1856), the London Protocol (1871). It was complicated by the opening of the Suez Canal, the War with Russia (1877), and the Congress of Berlin (1878). The Bulgarian War (1885), and the later war (1897), with self-government of Crete, also added to its gravity. With Austrian power supreme in Servia; Russian power in Bulgaria; Greece anxious to restore the Byzantine or Greek Empire; Russia chafing over her confinement in the Black Sea and her defeat by Japan; the "Young Turks" in power regenerating Turkey; Austria moving on the Balkans; and Germany's development another bar to Russia spreading westwards, the question is still open.

EASTPORT. On July 11, 1814, a British squadron commanded by Sir Thomas Hardy and Col. Thomas Pilkington sailed into Passamaquoddy Bay, on the coast of Maine, and anchored near Eastport. The garrison at Fort Sullivan being too weak to withstand the enemy, Eastport was surrendered to the British. The inhabitants in the vicinity of Passamaquoddy Bay were forced to acknowledge British authority, and

British officers and soldiers were stationed in Eastport to keep the people in subjection.

ECNOMUS. 256 B.C. During the First Punic War a naval battle was fought near Ecnomus, a hill in Sicily, between the Roman fleet, commanded by M. Atilius Regulus and L. Manlius Vulso, with the Carthaginian fleet. After a hard fight the Carthaginians were defeated, with the loss of 30 ships sunk and 64 captured.

ECONOCHACA or HOLY GROUND (December 23, 1813). During the war with the Creeks, an American regiment led by General Claiborne made an attack on the Indians at Econochaca, or Holy Ground, in Alabama. After a feeble resistance the Indians fled with a loss of 30 killed, and Claiborne plundered and burned the town.

EDGEHILL, BATTLE OF (Sunday, October 23, 1642). Between the Royalist forces under Charles I. and the Parliamentary forces under the Earl of Essex. Over 4,000 in all were slain. The battle was indecisive.

EDWARD THE BLACK PRINCE (1330-1376). Eldest son of Edward III. of England. Named from the color of his armor. Distinguished himself at Cressy (1346), Poitiers (1356), where he took the French king, John II., prisoner; captured Limoges (1370) and massacred 3,000 of the inhabitants.

EL CANEY, BATTLE OF (July 1, 1898). In Cuba, four miles from Santiago de Cuba, between 4,500 Americans under General Lawton and 520 Spaniards under General Vara del Rey, strongly entrenched. American loss was 443, and the Spanish, 420 (100 prisoners).

ELGIN AND KINCARDINE, THE RIGHT HON. VICTOR ALEXANDER BRUCE, EARL OF (1849-1917). Born near Montreal, while his father was governor general of Canada (1847-1854). He has been governor general of India, and has filled many important offices but to use his own words has "never failed to reckon himself a Canadian."

ELIZABETHTOWN (February 7, 1813). With a party of about 200 men, Major Forsyth endeavored to force the British to release some prisoners which they had claimed as deserters and imprisoned at Elizabethtown, the present Brockville, in Canada. They entered the jail, released the prisoners, and captured a number of militiamen, as well as muskets and stores, returning without losing a man.

ELK HORN. See PEA RIDGE.

ELLERY, WILLIAM (1727-1820). A signer of the Declaration of Independence; born in Newport, R. I. Collector of customs of the port of Newport.

ELLIOT, MAJOR HENRY GEORGE (1826-1912). Born at Perth, Ont., educated in England; entered the army and served through the Crimean War; at bombardment of Odessa; since 1870 prominent in South African affairs.

EL MOLINO DEL REY (September 8, 1847). El Molino del Rey, near the City of Mexico, was one of the strongest fortifications which opposed the Americans' advance upon the Capital. The place was defended by 14,000 Mexicans under Santa Anna, and when the Americans under General Worth appeared on September 8, 1847, they were plunged into a furious struggle which continued for two hours before the Mexicans were forced back. In this battle the Mexicans lost 2,200 killed and wounded, and about 800 prisoners. The American loss was 116 killed, 665 wounded, and 18 missing.

EMANCIPATION PROCLAMATION. Issued by President Lincoln in a preliminary form September 22, 1862, just after the battle of Antietam, and in a permanent form on January 1, 1863. By it all slaves residing in states then in a state of rebellion were declared free.

EMBARGO. A law or order causing the detention of vessels in ports, whether the vessels be foreign or national. The embargoes issued by the United States were: March 26, 1794, in retaliation against the British orders, lasted 60 days; December 22, 1807, during the war between France and England, to prevent American vessels from engaging in foreign commerce, terminated March 4, 1809; December 17, 1813, to prevent English vessels from procuring provisions, terminated April 14, 1814. The laying of an embargo is now regarded as a great political and economic mistake.

EMMET, ROBERT (1778-1803). An Irish patriot and orator, born in Dublin; as a leader of the United Irishmen, he became involved in the murder of Lord Kilwarden, chief justice of Ireland, and the assassination of Colonel Brown of the Fourth Regiment, July 23, 1803. Was foiled in his attempt to escape to the continent; arrested, tried, and hanged.

EMMET, THOMAS ADDIS (1764-1827). Born in Cork. Elder brother of Robert Emmet. An Irish lawyer and politician. As counsel of the United Irishmen, he, with others, was arrested and imprisoned for treason (1798-1802); gained freedom, was exiled from British territory; came to America in 1804, where he achieved distinction; in 1812 was elected attorney general of New York state.

EMORY, WILLIAM HEMSLEY (1846-1917). Rear admiral United States navy; born at Washington; graduated United States Naval Academy (1866). On the Macedonian, pursued Confederate cruiser Tacony, summer of 1863; served in Asiatic station (1872-1874), European station (1874-1876); naval attaché American embassy, London (1889-1892); member of board of inspection and survey (1897-1898, 1898-1900); during Spanish War commanded Yosemite; commandant naval station, Key West (1900); rear admiral (November 2, 1906); commanding second squadron, Atlantic fleet (1907).

EMUCFAU (January 22, 1814). During the campaigns against the Indians, a body of volunteers led by Jackson and Coffee entered the valley of the Tallapoosa river in Alabama, and encamped at Emucfau. Early on January 22, 1814, the savages pounced upon the camp and a furious struggle ensued in which the Indians were driven off. Several able American leaders, including General Coffee, were wounded or killed.

ENGHIEN (*on-gan'*), LOUIS DE BOURBON, DUC D' (1772-1804). Born at Chantilly (August 2, 1772). Member of the Bourbon family; noted in history for his tragic fate. Allied himself with the royalists (1792) in Rhine campaign against the Republicans. Suspicion was aroused against him upon the discovery of a conspiracy to assassinate Napoleon (1804). The neutral territory of Baden was entered, and the duke captured; brought to Vincennes; after an illegal trial, shot, under orders from Napoleon; later direct proof of his innocence was established.

ENOTOCHOPCO CREEK (January 24, 1814). The savages followed the Americans as they retreated from Emucfau, and as they were crossing Enotochopco creek, in Alabama, charged their rear and flanks. The Americans immediately wheeled about and poured such a deadly fire into the Indian forces that they broke and fled.

ENTERPRISE—BOXER (September 5, 1813). During the War of 1812, a naval battle was fought off the coast of Maine between the Enterprise commanded by Lieutenant Burrows and the British Boxer under the command of Captain Blyth. The fight resulted in the defeat and capture of the Boxer, and the death of both commanders.

ENTERPRISE—TRIPOLI (August 1, 1801). During the trouble between the United States and the Barbary States, the Enterprise, commanded by Lieutenant Sterrett, encountered the Tripolitan ship Tripoli. At the end of a three hours' engagement the Tripoli was a total wreck, and her commander, Mahomet Sous, begged for mercy.

ENTWISTLE, JAMES (1837-1910). Rear admiral (retired) United States navy; born at Paterson, N. J.; entered United States navy in the engineering service (October, 1861), and served during Civil War; engineer of the Olympia (1897), and participated in battle of Manila Bay (May 1, 1898); highly commended by Admiral Dewey, awarded Dewey medal, and recommended by the Secretary of the Navy and board of officers for advancement in numbers; rear admiral and retired (April, 1899).

EPHESUS. Situated in Lydia. One of the twelve Ionic cities of Asia Minor. Its reputed founder was Androcles, son of Codrus, the last king of Athens. From early times it seems to have been a sacred place, from the presence of the great temple of Artemis (Diana), while its commercial prosperity was due largely to its situation at the beginning of one of the great trade routes into the interior of Asia Minor. About 655 B. C. it suffered from the Cimmerian invasion, and early submitted to the Lydian kings. The city played no prominent part in the Graeco-Persian, Peloponnesian, or later wars. Its prosperity seems to have greatly increased after the time of Alexander the Great. Lysimachus and the kings of Pergamum strengthened and improved the city, and the Romans made it the capital of the province of Asia. St. Paul labored for nearly three years in Ephesus, and a

vigorous Christian church was established. Here the Apostle John and other prominent men of the Apostolic age made their headquarters. In 263 the Goths destroyed its great temple, a blow from which Ephesus never recovered. The third general council of the Christian Church met here in 431.

ERA OF GOOD FEELING. From 1817 to 1824, when there was virtually only one political party in the United States—the Democratic-Republican. After the War of 1812, the Federalist Party passed away, and in 1821 President Monroe was elected by 231 out of 232 electoral votes. By some writers it is confined to Monroe's second administration.

ERFURT. An important fortress in Saxony until 1873; belonged to Prussia (1803-1806), passing then to France. Here, in 1808, Napoleon played conqueror with Alexander of Russia and a host of German princes present. In 1814 Prussia recovered it and in 1850 the Union Parliament of North Germany convened here.

ERICSSON, JOHN (1803-1889). Born in Sweden; engineer in army; went to England (1826) and worked on steam machinery, introducing new screw propeller. Came to New York (1839); identified with many innovations, mainly for the building of monitors in the Civil War. His first one was built in less than four months and defeated the Confederate Merrimac in Hampton Roads (1862).

ERIKSON, LEIF. A Norseman, son of Erik, the Red, who was exiled to Greenland and later founded colonies there. According to three accounts in the Icelandic sagas, Leif came to America about 1000 A.D., discovered and explored the new land where he spent the winter. Returning in the spring to Greenland, he named the three regions visited, Helluland, Markland, and Vinland, the last denoting the grapes found. These places are variously identified by some who accept the claims as respectively Newfoundland, Nova Scotia, and parts of New England; while others find Helluland in Labrador, Markland in Newfoundland, and Vinland in Nova Scotia and Cape Breton Island.

ESSEX. For some time during 1814, the American frigate Essex was confined in the harbor at Valparaiso, by the British boats Phœbe and Cherub. When he attempted to escape, with his consort, the Essex Junior, the British attacked, and in a short time Captain Porter was obliged to surrender, the Essex being almost totally destroyed.

ESSEX—ALERT (August 13, 1812). While the British sloop Alert, commanded by Langharne, was cruising about in search of the American Hornet, she encountered the Essex and opened fire. The conflict was short and resulted in the surrender of the Alert.

ESSEX, ROBERT DEVEREUX, EARL OF (1567-1601). A favorite of Queen Elizabeth; born at Netherwood, Herefordshire. Distinguished himself at battle of Zutphen, Holland; assisted Henry IV. of France against the Spaniards (1591); joint commander with Lord Howard in expedition against Spain (1596); earl marshal of England (1597); succeeded Lord Burghley as chancellor of Cambridge; lord lieutenant of Ireland (1599), concluding there a truce with the rebels, which was regarded by the Court as treason. Falling into further disgrace, Essex was condemned to death and executed.

ESSLING (May 21, 22, 1809). Napoleon received his first great defeat at Essling, in lower Austria, where the Austrians, led by Archduke Charles, overpowered him and took 30,000 prisoners. Also known as the Battle of Aspern.

ESTAING (*aiz-tan'*), **CHARLES HECTOR, COMTE D'** (1729-1794). A French admiral. Entered royal navy; was made lieutenant general (1763); vice admiral (1777); fought against English at West Indies and in America; when the treaty of peace was signed was in command of the French and Spanish fleet before Cadiz; elected to the Assembly of Notables (1787); commanded the National Guard (1789); chosen admiral by Legislative Assembly (1792). Executed (April 28, 1794), for his loyalty to the royal family.

EUGENE (*eu-zhain'*), **FRANCOIS, PRINCE OF SAVOY** (1663-1736). A celebrated Austrian general. Born in Paris (October 18, 1663). Renounced France and entered the service of the Austrian emperor Leopold against the Turks, displaying rare talents in war; noted especially at the siege of Vienna (1683), and the battle of Zenta (September 11, 1697), crushing the Turkish power in Hungary. Aided Marlborough in the War of the Spanish Succession (1701), and with him gained brilliant victories at Blenheim (August 13, 1704); Oudenarde (1708); Malplaquet (1709); was an opponent of the French in the question of the succession to the throne of Poland (1733-1735).

EUTAW SPRINGS, BATTLE OF (September 8, 1781). In the American War of Independence, 60 miles northwest of Charleston, S. C., between 2,000 Americans under General Greene and 2,800 British under General Rawdon. In the first engagement Greene was victorious; in the second the British beat off all attacks. The British loss was 800; the American, about 547.

EVANS, ROBLEY DUNGLISON (1846-1912). Rear admiral (retired) United States navy ("Fighting Bob Evans"); born in Floyd County, Va.; graduated United States Naval Academy (1863); served in Civil War; commanded Yorktown at Valparaiso, Chile (1891), when relations between United States and Chile were strained; commanded Iowa in Spanish War, taking active part in battle with Cervera's fleet (July 3, 1898); president of board of inspection and survey; commander-in-chief Asiatic station (October, 1902-1904); commanding Atlantic fleet (1905-1907); commander-in-chief of Atlantic fleet on its tour around the world (December, 1907-February, 1909), but obliged by ill-health to resign at San Francisco (May 9, 1908).

EWELL, RICHARD STODDERT (1817-1872). An American soldier of the Confederate army during the Civil War. Born in Washington, D. C.; as lieutenant he served in the Mexican War, attaining the rank of captain for his excellent service in the engagements of Contreras and Churubusco. Resigning his commission at the beginning of the Civil War (1861), he joined the Confederacy, and, as major general, led a division at the first and second battles of Bull Run and Antietam. Succeeded to the command of Jackson after his death at Chancellorsville, attaining the rank of lieutenant general; took part in the battles of Gettysburg and the Wilderness; was captured at Sailor's Creek (April 6, 1865). Retired to private life after the war.

EXMOUTH, EDWARD PELLEW, VISCOUNT (1757-1833). An English admiral; born at Dover. In the battle of Lake Champlain (October 11, 1776), at the age of 19, he saved his vessel after his superior officers had been wounded; took part in Burgoyne's campaign the following year. In 1816 went to Algiers to enforce the abolition of Christian slavery. By this expedition 3,000 Christians, mostly Spaniards and Italians, were liberated. On his return to England, Exmouth received the thanks of Parliament, and was promoted to the rank of viscount. In 1821 retired from public service.

EYLAU (February 8, 1807). Eylau, a town in Prussia, was the scene of a very bloody engagement between the Russian and Prussian allies and the French under Napoleon. The outcome was rather doubtful, but Napoleon claimed the victory, as the allies were the first to leave the field.

FAIRFAX, THOMAS, LORD (1612-1671). Born at Denton, Yorkshire (January 17, 1612). At the beginning of the civil war was a leader of the Parliamentary army, distinguishing himself at Marston Moor (July 2, 1644), and Naseby (June 14, 1645). His last years were spent in retirement at Bilburgh, near York, where he died (February 12, 1671). **THOMAS, LORD FAIRFAX** (1692-1782), his grandson, born in England; spent part of his life in Virginia; was an American colonial pioneer. Through marriage of the Washington-Fairfax families, he became a stanch friend of George Washington, employing him in important surveying work and exerting every effort in the furtherance of his interests with the Provincial Government; was an ardent royalist during the Revolution, but his advance in years and the respect which he had won allowed him to dwell in peace. His death occurred soon after the surrender at Yorktown.

FAIRFIELD (July 8, 1779). After the British had plundered New Haven, they sailed to Fairfield, a village southwest of New Haven. As the defenders had already fled, the invaders met with no opposition, and many buildings were destroyed.

FANNING, EDMUND (1737-1818). Born on Long Island; prominent as partisan Loyalist during Revolutionary War. Appointed surveyor general by England; organized corps of 460 Loyalists (1777), taking active part in partisan warfare in Northern Department as the King's American Regiment; made councilor and lieutenant governor of Nova Scotia (1783); lieutenant governor of the Island of St. John (1787-1799); of Prince Edward Island (1799-1804). General in the British army (1808).

FARMVILLE (April 7, 1865). From Richmond, Va., Lee and his army retreated west toward Farmville. On April 7 they were met at that town by a force of

Federals under Gen. Theodore Read, and after a sharp skirmish the latter were repulsed and Lee crossed the Appomattox. At that time other divisions of Federals arrived and renewed the attack, capturing between 5,000 and 7,000 prisoners, 16 pieces of artillery, and 400 wagons.

FARNHAM, RALPH (1756-1861). Last survivor of the battle of Bunker Hill; the first white settler of Acton, Maine. A public concert was given in his honor at Boston (October, 1860). He lived to the age of 104 years, 9 months, and 19 days.

FARRAGUT, DAVID GLASGOW (1801-1870). Born at Campbell's Station, near Knoxville, Tenn.; a brave American naval officer; first admiral of the United States navy. In 1822-1823 served under Commodore Porter against the West Indian pirates, and in 1825 was commissioned as lieutenant. At beginning of Civil War entered service of the Federal government; under Commander David Porter was given charge of the important naval expedition against New Orleans (April 18, 1862); passed the forts guarding the city under terrific fire, and with a loss of only one vessel, the Confederates losing their entire fleet; took formal possession of the city, April 25, 1862; on Aug. 5, 1864, he attacked Mobile, and after a hard fight forced his way, with his fleet, past the forts, taking possession of the harbor; this was Farragut's last and greatest battle. Appointed rear admiral (July, 1862); vice-admiral (December, 1864); admiral (July, 1866), the latter two expressly created for him by Congress. He is the most distinguished American naval officer.

FAWKES, GUY (1570-1606). English conspirator who, allied with Catesby and others, thought to restore Roman Catholic supremacy by blowing up, with gunpowder, King James I., his ministers, Lords and Commons, at the assembling of the House of Parliament (November 5, 1605). He was arrested almost in the act, and executed as a traitor; Parliament making the Fifth of November forever a day of national thanksgiving.

FIELD OF THE CLOTH OF GOLD. A name given on account of the gorgeous display to the place of meeting of Henry VIII. of England and Francis I. of France (June 7-June 24, 1520) in an important interview. It was on a plain between Guisnes and Ardres in the modern department of Pas-de-Calais.

FISH DAM FORD (November 12, 1780). A small force of Americans under Sumter, defeated the British led by Wemyss, at Fish Dam Ford, Broad river, S. C..

FISHER'S HILL (September 22, 1864). From Opequan, the Confederates, led by Early, retreated to Fisher's Hill, south of Winchester, Va. There, on September 22, they were attacked by Sheridan, and after an overwhelming defeat they retreated in confusion, pursued by the Federals. About 1,100 prisoners and 16 guns were taken by Sheridan, while the Confederates lost many more in killed and wounded.

FITZGERALD, EDWARD, LORD (1763-1798). An Irish politician and revolutionist. Born at Carton Castle, near Dublin, Oct. 15, 1763. Educated in France; prominent as a leader in the uprising of the United Irishmen (1798). Arrested on a charge of treason, he died in prison while awaiting trial.

FIVE FORKS (April 1, 1865). After Sheridan's raid in the valley of the Shenandoah, he joined the Federal forces in the vicinity of Richmond, Va. On March 31 Sheridan's division led by Warren was repulsed by Lee at Dinwiddie Court House, and Sheridan forced back toward Dinwiddie. The following day Sheridan advanced to make an attack. Lee's army made a desperate resistance but were completely defeated; and as they fled along White Oak Road the Federals gave chase and captured over 5,000 prisoners. The loss to Sheridan was nearly 7,000 men.

FLAG (First Union). It is said that a flag of alternate red and white stripes, representing the thirteen colonies, was unfurled at Washington's headquarters, Cambridge, on January 2, 1776. On June 14, 1777, by order of Congress, the blue field of white stars in the corner (the part of the flag called "the union") was introduced. The first flag determined by law to be the flag of the United States was undoubtedly made in Philadelphia by Mrs. Betsy Ross. Tradition says that Washington penciled the plan of it. It is claimed that the first military use of the flag was at Ft. Stanwix (now Rome, N. Y.), in August, 1777, when the fort was besieged. On that occasion the banner used was improvised from a red petticoat, a white shirt, and Col. Gansevoort's blue cloak. Congress decided in 1818 that the number of stripes should thereafter be the original thirteen, but a new star should be placed in the "union" for each additional state.

FLEETWOOD. See BRANDY STATION.

FLEURUS. (1) August 29, 1622. While the Germans, after their defeat at Hochst, in the Thirty Years' War, were marching toward Fleurus, a village of Belgium, they were intercepted by the Spaniards, under Cordova, whom they routed severely. (2) On July 1, 1690, a battle was fought at Fleurus between the French, under Luxembourg, and the Germans and Dutch, under Waldeck. The allies were defeated with a loss of 14,000.

FLODDEN FIELD, BATTLE OF (September 9, 1513). Between 32,000 English under the earl of Surrey and the Scotch under James IV. The Scotch were defeated with a loss of from 8,000 to 10,000, including the king, the archbishop of St. Andrews, twelve earls, and many nobles.

FOLGER, WILLIAM MAHEW (1844-1928), Rear admiral (retired) United States navy; born at Massillon, O.; graduated at United States Naval Academy (1864); inspector of ordnance, navy yard, Washington (1888-1890); chief of bureau of ordnance (1890-1893); lighthouse inspector, 11th district (1896-1898), 3d district (January-April, 1898, 1901-1904); commanded Philippine squadron, Asiatic fleet (April-September, 1898), cruiser squadron, Asiatic fleet, until March 30, 1905; rear admiral (June 1 1904); retired (June 30, 1905).

FONTENOY (May 11, 1745). While the French forces, commanded by Marshal Saxe, were besieging Tournay, a city in southern Belgium, 50,000 British, Dutch, and Austrian troops tried to relieve the city by attacking the French at Fontenoy, near there. The French, however, being reinforced, held their own, and beat back the allies. A grand charge by the famed "Irish Brigade" decided the battle. A great blow to England, as it came at the same period as the threatened Stuart invasion.

FOOTE, ANDREW HULL (1806-1863). Officer in the American navy; born in New Haven, Conn. Teacher of midshipmen at U. S. naval hospital, Philadelphia (1841-1843). As commander of the brig Perry cruised in African waters (1849-1851) to protect American commerce and suppress the slave trade. While in command of the Portsmouth on the East India station, established fortified posts at Canton for the protection of American residents, and was fired upon from the Barrier Forts, which a week later he stormed and captured. Commanded Brooklyn Navy Yard (1858-1861). Assuming at St. Louis command of the Western flotilla (Sept. 6, 1861), he devoted himself for some time to preparations for action; captured Fort Henry (February 6, 1862); unsuccessfully attacked Fort Donelson on the 14th, and was wounded; in coöperation with General Pope captured Island No. 10 (April 7, 1862); forced by his wound to resign his command (July, 1862), in which month he had been appointed rear admiral. Chief of Bureau of Equipment and Recruiting for several months (1862-1863); appointed (June 4, 1863) to succeed Rear Admiral Dupont as commander of the fleet off Charleston, but died in New York (June 26).

FORREST, NATHAN BEDFORD (1821-1877). A prominent Confederate soldier; born near Chapel Hill, Tenn. Was at Fort Donelson; assumed several cavalry commands; said to have been the head of the Ku-Klux Klan at one time.

FORT BOONE (August 8-20, 1778). Daniel Boone, who with 50 men, occupied Fort Boone, in Madison Co., Ky., was attacked by a small detachment of British under Captain Duquesne. The Americans would not surrender, and finally, after maintaining a heavy bombardment for several days, the British retired.

FORT BOWYER. On September 15, 1814, a force of 1,300 British and Indians attacked Fort Bowyer, near Mobile, Ala. The fort was then held by 134 Americans under Maj. William Lawrence, and they succeeded in repulsing the British with a loss of only five men killed and four wounded, while the British lost 232 men.

FORT BROWN (May 3-10, 1846). When the United States began to have trouble with Mexico over a bit of land between the Nueces and Rio Grande rivers, in Texas, troops were immediately sent to the Texas frontier. An army of 4,000 men under Gen. Zachary Taylor were stationed at Point Isabel, near the mouth of the Rio Grande. The first skirmish of the war occurred a few miles up the river, when a detachment of Taylor's men were attacked by the Mexicans. Later Taylor moved up the river and built Fort Brown, after which he returned to Point Isabel, leaving Major Brown at the fort. On May 3 the Mexicans began a bom-

bardment which they kept up until the 10th, but the fort was bravely defended, although Brown was killed.

FORT CHAMBLY (October 19, 1775). With the assistance of some of the Canadians, Montgomery determined to capture Fort Chambly, north of St. John's, in Canada. Under cover of the darkness, the Americans floated cannon down the river past St. John's, and with little resistance the garrison at Fort Chambly surrendered on October 19th. A very large supply of ammunition, firearms, and food was given over to the Americans.

FORT CLINTON (October 6, 1777). Fort Clinton, on the Hudson river, near West Point, was captured by the British army during the War of the Revolution.

FORT DONELSON (February 16, 1862). After the capture of Fort Henry, Grant turned his attention to Fort Donelson, on the west bank of the Cumberland river in Tennessee. On February 14, 1862, the Federal fleet made an attack, but withdrew with two vessels crippled. The land forces with reinforcements which increased their number to 15,000 made an attack on February 15th, and fought a desperate battle until dark with the Confederates, who attempted to break through the lines. The following day Buckner, upon whom the command had fallen, surrendered with 15,067 men, 65 guns, and 17,600 arms.

FORT DUQUESNE (November 25, 1758). Fort Duquesne, on the present site of Pittsburg, Pa., was settled by the French in 1754. In 1755 the English tried to capture it but were not successful. The winter of 1758 was very severe, and when the English heard that the garrison was too weak to offer much resistance they sent an expedition to capture it. The French, however, had already evacuated the fort, having burned it to the ground. Under English control a new fort was built and called Pitt, in honor of William Pitt.

FORT ERIE. (1) On July 3, 1813, a force of Americans under General Brown appeared before Fort Erie, opposite Buffalo, and demanded the surrender of the British. Without attempting a defense, Major Buck surrendered 170 men. (2) In August, 1814, Fort Erie was besieged by the British under Lieutenant Colonel Drummond. Their first attack and bombardment was made on the 14th, but they were compelled to retreat with a loss of 221 men killed, 174 wounded, and 186 prisoners. The British still continued bombarding the fort until September 17th, when the Americans made a successful sortie and captured and destroyed the British batteries. With heavy losses Drummond at once retreated, and the Americans abandoned Fort Erie after destroying it.

FORT FISHER. (1) On December 13, 1864, an expedition consisting of a land and naval force commanded by General Butler, started toward Fort Fisher, an important stronghold guarding Wilmington, N. C. The bombardment began December 24 and in less than two hours the fort capitulated and the following day Butler withdrew. (2) A second expedition led by General Terry was sent against Fort Fisher in January, 1865. The garrison fought desperately to hold the fort, but at the end of five hours were forced to surrender 2,083 prisoners, on January 15. The loss to the Federals in the assault was 955.

FORT FRONTENAC (August 27, 1758). An army of 3,000 English commanded by Colonel Bradstreet landed on the Canadian shore of Lake Ontario near Fort Frontenac, and after a few days of effective cannonading the French surrendered. The capture of this point severed communication between Quebec and the Ohio valley.

FORT GEORGE. (1) During the French and Indian War the French troops led by Montcalm captured Fort George, opposite Fort Niagara on the Niagara river. (2) On May 27, 1813, Fort George was attacked and captured by the Americans under General Boyd. (3) On July 8, 1813, there was a skirmish near Fort George, which resulted in the British driving the Americans back to the fort. (4) The British again attacked the fort on July 17, 1813, but the Americans commanded by Colonel Scott gallantly defended it.

FORT GRISWOLD (September 6, 1781). Benedict Arnold, in charge of an army of British, captured Fort Griswold, on the Thames river, in Conn., from the Americans. Colonel Ledyard was killed as he was surrendering his sword.

FORT HARRISON. On September 5, 1812, a band of Indians attacked Fort Harrison, on the Wabash river, in Indiana. The fort was then occupied by a small garrison under Captain Taylor, and most of the soldiers were sick with a fever. In even this weak condition they were able to defend themselves until relief came.

FORT HENRY (February 6, 1862). In response to President Lincoln's command for a general movement of the Federal forces, General Halleck sent an expedition to capture Fort Henry, on the Tennessee river, in northern Tennessee. On February 5, 1862, a land and naval force sailed to within four miles of the fort, where the infantry under General Grant were landed. The following morning the boats advanced to make the attack, and after an engagement of almost an hour and a half the Confederates surrendered. The Federal infantry came up later, and Grant assumed command of the fort.

FORT McALLISTER (December 13, 1864). After devastating the country around Atlanta, Ga., Sherman continued his march toward Savannah, arriving at Fort McAllister in December. McAllister stood just south of Savannah, on the Ogeechee river, and guarded the harbor. On December 13 the Federals made an attack from the land side, and in a few minutes were in possession of the fort. Sherman then turned his attention to Savannah, and after careful preparation for the siege discovered that the Confederates had abandoned the city on December 20. It was entered the next day by Sherman and his army, thus ending his march to the sea. Only 308 men were lost out of an army of 66,000.

FORT McHENRY (September 13, 1814). In attempting to capture Baltimore, the British first bombarded Fort McHenry, southeast of the city. For 25 hours the British ships threw shells, but after the loss of two vessels and many men they withdrew.

FORT MACKINAC (July 17, 1812). Immediately after the declaration of war, and before the Americans had learned of it, Captain Roberts with 600 British and Indians attacked Fort Mackinac, in Michigan, and Lieutenant Hancks surrendered with little resistance.

FORT MADISON (September 5-8, 1812). A small force of regulars commanded by Hamilton and Vasques at Fort Madison, near St. Louis, on the Mississippi river, was attacked by a band of Indians on September 5th. For three days the assault was continued, but the Indians were finally obliged to withdraw.

FORT MEIGS (May, 1813). The British under Proctor attempted to capture Fort Meigs, on the Maumee river, in Ohio, built and defended by Harrison and his American forces. General Clay arrived with reinforcements and the British retreated. A second attempt to capture the fort in July, 1813, was also unsuccessful.

FORT MERCER (October 22, 1777). After the defeat of the Americans at Germantown, Howe proceeded to gain control of the Delaware river. To this end, he sent a detachment south to Fort Mercer, and that fort was abandoned by the Americans only after the fort on the opposite side of the river had been taken.

FORT MIFFLIN (November 15, 1777). After a desperate struggle in which the British lost heavily, Fort Mifflin, just south of Philadelphia, was surrendered by the Americans. The capture of this stronghold gave the British control of the Delaware river.

FORT MIMS MASSACRE (August 30, 1813). When the Creek Indians began to wage war against the Americans, Fort Mims, near Montgomery, Ala., became a place of safety for the frightened inhabitants. On August 30, 1813, a large body of Indians attacked the fort, and although its defenders fought desperately, they were completely overpowered. Of the 550 persons there, 400 were massacred, the negroes were made slaves, and about 12 escaped into a swamp.

FORT MONTGOMERY (October 6, 1777). Fort Montgomery, near West Point on the Hudson river, was captured by the British during the Revolutionary War.

FORT MOTTE (May 12, 1781). In order to maintain their hold on Charleston and Augusta, the British transformed the home of Mrs. Rebecca Motte, just above the confluence of the Wateree and Congaree rivers, in South Carolina, into a fort. On May 8, 1781, this post was besieged by the Americans led by Marion and Lee, and on May 12th the garrison of 150 men surrendered.

FORT NECESSITY (July 4, 1754). Early in Washington's career he commanded a small force of men who occupied Great Meadows in Virginia, and built a fort there called Fort Necessity. The French were in possession of most of the surrounding country, and soon a French army led by Villiers attacked the English at Fort Necessity and the latter were obliged to evacuate.

FORT NIAGARA. (1) July 25, 1759. An English army under Prideaux and Sir William Johnson were sent toward Montreal through the Ohio valley. Fort Niagara, then held by the French, was captured after a siege of three weeks. This victory gave the English control of the entire upper Ohio valley. (2) On November 21, 1812, the British batteries opposite Fort Niagara conducted an active bombardment of that fort. The firing continued until evening, and although the Americans were short of ammunition, they succeeded in holding the fort.

FORT PILLOW (April 12, 1864). Fort Pillow, about 40 miles above Memphis, Tenn., was defended by Major Booth and a garrison of 557 men. On April 12 the fort was attacked by Forrest and a large force of Confederates. The garrison was about to surrender when Major Bradford, who assumed command on the death of Booth, refused to do so. The Confederates at once renewed the attack, and the garrison fled. The enemy gave chase and murdered between 300 and 400 without the slightest mercy.

FORT ST. GEORGE (November 23, 1780). At Brookhaven, L. I., the British took possession of St. George's manor house, fortified it and named it Fort St. George. Major Tallmadge, with a small force from Fairfield, Conn., was sent to destroy the forage which the British had collected there. The garrison at the fort were taken by surprise November 23, 1780, and compelled to surrender 54 of their number, and about 70 tons of hay were burned.

FORT ST. PHILIP. On January 9, 1815, five British ships of war appeared before Fort St. Philip, on the Mississippi river below New Orleans, and for nine days that fort was vigorously bombarded. The garrison was commanded by Major Overton, and the fort was so gallantly defended that the British finally withdrew.

FORT STEEDMAN (March 25, 1865). In the hope of reaching Grant's supplies at City Point, Va., Lee arranged a plan for the capture of Fort Steedman, between the Appomattox and Hatcher's Run. The attack was made on March 25. At first the Confederates were successful, but their reinforcements failed to arrive and the garrison rallied so strongly that Lee was completely repulsed, losing over half of his troops in the action.

FORT STEPHENSON. On August 1, 1813, Major Croghan, who occupied Fort Stephenson (Now Fremont), Ohio, was attacked by a large force of British regulars led by General Proctor, while 2,000 Indians guarded the roads to cut off reinforcements. For two days the fort was bombarded, and on August 2d a vigorous assault was made, but the garrison gallantly defended the post with only one man killed and seven wounded.

FORT SULLIVAN, CHARLESTON, S. C. (June 28, 1776). Clinton having been sent to America to hold the colonies for the Crown, he expected Cornwallis and Parker to arrive at Charleston, S. C., with reinforcements. The colonists strengthened their position at Charleston by building a log fort on Sullivan's Island, giving them command of the harbor. When the British ships arrived they stationed troops on another island and opened fire on Fort Sullivan, but the Americans aimed well and finally the British gave up the attempt.

FORT SUMTER (April 12, 1861). The first conflict of the Civil War in the United States occurred at Fort Sumter, S. C. On April 12, 1861, General Beauregard and his Confederate troops laid siege to the fort, then held by a small garrison of 80 men under Maj. Robert Anderson. Anderson and his men kept the enemy at bay until the 14th, when, being unable to hold the fort, they lowered their flag and fled.

FORT WAGNER. On July 11, 1863, after several attacks on Fort Sumter, General Gillmore turned his attention to Fort Wagner, an important stronghold on Morris Island, near Charleston, S. C. This attempt, as well as one made on July 18, was unsuccessful, the Federals being driven back with heavy losses. After spending some time in making trenches the attack was renewed. By August 23 Fort Sumter, opposite Wagner, was reduced; and after a vigorous bombardment day and night Fort Wagner was abandoned by the Confederates September 6, thus leaving the Federals in possession of the whole of Morris Island.

FORT WASHINGTON (November 16, 1776). Fort Washington, a very important position just north of New York City, was held by a division of Washington's best men under Colonel Magaw. The British, commanded by Howe, marched against it with a large army and after an active bombardment compelled its surrender and took 2,600 prisoners and all the ammunition.

FORT WATSON (April 23, 1781). After the conflict at Guilford, the Americans resolved to regain South Carolina. To this end, Lee and Marion united their forces and on April 15th laid siege to Fort Watson, in Sumter Co., S. C. On April 23d the fort surrendered to the Americans.

FORT WILLIAM HENRY (August 3-9, 1757). With an army of 7,600 men, including about 2,000 Indians, the French led by Montcalm, laid siege to Fort William Henry, at the head of Lake George. The garrison there was commanded by Colonel Monroe. After resisting the French as long as possible, and calling in vain for reinforcements from General Webb, the English were obliged to capitulate. Everything was destroyed, and as the English were evacuating many were robbed and scalped by the Indians, in spite of Montcalm's efforts to prevent it.

FOUCHE (*foo-shay'*), **JOSEPH, DUC D'OTRANTE** (1763-1820). A French politician and minister of police; born at Pellerin. Taught at Juilly, Arras, Vendôme; principal of College of Nantes (1789). Elected deputy of National Convention (1792); voted for death of Louis XVI.; prominent in inauguration of Worship of Reason and in spoliation of churches. After holding presidency of Jacobin Club was excluded therefrom by Robespierre. Made minister of police (1799); took part in coup d'état of eighteenth Brumaire; under the empire was also minister of interior, controlling the internal government of France during Napoleon's prolonged absences. Falling into disgrace, fled from France (1810), but soon returned. Exiled by law against regicides (1816), he retired to Prague, became an Austrian subject (1818), and died at Trieste.

FRA DIAVOLO (1770-1806). Real name, Michele Pezza; born in Calabria. Expelled from a monastery, became chief of a band of Italian brigands and displayed great cruelty. Made a colonel by Ferdinand of Naples, whom he aided against the French. Attempted to stir up insurrections in Calabria (1799, 1806). Captured by Masséna at San Severino, and hanged as a bandit, at Naples. Auber's opera, "Fra Diavolo," is not based upon historical truth.

FRANKLIN (November 30, 1864). When Sherman learned that General Hood was marching toward Nashville, Tenn., he sent a force of 25,000 Federals to protect his base of supplies there. At Franklin, 20 miles south of Nashville, Schofield's division encountered General Hood. Four times the Confederates charged their opponents, but Schofield was well supported by the other brigades and after a sanguinary battle the Federals proceeded toward Nashville. General Hood's loss in this battle was 8,000 soldiers; the Federals' loss was 3,641.

FRANKLIN, SAMUEL RHOADS (1825-1909). Rear admiral (retired) United States navy; born at York, Pa.; served in Mexican and Civil wars; superintendent naval observatory (1884-1885); commander-in-chief of European station (1885-1887); was president of international marine conference; rear admiral (January 24, 1885); retired (August, 1887).

FRAZIER'S FARM. See GLENDALE.

FREDERICKSBURG (December 13, 1862). General Burnside, with a Federal army numbering 100,000, met 90,000 Confederates under General Lee, at Fredericksburg, Virginia, during the Civil War. Burnside crossed the Rappahannock river on the 12th, and the next day attacked Lee's forces. In view of the fact that the Confederates occupied an almost impregnable position, it was unwise for the Federals to continue their attack, but Burnside was obstinate and would not listen to the protests of his subordinates. Division after division was ordered forward, only to be cut down by the steady fire from the Confederate muskets. That night, when the Federalists retreated, 12,000 men had been left on the field, dead or dying; the Confederate loss was about 5,000 men.

FREEMAN'S FARM. See SARATOGA.

FREIBURG (August 3, 5, 10, 1644). After a very sharply contested battle at Freiburg, a town in the province of Baden, Germany, the French, under Conde, forced the retreat of the Bavarians, under Mercy, and captured all their artillery and baggage. Several times in its later history Freiburg was captured by the French, but was never long retained by them.

FRENCH AND INDIAN WAR. The struggle in America between the French and English (1754-1760). Almost coincident with the Seven Years' War in Europe. It was marked by Braddock's defeat at Fort Duquesne (1755); the British defeat at Ticonderoga (1758); capture of Louisburg by the English, of Fort Frontenac, and Fort Duquesne (1758); and, finally,

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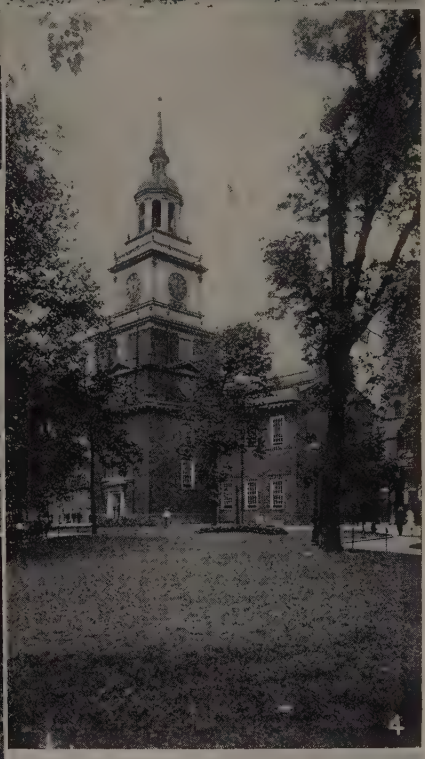
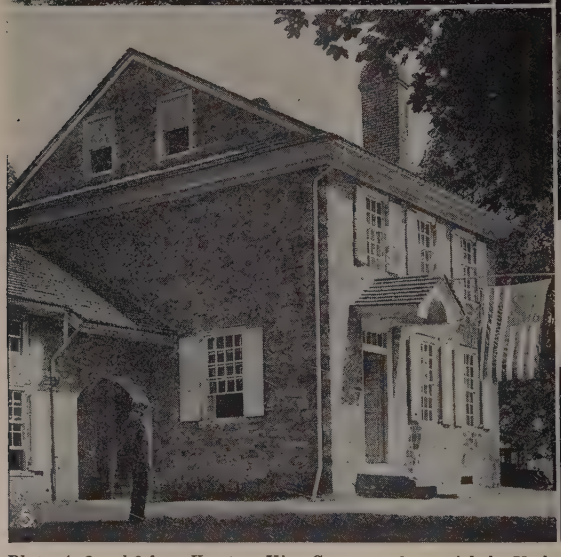
HISTORIC SCENES IN AMERICA—III

1 St. John's Church, Richmond, Virginia, scene of Patrick Henry's famous oration. 2 Mount Vernon, ancestral home of George Washington. 3 Fairfax Court House, Virginia, in which is preserved Washington's will. 4 Monticello, Virginia, home of Thomas Jefferson. 5 Powhatan Oak, Virginia.





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HISTORIC SCENES IN AMERICA—IV

1 "The Hermitage," Andrew Jackson's Home, Nashville, Tennessee. 2 Kitchen of the original "Hermitage." 3 Robert E. Lee Mansion. 4 Independence Hall, Philadelphia, Pennsylvania. 5 Washington's Headquarters, Valley Forge, Pennsylvania. 6 Andrew Johnson's tailor shop, Greenville, Tennessee.

the defeat of the French under Montcalm by the English under Wolfe on the Plains of Abraham near Quebec (September 13, 1759). By the Treaty of Paris (1763), which closed the Seven Years' War, all Canada passed into the hands of the English.

FRENCH REVOLUTION. Its chief leaders: Comte de Mirabeau (1789-1791); Danton, from the death of Mirabeau to 1793; Robespierre, from June, 1793, to July 27, 1794. Next to these three were St. Just, Couthon, Marat, Carrier, Hébert, Santerre, Camille Desmoulins, Roland and his wife, Brissot, Barnave, Sieyès, Barras, Tallien, etc. Its great days: 1789, June 17, the Tiers Etat constituted itself into the "National Assembly"; June 20 the day of the "Jeu de Paume," when the Assembly took an oath not to separate till it had given France a constitution; July 14, storming of the Bastille; October 5, 6, the king and National Assembly transferred from Versailles to Paris. This closed the ancient régime of the court. 1791, June 20, 21, flight and capture of the king, queen, and royal family. 1792, June 20, attack on the Tuileries by Santerre; August 10, attack on the Tuileries and downfall of the monarchy; September 2, 3, 4, massacre of the state prisoners. 1793, January 21, Louis XVI. guillotined; May 31, commencement of the Reign of Terror; June 2, the Girondists proscribed; October 16, Marie Antoinette guillotined; October 31, the Girondists guillotined. 1794, April 5, downfall of Danton; July 27, downfall of Robespierre. The Revolution was caused by a half century of lack of confidence in the ruling monarchy and the government; French armies defeated; people overtaxed; nobility opposing all reforms; the country was in a state of tyrannic and oppressive chaos. The Revolution swept away the Bourbon monarchy and the old feudal régime.

FRIEDLAND (June 14, 1807). In a battle at Friedland, in northern Prussia, Napoleon, with an army of 80,000, defeated the allied Russian and Prussian forces. The Peace of Tilsit was negotiated soon after this victory.

FRISIANS. A Germanic people who for about 2,000 years have dwelt on the shores of the North Sea, between the Scheldt and the Elbe, and northward to the coast of Jutland. From the time of Drusus to about the end of the first century, they were subject to the Romans; and were subdued by Charlemagne after an almost two hundred years' struggle with the Franks. In the seventh century Christianity was introduced among them by Wilfred, archbishop of York, and by Willibrord. The religious center of their heathenism had been the island of Heligoland. While in eastern Friesland the dynasty of Cirksena ruled from 1430 to 1744, the Frisians never politically formed one united people, but were governed by a number of small chieftains. Bands of Frisians settled in England in the fifth century. They have been and still are a capable, seafaring race, always possessing a strong instinct for freedom.

FUNSTON, FRED (1865-1917). American soldier; born at New Carlisle, Ohio. After a connection as botanist with the Department of Agriculture (1891), he offered his services to the Cuban Junta (1894), and was there promoted lieutenant colonel for bravery; captured by the Spanish, condemned to death but set free; organized the Twentieth Kansas Volunteers (similar to "Rough Riders") and was made colonel; served in the Philippines (1898); made brigadier general (1899); relieved because of illness and returned home same year; returned to the Philippines (1901); captured Aguinaldo. During the San Francisco earthquake he took military charge of the city and did heroic work.

GADSDEN PURCHASE. In 1853 the United States bought from Mexico a tract of land now forming a part of New Mexico and Arizona. It contains 45,535 square miles bounded on the north by the Gila river, on the east by the Rio Grande, and on the west by the Colorado. The United States gave $10,000,000 for it. The Mexicans also abandoned all claims based on the Indian raids of 1848 and 1853. The treaty so displeased the Mexicans that Santa Anna, who acted for them, was banished.

GAETA (the ancient Cajeta). Gaeta, a city of Italy, has undergone many sieges. During the year 1799 it was taken by both the French and the English; by the French in 1806, and by the Austrians in 1815 and 1821. February 13, 1861, Gaeta surrendered to the Sardinian general, Cialdini, after a siege.

GAINES'S MILL (June 27, 1862). One of the Seven Days' Battles near Richmond, Va., during the Civil War, was fought at Gaines's Mill, a few miles east of Mechanicsville. After his encounter at Mechanicsville, Porter moved to Gaines's Mill, followed by A. P. Hill and his Confederates. Both armies were reinforced; the Federals numbered 35,000; the Confederates, 60,000. A closely contested struggle occurred on June 27, but Porter was able to keep the Confederates at bay until his men had crossed the Chickahominy river with the guns and wagon trains. During the night, after Porter and the remaining troops had crossed, the bridges were destroyed. Both sides sustained heavy losses. Also known as the battle of the Chickahominy and the battle of Cold Harbor.

GAMBIER, JAMES, BARON (1756-1833). British admiral; born in the Bahamas. Took part in capture of Charleston (1780); in victory off Ushant (1794); governor of Newfoundland and commander-in-chief of naval station (1802-1804); commanded fleet which bombarded Copenhagen (1807); in supreme command in the Channel (1809), when French fleet was destroyed in Basque Road by Lord Cochrane (Dundonald). One of the commissioners in negotiations of Treaty of Ghent (1814). By successive promotions, attained the rank of admiral.

GANANOQUI VILLAGE. On September 20, 1812, 95 Americans led by Captain Forsyth landed near Gananoqui, a village near the Thousand Islands, in Canada, where the British had collected ammunition and stores. After making a brief resistance, the British retreated. A large quanity of supplies were seized by the Americans and the storehouse burned.

GARCIA (*gar-thee'ah*) **Y INIGUEZ, CALIXTO** (1836-1898). Cuban patriot; born at Holguin, Cuba. Leader in Ten Years' War (1868-1878); became commander-in-chief of Cuban army. Captured during rebellion of 1880, deported to Spain, and held there under police surveillance for fifteen years. Escaped to Paris (1895), then to United States, where he became active as a filibuster. Subsequently won several brilliant victories in Cuba, and at El Caney (Spanish-American War), on July 1, 1898, led a Cuban force of 4,000. While head of a commission to discuss Cuban affairs with President McKinley, Garcia died at Washington, D. C.

GARIBAL'DI, GIUSEPPE, GENERAL (1807-1882). A distinguished Italian patriot; born at Nice. He took an active interest in the national movement in Italy. Took part in the uprising in Genoa (1834). Condemned to death he fled to France, thence to South America; took part in the struggle of Uruguay against the Argentine Republic; returned to Europe when Italy rose against Austria (1848); defended Rome against the French (1849); fled to Genoa, thence to Tunis, thence to New York; was an exile for several years. In 1860 he returned to Italy and took part in the efforts to unify Italy with the help of Sardinia. He kept up the struggle until 1870, when he went to help the French Republic. He entered the Italian Parliament in 1874.

GATES, HORATIO (1728-1806). American Revolutionary general; born in England. Served under Braddock and was severely wounded at Fort Duquesne (1755); lived in retirement in Virginia (1763-1775); placed in command of the army which returned from Canada; captured Burgoyne's army at Saratoga (1777).

GENEVA ARBITRATION. The meeting of the Board of Arbitrators at Geneva in 1872 to settle the Alabama Claims.

GENEVA CONVENTION (1864). An international agreement to respect the persons and property of those who in time of war voluntarily give their services to care for the sick and wounded. Such must have a recognized costume, flag, and arm-badge (red cross on a white ground), and, if taken prisoners, are to be discharged without ransom. Frequently called "The Red Cross Society," and was first brought into operation in the Franco-German War (1870-1871).

GENOA. (1) December 6-10, 1746. On account of ill-feeling among the inhabitants of Genoa, in northern Italy, against the Austrians garrisoned there, the citizens rose in arms and drove the soldiers from the city with a loss of 5,000 men. (2) March 13, 1795, during the wars of the French Revolution, the French were defeated by the English in a naval battle near Genoa. (3) In April, 1800, the Austrians laid siege to Genoa, then occupied by the French. On account of a blockade by the British, provisions were scarce, and finally on June 5th the city capitulated.

GERARD (*zhay-rar'*), **ETIENNE MAURICE, COMTE** (1773-1852). Marshal of France; born at Damvilliers, Meuse. Served under Dumouriez and Jourdan; became chief of staff to Bernadotte; famous for his

splendid charge at Austerlitz (1805); also won distinction at Jena (1806), Erfurt (1806), Wagram (1809). Fought in Spain and Russia. Received various high appointments after the first restoration. Fought gallantly at Ligny (June 16, 1815). Obliged to leave France after second restoration, but returned (1817). Elected to Chamber of Deputies (1822). Active in Revolution of 1830. Minister of war under Louis Philippe. Marshal of France (1831). Commanded expedition to Belgium, capturing Antwerp (December, 1832). Grand chancellor of Legion of Honor (1835).

GETTYSBURG. Decisive battle of the world (1863), also of the American Civil War. General Meade with 90,000 Federals fought three days with 80,000 Confederates, and, after vacillating fortune for two days, on the third day forced the Confederates to retreat. It was practically the beginning of the end of the war. The "unity" of the States and emancipation of the slaves were assured, and secession rendered a dead issue. Victory stopped the Confederates' daring invasion of the North, and to the end of the war the South was always on the defensive. The losses including both armies were 5,664 killed, 27,206 wounded, 10,584 captured or missing, after three days of fighting.

GHENT. Ghent, in Belgium, has been the scene of several contests and uprisings. (1) The most famous seems to have been the revolt against a tax levied by Charles V. in 1539. The city rose in arms, but as the neighboring towns would not uphold it, the German army entered the city without resistance. The leaders of the revolt were killed, all things owned in common were confiscated, and the payment of a heavy fine demanded. (2) During an attempt on the part of Spain to reduce the Hollanders to obedience, city after city surrendered without a struggle. This caused Ghent to become disheartened, and on September 17, 1584, it disgracefully surrendered to Alexander of Parma with an immense quantity of provisions, ammunition, and a splendid equipment. (3) In 1678, when the European allies were waging war against France, Ghent was captured by the French army after a short bombardment. (4) During Marlborough's campaigns in the War of the Spanish Succession, Ghent was taken by the French and retaken by the Allies. (5) In 1745, immediately after the Battle of Fontenoy, during the War of the Austrian Succession, Ghent was again taken by the French.

GHENT, TREATY OF. Signed at Ghent, December 24, 1814; ratified by the United States Senate, February 17, 1815. It closed the War of 1812. The American negotiators were John Quincy Adams, James A. Bayard, Henry Clay, Jonathan Russell, and Albert Gallatin. The English were Lord Gambier, Henry Goulburn, and William Adams.

GHERARDI (*gay-rar'dee*), **BANCROFT** (1832-1903). An American naval officer; born in Jackson, La. Midshipman (1846-1850); in the Civil War he commanded the Chocorua and the Port Royal, and with the latter he chased the Confederate gunboats Morgan, Gaines, and Selma, at Mobile Bay (August 5, 1864); rear admiral (1887); commanded the Brooklyn Navy Yard (1887-1889 and 1893-1894); commander in chief of the North Atlantic Squadron (1893-1894); in charge of the Columbian naval parade and review in New York harbor (1893); retired (1894).

GIBRALTAR. Town and fortress on rocky promontory forming east horn of Bay of Algeciras, Spain, at entrance to Mediterranean. Made a British Crown colony (1704) under administration of a governor. Called "The Key of the Mediterranean," commanding the 13 mile wide strait between Spain and northern Africa. The rock is gray marble, very hard, three miles long, three quarters of a mile wide, and has a high point of 1,439 feet. The colony is self-supporting. The port is free and an important coaling station. Shipping of port exceeds 4,000,000 tons annually, mostly in British bottoms. Population, including 5,349 soldiers in garrison, is 27,460 (1901), mainly British with some Spaniards, Jews, and Moors. About 10,000 daily laborers on the promontory live in the town of La Linea de la Concepción and are not included in above estimate. During the War of the Spanish Succession (1704) the combined fleets of England and Holland, commanded by Sir George Rooke, attacked Gibraltar, and after a siege of two days captured the stronghold. From 1779 to 1783 an active siege was carried on by the French and Spanish, but the ineffectual blockade was finally lifted.

GIDEON. A Hebrew warrior who freed the people from the oppression of the Midianites. This occurred about 1245 B. C. Gideon is also called Jerubbaal. He became one of the "Judges" of Israel and his son, Abimelech, was made a "king" in Shechem. He captured and put to death the two Midianite kings, Zeba and Zalmunna.

GLADIATORS. Swordsmen whose profession was to fight for the public amusement. They were either free-born citizens of a low class usually, or slaves, captives, or malefactors, and were carefully trained in schools. They were first exhibited in Rome in 264 B. C., at funerals, but later at festivals. The andabatae wore helmets with no opening for the eyes; mirmillones used Gallic weapons, sword and shield; retiarii carried a net and a three-pronged lance; Thraces used a short sword and round buckler. The people cried "Habet" (He has it) if the gladiator were severely wounded and defeated, and he lowered his arms. If the spectators turned their thumbs down the gladiator was killed; if up, his life was spared. Sometimes none were spared alive. Great cruelty and callousness were often shown by the spectators. A rudis or wooden sword was presented to discharged gladiators, who were called rudiarii. The Greeks disliked gladiatorial combats, and practically none ever took place in their cities.

GLENDALE, or FRAZIER'S FARM (June 30, 1862). One of the Seven Days' Battles in the vicinity of Richmond, Va., during the Civil War. After pursuing the Federals as they marched south from the Chickahominy river, Longstreet and Hill overtook them at Glendale. The battle which ensued was fought desperately, and both sides sustained heavy losses, but the Federals still held the field when the fighting ceased at night.

GLOUCESTER, SIEGE OF (August, 1643). The Royalists and Parliamentarians of England had been engaged in war about a year when King Charles I. and his forces laid siege to Gloucester, on the Severn River. The inhabitants put forth every effort to hold the city and as they were assisted by volunteers from London, the Royalists were finally compelled to raise the siege.

GOLDING'S FARM (June 28, 1862). During the Seven Days' Battles in the vicinity of Richmond, Va., a small division of the Federal troops under Franklin were attacked by the Confederate artillery at Golding's Farm, near Woodbury's bridge, on the Chickahominy river. After a brief skirmish the Confederates were repulsed with a loss to the victors of 368 men.

GO'MEZ Y BAEZ, MAXIMO (1826-1905). Cuban general, born at Bani, Santo Domingo. Served in the Spanish army, but, becoming disgusted with Spanish rule in Cuba, resigned, and became a planter. Joined the insurgents in the Ten Years' War (1868-1878), and was made commander-in-chief on the death of General Agramonte (1873); also holding that office in the revolution which broke out in 1895, carrying on a successful guerrilla warfare until the coming of the Americans (1898), at whose disposal he placed his small force. At the end of the Spanish-American War, influenced his people to maintain friendly relations with the United States, and civil reorganization was assured. For receiving for his army the three million dollars voted by the United States government, Gomez was deposed from supreme command (March, 1899).

GONSAL'VO or GONZALO OF CORDOVA, HERNANDEZ DE AGUILAR (1443 or 1453-1515). Noted Spanish general, born at Montilla, near Cordova. Became distinguished in the war of Queen Isabella of Castile against Portugal and in the war against the Moors, conducting the negotiations for the surrender of Granada (1491). Assisted Ferdinand of Naples against the French (1495), ultimately driving them from Naples, and earning the title of "Great Captain." Again defeated the French (1503), establishing Spanish rule, and was appointed viceroy of Naples. Deprived of this office (1507) through the jealousy of Ferdinand, Gonsalvo retired to Granada.

GOODRICH, CASPAR FREDERICK (1847-1925). Rear admiral United States navy; born at Philadelphia; graduated United States Naval Academy (1864). Attached (1864) to the Macedonian in pursuit of Confederate steamers Florida and Tallahassee; brought Greely Relief-ship Alert to New York (1884); president Naval War College (1897-1898); during war with Spain commanded St. Louis and Newark; commandant navy yard, Portsmouth (1903-1904); rear admiral (February 17, 1904); commander-in-chief of Pacific squadron (1905-1906); commandant Brooklyn Yard since June 1, 1907.

GORDIAN KNOT. Gordius, chosen king of Phrygia, dedicated his car and yoke to Zeus, at Gordium; the

knot of the yoke being so skillfully tied that whoever should unloose it would, an oracle declared, become ruler of all Asia. Alexander the Great, coming to Gordium, cut the knot in two with his sword and applied the prophecy to himself.

GORDON, CHARLES GEORGE, called "**CHINESE GORDON**" and "**GORDON PASHA**" (1833-1885). English soldier; born at Woolwich. Served with distinction in Crimean War. Employed in surveying and settling Russo-Turkish frontier in Asia (1856-1858). Joined Anglo-French forces in China (1860); remained at Tientsin in command of royal engineers, exploring the interior; made commander of "Ever Victorious Army" (1863), suppressing Tai-ping rebellion and making accessible rich provinces and cities of the silk districts. Received from Chinese emperor the yellow jacket and peacock's feather of a mandarin of the first class, also the gold medal and title of Ti Tu, the highest Chinese military rank; but refusing from him a large sum of money. Commanded royal engineers at Woolwich (1865-1871), becoming noted for charitable work among the poor and sick. Sent by Ismail Pasha to establish authority of Egypt in Upper Nile basin (1874), and appointed governor of Equatorial Provinces. Later made a pasha. Appointed governor of the Sudan by the Khedive (February, 1877), developed natural resources of country, established communication between widely separated districts, suppressed rebellion and slavery; resigned (1879). For a few months was private secretary to Lord Ripon, governor general of India (1880). Connected with the Cape government (March-October, 1882). Visited the Holy Land (1883). Commissioned (1884) to withdraw the scattered garrisons of the Sudan and effect the evacuation of the country. Shut up in Khartum by the insurgent Mahdi, Gordon bravely repelled the besiegers for over ten months; but two days before the arrival of a tardily dispatched British army under Gen. Wolseley, the town was betrayed and the heroic commander slain.

GOTHS, THE. Powerful ancient nation of the Germanic race, whose first known locality was the Prussian shore of the Baltic (about 335 B. C.). Early in the third century the Goths were settled at the mouths of the Danube; invaded Roman province of Dacia (222-235, 244-249); utterly defeated the Roman legions (250-251), slaying the emperor Decius; then conquered many Grecian towns. Ravaged coasts of Europe and Asia (269); defeated by Romans under Claudius II. (269); ceded province of Dacia (272) by Aurelian. Under their king, Alaric, fought unavailingly against Constantine the Great, but with fair success against the Romans under Valens (367-369). They now began to be distinguished as Visigoths and Ostrogoths,—Goths of the west and the east; the former inhabiting the Dacian province and banks of the Danube, the latter the shores of the Black Sea. The Visigoths, seeking protection of the emperor Valens against the Huns, about 200,000 of them were allowed to pass into Moesia (376). Many entered the Roman army, but a dispute arose, resulting in a battle near Adrianople (378), in which the emperor Valens was slain. About the middle of the fourth century, the Goths became converts to Christianity.

Ostrogoths. Part of the Ostrogoths, conquered by the Huns, whom they were compelled to aid, joined Attila in his famous expedition against Gaul, falling by thousands before their kinsmen, the Visigoths, at the battle of Châlons (451); following which they settled in Pannonia and were joined by the Ostrogoths, who had been admitted within the Roman empire on the coming of the Huns. Theodoric, their greatest ruler (476-526), fought successfully against the eastern emperor, Zeno, obtaining a grant of some of the richest provinces in the empire, becoming chief of the imperial guard and consul for the year 484; utterly defeated (493) Odoacer, king of Italy, and reigned over that country until his death (526); ruling, on the whole, wisely and to the advantage of his subjects. In 536 Belisarius entered Rome and, although invited by the Goths to become their king, held the city for his master, Justinian, emperor of the East; but neither he nor his successors then subdued the Goths. Totila (541-552), a noble Goth, was overcome in battle of Taginae by the imperial general, Narses (552). His successor, Teias, fought bravely, but was killed in battle (553). From this time the Ostrogoths, broken and dispersed by their misfortunes, disappear from history as a distinct nation.

Visigoths. The famous Alaric, king of the Visigoths, invaded Greece upon the death of Theodosius the Great (395), his retreat being purchased by a commission to govern Illyricum; invaded Italy (402), pillaging Rome in 410. His successor, Athaulf (410-415), withdrew from Italy into southern Gaul, crossing the Pyrenees into Spain about 412. Under Wallia (415-419), their power was extended over a large part of southern Gaul and Spain, and assistance was given to the Romans in their contests against the Vandals and Alani. In the battle against Attila at Châlons, Theodoric I. (419-451), son of the great Alaric, was slain. Eurie (466-483) greatly extended the sovereignty of the Visigoths in both France and Spain; drew up a code of laws and introduced arts of civilization. But under his successors the Franks gained ascendency and under Theudis (531-548) the rule of the Visigoths was confined exclusively to Spain. Here they prevailed until 711, when their power was completely broken by the Saracens.

GRAHAM, JOHN, VISCOUNT DUNDEE, CLAVERHOUSE (1650?-1689). Scottish officer; noted for merciless severity toward the Covenanters in the south of Scotland, whom he defeated at Bothwell Bridge (June, 1679), killing 400 and torturing 1,200; was slain in the battle of Killiecrankie while successfully opposing the army of William and Mary under General MacKay.

GRANADA. (1) In 1319 the Moors at Granada, a city of southern Spain, were attacked by the Spanish army, under the regents Pedro and John of Castile. The Moors bravely defended their city and overpowered the enemy, both regents being slain. (2) On April 26, 1491, a Spanish army, led by Ferdinand, appeared before Granada and besieged it until November 25, when Abdallah, the Moorish king, was obliged to surrender.

GRANICUS. A small river near Troy in Asia Minor. Alexander fought his first battle here against the Persian forces, whom he defeated in 334 B. C.

GRANT, FREDERICK DENT (1850-1912). An American soldier, son of General Ulysses S. Grant; born at St. Louis, Mo. He served under Sheridan against the Indians (1873-1879); resigned from the army (1881); United States minister to Austria under Harrison; police commissioner of New York City (1894-1898). During the Spanish-American War was colonel of the 14th New York Infantry; brigadier general of U. S. Volunteers (1898); served in Porto Rico and the Philippines; commander of the Departments of Texas and of the Lakes (1902-1904), of the East(1904-1908), later of the Lakes; major general U. S. Army (1906).

GRASSE, FRANCOIS JOSEPH PAUL, COUNT DE (1722-1788). A French admiral who commanded the French fleet at the siege of Yorktown during the War of Independence. With a fleet of 29 vessels he landed at Chesapeake Bay (August 30, 1781), blockaded the James and York rivers, and repulsed an attack by the English fleet under Graves. He met an English fleet under Rodney off Santo Domingo (April, 1782), was defeated, and carried prisoner to London. He was charged with incapacity, court-martialed, and exonerated.

GRAVELOTTE (also St. Privat). August 18, 1870. During the Franco-German War the French, under Bazaine, met the German army, under William of Prussia, in a sharply contested battle at Gravelotte, in the province of Lorraine. The French held their own at Gravelotte, but a successful movement of the Germans at St. Privat, a neighboring town, forced the French to abandon all of their positions and retire to Metz, where they were subsequently blockaded.

GRAVES, THOMAS, LORD (about 1725-1802). An English admiral. During the American War of Independence Graves commanded a squadron in a contest with the French fleet under De Grasse (1781).

GREAT BRIDGE (December 9, 1775). Captain Fordyce, with his army of loyalists, were sent by Lord Dunmore to prevent Colonel Woodford reaching Norfolk, Va., and ultimately Suffolk, where the Americans had military supplies. The Americans met the British at the Great Bridge, nine miles from Norfolk, who did their best to check the advance of Woodford, but Captain Fordyce being slain, the British lost courage and fled in confusion. Colonel Woodford, being reinforced, proceeded to Norfolk without difficulty.

GREAT MEADOWS (May 28, 1754). The French and Indian War was precipitated by a skirmish at Great Meadows, in Virginia, when Washington, with a small force of men, fired upon and killed a number of Frenchmen under Jumonville.

GREENE, NATHANAEL, GENERAL (1742-1786). Noted soldier of the American Revolution; born at Patowomut, R. I. Appointed major general (August 9, 1776); served with especial distinction at Trenton,

Princeton, Brandywine, and Germantown. Became quartermaster general (1778). On October 30, 1780, succeeded General Gates as commander of the Army of the South, and succeeded in driving the English forces from all Georgia and the Carolinas except three coast towns. Retired to his Georgia estate (1785) and died there.

GREEN SPRING, or CEDAR SPRING (August 1, 1780). A detachment of British dragoons and riflemen under Captain Dunlap, were sent to capture Colonel Clark, who was working for independence in South Carolina. The armies met at Green Spring, near Spartanburg, and after a sharp engagement the British were defeated and driven back.

GRIDLEY, CHARLES VERNON (1845-1898). An American naval captain; born at Logansport, Ind. Served at Mobile Bay (1864) and in several capacities until in 1897 he was made captain and given command of the Olympia, flagship of the Asiatic Station. He directed his vessel at the battle of Manila Bay (May 1, 1898) so as to receive Dewey's commendation for skill and courage, especially as he was seriously ill while commanding in person. He was granted sick leave immediately, but died at Kobé, Japan, on his way home.

GRIERSON'S RAID (April 17-May 2, 1863). In order to cut the Southern railroad and destroy the Confederate bridges, Col. B. H. Grierson was sent on an expedition from La Grange, Tenn., to Baton Rouge, La. The column started on April 17 and arrived at Baton Rouge May 2, with a loss of only 24 men. During the journey 100 rebels were killed or wounded, 500 taken prisoners, almost 50 miles of railroad and telegraph destroyed, and 1,000 horses and mules taken.

GROCHOW (February 25, 1831). In a bloody contest at Grochow, a town near Praga, in Poland, the Poles, under Prince Michael Radziwill, forced the Russians, under General Diebitsch, to retreat. The former lost about 5,000; the latter about 10,000.

GROSS-GORSCHEN. See LUTZEN.

GROSS-JAGERNDORF (August 30, 1757). A battle at Gross-Jägerndorf, in Silesia, during the Seven Years' War, resulted in the defeat of the Prussians, under Marshal Lehwaldt, by the Russians, under General Apraxine.

GROUCHY (*groo-she'*), **EMMANUEL, MARQUIS DE** (1766-1847). French marshal; fought in Savoy, La Vendée, and under Moreau in Piedmont; prominent in all Napoleon's campaigns. Bourbon restoration caused his banishment and loss of rank; was among the first to offer his services to Napoleon when he returned from exile in Elba, and was made a marshal of France. Ordered to operate against Blücher and the Prussians after their defeat at Ligny, Grouchy refused the entreaties of his generals to leave Wavre and go to the aid of Napoleon at Waterloo: his absence from that famous battle being considered the cause of Napoleon's defeat. Proscribed under the Second Restoration, Grouchy spent four years in Philadelphia, Pa., returning to France in 1819, and was restored to his titles and estates.

GRUNWALD or TANNENBERG (July 15, 1410). After a series of wars for the possession of Poland, the Poles and Lithuanians under Vladislas II. (Jagellon) met and defeated the Teutonic Knights, their armies numbering 100,000 each; 40,000 knights were lost, including officers and the grand master. This battle broke the power of the knights, united Poland and Lithuania, and marked the turning point in Poland's history.

GUADELUPE-HIDALGO, TREATY OF (February 2, 1848). A treaty between the United States and Mexico at the close of the Mexican War. The American negotiator was Nicholas P. Trist of Virginia, chief clerk of the State Department. The treaty was proclaimed July 4, 1848. The Rio Grande was made the boundary for the east; and the Gila and Colorado were so followed in the west as to give New Mexico and Upper California to the United States. The United States agreed to pay $15,000,000, all the claims against Mexico under the conventions of 1839 and 1843, and claims of citizens of the United States against Mexico not to exceed $3,250,000. Under this clause 182 claims were allowed and 70 were rejected.

GUANTANAMO BAY (June 6-16, 1898). During the Spanish-American War, the Americans decided to convert the fortifications along Guantanamo Bay, 35 miles east of Santiago, Cuba, into a naval station. To this end a strict bombardment was begun on June 6. On the 10th a force of marines attacked and repulsed the Spaniards. During the 10 days in which the Americans were there, exposed to the fire of the enemy in ambush, their loss was about 22.

GUELPHS AND GHIBELLINES. Two great political parties which in the latter part of the Middle Ages distracted northern and central Italy with their wars and contentions. "Guelph" is thought to be derived from "Welf," the name of a princely family in Germany, powerful in the twelfth century, when it was a rival of the House of Hohenstaufen by whom the imperial throne was occupied. Henry the Lion, duke of Saxony and Bavaria, the most famous ruler of the House of Guelph, defied Frederick Barbarossa, but was finally deprived of nearly all his possessions (1180-1181). The origin of Ghibelline is uncertain. Traditionally it is believed to be a modification of Waiblingen, the name used as a battle cry under which the first Hohenstaufen emperor (Conrad III.) fought the battle of Weinsberg, when Welf VI., uncle of Henry the Lion, was defeated (1140). The names Ghibellines and Guelphs were used in Italy about the beginning of the thirteenth century. In general, the former upheld the imperial power in Italy, while the latter opposed the emperors. The Guelphs may be called the national party, and were composed of two factions,—the principalities and city republics, which contended for their provincial or municipal rights and privileges, and the Church, which endeavored to assert its independence of the emperors. The great stronghold of the Guelphs was Florence, with whom Bologna and Milan usually sided, while Arezzo, Pisa, and Verona were Ghibelline. Opposite sides were taken by the great Italian families, these sometimes varying in their allegiance, but the nobles of the more northern districts, inclining to the Ghibellines, while those of the central were Guelphs. When German emperors ceased to predominate in Italy, the contest became a mere struggle of rival factions; in 1334 the terms "Guelph" and "Ghibelline" were banned by papal censure.

HAARLEM (December 11, 1572-July 12, 1573). During the War for Independence in the Netherlands, the Spaniards laid siege to Haarlem, a town in Holland. Several assaults were made, but without success, until finally famine made its reduction inevitable. The surrender was followed by a heartless massacre of over 1,000.

HACHETTE (*ah-shet'*), **JEANNE LAINE** (1454-?). French heroine, who, at the age of eighteen, aided in defending Beauvais against Charles the Bold of Burgundy (1472), striking dead with a hatchet the standard bearer of the assaulting army, which so disheartened the assailants that they withdrew.

HAGUE PEACE CONFERENCES. (1) Nicholas II., czar of Russia, was the initiator of the First International Peace Conference designed to secure disarmament. The sessions were held at The Hague by invitation of Queen Wilhelmina, May 18 to July 29, 1899. One hundred delegates, representing 20 European, 4 Asiatic, and 2 American powers (Mexico and the United States) attended. Baron de Staal of the Russian delegation presided. Three great conventions, 3 declarations, and 6 resolutions were accepted. Arbitration, the keynote of the first great convention, established, first, the right of nations to offer mediation; second, a commission of inquiry to discover the facts of difference; third, the Permanent Court of International Arbitration, consisting of 4 members for each power, serving 6 years, to settle disputes between nations. The second convention adapted the Red Cross to maritime warfare; the third comprised a code of laws and customs of land warfare, including these prohibitions: explosives dropped from balloons (five years from date); projectiles diffusing suffocating or injurious gases (not accepted by United States and Great Britain); use of bullets which expand or flatten in the human body. (2) The second meeting was in session June 15 to October 18, 1907, with 256 members, representing 44 powers,—21 European, 4 Asiatic, and 19 American governments. Thirteen conventions, 1 declaration, and 7 resolutions were adopted; a Court of Arbitral Justice to consist of 15 judges living at The Hague was proposed, and an International Prize Court established. The topics discussed included declaration of war, rights of neutrals, naval warfare, private property at sea, forcible collection of debts, and disarmament. The corner stone of the "Palace of Peace," presented to the nations by Andrew Carnegie, was laid by this conference.

HAITI. Columbus discovered the island of Haiti in 1492, and four years later Bartholomew Columbus founded Santo Domingo, the first European town in the New World. The relentless taskmasters quickly exterminated the natives, and imported negroes from Africa to take their places as laborers, who soon formed by far the greater part of the mainland, but in the seventeenth century a colony of French buccaneers were

allowed to make their headquarters at the western end of the island, resulting in the ceding of that part to France by the Treaty of Ryswick (1697). There grew up a prosperous and wealthy French colony who would not allow civil rights to any portion of the colored population, which, encouraged by the reception given their appeals by the people of France, rose against their oppressors during the French Revolution, when there was much dissension among the white population. This insurrection broke out in 1791, and was notable for its bloody excesses. The freedom of the blacks was proclaimed in 1793 by the commissioners of the French Convention. The British invaded the island at this time but were expelled in 1798 by the blacks under Toussaint L'Ouverture. The eastern part of the island had three years previously been ceded by Spain to France, and this was now included by Toussaint, who within his sphere of authority reigned as dictator in practical independence until 1801, when a force under General Leclerc having been sent by Napoleon to subdue the island, Toussaint was captured and deported to France, where he died in prison, 1803. Other leaders filled his place, and in December, 1803, the French were finally expelled. Dessalines, the victorious general, declared Haiti independent and in 1804 assumed the title of emperor; but was assassinated in 1806. Christophe, a negro, then held for some years the northern part of Haiti, assuming the royal title in 1811; while to the south a mulatto republic was established by Petion. Christophe died in 1820, when Boyer, the successor of Petion, seized the power and then conquered the eastern part of the island, which Spain had reoccupied, but which had revolted and formed a republic. Until his overthrow in 1843, Boyer ruled the whole island (as president) with firmness and wisdom. In 1825 France recognized the independence of Haiti. In the east, the Republic of Santo Domingo was formed in 1844, while in the west strife for political ascendency between the blacks and mulattoes lasted many years. The negro president, Soulouque, in 1849 proclaimed himself emperor as Faustin I., and during his ten years of despotic rule more than once attempted to annex to his dominions the Republic of Santo Domingo. Early in 1859 the Republic was restored by the mulatto Geffrard, who retained control until 1867. Civil war raged in 1888-1889 between the generals Legitime and Hippolite, rival candidates for the presidency. The latter was victorious and, until his death in 1896, ruled with unlimited authority. His successor, Gen. Simon Sam, was president until forced to resign in May, 1902. Then followed civil war between Boisrond-Canal, head of the Provisional Government, and M. Firmin, Haitian Ambassador at Paris. The latter established a rival government at Gonaives, in the northern part of the island, but was overcome in October, 1902, and in December the army proclaimed General Nord president.

HALE, NATHAN (1755-1776). Revolutionary patriot; born at Coventry, Conn.; lieutenant (1775); captain (1776). In September, 1776, he entered the English lines at Long Island and New York, disguised as a Dutch school teacher, was detected and hanged as a spy. His last words were: "I only regret that I have but one life to lose for my country."

HALLECK, HENRY WAGER (1815-1872). Commander-in-chief of United States army (1862-1864); born in Westernville, N. Y.; graduated from West Point (1839); served during Mexican War; held various administrative offices in California; resigned from army (August 1, 1854), and practised law in San Francisco; re-entered army (August 19, 1861), as major general; commanded Department of Missouri, embracing Missouri, Iowa, Minnesota, Illinois, Arkansas, and western Kentucky, stopping contractors' peculations, training disorganized troops, dismissing "placemen," bringing order out of chaos (1861-1862); general in chief of the armies of the United States (1862-1864); chief of staff general army (1864-1865); successively commanded military divisions of the James, the Pacific, and the South until his death. His book, "Elements of Military Art and Science," was much used in Civil War as a manual for volunteer officers.

HAMPDEN, JOHN (1594-1643). English statesman and patriot. Resisted the court, both outside and inside Parliament; suffered persecution and imprisonment; mortally wounded at Chalgrove Field.

HAMPTON ROADS (March 8, 9, 1862). The naval battles which occurred in Hampton Roads are among the most famous in history, as they mark the change from the old to the new method of naval warfare. Upon the occupation of the Norfolk Navy Yard by the Confederates the Merrimac was reconstructed with ironclad sloping sides, and fitted with powerful guns. On March 8, 1862, as she descended the Elizabeth river commanded by Franklin Buchanan, her advance was opposed by the sloop Cumberland. In answer to the firing from the Cumberland, the Merrimac rushed headlong at her, ramming her prow and conducting a deadly fire at the same time. The Cumberland immediately sank with the entire crew. The Congress was her next victim, and after this victory the Merrimac withdrew. The following morning the Minnesota was sighted, grounded on a bar, and the Merrimac at once advanced but was confronted by the Monitor. After a sharp engagement the Merrimac was obliged to withdraw, pursued by the Monitor.

HAMPTON, WADE (1818-1902). American soldier and politician, born at Columbia, S. C. Although opposed to secession, he entered the Confederate army, raising and equipping a force called "Hampton's Legion"; served with distinction throughout the war; made lieutenant general in command of all Lee's cavalry (Aug., 1864). Governor of South Carolina (1877-1879); United States Senator (1879-1891); United States commissioner of railroads (1893-1897).

HANCOCK, WINFIELD SCOTT (1824-1886). American general; born in Montgomery Co., Pa.; graduated from West Point (1844); served in the Mexican War (1847); in Department of the West as quartermaster and assistant adjutant general (1848-1855); captain (1855); served in border troubles; chief quartermaster on Pacific coast (1859-1861); brigadier general of volunteers (1861) in the Army of the Potomac; in action at Williamsburg, Antietam, Fredericksburg, Chancellorsville, Gettysburg, where he repulsed the famous charge of Pickett and Pettigrew; in the Wilderness and at Petersburg; major general of volunteers (1862); brigadier general of regular army (1864); major general (1866); in command from 1866 to 1880 in Missouri, Dakota, and of the military division of the Atlantic; Democratic nominee for president (1880), but was defeated; one of the greatest of the Federal generals.

HANGING ROCK (August 6, 1780). After a battle of four hours, a large detachment of British and Tories were defeated by General Sumter, at Hanging Rock, on the Catawba river, in South Carolina.

HANNIBAL (247-183 B.C.). Famous Carthaginian general, son of Hamilcar Barca. At 26 he was the commander-in-chief of the Carthaginian army and fought during the Second Punic War. He undertook the subjugation of Spain, and during the progress besieged a Roman town, Saguntum, for 8 months. The refusal of the Carthaginians to give up Hannibal to the Romans brought on the Second Punic War. He crossed the Pyrenees and later the Alps and descended upon Rome from the north. The passage took 15 days in the face of great difficulties. He rested his 26,000 troops, then routed the Romans under Scipio, near the Ticinus, and again at the Trebia (218 B.C.); conquered Flaminius at Lake Trasimenus (217 B.C.); almost annihilated a Roman army under Varro at Cannæ (216 B.C.); was 15 years in Italy; recalled home to defend Carthage against Scipio; was defeated and fled after the battle of Zama; committed suicide (183 B.C.).

HANOVER COURT HOUSE (May 27, 1862). During the Civil War in the United States, a battle was fought at Hanover Court House, 17 miles north of Richmond, Va., between the Federals led by General Porter and the Confederates commanded by General Branch. Although the Federals were outnumbered they defeated their opponents.

HANSEATIC LEAGUE. A union of some of the towns in North Germany made for common defense and protection in the thirteenth century. It was begun by Lübeck uniting with Hamburg in 1241 and 1255; in 1259 with Rostock and Wismar against pirates; and in 1284-1285 by the union of Lübeck, Wismar, Rostock, Stralsund, and Greifswald against Denmark. The entire league at one time included eighty-five towns and was ostensibly formed for the protection of commerce, and was for many years the undisputed mistress of the Baltic Sea and the German Ocean. It declined rapidly in the fifteenth century.

HARDEE, WILLIAM JOSEPH (1815-1873). A prominent Confederate soldier; born in Savannah, Ga. Fought through the Atlantic campaign. After the war he became a planter at Selma, Ark.

HARLEM HEIGHTS (September 16, 1776). Small divisions of the British army which occupied New York City, attacked the Americans at Harlem Heights, near New York City, and although both American leaders were killed in the skirmish, the British were defeated.

HARMONY, DAVID BUTTZ (1832-1917). Rear admiral (retired) United States navy; born at Easton, Pa.; served during Civil War; chief of bureau of yards and docks (1885-1889); chairman lighthouse board

(1889-1891); rear admiral (March 26, 1889); commander-in-chief of Asiatic station (1892-1893); retired (June 26, 1893).

HARPER'S FERRY (September 15, 1862). On September 12, a detachment of Lee's army under Jackson crossed the Potomac at Williamsport, Md., and started south toward Harper's Ferry. The fortifications on Loudon and Maryland Heights were easily taken, and on September 15, after a brief bombardment, Colonel Miles surrendered Harper's Ferry with 11,583 men, 73 guns, 13,000 small arms, 200 wagons, and a large quantity of supplies.

HARRISBURG. Capital of Pennsylvania, on Susquehanna river. John Harris opened trading post (1726); town laid out (1785); incorporated as Harrisburg (1791); capital of state (1812); chartered as city (1860); Harrisburg Convention (1828) led to passage of high protective tariff bill of that year.

HARTFORD. Port of entry and capital of Connecticut. At head of navigation for large vessels on Connecticut river; 50 miles from Long Island Sound. The fort named "House of Hope," built by Dutch (1633), practically first settlement. Because of sectarian dispute, Newtown, Mass., colonists migrated and settled Newtown around the fort (1635) under Pastors Stone and Hooker. Name changed to Hartford after Hertford in England, the birthplace of Stone (1638); free men of Windsor, Hartford, and Wethersfield adopted famous "Fundamental Orders of Connecticut," the first written constitution adopted by a people organizing a government (1639); for which Hartford is frequently termed "Birthplace of American Democracy." Fort seized and Dutch expelled from Connecticut (1654); Hartford Convention met (1814-1815); capital of state until 1701, when honor was shared with New Haven; since 1875 sole capital. It was made a port of entry in 1887.

HASDRUBAL (-207 B. C.). Punic general; brother of Hannibal. Fought for years against the two Scipios, on the whole successfully; killed on the banks of the Metaurus.

HASTINGS. Decisive battle of the world (1066) in which William the Norman defeated Harold the Saxon; founding the great Anglo-Norman dynasty from which arose the British Empire. William claimed that the crown had been promised to him by Edward the Confessor; he tricked Harold into an oath to support him; Harold broke the oath and became king. The Normans were greatly in advance of the Saxons in war, economics, and architecture; the discipline of their fighting men was superb; that of the Saxons very poor. Both were equally brave. The vast Norman host landed; defeated the Saxons at Hastings in Sussex; bringing into England the virile Norman blood and Norman civilization. William erected Battle Abbey, where King Harold fell.

HAVELOCK, SIR HENRY (1795-1857). English soldier; born at Bishop-Wearmouth, Durham. Served with distinction in Afghan and Sikh wars; invaded Persia. Upon outbreak of the Indian Mutiny (1857), hastened from Allahabad to relief of Cawnpore, arriving there too late to prevent a massacre. Pushing on to Lucknow, after numerous victories the Residency of that city was gained, Sept. 25, 1857; but Havelock was in turn besieged, holding his own until rescued by Sir Colin Campbell, Nov. 19, 1857. Five days later General Havelock died; but in England, before news of his death reached there, he was made a K. C. B. and a baronet. The rank and pension were given to his widow.

HAW (February 25, 1781). A force of Americans under Lee and Pickens completely surprised Colonel Pyle and a band of Loyalists near the Haw, in Orange County, Va. A few escaped but most were killed or wounded. The Americans did not lose a man.

HAWKE, EDWARD, LORD (1705-1781). English admiral; born in London; fought successfully against the French, becoming famous for his victory over Marshal Conflans in Quiberon Bay (1759). Created K. C. B. in 1747; appointed vice admiral of Great Britain and first lord of the admiralty, 1765; raised to the peerage, 1776.

HAWKINS, SIR JOHN (1532-1595). English naval commander; born at Plymouth; made several voyages to the West Indies; first Englishman to engage in the slave traffic (1562); member of Parliament (1572); treasurer and comptroller of the Royal navy; took part as rear admiral in defeat of Spanish Armada (1588), winning knighthood for his bravery; with Drake, was a founder of the fund for disabled seamen known as "the chest at Chatham"; erected "Sir John Hawkyns Hospital" at Chatham. 1592.

HAWLEY, JOHN MITCHELL (1846-). Rear admiral (retired) United States navy; born at Northampton, Mass.; graduated United States Naval Academy (1868); for services during Samoan hurricane (1889) while executive officer of Nipsic, received thanks of state of Massachusetts; first officer to establish recruiting stations in the West; during war with Spain had charge of all recruiting stations in the West and Southwest, and enlisted about 1,900 men. Received (1898), from Illinois naval militia, a jeweled sword; inspector 5th lighthouse district at Baltimore (1902-1904); commander-in-chief of South Atlantic squadron (November, 1904-January, 1905); rear admiral and retired (July, 1907).

HAY-PAUNCEFOTE TREATY (1901). Between United States and Great Britain, represented by John Hay and Lord Pauncefote, respectively; signed Nov. 18, ratified by U. S. Senate Dec. 16, 1901. Abrogated the Clayton-Bulwer Treaty; assured to United States sole control of an Isthmian canal and sole right of maintaining its neutrality; the United States to adopt practically the same rules regarding equal rights of all nations in navigation of the canal as those governing navigation of Suez canal; no change in sovereignty of territory traversed by canal to alter principle of neutrality nor equal rights of all nations to enjoy benefits of the canal.

HEBERT (*a-bair'*), **JACQUES RENE** (1755-1794). Politician and journalist of the French Revolution; born at Alençon; famous as the editor of *Le Père Duchesne* (1790-1794), a rabid revolutionary journal. As a member of the Revolutionary Commune, approved September massacres of 1792. Substitute procureur for the Commune, Dec., 1792, by whom he was presented with a civic crown. Insulted Marie Antoinette at her trial. Denounced Robespierre (1794), who caused his arrest and execution.

HELENA (July 4, 1863). While Grant was besieging Vicksburg, Miss., he recalled the troops from Helena, Ark., but left 3,800 men under Gen. B. M. Prentiss to hold the place. On July 4 the Federals were surprised by 8,000 Confederates under Sterling Price and T. H. Holmes, and the latter were defeated with a loss of 2,111. Two other assaults were also made but were repulsed with heavy losses to the Confederates.

HELMET. A covering used to protect the head in warfare, made wholly or in part from metal. In use from the earliest times, in many different forms. The simplest, that in the shape of a close fitting skullcap, is represented on the Assyrian monuments. A neck protection was sometimes provided. Elaborate helmets were worn by Greeks of the Homeric age. Bell-shaped helmets, sometimes with wing-like projections, were worn by the Etruscans. Under the later empire the Greek style of helmet was worn by the Romans, before which a plain skullcap, strengthened by cross-bands of iron, with a neck guard, was used. A skullcap with the figure of a boar on top was apparently used by the Anglo-Saxons. The Franks had no protection for the head. Conical helmets, with a straight piece descending in front to protect the nose, are shown in the Bayeux tapestry. Those in vogue from the twelfth century to the fourteenth century were cylindrical in form, covering the head and a part of the neck, with round openings through which to see and breathe. Being very heavy, they were not put on until the moment of conflict, and only when the knights fought on horseback. In the fourteenth century they were largely discarded by western knights for the lighter bascinet. The Saracens at the time of the crusades wore light globular iron helmets, richly ornamented and adorned with plumes. Helmets naturally lost their utility when firearms became generally employed, those still in use being really more ornamental than of practical benefit. Continental heraldry shows a great variety of helmets. The forms used in English heraldry are as follows:—

I. Helmet of the king and princes of royal blood; full-faced, composed of gold, the visor divided by six projecting bars.
II. Helmet of a duke or marquis; steel, with five gold bars.
III. Helmet of earls, viscounts, and barons; set in profile, silver adorned with gold, having five bars.
IV. Helmet of knights and baronets; full-faced, visor thrown back without bars, steel.
V. Helmet of esquires; profile, steel, visor closed. No woman save the sovereign may have a helmet placed over her coat of arms.

HELVETII. A Celtic people who probably occupied the region now the western part of Switzerland. The first mention of them is of their defeat of a Roman army, 107 B. C. They accompanied the Cimbri on

their invasion of North Italy in 101 B. C. But their attempted irruption into Gaul, repulsed by Caesar, is the great event of their history. This occurred at Bibracte (modern Mont-Bewray, in Burgundy), the remnant returning to their country and becoming subject to the Romans. The Helvetii suffered another catastrophe in the commotions following the death of Nero. Having remained faithful to Galba, Caecina, a general of Vitellius, attacked them, giving them over to the rapacity of his legions. As a distinct people they scarcely afterwards appear.

HEMPHILL, JOSEPH NEWTON (1847-). Rear admiral United States navy; born at Ripley, O.; graduated United States Naval Academy (1866). Served on different duties and stations; during Philippine outbreak was present at Manila, and at Venezuela during Andrade-Castro revolution; chief of staff of North Atlantic fleet (1902-1903); captain New York Navy Yard (1904-1906); president of board of inspection and survey (1906-1907); commanding Philippine squadron (May, 1907).

HERCULANEUM. Ancient city of Italy, at the northwestern base of Mt. Vesuvius. Founded by Oscans, but apparently a foothold was gained by the Etruscans. With the rest of Campania, it was conquered by the Samnites, later falling into the hands of the Romans. A violent earthquake seriously injured the city in 63, and, with Pompeii and Stabiae, it was buried in 79 by the memorable eruption of Vesuvius. Owing to later eruptions, it now lies at a depth of from 30 to 120 feet below the surface. The two large villages of Portici and Resina are above it, on the modern surface, rendering excavation rather difficult. The value and interest of the art relics of Herculaneum far exceed those found at Pompeii, and have been conveyed to the museum at Naples.

HERKIMER, NICHOLAS (1715-1777). An American soldier. Served as lieutenant of militia in the French and Indian War; was in command of Fort Herkimer when the French attack on German Flats was made (1758); appointed a colonel of militia (1775); in 1776 became brigadier general of the New York militia. His most noted feat was the relief of Fort Stanwix when besieged by Colonel St. Leger after Ticonderoga had fallen into the hands of Burgoyne's army (1777); later served in the indecisive battle of Oriskany, where he was mortally wounded. A monument was erected to his memory in 1884 on the field of Oriskany.

HESSIANS. Soldiers of the Landgrave of Hesse and other petty German states hired by Great Britain to fight against the Americans in the Revolutionary War.

HIGGINSON, FRANCIS JOHN (1843-). Rear admiral (retired) United States navy; born at Boston; graduated United States Naval Academy (1861); served during Civil War; commanded naval rendezvous, Boston (1874-1875); lighthouse inspector, 5th district (1880-1882); captain of yard, Mare Island Navy Yard (1894-1895); New York Navy Yard (1896-1897); during Spanish War commanded the Massachusetts and for "eminent and conspicuous conduct in battle" during that war was advanced three numbers in rank; chairman of lighthouse board (1898-1901); rear admiral (March 3, 1899); commander-in-chief of North Atlantic fleet (1901-1903); commandant navy yard, Washington (1903-1905); retired (July 19, 1905).

HILLABEE TOWNS (November 18, 1813). Hearing that Bill Scott, who commanded the Indians at Talladega, was among the Hillabees, in Alabama, General Cocke ordered General White to march against them. White did not know that the Hillabee tribes were friendly, and with his men entered the Indian villages and razed them to the ground. At one place 60 warriors were slain, and over 200 taken as prisoners to Fort Armstrong.

HOBKIRK'S HILL (April 25, 1781). The Americans under Greene were defeated at Hobkirk's Hill, near Camden, S. C., by an English and Tory force under Lord Rawdon. Also known as the second battle of Camden.

HOBSON, RICHMOND PEARSON (1870-). American naval constructor; born in Greensboro, Ala. In the war with Spain he sank the collier Merrimac across the entrance to Santiago Harbor (June 3, 1898) to "bottle up" Cervera's fleet. Raised and refitted many of the Spanish war ships; naval constructor (1898); captain (1901); resigned (1903). In 1906 he was elected to Congress from Alabama.

HOCHKIRCHEN (October 14, 1758). The Austrians, led by Count Daun, took the Prussian camp at Hochkirchen, in Saxony, by surprise, and seized the artillery. The Prussians, under Frederick the Great, hastily retreated toward Bautzen, with a loss of 9,000 men, besides much of their equipment.

HOCHST (June 20, 1622). The Imperialists, under Tilly, overtook the Palatinate troops, under Christian of Brunswick, at Hochst, a town near Frankfort, in Germany, and completely routed them.

HOCHSTADT. The French, led by Moreau, defeated the Austrians at Hochstädt, in Bavaria, June 19, 1800. See also BLENHEIM.

HOFER, ANDREAS (1767-1810). A patriot leader of Tyrol. Born at Sankt Leonhard, in the valley of Passeier, Nov. 22, 1767; commanded a body of sharpshooters against the French on Lake Garda (1796); in 1805 opposed Ney in the valley of Passeier and after the ceding of Tyrol to France, by the Peace of Pressburg, was chosen as one of the secret envoys to Vienna, sent to represent to the archduke John the sufferings of the people and their desire to be reunited with Austria. This proved of no avail and Tyrol was made part of Bavaria. The Tyrolese then revolted, with Hofer as their leader, the Bavarians being defeated in every battle and forced to evacuate the Tyrol. The Treaty of Vienna resulted in another invasion by the French and Bavarians, and Hofer was forced to flee to the mountains. January 28, 1810, he was betrayed to the French, taken to Mantua, given a summary trial, and by order of Napoleon was sentenced to be shot.

HOHENFRIEDBERG (June 4, 1745). During the War of the Austrian Succession, the Saxons were attacked and defeated by Frederick the Great at Hohenfriedberg, in Silesia. The Prussians then turned upon the Austrians, coming to the assistance of the Saxons, and routed them.

HOHENLINDEN (December 3, 1800). At Hohenlinden, a village of Bavaria, the Austrians, led by Archduke John, were defeated by Moreau, commanding the French and Bavarians.

HOLLY SPRINGS. On December 20, 1862, after the departure of Grant, a Confederate force under Van Dorn dashed into Holly Springs, compelled the garrison to surrender, and captured an immense quantity of Grant's supplies.

HOLY ALLIANCE, THE. League formed, after the fall of Napoleon, by the sovereigns of Russia, Prussia, and Austria. The participants in the alliance were "to take for their sole guide the precepts of that Holy Religion, namely the precepts of Justice, Christian Charity, and Peace." The text of the alliance was worked up by Alexander I. of Russia, and was signed at Paris, September 26, 1815. All the governments of Europe except England, which had declined, and Rome, which had not been invited, subsequently joined the alliance, though it is questionable if any of the participants in the treaty except Alexander took it seriously. Some of the articles of the document were: (1) That the contracting monarchs were to aid one another in the protection of religion, peace, and justice. (2) That the Christian religion was to regulate the relations between the contracting governments, and between subjects of these governments. (3) That any power choosing to accept the principles of the covenant should have the right of admission to the alliance. The most noteworthy result of this union was the Monroe Doctrine brought about by the attempt of the alliance to extend its influence into the New World. Aside from this it accomplished little, and after the death of Alexander (1825) the alliance gradually lost authority until, in 1854, the war of Russia against France, England, and Turkey brought about its complete dissolution.

HOOD, JOHN BELL (1831-1879). American Confederate soldier; born at Owingsville, Ky. Led a division at Gettysburg, Chickamauga, and took part, rather unsuccessfully, in several battles against Sherman. His continued failure caused him to be relieved of his command (1865).

HORNET—PEACOCK (February 24, 1813). Lawrence, in command of the Hornet, fought a naval battle in West Indian waters with the English boat Peacock commanded by Peake. The Peacock was completely defeated and destroyed, sinking before all her survivors could be saved.

HORNET—PENGUIN (March 23, 1815). While coasting along the Cape of Good Hope, the United States sloop-of-war Hornet encountered the British brig Penguin, and after a short battle the latter was captured and sunk. The British frigate Cornwallis sighted the Hornet soon after this engagement, and the Hornet's crew were obliged to throw the guns and stores overboard to avoid capture.

HORSESHOE BEND (March 27, 1814). The greatest blow to the Creek tribes was their defeat at Horseshoe Bend, in Alabama. General Jackson led the whites, 2,000 strong, including Indian allies, and in a short time the Creeks were surrounded. The battle raged until evening, when the Indians with Weathersford, their chief, surrendered.

HOWE, SIR WILLIAM (1729-1814). British soldier in the American War of Independence; led the British at Bunker Hill; succeeded General Gage (1775); led at Long Island (August 27, 1776), White Plains (October 28, 1776); captured Forts Washington and Lee; fought Brandywine (September 11, 1777), and occupied Philadelphia. Resigned and was succeeded by Sir Henry Clinton.

HOWELL, JOHN ADAMS (1840-1918). Rear admiral (retired) United States navy; inventor of a fly wheel torpedo, disappearing gun carriage, and an amphibious vehicle now under trial; originated gyroscopic steering torpedoes, etc. Born at Bath, N. Y.; graduated United States Naval Academy (1858); served in Civil War; president of steel board (1891-1894); commandant navy yard, Washington (1893-1896), League Island Navy Yard (1896-1898); commander-in-chief of European squadron (February-April, 1898); commanded northern patrol squadron (April-October, 1898); rear admiral (August 10, 1898); president of naval examining and retiring boards (1898-1902); retired (March 16, 1902).

HOWISON, HENRY LYCURGUS (1837-1914). Rear admiral (retired) United States navy; born at Washington; graduated United States Naval Academy (1858); present at many important engagements during Civil War; commanded Pacific squadron (1886); president of steel inspection board (1888-1890); commandant Mare Island Navy Yard, Cal. (1893-1896), navy yard, Boston (1897-1899); rear admiral (September 30, 1898); commander-in-chief of South Atlantic station until retirement (October 10, 1899).

HUBBARDTON (July 7, 1777). When General Burgoyne, with an army of 7,500 men, marched south from Quebec to recapture the points which the Americans had taken, he found that they had already been obliged to abandon many places on account of inadequate forces. At his approach, the garrisons at Crown Point and Ticonderoga retreated. St. Clair and the small force of Americans who had occupied Ticonderoga, fled toward Skenesborough (Whitehall, N. Y.), pursued by the British. At Hubbardton, Vt., the two armies met, and after an obstinate battle the Americans fled. The capture of Ticonderoga by the British was an important step in their plan to gain New York.

HUDSON, HENRY (? -1611). Date of birth and early life unknown. First heard of (1607) as commander of the Hopeful in quest of northeast passage to the Spice Islands, in which he touched coasts of Greenland, Spitzbergen, and went as far north as 80° 23′ before returning to England. In another voyage reached Nova Zembla and for Dutch East India Company sailed (1609) in the Good Hope and the Half Moon to try for the Northeast passage. Discovered Sandy Hook and explored Hudson river as high as Albany. Sought the northwest passage (1610), reaching the strait now bearing his name; passed into Hudson Bay; crew mutinied at privations (1611); bound Hudson, throwing him into a small boat with his son and seven faithful men, none of the party being heard of again.

HUNDRED DAYS (March 20 to June 22, 1815). The period of Napoleon's second reign as French emperor, lasting from his entry into Paris from Elba until the resumption of power by Louis XVIII. Napoleon's abdication followed quickly upon the defeat at Waterloo (June 15, 1815).

HUNDRED YEARS' WAR. The long series of wars waged between England and France from 1337 to 1453. While there was not continuous war, there was not lasting peace. The chief events were: Crécy (1346), Poitiers (1356), Agincourt (1415), and the raising of the siege of Orleans by Joan of Arc (1429). Continuous attempts to gain French crown and territory.

HUNKER, JOHN JACOB (1844-1916). Rear admiral (retired) United States navy; born at Pittsburg; graduated United States Naval Academy (1866); during war with Spain, organized and commanded transport fleet and convoys assembled (June, 1898) at Tampa, Fla., to carry Shafter's army to Santiago, Cuba; commanded expedition which captured Nipe Bay, Cuba (July 21, 1898); rear admiral (June 6, 1906).

HUNS. An ancient nation (or collection of tribes) of Turko-Tatar affinities, who repeatedly invaded the Roman dominions, bringing the empires of both the East and the West to the verge of destruction. They overran the Chinese Empire about 200 B. C., but during the reign of Wu-ti (141-87 B. C.) their power was much broken. Ultimately they separated into two distinct camps, one of about 50,000 families going southward, the other attempting to retain its original place, but the most warlike finally going west and northwest. For a while a large number were established on the bank of the Volga; then, probably early in the fourth century, overcame the Alani, a people dwelling between the Volga and the Don. Their next victory was over the Ostrogoths, whom they completely subdued and held in servitude. The Visigoths, to escape the fate of their brethren, appealed to the emperor Valens (376) for permission to settle south of the Danube, as auxiliaries of the Romans. During the period of the early migrations the Huns were extending their power over the neighboring German tribes, without attempting any attack on the Roman Empire. But so much did they increase in power that in the reign of Theodosius the Younger their sovereign, Rugilas, or Roas, was paid an annual tribute to secure the Empire of the East from further injury. Rugilas died about 434 and was succeeded by his nephews, Attila and Bleda, the latter being put to death by his brother about 444. Attila, the most renowned leader of the Huns, carried his arms as far as Gaul, where he was successfully encountered by the Romans and Visigoths. The next year Attila ravaged Italy, Rome itself being saved, it is said, only by the awe inspired in the barbarian conqueror by Leo. I., its bishop. The power of the Huns was broken with Attila's death, about 453. Many joined the Roman armies, others aided fresh hordes of invaders from the east and north in their attacks upon the empire, and gradually the race was absorbed.

HUNYADY, JANOS (about 1387-1456). The national hero of Hungary. To him more than to any one man Europe owes it that the Turks did not extend their conquests. He was defeated at Varna (1444) and again at Kossovo (1448); defended Belgrade heroically (1456).

HUTCHINS, CHARLES THOMAS (1844-1920). Rear admiral (retired) United States navy; born at Kingston, Pa.; graduated United States Naval Academy (1866); served on sailing-ship Relief on voyage to France with supplies for starving French (1871); watch officer and navigator, flagship Lancaster, European station, at bombardment of Alexandria, Egypt, and commanded fleet which landed a party on shore for five days; personally thanked by king of Sweden and Norway; present at coronation of the czar at Kronstadt (1884); commanded U. S. S. Buffalo, carrying recruits to China and training landsmen (1900-1902); commanding new U. S. battleship Maine (1904-1905). Retired (1905).

HYKSOS. A dynasty of Egyptian kings, known also as the Shepherd Kings. Of their origin nothing positive is known, the only certainty being that before conquering Egypt they had founded an empire in Syria. The date of their conquest of Egypt is very doubtful,—perhaps 2100 B. C. A strong fortress on the northeastern frontier of the delta in the Sethroite nome, called Avaris (Egyptian, Hatwaret), was built and strongly garrisoned by the Hyksos, to maintain the connection between the Syrian and Egyptian provinces. The conquerors readily adapted themselves to Egyptian ways, the kings assuming Egyptian names and probably leaving the old administration untouched. There were apparently six kings of this dynasty, who resided in Memphis, Avaris, and perhaps Heliopolis, the Delta being under their direct administration, while the country above Memphis was left to tributary princes of the old nobility, a proceeding which was fatal to their dominion. One of the three princes of Thebes named Sqenen-re started a revolt which lasted many years, extending through the reigns of two short-lived Theban princes (Kames and Snekhten-re). In the war of independence the princes of the nomes north of Thebes apparently did not join the national cause, and were annihilated. The Pharaohs of the foreign dynasty seem to have been almost completely expelled when Amasis I. (Ahmose, 1684 B. C.) ascended the throne, but in their last stronghold, Avaris, they had sustained a long siege. In the third or fourth year of Amasis Ahmose Avaris fell and the surviving inhabitants were distributed as slaves.

IBERVILLE (*e-bayr-veel'*), **PIERRE LE MOYNE SIEUR D'** (1661-1706). A French Canadian soldier, explorer, and founder of Louisiana. One of the ten famous sons of Charles le Moyne of Montreal. Participated in the expedition for the destruction of Schenectady (1690); captured and demolished the

stone fort at Pemaquid, built to protect New England (1696); destroyed St. John's, Newfoundland, also all British settlements on the island. Sailed from France (1699) to the gulf of Mexico, in quest of the mouth of the Mississippi, which, being successful, built Fort Biloxi, and later Mobile. He died in France.

ICARIANS. A communistic society founded by Cabet. In 1847 Cabet acquired some land in Texas and in 1848 sixty-nine persons set out for the colony but were unable to stand the climate. After a few months they returned to New Orleans, where they were joined by Cabet and 400 others. In 1849 Cabet and 300 followers went to Nauvoo, Ill., and founded a colony on land deserted by the Mormons. In 1856, in consequence of dissensions, Cabet and those who sided with him were expelled. In 1860, through financial distress, Nauvoo was abandoned and a new settlement was founded in Iowa. After some years of prosperity the society split into two factions in 1880. Some of the Iowa community founded the Icaria Speranza on a business basis in California. In 1895 the Iowa community was dissolved.

ILOILO (February 11, 1899). With a small force of Americans General Miller was sent to take possession of Iloilo, an important seaport on the island of Panay, in the Philippines. When the city was reached, however, the Spanish general had already surrendered to the insurgents, but the place was taken without difficulty by General Miller.

IMPERIAL FEDERATION. A plan to unite Great Britain, Ireland, and the colonies more firmly and intimately. The league was formed in 1884.

INCAS. Aboriginal Indians of Peru, possessed of a high degree of civilization. The government was very despotic, extending "not only to the visible acts, but to the private conduct, the words, the very thoughts" of the subjects, who were "not allowed to be happy or miserable in any way but that established by law." Under the reign of Huayna Capac, at the period of the discovery of Columbus, the Inca empire attained its greatest power and extension. After his death a long and desolating war of succession ensued between his two sons, Huascar and Atahualpa. The latter had been successful and was on his way to Cuzco, the capital of the empire, when he was met by Pizarro, the Spanish conqueror. Atahualpa, desiring peace, made a friendly visit to Pizarro, was taken prisoner and his people massacred. The inca offered a very large ransom, to be paid in two months. After the partition of this treasure, Atahualpa was murdered, by order of Pizarro, in the square of Cajamarca, Aug. 29, 1533. In 1536 the nominally reigning inca, Manco, escaped from his Spanish masters and organized a revolt, but was finally defeated.

INDIAN CREEK MASSACRE. In May, 1832, the inhabitants of Indian Creek, in Illinois, were surprised by a party of Indians, and 15 persons massacred.

INDIAN WAR, KING PHILIP'S. Between the colonists and the Wampanoags of Rhode Island (1675), Philip, son of Massasoit, acting as chief. After two years' desperate fighting, and with great loss on both sides Philip, with his wife and son, were captured. Shortly after he was killed at his home at Mt. Hope, near Bristol, R. I. Many of the Indian prisoners were sold as slaves to South America and the West Indies, among them Philip's wife and son. With the death of Philip, the Indians became discouraged, and southern New England never again stood in fear of these once powerful tribes.

INGERSOLL, ROYAL RODNEY (1847-). Rear admiral United States navy; member (1908) of general board, Washington, D. C.; born at Niles, Michigan; graduated United States Naval Academy (1868); served as naval officer in all parts of the world; during war with Spain commanded U. S. S. Supply; author of "Text-Book of Ordnance and Gunnery," "Elastic Strength of Guns," "Exterior Ballistics."

INKERMAN (November 5, 1854). The Russians, 50,000 strong, attacked Inkerman, a seaport of the Crimea held by about 8,000 British troops. The besiegers were kept at bay until French reinforcements relieved the British, when the Russians retreated with a loss of about 9,000 men.

IONIANS. A people who migrated from southern Greece to Asia Minor, probably in the eleventh and tenth centuries B. C. Twelve important cities, in historical times, claimed to be Colophon, Ephesus, Erythrae, Lebedus, Miletus, Myus, Phocaea, Priene, Samos, Teos, Clazomenae, Chios, afterwards Smyrna (of Aeolic origin) joined the league. A temple of Poseidon on the promontory of Mycale, called the Panionium, was their common sanctuary, and here the national assembly was held. Ionia was the most advanced and most prosperous part of Greece during the eighth, seventh, and sixth centuries B. C. About 560 B. C. the Ionians were conquered by Croesus; in 545 by Harpagus, general of Cyrus. They revolted from the Persians in 500-499, but in 494 were again subdued. By the defeat of Xerxes they became free to join Athens in a league, formed in 476, in which they finally became her subjects. In 404 this league was dissolved by the defeat of Athens in the Peloponnesian War, but the alliance was renewed in 378 and continued to 357 B. C. Except for this renewal, the Ionian cities were independent in government until merged in the kingdom of Alexander and his successors. Ultimately they passed under Roman rule, forming a part of the Empire of the East, and have now been under Turkish dominion for centuries.

IRONSIDES. Originally applied to Cromwell, this name was also given to his famous regiment of 1,000 horse, recruited from the hardy God-fearing yeomen of the eastern counties, who continually distinguished themselves,—scattering Prince Rupert's cavalry at Marston Moor, at Naseby converting a rout into a decisive victory, etc.

ISLAND NO. 10 (April 7, 1862). During the Civil War, Island No. 10, in a bend of the Mississippi river, about 10 miles south of New Madrid, Mo., was an important stronghold of the Confederates. On March 16th the Federal fleet, commanded by Foote, laid siege to the place and for several weeks kept up an active bombardment. At the same time, Pope was at work making a canal from the Mississippi to New Madrid, which would allow vessels to reach the town without passing the island. On April 7 the Confederates were surprised to find themselves surrounded by boats and troops, and, resistance being useless, they surrendered. Without the loss of a man the Federals forced the surrender of almost 7,000 men and took possession of immense quantities of stores, arms, and ammunition.

ISSUS. (1) 333 B.C. The Macedonians, under Alexander the Great, encountered the Persians, under Darius, at Issus, in Asia Minor, and gained a complete victory. The Persian army consisted of 600,000 men; while the Macedonians numbered only 30,000 men. (2) In 194 Issus was the scene of a struggle between Severus and Niger, in which the latter was defeated with the loss of 20,000 men, and he himself was slain.

ITALIANS (Massacre of, at New Orleans; March 14, 1891). Eleven Italians confined for the murder of chief Hennessy, in the parish prison, New Orleans, were massacred. Six of them had just been acquitted by jury trial.

ITHOME (743 B. C.). At the opening of the Messenian Wars, Messenia was invaded by the Spartans. The Messenians fled to their fortifications on the mountain of Ithome, which they held for 20 years, and then were obliged to evacuate. The Spartans laid every town in ruins, and the Messenians who would not submit to Spartan rule were exiled.

IUKA (September 19, 1862). The headquarters of the Federal army of the Tennessee were at Corinth, Miss. In September the Confederates under Van Dorn and Price appeared in the vicinity, and on the 13th Price captured Iuka, a short distance southeast of Corinth. Two detachments led by Rosecrans and Ord were at once sent to attack Price, but their plans miscarried and on September 19 Price attacked Rosecrans. After a battle in which the latter lost some of his artillery and 790 men, Price withdrew.

IVRY (March 14, 1590). At Ivry, a town of northwest France, the Huguenots, under Henry IV., gained a brilliant victory over the Catholics, under the duc de Mayenne, during the Eighth Civil War.

JACKSON (May 14, 1863). After the battle at Raymond the Federals under McPherson and Sherman moved toward Jackson, Miss. On May 14 they encountered the Confederates led by Joseph E. Johnston on their way to reinforce Pemberton at Vicksburg. At the end of the engagement which followed, Johnston was obliged to retreat toward Canton, while the Federals entered Jackson.

JACKSON, THOMAS JONATHAN (STONEWALL) (1824-1863). A famous American soldier; born Jan. 21, 1824, at Clarksburg, West Virginia; prominent as a Confederate officer during the Civil War,—known as "Stonewall Jackson." Became major general, September, 1861; captured Harper's Ferry (1862) with 11,500 prisoners. He was wounded through a mistake of his own men, his party being taken for Federal cavalry. He died May 10, 1863.

JAFFA (anciently known as Joppa). Jaffa, a seaport of Syria, was taken by Napoleon in 1799, and later, in the same year, captured by the British

JAIL DELIVERY AT PARIS. September 2-7, 1792. During the French Revolution Paris was for a time at the mercy of the mob. All persons suspected of assisting the royal cause were thrown into prison, and on September 2 the massacre began under the direction of Marat. Day and night the slaughter continued without interruption; without any distinction of class, people were dragged from the jails and put to death without trial. The number who lost their lives at this time is variously estimated at from 4,000 to 10,000.

JAMESON, LEANDER STARR (1853-1917). A Scottish physician and soldier. Educated at London University; practised at Kimberley, Cape Colony. His association with Cecil Rhodes led to his appointment as Administrator of Rhodesia in 1891, under the British South African Company, holding the position until his invasion of the Transvaal (1895), when he was defeated at Krugersdorp, and surrendered to the Boers. (See "Jameson's Raid.") He was brought to England and sentenced to fifteen months' imprisonment for an infringement of the foreign enlistment act (1896); released in seven months owing to illness; served in the Boer War (1899-1900); elected to the Cape Legislative Assembly for Kimberley (1900); leader of the Progressive party after death of Cecil Rhodes; premier of Cape Colony (1904-1908). Director in many of the important South African companies.

JAMESON'S RAID (Transvaal, South Africa). An appeal for help from Uitlanders in Johannesburg was received by Dr. Leander S. Jameson, who, on December 29, 1895, crossed the frontier with a force from Pitsani Pitlogo. The next day Sir Hercules Robinson telegraphed Dr. Jameson to retire. On December 31, Dr. Jameson's party, outnumbered and without resources, were defeated by the Boers near Krugersdorp, and after a fight at Vlakfontein on January 2, 1896, surrendered conditionally. It is held by some that the expedition was not intended to upset the native government, but to obtain documentary evidence believed by Cecil Rhodes to be in existence concerning an alliance between the Transvaal Government and Germany. Dr. Jameson and other prisoners were handed over to Sir Hercules Robinson and taken to England, where they were tried and declared guilty of offenses under the foreign enlistment act. A new trial was appealed for by the defendants. Dr. Jameson was sentenced to imprisonment without hard labor for fifteen months, but was released on December 2, 1896, because of illness.

JANIZARIES or **JANISSARIES.** This Turkish military force was first instituted by Orkhan (1326-1359), the son and successor of Othman (founder of the Ottoman Turkish Empire), who levied a systematic tribute of young children from conquered Christian people. These tribute children were trained under Mohammedan guardianship and with Christian captives taken in war and Turkish subjects who were attracted by the special privileges offered formed a special corps of picked troops, of many nationalities, which became the bulwark of the empire and a dictatorial power. After 1360 the corps was more perfectly organized by Amurath I., its strength raised to 12,000. The drafting of Christian children and captives ceased after the sixteenth century, and the corps was recruited by voluntary enlistment. The Janizaries were composed of two classes, one a standing force numbering from 25,000 to 100,000, garrisoned in Constantinople and the chief towns; the other, called "jamaks," a trained militia numbering from 300,000 to 400,000, scattered throughout all the towns of the empire. The Janizaries proper were divided into regiments (ortas). The aga was at the head of the whole force, his powers extending to life and death. In times of peace the Janizaries acted as a police force. They served on foot, generally forming the reserves of the Turkish army, and were famous for the "wild impetuosity of their attacks." From them was formed the sultan's bodyguard. Eventually they became very unruly, their history abounding in conspiracies, assassinations of agas, viziers, and sultans, and every kind of atrocity; becoming more dangerous to the sultan than foreign enemies. Several sultans made unsuccessful attempts to reform or dissolve the corps. The Janizaries bitterly opposed the reforms of Sultan Mahmud II., especially the reorganization of the army on the European model. The opposition becoming open revolt, on June 15, 1825, Mahmud ordered to be unrolled the flag of the Prophet, and the faithful to be arrayed against the mutinous corps. Deserted by their aga and other principal officers, the Janizaries were defeated with a loss of 16,000; 6,000 to 8,000 of them being killed in the assault or by the flames, when their barracks were burned. June 17, 1826, a proclamation declared the Janizaries dissolved. All opposition was defeated with bloodshed, thousands being put to death and over 20,000 banished. There are in the Imperial Museum at Constantinople 150 life-size figures showing the appearance of these famous troops.

JARNAC. March 13, 1569. In the third religious war of France, the Huguenots were completely overpowered by the Catholics at Jarnac, in western France, and the Huguenot leader, the prince de Conde, was slain.

JAY TREATY. Negotiated in 1794 between the United States and Great Britain, represented by John Jay and Lord Grenville respectively. Ratified June 24, 1795. It provided for the removal of British garrisons from forts on the northwestern frontier; the settlement of boundary disputes by a joint commission; the collection of British debts; and a commercial agreement.

JEMMINGEN (1568). The duke of Alva was sent by Spain to suppress a revolt in the Netherlands. At Jemmingen he so completely defeated Louis of Nassau that the latter was compelled to swim the Ems river and escape into Germany with a small remnant of his army.

JENA. October 14, 1806. Napoleon defeated the king of Prussia in a battle at Jena, in Saxe-Weimar, both armies sustaining heavy losses.

JERUSALEM. (1) 70. For about six months Jerusalem was besieged by the Romans, led by Titus. The defenders were finally overcome and 97,000 sold into slavery by the Romans. (2) In 637 the Moslems invaded Syria and, after a siege of four months, forced the surrender of Jerusalem. (3) June 7-July 15, 1099. During the First Crusade Jerusalem was assaulted and captured and 70,000 Moslems massacred.

JEWELL, THEODORE FRELINGHUYSEN (1844-). Rear admiral (retired) United States navy; born at Georgetown, D. C.; graduated United States Naval Academy (1864); served on all foreign stations; commanded naval torpedo station (1890-1893); superintendent of naval gun factory (1893-1896); member naval examining board; commander-in-chief of European squadron (1904); rear admiral (March 15, 1904); retired (November 22, 1904).

JOAN OF ARC (JEANNE D'ARC) (1412-1431). Born (January 6, 1412) in the village of Domremy, near Vaucouleurs, France, of a peasant family. Believing herself to be the deliverer of France from England, she convinced Charles VII. of her divine authority and he resolved to employ her. Donning male attire she made a triumphant entry into the besieged city of Orleans, from which time she was known as the "Maid of Orleans." She persuaded the Dauphin to be crowned, July 17, 1429, at Rheims. Afterwards captured by the Burgundians and sold to the English; imprisoned at Rouen, and after a trial which was a mere mockery of justice, was condemned as a sorceress and a heretic, and burned to death, May 30, 1431.

JOHNSTON, JOSEPH EGGLESTON (1807-1891). An American military officer; born in Prince Edward County, Va.; greatly distinguished himself in the Florida and Mexican wars; made brigadier general of Virginia volunteers and later full general in the Confederate service; took an active part in the first battle of Bull Run, where he personally led a charge with the colors of the Fourth Alabama Regiment in his hands; took command of Bragg's army at Dalton, Ga.; was succeeded in this command by General Hood. After the war he engaged in business; was member of Congress in 1876-1878, and United States commissioner of railways in 1885-1889. He died in Washington, D. C.

JOLIET, LOUIS (1645-1700). Born in Canada; educated as a Jesuit at Quebec; became a voyageur; went searching for copper at Lake Superior and to discover more direct route from upper lakes to Montreal. Penetrated to Sault Sainte Marie (1669); selected by Frontenac to explore the Mississippi, then supposed to empty into the "Sea" of California (1672). Reached Mackinaw, spending the winter with Père Marquette. Discovered river emptied into Gulf of Mexico; returned by Illinois river and Lake Michigan to Quebec. His maps still exist. Was given island of Anticosti; built fort and was appointed royal hydrographer (1693); granted seigniory of Joliet, still in the possession of the family.

JONES, JOHN PAUL (1747-1792). A famous Scotch-American naval officer; born in Kirkcudbrightshire, Scotland; his name was originally John Paul; engaged in the African slave trade (1766-1767); removed to Virginia and assumed the name of "Jones"; at the outbreak of the Revolution was commissioned first lieutenant of the flagship Alfred in the new navy; promoted captain and cruised around the British Isles doing great damage to shipping; entered the Russian

service as rear admiral (1788); resigned (1791) and took an active part in the progress of the French Revolution. He died in Paris, and was given a public funeral by the National Assembly. In 1905 his body was found and brought to the U. S. by a U. S. squadron and re-interred at Annapolis, Md.

JONESBORO (August 31, September 1, 1864). After destroying the roads southwest of Atlanta, the Federals under Howard pushed toward Jonesboro, a town south of Atlanta. Upon their arrival they found a Confederate force commanded by Hardee in possession. The Confederates made an attack on August 31, and after a sharp skirmish were defeated and forced to retreat to Lovejoy. This Confederate defeat led Hood to abandon Atlanta on September 1, and General Slocum at once took possession of the city.

JULY REVOLUTION. The French revolution of July, 1830, which overthrew the Bourbon dynasty and placed Louis Philippe on the throne.

JUNON (June 20, 1813). While the British fleet lay in Chesapeake Bay, the frigate Junon was attacked by the Constellation, commanded by Capt. Joseph Tarbell, and a flotilla of gunboats. Before the engagement became decisive, the attacking squadron was dispersed by frigates which came to the relief of the Junon.

KAISERSLAUTERN (November 30, 1793). In an encounter at Kaiserslautern, a town west of Mannheim, in Germany, the duke of Brunswick gained a victory over the French.

KANSAS-NEBRASKA BILL. Passed by the United States Congress in 1854 for the organization of Kansas and Nebraska as territories. The provisions which the bill contained for permitting the citizens of these territories to regulate slavery as they chose was a possible nullification of the Missouri Compromise of 1820, which prohibited slavery north of 36° 30′ N. latitude. It passed the Senate and House after bitter debates and renewed the contest of the North and South over the slavery question.

KARS. (1) November 28, 1855. In a battle at Kars, a town in Asiatic Turkey, the Turks defeated the Russians, but after the battle was over Kars was obliged to capitulate. (2) November 8, 1877. The Russians again besieged Kars in 1877, and after twelve hours of severe fighting the town was captured.

KASKASKIA (July 4, 1778). In the spring of 1778, George Rogers Clark, with an expedition from Virginia, set out to gain the allegiance of the towns in the Ohio and Mississippi valley. On July 4th he reached Kaskaskia, on the Mississippi river in Illinois, and captured it from the British without bloodshed.

KEARNY, PHILIP (1815-1862). An American soldier; born in New York City; graduating from Columbia in 1833; was appointed lieutenant of first dragoons (1837), and in 1839 was one of the three officers sent by the United States government to Saumur Cavalry School; in 1839-1840 served as a French volunteer against the Algerians and Arabs; as a captain of cavalry he fought in the Mexican War (1846-1847). In 1859 he served with the French in Italy, receiving the cross of the Legion of Honor for his great bravery throughout this campaign. He reëntered the U. S. army in May, 1861, at the beginning of the Civil War, as a brigadier general of volunteers; took a conspicuous part in the Peninsular campaign and the second battle of Bull Run, and was killed while reconnoitering at Chantilly (September 1, 1862).

KEARSARGE—ALABAMA (June 19, 1864). Just as the Confederate cruiser Alabama was arriving at Cherbourg, France, she sighted the Federal steamer Kearsarge and challenged Captain Winslow to a battle. On June 19 the boats moved further out to sea and opened fire. At the end of an hour the Alabama struck and began to sink, many of the crew being lost before the Kearsarge could save them.

KELLERMAN, FRANCOIS CHRISTOPHE, DUKE OF VALMY (1735-1820). A French general born near Rothenburg, Bavaria. In 1752 entered the French army; served throughout the Seven Years' War, and in Polish expedition of 1771. He warmly espoused the cause of the French Revolution, and in 1792 was leader of the Army of the Centre. On September 20, 1792, repulsed the Prussians and delivered France in the famous victory of Valmy; afterwards commanded the Army of the Alps, but was imprisoned for a year on an alleged charge of treason against the republic, and was liberated only by the fall of Robespierre; created marshal of France (1804), and duke of Valmy (1809). After 1812 led the reserves in Germany, and at the restoration attached himself to the Bourbons; created a peer in 1814.

KEMPFF, LOUIS (1841-1920). Rear admiral (retired) United States navy; born near Belleville, Ill.; served during Civil War; executive officer of Mohican on eclipse expedition to Siberia (1869); lighthouse inspector, 13th district (1874-1876); commander naval rendezvous, San Francisco (1880-1881); member of naval examining and retiring boards (1895-1896); commandant Mare Island Navy Yard (1899-1900); rear admiral (March 3, 1899); squadron commander, Asiatic fleet (1900-1902); refused to join foreign admirals in firing on Taku forts (1900), but after U. S. S. Monocacy was struck by a shot from Chinese forts, united with forces at hand to protect life and property of Americans; commandant Pacific naval district (1902-1903); retired (October 11, 1903).

KENESAW (June 27, 1864). After several days of skirmishing in vicinity of Marietta, Ga., the Confederates under Johnston made a final stand on Kenesaw Mountain. The Federals, commanded by Sherman, made an assault on June 27, but were repulsed with heavy losses.

KERNSTOWN or WINCHESTER (May 25, 1862). Major General Jackson, with a Confederate army numbering 15,000, was stationed at Kernstown, Va., while a Federal army of 5,000, under General Banks, occupied Winchester, a village near Kernstown. On May 25, 1862, Banks made an attack, and after a desperate struggle the Federals were compelled to retreat with a loss of 904 men. The Confederate loss was 400 men.

KETTLE CREEK (February 24, 1779). While Colonel Boyd was on the way to Augusta, Ga., with 700 Tories, he was surprised at Kettle Creek, in Wilkes County, by Pickens and Dooley with about 300 men. The Tories fought desperately, but were overpowered and taken prisoners. This defeat ended the organization of Tory bands in the south.

KHYBER PASS. A narrow defile 33 miles long in the Khyber mountains in northwestern India, connecting the Punjab with Afghanistan. In places a ravine 50 to 450 feet wide is inclosed by perpendicular cliffs 1,400 to 3,000 feet high. It is the only pass through which artillery can be carried; of strategical importance dating from Alexander the Great; ruins of native forts exist on the heights. In the Afghan wars (1839-1842 and 1878-1880) the British troops were here opposed. Since then it is controlled by the Anglo-Indian government; open to traffic Tuesdays and Fridays.

KIDD, WILLIAM (about 1650-1701). A British navigator; the notorious Captain Kidd of piratical fame; born probably in Greenock, Scotland. He went to sea in his youth, and in the French and English War gave such efficient service to the colonists that the New York City council awarded him 150 pounds (1691). In 1695 was commissioned by the earl of Bellomont (Gov. of New York), to assist in the suppression of piracy. He sailed from Plymouth (April 23, 1696), going to New York. While cruising off the coast of Madagascar it became rumored that he himself had turned pirate. On July 1, 1699, Kidd reached Boston, and delivered to the authorities the returns of his plunder. He was arrested and sent to England, where he was found guilty of piracy and murder, and hanged (May 23, 1701).

KILPATRICK, HUGH JUDSON (1836-1881). An American soldier; born near Deckertown, N. J. Served on the Federal side during the Civil War; commanded cavalry under General Sherman during the march to the sea, and through the Carolinas; brevetted major general (1865) for gallant work during the war; made major general of volunteers (1865); appointed U. S. minister to Chile (1865-1868 and 1881); his death occurred in Santiago.

KING GEORGE'S WAR. That portion of the War of the Austrian Succession fought in America (1744-1748) between England and France. The chief events were: capture of Canso, N. S. (1744), by the French, and the capture of Louisburg by the English under Sir William Pepperell (1745). The Treaty of Aix-la-Chapelle (1748) closed the war, all captures being surrendered by both sides.

KING'S MOUNTAIN (October 7, 1780). When the southern mountaineers learned that Major Ferguson was scouring the country, a band of about 1,000 backwoodsmen, with Shelby and Sevier as leaders, hurried to meet the British. Ferguson had placed his men on King's Mountain, near the boundary between the Carolinas. Making repeated attacks from all sides of the hill at once, the British were finally exhausted and almost annihilated. Ferguson was slain and the few remaining British soldiers taken prisoners.

KING WILLIAM'S WAR. That portion of the War of the League of Augsburg fought in America between France and England (1689–1697). The chief events were: capture of and massacres in towns of New England by the French under Frontenac (1689–1690); attack on Quebec by Sir William Phipps (1690); and close of the war by the Peace of Ryswick.

KITCHENER OF KHARTUM, EARL; HORATIO HERBERT KITCHENER (1850-1916). A British field marshal; born in Ireland, of English parents; educated at the Royal Military Academy, Woolwich; entered the British army as lieutenant in the Royal Engineers (1871); in the Palestine survey (1874-1878); in Cyprus survey (1878-1882); commanded Egyptian cavalry under Lord Wolseley (1882-1884); in the Nile expedition for relief of General Gordon (1884-1885), winning promotion; governor of Suâkin (1886-1888); on Sudan frontier (1889); commander of Egyptian forces (1892); captured Dongola (1896); created K. C. B. and major-general; captured Khartum, completing the reconquest of the Sudan (1898); raised to the peerage and created G. C. B. by Queen Victoria, granted £30,000 and made governor general of the Sudan; went to Africa with Lord Roberts as chief of staff (1899), and succeeded him as commander; after successfully finishing the Boer war, he arranged peace measures and came home; made viscount by Edward VII and received the thanks of parliament with a grant of £50,000; was commander-in-chief in India (1902-1909); British agent and consul general in Egypt (1911-1914); at the outbreak of the war between the great European powers (1914) he was recalled and made secretary for war and given supreme command of the British land forces, and was created an earl by George V. At that time Great Britain had less than 200,000 men available for service. In addition to his onerous duties at the war office, Kitchener succeeded in raising a volunteer army of about 5,000,000 men and organizing and equipping them for service in 22 months. While on a voyage to Russia Kitchener and his staff were lost at sea by the sinking of the cruiser "Hampshire," probably by a mine, on the evening of June 5, 1916.

KLEBER (*klay-bare*), **JEAN BAPTISTE** (1753–1800). A French general; born at Strassburg; entered the Austrian army (1776); as general of brigade he commanded in the Vendean War (1794); defeated the Austrians in several battles; went to Egypt with Bonaparte; was wounded in the siege of Alexandria (1798); recovered and won the battle of Mount Tabor (1799); received chief command in Egypt on Bonaparte's departure; destroyed the Turkish army at Heliopolis, and while attempting to conclude a treaty with the Turks was assassinated by a Turkish fanatic at Cairo.

KNOX, HENRY (1750–1806). An American soldier; born in Boston; entered the Continental army as aide to General Ward at the battle of Bunker Hill (1775); became colonel of artillery (1775); brigadier general and chief of artillery (1776); major general (1782); received the surrender of New York City from Sir Guy Carleton (1783); became commander-in-chief of the army (1783–1784); was the first Secretary of War in Washington's cabinet (1785–1795); died in Thomaston, Maine.

KNOXVILLE (December 5, 1863). After the engagement at Campbell's Station, the Federals under General Burnside retreated to Knoxville, pursued by the Confederates led by Longstreet, and on November 17 the latter encamped before the city. For ten days the Federals were confined within the city by the watchful Confederates, during which time assaults and skirmishes were frequent. As soon as Longstreet learned that Federal reinforcements were approaching he raised the siege and hastened toward Virginia.

KOLIN or **KOLLIN** (June 18, 1757). During the second campaign of the Seven Years' War, the Prussians, under Frederick the Great, met the Austrians, under Daun, at Kolin, in Bohemia. The Prussians made a brave charge, but were beaten by the Austrians with heavy losses.

KÖNIGGRÄTZ (July 3, 1866). In the Seven Weeks' War King William I. of Prussia defeated Benedek, the Austrian general, in a severe engagement between the towns of Königgrätz and Sadowa, in Bohemia. The battle is also named Sadowa. This victory established the supremacy of Prussia in Germany, gave Venetia to Italy, united north Germany, and led to the legislative independence of Hungary.

KOSCIUS'KO, THADDEUS (1746–1817). Polish general and patriot; born at Siechnowice in Lithuania; became a captain in the Polish army; left the army and went to America (1776); made a colonel of engineers by recommendation of Benjamin Franklin (1776), and served under Gates (1777); was chief engineer in constructing the fortifications at West Point; was adjutant to General Washington; served as engineer-in-chief during General Greene's southern campaign (1780–1781); was brevetted brigadier general and received the thanks of Congress for services rendered during the war; returned to Poland (1786), and re-entered the Polish army. A monument has been erected to his memory at West Point.

KUNERSDORF (August 12, 1759). One of the most bloody battles of the Seven Years' War was fought at Kunersdorf, a village in Prussia. The Prussian army of 40,000, led by Frederick II., was completely defeated and routed by the combined forces of Austria and Russia, commanded by Laudon and Soltykoff.

LA BELLE ALLIANCE. Name of a farm located about thirteen miles from Brussels. Here on the morning of June 18, 1815, Napoleon assembled the French infantry numbering about 74,000 men. At Mont St. Jean, some two miles farther north, was stationed the duke of Wellington. The French tirailleurs were posted at the Farm of La Haye Sainte. The battle of Waterloo is referred to by the French as the Battle of Mont Saint Jean, and by the Prussians as the Battle of La Belle Alliance.

LA COLLE MILLS (March 30, 1814). While a force of Americans under General Wilkinson was marching toward Montreal, they attacked a blockhouse and stone mill on the La Colle river in Quebec, which were occupied by a British garrison. After fighting about two hours, in which time the British were reinforced, Wilkinson retired.

LADYSMITH (November 2, 1899–February 28, 1900). The English, under Sir George White, were besieged at Ladysmith, in southern Africa, by the Boers. A continuous bombardment, with now and then a sharp contest, almost forced the British to surrender, but they held their ground until Sir Redvers Buller finally relieved them. In addition to rather heavy losses by fighting, the garrison was still further reduced by disease.

LA FAYETTE, MARIE JEAN PAUL ROCH YVES GILBERT MOTIER, MARQUIS DE (1757–1834). French general; born at the castle of Chavagnac, in Auvergne. Early entered the army, and came to America (1777) to aid the colonists in the war of independence. Was made a major general in the Continental army (1777), and became one of Washington's most efficient officers, serving throughout the war, the year 1779–1780 excepted. After the Yorktown campaign he returned to France (1781); became commander-in-chief of the National Guard (1789); was captured by the Austrians (1792) in defending the frontier; commanded the National Guard during the revolution of 1830.

LAKE BORGNE (December 14, 1812). After the movements of the British in Chesapeake Bay, they started for New Orleans. On December 14, 1812, the combined military and naval forces of England were met at Lake Borgne, east of New Orleans, by a fleet sent from New Orleans to intercept them. At the end of about an hour's fighting, the Americans were overpowered and forced to surrender, leaving the British in control of Lake Borgne.

LAKE CHAMPLAIN. (1) October 11, 13, 1776. The American fleet of 37 vessels commanded by Benedict Arnold encountered the British fleet of 38 well-equipped vessels under Captain Pringle, on Lake Champlain, near Plattsburg. When the fighting ceased at dark on October 11th, the badly damaged American boats broke through the British line and sailed for Crown Point. Carleton, with a squadron from Quebec, pursued the Americans, and on the 13th overtook them. Only six boats of the fleet escaped after these encounters with the British. (2) September 11, 1814. After General Prevost had been repulsed in his march toward Plattsburg, he led his troops toward Lake Champlain to support the British fleet. On September 11th the British squadron of 16 vessels commanded by Captain Downie met the American fleet of 14 vessels under Capt. Thomas Macdonough. After a severe fight of over two hours every British warship had surrendered, although the American ships had also suffered considerably. The British loss was over 200 men; the Americans lost about 110 men.

LAKE DWELLINGS. During what is known as the Lacustrian Period human habitations for security from wild beasts were built over the waters of a lake. Such dwellings exist to-day in central Africa, the Philippines, on the Amazon, and in Venezuela. By the aid of relics left by the lake dwellers it has been proved that they were in Switzerland and Italy during the Neolithic or New Stone Age, and according to Dr. Keller, remained there until the first century of the Christian era, when these lake dwellings ceased to be occupied.

Herodotus described the Paeonians as living on platforms in Lake Prasias in Thrace about 450 B. C. The lake dwellers built their homes on a platform supported by piles or trunks of trees planted in the bed of a river or lake with the upper parts standing six or eight feet above the water. If the bottom was hard, stones were heaped about the base of the piles. The platforms were sometimes very long, and outhouses for domestic animals, as well as many houses, could be accommodated upon them. Boats and narrow pile bridges served as communication with the land. In Ireland and Scotland these structures are technically called "crannogs," and are composed largely of stones bound together by a framework of logs, much on the principle of the Swiss "fascine" dwellings. The lake dwellers are supposed to have been of Asiatic origin, and to have made their way at their leisure entirely across Europe and into Scotland and Ireland by way of Hungary and the valley of the Danube.

LAKE ERIE (September 10, 1813). The most famous naval victory for the Americans during the War of 1812 was fought near Put-in-Bay, in the western part of Lake Erie. The best fleet which the Americans could equip consisted of 9 vessels of 54 guns, manned by about 400 men and commanded by Commodore Oliver H. Perry. There were in the British fleet 6 vessels, 63 guns, manned by 500 trained sailors under the command of Commodore Barclay. The Americans began the engagement in the morning of the 10th, and at 3 o'clock in the afternoon the British surrendered. The British lost 527 men; the Americans, 60 men.

LAKE GEORGE, N. Y. (September 8, 1755). A body of English settlers in Massachusetts, Connecticut, and New Hampshire, led by General William Johnson, marched north to Lake George in New York, to capture it from the French. A large force of Canadian militia and Indians surprised the English and drove them in confusion toward the American camp on Lake George. The band of soldiers who were holding the camp opened fire and forced the French and their allies to retreat with heavy loss. In the evening the retreating Frenchmen were attacked by reinforcements from New Hampshire and completely routed.

LAMIAN WAR. War of the allied states of Greece against Antipater (323 B. C.). Antipater met reverses early in the war and sought refuge in Lamia, where he was besieged for several months. He escaped with the aid of Craterus, ended the war, and subdued the allies.

LANGENSALZA. (1) February 14, 1761. During the Seven Years' War the French were defeated by the Hanoverians in an encounter at Langensalza, in Prussia. (2) June 27, 1866. The second battle at Langensalza was fought between the Prussians, led by Von Flies, and the Hanoverians, under their king, whom, after severe fighting, the Prussians compelled to surrender.

LANNES (*lan*), **JEAN, DUC DE MONTEBELLO** (1769-1809). Marshal of France; born at Lectoure. Entered the army (1792), and distinguished himself at Abukir, Acre, Montebello, and Marengo. Was much esteemed by Napoleon. Rendered splendid service at Austerlitz, Jena, Eylau, Friedland, and in Spain. He was mortally wounded at Aspern.

LAON. A fortress in the northern part of France, first mentioned in the fifth century. It was fortified by the Romans and was the residence of the Carlovingian kings in the tenth century. It was the scene of the defeat of the French under Napoleon by the Germans under Blucher and Bernadotte, March 9, 1814. In 1870 it capitulated to the Germans. The explosion of a powder magazine as the conquerors were entering the town damaged it greatly

LA ROTHIERE. February 1, 1814. A sharp contest occurred at La Rothiere, in France, between the French, led by Napoleon, and the allies, led by Blucher, in the War of Liberation. The French were forced back and La Rothiere taken, but Napoleon regained possession of the village before the close of the battle.

LA SALLE, ROBERT CAVALIER, Sieur de (1643-1687). A French explorer who came to Canada in 1667, discovered the Ohio, which he descended, and explored the Mississippi from its upper waters to the Gulf of Mexico (1682), thus connecting the discoveries of De Soto with those of Joliet and Marquette; named the territory Louisiana; he received men and vessels from France; quarrels with the commanders caused the return of all but a few men, who spent two years with La Salle in fruitless wanderings in his attempts to colonize; repeated differences between them led to a mutiny in which La Salle was shot.

LAS GUASIMAS (June 24, 1898). While an army of Americans was on its way toward Santiago, Cuba, two divisions led by Wood and Roosevelt met the Spaniards at Las Guasimas. A sharp contest ensued, which resulted in the defeat of the Spaniards. Only a few men were lost on each side.

LATIN WARS. Latium was the name of a broad plateau on the western coast of Italy. The inhabitants were called Latins, a name later given to the language of Rome. As Rome grew it destroyed or absorbed all of the neighboring states. The towns revolted against the impositions of Rome in 390 B. C. and the Latin War which followed lasted for two years. At the end of that time Latium was completely humbled. The Latins took part in the Social War in 89 B. C., but never afterward opposed Rome. At the end of the republic all of the inhabitants of the Latin towns enjoyed the privileges of Roman citizenship.

LATOUR (*lah-tur'*), **D'AUVERGNE, THEOPHILE MALO CORRET DE** (1743-1800). Hero of French Revolution; born at Carhaix. Served with distinction at siege of Port Mahon (1782) and in wars of 1792-1800. Steadfastly refusing all promotion, he was named by Napoleon "the First Grenadier of France," his column of 8,000 grenadiers bearing the title "Infernal Column" for their murderous bayonet charges. Slain at Oberhausen, Bavaria, the whole French army mourning his death for three days.

LAURENS, JOHN (1753-1782). American soldier; born in South Carolina; educated in England. Entered Continental army (1777) as one of Washington's aides; fought with great bravery; secured a loan from France (1781). His unusual abilities, courtesy, and chivalric devotion to his country won for him the title of "Bayard of the Revolution." Killed in an insignificant skirmish on the Combahee River, S. C.

LAWRENCE, JAMES (1781-1813). American naval hero; born at Burlington, N. J. Distinguished in war with Tripoli, 1804-1805. As commander of the Hornet captured British brig-of-war Peacock, with a loss of one man killed and two wounded (February 24, 1813). Challenged by Captain Broke of the Shannon, Lawrence, in command of the frigate Chesapeake at Boston harbor, went out with a new crew, and in the unsuccessful engagement was mortally wounded (June 1, 1813). His dying words, "Don't give up the ship," became a motto in the navy.

LAWTON, HENRY WARE (1843-1899). American soldier; born at Manhattan, O. Served as a volunteer in the Civil War, after which he entered the regular army. Fought with distinction against Sioux and Ute Indians, 1879, and in 1886, captured Geronimo. Commissioned brigadier general in the war with Spain, leading with great skill and bravery at El Caney (July 1, 1898). Assigned to the Philippines (Dec., 1898) as second in command to Gen. Otis, and actively engaged there until slain in battle at San Mateo, Luzon, Dec. 19, 1899.

LEE, FITZHUGH (1835-1905). American soldier; born at Clermont, Va.; graduated from West Point, 1856; served with distinction as a Confederate officer in the Civil War, attaining the rank of major general (1863). Governor of Virginia, 1886-1890; U. S. consul general at Havana, Cuba, 1896-1898. During Spanish-American War served in Cuba as major general U. S. volunteers, and at close of hostilities became military governor of Havana. Appointed brigadier general in regular U. S. army, Feb., 1901, retiring from active service the following month.

LEE, HENRY (1756-1818). American soldier and statesman; born at Leesylvania, Va. Known as "Light Horse Harry" for his daring and activity in the Revolutionary War; noted especially for his capture of the British post at Paulus Hook, and his service with Gen. Greene's army in the south. Member of State Legislature, 1789-1791; Governor of Virginia, 1792-1795; commanded militia which quelled Whisky Insurrection in Pennsylvania (1794). Federalist representative in Congress (1799-1801), delivering there the funeral oration for Washington containing the famous words, "First in war, first in peace, first in the hearts of his countrymen."

LEE, ROBERT EDWARD (1807-1870). One of the greatest of American generals. Commander-in-chief of Confederate army, having refused President Lincoln's offer of command of the army of the United States. Born at Stratford, Va.; graduated from West Point (1829); served in Mexican War, attaining rank of colonel; superintendent at West Point, 1852-1855; commanded United States troops which overcame and captured John Brown at Harper's Ferry, Va. (1859). (For Gen. Lee's campaigns in the Civil War, see that subject.) Lee's surrender to Gen. Grant at Appomattox Court House (Apr. 9, 1865), virtually ended the Civil War. Soon after (Aug. 24, 1865) he accepted

the presidency of Washington College at Lexington, Va., holding this position until his death, after which the institution was renamed Washington and Lee University.

LEGION OF HONOR. Founded in 1802 by Napoleon and organized two years later; the distinction being conferred for meritorious conduct in civil or military life. Originally the order comprised 3,665 chevaliers, 450 officers, 300 commanders, 105 grand officers, and a grand master, the last office being held by Napoleon. At their initiation the members were obliged "to pledge their support to the defense of the State and of the liberties achieved by the Revolution." With the successive changes of dynasties in France, the order experienced many alternations. In 1872 the present constitution was formed, the order being reorganized into five classes,—chevaliers, officers, commanders, grand officers, and grand crosses. Salaries are given, ranging from 250 francs for a chevalier to 3,000 francs for a grand cross. The order numbered 43,851 in 1892, the law of 1897 fixing the maximum number of additional crosses to be issued at 14,320. A five rayed star of white enamel edged with gold, bearing the image of the Republic with the inscription Republique Francaise on its obverse, two flags and the motto "Honneur et Patrie" on the reverse, is the emblem of the order. A wreath of oak and laurel surmounts it and it is suspended from a red ribbon. A portrait of Napoleon surmounted by an imperial crown was originally used in place of the emblem of the Republic. The order is conferred on foreigners, and occasionally upon women.

LEICESTER (*les'ter*), **ROBERT DUDLEY, EARL OF** (1532?-1588). A favorite of Queen Elizabeth. Commanded expedition (1585) to aid the Netherlands in their struggle for independence from Spain; elected governor by the states-general (1586); recalled 1587.

LEIPZIG, BATTLES OF. (1) Between Tilly with 44,000 men and Gustavus Adolphus of Sweden allied with John George I., Elector of Saxony, with a united force of 20,000 (September 1, 7, 1631). Tilly routed the Saxon troops but was beaten by the Swedes. (2) Between the Swedes under Torstenson and the Imperialists on October 23, 1642. The Swedes were victorious. (3) Between the French under Napoleon with 130,000 and the allied Austrians, Russians, Prussians, and Swedes under Prince Schwarzenberg with 200,000 men. Napoleon directed the battle in person. The battle began on the morning of October 16 and lasted until the evening of Oct. 19, 1813. Napoleon was beaten but made a masterly retreat across Germany. His power was effectively shattered.

LE MANS (January 10-12, 1871). The battle of Le Mans, in northern France, was fought between the Germans, under Prince Frederick Charles, and the French, led by Chanzy. The French army was utterly routed and many taken prisoners.

LEPANTO, BATTLE OF. Fought October 7, 1571, near the Curzolari Islands at the entrance to the Gulf of Patras, between the Turkish fleet and the combined fleets of Venice, Spain, and the papal states which formed the Holy League. It was caused by an effort of Sultan Selim II. to take Cyprus from Venice. The Christian fleet was victorious. The Turks lost 30,000 killed, wounded, and prisoners; the Christians, 3,000. The Turkish naval power in the Mediterranean was broken, though Cyprus was taken by a land force of Turks.

LEUTHEN (December 5, 1757). During the Seven Years' War, Leuthen, a town in Prussia, was the scene of a hard fight between 33,000 Prussians, under Frederick the Great, and 90,000 Austrians, led by Prince Charles of Lorraine and Count Daun. The Austrians were overthrown and finally forced to surrender.

LEUTZE, EUGENE HENRY COZZENS (1847-). Rear admiral United States navy; born at Dusseldorf, Prussia; graduated United States Naval Academy (1867). While on leave from the academy (1864), volunteered for service on board Monticello, North Atlantic squadron; member Nicaraguan surveying expedition (1872-1873); hydrographic office (1874); interoceanic survey (1875); coast survey (1876-1880); took part in capture of city of Manila (August 13, 1898); commandant navy yard, Cavité, P. I. (1898-1900); superintendent naval gun factory, Washington (1900-1902); since 1905 commandant navy yard, Washington, and superintendent naval gun factory; rear admiral (July 6, 1907).

LEXINGTON (April 19, 1775). After attempting to establish a British army around Concord and Lexington, in Massachusetts, Colonel Smith realized that the inhabitants had been informed of his movements and were preparing to defend themselves. As he led his army toward Boston, the Americans fired from their hiding places and killed many of his men. At Lexington he was reinforced by Lord Percy and tried to beat back the Americans, but their forces were constantly increasing and the British were obliged to seek shelter in their ships in Boston harbor. The British lost 273; the Americans, but 93.

LEXINGTON, MO. (September 20, 1861). After the battle of Wilson's creek, General Price, with a force of 28,000 Confederates, appeared before Lexington, in northern Missouri, where a garrison of 2,780 Union forces under Colonel Mulligan was stationed. On September 12, 1861, Price began an investment, and on the 20th, after repeated attacks, Mulligan was obliged to capitulate with 2,600 men.

LIMITATION OF ARMS CONFERENCE, popularly called the Disarmament Conference, called by President Harding, met in Washington from November to February, 1921-22. Though the ratification of plans for limiting armies fell through, other important results followed. Certain agreements were reached regarding the Pacific, the definition of Insular Possessions, American right in mandated territories, the integrity of China, and the customs of that country. Shantung was restored to China afterwards, and Japan was given supervision over the island of Yap in the Pacific. Most important temporarily at least of all these agreements was the limitation of naval ratios on the basis of 5, 5, 3. According to this, both Great Britain and the United States were allowed a tonnage of 525,000; Japan 315,000; France and Italy 175,000 each.

LIGNY (June 16, 1815). Eighty-four thousand Prussians, under Blucher, were defeated by Napoleon's army of 60,000 at Ligny, a town of Belgium.

LOCARNO TREATIES. In 1925 the great nations of Europe sent representatives to Locarno for a conference, out of which grew certain agreements:

1. Germany, France, Great Britain, Italy and Belgium agreed to respect the boundaries fixed by the Versailles Conference between France and Germany and Belgium and Germany.

2. Belgium, France and Germany agreed to settle any disputes among them peacefully, with the help of the League of Nations if necessary.

3. Germany, Poland, and Czechoslovakia agreed to arbitrate all political and other serious differences.

4. France, Poland, and Czechoslovakia agreed to join with each other if Germany should provoke another war.

LODI (May 10, 1796). The Austrians, under Beaulieu, were defeated by Napoleon in a bloody fight at the bridge of Lodi, in northern Italy.

LOGAN, JOHN ALEXANDER (1826-1886). American soldier; born in Jackson County, Ill.; attended Shiloh College a short time; became first lieutenant in the army during war with Mexico; graduate of Louisville University; admitted to bar (1852); colonel 31st Illinois volunteers (1861); brigadier general and major general (1862); commander 15th corps (1863); commander of army of Tennessee.

LONE TREE HILL (October, 1904). One of the most brilliant successes of the Russians during their war with Japan was the capture from the Japanese of Lone Tree Hill, an important stronghold in Korea. The Russians were led by Putiloff, and made repeated charges with heavy loss before they were able to seize the eminence. In honor of the victory the hill was renamed Putiloff.

LONG ISLAND (August 27, 1776). During the American Revolution, the British desired to capture New York, but wished first to gain Brooklyn Heights, a strongly fortified American position opposite New York. After a stubborn fight the Americans were obliged to fall back, two of their ablest leaders being captured. That evening Washington arrived with reinforcements, but as the British did not attack them he quietly transferred his troops to Manhattan Island to protect New York.

LONGOBARDI (Lombards). A German people who settled on the lower Elbe at the beginning of the Christian era, and apparently in the fifth century migrated to the regions of the Danube, where they became converts to Arianism. They were conquered by the Herulae but overthrew them in 490; destroyed the Gepidae in 566; took possession of Pannonia; and in 568, under Alboin, invaded Italy, in the northern part of which they easily established themselves, making Pavia their capital. Influenced by Gregory the Great and by their remarkable queen Theodelinda, they accepted the Roman Catholic form of the Christian faith. In 774 the Lombard kingdom was made a

province of Charlemagne's empire, the Longobardi thereafter becoming merged in the general Italian population.

LONG PARLIAMENT (November 3, 1640, to March 16, 1660). During the Civil War and Protectorate of Cromwell in England. It impeached and executed Strafford and Laud; abolished the Star Chamber and High Commission; declared ship-money illegal; prohibited taxation without consent of Parliament; and enacted laws against the dissolution of Parliament without its consent. A part of this body, known as the "Rump," executed King Charles I. and established the Commonwealth.

LONGSTREET, JAMES (1821-1904). American soldier; one of the leading Confederate generals of the Civil War; born in Edgefield District, S. C.; graduated from West Point in 1842. Served in the West and won distinction in the Mexican War. After the Civil War Longstreet held various federal offices, among them Supervisor of Internal Revenue, 1878; Minister to Turkey, 1880-1881; United States Railroad Commissioner, 1897-1904.

LONGWOODS (March 3, 1814). While Captain Holmes, with an American regiment, was marching toward Fort Talbot, on Lake Erie, he encountered the British at Longwoods, in the southern part of Ontario, Canada. The fighting continued until dark, the Americans losing seven men.

LOOKOUT MOUNTAIN (November 24, 1863). While Sherman and his Federal troops were crossing the Tennessee river, Hooker, with 10,000 men, attacked the Confederates on Lookout Mountain, Tenn. His men struggled bravely up the mountain slopes, enveloped in a heavy mist, and completely defeated the Confederates and took over 1,300 prisoners. Also known as the "Battle above the Clouds," on account of the altitude at which most of the fighting was done.

LOUISBURG. (1) June 16, 1745. After a siege of six weeks, during King George's War, the English colonies in America captured Louisburg, on the east coast of Cape Breton Island, from the French. In 1748, by the treaty of Aix-la-Chapelle, Louisburg was restored to the French. (2) In 1758, during the French and Indian War, Louisburg was again besieged by the British, and after a few weeks of bombardment was obliged to capitulate.

LOUISIANA PURCHASE. This purchase of the "Province of Louisiana" was made in 1803, by the United States from France. News having reached the United States, in the spring of 1802, that Spain, by the secret treaty of San Ildefonso, concluded in October, 1800, had retroceded Louisiana to France, greater uneasiness was caused by the declaration that the Spanish Intendant had withdrawn the right of deposit secured to the inhabitants of the United States by a treaty of 1795, and also that Louisiana was to be delivered to France at an early date. At the prospect of danger arising from the last named, President Jefferson becoming alarmed, declared that the ancient friendship between the United States and France would cease the day she took possession, and henceforth the United States must ally itself with the British nation. In his annual message to Congress the president expressed this belief, and also wrote the American Minister at Paris, Robert R. Livingston, that the causes of the irritation could be removed to some extent by France ceding to the United States the island of New Orleans and the Floridas, if she considered Louisiana indispensable to her interests. This end being thought best accomplished by sending direct from the United States, a representative, James Monroe, in January, 1803, was selected as minister plenipotentiary with Livingston. The nomination was confirmed by the Senate, and the sum of $2,000,000 to accomplish this object was placed at their disposal. At this period, the war having been renewed between France and England, Napoleon, realizing the invincibility of England on the sea, doubted that France was able to hold Louisiana against such a power, therefore, Napoleon, through Talleyrand, proposed to sell the Province of Louisiana, to the astonishment of the commissioners, and asked for an offer; the Marquis de Marbois, minister of the treasury, then being selected by Napoleon to further negotiations. Negotiations began in earnest, Monroe in the meantime having arrived April 12, 1803. The sale was effected April 30, 1803, on the basis of 80,000,000 francs, including 20,000,000 for debts that the United States was to assume. On October 20 the treaty was ratified by the Senate by a vote of 24 to 7, and was laid before both Houses for execution. Provisions were made by this by which inhabitants of Louisiana were incorporated into the Union and permitted to enjoy full rights and immunities as citizens of the United States; that they should be fully protected in their enjoyment of property, liberty, and worship; that for twelve years the ships of France and Spain should enjoy special privileges of entry at New Orleans; this treaty also being accompanied by two conventions, when provisions were made for settlement of the debt and manner of payment. The total cost of Louisiana, principal, debts, and interest assumed, up to June 20, 1880, was $27,267,621. The area acquired exceeded 1,000,000 square miles, while the population did not exceed 90,000, including French, Americans, English, Spanish creoles, German, and about 40,000 slaves.

LOUVOIS (*loo-vwah'*), **FRANCOIS MICHEL LETELLIER, MARQUIS DE** (1641-1691). War minister under Louis XIV.; first to organize standing army for France; originated systems of commissariat and hospitals, and in Paris established Hotel des Invalides. Incited persecution of Huguenots, and involved France in long war of League of Augsburg.

LOUVRE. In May, 1871, the Communists of Paris set fire to the Louvre, and much damage was done before the flames could be extinguished.

LOWE, JOHN (1838-). Rear admiral (retired) United States navy; first naval officer of any nationality to have submarine service in submarine torpedo boat (1898), and made first report on that topic ever presented to Secretary of the Navy; after retirement, took part (October, 1901), with six other men, in a decisive experiment in a submarine boat, submerged to bottom of Peconic Bay for fifteen hours. Born at Liverpool, England; enlisted as private, 2d Ohio regiment (1861); appointed to United States navy (August, 1861); served through Civil, Korean, and Spanish wars; member of Greely relief expedition (1884); retired (December 11, 1900).

LUCE, STEPHEN BLEECKER (1827-1917). Rear admiral (retired) United States navy; founded naval war college (1884); largely instrumental in establishing naval training system. Born at Albany, N. Y.; served on many stations and circumnavigated the globe; during Mexican War, served on Pacific coast, and in North Atlantic blockading squadron in Civil War; rear admiral (October 5, 1885); retired (March 25, 1889); commissioner general Columbian Historical Exposition, Madrid (1892).

LUCKNOW (July 1-November 16, 1857). For over four months Lucknow, an important city of northern India, was besieged by the insurgents. Owing to the necessity of troops in many places to suppress revolt, and the delay in the arrival of reinforcements, Lucknow was obliged to withstand the enemy until a large army, led by Sir Colin Campbell, relieved the city and defended the inhabitants until they reached safety.

LUCULLUS, LUCIUS LICINIUS (about 110-about 57 B. C.). A great Roman general famed for his enormous wealth. Elected consul in 74 B. C.; relieved Cotta in the Mithridatic war when hard pressed; raised the siege of Chalcedon; with 12,000 foot and 3,000 horse he defeated 220,000 Armenians under Tigranes; was superseded in Asia by Pompey in 66 B. C. His later days were spent in luxury and splendor, surrounded by the educated and refined.

LUNDY'S LANE. On July 25, 1814, a battle was fought on Lundy's Lane, near the Niagara Falls, between the British army led by Drummond and the Americans under Brown. The fighting began at sunset and continued until midnight. The British were driven from their position and their artillery captured. They tried repeatedly to regain their guns but failed, and finally about midnight both armies retired from the field. Also known as the Battle of Bridgewater, or Niagara.

LUTTER AM BARENBERGE (August 27, 1626). Tilly followed Christian IV. into the duchy of Brunswick, and at Lutter am Barenberge completely defeated him, thus getting control of the whole province.

LUTZEN. (1) November 16, 1632. One of the most important battles of the Thirty Years' War was fought at Lützen, a town of Saxony, near Leipzig. The Swedes, led by Gustavus Adolphus, defeated the army of Wallenstein after a stubborn fight, in which Gustavus was killed. (2) May 2, 1813. The second battle at Lützen was fought between the Russo-Prussians, under Wittgenstein, and the French, under Napoleon. Most of the fighting occurred between Lützen and Gross-Görschen; and consequently the contest is also called the Battle of Gross-Görschen. Both sides claimed the victory; the French, because the allies retired the next day; and the allies, because they still held Gross-Görschen.

LUXEMBOURG (*look-som-boor'*), **FRANCOIS HENRI DE MONTMORENCI** (1628-1695). Marshal of France; born at Paris. Pardoned (1659) for taking part in wars of the Fronde. Commanded in the Netherlands (1672-1673), his masterly retreat from Utrecht

marking him as one of the greatest generals of his time. Fought successfully against William III. of England (1692-1693).

LYCOS (66 B. C.). During the Third Mithridatic War the Romans, led by Pompeius, defeated Mithridates in a battle by night on the Lycos (Yeshil Irmak), in Asia Minor.

LYONS. (1) In 197 Septimius Severus, with a Roman army, defeated his rival, Albinus, in a hard-fought battle at Lyons, a city at the confluence of the Rhone and Saone rivers, in France. (2) October 9, 1793. During the civil war in France, Lyons was one of the last to be surrendered by the revolutionists. The besieging army was commanded by Kellerman, and, as reinforcements arrived every day, the situation became hopeless and the city finally capitulated. In retaliation the city was partially destroyed, the property of the rich confiscated, and hundreds put to death.

LYSIMACHUS (about 360-281 B. C.). A general in the army of Alexander the Great. In the division of the kingdom, Lysimachus took Thrace as his share. In 314 B. C. he joined Ptolemy, Seleucus, and Cassander in the league against Antigonus of Babylon, and gained the northwestern part of Asia Minor by the battle of Ipsus (301 or 300 B. C.). In 288 B. C. he leagued with Pyrrhus, Ptolemy, and Seleucus, and took Macedonia away from Demetrius. He put his son, Agathocles, to death and the people of Asia Minor rose in rebellion, defeated, and slew him in the battle of Corupedion.

MAAGERSFONTEIN (December 11, 1899). The English forces, under General Methuen, were repulsed by the Boers at Maagersfontein, near Kimberley, in South Africa. In an attack before daybreak, they were caught in the intrenchments of the Boers and terribly cut to pieces.

McCALLA, BOWMAN HENDRY (1844-1910). Rear admiral (retired) United States navy; born at Camden, N. J.; graduated United States Naval Academy (1864), serving that summer on board yacht America in pursuit of Confederate steamers Florida and Tallahassee; for "eminent and conspicuous gallantry in battle" during war with Spain, was advanced six numbers in rank, receiving two Congressional medals for battle at Cienfuegos and at Guantanamo, and one for "specially meritorious service other than in battle"; commanded Newark, Asiatic station (1899-1901); during Boxer uprising in China (June, 1900) commanded landing party from United States Asiatic fleet, which formed part of column under Vice Admiral Seymour of the British navy in the effort to relieve legations in Pekin; for which service McCalla was advanced three numbers in rank "for eminent and conspicuous gallantry in battle," also given by the king of England the China War Medal, and decorated by the emperor of Germany with Order of the Red Eagle; rear admiral (1903).

McCLELLAN, GEORGE BRINTON (1826-1885). American general; born in Philadelphia; graduated from West Point (1846); served gallantly in Mexican War. Appointed commander of armies of the United States, Nov., 1861, and conducted in person the Peninsular campaign (1862); succeeded by Gen. Halleck as general-in-chief (July, 1862); resigned from the army Nov. 8, 1864. Defeated for the presidency (1864); chief engineer of department of docks, New York City, 1870-1872; governor of New Jersey, 1877-1881. McClellan excelled as a military tactician and scientific engineer.

McCLERNAND, JOHN ALEXANDER (1812-1900). American politician and soldier; born in Brockinridge County, Ky., but taken to Illinois when very young. Member of state (Illinois) legislature (1836-1842); and of Congress (1843-1851, 1859-1861). Appointed brigadier general (May 17, 1861), and served with distinction until his resignation from the army (November 30, 1864). Subsequently practised law in Springfield, Ill.

McCOOK, ALEXANDER McDOWELL (1831-1903). American soldier, prominent as a Federal officer in the Civil War, at the close of which he was brevetted major general for "gallant and meritorious services in the field during the rebellion." Reëntered regular service as lieutenant colonel in March, 1867; brigadier general (1890); major general (1894); retired from active service (1895). In May, 1896, represented the United States at coronation of the czar of Russia.

MACDONALD, ETIENNE JACQUES JOSEPH ALEXANDER, DUKE OF TARANTO (1765-1840). Marshal of France; born at Sedan, of Scotch family. Entered the army (1785); governor of Roman republic (1798); prominent in the service of Napoleon, although for a time in disgrace through defending Moreau; broke Austrian center at Wagram; remained faithful to the Bourbons during the Hundred Days.

MACDONOUGH, THOMAS (1783-1825). American naval officer; born in Delaware; served during the Tripoli War; one of the seventy who captured the Philadelphia; in command at Lake Champlain; defeated the British at Plattsburg (September 11, 1814).

McDOWELL, IRVIN (1818-1885). An American soldier; born near Columbus, Ohio; served in the Mexican War; brigadier general in the Civil War; commanded at Bull Run and badly defeated; superseded by McClellan; gained honors at Cedar Mountain and second Bull Run; major general (1872).

MACEO, ANTONIO (1848-1896). Cuban patriot born in Santiago de Cuba of respectable mulatto parents. In the Ten Years' War (1868-1878) rose to rank of major general; refused to sign Peace of Zanjon, and subsequently lived in United States, Cuba, and Costa Rica. Returning to Cuba in March, 1895, Maceo won several brilliant victories over the Spanish, notably in Pinar del Rio province, but was killed while crossing the "trocha" to join Gomez in Havana province.

MACMAHON', MARIE EDME PATRICE MAURICE DE, DUKE OF MAGENTA (1808-1893). A marshal of France, and second president of the third republic. After serving with distinction in Algeria, he was commissioned governor general (1864-1870) of the province; sent to Crimea (1855), he was leader of the successful attack on the Malakoff (September 8), and on his return to France received the Grand Cross of the Legion of Honor, and was made a senator. At Magenta (June 4, 1859) he turned an impending defeat, through the inefficiency of Napoleon, into a great victory, for which he was made marshal and Duke of Magenta, on the field; placed at the head of the first army corps in the Franco-German War (July, 1870), and on August 6 sustained a crushing defeat at Wörth, but conducted a noteworthy retreat; was given charge of a force of 120,000 men, and ordered to march to the relief of Bazaine. In this attempt he was surrounded and surrendered at Sedan. Returning from Wiesbaden, he took Paris from the Commune (March, 1871); succeeded Thiers as president of France (1873), resigning this office in 1879.

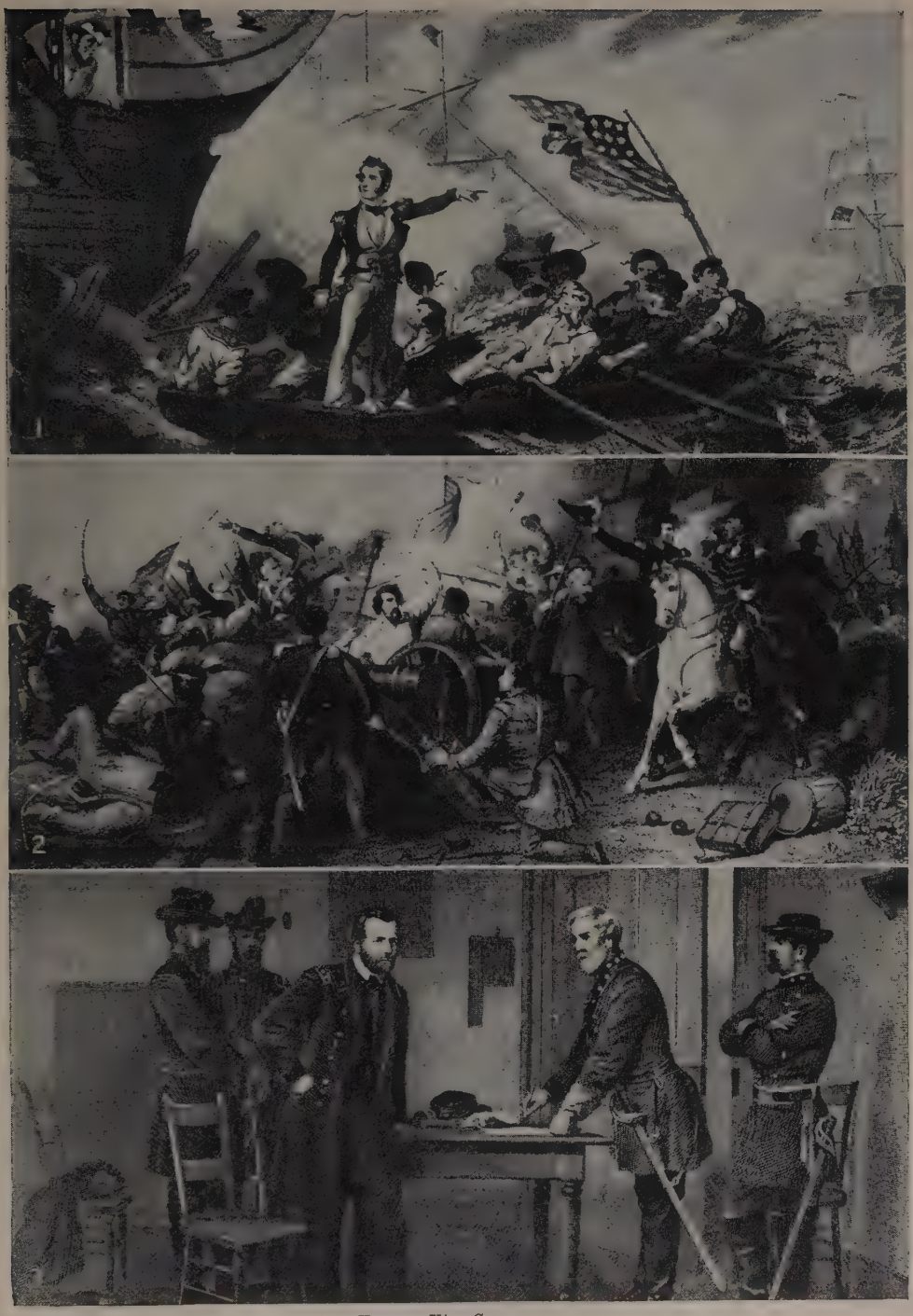
MACPHERSON, JAMES BIRDSEYE (1828-1864). An American soldier; born near Sandusky, Ohio; prominent on the Federal side in the Civil War. In the Tennessee campaign served as chief engineer on the staff of General Grant (1862), and aided in the operations against Forts Henry and Donelson; also fought in the battle of Shiloh; promoted to colonel (May 1, 1862); later (May 15) appointed brigadier general of volunteers. As a prominent leader in the Vicksburg campaign, he was appointed, through General Grant's influence, brigadier general in the regular army (August 1, 1863); afterwards commanded the army of Tennessee. In the Georgia campaign was second in command to General Sherman. Later engaged in a series of conflicts around Atlanta, in one of which (July 22, 1864), he was killed while reconnoitering.

MAESTRICHT, the capital of the Dutch province of Limburg. Maestricht has withstood many sieges. In 1576 it was captured and plundered by the mutineers from the Spanish troops. In 1579 it suffered another siege by the Spanish, who slaughtered nearly the whole population. In 1632 the Dutch were successful in an attempt to capture Maestricht, although they were opposed by two armies. On June 30, 1673, it surrendered to Vauban, who had laid siege to it for Louis XIV. The French appeared in 1748 and captured Maestricht; and in 1793 again besieged it, but without success.

MAGDEBURG (May 20, 1631). After a brave defense of their city, the inhabitants of Magdeburg, the capital of Prussian Saxony, were overpowered by Tilly and his army. For three days a horrible massacre was carried on; the city was burned and plundered and the people murdered and tortured by the merciless invaders. About 30,000 are said to have been slain.

MAGENTA (June 4, 1859). In a very severe fight at Magenta, a town of northern Italy, near Milan, the French and Sardinians defeated the Austrians. The allies are said to have lost 4,000 men; while the Austrian loss was 10,000 killed and 7,000 prisoners.

MAGNA CHARTA, THE. The Great Charter, said by Hallam to be the "keystone of English liberty," was granted by King John to the Barons at Runnymede (1215). The charter contains 63 clauses, and is partly remedial and partly "declaratory of the principal grounds of the fundamental laws of England." Its principal provisions are: (1) Security for per-



Photos 1 and 2 from Ewing Galloway; 3 from Keystone View Company.

EVENTS IN AMERICAN HISTORY—I

1 Perry at Battle of Lake Erie, from painting by W. H. Powell.
2 Jackson at Battle of New Orleans.
3 General Lee surrendering to General U. S. Grant at Appomattox Court House, Virginia.

Photos 1 and 2 from Keystone View Company; 3 from Ewing Galloway; 4 from Brown Brothers.

EVENTS IN AMERICAN HISTORY—II

1 Engagement between Serapis and Bon Homme Richard.
2 Battle of Lexington, The Minute Men.
3 Signing the Declaration of Independence (from painting by Trumbull).
4 Paul Revere's Ride.

sonal freedom: "No free man shall be taken or imprisoned or dispossessed or outlawed . . . . . save by the judgment of his peers or by the law of the land"; (2) feudal obligations defined and limited; (3) law courts to be held at fixed places, assize courts established, and justice no longer to be sold, denied, or delayed; (4) no extraordinary taxation without consent; (5) one standard of weights and measures; (6) independence of the Church provided for. The Magna Charta was confirmed many times by different kings. The form appearing in the revised statutes is the confirmation by Edward I. (1297).

MAGRUDER, JOHN BANKHEAD (1810-1871). An American soldier; born at Winchester, Va.; graduated at West Point (1830); during the Mexican War was brevetted major (April, 1847) and lieutenant colonel (September, 1847) for gallantry at Cerro Gordo and Chapultepec. At the outbreak of the Civil War, he entered the Confederate army as colonel, winning the battle of Big Bethel. He became brigadier general (June, 1861) and major general (October, 1861). At the close of the war he entered the army of Maximilian in Mexico, as major general, serving until the fall of the empire, after which he settled in Houston, Texas.

MAGUAGA (August 9, 1812). After the attack of Van Horne's men at Brownstown, the Americans retreated and a second expedition under James Miller was sent to accompany Colonel Brush to Detroit. Near Maguaga, Michigan, they were attacked by a body of British, Canadians, and Indians, under Major Muir. In the struggle which followed, the Americans defeated the British and Indians.

MAHAN, ALFRED THAYER (1840-1914). Rear admiral (retired) United States navy and author of "Life of Admiral Farragut," "Life of Nelson," etc.; born at West Point, N. Y.; graduated United States Naval Academy (1859); served during Civil War; president of commission to select site for a navy yard on the northwest coast (1889); president of Naval War College (1886-1889, 1892-1893); retired at his own request (November 17, 1896); during war with Spain was a member of the naval war board; delegate to Hague Peace Conference (1889); rear admiral (1906).

MAINTENON (*mañnt'non*), **FRANCOISE D'AUBIGNE, MARCHIONESS DE** (1635-1719). Born in Niort, France. The second wife of King Louis XIV. of France. She went to Paris from Martinique in 1645. In 1651 she married the poet Scarron. In 1684 she married the king privately and was never publicly acknowledged as his wife.

MAINZ (October 20, 1792). Without the use of a single siege gun, the French secured the surrender of Mainz, a town of western Germany, near Frankfort, and were welcomed into the place by the partisans of the republic.

MAJUBA HILL. The scene of a British defeat by the Boers in the first Boer war (February 27, 1881). General Sir G. P. Colley, the commander, and 92 soldiers were killed, and 150 wounded and taken prisoners. Boer loss was 130 in all.

MALAKHOFF (September 8, 1855). Toward the close of the Crimean War the allied forces of the French and English turned their attention to Malakhoff, a hill near Sebastopol which the Russians had fortified. The first attack was a failure, but about three months later the stronghold was taken by the French.

MALPLAQUET (September 11, 1709). The bloodiest battle of the War of the Spanish Succession was fought at Malplaquet, in France. The French, commanded by Villars, were defeated by Eugene and Marlborough, although the allies lost more men than the French.

MALVERN HILL (July 1, 1862). The last of the Seven Days' Battles near Richmond, Va., during the Civil War. The Federal armies united for the final struggle at Malvern Hill, with the approaches guarded by heavy guns. On July 1, 1862, the Confederates, led by D. H. Hill and Magruder, made an attack, but at every point they were repulsed with enormous losses. Finally the Confederates withdrew to Richmond and McClellan advanced to Harrison's Landing, below Richmond, on the James river.

MAMELUKES. A body of Turkish slaves introduced into Egypt by Sultan Es-Salih Eyyub in the thirteenth century. At his death the Mamelukes elected a sultan from their own people in 1250, and held the throne from then until 1517, when Egypt became a Turkish province. The line of slave kings is divided into two branches, the Bahri (1250-1389) and the Burji (1389-1517). In 1517 the Ottoman Turks, under Selim I., gained control of the country, but in order to conciliate the Mamelukes Selim placed them as beys at the head of twenty-four military provinces into which Egypt had been divided. In the eighteenth century they became almost independent. The Mamelukes under Murad Bey were defeated by Napoleon in the battle of the Pyramids, July 21, 1798, following which they retreated into Nubia. August 17, 1805, more than one hundred of the Mamelukes were massacred at Cairo by the Turks. Further massacres followed and Ibrahim Pasha dispersed those remaining.

MANILA BAY. Decisive battle of the world (1898). A victory of superb audacity by the American Pacific fleet under Admiral Dewey over the Spanish fleet under Admiral Montojo. On paper the fleets were nearly equal; in individuality and efficiency as wide apart as the poles. Dewey daringly drove in past the forts and torpedoes, relying on Spanish inefficiency; fought the Spaniards until every vessel went down fighting, and, without losing an American ship, annihilated Spanish rule in the Pacific, bringing the Philippines under the rule of United States. Opposed by a land force of 10,000 Americans, the city of Manila surrendered August 13.

MANSOURAH (February 8, 1250). The Seventh Crusade, undertaken principally by Louis IX. of France and his followers, landed in Egypt. At Mansourah, a city on the right bank of the Nile, they encountered the Mussulmans, and although victorious the first day, they were shortly afterward captured and made prisoners.

MANTEUFFEL (*man'toi-fel*), **EDWIN HANS KARL FREIHERR VON** (1809-1885). Prussian field marshal; born at Dresden. In 1827 he entered the army; took part in the war against Denmark (1864); became governor of Schleswig (1865); and commanded the Army of the Main against Austria (1866). Later led the German forces in south France, and was made field marshal (1873). Was assigned to the governorship of the province of Alsace-Lorraine in 1879.

MANTUA (February 2, 1797). After a siege of eight months by the French army, Mantua, in northern Italy, was surrendered by the Austrians.

MARAT (*mah-rah'*), **JEAN PAUL** (1744-1793). French revolutionist; born at Boudry, near Neuchâtel. Became an army physician, and was author of several treatises, both scientific and political. In 1789 he established the journal, *The Friend of the People*, and was forced to leave the country after the massacre of the Champ de Mars (1790). Brought to trial at the request of the Girondists (April, 1793), and acquitted, but was stabbed (July 13) by Charlotte Corday.

MARATHON. Decisive battle of the world, in which the Athenians and Plataeans under Miltiades defeated the army of Darius under Datis and Artaphernes (490 B. C.). The Greeks numbered about 10,000, the traditionary number of the Persians 100,000, doubtlessly exaggerated. The Greeks lost 192, Persians 6,400. The Persians were generally regarded as invincible. It was man to man, hand to hand fighting, in those days when numbers counted heavily. It was liberty and intellectual progress against Asiatic barbarism; the destiny of the world was practically at stake. The Greeks were disciplined to concerted action; the Persians were not. The discipline of the Greek wings broke down the slight wicker shields of the Persians, routed them, and swung round to a concerted attack on the center. Great personal courage was shown on each side but the steady immovable formation of the Greeks wore down their opponents, and the Persians fled to their ships; the principal loss of the Greeks being in an attempt to fire the fleet. A legendary hero is the runner who carried the news of victory to Athens, dropping dead delivering his message. From this rose the modern Marathon race. The modern athlete covers the distance in much less time than the Greek.

MARCELLUS, M. CLAUDIUS (? -208 B. C.) Roman general. During his first consulship (222 B.C.), he defeated the Insubrians in Cisalpine Gaul. As a praetor (216 B. C.), he defeated Hannibal at Nola, in Campania, showing that the great general was not invincible. Again consul (214 B. C.), and as commander in Sicily took Leontini and, in 212 B. C., Syracuse. In 209 B. C. Hannibal defeated him at Canusium, in Apulia. Consul for the fifth time (208 B. C.), and again commanded the Romans against Hannibal. Attacked from ambush and slain.

MARENGO, BATTLE OF. One of the most famous of Napoleon's battles, fought on June 14, 1800, near Alessandria, Italy. The French defeated the Austrians under General Melas. Napoleon crossed the Alps by the Great St. Bernard Pass with 40,000 men. Napoleon's supremacy in France was firmly established.

MARION, FRANCIS (1732-1795). American soldier; born at Winyah, near Georgetown, S. C. Took

part in the defense of Fort Moultrie, and participated in the unsuccessful attack on Savannah (1779). Governor Rutledge made him brigadier general of the state forces in South Carolina. Sat in the South Carolina Legislature (1782-1790), and was a member of the Constitutional Convention (1790).

MARIUS, GAIUS (about 156-86 B. C.). A Roman general. Of obscure origin, he gained office in Rome; married the aunt of Julius Caesar; subdued the robber tribes of Spain; successfully closed the Jugurthine War; and rose to be the most conspicuous man in the Roman army. He was seven times consul of Rome; defended Rome against the Cimbri and other tribes from the north; annihilated the Teutones in a two days' battle at Aquae Sextiae—now Aix—where 200,000 were slain; destroyed the Cimbri at the Raudian Fields in 101 B. C.; and he received the highest honors from the state. He was elected to his sixth term as consul in 100 B. C. When Sulla was given command of the army in the Mithridatic War, Marius was jealous of him and tried to deprive him of his command. Civil war in Rome resulted (88 B. C.). Sulla marched on Rome; Marius fled to Africa; returned to Rome and took the city; for five days and nights his band of 4,000 slaves kept up the slaughter of the Roman aristocracy. Marius and Cinna were elected consuls in 86 B. C., but Marius lived only seventeen days of his term.

MARIX, ADOLPH (1864-1919). Rear admiral United States navy; born at Dresden, Saxony; graduated United States Naval Academy (1886); served on European and Asiatic stations; judge advocate of Maine court of inquiry; captain of port of Manila (1901-1903); during the war with Spain commanded U. S. S. Scorpion, and received promotion for "conspicuous bravery."

MARLBOROUGH, JOHN CHURCHILL, DUKE OF (1650-1722). English commander; born at Ashe in the Parish of Musbury, Devonshire. Was made a colonel of foot in the English army (1678); commanded English forces in Ireland (1689); and through court influence, and unquestioned ability rose rapidly to high rank. Aroused much suspicion after the coronation of William III. (1689) by supporting alternately both William and James II. In the war of the Spanish succession Marlborough and Prince Eugene led the allied forces which won victories at Blenheim (1704), Ramillies (1706), Oudenarde (1708), and Malplaquet (1709).

MARMONT, AUGUSTE FREDERIC LOUIS VIESSE DE (1774-1852). Duke of Ragusa and a marshal of France; born at Châtillon-sur-Seine; entered the French army (1791); fought with Napoleon at Lodi, in Egypt, and at Marengo (1800); defeated the Russians in Dalmatia (1806); made commander of the army in Holland (1805); after the battle of Znaim was made a marshal; raised to chief command in the Peninsula (1811); defeated by Wellington at the battle of Salamanca (1812); fought at Lützen, Bautzen, and Dresden (1813); concluded a truce with Prince Schwarzenberg, leader of the allied armies, which forced Napoleon to abdicate; fled to Aix-la-Chapelle on the return of Napoleon from Elba; he came back later and lent his support to the Bourbons.

MARSTON MOOR (July 2, 1644). The Parliamentary forces met the Royalists on Marston Moor, in Yorkshire, England. Cromwell, in command of his picked troops, the Ironsides, gained a decided victory over the Royalists, under Prince Rupert. As a result of this battle the king lost his hold on the north of England, parliament winning that part of the country.

MASANIELLO (*mah-sa-ne-el'lo*), properly **TOMMASO ANIELLO** (about 1623-1647). An Amalfi fisherman; leader of the revolt (1647) against the duke of Arcos, the Spanish viceroy; the people disputed the right of the government to tax fruit, and refused payment; under Masaniello they arose and for nine days had control of the city of Naples, till the viceroy agreed to remove the oppressive taxes; he was assassinated by the viceroy's agents.

MARQUETTE, JACQUES (1637-1675). French missionary and explorer in America. Born at Laon, France. Entered the Jesuit Order at 17 years of age, and sent as missionary to Canada (1666); forwarded to upper lakes and founded Mission of Sault Sainte Marie (1668). Accompanied Louis Joliet, with seven men in two birch canoes (1673), to find the Mississippi. Went down the great river to 30° and fearing to meet Spaniards returned and ascended Illinois river, making portage to Lake Michigan, near Chicago. Returned after voyage of 2,250 miles. Founded mission among Illinois Indians (1674); taken sick and died (1675); body exhumed (1676) by Ottawa converts and buried in mission of Saint Ignace. Had great influence over Indians.

MASON AND DIXON'S LINE. The boundary line between the states of Maryland and Pennsylvania as run by two distinguished English surveyors, Charles Mason and Jeremiah Dixon, in the years 1763-1767. The line settled a dispute between the two states over their respective boundaries as described in their charters. Before the Civil War, the phrase, "Mason and Dixon's Line," was used to indicate the dividing line between the free and slave states, and at present the term continues to be used to designate the dividing line between the South and North. A re-survey of the line was authorized by Pennsylvania and Maryland in 1849, and again in 1900.

MAURICE, PRINCE OF ORANGE AND COUNT OF NASSAU (1567-1625). The youngest son of William the Silent; a famous general; born at Dillenburg in Nassau; was elected stadtholder (1584) after the assassination of his father; wrested many of Spain's possessions from her; distinguished himself by the defense of Ostend during three years; and finally forced the Spaniards to sign a truce of twelve years, and to acknowledge the independence of the United Provinces (1609). Maurice and Barneveldt were bitter political enemies, and the latter met his death because of this.

MAXEN (November 20, 1759). During the Seven Years' War the Prussian general, Finck, was surrounded and captured by Marshal Daun at Maxen, in Saxony.

MAZEP'PA, IVAN STEPHANOVICH (1640-1709). Leader of the Cossacks; born in Kiev; became page to John Casimir, king of Poland; aided Peter the Great against Turkey, and was made prince of the Ukraine; allied himself with Charles XII. of Sweden, and suffered a defeat at Pultowa (1709); with Charles he fled to Bender, where he died. Mazeppa has been made the hero of a poem by Byron.

MAZZINI (*mat-ze'nee*), **GIUSEPPE** (1808-1872). Italian patriot; born in Genoa. Became a member of the "Carbonari," a secret political society in which he became very influential. Was arrested as an enemy of the government, but released after six months on his agreement to leave Italy. He took up his residence in Marseilles, and began the organization of the league, "Young Italy" (1831). The object of this organization was to unite all Italy under a republican government. After the revolution of 1848, he went to Florence and, when Rome was proclaimed a republic, was elected triumvir. Rome, however, was soon taken by the French and Mazzini ultimately retired to London. Was arrested after engaging in an unsuccessful attempt to start an insurrection in Sicily (1870).

MEADE, GEORGE GORDON (1815-1872). An American general; born in Cadiz, Spain; graduated at West Point (1835); served in the Seminole War; assistant engineer of the Mississippi and Texan surveys (1837-1842); served during the Mexican War; appointed brigadier general of volunteers at the opening of the Civil War (1861); made major general (1862); commanded the army of the Potomac (1862); and defeated the Confederates at Gettysburg (1863), the most important battle of the war. He died in Pennsylvania.

MECCA. One of the oldest cities of Arabia and the capital of the Hedjaz. The holy city of the Mohammedans, and the scene of their annual pilgrimage. The visitors during this pilgrimage sometimes number 100,000. The center of the city is the Great Mosque, and the Kaaba, the temple of Mecca, is inside this area. In 682 the city was vainly besieged by Hosein, for the caliph Yezid, and was taken in 692 by Abdelmelek. The flight of the prophet Mohammed from Mecca to Medina, 622, is called the Hegira. In 630 he returned and took Mecca from the Koreish. The city was sacked in 930 by Karmathians. From this time it was under the rulers of Egypt, and finally it came to be ruled by the Ottoman sultans, although the sherif or head of the descendants of the Prophet, is the real governor. In 1803 the city fell into the hands of the Wahabees, but they were expelled by the Pasha of Egypt in 1813.

MECHANICSVILLE (June 26, 1862). Expecting to be joined by Jackson, Gen. A. P. Hill crossed the Chickahominy river to Mechanicsville, just north of Richmond, Va., where the second struggle of the Seven Days' Battles was fought. Here, on June 26, 27,000 Federals under Fitz-John Porter defeated the Confederates. The latter lost 1,500 men in the conflict; the former, 361 men.

MECKLENBURG DECLARATION OF INDEPENDENCE. A series of resolutions drawn up at Charlotte, Mecklenburg County, N. C., May 20, 1775, by a convention of delegates from each militia company in

the county. They were in sentiment a forerunner of the formal Declaration of 1776.

MEDINA. Second capital of the Hedjaz in western Arabia, and second in sacredness to Mecca, for it was Medina that received the prophet Mohammed on his flight from Mecca in 622. The Prophet's Mosque, El-Haram, inclosing the tomb of Mohammed, is the most important building of the city. This mosque was destroyed by fire in 1257 and rebuilt 1258-1288. In 1487 it was restored by Khaid Bey of Egypt. The Turkish sultans conquered the city in the sixteenth century, Saud, the Wahabite general, gained possession of Medina in 1803, but it was reconquered by Tussun Pasha in 1815. As in Mecca non-Mohammedans are strictly forbidden the sacred city, but some not of the faith have ventured to enter in spite of this mandate, and to these we owe our knowledge of the interior.

MEERUT, MUTINY AT (May, 1857). The mutiny of the sepoys, or native soldiers, in India, was caused by the ill-feeling regarding improvements and changes brought about by the Europeans in their country. The direct cause was the refusal of the sepoys to take their cartridges (because it was rumored that the cartridges had been greased with the fat of pigs) and the subsequent court-martial of those who refused. Regiment after regiment killed its officers and joined the mutineers, who conducted a fearful massacre of all the Europeans they could reach.

MERRIMAC, THE. A United States frigate sunk when the Federal government abandoned Norfolk Navy Yard (1861); raised and converted into a Confederate ironclad and renamed the Virginia. She destroyed the Congress and Cumberland at Newport News (March 8, 1862); met the Monitor in Hampton Roads (March 9) and withdrew after four hours' fighting; destroyed when the Confederates left Norfolk Navy Yard (May 11, 1862).

MERRIMAC and MONITOR. See HAMPTON ROADS.

MERRITT, WESLEY (1836-1910). American soldier; born in New York City. Prominent in the Civil and Spanish-American wars. He was placed in command of the United States forces in the Philippines (1898); assisted the Peace Commissioners at Paris (1898); retired in 1900.

MESSINA (anciently, Messana). Messina, a city on the northern coast of Sicily, has been the scene of much conflict. (1) In 396 B.C. Dionysius began to annoy the Carthaginians by attacking one of their Sicilian cities. Himilco, with a great fleet and army from Carthage, captured Messina, and although the inhabitants escaped, the city was completely destroyed. (2) In 264 B.C. a band of mercenaries, called Mamertines, captured Messina, slew the male inhabitants, and kept the women for themselves. (3) King Ferdinand, in suppressing a revolution among his subjects, bombarded and captured Messina in September, 1849.

METAURUS. Decisive battle of the world, in which Hasdrubal, brother of Hannibal, was defeated by Caius Nero and Marcus Livius (207 B. C.). Along the shores of the Adriatic, near Rimini, Hannibal's brother led his varied host from the Pyrenees, Rhone, Alps, and Po, to help the great Carthaginian crush the growing power of the Roman Empire, and make Punic power supreme. Rome stood at bay for eight years, Hannibal finally waiting the arrival of Hasdrubal's reinforcements. The consular army of Livius harassed Hasdrubal, who proposed to Hannibal to unite the two armies in South Umbria and swing round against Rome an overwhelming force. The Consul Nero made a marvelous forced march, reinforced Livius, caught Hasdrubal in disorganized retreat, defeated him, sending his head to Hannibal as news of the catastrophe. Thus he saved Imperial Rome and broke the power of Hannibal. Nero's march is still considered "unparalleled."

METZ. (1) 1552-1553. Emperor Charles V., in his war with Henry II., laid siege to Metz, in Lorraine, which had been taken by the French. The duke of Guise conducted its defense by the French, and after a siege of four months Charles V. was obliged to retreat. (2) August 19-October 27, 1870. During the Franco-German War Metz was surrounded by German troops, which prevented the escape of General Bazaine. The French held Metz for about two months, when, the provisions having given out, they were obliged to surrender. Negotiations resulted in the capitulation of the town and its forts with all the materials of war, and the French army as prisoners.

MEXICAN WAR. Between the United States and Mexico (1846-1848). It resulted from Mexican outrages on American citizens, the recognition by the United States of the independence of Texas (1837), and of its annexation by the United States (1845). The United States claimed the Rio Grande as the boundary of Texas; the Mexicans, the Nueces. The United States leaders were Generals Zachary Taylor, Scott, and Franklin Pierce. The Mexican leaders were Generals Ampudia, Arista, and Santa Anna. The war was closed by the Treaty of Guadalupe Hidalgo.

MEXICO. Largest city in Latin North America. Founded (about 1325) when the Aztecs, looking for a favorable site, saw an eagle perching on a cactus, devouring a snake. Its name, Tenochtitlan, meant "cactus on a stone"; changed to Mexico in honor of their war god Mexitli. Mud and rush houses succeeded by stone edifices on piles (1450); had 50,000 buildings and several hundred thousand population on arrival of Spaniards (1519). It was 12 miles in circumference, intersected by canals, connected with mainland by six long solid causeways; essentially a lacustrine city until the subsidence of Lake Texoco left it high and dry. Almost destroyed by Cortez (1521); who then employed friendly natives to rebuild on same site. Under Spanish domination it had 15,000 population (1600); 120,000 (1800). Captured by United States (1847) after the battle of Chapultepec; and by French forces (1863). With a history extending from uncertain Aztec tradition, after three centuries of Spanish dominance and sixty years of spasmodic revolution it has become the center of a unique political system, and of an intellectual and industrial development unparalleled by any other city in Latin North America. It is the seat of numerous literary and scientific institutions and one of the most promising cities on the Western continent.

MIAMI TOWNS (October 17-22, 1790). After the close of the Revolutionary War, the colonists continued to suffer much from the Indians along the Ohio river. In 1790, an expedition led by General Harmar started for the Miami settlements near the place where the St. Mary and St. Joseph rivers flow into the Miami. They found the towns deserted, but plundered and destroyed them. After several unsatisfactory encounters with the Indians, in which many were killed and wounded, the militia returned home.

MILES, NELSON APPLETON (1839-1925). American soldier; born at Westminster, Mass. Served through the Civil War; at Antietam, Fredericksburg, Chancellorsville, and Spottsylvania. He then served through the Indian wars, and succeeded General Schofield as the commanding general of the army (1895). Commanded the United States troops at Chicago during the strike riots (1894). Represented the United States at Queen Victoria's Jubilee (1897). During the Spanish-American War he directed the occupation of Porto Rico in person, defeating the Spanish forces in two weeks. Raised to lieutenant general (1901), and made a tour of inspection of the Philippines (1902-1903). Retired August, 1903.

MILLER, JOSEPH NELSON (1836-1909). Rear admiral (retired) United States navy; born at Springfield, O.; graduated United States Naval Academy (1856); served in Civil War; chief of staff of Southern squadron, Pacific fleet (1870-1872); commandant navy yard, Boston (1894-1897); naval representative at jubilee of Queen Victoria (1897) with Brooklyn as flagship; commander-in-chief of Pacific fleet (1897-1898); rear admiral (March 21, 1897); retired (1898).

MILLESIMO (April 14, 1796). Bonaparte, in his campaign in Italy, defeated the Austrians at Millesimo.

MILLIKEN'S BEND (June 6, 1863). In the Federal campaign against Vicksburg, Miss., Grant reduced the garrisons at the various forts in order to increase his own army. On June 6 a party of Confederates under General McCulloch attacked the fort at Milliken's Bend, on the Mississippi river, in Louisiana, which was held by a small garrison, mostly negroes. Just as the attack was made two gunboats appeared before the fort and drove off the assailants. The Federal loss was about 428 men.

MILL SPRING (January 19, 1862). With a detachment of the Confederate troops at Mill Spring, Ky., General Crittenden set out to meet General Thomas, who was advancing with 8,000 Union men. On January 19, 1862, the armies met and immediately opened fire. After a desperate struggle the Confederates retreated to their camp, and during the night crossed the Cumberland river and fled. The Confederate loss was 529 men; the Unionist, 246 men.

MILTIADES. Famous Athenian general and son of Cimon. As satrap of the Chersonesus he helped Darius I. in his attack upon the Scythians in 513? B. C. He took Lemnos from the Persians and when the fleet appeared he fled to Athens. He was chosen one of the ten generals for the year 490 B. C. and defeated the

Persians at the battle of Marathon. He was then intrusted with a fleet of fifty ships to punish the people of Paros. The expedition was a failure and Miltiades was fined fifty talents. Unable to pay the fine he was thrown into prison and died from an injury received at the island of Paros.

MINDEN (August 1, 1759). In the fourth campaign of the Seven Years' War the French were completely defeated at Minden, in Prussia, by Prince Ferdinand of Brunswick with six English regiments.

MINIE, CLAUDE ETIENNE (1814-1879). A French military officer and inventor; born in Paris; entered the army, serving in Algeria; became captain in 1849; made superintendent of the school of ordnance at Vincennes (1852); appointed by Egyptian government superintendent of small arms factory and school of gunnery at Cairo (1858); invented the Minié rifle (1849), which was adopted by the French government.

MINISINK (July 22, 1779). On July 19, 1779, a band of Indians and tories led by Joseph Brant, suddenly attacked Minisink, a village in Orange Co., N. Y., and plundered and burned the settlement. A body of militia pursued, and on the 22d overtook, the Indians. A sharp conflict followed, in which the militia were practically annihilated, only 30 escaping.

MISENO, CAPE. A promontory projecting into the Bay of Naples on the northwest, and connected with the mainland by a narrow strip of coast, nine miles southwest of the city of Naples. On it are the ruins of the ancient city and naval station of Misenum, made by Augustus for a division of the Roman fleet; he also constructed a large harbor for the purpose. The Saracens destroyed the town in 890.

MISSIONARY RIDGE (November 25, 1863). After the battle on Lookout Mountain the Confederates moved to Missionary Ridge, southeast of Chattanooga, Tenn., where on November 25 they were attacked by the Federals under Sherman. The battle was severe and continued throughout the day, resulting in the rapid retreat of the Confederates with a loss of 9,000 men.

MISSISSINIWA (December 17, 18, 1812). When the Americans learned that a band of Indians were encamped along the Mississiniwa river, in Indiana, Lieutenant Colonel Campbell was sent with an army to dislodge them. On December 17th they arrived at an Indian town on the Mississiniwa, and after a short conflict burned the town. Early on the following day Campbell's troops were attacked by a large number of Indians. The engagement lasted about an hour, and resulted in the utter rout and defeat of the Indians.

MISSOLONGHI (April, 1826). Ibrahim Pasha entered Greece with an army from Egypt, and after besieging Missolonghi, a seaport of Greece, succeeded in capturing the city.

MISSOURI COMPROMISE. An arrangement made between the free and slave states of the United States (March 6, 1820) by which Missouri, a slave territory, was admitted to statehood, but providing that slavery should not exist in the rest of the Louisiana territory north of 36° 30′ North, which was the southern boundary of Missouri. The measure was passed after a long and vigorous debate.

MITCHEL, ORMSBY MACKNIGHT (1810-1862). American general and astronomer; born at Morganfield, Ky.; graduated at West Point (1829); assigned to duty at Fort Marion, Fla. (1831); left the service and became professor of mathematics, astronomy, and philosophy in Cincinnati college; recorded results of observance of stars and comets (1854-1859); at the outbreak of the Civil War he assumed command of a division of General Buell's army; made major general (1862); commanded the department of the South (1862); died of yellow fever.

MITHRIDATIC WARS. Wars between Rome and Mithridates, king of Pontus. First Mithridatic war (88-84 B. C.); second (83-81 B. C.); third (74-64 B. C.). Rome incited the king of Bithynia to invade the kingdom of Mithridates. The latter drove him out, and the Romans took up the quarrel. Mithridates defeated the Roman armies and drove them out of Asia Minor, then gave orders that all Romans and Italians in his kingdom should be put to death. Eighty thousand are said to have been massacred. Rome then took its usual thorough revenge and Mithridates was completely subdued. In the second war Murena, a Roman, invaded the territory of Mithridates, but Sulla ordered the war to be discontinued by Rome. The third arose over a dispute of succession to the throne. Mithridates took his own life after defeat in it, and the rebellion of his son, Pharnaces.

MITYLENE (427 B. C.). In order to put down the revolt of Lesbos, an island off the coast of Asia Minor, the Athenians fitted out as large a fleet as they possibly could and laid siege to Mitylene, the chief city of Lesbos. The inhabitants were finally forced to surrender; the leaders of the revolt were put to death and the land divided among Athenian landlords.

MOBILE BAY. (1) August 5, 1864. In January of 1864, Admiral Farragut returned to the Gulf coast to continue his naval operations. His desire was to capture Mobile, an important Confederate stronghold on the coast of Alabama, and to this end he began making preparations. On August 5 he ordered the fleet to make an attack, and after a desperate struggle the Confederate ships in Mobile Bay were overpowered and destroyed or captured. The forts which guarded the city surrendered later, after brief bombardments, and 104 guns and 1,464 prisoners were taken by the Federals. (2) April 9, 1865. After Johnston's surrender to Sherman, hostilities in the South continued for some time. In March, 1865, Canby led an expedition against Mobile. By the 9th of April the two forts which protected it had been forced to surrender, and on the 11th the city was evacuated.

MOGUL EMPIRE. May be said to have been founded (1526) by Babar, who conquered northern India and some of the central provinces. India finally passed from Afghans to Moguls in 1556, the real founder of the Mogul Empire being Akbar the Great, who reigned (1556-1605), and organized the many discordant petty states into an empire, partitioned it into provinces, and placed over each a governor or viceroy, with full civil and military control. Other important princes were Jehangir (1605-1627), Shah Jehan (1628-1658), and Aurungzebe (1658-1707). The Great Mogul Shah Alam was in 1803 deprived of his throne, and surrendered even the appearance of authority in 1827, becoming a pensioner of the British. At the outbreak of the Sepoy Mutiny Mohammed Bahadur, the last of the dynasty, was invested with imperial dignity at Delhi, but for his complicity in the mutiny was in 1857 condemned and transported to Rangoon, where he died in 1862.

MOLTKE (*molt'ka*), **HELMUTH KARL BERNHARD, COUNT VON** (1800-1891). "The Silent." Prussian field-marshal; born at Parchim in Mecklenburg-Schwerin; entered the Prussian service (1822); sent to reorganize the Turkish army (1835); chief of the general staff in Berlin (1858-1888); remodeled the Prussian army; the successful wars with Denmark (1863-1864), with Austria (1866), and with France in 1870-1871 proved his preëminence as a strategist. Moltke was made field marshal in 1871, and received a large grant of money as a reward for his services; retired in 1888, but still held the office of chairman of the National Defense Commission.

MONCK, CHARLES STANLEY, VISCOUNT (1819-1894). Born at Templemore, Ireland; called to bar (1841); member of Parliament for Portsmouth (1852-1855); lord of treasury (1855-1858); governor general of Canada (1861). Reappointed 1867 on confederation of provinces into Dominion and resigned the following year. Served on Irish education commission (1871). Succeeded his father to Irish peerage (1849); made a viscount in peerage of Great Britain (1866).

MONDOVI (April 22, 1796). Mondovi, a city of Italy, was the scene of a battle in which Bonaparte defeated the Sardinians.

MONITOR, THE. The first successful ironclad in the history of the United States. Built by John Ericsson at Greenpoint, L. I., and launched January 30, 1862. Commanded by Lieutenant John L. Worden when she engaged the Virginia (the converted Merrimac) in an indecisive battle of four hours. On December 31, 1862, she sank in a wind storm while on her way to Beaufort, N. C.

MONK, GEORGE, DUKE OF ALBEMARLE (1608-1670). English general; restored the monarchy under Charles II. (1660). On the death of Cromwell he entered London, called together the members of the Long Parliament and caused Charles to be recalled.

MONMOUTH (June 28, 1778). During the American Revolution, Monmouth, in New Jersey, was the scene of an important battle between the British commanded by Sir Henry Clinton and the Americans led by Charles Lee. The British had broken the American line, and Lee had ordered a retreat, when Washington appeared, quickly rallied the troops and personally led them to a fresh attack which forced the British to retreat. During the night Clinton withdrew and started toward the coast.

MONMOUTH, JAMES SCOTT, DUKE OF (1649-1685). Son of Charles II.; born at Rotterdam; created Duke of Monmouth (1663); and married to the countess of Buccleuch (1663); succeeded Monk as captain general (1670); defeated the Covenanters at Bothwell

Bridge, in Scotland (1679); received as the people's choice as successor to the throne (1680); went to Holland (1684), where he remained until the death of Charles; asserted his right to the throne as James II.; met the royal troops at Sedgemoor, where he was defeated; he was executed on Tower Hill (1685).

MONS. (1) The French army, under Louis of Nassau, had captured Mons, an important city of Belgium. But they were unable to hold the city against the Spaniards, and on September 19, 1572, Louis of Nassau abandoned it, whereupon the Spaniards brutally massacred and pillaged the inhabitants. (2) In 1691, during the war between Louis XIV. and the Grand Alliance, Mons was besieged and captured by the French. (3) October 20, 1709, Mons surrendered to Marlborough and Prince Eugene, and (4) in 1745 was again taken by the French.

MONTCALM DE ST. VERAN, LOUIS JOSEPH, MARQUIS DE (1712-1759). French general; born at Candiac near Nîmes; entered the army, and served in Italy and Germany; assumed command of French troops in Canada (1756); captured Forts Ontario (1756) and William Henry (1757); defended Fort Ticonderoga (1758) against the English; was besieged at Quebec for six weeks by the English under General Wolfe, and was defeated on the Plains of Abraham, where both he and General Wolfe were mortally wounded (1759). The fall of Quebec marked the end of the French power in Canada.

MONTEREY (September 21-24, 1846). During the war between the United States and Mexico, General Taylor marched against Monterey, a city of Mexico, which was strongly fortified by the Mexicans. For three days the Americans conducted an active bombardment and the Mexicans were forced to surrender. The Mexicans were given seven days to evacuate the city, leaving ammunition and supplies, together with the city fortifications, in the possession of the Americans.

MONTEZUMA I. (1390?-1464). A celebrated war chief of ancient Mexico. He was the son of a ruler of the city of Mexico; became famous as a warrior; elected "emperor" (1436) and during his reign extended Mexico from the Pacific Ocean to the Gulf of Mexico. He beautified the city and constructed vast systems of dams to prevent floods.

MONT'FORT, SIMON DE (1208-1265). A noted English statesman; born in France; inherited the title of Earl of Leicester from his grandmother; came to England to receive his estates (1229); under the leadership of Earl Simon the barons drew up the Provisions of Oxford which Henry III. swore to observe, then declared null and void; De Montfort defeated the king's army at Lewes (1264); summoned a parliament (1265) in which for the first time all classes were represented; at the battle of Evesham De Montfort and the barons were defeated and it was here that the great leader met his death.

MONTGOMERY, RICHARD (1736-1775). An American soldier; born near Feltrim, Ireland; entered the British army (1754); fought in the French and Indian War (1757-1760), and at the siege of Louisburg; sold his commission as captain and settled in New York (1772); adopted the American cause and served in the first provincial congress (1775); as brigadier general he commanded the Northern department (1775); captured St. John (1775) and Montreal (November 12, 1775); with Arnold made an assault on Quebec (December 31, 1775), and was killed at the head of the main assault.

MONTREAL. Principal city of Canada. Jacques Cartier (1535) ascended the St. Lawrence and found the Indian village, Hochelaga, at the foot of a mountain, which he named Mount Royal. When Champlain visited the spot (1603), the village had been destroyed. He established eight trading posts there (1611). The permanent settlement was founded (1642) through the missionary zeal of Jerome le Royer de la Dauversiere, a French nobleman, and Jean Jacques Olier, a French priest, by whom the island of Montreal was purchased when it was named Ville-Marie de Montreal. They founded religious communities (1) to teach nuns, (2) convert the Indians, and (3) train hospital nuns. De Maisonneuve was appointed governor. For many years the city was engaged in wars with the Iroquois. Aid from France broke the power of the red men (1665). It became the center of fur trade, receiving the name "Mother of Cities" (1672). The English from New York unsuccessfully attacked it (1690), but (1760) captured it as well as the whole of Canada. The Americans led by Montgomery took possession of it (1775), but in 1776 were forced to abandon the city and leave Canada. In the War of 1812, Montreal was threatened, but her forces checked all advances. It was the capital (1844); a riotous mob ended its power (1849). A great fire devastated nearly four acres of the beautiful city (1901).

MONTROSE, JAMES GRAHAM, MARQUIS OF (1612-1650). Scotch noble; royalist leader under Charles I.; born in Edinburgh, Scotland. Was opposed to Charles until in 1641 he became a royalist. The king made him lieutenant general of Scotland (1644), and in the same year he won six battles over the Covenanters. Was defeated, however, in 1645 by David Leslie at Philiphaugh. Again entered Scotland (1649), but the next year was defeated at Invercarron, taken prisoner, and executed.

MONTS, PIERRE DU GUAST (1560-1611). French explorer and colonizer of Canada; member of household of Henry IV.; governor of French Company of Canada (1603); given exclusive trade in furs between 40° and 50° N., power to make land grants in Acadia; with Champlain and others explored Bay of Fundy (1604), founded Port Royal (now Annapolis); returning to France (1605), found his privileges withdrawn, though he continued to send out expeditions till Henry's death (1610).

MOORE, SIR JOHN (1761-1809). A British general; born in Glasgow; entered the army, serving in the West Indies and Ireland (1798); and in the Egyptian campaign (1801); received the Order of the Bath (1801); served in Sicily and Sweden (1802); assumed chief command of the English army in Spain (1808); received orders to aid Spain in driving the French from the peninsula; forced to retreat to Corunna, a distance of 250 miles from Astorga, through an almost impassable mountainous country; was attacked by the French under Soult (1809) and repulsed them. Moore fell, mortally wounded, in the hour of victory. Wolfe's well-known poem commemorates his burial in the citadel, previous to the embarkation of the British troops.

MOORS. The Moors first appear in history as the allies of the Vandals in their attacks upon Roman Africa. The Arabs conquered and converted them after a severe struggle in the eighth century. They joined their conquerors in the attack upon Spain. In the tenth century they were supreme in northwestern Africa. At the close of the eleventh century the Moors crossed over into Spain and as the sect called Almoravides swept away the Arab kingdoms which had arisen on the ruins of the caliphate of Cordova. In about a half century their kingdom fell to pieces and the Moorish sect Almohades became dominant in Morocco and Spain. They in turn were shattered in 1212 at the battle of Navas de Tolosa, and the remnants of the kingdom of the Moors were merged into the kingdom of Granada, which rose to a remarkable height of splendor. In 1492 they yielded to Ferdinand and Isabella. Those who refused to embrace Christianity were expelled and became pirates of the Mediterranean. Those who remained were known as Moriscos. They lived as peaceful and valued citizens of Spain until the cruelties of Philip II. drove them to revolt in 1568-1570, when they were treated with great cruelty by Duke John of Austria. In 1609 the Moriscos were expelled and crossed over to Africa.

MORGAN'S RAID (July, 1863). During the summer of 1863 a band of Confederates led by Gen. John H. Morgan conducted an expedition through part of Kentucky and Ohio, devastating the country and terrifying the inhabitants. An army of Federals was soon in hot pursuit, and gunboats were sent to guard the Ohio river. On July 19 Morgan was forced into battle at Buffington Ford, on the Ohio river, and 800 of his men captured. The remainder fled toward New Lisbon, where they were overpowered and forced to surrender. Morgan was sent to the penitentiary at Columbus, but he escaped and began to plan another raid. On September 4, 1864, he was brought to bay near Greeneville, Tenn., and killed. During the expedition his men had slain 38 people, and destroyed $50,000 worth of property. Morgan had lost 2,000 men, and his equipment and plunder.

MORGARTEN. A mountain slope between Schwyz and Zug in Switzerland. The Swiss defeated a stronger army of Austrians at this point in 1315.

MORRIS, ROBERT (1734-1806). The "Financier of the American Revolution"; born in Liverpool, England; came to America (1748); settled in Philadelphia and entered a mercantile house, of which he became a partner (1754); became warden of the port of Philadelphia (1766); at the outbreak of the Revolution he served as a member of the Pennsylvania Committee of Safety (1775); served as a member of the Continental Congress (1776); and signed the Declaration of Independence (1776); chosen superintendent of

finance (1781); borrowed large sums of money to finance some of the important campaigns of the war; founded the bank of North America (1781).

MOSCOW (September 15-19, 1812). Repeated victories for the French in Russia opened the route to Moscow, and on September 14, 1812, Napoleon and the French army triumphantly entered the city. Shortly after their arrival fire broke out in different sections of the city and it was soon discovered that orders had been given to burn the city so as to force the invaders to flee. Incendiaries were busy in all parts of the capital, and their efforts were furthered by the changeable winds, which carried the flames first into one quarter and then another. There was nothing for the French army to do but leave the city, and on October 19, 80,000 men began their famous retreat from Moscow. The experiences of their march were horrible; overcome with cold and hunger, they dropped from the ranks by thousands, to be taken prisoners or torn to pieces by their starving comrades. When the campaign came to a close, 300,000 soldiers had been left beyond the river Niemen in Russian territory.

MOULTRIE, WILLIAM (1731-1805). An American soldier; born in South Carolina; appointed captain in the Cherokee expedition (1761); member of the Provincial Congress in 1775; became colonel of a South Carolina regiment (1775); erected a fort on Sullivan's Island, which was known by his name; defended this fort against British attack; made brigadier general; defeated the British at Beaufort 1779); held chief command in Charleston till General Lincoln arrived (1778); promoted major general (1782); governor of South Carolina (1785-1786 and 1794-1796).

MOUND BUILDERS. Hypothetical people supposed to antedate the Indians in the Ohio and Mississippi valleys; the latter is now regarded as the home of ancestors of tribes found by Spanish, French, and English pioneers. The mounds were mortuary or sacrificial.

MOUNTAIN MEADOWS MASSACRE. In Utah, 350 miles south of Salt Lake City, September 7, 1857. About 140 men, women, and children emigrating from Arkansas and Missouri to Southern California were fired upon by Indians and, it is said, disguised Mormons. They withstood the siege until the 11th when, on promise of protection by John D. Lee, Mormon bishop and Indian agent, they left the shelter of their wagons. All over seven years of age were killed. Lee was executed for the crime and the Mormon church suspected of complicity in it.

MT. GAURUS. One of the three great battles of the First Samnite War (343-341 B.C.) was fought on Mt. Gaurus, in Italy. The accuracy of the historic details regarding this struggle is doubtful.

MT. VESUVIUS. Volcano on the Bay of Naples, having a base 30 miles in circumference and two summits. Unrecognized as a volcano until its first eruption (79), when Pompeii was buried under about 20 feet of loose ashes, and Herculaneum covered by a torrent of mud; many coming to give aid were suffocated by the fumes. Eruptions occurred later covering the villages with lava and boiling water.

MUHLENBERG, JOHN PETER GABRIEL (1746-1807). American general and leader in the Revolutionary War; born at Trappe, Pa.; commander in chief in Virginia until the arrival of Steuben. He was in Congress (1789-1791, 1793-1795, and 1799-1801); collector of port of Philadelphia (1803-1807).

MUKDEN (March, 1905). The Japanese had defeated the Russians and occupied most of the important points in Manchuria, but it was not until the surrender of Lone Tree Hill that Mukden, the most important city of Manchuria, was evacuated by the Russians.

MUNDA (March 17, 45 B. C.). Caesar marched into Spain to suppress the Pompeians, and at Munda, now Monda, in southern Spain, won a decisive victory.

MURRAY, JAMES (1725-1794). British general; born in Scotland; fifth son of Lord Elibank. Entered the army (1740); sent in command of a brigade to Canada (1757); led left wing of Wolfe's army on Heights of Abraham battle (1759); successfully defended Quebec against superior French force (1760), and assisted General Amherst in reducing Montreal. Appointed governor of Quebec (1760); governor of all Canada (1763-1766); appointed governor of Minorca (1774); after a desperate defense capitulated Fort St. Philip (1782), to be tried by English court-martial and acquitted. Promoted to a full general (1783).

MUSGROVE MILLS (August 18, 1780). With a force of 200 Americans, Williams, Brattan, Clarke, and Shelby set out from Broad river, S. C., to disperse a band of Tories which were gathering at Musgrove's Mills, on the Enoree river. On August 18, 1780, they encountered the British and Tories and after a brief conflict the British were utterly routed.

MUTHUL (109 B. C.). The Romans, commanded by Metellus, entered northern Africa to assist the Numidians engaged in the Jugurthine War, and narrowly escaped defeat on the Muthul.

MUTINA (now Modena), in northern Italy. (1) A band of fugitive gladiators, led by Spartacus and armed with captured weapons, marched into northern Italy and at Mutina defeated the proconsul of Gallia Cisalpina (72 B. C.). (2) On April 27, 43 B. C., Mark Antony was defeated with heavy loss by Hirtius, a Roman consul, and retired into Gaul.

MYCALE (September 22, 479 B. C.). The Greeks gained a great naval victory over the Persians near Mycale, in Asia Minor.

MYCENAE. A very ancient city of Greece in the northeastern part of Argolis in the Peloponnesus. It is celebrated in legend as the capital of Agamemnon. About 468 B. C. it came into the hands of Argos. Mycenae was still partly independent, for during the Persian Wars it sent men to Thermopylae and Plataea, while Argos was friendly to Persia. The great Cyclopean Wall was not greatly injured when the city was destroyed by the Argives, and this with the "Lion Gate" and the domed tomb called the "Treasury of Atreus" are the most celebrated of Cyclopean architecture. No other site has yielded so great a variety of objects, or so complete a series of vases. The Greek Archaeological Society has continued the work of excavation begun by Heinrich Schliemann in 1876.

MYLAE (now Milazzo). 260 B.C. In a naval battle near Mylae, on the northern coast of Sicily, the Carthaginians were defeated by the Romans.

NAFELS (April 9, 1388). The Austrians entered the Glarus valley in Switzerland, and in an encounter at Nafels were defeated with a loss of 1,700 men.

NANA SAHIB (about 1820-?). One of the leaders of the Sepoy mutiny in India (1857). At the outbreak he traitorously offered assistance to the English and then headed a body of mutineers. He induced the European troops to surrender on condition that they would be carried to a place of safety and he then ordered the men to be shot. The women and children were imprisoned in Cawnpur. Havelock marched to release them, but before he reached them Nana Sahib caused them to be murdered and their bodies thrown into a well. His end is unknown.

NANSHAN (May 26, 1904). A series of careful movements on the Liao-tung peninsula, in China, culminated in a battle on the heights of Nanshan, not far from Dalny. The Russians held out for 16 hours, but were finally forced to retreat. The possession of this point made it easy for the Japanese to occupy Dalny.

NANTES, EDICT OF. Famous decree signed at Nantes by Henry IV. of France (April, 1598), granting certain privileges to his Protestant subjects. (For terms of the Edict, see Table of Treaties.) In force until its revocation by Louis XIV. (1685).

NAPIER, SIR CHARLES JAMES (1782-1853). A famous British general; son of Col. George Napier; born at Whitehall; entered the army and served during the Irish rebellion of 1798; received a command at Corunna, where he was taken prisoner by the French; served under Beckwith in an expedition against the United States (1813); engaged in the storming of Cambrai; resident governor of Cephalonia (1822-1830); ordered to command the army at Bombay (1841); with the close of the successful battle of Hyderabad the power of the rulers of Sindh was crushed, and the British became masters of the Sindh; Napier was made governor of the conquered territory; became commander-in-chief in India (1849-1850); quarreled with the directors of the East India Company and retired to England, where he died.

NAPIER, ROBERT CORNELIS, LORD OF MAGDALA (1810-1890). A British field marshal; born at Colombo, Ceylon; served in the first and second Sikh wars; distinguished himself at Lucknow; received chief command in central India (1858); served under Sir Hope Grant in the expedition to China (1860); for his brilliant work in Abyssinia (1868) where he captured the stronghold of Magdala, he was created Baron of Magdala; appointed commander-in-chief of the British army in India (1870); was promoted to the rank of field marshal (1883), and became governor of Gibraltar in 1876.

NARVA (November 30, 1700). Carl XII. of Sweden defeated Peter the Great of Russia in a battle at Narva, near St. Petersburg, on the coast of Russia.

NASEBY (June 14, 1645). At Naseby, in Northamptonshire, England, the Royalists, led by Charles I., were defeated by the Parliamentarians, under Cromwell and Fairfax.

NASHVILLE (December 15, 16, 1864). After the battle of Franklin, the Confederates led by Hood pursued General Schofield to Nashville, Tenn., which was occupied by Thomas and his army of 50,000. On December 15 Thomas advanced and gave battle to the Confederates, and after two days of skirmishing and maneuvering the latter were in full retreat toward Franklin. Thomas continued the pursuit until the Confederates crossed the Tennessee. The Confederate loss was about 5,000. The Federals lost between 3,000 and 4,000.

NAVARINO. The Bay of Navarino, on the southwest coast of Greece, has been the scene of two battles. (1) In 425 B. C. the Spartans were utterly defeated by the Athenians in a great naval battle. (2) During the War of Grecian Independence, the British fleet was destroyed by the English, French, and Russian navies here on October 20, 1827.

NAVARRETE (April 3, 1367). Pedro the Cruel of Castile, allied with Black Prince, defeated his brother, Henry of Trastamare, in a battle between Navarrete and Najara, in Spain.

NAXOS (376 B. C.). In a naval battle near the island of Naxos, in the Aegean Sea, the Athenians defeated the Lacedemonians, and the supremacy of the sea was restored to Athens.

NAZARETH (May 1, 1187). Battle between a small army of Crusaders and several thousand Turks. Almost all of the Christian knights were killed or captured. The Knights Templars, especially, suffered severely, sixty of the order being killed.

NEGROES (imported into the United States). In 1619 a cargo of negro slaves was landed at Jamestown. The growing needs of the South demanded more negro slaves and by 1714 the number had increased to about 58,850. Africa furnished the greater part of the slaves, although many were imported from the West Indies. In 1790 there were 757,208 negroes in the United States. Importations of negroes were forbidden by the Constitution in 1808, but Africans were smuggled into the country up to the time of the Civil War. The last cargo was landed on Jekyll Island, off Brunswick, Ga.

NEHAVEND or **NAHAVUND** (641). The fall of the Sassanid power in Persia dates from the battle of Nehavend, in western Persia, in which the king, Isdigerd III., was defeated by the Saracens. The Arabs called their success the "victory of victories."

NELSON, HORATIO, VISCOUNT (1758-1805). The most famous of English admirals; born at Burham-Thorpe, Norfolk, England (September 29, 1758); entered the navy at the age of 12; in 1777, was made second lieutenant; in 1779, captain; took a prominent part in the battle of Cape Vincent, and for his share in this great event received a knighthood of the Bath; in 1797, led an unsuccessful attack on Teneriffe; for his brilliant victory in the battle of the Nile (1798) he was created Baron Nelson of the Nile; commissioned a viscount for the victory of the Baltic, where, as second in command, he disobeyed orders directing his retreat; was mortally wounded at the famous battle off Cape Trafalgar, where his fleet gained a great victory over the French and Spanish. His last words were, "Thank God, I have done my duty."

NEW BRUNSWICK. Important Canadian province. First settled by Frenchmen on Bay of Chaleurs (1639). With Nova Scotia it formed the original French colony of Acadia taken by English (1654); restored to France (1667); re-ceded to English (1713) by Treaty of Utrecht. First British settlers were Scotch agriculturists and laborers (1764); reinforced by over 5,000 Loyalists driven from United States (1783); Nova Scotia and New Brunswick formed distinct colonies (1784); first legislative assembly of New Brunswick met at St. John (1786); united with Nova Scotia, Ontario, and Quebec (1867), thus becoming one of the original provinces of the Dominion of Canada. Capital and seat of government is Fredericton. Chief rivers are the St. John and the Miramichi.

NEWFOUNDLAND. A British colony in North America comprising the island of Newfoundland and its dependency, Labrador. Newfoundland was discovered by John Cabot for the English in 1497. English, French, Spanish, and Portuguese cod fisheries were established here. In 1583 Sir Humphrey Gilbert took formal possession of the island for England, but France refused to recognize the claim. By the treaty of Utrecht, in 1713, France admitted the sovereignty of England over the whole territory of the island, but the French retained the islands of Miquelon and Saint Pierre for fishing stations, with the exclusive right to the cod fisheries on the western coast. The English valued the island merely as a source of the fish supply, and settlements were practically forbidden. In 1832 representative government was conceded by England, and parliamentary government was granted in 1855. The French interpretation of the west shore rights prevented settlement by inhabitants of Newfoundland. The Anglo-French convention of 1904 accomplished a final settlement, by which France agreed to renounce her exclusive fishing rights on the west shore, but reserved the right to fish in territorial waters from St. John's Cape north to Cape Ray. French shipowners and fishermen received a compensation of $275,000.

NEW HAVEN (July 5, 1779). In 1779 a British expedition was sent to the Connecticut coast under General Tryon. They landed at West Haven, intending to proceed to New Haven, but the inhabitants resisted so vigorously that they were obliged to march around the town and enter by another route. At the same time more troops were landed at East Haven, the town was sacked, and the British sailed off with about 30 prisoners.

NEW LONDON (September 6, 1781). With a large British force, assisted by a fleet of thirty vessels, Benedict Arnold attacked and captured New London, on the coast of Connecticut, and burned nearly all of the wharves and stores.

NEW MADRID (March 13, 1862). When the Confederates at Columbus, Ky., heard of the fall of Fort Donelson, they moved to New Madrid, Mo., a well defended position under General McCown. On March 13, 1862, General Pope, with an army of 20,000 men and several heavy guns, began an active bombardment which forced the garrison to abandon New Madrid and retreat to Island No. 10.

NEW ORLEANS. (1) January 8, 1815. With reinforcements which swelled their numbers to 12,000, the British under Sir Edward Pakenham attacked New Orleans, on the Mississippi river, in Louisiana. The Americans were greatly outnumbered, but held a strongly intrenched position which compelled the British to approach across a much exposed plain. In the fighting which ensued, the British lost 2,400 men, including General Pakenham; while the Americans lost only 21 men. (2) April 24, 1862. During the Civil War the combined military and naval forces of the Federals led by General Butler and Admiral Farragut, made an attack upon New Orleans. The city was defended with two strong forts just below it, a fleet of 15 vessels commanded by Mitchell, and a heavy chain stretched across the river. For six days Farragut bombarded the forts without effect, and then decided to pass them. On April 24 the Federal forces were ordered forward, and in the midst of incessant firing from the forts all but three of the vessels made their way up the river and destroyed the Confederate fleet. This victory opened the way to the city, and on April 29, a detachment was sent ashore to take possession. May 1 the Federal troops occupied New Orleans, having lost 12 killed and 193 wounded.

NEY, MICHEL, DUKE OF ELCHINGEN AND PRINCE OF THE MOSKVA (1769-1815). A French marshal; born at Saarlouis (January 10, 1769); he made the campaign of 1792 with the army of the North, and rose to be lieutenant; contributed largely to the victories of Ulm, Eylau, and Friedland; served in the Peninsular War (1808-1811), proving one of the most capable officers opposed to Wellington; created Prince of Moscow for his conduct at the battle of Borodino (September 7, 1812); fought for Napoleon during the campaigns (1813-1814), but upon his abdication joined the government of Louis XVIII. Upon return of Napoleon he was induced to join his old chief; defeated by the English and their allies at Quatre Bras, but joined Napoleon at Waterloo (1815); soon after was captured and shot at Paris (December 7, 1815), on a charge of treason.

NICAEA (May 6-June 19, 1097). The first undertaking of the Crusaders was the siege of Nicaea, in Asia Minor; the first time the whole army had been brought together. Alexius, Emperor of the Greeks, allied to the Crusaders, brought vessels overland to the lake completing the blockade. After futile attempts, just as the Crusaders were about to take the city it surrendered to their ally, Alexius, who hoisted

his standard and announced his intention to hold it against the Crusaders.

NICE (Councils of). (1) Council of the Christian Church held at Nicaea in Bithynia. The emperor Constantine called the first one in 325. There were present of 1,800 bishops in the empire only about 318. At this council the time for observing Easter and the doctrine of the Trinity were settled, the Nicene Creed was adopted, and the Arians were condemned. Thus the divisions in the church were healed. (2) The second council of Nicaea was convened by the empress Irene and her son, Constantine, in 787. The council was attended by 375 bishops. The orthodox views as to image worship were reaffirmed.

NIEUPORT (July 2, 1600). The Dutch and English, under Prince Maurice, defeated the superior forces of the archduke Albert, the Spanish ruler of the Netherlands, at Nieuport, on the coast of Belgium.

NILE (August 1, 1798). The English fleet, under Admiral Nelson, defeated the French fleet, under Brueys, in the battle of the Nile, near Abukir, a village on the coast of Egypt. The French army was thus cut off from France, and the British controlled the Mediterranean.

NINETY-SIX (May and June, 1781). During the Revolutionary War, Ninety-Six, a village in South Carolina, was besieged by the Americans under General Greene. For almost a month the Americans kept the British there, but when news came that a large British army was coming, Greene withdrew.

NINEVEH. Capital of the Assyrian Empire, situated on the Tigris river opposite the present Mosul. The prophet, Jonah, preached against this city. Shalmaneser I. is known to have restored a temple of Ishtar at Nineveh (about 1300 B. C.), which is mentioned in the code of Hammurabbi. It was under King Sennacherib and his successors that the city attained the height of its glory. It fell before the combined strength of the Medes under Cyaxares, and the Babylonians under Nabopolassar. The year of the fall of the city is uncertain, but it was probably about 607 B. C. First excavations in 1842-1843 by Paul Botta proved disappointing, but more recent ones have brought to light the famous library of Asshur-bani-pal, as well as some of the finest specimens of Assyrian art.

NIUCHWANG. During the Boxer outbreak in China in 1900, the Russians poured into Manchuria and occupied Niuchwang, a town near Mukden. The Russians threatened a general assault, but the foreign residents interceded and allowed the Russians to enter peacefully, although not without some looting and skirmishing.

NODDLE'S ISLAND (May 27, 1775). In order to prevent the Americans from taking the live stock from Noddle's Island, Hog Island, and Snake Island, just northeast of Boston, a small force of British marines was stationed on Noddle's Island. A few colonists had been sent to remove the stock, but after firing upon and killing three of the marines they retreated to Hog Island. With the aid of reinforcements the colonists forced the marines to retreat.

NOLA (215 B. C.). An Italian city near Naples; noted for its remarkable resistance to Hannibal during the second Punic War.

NORDLINGEN. (1) November 6, 1634. A battle of the Thirty Years' War was fought at Nordlingen, a town of Bavaria, in which the Swedes were defeated by the Imperialists, under Ferdinand. (2) Later, August 3, 1645, another battle near there resulted in a victory for the French over the imperial German army.

NORFOLK. (1) January 1, 1776. Late in 1775, an expedition of British under Lord Dunmore plundered Virginia in the vicinity of Norfolk, its most prosperous town. The inhabitants of the state formed an army under Woodford and took possession of Norfolk and the important strongholds near there, forcing the British to withdraw. When reinforcements arrived from England, however, Dunmore immediately began a bombardment and set fire to Norfolk. The section left standing was burned by the Americans to prevent its occupation by the British. (2) May 10, 1862. When the Federal army marched toward Richmond, the Confederates destroyed the Merrimac and evacuated Norfolk, at the mouth of the James river. On May 10, a force from Fortress Monroe was sent to seize Norfolk, and the place was surrendered without resistance.

NORTHAMPTON. July 10, 1460, the Houses of York and Lancaster met in a battle at Northampton, England, in which Henry VI. was defeated and captured by the Yorkists.

NORTH ANNA CROSSING (May 23-27, 1864). From Spottsylvania, Grant's army moved south to the North Anna river, arriving May 23. There they encountered Lee in such a well chosen position that after a struggle in which the Federals lost 1,293 men, Grant withdrew. On the 27th, when Sheridan joined Grant, the Federal force started toward the Pamunkey river.

NORTHMEN. A name given by some to the Scandinavians, by others to the Danes, and by all to the Vikings or Sea-kings who committed such depredations in the countries on the North Sea and the Baltic. The Danes first appeared on the coasts of England about 787. In 795 they settled in some of the towns of Ireland. After 832 they paid almost annual visits to England. In 851 they passed their first winter there. After 866 they had firm footing in England. Ethelred I. and Alfred the Great curbed them and external peace followed these wars. In 991 the attacks began anew. Ethelred II. tried to buy them off and imposed on his people a tax called Danegeld to meet their demands. As they returned in larger numbers, demanding larger sums, he ordered a massacre of the Danes in all parts of England on November 13, 1002. This was followed by four invasions for revenge under Sweyn, king of Denmark, and the country was fearfully ravaged. Sweyn conquered the country in 1013 but died the next year. His son, Canute or Knut, carried on the war with Ethelred and his successor, Edmund Ironside, and conquered the country, and the country became Norse till 1042, when the last king died. The country then passed into the hands of the Saxons under Edward the Confessor. On his death in 1066 he was succeeded by Harold, Earl of Kent. Then William of Normandy, a descendant of the Norwegians who had settled in Normandy, took the country in the Norman Conquest at the battle of Hastings. The Danish Norsemen ravaged the coasts of Europe from the Elbe to the Garonne. Gottfried overran Friesland as early as 810, but Charlemagne overpowered them. About 820 they renewed their attacks and under the weak kings became the scourge of northwestern Germany and France. They plundered Hamburg several times, and the coast of the Frisians, and in 843 were firmly planted at the mouth of the Loire. They then swarmed up the great rivers and plundered the interior of the country. In 842 they were at Rouen. In 845 they went up the Seine and sacked Paris. In 885 no fewer than 40,000 of them in 700 ships went up from Rouen under Siegfried and stormed Paris for ten months; Burgundy was given over to them as a price of safety to Paris. Louis III., king of the West Franks, checked them at Saucourt in 881; Arnulf, the brave German monarch, defeated them near Louvain in 891; but that did not stop them. In 892 they were at Bonn; it is said they were even in Switzerland. In 844 they were in Spain, but were defeated near Seville by the Arab, Abd-ur-Rahman. In 859-860 they forced their way into the Mediterranean and visited and plundered the shores of Spain, Africa, the Balearic Isles, up the Rhone, into Italy, where they burned Pisa and Lucca, and even over to Greece. They, with Norwegian associates, made voyages to the north of Ireland, the Orkneys, Hebrides, and the Shetland Isles in the ninth and tenth centuries. About the same time they settled in the Faroe Isles and Iceland; thence Vikings crossed to Greenland in 983. About twenty years later they visited Vinland, now believed to have been the Nova Scotia coast, 500 years before Columbus. About 911 Hrolf or Rollo went out from Norway and compelled Charles the Simple of France to give him the land about the mouth of the Seine. This land became Normandy or the land of the Northmen.

NORTH POINT (September 12, 1814). After sacking Washington, General Ross and his British army embarked for Baltimore. They landed at North Point, about 12 miles from Baltimore, where they were met by 3,200 Americans under General Stricker. The battle continued for four hours and resulted in the retreat of the Americans to Baltimore.

NORWALK. On July 12, 1799, the British fleet, commanded by Tryon, appeared before Norwalk, Conn. A small band led by Capt. Stephen Betts met the invaders, but were quickly dispersed, and the British destroyed over $166,000 worth of property before quitting the town.

NOTIUM (407 B.C.). The Athenian fleet at Notium, in the Gulf of Ephesus, was completely defeated by the Lacedemonian fleet, under the command of Lysander.

NOVI. August 15, 1799, a battle was fought at Novi, a town of Italy not far from Genoa, in which Suvaroff, general of the allied Russian and Austrian armies, defeated Marshal Joubert and the French army.

NUMANTIA. The chief town of the Celtiberian people called Arevaci, in ancient Spain. It is on the Douro, near the present Soria, in Old Castile. The city is noted for its brave resistance to the Romans

under Scipio the Younger, who besieged it for fifteen months from 135 to 133 B. C., when at last it was starved into surrender, and then with the few remaining inhabitants was destroyed.

OAK GROVE (June 25, 1862). From June 25 to July 1, 1862, occurred the Seven Days' Battles in the vicinity of Richmond, Va. The first skirmish took place on June 25 at Oak Grove, on the main road from Richmond to Williamsburg. The Federals lost 67 men killed, 504 wounded, and 55 missing.

OATES, TITUS (1649-1705). The principal informer in the alleged popish plot; born at Oakham; pretended that he had discovered a plot of the Roman Catholics to murder Charles II. and make the duke of York king, to massacre the Protestants and burn London; innocent men were implicated and murdered, and London went wild with excitement; Oates was regarded as the "savior of his country," and for a time lived at Whitehall and received a pension; a reaction set in and Oates was imprisoned and fined (1683); stripped of his canonicals and flogged (1684), and received a life sentence; set free by the revolution of 1688, and received a pension of £300.

O'CONNELL, DANIEL (1775-1847). An Irish patriot and orator; born near Cahirciveen, County Kerry; entered parliament when the bill for Catholic emancipation was passed (1830); in favor of Catholic emancipation; chief speaker, throughout Ireland, in the agitation for the repeal of the union (1841); was tried for seditious conspiracy (1843) and sentenced to imprisonment; House of Lords reversed this judgment; his party divided into "young" and "old" Ireland, with the former against him. His health gave way beneath the struggle and he died on his way to Rome.

OCTAVIA (70?-11 B. C.). The sister of the emperor Augustus, who married, first Gaius Marcellus, consul in 50 B. C., and in 40 B. C., at the death of Marcellus, married Mark Antony, in order to keep peace between him and her brother Augustus; her husband soon forsook her for the Egyptian queen, Cleopatra. Octavia was distinguished for her beauty and womanly virtues.

OGDENSBURG. On February 22, 1813, in retaliation for the American success at Elizabethtown, a British force led by Lieutenant Colonel McDonnell attacked Ogdensburg, N. Y., and after a short struggle captured the town and plundered it.

OLUSTEE (February 20, 1864). An expedition of land and naval forces under General Seymour was sent into Florida from Port Royal. On February 7 they reached Jacksonville and started inland. On the 20th they met the Confederates at Olustee, and were defeated and obliged to retreat to Barbers with a loss of 1,861 men and 5 pieces of artillery.

OLYMPIAD. The space of four years between one celebration and another of the Olympic games, held in ancient Greece. The name of the winner of the foot race in the games was often used with the number of the Olympiad. Coroebus was the first recorded winner in 776 B. C., and thus began the first Olympiad; the system of chronological reckoning was dated from this time.

OLYNTHIAN WAR. Olynthus, a Greek city in Chalcidice, was the center of a league. It endeavored to force other cities into the union. They appealed to Sparta for aid. A Spartan force, after some reverses, compelled the city to surrender (379 B. C.).

OMAR PASHA (1806-1871). A Turkish general; born in Croatia. His real name was Michael Lattas; made governor of Lebanon (1842); defeated the Russians at Oltenitza (1853), and at Silistria (1854) with an army of 60,000 men; repulsed the Russians, who with 40,000 men attacked him at Eupatoria (1855); his attempt to relieve Kars failed; became governor of Bagdad (1857); banished for two years (1859-1861); on his return he repressed the uprising in Montenegro and took Cetinje (1862); made field marshal (1864); failed to put down the rebellion in Crete; made minister of war (1869).

OPEQUAN. See WINCHESTER (4).

OPIUM WAR. The war between Great Britain and China (1840-1842) caused by China's attempt to stop the importation of opium. The war closed with the treaty of Nanking; treaty ports were opened to trade, and England obtained Hongkong and an enormous indemnity.

ORCHOMENUS (85 B. C.). During the Mithridatic wars, Sulla assaulted the camp of Archelaus, and gained a complete victory for the Romans.

ORISKANY (August 6, 1777). An army of 800 Americans led by Herkimer, defeated the British led by St. Leger, at Oriskany, on the Mohawk in central New York. It was one of the bloodiest conflicts of the war. Men fought hand-to-hand amidst a terrific thunder shower, and finally the British retreated, leaving the Americans in possession of the field.

ORLEANS. Decisive battle of the world (1429) due to the French refusing to accept the Treaty of Troyes, which provided the French crown should descend to the heirs of King Henry V. of England, and that the two countries should be forever under one king. The last stand for monarchial independence was made at Orleans; besieged by the duke of Bedford, who held the Tourelles, a fortified position commanding Orleans. A peasant girl named Joan of Arc (Jeanne d'Arc) appeared claiming Divine authority to lead the French and deliver the country from the English. The French stormed and captured Tourelles; losing ammunition and supplies the English retreated, and the monarchial independence of France was assured. Later Joan of Arc was captured by the Burgundians, sold to the English, and burned as a witch at Rouen.

ORLEANS, LOUIS PHILIPPE JOSEPH, DUC D' (1747-1793). Fifth duke of Orleans, known as Egalité; born at Saint-Cloud; espoused the cause of the colonies in the American Revolutionary War; joined the "tiers état" in the states-general (1789); aided revolutionary movements by money and secret agents (1789); assumed the name of Philippe Egalité (Equality) and took his place with the mountain party; he voted for the death of the king Louis XVI.; with all the members of the Bourbon family he was arrested by order of the convention and his estates confiscated (1793); in September was condemned by the revolutionary tribunal and executed. His son, Louis Philippe, became king of France in 1830.

OR'LOFF. The name of a prominent Russian family. **GRIGORI** (1734-1783), a favorite of Catherine II.; fought in the revolution which placed Catherine on the throne; served in the Seven Years' War. **ALEXIS** (1737-1808). Russian admiral; a leader in the revolution which placed Catherine II. on the throne; murdered Peter III. (1762); appointed admiral (1768), and defeated the Turks at Chesme (1770).

ORSI'NI, FELICE (1819-1858). Italian revolutionist; born at Meldola; elected to the Roman constituent assembly (1849); took part in the defense of Rome and Venice; exiled to England (1853); returned to Italy where he was arrested and confined at Mantua; escaped to England (1856); with three other conspirators, made an attempt on the life of Napoleon III. in Paris (1858); the emperor was unhurt, but the assassins were arrested and tried; Orsini and one other were found guilty and were guillotined (1858).

OSTEND MANIFESTO. A dispatch signed at Ostend, Belgium, in October, 1854, by James Buchanan, John Y. Mason, and Pierre Soulé, all United States ministers in Europe, declaring the advisability of the sale of Cuba by Spain to the United States and declaring that the United States would be justified in taking it by force in the event of the refusal of Spain to sell it. The declaration was not approved by any party in the United States, though the meeting of ministers was under the direction of President Pierce.

OSWEGO. (1) August 11, 1756. The French led by Montcalm attacked the English under Shirley at Oswego, N. Y., and easily captured the fort. (2) In 1759, the French and Indians tried to get possession of Fort Oswego, then occupied by the English, but their attack failed. (3) On May 5, 1814, Sir James Yeo, in command of a British squadron of eight vessels, appeared before Oswego, and attempted to land troops, which were forced back by the garrison of Fort Ontario, consisting of 300 men under Lieutenant Mitchell. The next day the British returned in such numbers that Mitchell was overpowered and obliged to evacuate the fort.

OTTAWA. Capital of the Dominion of Canada. Founded by Colonel By, from whom it received the name of Bytown (1827); incorporated as a city under its present name (1854); selected by Queen Victoria as the capital of Canada (1858). Seat of Federal Senate and House of Commons. It was visited by a great fire (1900).

OUDENARDE (July 11, 1708). During the War of the Spanish Succession, the French attempted to capture Oudenarde, a town of Belgium, but were defeated by the allies under Marlborough and Eugene.

OUDINOT (*oo-de-no'*), **NICOLAS CHARLES, DUKE OF REGGIO** (1767-1847). Marshal of France; born at Bar-le-Duc; appointed general of brigade (1794); as a reward for bravery Napoleon made him marshal (1809); commanded during the occupation of Holland (1810-1812); took part in the Russian campaign and

was wounded during the retreat from Moscow (1812); when Napoleon was sent to Elba, Oudinot went over to the royalists; Louis XVIII. created him a peer; commander of the royal guards, minister of state, and chief of the Paris national guard.

OXFORD. Chief city and county seat of Oxfordshire, England. It is situated 52 miles west-northwest of London. Noted for university here, which is one of the two principal universities of England. As early as 1117 we hear of Continental scholars lecturing at Oxford University. Many religious orders were attracted to Oxford at the rise of the university. Oxford has a distinct historical significance, as during the civil wars in England it was not merely the center of royalist operations, but the capital of royalist England.

PAARDEBERG (February 27, 1900). General Cronje was brought to bay by the British near Paardeberg, on the Modder river in South Africa, where he defended himself for nine days. Finally, when his army had been reduced to about 4,000 men, he surrendered.

PADUA. The most important town in northern Italy during the height of Rome's grandeur. Padua claims its origin from the time of Troy. It was sacked by the Goths and Huns, and taken possession of by Charlemagne, who wrested it from the Longobardi. Ezzelino IV., da Romano, the cruel tyrant, made it his capital in the middle of the thirteenth century. After being a republic for a time it passed under the rule of the Carrara family, and became the object of conquests on the part of Venice in 1405. Livy and Mantegna were born in Padua, and Donatello, Giotto, and Fra Filippo Lippi did much of their work here.

PAK'ENHAM, SIR EDWARD MICHAEL (1778-1815). An English soldier; born in County Westmeath, Ireland; entered the army; made major general (1812); received a command under Wellington, and fought with distinction at Salamanca; was killed while directing the unsuccessful expedition against New Orleans (1815).

PALERMO. Of Phoenician origin. The town was Carthaginian until taken by the Romans in 254 B. C. Augustus established a colony here. In 535 the Byzantines took it from the Goths. It was a wealthy and powerful Moslem center after 830, and in 1072 it was the Norman capital in Sicily. The Hohenstaufen controlled it in 1194. Frederick II. held his brilliant court here. Here occurred the massacre of the French in 1282, known as the Sicilian Vespers. In 1820, 1848-1849, and 1860 the city suffered from revolutions. In 1860 it was surrendered to Garibaldi and his army. In 1890 a national exposition was held here.

PALESTINE. Historic land of Israel, in Asia. Its people were prosperous and traded with Egypt (1600 B. C.); severed into petty kingdoms (1300 B. C.); Israelites of the south obtained control and the divided Hebrews united under Saul (1050 B. C.), who, with David, established the kingdom firmly. Conquered by Romans (63 B. C.-614 A. D.); by Persians, Arabians, Ottoman Turks (1516), and in poor condition to the twentieth century. The Zionist movement and railroads have opened a new era.

PALMYRA. Ancient city in the Syrian desert, whose foundation is attributed to Solomon, who called it Tadmor (the city of palm trees), of which the present name, Palmyra, is a translation. In 41 B. C. it is first mentioned in connection with the attempt of Antonius to gain possession of its riches. Although belonging to the Roman Empire, no Roman troops were stationed here. The city was almost destroyed in the wars with Trajan, but was rebuilt by Hadrian, and called Hadrianopolis, or Hadriana Palmyra. It was made a Roman colony under Caracalla. In the third century, under Odenathus, it was for a time free from the tutelage of Rome. Zenobia, wife of Odenathus, was called "Queen of Palmyra, and of the East." After many victories for Palmyra and an attempt on the part of the queen to take Egypt, she was herself defeated and taken captive by Aurelian, who destroyed the city. In 284-305 Diocletian made an attempt to rebuild it, Justinian rebuilt churches and public buildings and stationed a garrison there. The city was plundered by the Arabs and Tatars, and steadily declined. The site is at present occupied by Bedouins.

PANORMUS (254 B. C.). The chief battle of the First Punic War was fought at Panormus (Palermo), on the island of Sicily. The Romans, under Metellus, defeated the Carthaginians, under Hasdrubal.

PAOLI (September 20, 1777). After much skirmishing in the vicinity of Philadelphia, Howe, with his British army, encamped near the Tredyffrin meeting house, while Wayne took a position near Paoli. In some way Howe learned Wayne's whereabouts and sent three regiments under Grey to attack him. Although the Americans were prepared to move, they were taken by surprise. About 300 were killed, many were taken prisoners and barbarously treated, while a few escaped with the cannon.

PAOLI, PASQUALE DE (1725-1807). A Corsican patriot and general; born at Morosaglia; appointed chief commander (1755) of his people in their struggle against the Genoese; overpowered by a French army and fled to England (1769); recalled and became governor of Corsica during the French Revolution (1790); favored the occupation of Corsica by British troops (1794); disappointed in his political aspirations, Paoli returned to England, where he died.

PAP'PENHEIM, GOTTFRIED HEINRICH, COUNT VON (1594-1632). Famous Imperialist general in the Thirty Years' War; born at Pappenheim, Bavaria; joined the army of the Catholic League (1620); fought with the Poles against the Russians and Turks; victory at White Hill (1620) due mainly to his efforts; was cavalry commander in Spanish service in Lombardy (1625-1626); reëntered the Imperialist army, fighting under Tilly in the disastrous battle of Breitenfeld (1632); served under Wallenstein after Tilly's death; in the campaign against Gustavus Adolphus; the splendid charge of Pappenheim on the left wing of the Swedish king's army at the battle of Lützen would undoubtedly have ended in victory for Wallenstein had not Pappenheim been slain in the last charge.

PARIS. (1) In 845 Paris, the capital of France, was sacked by the Normans, and many valuables taken away. France was obliged to surrender 7,000 pounds of silver before the Normans would quit Paris. (2) The Northmen appeared in 856 and destroyed many fine buildings and the structures left standing were redeemed by heavy contributions to the enemy. In 861 Paris was for the second time ravaged and laid waste by the Northmen. (3) The Northmen united their forces in 885-886 and endeavored to gain complete subjection of the city, but were unsuccessful, owing to the gallant stand made by Comte Eudes. (4) King Henry IV. laid siege to Paris in 1590, and after the most dreadful sufferings from famine and disease the duke of Parma relieved the city. (5) The European allies, during their war against Napoleon in 1814, defeated him and forced the surrender of Paris. (6) On September 19, 1870, Paris was surrounded by the Germans and bombarded from January 5 to 28, 1871. After four months of siege an armistice was entered into. (7) During the insurrection of the Communists of Paris, in 1871, the city was subjected to another siege. Before the government could gain control of the insurgents, a large part of Paris was in flames and thousands had lost their lives.

PATAY. On June 18, 1429, the French, under the earl of Richemonte, signally defeated the English at Patay, a city of France.

PATRICIANS AND PLEBEIANS. From the earliest times the people of Rome were divided into the classes of the Patricians or nobles and their clients or the Plebeians. The history of Rome shows one long struggle between these classes. The Patricians wished to retain exclusive power, while the Plebeians claimed a share in the government. Gradually concessions were forced from the nobles and the power came into the hands of the people at large. (For details of this struggle, see Secession of the Plebs, Agrarian Law, Licinian Rogations, Tribune of the Plebs.)

PAULUS HOOK (August 19, 1779). Inspired by Wayne's success at Stony Point, Lee determined to capture Paulus Hook (now Jersey City, N. J.). With a body of Maryland and Virginia troops he crossed the Hackensack river, marched down the Hook to the British fort and surprised the garrison there, taking 160 prisoners. As some of the British retired to a strong redoubt, Lee withdrew with his prisoners.

PAUSANIAS (? -about 469 B. C.). A Spartan general; nephew of Leonidas. In the battle of Plataea (479 B. C.) he commanded the Greek army that routed the Persians under Mardonius; demanded of Thebes the surrender of traitors to the Greek cause; commanded a fleet of confederate Greeks which took Cyprus and Byzantium; entered into a plot with Persia whereby he was to become ruler, subject to the Persian monarch, of all Greece; this plot was betrayed to the Greeks by Argilius, and Pausanias, finding himself detected, fled to the temple of Athene; the entrance was blocked up with stones and he was left to starve to death.

PEACH TREE CREEK (July 20, 1864). While the Federals were getting their troops in position before

Atlanta, Ga., they were attacked by the Confederates under Hood at Peach Tree Creek. After a sharp contest the Confederates were forced to retreat to their intrenchments with a loss of about 3,000 men. The loss to the Federal army was 2,200.

PEA RIDGE (March 5, 6, 1862). After following the Confederates into Arkansas, General Curtis with 12,000 men encountered them, about 35,000 strong, at Pea Ridge. The Confederates, led by Van Dorn, attacked Curtis on March 5th, and both sides fought desperately until night. The struggle was renewed on the 6th, and after a two hours' engagement the Confederates fled in confusion. This battle was known to the Confederates as the battle of Elk Horn.

PEKATONICA RIVER (June 18, 1832). In order to disperse a party of Indians who were devastating Illinois in the vicinity of Galena, Col. Henry Dodge led a small band of volunteers up the Rock river valley. On June 18, 1832, they reached the Pekatonica river where the Indians were in hiding. A sharp engagement ensued, which resulted in the utter annihilation of the Indians, while Colonel Dodge lost but 3 men.

PELOPONNESIAN WAR (431-404 B. C.). A struggle for supremacy between democratic Athens and aristocratic Sparta. It terminated in the complete abasement of Athens and the supremacy of Sparta in Greece. The war is usually divided into three periods: (1) from the beginning to the Peace of Nicias (421 B. C.); (2) from the Peace of Nicias to the Sicilian Expedition (415 B. C.); (3) from the Sicilian Expedition to the end (404 B. C.). The chief battles were: surprise of Plataea by the Thebans (431 B. C.); fall of Mytilene (427 B. C.); capture of Plataea by Sparta (427 B. C.); capture of Sphacteria by Athens (425 B. C.); defeat of the Athenians at Amphipolis (422 B. C.); battle of the Arginusae (406 B. C.); battle of Aegospotami and capture of the Athenian ships (405 B. C.). Athens then surrendered to Lysander of Sparta, her walls were broken down, her ships given up, and the city was ruled by the Thirty Tyrants.

PENDLETON, EDWIN CONWAY (1847-1919). Rear admiral United States navy, and since 1907 commandant League Island Navy Yard, Philadelphia, Pa.; born in Richmond, Va.; graduated United States Naval Academy (1867); in active service on the Marion (1864), pursued Confederate steamers Florida and Tallahassee; superintendent naval gun factory, Washington (1897-1900, 1902-1905); commandant navy yard, Washington (1905); rear admiral (August 28, 1907).

PENINSULAR WAR. War in Spain (1808-1814) between the emperor Napoleon and the allied Spanish, Portuguese, and English forces. Napoleon decided to seize Portugal to complete his force against England. Marshals Murat, Junot, and Soult were the great French leaders, and Arthur Wellesley, afterward Duke of Wellington, and Sir John Moore led the allies. The chief battles were: Vimiero (1808), Bailen (1808), Corunna (1809), Talavera (1809), Ciudad Rodrigo (1811), Badajoz (1812), Vittoria (1813). The war was ended by Napoleon's abdication (1814).

PENN, WILLIAM (1644-1718). An English Quaker; the founder of the colony of Pennsylvania. Born in London; son of Admiral Sir William Penn; the son received the grant of land in North America in payment of a sum of money lent to the crown by his father; his object was to establish a home where his co-religionists might worship in peace; came to America and founded the city of Philadelphia (1682); signed a treaty with the Indians which remained unbroken (1683); on the accession of William III. to the throne of England (1688), the government of Pennsylvania was taken from Penn, but was restored finally. Penn returned to England, and to his life of preaching; his Quaker agent, Scott, mismanaged affairs, and involved him in debt and financial ruin.

PENOBSCOT TOWNS (September 1, 3, 12, 1814). Encouraged by their success at Eastport, the British sent another expedition to conquer still more of the Maine coast. On September 1, 1814, a British fleet entered Penobscot Bay and threatened Castine. Seeing that resistance would be useless, the militia fled and left the town in the hands of the British. Hampton, Bangor, and Machias were taken on the 3d and 12th with little difficulty, plundered by the invaders, and the inhabitants held as prisoners.

PENSACOLA. On November 7, 1814, General Jackson, with 5,000 Tennessee volunteers, captured Pensacola from the British.

PERRY, OLIVER HAZARD (1785-1819). An American naval officer; born at South Kingston, R. I.; entered the navy (1799); served in the war against Tripoli; commissioned lieutenant and commanded a flotilla (1807); at the outbreak of the War of 1812 he commanded at Sackett's Harbor under Commodore Chauncey; made captain and master-commandant to superintend the construction of a fleet (1813); won a victory from the British on Lake Erie (September 10, 1813), which battle gave the Americans control over the lake. Perry served with Decatur's squadron in the Mediterranean; dispatched to the West Indies to protect American commerce; he died of yellow fever at Trinidad; was buried with military honors but the body was removed to Rhode Island and reinterred.

PERRY'S EXPEDITION. In 1852 President Fillmore sent Perry to Japan with a squadron of warships to induce her to enter into friendly relations with the countries of the West. His flagship, the "Mississippi," was the first United States war vessel to circumnavigate the globe.

PERRYVILLE (October 8, 1862). In October, 1862, the Federal forces in Kentucky began to approach Frankfort, the Confederate center, by way of Louisville. When McCook's division reached Perryville, it was attacked by a Confederate army led by Bragg. The fighting continued at intervals all day, and in the night the Confederates retreated to Cumberland Gap. During the engagement the Federals lost 4,055 men; the Confederate loss was 4,500 men.

PERSEPOLIS. Persian city called "The Glory of the East"; was the capital of the Persian Empire under Darius I. and his successors. The traditional founder of the city was Jamshid, and the principal group of ruins is the Throne of Jamshid, or the Forty Pillars. The ruins of the palaces show that they were masterpieces of Persian architecture. Alexander the Great captured the city towards the end of 331 B. C., after the defeat and death of Ariobarzanes, the Persian ruler, at the battle of Gaugamela, and he is accused of setting fire to the palaces of the kings. Persepolis gradually declined in prominence until the city of Istakhr rose upon its ruins, about 200, became a center of religious and commercial activity, then sank into insignificance, leaving few traces of its ancient glory.

PETERSBURG. (1) 1781. The British took advantage of the fact that the Americans had neglected to effectively protect Virginia, and sent General Phillips into the state with 2,000 men. The British troops landed at City Point and proceeded toward Petersburg. American pickets tried to check their advance, but were driven back to the main army at Blandford, and on April 25 the British entered Petersburg and destroyed 4,000 hogsheads of tobacco. (2) 1864. During the Civil War, while General Butler was conducting operations against Richmond, he sent Gillmore and Kautz with a detachment of Federals against Petersburg. An attempt to enter the town was made on June 10, but the Federals were repulsed. On June 15 the Federals led by W. F. Smith again attacked Petersburg. At the end of four days of skirmishing the Federals were obliged to give up the attempt, having lost 9,000 men in the engagements. During June and July the Federals remained in the vicinity of Petersburg, and skirmishing was almost incessant. A powder mine made under the Confederate defenses was exploded on July 30 and many Confederates were killed, but the Federal attack which followed was a complete failure and 4,000 men were lost. (3) 1865. On April 2 Grant's army from the Appomattox to Hatcher's Run made a general assault on the Confederate works around Petersburg. The Federals lost about 8,000 men in the attack, but succeeded in carrying some of the defenses.

PETRA. An ancient city of northern Arabia, whose importance as a center of trade was due to its position in a narrow gorge midway between the Dead Sea and the northeastern extremity of the Red Sea. The name, Petra, was changed to Joktheel by King Amaziah of Judah, who captured it in the ninth century B. C. During the second and third centuries it was in the hands of the Nabateans. From the time of Pompey it was subject to tribute to the Romans. In 105 Hadrian granted certain privileges to the town. On the introduction of Christianity, Petra became the seat of a bishop. The importance of the town began to decline in the fourth or fifth century.

PHALANX. The Macedonian phalanx was instituted by Philip II. of Macedonia, about 360 B. C. Phalanx was the ancient Greek name for the heavy infantry in line of battle. The Greek phalanx consisted of 8,000 men in a square battalion with shields joined and spears crossing each other. Alexander seems to have had pikes of different lengths, the longest being about seventeen feet. Philip and Alexander used the phalanx

to hold the main line of the enemy in check. In the battles of Cynoscephalae and Pydna, the victory of the Roman legion over the Greek phalanx proved the superiority of the former.

PHARSALUS (Aug. 9, 48 B. C.). In a battle at Pharsalus (now Fersala), in Thessaly, Julius Caesar defeated Pompey the Great. This victory made Caesar the foremost man of Rome.

PHILADELPHIA. Settled by Swedes sent here by government of Queen Christina and called Wicaco (1636); Capt. Markham, deputy governor for William Penn, arrived with a small company (1681) starting an English settlement called Philadelphia (1682), "The City of Brotherly Love." Germans invited by Penn settled at Germantown (1683); first English school opened (1683); 300 houses and 2,500 inhabitants (1684), nearly all Quakers. Chartered as a city (1701); 10,000 soldiers raised for King George in Indian wars (1747); line of packets to New York established (1751); a stage line (1756). Active in resisting British aggression (1761-1774); first Continental Congress in Carpenter's Hall (1774); second in State House (1775), at which Washington was appointed commander in chief of Continental army. Third meeting of Congress and adoption of Declaration of Independence (1776). Held by British (1777-1778); adopted Constitution of the United States (1787); received new charter as city from Legislature (1789). Seat of Federal government (1790-1800); monetary center of country until 1836. First formal protest against slavery was made by four Germans of Germantown (1688); first Abolitionist Convention held (1794); American Anti-Slavery Society founded (1833). Active in Civil War, contributing many prominent soldiers and raising over $1,000,000 in a single fair. Centennial of American Independence exposition (1876).

PHILADELPHIA, LOSS OF THE (October 31, 1803). During the American blockade of Tripoli, the Philadelphia, commanded by Capt. William Bainbridge, ran on to a rock and was captured by a Tripolitan blockade runner. The following February an American crew on the captured boat Intrepid, commanded by Lieutenant Decatur, boarded the Philadelphia and after overpowering the pirates blew up the ship.

PHILIPPI (October, 42 B. C.). Two battles were fought at Philippi, a city of Macedonia, in 42 B.C., between Antony and Octavianus on the one side and the Republicans, under Brutus and Cassius, on the other, in the second of which Antony and Octavianus became masters of Rome.

PHILISTINES. People of Palestine who migrated from Crete. With the exception of Assyrian and Egyptian inscriptions, we have no knowledge of the early history of the Philistines, except what may be gathered from the Old Testament. The story of Samson shows the relations between the Hebrews and Philistines. The inheritance of Judah included the territory of the Philistines, but the people were not overpowered in the Israelite conquest under Joshua. At Mizpah, 1116 B. C., Samuel gained a victory over them, and they were defeated at Michmash by Saul and Jonathan in 1087 B. C. David slew their champion, Goliath, when another attempt was made to invade Israel in 1063 B. C. The Philistines defeated Saul and Jonathan in a disastrous fight at Mt. Gilboa (1033 B.C.!) and both were killed. David succeeded in subduing them, and under Solomon they gave no further trouble. There were constant uprisings on the part of the Philistines, who were subdued by the Hebrews, but the former were losing strength, and in 63 the Romans, under Pompey, subjugated the whole country. After this they disappeared as a nationality.

PICCOLOMINI (*pik-ko-lo'me-nee*), **OTTAVIO, DUKE OF AMALFI** (1599-1656). Austrian general; born at Florence; fought against the Bohemians (1620) in the Netherlands; and at Lützen (1632) under Wallenstein; aided the Spaniards against the French (1635); and suffered a defeat by the Swedish general Torstenson, at Leipzig (1642); appointed general-in-chief of Spanish forces in Flanders (1643); created field marshal in command against the Swedes (1648); imperialist plenipotentiary to the Nuremberg Congress (1649); received the title of Prince (1654), and the duchy of Amalfi (1639) was given him by Spain.

PICKETT, GEORGE EDWARD (1825-1875). An American soldier; born at Richmond, Va. He attained prominence for gallantry in the Mexican War; joined the Confederates in the Civil War; gained honor at Seven Pines and Gaines's Mill; held the center at Fredericksburg; formed the center at Gettysburg on the third day at Cemetery Hill; unsuccessfully opposed Sheridan's cavalry at Dinwiddie Court House and Five Forks.

PILGRIMS. Emigrants who, on account of religious difference, came to America in the Mayflower, founding the colony of Plymouth in 1620. These people were Separatists, and are to be distinguished religiously from the Puritans of England.

PILLSBURY, JOHN ELLIOTT (1845-1919). Rear admiral United States navy and chief of bureau of navigation, Washington, D. C. (1908); born at Lowell, Mass.; graduated United States Naval Academy (1867); in coast survey service ten years; established position of axis of the Gulf Stream off Cape Hatteras and in Straits of Florida and determined many of the laws which govern its flow; during Spanish War commanded dynamite cruiser Vesuvius off Santiago; chief of staff of North Atlantic fleet (1905).

PISA. An ancient city of Tuscany, founded about the sixth century B. C. It is first mentioned by Livy as Julia Pisana. In the fifth century B. C. it was subject to Rome, but was an independent community under the Carolingians. Sardinia was wrested from the Saracens by Pisa, with the aid of Genoa, in 1025. Pisa was a commercial and naval rival of Venice and Genoa; and in the twelfth and thirteenth centuries was at the height of her greatness. This came to an end when Genoa defeated the Pisan fleet off Meloria, in 1284. In 1399 the city was taken by the Milanese, and was sold to France six years later. Pisa became independent under the protection of Charles VIII. of France in 1494, but came under the rule of Florence again in 1509. From this time it began to decline and its history is a part of that of the Florentine State, and of Tuscany. Ecclesiastical councils were held at Pisa in 1134, 1409, and 1511. In 1600 Pisa had only about 15,000 inhabitants, where in the height of its greatness it had numbered 150,000.

PITTSBURG LANDING, or SHILOH (April 6, 7, 1862). After Grant had captured Fort Donelson, he advanced to Pittsburg Landing, near the intersection of the state lines of Tennessee, Mississippi, and Alabama, and about 20 miles from Corinth, Miss., where the Confederates were encamped. Here they halted to wait for the reinforcements led by Buell before attacking the Confederates. On April 6, 1862, the Confederate army led by Johnston appeared and offered battle. Both armies fought desperately, and when the conflict ceased at night the Union army had been driven from Shiloh Church to the Tennessee river. Just as the Confederates seemed victorious, Buell arrived, and on the following day the Confederates, after a fiercely contested battle, were overpowered and compelled to retreat. On the Confederate side 14,687 men were lost, including Johnston; the Federals lost 13,573 men.

PLATAEA, a city of northern Greece, and (1) the site of a battle between Mardonius, commander of the army of Xerxes of Persia, and Pausanias, commander of the Lacedemonians and Athenians, September 22, 479 B.C. The Greeks obtained immense plunder, and were henceforth delivered from the fear of Persian invasions. (2) 429-427 B.C. During the Peloponnesian War, Plataea was besieged by the Theban-Lacedemonian forces, and after persistent and active effort the town was taken. The small number of citizens which had not escaped were put to death and the city destroyed.

PLEVNA, a town of Bulgaria. Here, December 10, 1877, Osman Pasha, the Turkish general, after a heroic defense for three months surrendered to the Russians.

POINT PETRIE. On January 13, 1815, a force of 1,000 British attacked Point Petrie, near St. Mary's, Ga., and Captain Massias surrendered with 90 men.

POITIERS. A town in western France famous for its antiquities but mainly because of the famous battle (1356) in the Hundred Years' War when the English under Edward the Black Prince defeated John, King of France. The French army outnumbered the English over five to one; they opened the battle with a furious charge of the mailclad men at arms, and only the marvelous work of the English longbowmen saved them from being ridden down and cut to pieces. The arrows shot, and the bows used, by the English were fully twice as along as those in use by any other country; hence "the cloth yard shaft" as a term for the arrow. King John was taken prisoner.

POMPEII. An ancient city of Campania which was founded by Oscans as early as the sixth century B. C. It stood at the foot of Mt. Vesuvius, between the cities of Herculaneum and Stabiae. These Oscans were cap-

tured by the Samnites about 400 B. C. In 300 B. C. Pompeii was a dependency of Rome, but in the Social War of 90 B. C. it joined the Italian allies against Rome. Sulla besieged it about 80 B. C. and it became a Roman colony and later the favorite resort of wealthy Romans. In 63 there occurred an earthquake which destroyed much of the city. On August 24, 79, came the violent eruption of Vesuvius, which laid in ruins the towns of Pompeii, Herculaneum, and Stabiae. The showers of ashes and cinders hermetically sealed the town, for after about fifteen hundred years operations for excavations were begun by Charles III. of Naples and everything was found to be in an excellent state of preservation. A systematic exploration has been continued at intervals since. Some of the most interesting discoveries have been the unfinished temple of Venus Pompeiana, and the remains of fugitives who were escaping with valuables, and were cut off by the lack of boats over the Sarmo. Only about 2,000 people perished.

PONIATOWSKI (*po-ne-ah-tov'ske*), **JOSEPH ANTONY, PRINCE** (1762-1813). A celebrated Polish general; brother of the last king of Poland; born at Warsaw; fought in the Turkish campaign of 1787; commander-in-chief of the army of the south (1789); gained victories over the Russians (1792); defended Warsaw against the Prussians, commanding under Kosciusko (1794); joined the French against the Russians (1800); became minister of war in the duchy of Warsaw (1807); invaded Galicia (1809); was with Napoleon in the invasion of Russia; served at Smolensk, at Borodino, and at Leipzig, where he was drowned in the Elster. Three days before his death Napoleon made him marshal as a reward of service at Leipzig.

PONTIUS. The leader of the Samnites in their wars against Rome. He completely defeated the Romans at Caudine Forks in 321 B. C.

PORT ARTHUR. Famous naval station and fortress, long thought impregnable. In the war of Japan and China (1894) the Chinese were forced to surrender. Russia, France, and Germany induced Japan to relinquish the territory on payment of 30,000,000 taels (about $25,000,000). Was leased by China to Russia (1898-1923), the port to be closed to all but Russian and Chinese men of war. Early in August, 1904, the Japanese began active operations against the fortress, attacking and being repulsed with enormous loss; captured 203-Metre Hill (November 30) commanding the city and harbor, and the fortress was doomed. It was an artillery and infantry fight; after defending the position to the last extremity General Stoessel surrendered with full honors of war, January 2, 1905, 40,000 men, 59 forts, guns, battle ships, and tons of ammunition. The casualties amounted to over 42 per cent. of the 107,000 Japanese, and over 34 per cent. of the nearly 50,000 Russians engaged.

PORTER, DAVID DIXON (1813-1891). An American admiral; born at Chester, Pa.; served in an expedition against the West Indian pirates (1824); and in the Mexican War (1846-1848); bombarded the New Orleans forts Jackson and St. Philip (1862), while in command of the Mississippi squadron; became rear admiral (1864) as a reward for work done at Vicksburg; promoted vice-admiral (1866); superintendent of naval academy at Annapolis (1865-1869); received highest of naval ranks, that of admiral (1870).

PORTER, FITZ-JOHN (1822-1901). American soldier; born at Portsmouth, N. H. Served in the Mexican War and the Civil War. Court-martialed (1863) and dismissed from the service for disobeying orders at second Bull Run. He was restored to full rank and honor (1886).

PORT GIBSON (May 1, 2, 1863). During the military operations around Vicksburg, Miss., McClernand, with a force of Federal troops, appeared before Port Gibson, south of Vicksburg. On May 1 he attacked the Confederates and forced them back. The battle was renewed on the following day, and after a stubborn conflict the Confederates still held their position, but during the night retreated across the Bayou Pierre.

PORT HUDSON (July 8, 1863). During the Civil War, Port Hudson was a strongly fortified Confederate point on the Mississippi river, above Baton Rouge, La. On May 22, 1863, the Federals, led by Banks, besieged the place, and on the 27th made an assault which was unsuccessful. The Federal loss during the investment was about 1,995 men. Farragut conducted a bombardment on June 14, but this was repulsed with a loss to the Union forces of 700. Banks, however, was still planning another attack, but when the Confederate general Gardner learned of the fall of Vicksburg he could hold out no longer, and on July 8 surrendered with 6,000 men and 51 guns.

PORTO RICO (July 25-August 12, 1898). During the Spanish-American War, General Miles led an expedition against Porto Rico, an island of the West Indies. With 3,300 United States troops he landed at Guanica on July 25 and moved toward Ponce by way of Yauco. He then proceeded toward the northern part of the island, taking the chief towns with little resistance.

PORT ROYAL EXPEDITION (October 29-November 7, 1861). On October 29, 1861, a Union force consisting of 75 ships-of-war and 10,000 men commanded by Commodore Samuel F. Dupont and General Thomas Sherman set sail for Port Royal, S. C. They arrived on November 3, and on the 7th were ready for action. The Confederates occupied a strong position with forts on each side of the Broad river, at its mouth, and a fleet in the harbor. After a battle of four hours, the Confederates fled, leaving 43 guns in the hands of the victors. The fortifications were afterwards used as a center for the Federal naval operations.

POTIDAEA. In 432 B. C. Potidaea, a town in Macedonia, revolted against Athens, this being one of the causes of the Peloponnesian War. After a siege of three years the Athenians reduced the city and expelled the inhabitants.

POUNDRIDGE (July 2, 1779). The capture of Major Lockwood, an active colonist at Poundridge, Westchester Co., N. Y., was much desired by the British. On July 2, 1779, a party under Tarleton were met at Poundridge by a small band led by Lockwood and Sheldon. Tarleton forced them to retreat, entered Poundridge, and burned several of the buildings.

PRAGUE. Prague, the capital of Bohemia, has suffered much by war. (1) November 8, 1620. One of the first battles of the Thirty Years' War was fought here between Maximilian of Bavaria and Frederick V. the Elector Palatine, the latter being defeated. (2) The most celebrated battle was fought at Prague, May 6, 1757, when the Austrians were defeated by Prince Henry of Prussia and their whole camp taken. On August 23, 1866, at the close of the Austro-Prussian War, a treaty of peace between Prussia and Austria was signed at Prague, by the terms of which Austria was obliged to pay $15,000,000 for the costs of the war and give up some of her territory.

PRESIDENT (January 15, 1815). After a running fight of about eight hours the American frigate President was compelled to surrender to the British Majestic, just outside New York harbor.

PRESTON, in Lancashire, England. (1) August 17, 1648, Cromwell defeated the Scotch Royalist army at Preston. (2) November 12, 13, 1715, the Scotch insurgents were overwhelmed by General Carpenter.

PREVOST, SIR GEORGE (1767-1816). British soldier and administrator. Born in New York; entered British army (1783); saw service in West Indies (1794-1795); acting military governor of St. Lucia (1798-1801); civil governor (1802); governor in chief in Dominica (1802); created baronet (1805) and major general; lieutenant general (1807) and lieutenant governor of Nova Scotia (1808); governor of Lower Canada (1811), and governor general of British North America, holding the position during War of 1812, nominally but not actually directing as commander in chief of the British forces. He unsuccessfully attacked Sacketts Harbor, N. Y. (1814), and also Plattsburg, N. Y., where he was repulsed by Americans under Macomb. For faintheartedness or lack of enterprise was court-martialed, but died before verdict was rendered.

PRIM, JUAN, MARQUIS DE LOS CASTILLEJOS, COUNT OF REUS (1814-1870). A Spanish general and statesman; born in Reus, Catalonia; aided Narvaez to secure the downfall of Espartero (1843); became governor of Porto Rico (1845); distinguished himself in Morocco (1859); commanded Spanish forces in Mexico (1862); instrumental in bringing about the overthrow of Isabella (1868); became dictator; placed Amadeus on the throne (1870); shot by Carlist assassins and died.

PRINCETON (January 3, 1777). Leaving a strong force at Princeton, N. J., Cornwallis marched to Trenton, where he found Washington. On account of the long march, he concluded to wait until morning, when he would rush upon the Americans and capture them. During the night, however, Washington ordered his troops to march quietly to Princeton, where they surprised and defeated the British before Cornwallis realized what had been done.

PUEBLA (September 25-October 12, 1847). With a force of only 393 Americans, Colonel Childs was left to hold Puebla, in southern Mexico, as well as two or

three other posts. In August, 1847, Captain Blanchard and a detachment of 33 men, who were pursuing a band of guerrillas, were surrounded and 22 of their number killed. On September 22d the combined forces of Santa Anna and Rea laid siege to Puebla, but, in spite of the incessant fire of the Mexicans, the Americans bravely defended the town until General Lane arrived with reinforcements.

PULAS'KI, CASIMIR, COUNT (1748-1779). A Polish soldier and general in the American Revolution; born in Podolia, Poland; defended Czenstockora against Russian invasion (1768); outlawed and went to America (1777); aide to Washington at Brandywine; made a brigadier general for gallantry and appointed a command of cavalry (1777); organized Pulaski's legion in Baltimore; held Charleston against General Prevost until aid arrived; mortally wounded at Savannah.

PULASKI'S MEN, MASSACRE OF (October 15, 1778). When the Americans learned that the British were occupying Little Egg Harbor, in New Jersey, they immediately sent Count Pulaski with a small force to oppose the movement. A deserter from the American army informed the British of Pulaski's position, and on October 15, 1778, 200 of the British led by Ferguson rushed upon the sleeping Americans and massacred 50 and took five prisoners.

PULTOWA. Decisive battle of the world (1709). Sweden was an important member of the German Empire. New Russia was just founded by Peter the Great. Charles XII. dethroned the sovereign of Poland and desired the overthrow of the embryo Russia before it gathered strength. He invaded it with 80,000 picked soldiers; declined overtures of peace, and steadily advanced. The Russians, numbering 100,000, disciplined with constant fighting, were besieged by the Swedes in Pultowa, which commanded the passes to Moscow. The Swedes assaulted; carried several redoubts, but numbers told the usual story; the hitherto invincible Swedes were defeated and the nation crushed. Since then Russia has acquired immense territory, advancing her frontier line nearly 900 miles nearer to Vienna, Berlin, Dresden, Munich, and Paris; 450 miles nearer Constantinople, and within a few miles of the capital of Sweden.

PUNIC WARS. Three great wars waged between Rome and Carthage. The First Punic War (264-241 B. C.) ended with the cession of the territory of Carthage in Sicily to Rome. The Second Punic War (218-201 B. C.) ended with the loss of Spain to Carthage. The Third Punic War (149-146 B. C.) ended with the destruction of Carthage.

PUTNAM, ISRAEL (1718-1790). An American general; born at Danvers, Mass.; took part in the battle of Lake George, and was captain of a company at Crown Point (1755); went on the West India campaign (1762); commanded a regiment during Pontiac's War; was a leader in Stamp Act resistance in Connecticut; raised troops and was a prominent leader at the battle of Bunker Hill (1775); commanded at the battle of Long Island (1776); in charge of defense of Philadelphia; given a command in the highlands of the Hudson.

PYRAMIDS (July 21, 1798). Napoleon encountered the Mamelukes, under Murad Bey, in the battle of the Pyramids, in Egypt, and utterly defeated them.

QUAKER HILL (August 29, 1778). Assisted by General Sullivan and a force of 10,000 Americans encamped at Providence, Washington resolved to attack the British at Newport, R. I. On August 5 the French fleet encountered the British ships off Newport, and the latter were burned or sunk to avoid capture. After the engagement a storm so crippled the French vessels that they were obliged to go to Boston for repairs. The American forces occupied Quaker Hill and Turkey Hill, from which positions they were driven by the British, and Sullivan retreated to Providence.

QUANTRELL'S RAID (August 21, 1863). In August, 1863, a band of Confederates who had been sent to their homes after the fall of Vicksburg, organized a marauding expedition under the leadership of Quantrell. On August 21 they appeared at Lawrence, Kansas, and proceeded to sack the town. Many buildings were pillaged and destroyed, and almost 200 of the inhabitants cruelly massacred. A scouting party was sent in pursuit, but only about 100 of the offenders were captured and killed.

QUATRE-BRAS. A battle fought at this village in Belgium, about 19 miles southeast of Brussels, on June 16, 1815, two days before Waterloo, by the English and Germans under Wellington against the French under Ney, in which the French were defeated.

QUEBEC, PROVINCE OF CANADA. Founded (1535) by Jacques Cartier, discoverer of the St. Lawrence river, who built a village and embryo fort that was later abandoned. Jean Francois de la Roque, Sieur de Roberval, when appointed governor general a year later rebuilt fort and village and cultivated land, but again the site was abandoned. Champlain founded present settlement (1608); captured by English (1629); restored to French in treaty giving Canada, Cape Breton, and Acadia (1632). Named from Indian term "Kebec, a narrow passage closed in on both sides by forest and high rocks." The same signification as the Portuguese word, Canada. Thus the peculiar configuration of the river at that point gives the name to both city and province. Held by French until 1759. After Wolfe had waited in vain for reinforcements from General Amherst, he decided to march against Quebec, on the St. Lawrence river. On a dark night the troops were landed near the steep cliffs. In the morning the French were taken by surprise. The battle was short but decisive, and resulted in the utter defeat of the French. On September 17th Quebec was surrendered to the English. Wolfe was mortally wounded and died just after the victory; Montcalm, the French leader, also died before the city surrendered. December 31, 1775, the American army, led by Montgomery and reinforced by Arnold, made a desperate effort to get possession of Quebec, but after making several simultaneous attacks they were obliged to retreat, Montgomery having been slain. It is due to Lord Dorchester that Canada is a British country. In 1775 he could not get reinforcements from General Howe because Admiral Graves refused to supply transports, and only by his splendid work (as General Carleton) in gathering and enrolling 1,600 men was the tide turned and the great country saved to England, when Quebec was the last spot in the province to hoist the British flag. With the criminally late arrival of British ships in the St. Lawrence the Americans retreated.

QUITMAN, JOHN ANTHONY (1799-1858). An American soldier; born in Rhinebeck, N. Y.; elected to Mississippi state legislature (1825); state chancellor (1828-1835); delegate to state constitutional convention (1832); president of state senate (1835); commissioned brigadier general at the outbreak of the Mexican War; distinguished himself at Monterey; helped to capture Vera Cruz and Puebla; brevetted major general; made military governor of Mexico; elected governor of Mississippi (1849); while holding this office, was indicted for complicity with General Lopez in his plan to capture Cuba; arrested and tried, but acquitted; served one term in Congress (1855-1858), and acted as chairman of the military committee. Quitman expressed his views strongly in favor of the formation of a Southern Confederacy (1851).

RADET'ZKY, JOSEPH WENZEL, COUNT VON (1766-1858). An Austrian field marshal; born in Bohemia; became a cadet in an Hungarian cavalry regiment (1784); fought in the Turkish campaign of 1788; in the Italian war (1795-1800); became major general (1805); and lieutenant field marshal (1809); was present at Aspern and Wagram; chief of staff of Prince Schwarzenberg (1813-14-15); the victories of Kulm (1813) and Leipzig were partly due to him; commander-in-chief in Lombardy (1831); crushed the Sardinian forces at Custozza (1848), and Novara (1849); forced Milan and Venice to surrender; appointed governor general of Lombardy and Venetia, where he ruled until his retirement (1857).

RAGLAN, LORD FITZROY JAMES HENRY SOMERSET (1788-1855). English field marshal distinguished in the Peninsular and Crimean wars. In the latter he was commander of the English forces.

RALEIGH (September 27, 1778). The United States frigate Raleigh encountered two British ships off the coast of Maine. The Raleigh attempted to escape but was closely followed by the British until she ran aground in Penobscot Bay. Of the Raleigh's crew three were killed and 22 wounded; the others were able to escape.

RAMILLIES, BATTLE OF. One of the most important battles in the War of the Spanish Succession, fought May 23, 1706, between the French forces under Marshal Villeroi and the allies under the duke of Marlborough. Villeroi was defeated with a loss of 13,000 killed and wounded, and all of his cannon. The allies' loss was 3,500. This was one of the four battles that insured Spain against a union with France; forcing the Bourbon dynasty to recross the Pyrenees, which it had boastfully declared "no longer exist."

RAWLINS, JOHN AARON (1831-1869). An American general and secretary of war; born in East Galena, Ill.; became a major in an Illinois regiment, but resigned to accept the post of assistant adjutant general (1861); appointed chief of staff of General Grant (1862); promoted brevet major general (1865); appointed secretary of war by President Grant.

RAYMOND (May 12, 1863). As Grant's army was marching toward Vicksburg, Miss., McPherson's division encountered the Confederates at Raymond, east of Vicksburg. In the battle which followed, the Confederates were repulsed with a loss of 514 men. McPherson lost 442 men.

REFORMATION, THE. A term applied to the period (1517-1534 and 1558-1588) during which England threw off the yoke of Rome and became what has since been termed "Protestant England." Henry VIII.'s desire for divorce from his wife, Catharine, was the primal cause of difference with the Pope, and the flame was cleverly fanned until the whole nation was interested. The power of the clergy to make laws, or rule, was annulled, and liberty of religious thought evolved.

REGULUS, MARCUS ATILIUS. A famous Roman general; elected consul in 267 B. C. and again in 256 B. C., directed the Roman army and navy against Carthage in the First Punic War; gained several victories over the Carthaginians; in 255 B. C. suffered an overwhelming defeat, 30,000 Roman soldiers were slain, 2,000 fled, and Regulus with 500 was taken prisoner to Carthage, where he was detained for five years. At the end of that time the Carthaginians sent an embassy to Rome to make terms and caused Regulus to go with them to urge his fellow citizens to accept the terms, on his word to return if not successful. He urged the Romans to reject the terms of the treaty and to wage war against Carthage; then he went back to meet a horrible death by torture at the hands of the exasperated Carthaginians.

REMEY, GEORGE COLLIER (1841-1928). Rear admiral (retired) United States navy; born at Burlington, Ia.; graduated United States Naval Academy (1859); served during Civil War; commandant navy yard, Portsmouth (1896-1898, 1898-1900); commandant naval base, Key West, Fla., during war with Spain (1898); rear admiral (November 22, 1898); commander in chief of Asiatic fleet (1900-1902); chairman of lighthouse board (1902-1903); retired (August 10, 1903).

RENAISSANCE. Literally, the revival of learning. The period from 1450 to 1517, when a transition from the medieval to the modern world occurred in Europe, especially in literature and art. Briefly, it was the bringing to light and general use of forgotten arts and sciences, blending such knowledge with the present, and building therefrom the future of the useful arts and human philosophy of the modern world.

RESACA (May 15, 1864). With a strong force of Confederates General Johnston occupied Resaca, Ga., while the Federals were in the vicinity attempting to secure a good position from which to make an attack. On May 14 a detachment from Sherman's command made an attack but was repulsed with a loss of 1,000 men. In attempting to turn Sherman's left flank, Johnston lost a strong position, and after struggling all day on the 15th to regain it, the Confederates retreated. The Federal loss during the engagements was about 3,000. Johnston lost about 1,000 men.

RESACA DE LA PALMA (May 9, 1846). After the battle at Palo Alto, the Mexicans retreated before the Americans toward Fort Brown on the Rio Grande river, and at Resaca de la Palma again formed for battle, 5,000 strong. With 2,000 men, General Taylor completely defeated the Mexicans, drove them across the Rio Grande to Matamoras, and captured considerable of their artillery and ammunition, as well as 100 priseners. The casualties in the Mexican army were 388; the Americans lost but 122 men. These actions caused declaration of war and a call for troops.

REVERE, PAUL (1735-1818). An American patriot; born in Boston; by trade he was a goldsmith and engraver; served in the French and Indian War in the expedition against Crown Point; took part in the Boston Tea Party; constructed and operated a powder mill in which to make powder for the patriots; aroused the minutemen and the people along the way from Charleston to Lexington and Lincoln, with the news that the British were coming (April 18, 1775); this ride was made the subject of Longfellow's poem, "The Ride of Paul Revere." During the war Revere served as lieutenant colonel of artillery; established the Revere Copper Co. at Canton, Mass., in 1801.

REYNOLDS, JOHN FULTON (1820-1863). An American soldier; born in Lancaster, Pa.; served in the Mexican War; commissioned captain (1855); was commandant at West Point (1859); at the outbreak of the Civil War became lieutenant colonel; promoted brigadier general (1861); served in the second Bull Run campaign; commanded the Pennsylvania volunteer militia; present at Fredericksburg (1862) as major general; was killed on the Gettysburg battlefield (1863), while in command of the Union troops.

RHODES. (1) In 88 B.C. Mithridates the Great laid siege to the city of Rhodes, on the island of the same name off the coast of Asia Minor, but was finally beaten off. (2) 42 B. C. Venturing to oppose Cassius, the city was plundered by him and her ships all carried off or destroyed. (3) When the Crusades began, Rhodes was a convenient stopping-place for the Christian fleets; and in 1309, after a three years' siege, the city fell into the hands of the Knights Hospitallers of St. John. (4) The Turks besieged the Knights at Rhodes in 1480, but were unsuccessful. (5) In a second siege by the Turks in 1522-23, the city capitulated.

RICHMOND. State capital of Virginia. John Smith bought land from Indians and settled at "None Such" (1609); Fort Charles built (1645); Colonel William Byrd obtained possession of district by grants (1685-1687); his son Colonel William Evelyn Byrd laying out a town named Richmond. Incorporated (1742). In St. John's Episcopal Church (1775) Patrick Henry made his famous speech ending "Give me liberty or give me death." Capital of the state (1779); chartered as a city (1782). Convention ratifying Federal Constitution for Virginia met (1788); adopted Act of Secession (1861); was capital of Confederacy (1861-1865); Federal forces fought 15 pitched battles and twenty skirmishes without capturing it. Evacuated by Confederates (1865), who set fire to the warehouses and destroyed business portion of the city. Federal forces entered April 2, 1865.

RICHMOND, KY. (August 30, 1862). With about 20,000 Confederates, Gen. Kirby Smith crossed the Cumberland mountains into Kentucky. At Richmond, on the Kentucky river, they encountered the Federals under General Manson. After a brief struggle in which about 5,000 were lost on each side, the Confederates were victorious and advanced toward Frankfort.

RICH MOUNTAIN (July 11, 1861). Upon the secession of Virginia, Maj. Gen. Geo. B. McClellan at once called for Union volunteers in West Virginia, and in command of about 30,000 men began his campaign against the Confederates. After several skirmishes the Confederates came to a stand at the foot of Rich Mountain, in Randolph Co., W. Va., and on July 11 they were completely routed by Rosecrans, with a loss of about 440 men. The Union lost 46 men.

RIDGEFIELD (April 27, 1777). When General Silliman, at Ridgefield, Conn., learned that the British had landed at Cedar Point, he organized an army with Generals Arnold and Wooster. Breastworks were thrown up to protect Ridgefield, and as the British advanced Wooster and Arnold attacked their rear. After continued fighting the British continued their march to the coast, where they embarked under fire from the regiments of Arnold and Silliman. The British lost 200 men; the Americans, 60 men.

RIEL, LOUIS (1844-1885). Leader of "Riel's Rebellions" in Canada (1869 and 1884). A half-breed Indian and French-Canadian. In 1869, when the Northwest Territory was bought by Canada from the Hudson Bay Company, Riel led the half-breeds against the government and prevented the governor from entering the territory. Sir Garnet Wolseley put down the rebellion. Riel fled to the United States. In 1873 and 1874 he was elected to the Dominion Parliament, but was expelled. In 1884 he led some French half-breeds on the Saskatchewan in a rebellion over some lands, was captured, and hanged for high treason.

RIENZI, COLA DI (about 1313-1354). A popular leader of Rome. He took a stand against the nobles for the murder of his brother. He took the title of consul of orphans, widows, and the poor. In 1347 he drove the aristocratic senators from Rome and took the title of tribune of liberty, peace, and justice. He summoned 200 deputies from the Italian states to take measures for the improvement of the condition of Italy. They met in 1347. He made some impolitic moves and fell from power. Later he was imprisoned. Then he entered a monastery. He made a second attempt to regain his power and was successful. His disposition had changed and after seven months' rule he was murdered in a rebellion of the people in 1354.

RIVER RAISIN (January 22, 1813). The Americans under Winchester, while protecting the inhabitants of Frenchtown (now Monroe, Mich.), were encamped near the River Raisin. Suddenly they were attacked by the British and Indians. The Americans were overpowered and taken prisoners.

ROANOKE ISLAND (February 7, 8, 1862). After the occupation of the forts controlling Pamlico Sound, by the Union army, the Confederates moved to Roanoke Island, between Albemarle and Pamlico Sounds. Here the Confederates had thrown up immense fortifications which guarded all the main routes to Norfolk, making communication extremely difficult. A large fleet was sent from the north under Burnside, to take the island, but off Cape Hatteras a terrific storm damaged the boats considerably and some were also found too large to cross the bar. The remaining vessels entered the channel, drove the Confederate fleet before them, and landed on Roanoke Island. In a short time the Federals were in possession of the island, and the Confederate fleet totally destroyed.

ROBERTS, SIR FREDERICK SLEIGH, LORD ROBERTS OF KANDAHAR, PRETORIA, AND WATERFORD (1832-1914). British soldier; born at Cawnpur, India. Served during the Indian Mutiny (1857) at Lucknow, and at Cawnpur, where he received the Victoria Cross; took part in the Abyssinian War (1867-8), the Afghan War (1878); took Kabul (1879); commander-in-chief in South Africa in both Boer wars (1881 and 1899); commander-in-chief of the British army (1900). Affectionately known to the soldiers as "Bobs."

ROCHAMBEAU (*ro-shon-bo'*), **JEAN BAPTISTE DONATIEN DE VIMEUR, COUNT DE** (1725-1807). A French soldier; born at Vendôme; entered the French army (1742); served in the War of the Austrian Succession, and was made colonel (1747); fought in the Seven Years' War in Germany (1758-1761); made lieutenant general (1780); sent to America with 6,000 men to aid in the patriot cause (1780); went to the aid of Lafayette at Yorktown, where the British general Cornwallis surrendered (1781); on his return to France he was appointed governor of Picardy and Artois; and a deputy in the assembly of notables (1787); made a field marshal (1791); was put in command of the Army of the North; under Napoleon he was made a grand officer of the Legion of Honor (1804).

ROCHE, TROILUS DE MESGOUAT, MARQUIS DE LA. Born in Brittany, France, about middle of sixteenth century. Bargained with King Henri IV. to colonize New France (1598); appointed lieutenant general of Canada, Hochelaga, Newfoundland, and Labrador, and adjacent countries "not possessed by any Christian prince." Set sail with an expedition consisting largely of convicts gathered from prisons (1598) and in a small vessel further explored the mouth of St. Lawrence river. Left 40 convicts on Sable Island intending to transfer them to mainland, but was tempest driven back to France. Twelve survivors taken off by Chefdhotel (1603).

RODGERS, FREDERICK (1842-1917). Rear admiral United States navy; born at Havre de Grace, Md.; graduated United States Naval Academy (1861); served during Civil War; inspector of ordnance navy yard, Washington (1872-1873); lighthouse inspector, 11th district (1876-1877), 4th district (1881-1883), 3d district (1887-1890); captain of yard, New York Navy Yard (1893-1896); president of board of inspection and survey (1898-1901); rear admiral (March 3, 1899); senior squadron commander, Asiatic fleet (1901); commander-in-chief (1902); commandant New York Navy Yard (1903-1904); retired (October 3, 1904).

RODGERS, JOHN (1771-1838). An American naval officer; born in Harford Co., Maryland; entered the navy (1798); commanded the John Adams and the Congress in the Mediterranean squadron (1803-1804); commanded the squadron (1805); conducted peace negotiations with Tripoli and Tunis; served with distinction in charge of a squadron in the War of 1812; took many prizes in his cruises with the President; president of the board of naval commissioners (1815-1824 and 1827-1837); secretary of the navy (1823); commanded the Mediterranean squadron (1824-1827).

RODGERS, JOHN (1812-1882). Son of the preceding John Rodgers; rear admiral; born in Harford Co., Maryland; midshipman in the navy (1828); explored the North Pacific and Chinese waters (1852-1855), and in the Arctic Ocean (1855); commanded the Galena in the action at Fort Darling (1862); while in command of the monitor, Weehawken, he captured the Confederate ironclad Atlanta after five minutes' action (1863); for this he was made commodore; rear admiral and superintendent of the U. S. naval observatory (1877).

ROLAND, MANON JEANNE PHLIPON, MADAME (1754-1793). Queen of the leaders of the Gironde; born in Paris; married Jean Marie Roland, who became minister of the interior, and who was an ardent Girondist. Madame Roland closely identified herself with her husband's political career. She supported the Girondist cause even after the fall of that party and the flight of her husband to Rouen. She was arrested (1793) and after a trial before the Revolutionary Tribunal she was guillotined. Her husband committed suicide (1793) on hearing of the execution of his wife.

ROLFE, JOHN (1585-1622). English colonist in America; came to Jamestown, Va. (1610); married Pocahontas (1613) and took her to England (1616). After her death (1617) he returned to Virginia and was a member of the Council (1619).

ROLLO THE GANGER or **WALKER** (? -931). A Norse chieftain, whose origin is unknown; gained land about Rouen by the Peace of Clair-sur-Epte, granted by King Charles the Simple of France (912); this land became the duchy of Normandy, and Rollo the first duke; his son, William Longsword, was associated with his father as ruler; Rollo was baptized and became a firm ally of Charles the Simple.

ROME, in Italy. (1) July, 390 B.C. The Greeks invaded Latium and demanded that the Roman ambassadors should be delivered to them, but the proposal was rejected by the citizens. After an utter defeat of the Romans near the Tiber, the city was abandoned, after which it was taken, plundered, and burned by the Gauls. (2) 410. Alaric, king of the Visigoths, arrived before Rome in the autumn of 408. Twice the city succeeded in getting Alaric to retire with his army, but as the Romans failed to yield to his dictation he laid siege to Rome for the third time. On April 24, 410, the city was abandoned to the fury of the Goths. Part of the city was burned, many were killed, and the invaders withdrew loaded with an immense booty. (3) 455. After the murder of Valentinian III., Rome was plundered for 14 days by the Vandals. (4) 1527. During the Reformation Rome was taken by storm under the constable of Bourbon. (5) September 20, 1870. In consequence of the withdrawal of the French garrison from Rome, during the Franco-German War, that city was captured by the Italian army and the secular power of the pope abolished.

ROSECRANS, WILLIAM STARKE (1819-1898). Eminent American soldier; born at Kingston, Ohio; held several important commands in the Civil War and was almost uniformly successful until his defeat at Chickamauga by Bragg; minister to Mexico (1868); elected to Congress (1880 and 1882).

ROSSBACH, a village in Prussian Saxony. November 5, 1757, in the second campaign of the Seven Years' War, Frederick II. defeated the Austrian and French armies. The loss to the Prussians was only 300; that of the allies was 1,300 slain and 6,000 prisoners. The battle was important as turning the tide when the fortunes of Prussia were at their lowest ebb.

ROUEN. (1) During the Hundred Years' War, Henry V. of England conducted a successful campaign in France. In July, 1418, he undertook the siege of Rouen, a town in northern France. Reinforcements from Paris made it possible for Rouen to resist the siege longer, but finally, on January 13, 1419, the town was surrendered. (2) Rouen was taken by the duke of Guise from the Huguenots, October, 1562, and 1591.

RUPERT OF BAVARIA, PRINCE (1619-1682). Nephew of Charles I. of England, and his ablest general in the Civil War; born at Prague; fought throughout the Civil War against the parliament; aided the royalists in Ireland (1648); given a command under the duke of York; fought against the Dutch fleet (1665-1666); became lord high admiral (1673); first governor of the Hudson Bay Co. (1670); the adjacent territory was called Rupertsland in honor of the Prince.

RUYTER (*roi'ter*), **MICHAEL ADRIAANSZOON DE** (1607-1676). A Dutch admiral; born at Flushing; made rear admiral, and aided the Portuguese against the Spaniards (1641); fought the Barbary pirates (1647); served under Tromp against the English (1653); received the chief command in the second war against the English (1664); driven back to Holland by Monk; made admiral-in-chief (1664); burned some ships in the Thames; attacked English and French fleets (1672); defeated Prince Rupert (1673); joined the Spaniards against the French (1675); attacked the French fleet in the Bay of Catania, but was defeated and mortally wounded.

RYE HOUSE PLOT. A conspiracy in 1683 among extremists of the Whig party to waylay King Charles

II. of England, on his return from Newmarket, and to assassinate him with his brother, the duke of York, at the Rye House on the river Lea; the Protestant duke of Monmouth was to be placed on the throne in Charles's place; the house at which the king was stopping at Newmarket took fire accidentally and he left the place eight days sooner than the date expected, thus frustrating the plot. The royalists took advantage of this plot in order to implicate the whole Whig party and Lord William Russell and Algernon Sidney were accused of complicity and condemned to death.

SACKETT'S HARBOR (May 29, 1813). With an army of regulars and Indians, the British sailed into Sackett's Harbor, on the eastern shore of Lake Ontario, in New York, and attacked the Americans there. The Americans had had little training and were at first obliged to retreat, but finally they rallied and drove the British back to their ships.

SACRAMENTO. Capital of California, on Sacramento river. Capt. John A. Sutter obtained a large grant of land from the Mexican government and built New Helvetia fort (1839); lately rebuilt and preserved as the first point in California reached by pioneer miners from the East (1848). Village named Sacramento laid out (1848) only 15 feet above low water, causing destructive floods (1850, 1852, 1853); levees have raised level to 23 feet; great fires (1852, 1854); incorporated as a town (1849); became state capital (1854); chartered as city (1863).

SACRAMENTO PASS (February 28, 1847). After the Americans had taken possession of Santa Fe, New Mexico, they turned their attention toward Chihuahua, in northern Mexico. A force of 800 men under Colonel Doniphan was joined by Weightman's artillery at El Paso del Norte, on the Rio Grande, and together they started for Chihuahua. A band of Mexicans posted at the river crossing were scattered after a brief conflict, and on March 1 and 2, 1847, the Americans entered Chihuahua.

SAGUNTUM. An ancient Iberian city of Valencia, near the eastern coast of Spain, which tradition says was founded by Greeks from Zacynthus and Rutulians from Ardea. The town became an ally of Rome after the treaty of 226 B. C., which confined the Carthaginians to their own side of the Ebro. Saguntum, on its refusal to acknowledge the Carthaginian supremacy, was attacked by Hannibal in 219 B. C. After withstanding a siege of eight months, rather than surrender they burned themselves and the city, and nothing but ashes was left to the conqueror. Rome declared war against the Carthaginians for attacking their ally.

SAILOR'S CREEK (April 6, 1865). While Lee's army of Confederates was retreating from Richmond and Petersburg, Va., toward Farmville, it was overtaken at Sailor's Creek by a party of Federals under Custer, Crook, and Devens. In the struggle which followed, a large number of the Confederates were surrounded and many prisoners taken.

ST. ALBANS. A city of Hertfordshire, England, and the scene of two battles during the Wars of the Roses. (1) May 22, 1455, Richard, duke of York, defeated and took prisoner Henry VI. of England. (2) February 17, 1461, Queen Margaret defeated the earl of Warwick.

SAINT-ARNAUD (*ar-no'*), **JACQUES LEROY DE** (1796-1854). A French marshal; born in Paris; served in La Vendée (1831); received the rank of brigadier general as a reward for the defeat and capture of the Algerian chief, Bon-Maza (1847); led a brigade in Paris at the revolution of 1848; received the command of the second division of the Army of Paris (1851); appointed war minister and was one of Napoleon's chief supporters in the coup d'état of 1851; made a marshal of France, and grand equerry to the emperor (1852); Saint-Arnaud commanded the French forces at the opening of the war in the Crimea; was present at the battle of the Alma, but died soon after on board a French war vessel.

ST. BARTHOLOMEW'S, MASSACRE OF. August 23, 24, 1572. As the result of a feud in France between the House of Guise and the Catholics, on the one hand, and the House of Condé and the Huguenots, on the other, the night of Saint Bartholomew's day was appointed for a general massacre of the Huguenots. This carnival of blood lasted for several weeks and extended throughout France. As the estimates of the mortality vary from 2,000 to 100,000, it is impossible to make a correct calculation.

ST. CLAIR, ARTHUR (1734-1818). An American soldier; born at Thurso, Scotland. He entered the British army, was in the siege of Louisburg (1758), and at Quebec (1759); resigned his commission and settled in Pennsylvania (1764); received a commission as colonel in the Continental army (1775); became major general and was put in command of Ticonderoga (1777); joined the main army under Schuyler at Fort Edward; became president of the Continental Congress (1787); governor of the Northwest Territory (1789-1802); ranking officer in the U. S. army with the rank of major general (1791-1792); sent on an expedition against the Miami Indians, who completely defeated and routed his forces; he resigned his command (1792), and in 1802 Jefferson removed his governorship from him.

ST. CLAIR'S DEFEAT (November 4, 1791). In order to subdue the Indians in the Northwest Territory, General St. Clair organized an expedition in 1791. On November 4th they found themselves surrounded by Indians near the eastern fork of the Wabash river. Although thrown into utter confusion, the Americans fought bravely until St. Clair ordered a retreat toward Fort Washington. Of the original 1,400 men, 630 were killed and 280 wounded; only about 500 being able to escape.

SAINT-JUST, ANTOINE LOUIS LEON FLORELLE DE (1767-1794). A French revolutionist; born at Decize in Nivernais; became a devoted follower of Robespierre; appointed a lieutenant colonel in the national guard of his commune; chosen a member of the committee of public safety (1793); elected president of the convention (1794); was instrumental in bringing Danton and Hébert to the guillotine. He fell with Robespierre, by the guillotine, on the fateful Ninth Thermidor.

ST. LOUIS. Principal city of Missouri. August Chouteau, aged 15 years, under orders of Pierre Laclede Liguest, established a fur trading station, Liguest arriving later to lay out the town he predicted would eventually be one of the largest in the country (1764). It was called Laclede's village, later St. Louis after the King of France. When France, by secret treaty, ceded all territory west of the Mississippi to Spain (1762), Spain taking possession (1770), it became capital of upper Louisiana under Lieut. Gov. Don Pedro Piernas, but remained essentially French. Indians instigated by English attacked the city (1780); city formally retroceded to France (1800), and about three years later came into the United States by the "Louisiana Purchase." Immigration was rapid, population increased, first newspaper published (1808), town incorporated (1809). First steamboat (1815) opened new era of prosperity. John Jacob Astor opened "Western Branch American Fur Company" (1819); chartered as city (1822). Great fire (1849); tornado (1896). St. Louis World's Fair, to commemorate the hundredth anniversary of the purchase of Louisiana Territory, was held in 1904.

ST. PAUL. Capital of Minnesota; named from rude log chapel at corner of Third and Minnesota streets erected by Father Lucien Galtier when sent out by Bishop Dubuque, who visited the site (1839); previously known by Indians as Imnijiska, "White Rock." First steamboat arrived at Fort Snelling (1823). Opened for settlement (1837). Cut from Wisconsin and left without a government (1848); received first charter from territorial legislature (1854).

SALAMANCA (July 22, 1812). Lord Wellington defeated the French near Salamanca, a city of Spain, during the Peninsular War.

SALAMIS (September 28, 480 B. C.). In a great sea fight near Salamis, an island not far from Athens, the Greeks defeated the fleet of Xerxes, king of Persia.

SAMARIA. A city of ancient Palestine founded by Omri in ninth century B. C. and made capital of the kingdom of Israel. It was northwest of Shechem, and situated on an isolated hill. Under Ahab, Samaria became a center of Baal worship. It was besieged by the Syrians, during the reigns of Ahab and of Joram, but was not captured. Shalmaneser, king of Assyria, besieged the city for three years, and it was finally captured by Sargon, his successor, in 722 B. C. Alexander the Great captured the town and after killing and expelling many of the inhabitants replaced them with Macedonian colonists. John Hyrcanus completely destroyed Samaria 120 B. C., and after it was rebuilt it was restored to the descendants of the expelled Samaritans. The Emperor Augustus gave the town to Herod the Great, who renamed it Sebaste, in honor of Augustus. The ruins of a temple which Herod built still exist. In the third century Samaria was an episcopal see. After the Mohammedan conquest of Palestine the town began to decline in importance.

SAMNITE WARS. These wars between Rome and the Samnites of the south of Italy were three in number and lasted 53 years (343-290 B. C.). The first Samnite war was caused by the Capuans of the Campania, the country around Rome, placing themselves under the protection of Rome. It lasted until 341 B. C. The second Samnite war, the most important of them, lasted from 326 to 304 B. C.—22 years. The Samnites gained the first successes, notably that of the battle of Caudine Forks, but later the consul Fabius overcame them. Their capital, Bovianum, was stormed in 305 B. C., and the power of Rome was acknowledged. The third Samnite war lasted from 298 to 290 B. C. The help of neighboring tribes availed the Samnites nothing and they were completely overthrown in the battle of Sentinum (295 B.C.). This ended the struggle and gave the whole peninsula into the hands of the Romans. The Samnites, an ancient family, a branch of the Sabines, became enemies of the Romans when the city was founded.

SANDS, JAMES HOBAN (1845-1911). Rear admiral (retired) United States navy; born at Washington; graduated United States Naval Academy (1863); served in Civil War; governor of naval home, Philadelphia (1898-1901); member of naval retiring board (1901), president (1902); rear admiral (April 11, 1902); commandant League Island Navy Yard (1902-1903); commanded coast squadron, North Atlantic fleet (1903-1905); superintendent of naval academy (1905-1907); retired (July 12, 1907).

SANDY CREEK (May 30, 1814). While the Americans were equipping some vessels at Sackett's Harbor, the British conducted a blockade to prevent the entrance of guns and cables for the boats. To Captain Woolsey was intrusted the task of conveying them from Oswego Falls by way of Sandy Creek to Sackett's Harbor. A British detachment attempted to intercept Woolsey, but the Americans were prepared for the attack and in a short time had defeated and captured the British squadron and 170 men.

SAN FRANCISCO. Metropolis of the Pacific coast. First settlement was made by two Franciscan monks, Palou and Cambon, establishing an Indian mission (1776) called San Francisco de Asisi, the name of San Francisco having been given previously to the bay (1769). Under Mexican control (1822) the small village of Dolores grouped round the mission, which was secularized (1834). Near the best anchorage, three miles northeast of the mission, a small trading village, Yerba Buena, sprang up (1836); United States took possession (1846), its population being 450, and name changed to San Francisco. With the discovery of gold (1848) population rose rapidly; in March 800, in September (1849) 10,000. Buildings of most combustible materials, and huddled together, produced great fires (1849, 1850, 1851) destroying property valued at $16,000,000. Incorporated (1850); city and county consolidated (1856). Great earthquake and succeeding fire (1906), many lives lost, and $300,000,000 property destroyed.

SAN JACINTO (April 21, 1836). The final battle during the struggle of Texas for independence was fought near San Jacinto, Texas. The Texans numbered 740, and were led by General Houston, while the Mexicans were 1,400 strong led by Santa Anna. After a brief engagement the latter were defeated with a loss of 1,360, while the Texans lost only 30.

SAN JUAN HILL (July 1, 2, 1898). During the Spanish-American War, the American troops assaulted the works at San Juan Hill, near Santiago, Cuba. Through the efforts of the Rough Riders under Colonel Roosevelt, the Americans were victorious and the Spaniards retreated to Santiago.

SANTIAGO. Decisive battle of the world (1898), resulting in driving Spanish rule and dominance from Cuba and placing the island under the protection of the United States. Cuba being the "key" to the Gulf of Mexico marks the importance of the transfer of dominion and the fact that none but the United States must hold it. About 16,000 Americans were landed under General Shafter June 20, and July 1-3 fought the battle of Santiago. Stubborn defense by the Spaniards behind barbed wire and the marvelous headlong dash and courage of the Americans ended in a decided victory for the Americans, and Cuba was free. The Spanish navy of the Atlantic was speedily a series of smoking wrecks. The city of Santiago surrendered July 17.

SANTIAGO HARBOR (July 3, 1898). As soon as Cervera, the commander of the Spanish fleet, learned that the Americans had laid siege to Santiago, he attempted to leave the harbor. When his vessels reached the open sea the Americans started in hot pursuit, and soon the entire Spanish fleet was captured or destroyed, and about 1,300 men taken prisoners. The loss to the Americans was 12 killed and wounded.

SARAGOSSA. The city of Saragossa, in Spain, has been the scene of many sieges. It is especially famous for the heroism with which the citizens, led by Palafox, defended it against a large French army in 1808-1809. The French finally captured the city after a hard-fought contest in which they suffered great losses.

SARATOGA. Decisive battle of the world (1777), securing the colonists aid from France, and ultimate victory. The colonists had rebelled at injustice; the power of far-away England was called forth to crush them back to obedience in a war of political iniquity and folly ending in national disgrace and disaster to England. The army under General Burgoyne continued to advance and seemed irresistible and the campaign was considered almost over. Then disappointments as to reinforcements, loss of stores and munitions, and reverses in numerous minor actions began, and General Gates massed the Americans at Stillwater to make heroic efforts to turn the tide. The English were defeated, the entire army captured, and the independence of the colonists assured.

SARDIS. An ancient city of Asia Minor, the capital of Lydia, situated at the northern base of Mount Tmolus, on the Pactolus. Aeschylus makes first mention of the city. In the reign of King Ardys (680-631 B.C.) it was taken by the Cimmerians. Cyrus captured the city 549 B. C.(?). In the reign of Crœsus, the last Lydian king, Sardis attained the height of its prosperity. After the overthrow of the Lydian monarchy the Persian satraps made the city their residence. About 499 B.C. the Ionians burned it, and a little later it served as the assembling place for Xerxes' vast army on the occasion of his invasion of Greece. Having been rebuilt it was seized by Alexander in 334 B.C. and made a Greek city. It was of importance under the Roman Empire. An earthquake destroyed it in the reign of Tiberius, but it was again built up. In 1402 the city was demolished by Tamerlane. Ruins of the ancient city exist, but the modern city, Sart, is a small village inhabited by nomadic tribes.

SAUNDERS CREEK. See CAMDEN.

SAVAGE'S STATION (June 29, 1862). One of the Seven Days' Battles before Richmond, Va. From Fair Oaks, the Federals, led by Sumner and Heintzelman, moved toward Savage's Station, east of Richmond. Heintzelman destroyed the stores there, and marched south across White Oak Swamp, leaving Sumner at Savage's Station. On June 29 the Confederates, led by Magruder, attacked Sumner. The battle continued until dark, when Sumner withdrew toward the south with a loss of 1,590 men.

SAVANNAH. Second largest city in Georgia. Founded by General James Edward Oglethorpe as a settlement for pauper Englishmen (1733); emigrants speedily reinforced by Germans and Scotch; visited by Charles and John Wesley on a tour of investigation (1735). During the Revolutionary War the city was fortified by the Americans, and Colonel Campbell with an army of 2,000 British attacked about 900 Americans (1778). The latter were defeated and surrendered with supplies. Americans, assisted by a French fleet, ineffectually besieged Savannah (1779).

SAXE, MAURICE, COUNT DE (1696-1750). A French marshal; born at Goslar, Germany; son of Augustus the Strong, elector of Saxony and king of Poland; was present at the capture of Lille, and the siege of Tournay, during the Spanish Succession War; served before Stralsund with the Russo-Polish forces (1711); fought against the Turks in Hungary under Prince Eugene; distinguished himself in the siege of Philippsburg (1734); during the war of the Austrian Succession he invaded Bohemia and stormed Prague; commanded the French army in Flanders; gained the victories of Fontenoy (1745), and of Raucoux (1746); he defeated the duke of Cumberland at Laffeld and captured Bergen op Zoom (1747). For brilliant work done at Raucoux, Saxe was rewarded with the title of marshal general of France, an honor which had hitherto been granted to Turenne alone.

SCAN'DERBEG, PRINCE, or BEY ALEXANDER (1403-1468). A famous patriot chief of Albania. His real name was George Castricta; delivered as a hostage to Amurath II. (1413), and was brought up in Islamism; became master of the town of Croia (1443); vanquished the Turks and banished them from Epirus, accomplishing this task in twenty-two pitched battles; at his death the people, lacking a mainstay, allowed the Turks to gain control of the country.

SCHLEY, WINFIELD SCOTT (1839-1911). Rear admiral (retired) United States navy; born near Frederick City, Md.; graduated United States Naval Academy (1860); in Civil War (1861-1865) and in Korean War (1871); lighthouse inspector (1880-1883); commanded the Thetis, on the Greely relief expedition (1884), rescuing Lieutenant Greely and six survivors at Cape Sabine; for this he received from Maryland legislature a gold watch and vote of thanks, and from Massachusetts Humane Society a gold medal; chief of bureau of equipment and repair (1884-1889); chairman of lighthouse board (1897-1898); during Spanish War commanded flying squadron (1898), and was in immediate command in battle of Santiago de Cuba (July 3, 1898), resulting in destruction of Admiral Cervera's fleet; commander-in-chief of South Atlantic squadron (1899-1901); rear admiral (March 3, 1899); retired (October 9, 1901). For services at Santiago he received a gold sword from people of Pennsylvania, silver sword from Royal Arcanum, gold and jeweled medal with thanks of Maryland legislature, a silver service, etc.

SCHROEDER, SEATON (1849-1922). Rear admiral United States navy; born at Washington, D. C.; graduated United States Naval Academy (1868); on leave, was associated with H. H. Gorrings in removing obelisk from Egypt to New York (1879-1880); member of board of inspection and survey (1894-1896); for "eminent and conspicuous conduct" in Spanish War, was advanced three numbers in rank; naval governor of Island of Guam (1900-1903); chief intelligence officer (1903-1906); commander 3d division, 2d squadron, Atlantic fleet (1908). Prize essayist, United States Naval Institute (1894). Retired 1911.

SCHUYLER (*sky'ler*), **PHILIP JOHN** (1733-1804). A famous American soldier and statesman; born at Albany, N. Y.; served as captain in the English army during the French and Indian War (1756); member of the colonial assembly (1768); delegate to the Continental Congress (1775), which appointed him one of the first four major generals; forced by ill health to surrender the leadership of the expedition to Canada; served as Indian commissioner and negotiated important treaties with the Indians; served in Congress (1777-1781); state senator (1780-1797); U. S. senator (1789-1791 and 1797-1798); surveyor general of New York state from 1782; assisted in preparing New York state's code of laws.

SCHWARZ'ENBERG, KARL PHILIPP, PRINCE VON (1771-1820). Austrian field marshal; born at Vienna; served against the Turks and the French republic; ambassador to St. Petersburg (1808); fought at Wagram (1809); conducted the negotiations for the marriage of Napoleon to the archduchess Maria Louisa; commanded the Austrian forces sent to aid France against Russia (1812); generalissimo of the armies of the coalition which was defeated by Napoleon at Dresden, but won the victory of Leipzig; on the return of Napoleon from Elba, Schwarzenberg again entered France, in command of the allied army; made president of the imperial council for war.

SCIPIO, PUBLIUS CORNELIUS AEMILIANUS, AFRICANUS MINOR (185?-129 B. C.). Very great Roman general and able statesman; a younger son of Lucius Aemilius Paulus, the conqueror of Macedon, but was adopted by his kinsman, Publius Scipio; served in Spain (151 B. C.); and in the third Punic War (149 B. C.); elected consul (147 B. C.); destroyed Carthage (146 B. C.); ambassador to Egypt and Asia; subdued and destroyed Numantia (132 B. C.); led the aristocratic party in political affairs.

SCOTT, WINFIELD (1786-1866). An American general; born near Petersburg, Va.; appointed captain of light artillery (1808); served in the War of 1812; fought at the battle of Chippewa, and Lundy's Lane, where he was twice wounded; prepared a manual of military tactics, which was the first to be issued in the U. S.; appointed commander-in-chief of the army (1841); served in the Mexican War (1847), winning the battles of Cerro Gordo, Contreras, and Churubusco, together with the decisive battles of Molino del Rey and Chapultepec; nominated as whig candidate for the presidency, but was unsuccessful. Office of lieutenant general was conferred by brevet on General Scott.

SEA OF JAPAN (May 27, 28, 1905). When, in the Russo-Japanese War, the Russian government ordered the Baltic fleet to Japan, the Japanese allowed the vessels a free passage until they reached the Sea of Japan. There the Japanese fleet formed a circle around the hapless armada, and fought the greatest of Japan's naval battles. The struggle did not cease until the Russian fleet was practically destroyed or captured. Japan's losses were three torpedo boats, 116 men killed and 538 wounded. Russia lost her fleet of 38 vessels, 4,000 men killed, and 7,300 taken prisoners.

SEBASTOPOL (October, 1854-September 11, 1855). During the Crimean War, Sebastopol, a Russian port on the Black Sea, was the scene of a long siege by the allied forces. The city was surrounded by new fortresses and the harbor closed by sunken ships of war. Attacks upon the city were made repeatedly, and finally, in 1855, after a three weeks' bombardment, the Russians evacuated the city, which was then occupied by the allies.

SEBREE, URIEL (1848-1922). Rear admiral United States navy; born at Fayette, Mo.; graduated United States Naval Academy (1867); member Arctic relief expedition (1873), and Greely relief expedition (1884); lighthouse inspector, Portland, Oregon (1885-1889), San Francisco (1898-1901); commander naval station, Samoan Islands (1901-1902); commanding 2d division, 1st squadron, Pacific fleet (1908).

SECORD, LAURA (1775-1868). The Canadian heroine of Beaver Dams (1813), who walked 20 miles, eluding numberless American sentries, to warn General Fitzgibbons of the intended attack by Americans under General Dearborn.

SEDAN. Decisive battle of the world (1870). Napoleon III. was trying hard to retain his throne by waging spectacular wars, remodeling Paris, and by other means to keep the French national mind from thinking. France was jealous of Prussian aggrandizement and several occurrences augmented this feeling. Finally war was declared by the French Emperor July 15. It speedily developed that France was utterly unprepared and that Germany had plans of campaign arranged. After an unbroken series of disasters following the first skirmish the struggle culminated at Sedan. The magnificent strategy of Moltke finally drove the French army to a common center. Surrounding them, within a circumference of 16 miles, were 200,000 men, and 429 pieces of artillery which could concentrate their fire wherever Moltke directed. There was no outlet. Napoleon III. surrendered with 86,000 men. Thus ended the second Empire of France and thus came into being the present French Republic. The war is generally regarded as the last card which Napoleon III. had to play to bolster up his falling Empire.

SELFRIDGE, THOMAS OLIVER (1836-1908). Rear admiral (retired) United States navy; born at Boston; graduated United States Naval Academy (1854); served during Civil War; commanded survey expedition to Isthmus of Darien (1870-1871); in charge of torpedo station, Newport (1881-1884); commandant navy yard, Boston (1890-1893); president of board of inspection and survey (1894-1895); commander in chief of European squadron (1895-1897); rear admiral (February 28, 1896); retired (February 6, 1898). Honorary member of Royal Geographic Society, Belgium; awarded gold medal by Czar of Russia in honor of his coronation; made a chevalier of the Legion of Honor, France.

SEMMES (*semz*), **RAPHAEL** (1809-1877). An American naval officer; born in Charles County, Maryland; appointed a midshipman in the navy (1826); served in the Mexican War as flag lieutenant with the gulf squadron; resigned from the navy at the secession of Alabama, and became a commander in the Confederate navy; commanded the Sumter (1861-1862), and the Alabama (1862-1864); when the latter was sunk by the Kearsarge (1864), Semmes escaped to England; returned to command the James river squadron, with the rank of rear admiral; when his squadron was destroyed, he served in the army, surrendering with Gen. Joseph E. Johnston.

SEMPACH (July 9, 1386). Under the walls of Sempach, a small town in Switzerland, Leopold of Austria, with 4,000 men, was routed by 1,500 Swiss. This victory secured the independence of the Swiss.

SENTINUM (295 B. C.). The Roman consuls, Q. Fabius Rullianus and P. Decius Mus, advanced to Umbria, where the decisive battle of Sentinum was fought. After a long contest the Romans were victorious, thus ending the third war against the Samnites.

SERVILE WARS. Rebellions of slaves against Rome. The first broke out in Sicily in 134 B. C., led by Eunus, a Syrian. They overran the island and defeated army after army. Order was restored in 132 B. C. by the consul, Publius Rupilius. The second Servile War broke out in 102 B. C. in Sicily, but was put down speedily by the consul, Manius Aquillius. A third and more formidable insurrection occurred in 73 B. C. under the leadership of Spartacus (which see).

SEVEN WEEKS' WAR. A brief struggle (1866) between Prussia and Italy against Austria and her German allies, instigated by Bismarck as a part of his plan for forcing Austria out of the German confederation.

SEVEN YEARS' WAR (1756-1763). In it France and England fought for supremacy in North America and in India. All of the great European nations were involved in it. It was closed by the Treaty of Paris (February 10, 1763).

SEVILLE. In 1248 Seville, a city of Spain, was taken by Ferdinand III. of Castile, and 300,000 Moors left for Granada and Africa.

SHAFTER, WILLIAM RUFUS (1835-1906). American soldier; born at Galesburg, Mich. Served through the Civil War and rose to brigadier general of volunteers; entered the regular army and (1897) was brigadier general commanding the Department of California. In the Spanish-American War as major general of volunteers he carried the heights of El Caney and San Juan (July 1-3, 1898); commanded California and Columbia Department (1899-1901); retired (1901).

SHAYS, DANIEL (1747-1825). The leader in Shays's Rebellion; born in Hopkinton, Mass.; became a captain in the Revolutionary War. The rebellion was an uprising in 1786-1787 occasioned by the great economic distress following the revolution; those concerned drew up demands and grievances, and in the summer of 1786, headed by Daniel Shays, the malcontents threatened violence; the fighting centered about Springfield, where an armed mob broke up a session of the supreme court in 1786; Governor Bowdoin promised pardon to all rebels who would submit before January 1, 1787, but the disturbances continued and the governor ordered out 4,400 militia under Gen. Benjamin Lincoln; an attack was planned by Shays upon the arsenal in Springfield, but the defenders under General Shepard met them, and at the first cannon fired the insurgents fled, were pursued and dispersed by General Lincoln. The insurrection soon collapsed; fourteen of the leaders were condemned to die but were pardoned by Governor Hancock; on June 13,1788, general amnesty was granted to all except a few individuals. By the legislature of 1787 many of the grievances were redressed; thus the insurrection was not an utter failure.

SHERIDAN, PHILIP HENRY (1831-1888). A famous American general; born at Albany, N. Y.; graduated at West Point (1853); served in the Indian wars in Oregon; infantry captain (1861); given a cavalry regiment and served with distinction; commanded the cavalry of the Army of the Potomac (1864); placed in command of the Army of the Shenandoah (1864); for service rendered he was made a brigadier general. Sheridan's famous ride from Winchester to Cedar Creek (1864), a distance of twenty miles, in time to turn defeat into victory for the Northern army, has been commemorated in a stirring poem by T. B. Read; several more victories caused Sheridan to be appointed commander-in-chief of the army in 1883; he was with the German armies during the Franco-Prussian War (1870); and served in Louisiana and Texas during the time of their reconstruction.

SHERMAN, WILLIAM TECUMSEH (1820-1891). An American general-in-chief; born at Lancaster, Ohio; served in Florida and California; commissioned colonel (1861); for distinguished service in the battles of Bull Run and Shiloh (1862) he received the title of major general; served at Vicksburg and Chattanooga; appointed by Grant to command the southwest (1864); Atlanta evacuated by Hood (1864); with 65,000 men he commenced his famous march to the sea; Savannah capitulated (December 21, 1864); the army moved northward, defeating the Confederates at every turn; on April 26, 1865, Johnston surrendered to Sherman; commanded the Mississippi division for four years; was created commander-in-chief of the army by President Grant (1869); retired at his own request to allow Sheridan to take his place (1883).

SHILOH. See PITTSBURG LANDING.

SHIPKA PASS. August 21-26 and September 9-17, 1877, Shipka, a pass in the Balkan Mountains of Bulgaria, was stoutly held by the Russians against the desperate assaults of Suleyman Pasha.

SICILIAN VESPERS. The massacre of the French in Sicily begun at Palermo on the day after Easter, 1282, while the vesper bells were ringing. It was caused by the cruelty of Charles of Anjou towards the Sicilians. The massacre spread from Palermo and became general over the island. Charles of Anjou tried to recover the island, but the Sicilians, with the aid of Peter III. of Aragon, defeated him, and the Angevin rule in Sicily ended.

SICKLES, DANIEL EDGAR (1825-1914). An American soldier and politician; born in New York City; appointed corporation counsel of New York City (1853); was secretary of legation at London (1853-1855); elected to the New York State Senate; served in Congress (1857-1861); appointed colonel of New York volunteers at the outbreak of the Civil War; appointed major general (1862); lost a leg at Gettysburg; was retired with rank of major general (1869); sent as minister to Spain (1869-1873); on his return became president of the New York board of civil service commissioners; sheriff of New York county in 1890; and elected to Congress as a democrat (1892).

SIEYES (*se-ay-yais'*), **EMMANUEL JOSEPH, COMTE ABBE** (1748-1836). A French revolutionary leader, generally known as the Abbé Sieyes; was born at Fréjus; his pamphlet, "Qu'est-ce que le Tiers-Etat?" (1789), made him famous; elected a deputy for Paris; instrumental in forming the national assembly; France was divided into departments mainly by his work; approved of the "Rights of Man" (1789); opposed the royal veto; elected to the legislative assembly, and voted for the king's death; with Rewbell (1795) he organized the Batavian republic, and negotiated a treaty between France and Holland; sent as ambassador to Berlin (1798); was a member of the Directory (1799); Sieyes, Napoleon, and Ducos were first three consuls of the provisional consulate; retired from the government with the estate of Crosne, 600,000 francs, and the title of Count of the Empire conferred upon him; was banished to Brussels at the second restoration and did not return to France till the revolution of 1830.

SIGEL (*seé'gel*), **FRANZ** (1824-1902). A German-American soldier; born at Sinsheim, Baden; at the outbreak of the revolution of 1848 in Baden, he served with distinction in the army, commanding the troops on the Neckar, and on the retreat into Switzerland; became minister of war; emigrated to the United States in 1852; settled at St. Louis, where he taught in a German military institute until the outbreak of the Civil War, when he took up arms for the North; for signal service he was promoted from colonel to major general of U. S. volunteers; he resigned from the army in 1865; became register of city and county of New York (1871-1874); and U. S. pension agent in that city in 1886-1889.

SIGSBEE, CHARLES DWIGHT (1845-1923). Rear admiral (retired) United States navy; born at Albany, N. Y.; graduated United States Naval Academy (1863); served in Civil War; commanded Maine (April 10, 1897 until February 15, 1898), when she was blown up in Havana harbor; commanded St. Paul in Cuban and Porto Rican waters (1898-1900); for extraordinary heroism on the wreck of the Maine and during Spanish War was advanced 3 numbers in rank; chief intelligence officer (1900-1903); commandant League Island Navy Yard (1903-1904); rear admiral (August 11, 1903); commanded South Atlantic squadron (1904-1905), 2d division of North Atlantic fleet (1905-1906); retired (January 16, 1907). In deep sea explorations introduced many new methods and inventions, for which he afterwards received from Emperor William I. the decoration of Red Eagle of Prussia, and received gold medal from abroad.

SIMCOE, JOHN GRAVES (1752-1806). Born at Cotterstock, England. Educated at Merton College, Oxford University; entered army (1771); came to New England during Revolutionary War; raising Queen's Rangers with rank of lieutenant colonel. Fought at Brandywine and Monmouth, surrendering with Cornwallis at Yorktown; governor of Upper Canada (1791-1794); governor of Santo Domingo (1796-1797); lieutenant general (1798); was appointed commander in chief to India but died before sailing.

SINGER, FREDERIC (1847-1923). Rear admiral (retired) United States navy; born at Carlsruhe, Baden, Germany; graduated United States Naval Academy (1868); in charge of diplomatic corps on board coast survey steamer Blake, representing navy department at international naval review, New York (April, 1893); chief intelligence officer and member of board of construction (1895-1896); received "Manila" medal (1898); commandant naval station at New Orleans (1904); rear admiral and retired (1906).

SKO'BELEFF, MICHAEL DMITRIEVITCH (1843-1882). A Russian general; born near Moscow; became distinguished for bravery in the expeditions to Khiva and Khokand, and in the Russo-Turkish War of 1877-1878; occupied Plevna after the defeat of Osman Pasha (1877); captured Geok-Tepe in Transcaspia (1881); became governor of Minsk (1881); was an ardent advocate of Panslavism.

SLOCUM, HENRY WARNER (1827-1894). An American soldier; born at Delphi, Onondaga County, N. Y.; elected to the lower house of the legislature (1859); colonel of the 27th N. Y. volunteers (1861); fought in early battles of Civil War; commanded the right wing at Gettysburg; commander of the army of Georgia under Sherman in "the march to the sea," and through the campaign in the Carolinas; was defeated as democratic candidate for secretary of state of N. Y.; elected to Congress (1868, 1870, and 1884); became president of the Brooklyn board of city works.

SMITH, JOHN (1580-1631). English adventurer, explorer, colonist, and author. After a series of romantic experiences in many lands, he returned to England and was induced to come to Virginia in 1606, where by his influence he made the settlement of Jamestown permanent; subsequent voyages along the Atlantic coast established the English claim. His writings are historical and descriptive of New England and Virginia.

SOCIAL WAR. The struggle between Rome and her Italian allies (90-88 B. C.). It is often called the Marsian or Marsic War. The Italian allies who bore obligations in war were denied political and social equality with the Romans. Though the Italians lost their independence in this struggle they became incorporated into the body politic.

SODOM and **GOMORRAH.** Two cities with Admah, Zeboim, and Bela or Zoar forming the five cities of the plain. According to the biblical story, the cities were destroyed by fire from heaven, 1898 B. C., as a punishment for the extreme wickedness of their inhabitants. Lot and his wife were the only ones who escaped. Authorities differ as to the location of the cities. Some say the cities were to the north and others to the south of the Dead Sea.

SOISSONS, a fortified town of France, and the scene of a battle in 486, in which Clovis, leader of the Salic Franks, and founder of the French monarchy, defeated Syagrius, the Roman governor.

SOLFERINO (June 24, 1859). During the war of France and Sardinia with Austria, Solferino, in Italy, was the scene of a struggle in which Napoleon III. and Victor Emmanuel defeated Francis Joseph, emperor of Austria. Decisive in securing Italian independence.

SOULT (*soolt*), **NICOLAS JEAN DE DIEU, DUKE OF DALMATIA** (1769-1851). A French marshal; born at Saint-Amans-la-Bastide, Tarn; entered the army (1785); rose to general of brigade (1794); appointed general of division (1799); Napoleon made him marshal of France (1804); accomplished brilliant work at the battle of Austerlitz (1805); took part in the Prussian and Russian campaigns (1806-1807); forced the British to evacuate Spain (1809); occupied Portugal; commander in chief in Spain (1809-1810); subdued Andalusia (1810); by his system of military tactics he neutralized the strategy of Wellington, but was defeated by him at Toulouse (1814); became a royalist and was made minister of war; on Napoleon's return from Elba he rallied to his aid, leaving Louis XVIII.; he was banished from France after the battle of Waterloo (1815); recalled in May, 1819, when he took an active part in politics; in 1838 sent as ambassador to Queen Victoria's coronation; was appointed marshal general of France (1847).

SOUTH AFRICAN UNION (1909). Federation formed under one colonial government by South African British colonies of Cape Colony, Natal, Transvaal, and Orange River Colony. A constitution was formulated the previous year at Bloemfontein with provisions similar to those of the Canadian constitution, except that it leaves no exclusive powers to provincial authorities. Provision is made for the future admission of Rhodesia to the Union. Dutch and English will be the official languages on equal legal terms. Pretoria is the seat of government, and Cape Town is the seat of legislature. South African Union bill passed by British Parliament (1909), following which the first Assembly of the Union convened at Cape Town with 121 members. November 19, Herbert John Gladstone, secretary of state for Home Affairs, was elected governor general of United South Africa.

SPARTACUS. The leader of the slaves in the insurrection against Rome in 73 B. C. A native of Thrace; first a shepherd, then a robber chief; taken prisoner, placed in a gladiatorial camp at Capua. On escaping with 70 followers he defeated the Romans sent to capture them; took refuge in Mount Vesuvius with added numbers; declared freedom to all slaves; defeated the Romans in several battles; after numerous victories he was defeated and slain among heaps of dead Romans after deeds of prodigious valor at Brundusium in 71 B. C.

SPENCER'S ORDINARY (June 26, 1781). As a British foraging party were returning to Williamsburg, Va., with a drove of cattle, they were met by the Americans, under Lieutenant Colonel Butler, at Spencer's Ordinary, between Williamsburg and Jamestown. The conflict was indecisive, both sides claiming the victory.

SPERRY, CHARLES STILLMAN (1847-1911). Rear admiral (retired) United States navy; born at Brooklyn; graduated United States Naval Academy (1866). President Naval War College and member of general board, U. S. N. (1903); rear admiral (May 26, 1906); delegate to Geneva conference for revision of Geneva Convention for Treatment of Sick and Wounded (June, 1906); delegate to second Hague conference (June, 1907); commander of Atlantic fleet in its trip around the world (1907-1909); retired (1909).

SPHACTERIA (425 B. C.). During the Peloponnesian War, the Athenians took Sphacteria, an island off the southwest coast of Greece, by storm, and brought many Spartans to Athens as prisoners.

SPICHEREN (August 6, 1870). During the Franco-German War a battle was fought at Spicheren (Saarbrucken), in Prussia, in which the Germans defeated the French.

SPION KOP (January 23, 1900). General Buller stormed the fortifications of the Boers on Spion Kop, a spur of the Drakenberg Mountains, in South Africa, and carried them with heavy loss, only to find that they were guarded from other heights and could not be held.

SPOTTSYLVANIA (May 8-18, 1864). When General Lee learned that Grant was moving toward Richmond, he made a forced march and arrived at Spottsylvania, Va., first. Here the two armies met in one of the most hotly contested battles of modern times. Much of the fighting was done hand-to-hand over the heaps of killed and wounded, and the result was indecisive.

SPRINGFIELD (June 23, 1780). The English under General Clinton defeated the Americans led by Greene, at Springfield, N. J., and burned the town.

STADTHOLDER. Name originally given in the Seven United Provinces of the Netherlands to the commander of the forces, then to the governor of a province, and to the general governor of the United provinces called his Stadtholderate. The office, after having been abolished at the death of William II. in 1650, was restored in favor of William III. of England. Again abolished at his death, it was bestowed on William IV. of Nassau, in 1747, who was created "General and Hereditary Stadtholder." In 1795, when France conquered Holland, it was again abolished.

STADTLOHN (August, 1623). During the Thirty Years' War, Tilly overtook Christian of Brunswick at Stadtlohn (or Loen), in Westphalia, and defeated him with the loss of 6,000 killed and 4,000 prisoners.

STANDISH, MILES (1584-1656). Military head of the Plymouth colony; born at Duxbury, Lancashire, England; served in the Netherlands; came over in the Mayflower (1620); sent to England to ask aid of the government against the merchant adventurers, but the mission failed; founded the town of Duxbury, Mass., where he continued to be magistrate throughout his life. Longfellow has made Captain Standish's second courtship the subject of one of his best known poems.

STANTON, OSCAR FITZALAN (1834-1924). Rear admiral (retired) United States navy; born at Sag Harbor, N. Y.; appointed midshipman United States navy (December 29, 1849); served through Civil War; governor of Philadelphia Naval Home (1891-1893); commanded flagship Newark, South Atlantic station (1893); commanded North Atlantic squadron (1894); rear admiral (July 21, 1894); retired (July 30, 1894).

STAR-CHAMBER. The celebrated English tribunal which met in the council chamber of the old Palace of Westminster. Tradition says that the name was derived from the golden stars on the ceiling of the room in which it met. It dated back to very ancient times, but its powers were abridged by Edward III., and it was wholly abolished by Charles I. The reason the court was so hated in the time of Charles I. is because he used it as a general law court to exact fines for his own exchequer. The judges were the king's own privy council. As a criminal court it could inflict any punishment short of death, and torture was often used to procure acknowledgments of guilt. The history of the Star-Chamber Court is particularly associated with the act of Henry VII.

STARK, JOHN (1728-1822). An American soldier; born in Londonderry, N. H.; served with Rogers' rangers as lieutenant and captain in the French and Indian War; was commissioned colonel, and served

in the battle of Bunker Hill (1775); was present at Trenton and Princeton; for his brilliant work at the battle of Bennington (1777) he received the appointment of brigadier general; distinguished himself in the Saratoga campaign; commanded the Northern department (1778 and 1781).

STAR ROUTE TRIALS. During the administration of President Hayes a conspiracy to defraud the government in the management of the star route postal service was started. The term "star routes" was applied to those routes over which the mail was carried on horseback or in wagons, such routes being marked in the post office books with a "star" or asterisk. Certain mail contractors, Second Assistant Postmaster General Brady and Senator S. W. Dorsey of Arkansas, succeeded in obtaining petitions from localities interested, praying for an increase of the number of trips, which was secured by shortening the schedule time of each trip. Estimates of the cost, largely in excess of the actual expenditure, were made by the contractors, and the profits were alleged to have been divided between them and members of the ring at Washington. There was an indictment against the chief participants, but neither Dorsey nor Brady was convicted.

STEUBEN, FREDERIC WILLIAM AUGUSTUS, BARON (1730-1794). German-American soldier; born at Magdeburg, Prussia; entered the Prussian army (1747); served in the Seven Years' War, and was appointed aide to Frederick the Great (1762); offered his services to the patriot cause in America; appointed major general and inspector general of the army (1778); brought about many needed reforms in the army; commanded in Virginia (1780); took an active part in the siege of Yorktown. After the war Congress granted him 16,000 acres of land in Oneida Co., N. Y., and a pension of $2,400. Here he lived during the rest of his life.

STILLMAN'S RUN (May 14, 1832). In 1832, when the Black Hawk War broke out, a band of 700 Sacs led by Black Hawk, their chief, ascended the Rock river, in Illinois, under the pretense of making settlements. The governor at once called for volunteers, and on May 14th Major Stillman, General Whiteside, and General Atkinson, with a large body of militia, met the savages at Stillman's Run (formerly Old Man's Run), a tributary of Rock river. At the end of a short skirmish the whites retreated.

STILLWATER. See SARATOGA.

STIRLING, YATES (1843-). Rear admiral (retired) United States navy; born at Baltimore; graduated United States Naval Academy (1863); served in Civil War; lighthouse inspector, 5th district (1892-1894); member of lighthouse board (1898-1900); commandant naval station at San Juan, P. R. (1900-1902), navy yard, Puget Sound (1902-1903); commanded Philippine squadron, Asiatic fleet (1902-1903), cruiser squadron, Asiatic fleet (1904); commander-in-chief of Asiatic fleet (1904-1905); rear admiral (June 8, 1902); retired (May 16, 1905).

STOCKTON, CHARLES HERBERT (1845-1923). Rear admiral (retired) United States navy; born at Philadelphia; graduated United States Naval Academy (1865); summer of 1864 was on board Macedonian in pursuit of Confederate steamers Florida and Tallahassee; president of Naval War College (1898-1900); naval attaché American embassy, London (1903-1905); president of board of inspection and survey (1906); rear admiral (January 7, 1906); president of naval examining and retiring boards (1906-1907); commanding special service squadron visiting Bordeaux, France, for maritime expedition (1907).

STONE RIVER, or MURFREESBOROUGH (December 31, 1862-January 3, 1863). When the Confederates under Bragg reached Chattanooga, Tenn., after their campaign in Kentucky, they were immediately ordered to return. Late in December they encamped on Stone river, between Murfreesborough and Nashville, where Rosecrans and the Federals were stationed. On December 31, before Rosecrans could make an attack, Bragg encountered McCook's division and repulsed them. On January 2, Rosecrans continued the struggle. For a time the Federals gave way, but finally rallied and held their position. After the engagement Bragg moved to Murfreesborough, which he abandoned on the 5th. Both sides sustained heavy losses.

STONINGTON. On August 9, 1814, four British gunboats, under command of Commodore Hardy, began the bombardment of Stonington, Conn. The town was defended by only a small militia, but the neighboring towns quickly sent reinforcements. There were only four small cannon, but these were placed in the most advantageous positions and put in command of competent gunners. For three days the British kept up the bombardment, to which the Americans responded with their batteries, and the militia prevented a landing of the troops. On the 12th the British withdrew.

STONY POINT (July 15, 1779). In May, 1779, Clinton sailed up the Hudson river and captured Stony Point, an important position just below West Point. Anthony Wayne resolved to capture the place for the Americans. With all possible precaution Wayne and his men crept toward the enemy, and when the British discovered their presence it was too late and they were forced to surrender the fort. The fortifications were destroyed and the prisoners and supplies removed.

STRALSUND, in Prussia (1628). One of the most memorable operations of the Thirty Years' War was the siege of Stralsund. For ten weeks Wallenstein encamped about the city, but was finally obliged to remove his troops and give up the siege.

STRASSBURG. In October, 1861, Strassburg, the capital of Alsace, was captured by the French. From August 14 to September 27, 1870, during the Franco-German War, it was besieged by Von Werder and finally capitulated after great damage to the city. By the treaty of peace which followed the war, Alsace was retained by the Germans.

STRATHCONA AND MOUNT ROYAL, DONALD ALEXANDER SMITH, LORD (1820-1914). , Born at Archieston, Scotland. Common school education. Entered Hudson Bay Company as employee (1838); promoted to chief factor and later to chief governor and chief commissioner of the company in Canada. Elected to first session of Manitoba Legislature (1870); and Canadian House of Commons; appointed member of first executive council of the Northwest Territory. Resigned from Provincial Legislature (1874); remaining member of Dominion Parliament until 1896, except 1880-1887. Appointed commissioner to London (1896); member of Queen's Privy Council of Canada (1896). Became heavily interested in railroads and was largely responsible for completion of Canadian Pacific Railway, for which service he was knighted (1886); raised to peerage (1897). President of Bank of Montreal; connected with many prominent commercial bodies. Decorated with several orders and degrees. In the Boer War raised and equipped "Strathcona's Horse."

STUART, JAMES EWELL BROWN (1833-1864). An American soldier and cavalry leader of the Confederates in the Civil War. He was mortally wounded at Yellow Tavern, near Richmond, in an engagement with General Sheridan.

SULLA, LUCIUS CORNELIUS, surnamed **FELIX.** A Roman general (138-78 B. C.). In 107 B. C. he went to Africa with the cavalry of Marius in the Jugurthine War; took Jugurtha in 106 B. C.; fought in the campaigns of Marius against the Teutones and the Cimbri; won such honor in the Social War that he eclipsed the performances of Marius, who became jealous of him. When he was given the command of the army in the Mithridatic War, Marius became so jealous that he tried to deprive him of it and civil war resulted. Sulla marched on Rome against Marius. Marius fled to Africa, but returned to Rome in the absence of Sulla and slaughtered the citizens. At the close of the Mithridatic War Sulla returned to Rome in 83 B. C. Marius was dead, yet it took until the year 81 B. C. to crush his party. Sulla was appointed dictator, which office he held until 79 B. C. During those years a reign of terror lasted and the Marian adherents were slaughtered.

SUMNER, GEORGE WATSON (1841-1924). Rear admiral (retired) United States navy; born at Constantine, Mich.; graduated United States Naval Academy (1861); served during Civil War; equipment officer, New York Navy Yard (1891-1893), captain of yard (1897-1899); commandant naval station, Port Royal (1899-1901), navy yard, Philadelphia (1901-1902); rear admiral (March 3, 1899); commander-in-chief of South Atlantic squadron (1902-1903); retired (December 31, 1903).

SUNDIAL. An instrument for showing the time of day by means of the shadow of a style on a plate usually horizontal, or on a cylindrical surface. Dials were used in Bible times, and in 550 B. C. a dial was invented by Anaximander, when time was divided into hours. L. Papinius Cursor placed the first sundial seen at Rome on the temple of Quirinus, in 293 B. C. Dials were in use in churches about 613. The horizontal dial placed flat or parallel to the horizon is the most common. A dial consists of two parts, the

stile or gnomon, made parallel to the earth's axis, and pointing towards the pole; and the dial plane, on which are marked the directions of the shadows for the day, their halves, quarters, etc. The cylindrical dial is a dial drawn on the curved surface of a cylinder.

SUSA. One of the most important cities of the ancient East. The capital of the Province of Susiana, or Elam Hystaspes, formed the city. It was under Babylonian rule, but at the time of Cyrus it came under Persian dominion. Defended by Hormuzan it held out bravely during the Arab conquest. The great palace built by Darius Hystaspes (521-485 B. C.) was destroyed by fire during the reign of Artaxerxes Longimanus (465-424 B. C.) and restored by Artaxerxes Mnemon (405-362 B. C.). Remains of the palace have been unearthed during excavations. Alexander the Great conquered the city in 331 B. C.

SWINBURNE, WILLIAM THOMAS (1847-1928). Rear admiral United States navy, in command of Pacific squadron since August 10, 1906; born Newport, R. I.; graduate of United States Naval Academy. Commander of battalion landed in Honolulu (January 16-April 1, 1893); head of department of seamanship, naval academy (1893-1897); during Cuban war served in North Atlantic fleet; joined fleet under Admiral Dewey at Manila (February, 1899); senior officer in command of vessels assisting General Lawton in his campaign (Manila Bay) (June 10-13, 1899); Portsmouth Navy Yard (October, 1899-1902); member general board, Washington (1904-1906); rear admiral (July 22, 1906).

SWISS CONFEDERATION. The three Forest Cantons, Uri, Schwyz, and Unterwalden, had received special charters of liberties prior to 1250. They united with Zurich against the House of Hapsburg and won the battle of Morgarten in 1315. The agreement between the cantons was the life of independent Switzerland for five centuries. About 1350, Zurich, Glarus, Zug, and Bern were added. The power of Austria in Switzerland was broken by the victories of the Swiss at Sempach (1386) and at Näfels (1388). In 1415 Aargau was taken from Austria. In 1476 they overthrew the armies of Charles the Bold of Burgundy at Granson and Morat, and in 1477 helped Reni of Lorraine to overthrow him at Nancy. In 1499 Emperor Maximilian I., who sought to subdue the Swiss, was overwhelmed in six desperate engagements. Other cities joined them and they met with successes until terribly defeated at Marignano in 1515 by Francis I. of France while they were fighting to help Milan. In 1648 the country was declared independent of Germany.

SYBARIS. Ancient Greek colony in southern Italy, in northeastern Bruttium, about three miles from the Tarentine Gulf. It was founded by Achaeans and Troezenians about 720 B. C. The people were proverbially wealthy, and of a luxurious nation therefore the term Sybarite. During the sixth century B. C. it ranked with Miletus as one of the most powerful Greek cities. Telys, the tyrant, ruled the city during the party strife, which disturbed so many of the Greek cities. In 510 B. C. the neighboring city, Croton, harbored some of the banished nobles of Sybaris. On their refusal to surrender them, war was declared which was a victory for the Crotonians. They destroyed the city, and turned the river Crathis over the site.

SYRACUSE. One of the great battles of the world. Syracuse was almost impregnable except by united assault from land and sea by superior force. The Athenian navy held the harbor (414 B. C.); an Athenian army defeated her troops and the city was hopelessly blockaded. Athens was staking everything on one bold throw for dominion of the western world. Had the Athenians at once attacked, Syracuse would have been conquered; Greece and not Rome might have conquered Carthage; Greek instead of Latin become the language of Spain, France, and Italy; and the laws of Athens instead of Rome have been the foundation of the present law of the civilized world. The nations saw the need of curbing Athens; reinforcements of Peloponnesians, Spartans, Corinthians, Thebans, and others came under the banner of Gylippus, the Syracusan general; the Athenians were attacked by land when the arrival of the great fleet of Desmosthenes astonished them; at first the Syracusan forces were driven back, but rallied and by perfect formation defeated the Athenians, later destroying the Athenians' fleet in a series of sea fights.

TALAVERA, in Spain (July 27-28, 1809). The scene of a battle won by the duke of Wellington, commander of the British and Spanish forces, over the French troops.

TALLASAHATCHE (November 3, 1813). After the disaster at Fort Mims, volunteers rapidly enlisted to help the whites. On November 3 an expedition of 1,000, led by General Coffee, attacked the Indians at Tallasahatche, in Calhoun Co., Ala., and after a desperate struggle the Indians were completely destroyed, the Americans losing 5 killed and 41 wounded.

TAMERLANE, TIMUR, TIMUR-BEG, TIMUR-LENG, or **TIMUR THE LAME** (1336-1405). A Mongol conqueror; born in Turkestan, of which he became the ruler in 1369, taking the title of emir. By 1387 he had conquered the whole country east of the Tigris from Tiflis to Shiraz. In 1392 he crossed the Tigris and by 1395 had advanced as far as Moscow, leaving death and desolation in his train. In 1398 he entered India and was everywhere victorious. The number of captives so increased that when he captured Delhi he ordered the cold-blooded massacre of 100,000 of the men. He then advanced into Asia Minor, and in 1402 he met and defeated the Turks under Bajazet I. at Angora, where Bajazet was captured. He conquered the whole of Asia Minor and the Byzantine emperor did homage to him. When, in 1405, he was preparing for his long-cherished invasion of China, he was taken ill and died at the Sihun, in Asiatic Russia.

TAOS (February 3, 1847). After Colonel Price had dispersed the insurgents at Canada, New Mexico, he marched toward Taos, where he found the Mexicans occupying a strong position. They kept the Americans at bay until February 5th, when they were obliged to capitulate. The casualties in the Mexican army were 152 killed and many wounded. The Americans lost 7 killed and 45 wounded.

TAPAE (102). The Romans, under Trajan, penetrated Dacia to the heart of modern Transylvania, and at Tapae, the site of which is not known, routed the Dacians with great slaughter. After several such campaigns the Dacian country became a Roman province.

TAPPAN (September 27, 1778). A small detachment of General Wayne's army at Old Tappan (or Harrington), near the Hackensack river, was taken by surprise at night by a British foraging party led by General Grey; 100 men were massacred before any resistance could be made.

TARPEIAN ROCK. The name applied to a portion of the southern part of the Capitoline Hill in Rome, from which, in early times, criminals were hurled to death. Tradition says that Tarpeia, the vestal virgin, daughter of Spurius Tarpeius, opened the gates to the Sabines, on condition that they give her the ornaments they wore on their arms. Accordingly, once inside, they threw their shields on her, saying, "These are the ornaments we bear on our arms." She was crushed to death, and was buried on the Tarpeian Hill.

TAUSSIG, EDWARD DAVID (1847-1921). Rear admiral United States navy; born at St. Louis; graduated United States Naval Academy (1867). For services during earthquake at Arica (August 13, 1868), was commended to the department by Commander Gillis; served on European and Pacific stations and in coast survey; commanded the Bennington (August, 1898-August, 1899); took possession of Wake Island for the United States and took charge of Guam (February 1, 1899); served in Philippines and North China (1900); commanding 5th naval district, Norfolk, Va. (1908).

TEWKESBURY, in Gloucestershire, England. May 4, 1471, a battle was fought at Tewkesbury, in which Edward IV. defeated and took prisoner Queen Margaret.

THAMES (October 5, 1813). After the American victory on Lake Erie, General Harrison prepared to invade Canada. The army, numbering about 5,000 under Harrison and Shelby, were transported to Amherstburg (Malden), on the Canadian shore, where they learned that Proctor and his army of British and Indians had retreated to the interior. They immediately started in pursuit and just north of the Thames river came upon the British. The battle was short and resulted in the utter defeat and rout of the British and Indians, and the death of Tecumseh.

THAPSUS (February 4, 46 B. C.). At Thapsus, in northern Africa, Julius Caesar totally defeated Juba, king of Numidia, and the army which supported Pompey's cause.

THAUSS (Taus) (August 14, 1431). During the Hussite Wars the Hussites met the Crusaders at Thauss, a city of Bohemia, and won a marvelous victory.

THEBES. Ancient Egyptian city on both sides of the Nile, called also "the city of Ammon." The city was the capital of Egypt and the chief residence of the Pharaohs for many centuries. Seti I. and Rameses II. and III. built the temples of El Kurna, Deir el-Bahri,

the Ramesseum, and that of Medinet Habu. The city began to decline in importance from the time it ceased to be the capital of Egypt, under the Twenty-first dynasty. It was overshadowed by the rise in 1100 B. C. of the cities of Tanis, Bubastis, and Sais. Thebes was again the seat of government under the Twenty-fifth or Ethiopian dynasty, but Sais became the capital during the following dynasty, and a new period of decline began for Thebes. In 665 B. C. the Assyrian king, Asshur-bani-pal, destroyed many of its temples and took captive its inhabitants. In 525 B. C. Cambyses, king of Persia, ruined the city. Ptolemy Lathyrus gave it its death-blow in 86 B. C., and the city was further destroyed by an earthquake in 27 B. C. The tomb and ruins of temples of ancient Thebes are of interest historically.

THEBES. The chief city of Boeotia, in ancient Greece, situated on the slopes of Mount Teumessus, which tradition says was founded by Cadmus. The story of the "Seven against Thebes" is also traditional. Thebes was the head of the Boeotian league, *c.* 1100 B. C. Thebes had an unsuccessful war with Athens in 506 B. C. for having made an alliance with Plataea. At the battle of Plataea during the Persian invasion, Thebes was allied with Xerxes, but was severely punished by Athens after the Greek victory. In the Peloponnesian War Thebes took sides with Sparta, but turned against her old ally to fight with Athens at the battle of Chaeronea in 338 B. C., where they suffered a defeat by Philip of Macedonia. In 335 B. C. Alexander the Great completely destroyed the city, selling its inhabitants into slavery. It was restored by Cassander in 316 B. C. but steadily declined until under the Roman Empire it revived, as it was a safer place of residence than the coast cities.

THERMOPYLAE, in Greece. Famous for the battle fought there between the Greeks and the Persians, August 7, 480 B. C. Three hundred Spartans made a valiant attempt to check the progress of the whole Persian army, but were hemmed in and overcome by the enemy. In 191 B. C. Antiochus III. of Syria was utterly defeated by the Romans there.

THORON (1197-1198). An army of German crusaders besieged Thoron for two months, but fled when they heard an army was approaching.

TICINUS (218 B. C.). A river in northern Italy. Here Hannibal, in his first battle with the Romans, under Scipio, after crossing the Alps, defeated them.

TICONDEROGA. (1) July 8, 1758. During the French and Indian War in America, the British, led by Howe and Abercrombie, made repeated attempts to capture Fort Ticonderoga on Lake Champlain. But at every attack they were repulsed, and finally retreated, having lost heavily. One year later, however, General Amherst succeeded in capturing the fort. (2) May 10, 1775. With a small force known as the "Green Mountain Boys," Ethan Allen surprised and captured Fort Ticonderoga from the English. (3) 1777. Later during the Revolution, Ticonderoga was retaken by the English under Burgoyne.

TIGRANOCERTA, now Sert, or Iserd (69 B. C.). The Romans, during the Third Mithridatic War, attacked Tigranocerta, the capital of Armenia, and after a hard struggle succeeded in capturing the city.

TILLY, JOHANN TSERKLAES, COUNT VON (1559-1632). Imperialist general; born at the castle of Tilly in Brabant; commander of the forces of the Catholic League of Germany (1618). Fought in the Thirty Years' War and was defeated by the Swedish king, Gustavus Adolphus, at Lützen, and at Lech (1632), where Tilly received his death-wound.

TIPPECANOE (November 7, 1811). While the Americans were trying to buy land from the Indians, Tecumseh and his brother, thinking they were being cheated, persuaded the tribes to wage war against the whites. Aware of this, William H. Harrison conducted a campaign against them, and on November 6th the Americans encamped near Tippecanoe, in Indiana. During the night the Indians attacked the American camp, but met with vigorous resistance, and after an obstinate struggle the Indians retreated. On the following day Harrison and his men found the village deserted, and after destroying it retired to Vincennes.

TOD'LEBEN FRANZ EDUARD IVANOVITCH (1818-1884). Russian general and military engineer; was born of German descent at Mitau in Kourland; became distinguished by his defense of Sebastopol during the Crimean campaign. In 1877, during the Russo-Turkish War, he besieged and captured Plevna.

TOLEDO. In 712 Toledo, in central Spain, was taken by the Saracens. Alfonso I. of Castile succeeded in capturing it May 25, 1085.

TOLTECS. A people who inhabited Mexico and Central America prior to the Aztecs. The latter owe their knowledge of arts and their culture to the Toltecs. Their dominion extended over all the central plateau, with the city of Tollan, or Tula, as the capital. About the tenth century the country was invaded by barbarous northern tribes, and the Toltecs were driven south probably as far as Guatemala.

TORONTO. The seat of the Ontario legislature. It is an Indian name, signifying "place of meeting." It was founded as a French trading-post (1749); chosen as provincial capital (1794), being then called York; burned by the American forces (1813); resumed name Toronto (1834); headquarters of the rebellion of 1837.

TOULOUSE (April 10, 1814). The last of Wellington's peninsular battles during the Napoleonic War was fought at Toulouse, in France, where he defeated Soult, the French leader.

TOURNAMENT. A sport in which skill at arms was shown. Its invention is ascribed to Henry, the Fowler, who died in 936, also to Geoffrey de Preuilly. The tournament was most popular during the twelfth, thirteenth, and fourteenth centuries. Tournaments were first heard of in England in Stephen's time, but it was not until Richard Cœur-de-Lion made them popular that they came to be greatly in vogue. They were abandoned altogether when Henry II. of France died soon after losing his eye in the combat. The usual arms were blunted lances or swords and the combat took place in an open space called the lists, which was surrounded by galleries for the spectators. The queen of the tournament bestowed the prize on the successful knight. The most celebrated English tournaments were held near Saint James, Smithfield, London. Jousts were single combats between two knights.

TOURS. Decisive battle of the world (732), in France, between the Franks and the Saracens. The Saracens had overrun Persia, Syria, Egypt, Africa, and Spain unchecked, and Moslem rule and religion were enforced. Charles Martel, Duke of the Austrasian Franks, had no standing army but gathered war-seasoned recruits from all sections of the great Frank territory; organized them and near the River Aude defeated the Moslem horde disorganized by continuous plunder of captured cities. The Crescent was driven back to eastern Europe and Christianity secured to posterity.

TOURVILLE, ANNE HILARION DE COTENTIN, COMTE DE (1642-1701). A distinguished French admiral; born at Tourville, near Coutances; made several attempts to destroy the Algerian pirates (1682-1688); was beaten by a Dutch-English fleet off La Hogue (1692). Tourville was made marshal of France, and later attacked an English merchant fleet off Cape St. Vincent (1693), inflicting much damage.

TOWTON, in Yorkshire. On March 29, 1461, Edward IV. defeated Henry VI. at Towton, in what proved to be one of the most terrible struggles in English history. The fighting continued for six hours in the midst of a severe snowstorm, and the loss on each side was more than 20,000.

TRAFALGAR. October 21, 1805, the English, under Nelson, won a naval battle off Cape Trafalgar, in Spain. The fleets of France and Spain were utterly defeated.

TREBIA. A tributary of the river Po, where occurred the final battle of Hannibal's first campaign (218 B.C.), in which the Carthaginians defeated the Romans. In 1799, Macdonald with his French army was here defeated by the Russians under Suvaroff.

TRENT AFFAIR (November 8, 1861). Capt. Charles Wilkes of the United States San Jacinto stopped the British mail steamer Trent on the high seas, taking off John Slidell and James M. Mason, Confederate commissioners to England and France. The North applauded; Lincoln and Seward, realizing the gravity of the act, yielded both men with apology.

TRENTON. The capital of New Jersey was first settled as "The Falls" (1676). It was named Trenton in honor of William Trent (1719); it was made a borough (1746), the state capital (1790), and a city (1792). On Christmas night (1776) the Americans under Washington crossed the Delaware, attacked the Hessians under Rahl, and captured them.

TRIPLE ALLIANCE. (1) That of England, Holland, and Sweden (1668) to check the conquests of Louis XIV. (2) That of England, France, and Holland (1717) against Spain. When Austria came in, it became the Quadruple Alliance. (3) The Dreibund between Germany, Austria-Hungary, and Italy for mutual defense, made in 1879, renewed in 1887 and 1902 for twelve years from May, 1903.

TRIPOLI BOMBARDED (August 3, 7, September 3, 4, 1804). Tripoli, an important seaport on the northern coast of Africa, was besieged by the Americans during their war with the Barbary States. On August 3d, while the American fleet was bombarding the city, they were opposed by a Tripolitan squadron, but six American boats soon destroyed the whole flotilla. Lieut. James Decatur was killed and 13 men were wounded during the engagement. On August 7th some of the Tripolitan batteries were silenced by the American gunboats, and on September 3d those on the east were also silenced. September 4th the Americans had arranged to float a vessel loaded with powder up to the city walls and light the fuses, but the enemy opened fire and the boat was blown up with the entire crew on board and all were lost.

TRUMBULL, JONATHAN (1710-1785). An American patriot; born at Lebanon, Conn.; graduated at Harvard (1727); studied law; governor of Connecticut (1769-1783); helped to further the patriot cause in the Revolutionary War. Washington had much faith in his advice, and tradition says that his phrase, "Let us hear what Brother Jonathan says," gave rise to the expression which was the personification of the United States.

TRUMBULL—WATT (June 2, 1780). While sailing off the east coast of North America, the British boat Watt, commanded by Captain Coulthard, was fired upon by the American Trumbull. For three hours the boats lay side by side and maintained a heavy fire which seriously damaged both boats. Finally the Trumbull withdrew and allowed the Watt to proceed. Eight men were killed and 31 wounded on the Trumbull. The loss on the Watt was 92 men killed or wounded.

TRUXTUN, THOMAS (1755-1822). An American naval officer; born at Jamaica, Long Island; went to sea when twelve years of age, and was impressed into the English service; served in the Revolutionary War as captain of the Congress; after the war he received a captain's commission and was put in command of the Constellation, and captured the French frigate L'Insurgente (February 9, 1799); the following year fought a battle with the frigate La Vengeance, defeating her. He was subsequently put in command of the West India squadron with the rank of commodore. In 1802 he was ordered to command a fleet in the war with Tripoli, but through a misunderstanding his letter to the navy department requesting the appointment of a captain for his flagship was construed as a resignation, which was accepted and he left the service much against his wishes. He was sheriff of Philadelphia County in 1819-1821.

TUILERIES. The Tuileries, the old royal palace in Paris, has been the scene of several conflicts. It was invaded by a mob on June 20, 1792, but little harm was done. On August 10 it was stormed again, and the royal family forced to flee. During the revolutions of July, 1830, and February, 1848, it was ransacked, and during the War of the Commune in 1871 it was burned.

TUNES (Tunis). In 255 B. C., the Romans, under Regulus, met the Carthaginian army at Tunes, the site of the present city of Tunis in northern Africa, where they were defeated and many were captured.

TUNIS. In 1270, during the Seventh Crusade, Louis IX. encamped in Tunis, in the northern part of Africa. In 1535, while the Reformation was in progress, Charles V. conquered Tunis and liberated all the Christian slaves. The French, in 1881, invaded Tunis and succeeded in establishing a protectorate over it.

TURENNE (*too-ren'*), **HENRI DE LA TOUR D'AUVERGNE, VICOMTE DE** (1611-1675). French general; grandson of William the Silent; born at Sedan, France; he distinguished himself during the alliance of France with the Protestants in the Thirty Years' War; received supreme command (1641); gained Roussillon from the Spaniards (1642), and for this was rewarded by being made marshal of France (1644); he was defeated by the Imperialists at Marienthal (1645); made successful campaigns in Bavaria and Flanders (1646-1647); Turenne defeated Condé at the Dunes (1658); created marshal general of France (1660); turned Catholic (1668); in 1674 he crushed Brandenburg and Alsace and pillaged the Palatinate. He was killed reconnoitering at Sasbach.

TURIN (September 7, 1706). A city of northern Italy, where, during the War of the Spanish Succession, Prince Eugene, with the aid of the Prussians, defeated the French. This victory enabled the allies to expel the French from northern Italy.

TYLER, WAT, REBELLION OF. A peasants' revolt provoked by the poll tax levied on all persons above fifteen; under Wat and Jack Straw the people throughout Kent and Essex rose and marched on London, where they burned John of Gaunt's palace and Temple Bar, opened the prisons, broke into the Tower, and murdered the archbishop of Canterbury. They met King Richard II. at Smithfield (1381) demanding that there should be no outlawry, no serfdom, and but one bishop in England. The leader, Tyler, was arrested on a pretext, and when he resisted he was killed by Walworthe, mayor of London. When the rebels heard what had happened they dispersed. The effect of the uprising was to repeal the taxes for a time and to annul the Statute of Laborers.

TYRE. A famous city of ancient Phoenicia, one of the chief places of the ancient world, stood partly on an island, and partly on the mainland. Agenor is said to have built the first city. Another city was built 257 B. C. In 713 B. C., after besieging the city for five years, the Assyrians, under Shalmaneser, withdrew. It is recorded that Solomon paid tribute to Hiram, king of Tyre, in return for material and skilled workmen for the building of the great temple (I. Kings v. 1-12). Tyre was forced to surrender to Asshurbani-pal (668-626 B. C.), and became an Assyrian vassal. In 607 B. C., at the fall of Assyria, she regained her independence. She yielded to Nebuchadnezzar II. 572 B. C., after a siege of thirteen years. As Nebuchadnezzar had destroyed the old Tyre, the people moved to the island, where a new city was built up. In 332 B. C. it was captured by Alexander after a seven months' siege, and seventeen years later by Antigonus after a siege of a year and two months. Tyre still continued to be an important commercial town during the Middle Ages. It was captured by Crusaders under Baldwin II. in 1124, held by the Christians until 1291, then taken by Malik-al-Ashraf, ruler of Egypt and Syria. In 1516, with the conquest of Syria by the Turks, the prosperity of Tyre ended.

VADIMONIAN LAKE, Etruria (310 B.C., 283 B.C.). The first battle at Vadimonian Lake occurred during the Second Samnite War. The Romans were victorious, and as a result the coalition against them was broken up. Later, a new Italian coalition was formed, and in the war which followed, the Romans were again victorious at Vadimonian Lake.

VALETTE', JEAN PARISOT DE LA (1494-1568). Grand master of the Knights of St. John in 1557; born at Toulouse. In his warfare with the Turks he succeeded in checking their advance; his greatest achievement was his heroic defense of Malta during a four months' blockade from May 18th till September 8th (1565) by the Turkish fleet.

VALMY. Decisive battle of the world (1792). The French Revolution had decimated the army; driving out of France 12,000 high born young men trained to arms, who enrolled themselves under Condé and other princes to overthrow French Republican rule. Insidiously threatened on all sides, France declared war on the great European powers, represented by 60,000 Prussians, 45,000 Austrians, 15,000 French, many Hessians, and others, commanded by the duke of Brunswick. The French force was about 50,000 commanded by Dumouriez, and in previous actions had been repulsed or beaten. The tide turned; the allies were hopelessly defeated; the French Republic was established and a new era commenced in the history of Europe.

VANCOUVER. Largest city of British Columbia. A sawmill marked the site in 1885 when the Canadian Pacific Railroad decided to make it the western terminal on account of the fine harbor. First city destroyed by fire (1886); population 26,196 (1901); over 40,000 (1910). Victoria is the capital of the province.

VARUS, PUBLIUS QUINTILIUS. A Roman general; consul in 13 B. C. About 7 A. D. he was appointed to the command of the Roman army in Germany. In 9 A. D. his army sustained a crushing defeat by the Germans under Arminius in the forest of Teutoburg while encumbered by baggage. Varus in despair killed himself. The defeat stopped the tide of Roman conquest of Germany.

VEII. An ancient city of Etruria about twelve miles northwest of Rome. One of the twelve cities of the Etruscan Confederacy, and a formidable rival in early times of Rome. The two cities were frequently at war with each other during three and a half centuries, with Rome always victorious. To prevent depredations made by the Vientes, the Fabii, a Roman family, with their followers set out to garrison a fortress and act as guard, but they were surprised by the Vientes and

killed at the river Cremera. More hostilities followed until Rome laid siege to the town and after ten years Camillus (*c.* 396 B. C.) took it. Both Caesar and Augustus planted colonies there, but they amounted to but little. In 390, when the Gauls seized Rome, the Romans fled to Veii.

VERA CRUZ (March 9-29, 1847). With 12,000 American soldiers, General Scott landed before Vera Cruz, in Mexico, and demanded its surrender. The Mexicans refused and Scott at once began an active bombardment which finally proved effectual and forced the surrender of the city.

VERDUN, TREATY OF. On the death of Louis the Pious, his three sons, Louis the German, Charles the Bald, and the emperor Lothair, went to war over the division of the kingdom. By the Peace of Verdun (August 10, 843) Lothair kept the honorary title of emperor, with Italy and the land between the Rhine and the Rhone, with Aix-la-Chapelle as his capital; Louis received the country between the Aar and the Rhine; and Charles received the country west of the Rhine.

VERSAILLES. A town about 12 miles southwest of Paris, prominent in French history for more than a century. Here Louis XIV. built a royal residence, unrivaled in the whole world, and moved his court about 1682. Louis XV. followed, then Louis XVI. with Marie Antoinette came, but were driven back to Paris. The treaty of 1783 was signed here; the opening act of the French Revolution occurred May 4, 1789; during the siege of Paris (1870-1871) King William I. made it his headquarters, where he was proclaimed emperor of Germany; later it was the French capital (1871-1879).

VICKSBURG. During the Civil War, Vicksburg, on the Mississippi river, between Memphis and New Orleans, was a valuable stronghold of the Confederates, and General Grant spent much of his time during 1862 and 1863 in planning its capture. Repeated attempts were made without success; the fortress seemed impregnable. Finally, by calling for reinforcements from the North, and cutting off every avenue of supply and help to the city, Grant was prepared to begin the siege in earnest. For six weeks the investment was kept up with uninterrupted firing from the Federal ships. There was great loss in Vicksburg from exploding shells, disease, and lack of food. When the supply of provisions had been exhausted, the people could hold out no longer and on July 3, 1863, Vicksburg capitulated. On July 4th the Union army took formal possession of the city; 37,000 prisoners, 172 cannon, and 60,000 muskets were surrendered.

VIGO BAY (October 23, 1702). During the War of the Spanish Succession, Spanish ships laden with treasure from America, and accompanied by French frigates, entered Vigo Bay, in northwest Spain. The British followed them and succeeded in capturing or destroying all the ships. Vigo was attacked by Drake in 1585 and 1589, and by Lord Cobham in 1719.

VILLERE'S PLANTATION (December 23, 1814). After their victory on Lake Borgne, the British at once started for New Orleans. As soon as the Americans learned of their movements, a detachment of 1,800 troops was sent to check their march. The British were within nine miles of New Orleans when the schooner Carolina opened fire, killing many of the invaders. The conflict lasted until evening, when both armies left the field, the Americans with a loss of 213 men, the British with a loss of 400 men.

VINCENNES (February 24, 1779). On December 17, 1778, a British force from Detroit captured Vincennes, Knox Co., Ind. When General Clark, at Kaskaskia, heard that Vincennes was defended by only 100 British, he set out to seize it. After a march of 240 miles through flooded territory, Clark reached Vincennes on February 21st, and on the 24th the British surrendered 79 men.

VIRGINIUS, LUCIUS. A Roman centurion who murdered his daughter to prevent her from falling into the power of the decemvir, Appius Claudius (449 B.C.). This legend has been the theme of many dramas.

VITORIA or **VITTORIA** (June 21, 1813). A town in Spain, and the scene of a battle between the British and French. By a decisive victory, the duke of Wellington drove the French, led by Joseph Bonaparte and Jourdan, out of Spain.

WAGRAM, in Austria. July 6, 1809. The French, led by Napoleon, defeated the Austrians, under Archduke Charles, at Wagram. This battle led to a treaty of peace, in which Austria ceded all her seacoast to France; the kingdoms of Saxony and Bavaria were also enlarged at the expense of Austria.

WAHUB'S PLANTATION (September 21, 1780). After the British victories at Camden and Fishing Creek, Cornwallis, Tarleton, and Ferguson marched north toward Charlotte, N. C., leaving a small detachment at Wahub's Plantation, near Providence, S. C. With a part of the American troops, one of Colonel Davie's officers attacked the British, killing 20 of them and capturing some of their horses and equipment.

WAINWRIGHT, RICHARD (1849-1926). Rear admiral United States navy; born at Washington; graduated United States Naval Academy (1868), and from Columbian (now George Washington) University (1884), (LL.D.); chief of intelligence office (1896-1897); executive officer of the Maine (November 17, 1897, to February 15, 1898), when she was blown up in Havana harbor; during war with Spain commanded Gloucester, and participated in destruction of Admiral Cervera's squadron off Santiago, Cuba (July 3, 1898); for "eminent and conspicuous conduct" in this battle was advanced 10 numbers in rank; presented with a sword by citizens of Washington and with a silver loving cup by citizens of Gloucester, Mass.; commanding 2d division, 1st squadron, Atlantic fleet (1908).

WAKEFIELD (December 31, 1460). The only great victory of the Lancastrians in the War of the Roses was gained at Wakefield, in Yorkshire, England, when Queen Margaret defeated the duke of York.

WALKER, WILLIAM (1824-1860). An American filibuster; born in Nashville, Tenn.; an attempt to found a new republic in northern Mexico failed (1853); led a band of 62 adventurers to Nicaragua and was elected president; he twice surrendered to U. S. authorities; after his release he led an expedition to Honduras and took Trujillo; obliged to surrender to the commander of the British warship Icarus; tried by a court-martial and shot September 12, 1860.

WALLACE, SIR WILLIAM (1272?-1305). Scotch patriot; his chief aim was to free Scotland from the English yoke; met the English at Stirling Bridge (1297), and gained a victory; Wallace was appointed governor of Scotland in the name of King John (Baliol); he was defeated by the English under Edward I. at the battle of Falkirk (1298); through the treachery of a Scotchman, Menteith, Wallace was betrayed, brought to London, and executed.

WALLENSTEIN, ALBRECHT WENZEL EUSEBIUS VON, DUKE OF FRIEDLAND (1583-1634). Imperialist general; born at Hermanic, in Bohemia; his aim was to restore the imperial power and to establish a vast centralized Hapsburg empire, which should control the Baltic; offered his services to the emperor Ferdinand and was made general-in-chief of all the imperial armies (1625); with Tilly he won Jutland and Mecklenburg from the Protestant princes; his thirst for power won him the hatred of a powerful party, the Catholic League, at court, and through their efforts he was finally dismissed by the emperor (1630); at the death of Tilly he was recalled to supreme command (1631); he repulsed Gustavus Adolphus at Nuremberg, but was defeated by him at Lützen (1632), where the Swedish king fell; Wallenstein renewed his attacks against Saxony and Brandenburg; he was accused of conspiracy with the enemy and was removed from his command (1633). He was assassinated by some Scotch and Irish officers. He was one of the great men of the Thirty Years' War; liberal in religious matters, but entirely unscrupulous.

WARREN, JOSEPH (1741-1775). American patriot; born at Roxbury, Mass.; became a physician; was an active member of first, second, and third provincial congresses of America. Took part in the battle of Bunker Hill and was killed there.

WARSAW. The capital of Poland and the scene of two battles. The first, October 10-12, 1794, was a siege by the Pussians, in which the Poles were successful in holding the city. In 1831 the Russians, after encountering the Poles in various places, attacked Warsaw. For two days the Poles kept the stronghold, but on September 8 were obliged to surrender. After the fall of Warsaw, the power of Poland was crippled; its constitution was taken away and the country made a province of Russia.

WARWICK, RICHARD NEVILLE, EARL OF, THE KING MAKER (1428-1471). Famous English warrior; joined the forces of the duke of York; the victory at St. Albans was largely due to his efforts (1455); helped to place Edward, Earl of March, on the throne as Edward IV.; deposed Edward IV. and proclaimed Henry VI. king; Edward IV. raised an army and defeated Warwick at the battle of Barnet, where the latter was killed.

WASHINGTON (August 24, 1814). Immediately after the Americans had been defeated at Bladensburg, the British entered Washington and began to burn the public buildings. Property to the amount of $2,000,000 was burned to the ground, although such articles of value as Washington's portrait and the Declaration of Independence were saved through the efforts of Mrs. Madison. After the British had satisfied their revengeful spirit they abandoned the city.

WASP. (1) October 18, 1812. The American sloop-of-war Wasp, commanded by Capt. Jacob Jones, encountered the British brig Frolic and six merchantmen off the southern coast of the United States. In less than an hour the Frolic surrendered, but the Wasp soon became the prey of the British frigate Poictiers and her crew were carried to Bermuda as prisoners. (2) On June 28, 1814, while the second U. S. sloop-of-war Wasp was cruising in the English Channel, she fell in with the British sloop Reindeer, and after a brief engagement the latter struck her colors. (3) On September 1, 1814, the Wasp captured the British Avon after a fight of two hours. (4) On October 9, 1814, the Adonis, a Swedish brig, was overpowered by the Wasp, and two Americans from the Essex taken off. Nothing was ever heard from the Wasp again after this encounter.

WATERLOO. Decisive battle of the world (1815), crushing Napoleon I. of France. For more than twenty years war had raged through Europe. Napoleon Bonaparte had carried the French eagles devastatingly to Egypt and Russia, rising to Emperor of the French. Austria, Spain, England, Prussia, Russia, and Sweden declared him an outlaw and formed a treaty to war until he was driven from the throne, incapable of disturbing Europe's peace. The allied army of 67,655 men under the duke of Wellington met Napoleon at Waterloo with 71,947 men and utterly defeated him. It was the most decisive battle of Europe.

WATSON, JOHN CRITTENDEN (1842-1923). Rear admiral (retired) United States navy; born at Frankfort, Ky.; graduated United States Naval Academy (1860); served during Civil War; lighthouse inspector, 11th district (1880-1883); president of board of inspection, San Francisco (1888-1890); captain of yard, Mare Island Navy Yard (1890-1892); governor of naval home, Philadelphia (1895-1898); during war with Spain commanded a division of North Atlantic fleet (May-September, 1898); commander-in-chief of Eastern squadron (July, 1898), to threaten coast of Spain and reinforce Dewey's fleet; commandant Mare Island Navy Yard (1898-1899); rear admiral (March 3, 1899); commander-in-chief of Asiatic fleet (June, 1899-April, 1900); president of naval examining board (1900-1902); naval representative to coronation of King Edward VII. of England (1902); president of naval examining and retiring boards (1902-1904); special duty in Europe to study conditions for moral and physical betterment of enlisted personnel; retired (August 24, 1904).

WAUHATCHIE (October 27, 1863). After the battle of Chickamauga, the Confederates took positions on Lookout Mountain and Missionary Ridge, while the Federals retreated to Chattanooga. October 28 the Confederates on Lookout Mountain sighted Hooker marching down the Wauhatchie valley, and early the following morning made an attack. At the end of a three hours' struggle the Federals were victorious.

WAWRE (1831). At the insurrection of Poland, Russian troops flooded the country; at Wawre the revolutionists were victorious in two battles.

WAXHAW (May 29, 1780). After the fall of Charleston, Colonel Buford and 380 Americans retreated toward the North Carolina line. At the Waxhaw river, in South Carolina, they were met by Colonel Tarleton with 300 men. The British made a desperate charge and completely overpowered the Americans, Colonel Buford and only a few of his men escaping.

WAYNE, ANTHONY (1745-1796). A famous American general; born in Chester County, Pa.; raised a volunteer regiment (1776); won some brilliant successes in the War of the Revolution; he is best known as the hero of the storming and capture of Stony Point (1779); he was elected (1784) to the Pennsylvania assembly; entered Congress from Georgia (1791-1792); was appointed general-in-chief of the national army (1792); quelled the Indian uprisings in the West (1794-1795). He was known as "Mad Anthony."

WELDON RAILROAD (June 21, August 18, 1864). While Grant was conducting the attacks on Richmond and Petersburg, Va., other Federal troops were trying to destroy the Petersburg & Weldon Railroad. On June 21 two divisions under Birney and Wright made an attempt south of Petersburg, but were repulsed with a loss of 4,000 men. In order to protect Richmond, Lee was obliged to take some of his forces from Petersburg in August, which gave the Federals an opportunity to make another attempt to destroy the supply line. On August 18 General Warren made an attack four miles below Petersburg, and after fighting three days the Federals destroyed seven miles of railroad, losing 4,543 men in the engagements.

WELLINGTON, ARTHUR WELLESLEY, FIRST DUKE OF (1769-1852). British general and statesman; born probably in Dublin; entered the army (1787); served in Holland against Pichegru (1794-1795); ordered to India (1796); commanded the English at Malavelly (1799); made major general (1802); returned to England (1805); entered Parliament for Rye (1806); appointed Irish secretary (1807); drove the Danes out of Zealand (1807); went to the relief of Portugal (1808); defeated the French at Vimeiro (1808); given the chief command in the Peninsula (1809); drove the French from Spain, and captured Toulouse in the Peninsular war; made lieutenant general and K. C. B. (1808); received many titles of honor and all the most distinguished foreign orders; defeated King Joseph at Vitoria (1813); sent as ambassador extraordinary to France (1814) but was transferred to the Congress of Vienna (1815); commanded the forces of the English and allies in Belgium in coöperation with a Prussian army under Blücher; Blücher was defeated by Napoleon at Ligny; Wellington defeated Ney at Quatre Bras, and totally defeated Napoleon at Waterloo (June 18, 1815); Wellington created Prince of Waterloo; entered the cabinet as master general of the ordnance (1818); made constable of the Tower (1826), and in 1827 commander-in-chief; was prime minister (1828-1830); made foreign secretary (1834) under Peel; president of the privy council (1845-1846); was buried in Saint Paul's Cathedral.

WEST POINT. U. S. military post and the seat of U. S. Military Academy, on the western bank of the Hudson river, 50 miles north of New York. During the Revolution it was an important post and was fortified (1775-1780) under direction of Kosciusko, the Polish patriot; Fort Putnam and redoubts were constructed; a massive iron chain was stretched across the river; Washington's headquarters for a time (1779); Benedict Arnold in command attempted to surrender it to the British (1780); a reservation was acquired, consisting of 2,100 acres (1790), increased to 2,300 acres (1875); the "Corps of Engineers" was created (1802) to form a Military Academy, which was formally opened that year; grouped upon a hill 180 feet above the river, the buildings include officers' quarters, barracks, mess and riding halls, library, chapel, hospital, academic buildings, and Memorial Hall.

WEYLER Y NICOLAU, VALERIANO, MARQUIS OF TENERIFE (1838-). Spanish general. Military attaché of the Spanish legation in the United States during the Civil War; accompanied Sheridan on some campaigns; held a command under Balmaceda in the Ten Years' War in Cuba (1868-1878); served in Spain against the Carlists (1873); governor general of the Canaries (1879); captain general of the Philippines (1889), where he amassed a fortune; sent to Cuba (1896) to succeed Campos, where his severity excited a protest from the United States and he was recalled. In 1900 he was made captain general of Madrid; minister of war in the Sagasta Cabinet (1901-1902).

WHEELER, JOSEPH (1836-1906). American soldier; born in Augusta, Ga.; Confederate service (1861-1865); commanded a brigade at Shiloh (1862); as major general commanded the cavalry at Chickamauga; in Congress (1880-1898); major general of volunteers (1898); commanded at Las Guasimas; senior officer at San Juan hill; commissioner to arrange for surrender of Santiago; commanded a brigade in the Philippines (1899-1900); brigadier general, regular army (1900); retired (1900).

WHITE, PEREGRINE (1620-1704). The first child born of English parents in New England; born on the Mayflower in Cape Cod harbor, November 20, 1620. In "consideration of his birth" he received 200 acres of land. He held several civil and military offices.

WHITEMARSH (December 5, 8, 1777). After the battle of Germantown, the Americans, under Washington and Varnum, took up a position at Whitemarsh, 15 miles north of Philadelphia. Here they encountered the British led by General Howe, and after several skirmishes the Americans were driven from their position. On December 8th, the British withdrew to Philadelphia, with a loss of about 60 men. The Americans had lost about 100 men.

WHITE OAK SWAMP (June 30, 1862). As the Confederates were pursuing the Federals, during the Seven Days' Battles near Richmond, Va., the army led by Jackson came upon Franklin and Sumner near White Oak Swamp. The Federals were greatly outnumbered, but they prevented the advance of Jackson to the main army.

WHITE PLAINS (October 28, 1776). The American troops under Washington were encamped at White Plains, north of New York City, where they were attacked by the British, led by Howe. About 4,000 British attacked a division of about 1,500 Americans and forced them to retreat to the main army, but as Washington had now moved to a stronger position the British concluded to leave them and march southward.

WILDE, GEORGE FRANCIS FAXON (1845-1911). Rear admiral (retired) United States navy; born at Braintree, Mass.; graduated United States Naval Academy (1864); commanded U. S. S. Dolphin (1885-1888) on its cruise around the world—the first steel vessel of the United States navy to circumnavigate the globe; established electric light vessel off Diamond Shoal, Cape Hatteras; introduced telephone to light vessels from shore; introduced gas buoys on Great Lakes; landed the first marines in China, and sent them to Peking, where they guarded legation (November, 1898-April, 1899); captured and occupied city of Iloilo (February 11, 1899), receiving the thanks of the secretary of the navy; captured Vigan (February 18, 1900), receiving thanks of Spanish government for rescuing there 160 Spanish officers and families; captain of navy yard, Portsmouth, N. H. (1901-1902); navy yard, Boston (1903-1904); commandant League Island Navy Yard (February-May, 1904); navy yard, Boston (May, 1904-February, 1905); rear admiral (August 10, 1904); retired (February 20, 1905).

WILDERNESS (May 5-7, 1864). General Grant, in his march toward Richmond, was met by Lee and his Confederates in a forest on the banks of the Rapidan in Virginia. Here they fought what is known as the battle of the Wilderness. Both armies lost thousands of their men, but neither side was really victorious, and on the 7th Grant continued his march toward Richmond, followed by Lee.

WILLIAMS, ROGER (1604-1683). English Puritan minister; founder of Rhode Island colony; born in Wales; pastor in Salem (1633); banished for heterodox teachings (1635); he escaped to Providence (1636); elected president of Rhode Island colony (1654).

WILLIAMSBURG (May 5, 1862). When the Union forces learned that the Confederates had evacuated Yorktown and started for Richmond, a detachment was immediately sent in pursuit. At Williamsburg, between Yorktown and Richmond, Va., the Confederates were overtaken and a sharply contested battle was fought. Federal reinforcements failed to arrive and at first it looked as if the Confederates would be victorious, but Kearny's appearance saved the day, the Confederates retreating toward Richmond leaving Williamsburg in Hooker's hands. In this battle the Federals lost 2,200 men; the Confederates, 2,000.

WILLIAMSON'S FARM (July 12, 1780). A force of 400 British militia under Captain Houk was taken by surprise at Williamson's Farm, in South Carolina, by a small number of Americans led by Bratton and McClure. After a sharp engagement, the British were overpowered and about 90 killed or wounded.

WILSON'S CREEK (August 10, 1861). In the summer of 1861, the Confederate forces in Missouri increased to 12,000 men, and although the Federal troops numbered only 5,500, General Lyon determined to make an attack at Wilson's Creek, Mo. On August 10, Sigel attacked the Confederate rear, while Lyon attacked the front. A stubborn fight ensued, which resulted in heavy losses on both sides and the retreat of the Federals toward Springfield.

WIMPFEN (May 6, 1622). During the Thirty Years' War, Wimpfen, a town in Baden, was the scene of a battle between the margrave of Baden and Tilly. The margrave was defeated with the loss of half his army, and Tilly made off with his train of artillery and military chest.

WINCHESTER. (1) See KERNSTOWN. (2) May 24, 1862. When the Confederates learned that the Federal armies in Virginia were planning to combine their forces, "Stonewall" Jackson was sent with 15,000 men to intercept them. As he advanced toward Harrisonburg, in the valley of the Shenandoah, Banks retreated to Winchester, where, on May 24, the two armies met and fought a brief battle which resulted in the flight of Banks and his men toward Harper's Ferry, on the Potomac river, pursued by Jackson. (3) On June 13, 1863, Lee started north by way of the Shenandoah valley with a large Confederate army. At Winchester, he came upon General Milroy with 7,000 men, whom he attacked and utterly routed. The broken and scattered Federal troops fled in confusion toward the Potomac river, and some were afterward collected in Pennsylvania. (4) September 19, 1864. While the Confederates under Early were encamped on the west bank of Opequan creek, near Winchester, they were attacked by Sheridan. At the end of a five hours' engagement the Confederates retreated toward Winchester with a loss of 3,611 men. The Federal loss was 5,018.

WISCONSIN HEIGHTS (July 21, 1832). From Illinois the Indians retreated into Wisconsin. The combined forces of General Atkinson, Henry, and Dodge pursued them, and on July 21st overtook them on the bluffs along the Wisconsin river. Too exhausted and disheartened to enter into a severe struggle, they made a feeble resistance and retreated, with a loss of 68 killed.

WISE, WILLIAM CLINTON (1842-1923). Rear admiral (retired) United States navy; born at Lewisburg, Va.; graduated United States Naval Academy (1863); served in Civil War, commanding in 1865 Admiral Porter's flagship, Malvern; inspector of ordnance, navy yard, Norfolk (1878-1881); navy yard, Portsmouth, N. H. (1884-1887); lighthouse inspector, 15th district (1890-1894); captain of yard, navy yard, Norfolk (1897-1898); rear admiral (June 14, 1902); commander-in-chief of Atlantic training squadron (1903-1904); retired (November 8, 1904); special duty in connection with steamboat inspection service (1904-1905).

WIT'TEKIND (? -807). A Westphalian chieftain; leader of the Saxons against Charlemagne; after the Imperial Diet at Paderborn (777), rather than submit to the Frankish king, he fled to Siegfried, King of Jutland; returned in 778 and began to devastate the Rhine country; in 782 he surprised and destroyed the Frankish army at the Süntelberg, which act Charlemagne revenged by killing 4,500 Saxons at Verden. There was war until 785, when peace was established. Wittekind received baptism, and the legend goes that he was promoted to be Duke of the Saxons, and Enger was made over to him.

WOLFE, JAMES (1727-1759). A major general; conqueror of Quebec; born in Kent, England; entered the army (1741), where his rise was rapid; the capture of Louisburg was mainly due to his efforts; received the command of the expedition for expelling the French from Canada; the French were defeated and later evacuated Quebec, whose fall decided the fate of Canada. Wolfe was killed in the hour of victory.

WOLSELEY, SIR GARNET JOSEPH, FIRST VISCOUNT (1833-1913). British soldier; born in Dublin County; served in the Burmese War (1852-1853), and in the Crimean War, being twice wounded; captain in the Indian mutiny; lieutenant colonel in the Chinese expedition (1860); suppressed the Riel Rebellion in Canada (1870); major general in the Ashantee War (1873-1874); commanded in the Zulu War (1879); defeated Arabi Pasha at Tel-el-Kebir (1882); commander-in-chief of the British army (1895-1900).

WOOD, LEONARD (1860-1927). American soldier; born in Winchester, N. H.; surgeon in the Regular army (1886); served in the campaign against Geronimo's Apaches (1886). He and Theodore Roosevelt organized the "Rough Riders" in the Spanish-American War, with Wood as colonel and Roosevelt, lieutenant colonel. Wood commanded the regiment at Las Guasimas, and was in charge of one of Wheeler's brigades at San Juan hill; brigadier general of volunteers (1898); major general a few months later; brigadier general of the Regular army (1901); in

command of Santiago after the surrender; governor general of Cuba (1899); in command of a division in the Philippines (1903); major general (1903); chief of staff of the army (1910-1914).

WORTH (August 6, 1870). One of the battles of the Franco-Prussian War was fought at Wörth, in Alsace. The Prussians defeated MacMahon, the French leader.

WOUNDED KNEE (December 29, 1890). Upon the death of Sitting Bull, a band of about 300 South Dakota Indians, led by Big Foot, attempted to leave their reservation to join the hostile Indians in the Bad Lands. On December 29 they were met at Wounded Knee creek by a body of United States troops, and a battle ensued in which almost the entire band was annihilated. The loss to the Americans was 32 killed and 39 wounded.

WRANGEL, FREDERICK (1784-1877). A Prussian general; born at Stettin; entered the Prussian army as ensign (1796); fought in the campaigns of 1807, 1813, and 1814 against Napoleon; commanded the federal troops in Schleswig-Holstein; became field-marshal (1856); given supreme command over Prussian and Austrian troops in the Danish War of 1864; was made count (1866) and served that year in the Austro-Prussian War, but soon retired from the command.

WURSCHEN (May 21, 1813). The Russians and Prussians allied their forces and waged what is known as the war of liberation against Napoleon. The allies were forced to retreat to Wurschen, near Bautzen in Saxony, where they were defeated, Napoleon being victorious but losing heavily in the conflict.

WURZBURG (September 3, 1796). Archduke Charles of Austria defeated Jourdan, the French general, at Würzburg, in Bavaria.

WYOMING (July 3, 4, 1778). The valley of Wyoming is beautifully located between mountain ranges in north central Pennsylvania. An army of Tories and Indians, led by Col. John Butler, swarmed into the valley, taking the peaceful inhabitants completely by surprise. The Americans could gather only a small force, and these did their best to drive out the invaders, but they were overpowered and compelled to flee for their lives. For two days the Indians conducted a fearful massacre, many were taken captive, and most of those who escaped died of starvation in the forests.

XERES (July 26, 711). At Xeres (Jerez de la Frontera), in southern Spain, a battle was fought between the Visigoths and the Saracens, in which the latter were victorious.

X. Y. Z. CORRESPONDENCE. Dispatches sent from France to the United States government by three special envoys, C. C. Pinckney, John Marshall, and Elbridge Gerry in 1797-1798, concerning the strained relations which then existed between the two countries. X., Y., and Z. were the means of identifying three agents of the French government, M. Hottinguer (X.), M. Bellamy (Y.), and M. Hauteval (Z.). The proposals of these agents involved the payment of a large sum of money and were rejected.

YALU RIVER (September 17, 1894). A great naval battle was fought at the mouth of the Yalu river, in Manchuria, between the Chinese and Japanese during the Chino-Japanese War. The Chinese were defeated, losing five war vessels. The American, Captain Philo McGiffen, commanded one of the Chinese ships, and was the first white man to have any practical experience of the modern battleship in action. (May 1, 1904) The Japanese under Kuroki attacked and defeated the Russians under Sassulitch.

YINKOW (July 23, 1904). An attack of the Russians by the Japanese forced the former to evacuate Yinkow, as well as Tashichiao, near it. This deprived Russia of her last base on the Chinese seacoast, and cut off traffic on the Peking railroad.

YORK (Toronto) (April 27, 1813). An army of Americans commanded by Pike were sent to capture York (now Toronto, Canada). On landing they were met by a force of British and Indians, but after a few hours' fighting the town capitulated. Just after its surrender a terrific explosion occurred, which killed Pike and many men on both sides.

YORKTOWN. (1) October 19, 1781. The American forces commanded by Washington and assisted by the French fleet surrounded Yorktown, at the mouth of the York river in Virginia, where Cornwallis was stationed with an English army. The bombardment began on October 6th and continued until the surrender of the British on October 19th. The sword of Cornwallis was sent to Lincoln and over 8,000 men became prisoners of war. (2) April 4-May 5, 1862. During the Civil War Yorktown was again besieged. The Confederates under Johnston occupied the village, and the Federals led by McClellan opened a siege after careful preparation. But the Confederates had watched their opportunity and escaped toward Richmond.

YOUNG'S HOUSE (February 3, 1780). About 500 British and their allies led by Colonel Norton left Fort Washington to break up the American headquarters at Joseph Young's residence on the road from Tarrytown to White Plains, N. Y. When the British approached, the American picket guard fled for safety to Young's house. The British set fire to the house and captured 76 prisoners, including Joseph Young and Lieutenant Colonel Thompson.

YUKON (Gold Fields). Gold was found on the Yukon as early as 1862, but it was not until 1886 that the discovery of rich gold placers along the upper Yukon at Forty Mile Creek, followed by further explorations in the other streams of the Yukon basin, led to productive workings. In 1896 a rich placer claim was located on a tributary of the Klondike river, which joins the Yukon just above the American boundary. By 1898 there had been an immigration of between 30,000 and 40,000 people. No such stampede of miners has occurred since the migration of the "Forty-Niners" to California. Dawson, the capital of the Yukon region, became a thriving camp of several thousand inhabitants. Six sevenths of the gold production in all Alaska is placer gold. As the ground, except for a few feet near the surface, is frozen throughout the year, the work of excavation and thawing is extremely difficult. The Nome district of Seward Peninsula was discovered and developed as a result of the operation in the Yukon region.

ZAMA. (1) 256-255 B. C. In the First Punic War between Rome and Carthage, Regulus invaded Africa with great success until he was finally defeated and taken prisoner at Zama, a town near Carthage. (2) 202 B. C. Zama was also the scene of the final battle of the Second Punic War, in which the Romans, under Scipio, defeated the Carthaginian forces, under Hannibal. Zama is called the Waterloo of Hannibal.

ZANCLE or **MESSINA.** 645-628 B.C. The Messenians fled from Greece, during the Second Messenian War, and occupied Zancle, a town on the island of Sicily, afterwards known as Messina.

ZARA (1202). During the Crusades the Venetians bargained with the Crusaders to plunder Zara, a Christian city in Dalmatia and the great commercial rival of Venice. Together they took the city and destroyed it.

ZISKA, JOHN (1360-1424). Hussite leader; nobly born at Trocznov, in Bohemia; fought for the Teutonic knights against the Poles in the battle of Tannenberg, and for the English at Agincourt (1415); headed the Protestant Hussites and won a victory over the emperor Sigismund (1421); captured Prague and made a fortress of Tabor mountain, whence his party took the name of Taborites; in a series of 12 victories, with but one defeat, the Hussites compelled Sigismund to offer religious liberty (1424).

ZORNDORF (August 25-26, 1758). During the Seven Years' War, Zorndorf, in Prussia, was the scene of a battle between Frederick II. of Prussia and the Russians, under General Fermor, in which the latter were defeated. The fight was long and persistent, both armies losing heavily.

ZUYDER ZEE or **ZUIDER ZEE** (August 30, 1799). In an invasion of Holland by the English and Russians, the Dutch fleet in the Zuyder Zee, a large arm of the sea penetrating into the Netherlands, surrendered to the British without firing a gun.

ZWIN'GLI, ULRICH, or **ZUINGLIUS** (1484-1531). Leader of the Protestant Reformation in Switzerland; born at Wildhaus in the Toggenburg valley; studied at the University of Vienna; called to be pastor of Glarus (1506); preached against the use of indulgences; appointed to preach in the Zürich minster (1518); first made public his views on the Lord's Supper in 1524; war was made by the papal cantons against the reformed cantons of Zürich and Bern; the latter were defeated at Cappel (1531) and the reformer was among those who were killed. Zwingli's controversy with Luther produced a division in Protestantism.

THE IMPORTANT WARS OF HISTORY.

NOTE.—The first named of the contestants, the battles won by them, and the generals connected with that side are put in **bold face**

Name and Dates, B. C.	Contestants.	Cause or Pretext for War.	Notable Battles and Incidents of War.	Leaders.	Results and Treaties.
Trojan, 1193-1184.	**Greeks,** Trojans.	Greeks avenge the carrying off of Helen by Paris.	**Siege of Troy.**	**Agamemnon,** Hector.	Troy captured and destroyed.
First Messenian, 743-724.	**Spartans,** Messenians.	Spartans covet the rich land of the neighboring Messenians.	**Siege of Ithome.**	Aristodemus.	Messenians became tributary to Sparta and part of their land confiscated.
Second Messenian, 645-628.	**Spartans,** Messenians.	Messenians revolt from Spartan oppression.	**Ira, Zancle.** (See Messina.)	Aristomenes.	Messenians who had not fled to Sicily or elsewhere became Helots.
First Sacred or Holy, 600-590.	**Amphictyonic League,** Cirrhæans.	People of the city of Cirrha on Bay of Corinth covet the wealth of Delphi.	**Siege of Cirrha** and **Crisa.**	**Clisthenes.**	Greek cities, for the first time joined in effective league, save Delphi from spoliation. Cirrha is consecrated to Delphi.
Persian-Grecian, 500-479. (I. First Persian Expedition, 493.)	**Persians,** Macedonians, Thracians.	Darius seeks to avenge burning of Sardis by Greeks when aiding revolt of Ionic Greek cities (500-494).	Persians are harassed on land by Thracians and lose 300 ships by storm off Mt. Athos.	**Mardonius.**	Expedition returns to Persia getting no farther than Thrace.
(II. Second Persian Expedition, 490.)	**Persians,** Greeks.	Previous failure.	**Naxos, Eretria,** Marathon (490).	**Datis, Artaphernes,** Miltiades (Athens).	Complete victory for the Athenians and retreat of Persians to Asia Minor.
(III. Third Persian Expedition, 481-480.)	**Persians,** Greeks.	Persians desire to avenge former defeat.	**Thermopylae,** **Artemisium** (naval). **Athens burned,** Salamis (naval).	**Xerxes,** Leonidas (Sparta). **Achæmenes,** Eurybiades. Themistocles. Aristides.	After defeat at Salamis, Xerxes with part of his army retreated to Persia.
IV. Fourth Persian Expedition, 479.)	**Greater part of Xerxes' army** with allies from **Thessaly, Bœotia, Phocis,** and **Argos,** Athenians, Platæans. Thespians, and Spartans.	Desperate effort of Persians to overcome Greeks.	**Athens** laid waste, Platæa, Mycale (naval).	**Mardonius, Artabazus.** Pausanius (Sparta). Aristides. **Mardonius,** Leotychidas.	This ended Persian invasions and all Persian attempts to subjugate Greece.
Third Messenian, 464-456.	**Helots of Messenian descent,** Spartans.	Confusion following earthquake gave Helots courage to revolt.	**Ithome** besieged.		Messenians capitulated. In this war Sparta implores and then returns Athenian aid, whereupon Athens allies herself to Argos, the rival of Sparta.
Peloponnesian 431-404. (First Period, 431-421.)	**Sparta and Allies,** Athens and Allies.	Sparta and her allies were jealous of Athens' growing power and influence; also discontent among some of the Athenian subject states.	Attica invaded, The plague there. Potidæa. Naval battles near Corinth. Siege of Mitylene. **Siege of Platæa.** Sphacteria. **Delium.** Amphipolis.	Phormio. **Archidamus, Agis,** Cleippides. **Brasidas.** Demosthenes. Hippocrates. Cleon.	Peace of Nicias (421) recognized Athens' supremacy over many Hellenic cities; Sparta had freed none from Athenian tyranny.
(Second Period or Decelean War, 413-404.)	**Sparta,** Athens.	Sparta invades Attica weakened by great defeat of both her army and navy at Syracuse (413).	**Decelea occupied and Attica ravaged.** Many of Athens' subject states revolt. Abydos (naval). Cyzicus. **Notium** (naval). Arginusæ (naval). **Ægospotami. Athens.**	**Agis,** Alcibiades serves Athens, Sparta, and Athens in turn. **Mindarus,** Thrasybulus. **Callicratides,** Conon. **Lysander.**	The decisive victory of the Spartans at Ægospotami left the Athenians with all their resources exhausted; the Lacedæmonians tore down the walls of Piræus and Athens. Sparta was now supreme in Greece.
Second Sacred, 355-346.	**Thebans, Locrians, Thessalians,** and **Macedonians,** Phocians.	Phocians seize and plunder Delphi because of fine imposed by Amphictyonic Council.		**Philip of Macedon,** Onomarchus. Phalæcus.	Thebans invite the aid of Philip against the Phocians and he becomes a member of the Amphictyonic Council.
Third Holy, 339-338.	**Thebans, Athenians,** Macedonians.	Philip is intrusted by the League with the punishment of Amphissa, whereupon he seized Elatea.	Chæronea.	Philip of Macedon.	By the battle of Chæronea Philip gains such an ascendency that henceforth Greece is under control of Macedonia.
Samnite, 343-266, First Samnite, 343-341.	**Romans,** Samnites.	The Sidici invite aid of Romans against the Samnites, who ravage their land.	**Mount Gaurus. Suessula.**	**Marcus Valerius Corvus. P. Decius Mus.**	By a treaty of peace Rome received Capua, the Samnites, Teanum.

Name and Dates, B. C.	Contestants.	Cause or Pretext for War.	Notable Battles and Incidents of War.	Leaders.	Results and Treaties.
Greco-Persian, 334-330.	**Macedonians**, Persians.	Alexander, son of Philip, desires to carry out his father's plans to conquer Persia.	**Granicus** (334), **Issus** (333), **Arbela** (331).	**Alexander the Great**, Darius, Memnon.	Persian Empire conquered. It marks the height of Macedonian power.
Second or Great Samnite, 326-304.	**Romans**, Samnites.	Encroachments of the Romans on the Liris.	Caudine Forks, **Capua**, **Vadimonian Lake**, **Bovianum.**	Gavius Pontius, **Q. Fabius Rullianus**, **P. Decius Mus.**	The Samnites beg for peace and are considered on an equality with Rome.
Third Samnite, 298-290.	**Romans**, Samnites.	War of Rome with Etruscans and Gauls tempts the Samnites, strengthened by league with Lucanians, to open hostilities.	**Sentinum**,	**Q. Fabius Rullianus**, **P. Decius Mus**, Pontius.	Romans become supreme power in Italy.
First Punic, 264-241.	**Romans**, Sicily, Carthage.	Some Campanian mercenaries, having seized Messana in Sicily, appeal to Rome for aid. It is a cause for Rome to give vent to her jealousy of Carthage.	**Agrigentum**, **Mylæ** (naval), **Ecnomus**, Tunes, **Panormus**, Drepanum (naval), **Ægatian Islands** (naval).	**C. Duilius**, **M. Atilius Regulus**, Hamilcar, **C. Lutatius Catulus**, Hanno.	Carthaginians evacuated Sicily and paid a war indemnity.
Second Punic, 218-201.	**Rome**, Carthage.	Quarrel in Spain over encroachments of Carthage.	Ticinus, Trebia, Trasimene, Cannæ, **Nola**, **Syracuse**, **Capua**, **Metaurus** (207), **Zama** (202).	Hannibal, **Tiberius Sempronius Longus**, **Nepos**, **Marcellus**, **Flaccus**, **Fabius**, Hasdrubal, **Nero**, **Scipio.**	Hannibal, the "greatest general in history," was worn out by the patience and loyalty of Italy. Carthage forced to pay tribute and relinquish Spain. Her fleet was burned and she agreed not to go to war without Rome's permission.
The Four Macedonian or Greco-Roman, 214-146.	**Romans**, Greeks.	Philip, a king of Macedon, is allied with Carthage.	**Cynoscephalæ**, **Pydna.**	**T. Quinctius Flamininus**, Philip of Macedon. Perseus, **L. Æmilius Paullus.**	Greece became a Roman province.
Third Punic, 149-146.	**Rome**, Carthage.	War of Carthage with Massinissa, the pretext for Rome to open hostilities.	**Siege of Carthage.**	**Scipio Æmilianus Africanus.**	Carthage razed to the ground and most of her territory became the Roman province of Africa.
Jugurthine, 111-105.	**Rome**, Numidia.	The rule of Jugurtha is displeasing to Rome.	**Muthul**, **Cirta.**	**Q. Metellus**, **Caius Marius**, Jugurtha.	Numidia, the strongest state in Africa since Carthage, brought to complete subjection to Rome.
Marsian or Social, 91-88.	**Rome**, Italian allies particularly the Marsians.	Italian socii resent that Rome makes laws for all Italy.	Massacre at Asculum, **Nola**, **Bovianum**, **Cannæ.**	**C. Marius**, **Sulla.**	Roman franchise extended to all residents of Italy.
First Roman Civil War, 88-82.	**Sulla** (**optimates**), Marius (democrats).	The revolutionary laws of Sulpicius concerning voting which had been passed by means of violence.	**Sacriportus**, Reactionary Reign of Terror in Rome.	**Sulla**, **Pompey**, Marius, Carbo.	Sulla, backed by his army, has himself appointed dictator for an unlimited time.
Mithridatic, 88-64. (First, 88-84.) (Second, 83-81.) (Third, 74-64.)	**Rome**, Pontus and Armenia.	Mithridates IV. resents Roman interference and dictation.	Siege of Rhodes. Massacre of Roman citizens. **Chæronea**, **Orchomenus**, **Cabira**, **Tigranocerta**, **Lycos.**	**Sulla**, **Lucullus**, **Pompey**, Mithridates (Pontus), Tigranes (Armenia).	Rome extended her conquests by overthrowing her most formidable opponent in the East.
Gladiatorial and Third Servile, 73-71.	**Romans**, Gladiators, and dissatisfied Italians.	Uprising of about 70 gladiators at Capua is joined by many discontented Italians.	Mt. Vesuvius, Mutina, **Mt. Calamatius.**	Spartacus, **Crassus**, **Pompey.**	This revolt, indicative of great discontent, unsettled the foundation of the empire and was put down with difficulty.
Gallic, 58-51.	**Romans**, Gauls.	Rome desires to widen her conquests.	**Siege of Avaricum.** **Siege of Alesia.**	**Cæsar**, **P. Crassus**, Ariovistus, Cassivelaunus, Ambiorix, Vercingetorix.	Conquest of Gaul completed. Britain subjected.
Second Roman Civil, 49-31. (First Period, 49-45.)	Followers of **Cæsar** (democrats), and Pompey and his sons (republican aristocrats).	The Republic had long been doomed and the struggle between strong men for the mastery was inevitable.	**Pharsalus**, **Thapsus** (Africa).	**Cæsar**, Pompey, Brutus, Scipio, Cato.	In 45 Cæsar caused himself to be appointed dictator for life (since 49 he had been imperator), *i. e.*, he was a democratic monarch. The battle of Actium (31) marks the end of the Roman republic and the beginning of the empire.
(Second Period, 44-30.)	Followers of **Octavius** and Antony.		**Mutina**, Philippi, **Actium.**	Cnæus and Sextus Pompeius. **Octavianus**, Antony.	

Names and Dates, A. D.	Contestants.	Cause or Pretext for War.	Notable Battles and Incidents of War.	Leaders.	Results and Treaties.
Jewish-Roman, 66-70.	**Romans,** Jews.	Civil dissensions and Jewish revolt against Rome.	**Siege of Jerusalem.**	**Titus.**	Jerusalem and her temple destroyed.
Dacian 86-90. 101-102. 105-107.	**Rome,** Dacia.	Rome desires to extend her conquests.	**Tapæ.**	**Domitian, Trajan,** Decebalus.	This was the high-water mark of Roman conquest and possessions.
Invasions and conquests of northern tribes, 375-800. List of Tribes: West Goths or Visigoths, Vandals, Suevi, Alani, Salic Franks or Merovingians, Burgundians, Herulian Vandals, East Goths or Ostrogoths, Alamanni, Ripuarian Franks, Jutes, Saxons, Angles, Thuringians, Langobards or Lombards.	**Barbaric Tribes,** People of the Old Roman Empire.	Pressed from behind by the Mongolian Huns (who cross the Volga in 375), the Teutons encroach upon the Roman empire.	**Adrianople,** 378, (West Goths). **First invasion of Italy,** 401 (West Goths). The Burgundians settle on the middle Rhine, 406-413. Salian Franks begin to occupy northern Gaul, 407. **Vandals invade Spain,** 409. **Sack of Rome,** 410 (West Goths). West Gothic kingdom of Tolosa (Toulouse), 415-507. Vandals settle in Africa, 429-534. **Carthage,** 439 (Vandals).	Valens. **Alaric** (West Goth), Stilicho (Western Empire). **Walja** (West Goth). **Genseric** (Vandal).	The direct result of the invasions of the barbarian hordes was the long period of assimilation and education of the invaders, called the Middle Ages. Of all the many kingdoms the Frankish was the only one to endure, and the year 800 marks the height of the extent and power of Charlemagne's empire.
		England invaded by Jutes, Angles, and Saxons, 449. Huns and East Goths ravage Gaul, 451. Battle near Châlons, 451.		**Hengist** and **Horsa** (Saxons). Attila (Hun), **Aetius.**	
		Huns destroy Aquileia, and Venice founded, 452. Rome plundered by Vandals, 455. Herulians gain ascendency in Rome. "The Fall of the Roman Empire," 476. Battle of Soissons, 486.		Leo, Bishop of Rome. **Odovakar.** **Clovis** or **Chlodwig** (Salic Frank), Syagrius.	
		Kingdom of Franks under Merovingians, 486-751. Clovis conquers the Alamanni and becomes Catholic Christian, 496. East Gothic kingdom in Italy, 493-555.		**Theodoric the Great** (East Goth).	
		West Goths settle in Spain, 507-711. Eastern Roman Empire destroys Vandal power in Africa, 533-534. Battle of Taginæ in Italy, 552.		**Belisarius,** Vitiges, **Narses,** Totila.	
		Lombard kingdom in Italy, 568-774. Battle of Deorham in England, 577.		Ceawlin (West Saxon).	
		Suevi settle in Spain, now Portugal, 585. Carolingian line established in Frankish kingdom, 751. Charlemagne destroys Langobard kingdom, 773-774; war with Saxons, 772-804; Spain, 778; Northmen, 788; Avars, 791-799. Charlemagne crowned Emperor of the West by Leo III., Christmas Day, 800.		**Pipin.** **Charlemagne.**	
Saracen or Monammedan, 634-1492.	**Arabian, Saracens, Moors,** Syria, Persia, Egypt, North Africa, Turkey, Spain, France, Sicily.	Desire of Saracens to found an empire similar to the ancient Roman empire and make the world Mohammedan.	**Ajnadin, Damascus, Yermouk** (Syria), **Jerusalem** (637), **Cadesia** (Persia), **Nehavend** (Persia), **Alexandria** (Egypt), **Carthage,** Constantinople, **Xeres, Granada, Toledo, Seville, Bordeaux,** Tours (732), Jerusalem (1099), **Constantinople** (1453). Alhama, **Granada** (1492).	**Omar** (634-644), **Abi Wakkas,** Isdigerd, **Amru, Othman** (644-656), **Musa, Tarik, Ambessa,** Eudo, **Abd-er Rahman,** Charles Martel, Cid (both Christian and Moslem sides), Constantine XIII., **Mohammed II.,** **Abdallah,** Ferdinand.	The Saracens have three times keenly affected European history. (1) In their attempted conquest and conversion of Europe (710-1492), which was defeated at the battle of Tours, 732; (2) the conquest of Jerusalem by the Seljuk Turks, 1076, which led to the crusades, and (3) the capture of Constantinople and the closing of the Bosporus, which led to the Great Period of World Exploration.

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Norman conquest, 1066.	**Normans,** Saxons.	The invaders, being stronger, desire to rule.	**Hastings** (1066).	**William of Normandy,** Harold of Wessex.	The power of the king strengthened and feudalism introduced.
Crusades First movement, 1096-1099.	**European Christians,** Turks and Moslems.	Fired by the enthusiasm of Peter the Hermit and Pope Urban II., the Christians of Europe decide to rescue the tomb of Christ from the Infidels.	**Nicæa,** **Jerusalem.**	**Peter the Hermit, Walter the Penniless, Godfrey de Bouillon.**	Jerusalem is conquered and the Latin kingdom of Jerusalem is founded.
Second movement, 1147-1149.		Jerusalem is threatened and St. Bernard preaches another crusade.	Crusaders reach Jerusalem. Siege of Damascus.	Conrad III. (Germany), Louis VII. (France), King Roger (Naples).	Petty personal disagreements of the leaders bring the Second Crusade to naught.
Third movement, 1189-1192.		The capture of Jerusalem by **Saladin.**	**Acre.** Richard imprisoned by Henry VI.	**Richard I.** (England), **Frederick Barbarossa** (Germany), **Philip Augustus** (France), Saladin.	By treaty it was stipulated that Latin Christians should visit the tomb of Christ without molestation.
Fourth movement, 1196-1197.		German barons and their followers start on a crusade.	**Jaffa,** Thoron.	Saphadin.	Forces become demoralized and return home.
Fifth movement, 1202-1204.		Plight of Crusaders in Jerusalem appeals to Innocent III.	**Zara, Constantinople.**	**Boniface, Marquis of Montferrat.** Dandolo (Venice).	Influenced by Venetians the Crusaders first take Zara and then capture Constantinople. The expedition breaks up.
Children's crusade, 1212.		Fanatic preachers persuade 50,000 French and German children to go on a Crusade.		**Nicholas,** a fanatic preacher.	Only about a tenth return home, the others perish in Europe or are sold into slavery by French merchants.
Sixth movement, 1217-1229.		Hungarian, German, and Italian nobles take the cross.	**Damietta.**	**Andrew, king of Hungary, Frederick II.**	Jerusalem taken by Frederick, who becomes king of Jerusalem. The advantage speedily lost.
Seventh movement, 1248-1254.		Louis IX. and his countrymen start on a Crusade via Egypt.	**Damietta,** Mansourah.	**St. Louis of France.**	Defeated in battle, stricken with disease, and outgeneraled, Crusaders are obliged to surrender.
Last undertakings, 1270-1271.			**Tunis, Nazareth.**	**St. Louis** and **Philip III.** (France), **Prince Edward** (England).	Results of the Crusades were: increased power of the church, personal power of princes, the rise of many independent communities, who bought their freedom from their crusading overlords, intellectual growth, and development of commerce.
Hundred Years', 1339-1453.	**France,** England.	Edward III. of England asserts his claim to French throne.	Crécy, Calais, Poitiers, Peace of Bretigny. Navarrete, Limoges. Agincourt, Rouen, Treaty of Troyes. **Orleans** (1429). **Patay,** Paris, Castillon.	Edward III., Edward, the Black Prince, **Du Guesclin.** Henry V., **Joan of Arc, Charles VII.,**	England could gain but not keep her advantages. When Charles VII. entered Paris (1437), the war was virtually ended and England had lost all foothold in France, except Calais.
Austro-Swiss, 1386-1388.	**Austria,** Swiss Confederation.	Austria was the oppressor of the Swiss.	Sempach, Näfels.	**Leopold II., Leopold III.,** Winkelried.	Switzerland shows power which finally gains her independence by peace of Westphalia, 1648.
Hussite, 1419-1436.	**Supporters of the Pope,** Austrian Hussites or Utraquists.	The condemnation of John Huss, the reformer.	Revolt in Prague. First Crusaders against Bohemia repulsed. Crusade of German Electors repulsed. Deutsch-Brod, Thauss, Council of Basel. **Boehmisch-Brod.**	**Emperor Sigismund,** Ziska, Procopius the Great, **Frederick of Brandenburg, Albert of Austria.**	By military prowess, the Hussites obtained religious toleration from the Pope.
War of the Roses, 1455-1485.	**Yorkists** (White Rose), Lancastrians (Red Rose).	The feebleness of Henry VI. encourages the duke of York, descendant of Edward III., to aspire to the throne.	**St. Albans, Bloreheath, Northampton,** Wakefield, St. Albans, Edward of York crowned. **Towton, Barnet, Tewkesbury.**	**Richard** and **Edward, Dukes of York, Earl of Warwick** (later a Lancastrian), Henry VI., Queen Margaret.	House of York, in person of Edward IV., supplants the House of Lancaster on the English throne.

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French Civil War or wars of religion or wars of the Huguenots, 1562-1598.	**Catholics,** Huguenots.	Massacre of Huguenots at Vassy was a signal for uprising.	Orleans, **Massacres of Huguenots, Dreux,** Edict of Amboise. St. Denis (indecisive). **Jarnac, Moncontour,** Peace of St. Germain-en-Laye. **Massacre of St. Bartholomew** (1572), Ivry, **Siege of Paris,** Siege of Rouen.	Condé. Coligny. **Duke of Guise, Henry III., Duke of Anjou,** Henry of Navarre (afterwards Henry IV.). **Duke of Parma** (Spain). **Mayenne.**	The hostilities ended in 1593 by the abjuration of Protestantism by Henry IV., but it was followed in 1598 by the Edict of Nantes, which granted civil liberty and greater religious freedom to Protestants.
Spanish-Netherlands, 1568-1648.	**"Beggars"** or **"Gueux"** opposed to religious intolerance of Roman Church and tyranny of Spain.	The hatred of the Inquisition and the despotic measures of Philip II. of Spain led to open revolt.	Riots of Image Breakers. Council of Blood. Whole population of Netherlands condemned to death by Inquisition. Jemmingen, **Brille, Mons.** Massacres at Mechlin, Zutphen, and Naarden. Haarlem, **Alkmaar. Naval engagement on Zuyderzee. Middelburg.** Mookerheyde. Mutiny of Spanish troops. Armada (1588) (English allies), Maestricht, Ghent, Antwerp, Nieuport.	**Egmont, William of Orange,** Duke of Alva. **Louis of Nassau.** Bossu, **Dirkson.** Louis de Requesens, Don John of Austria, Alexander Farnese (duke of Parma), **Maurice of Nassau.**	By Pacification of Ghent, 1576, Catholic and Protestant provinces in the Netherlands were united. In 1579 by the union of Utrecht the seven northern provinces proclaimed their independence. The deaths of Parma, 1592, and Philip, 1598, led to twelve years' truce, 1609-1621, and in 1648 the Republic, by the Peace of Westphalia, obtains a recognition of its independence from Philip IV. of Spain. This war marks the beginning of Spain's downfall.
Thirty Years', 1618-1648.	**German Protestants** and their allies, **England, Holland, Denmark, Sweden** and **France,** Catholic Imperial Germans and their allies, Spain, Italy, Bavaria, and Saxony.	Ferdinand, because of his anti-Catholic record, is deposed from kingship of Bohemia and Frederick V. elected. The cause of religion arouses political sympathy in many countries so that at last almost every nation in Europe is actively involved on one side or another.	White Hill, Wimpfen, Höchst, Stadtlohn, Dessau, Lütter am Barenberge, **Stralsund,** Magdeburg, **Leipzig** (Breitenfeld), **Luetzen,** Nördlingen, **Jankowitz, Dutlingen,** Freiburg, Philipsburg, **Prague.**	Ferdinand, Maximilian, **Frederick, Mansfeld,** Tilly, Spinola, Wallenstein, **Gustavus Adolphus** (Sweden), **Oxenstiern,** King of Hungary, **Valette,** Baner (Sweden), **Bernhard** (Saxe Weimar), **Torstenson** (Sweden), **Conde** (France). Turenne, **Merci.**	This religious, civil, and foreign war, the most destructive in modern history, was ended by the Peace of Westphalia, 1648, by which Alsace went to France, Switzerland was separated from the empire, the Palatinate was divided
Civil War in England or the Great Rebellion, 1642-1648.	**Royal Party** in England, Ireland, Wales, and Scotland. Parliamentary party in England and Scotland.	The grievances against the Crown, especially the charge of treason against the Five Members, culminate in open hostility.	**Edgehill,** Siege of Gloucester, Newbury (1st), Marston Moor, Naseby, Bristol, Preston.	Earl of Essex, **Earl of Lindsey, Prince Rupert,** Cromwell, Sir Thos. Fairfax.	The ultimate result was the replacement of a constitutional monarchy for the feudal monarchy represented in Charles I.
Swedish-Russian or Northern, 1700-1721.	**Sweden,** Russia and her allies, Denmark, Saxony, Poland.	Russia determines to get possession of harbors on the Baltic.	**Narva,** Pultowa (1709).	**Charles XII.,** Peter the Great.	The decisive victory of Pultowa 1709, determined that Russia, not Sweden, was to be master of northern Europe. By the peace of Nystadt (1721), Sweden ceded to Russia large territories.
Spanish succession; in America, Queen Anne's War, 1702-1713.	**England, United Provinces, Austria, Portugal, Denmark, Germany, Savoy** (after 1703). France, Spain, Bavaria, Spanish-Netherlands.	Charles II., contrary to the "partition treaty of some of the powers," at his death, bequeathes his domain to Philip, Duke of Anjou (1700). The Grand Alliance choose Charles, son of Leopold of Austria, heir to the throne of France instead of Philip, who is next by birth.	**Vigo Bay, Gibraltar,** Höchstädt, **Blenheim** (1704), **Barcelona,** Almansa, **Ramillies, Turin, Oudenarde, Malplaquet, Nova Scotia,** Denain.	**Duke of Ormond, Rooke** (England), **Duke of Marlborough,** Villeroy, Marshal Tessé, **Prince Eugene** (Savoy), Vendôme, Villars (France).	The peaces of Utrecht (1713), and Rastadt (1714) warranted the separation of the Spanish and French thrones and acknowledged the Protestant House of Hanover as the ruling family in England: large territories in America were given to England, and Austria took possession of Spanish-Netherlands.

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Austrian Succession, 1740-1748.	**Austria, Hungary, Bohemia, England, Holland, Saxony,** Prussia, France, Bavaria, Spain.	At the death of Charles VI. of Austria the right to the throne of his daughter, Maria Theresa, is contested by three, chiefly by Frederick the Great of Prussia, who favored the succession of Charles Albert, Elector of Bavaria.	Mollwitz, Czaslau, Chotusitz, Treaty of Breslau, **Dettingen,** Prague, Fontenoy, Hohenfriedberg, Soor, Kesseldorf, Peace at Dresden,	Frederick the Great (Prussia), Schwerin, **Khevenhuller, Prince Charles of Lorraine, Prince Lobkowitz,** Broglio, **George II.** (England).	The treaty of Aix-la-Chapelle (1748) awarded Silesia to Frederick, recognized the election of Francis of Austria as emperor, and the Pragmatic Succession.
Third Silesian or the Seven Years'; in America, the French and Indian, 1756-1763.	**Prussia, England,** Saxony, Austria (The Empire), Sweden, Russia, France, Spain,	Russia and Saxony desiring to divide Prussia drive her to an alliance with England, of whom all European countries are jealous because of her success at sea and in colonizing.	**Lobositz, Prague,** Kollin, Hastenbeck, Gross-Jägerndorf, **Rossbach, Leuthen, Zorndorf,** Hochkirch, **Minden,** Kunersdorf, Maxen, **Quebec** (America), **Liegnitz, Torgau, Burkersdorf, Freiburg.**	**Frederick the Great, Schwerin,** Prince Charles (Lorraine), **Duke of Cumberland,** Daun (Austria), Fermor (Russia), Ferdinand (Brunswick), Maguire, Broglio, Loudon.	By the Peace of Hubertsburg (1763), Austria and Prussia territorially remain the same and America becomes English rather than French. Prussia, by the genius of Frederick, had stepped into the front rank of European nations.
American Revolutionary, 1775-1783.	**English Colonies in America, France,** England.	The colonies revolt against England because of oppressive taxation and infringements upon what they considered their rights of government.	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	The British colonies, by their representatives at Paris, Jay, Franklin, and Adams, made a treaty of peace by which the independence of the United States was recognized.
French Revolution, 1789-1794.	**The Revolutionists,** The Royalists, aided by the Coalition.	The destructive spirit of the 18th century, unequal taxation and division of land, the terrible public debt and deficit. The people consider the old system in state and church a system of abuses, not founded on reason.	Storm of the **Bastille,** Storm of the **Tuileries,** Massacre in Paris called the **Jail Delivery,** Reign of Terror (1793-1794), Atrocities in **Lyons,** Execution of **Girondists.**	**Lafayette,** Louis XVI., Marie Antoinette, **Danton, Marat, Robespierre.**	Feudalism was destroyed, the people being admitted to a share in the government, which was a triumph for liberalism in government.
France and the Coalitions, 1792-1815. After 1804 the Napoleonic Wars. The First Coalition, 1792-1797.	**France,** Austria, Prussia, England, Holland, Spain, The Empire, Sardinia,	French reforms frowned upon by the conservative monarchs of Europe. After the appearance of Napoleon in 1793 it was his ambition to spread throughout Europe the liberal ideas gained in the French Revolution and to make France, the head state of Europe, and himself the ruler of Europe.	**Valmy** (1792), **Jemappes,** Mainz, **Lyons. Fleurus, Kaiserslautern,** Amberg, Würzburg, **Millesimo, Mondovi, Lodi,** Siege of **Mantua,** Peace of Campo-Formio (1797).	Duke of Brunswick, **Dumouriez, Kellerman, Carnot, Jourdan,** Hoche, Coburg, **Pichegru, Moreau, Bonaparte,** Charles of Austria.	France was able to protect herself and her reforms from European greed and interference; and then Europe, in her turn, was able to protect herself from Napoleonic greed and interference, and Napoleon's dream of becoming emperor of Europe. By the treaty of Vienna, 1814-1815, the Austrian and Prussian monarchies were restored; Austria received back Venice, Milan, and the Tyrol; the German Conference and Swiss Confederation were established the great part of Warsaw fell to Russia as the kingdom of Poland.
Bonaparte's Egyptian expedition, 1798-1799.	**France,** England, Holland, Spain.		Battle of the **Pyramids,** Battle of the Nile (naval), **Abukir.**	Nelson.	
Second Coalition, 1799-1801.	**France,** Russia, Austria, England, Portugal, Naples, Ottoman Porte.		Novi **Marengo, Hohenlinden,** Peaces of Lunéville and Amiens (1801).	**Joubert,** Suvaroff, **Napoleon,** Melas, **Moreau,** Archduke John.	
Third Coalition, 1805.	**France,** England, Russia, Austria, Sweden.		Trafalgar, **Austerlitz,** Peace of Pressburg between France and Austria.	Nelson, **Napoleon,** Alexander I., Kutusoff.	
Fourth War (with Prussia and Russia), 1806-1807.	**France,** Russia, Prussia.		**Jena** and **Auerstadt,** Eylau (indecisive), **Friedland,** Peace of Tilsit (1807).	Duke of Brunswick (Prussia).	
"Peninsular War," 1808-1814.	**France,** Great Britain in Spain and Portugal.		**Corunna, Saragossa,** Talavera, Albuera, Salamanca, Vitoria, Toulouse.	**Joseph,** Wellington, **Massena, Soult, Jourdan.**	
Fifth War (with Austria), 1809.	**France,** Austria.		Aspern and Essling, **Wagram,** Peace of Vienna (1809).	Archduke Charles, **Napoleon, Eugene.**	

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Sixth War (with Russia), 1812.	**Napoleon's army** (which included Frenchmen, Italians, Swiss, Dutch, and Poles), Russians.		**Borodino, Moshaisk,** Burning of Moscow, Retreat from Moscow.	**Napoleon, Schwarzenberg, York, Macdonald,** Barclay de Tolly.	
Great War of Liberation, 1813-1815.	**France,** The allies, including Austria.		**Gross-Gorschen, Bautzen and Wurschen,** Congress of Prague. **Dresden,** Dennewitz, Leipzig or "Battle of the Nations," Vitoria, La Rothière, Laon, Allies enter Paris. Peace of Paris and Congress of Vienna. **Ligny,** Waterloo (1815).	**Napoleon,** Frederic William III., Bernadotte. Schwarzenberg, Blücher, Alexander I., Francis I., **Ney,** Bülow, Tauenzein. **Wellington.**	
War of 1812, 1812-1814.	**United States,** Great Britain.	The impressment of American seamen.	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	The Peace at Ghent Dec. 24, 1814, ignored all questions which led to the war, but settled the important question of the northern boundary of the United States.
War of Grecian Independence, 1821-1829.	**Greece, England, Russia, France,** Turkey.	The secret society for promulgating Greek independence, called the Hetairia, considers the interregnum after the death of the hospodar of Wallachia as an opportune time to revolt.	Chios besieged and 20,000 massacred, **Thermopylae, Navarino, Missolonghi.**	**Canaris, Theodore Vladimiruko, Marco Bozzaris,** Ibrahim Pasha, Codrington (England), Byron (England).	By the treaty of Adrianople, 1829, Turkey acknowledged the independence of Greece.
The July Revolution, July 27-29, 1830.	**Parisian Revolutionists,** French government.	Three ordinances: declaring recent elections illegal; restricting suffrage to rich landowners; suspending the liberty of the press.	**Barricade fights, Hotel de Ville, Louvre.**	**La Fayette,** Marmont.	Charles X. forced to flee; a provisional government was established; and "the charter henceforth was to be a reality."
Revolution in Poland, 1830-1832.	**Poland,** Russia.	The autocratic government contrary to the constitution. Revolt of 18 students.	Grochow, **Wawre, Dembe Wielski,** Ostrolenka, Warsaw.	Constantine, **Chlopicki, Radzivil,** Diebitch, **Skrzynecki, Krukowiecki,** Paskevitch.	The Organic Statute of Feb. 26, 1832, deprived Poland of its constitution and it became a Russian province with a separate administration.
Mexican, 1846-1848.	**United States,** Mexico.	The annexation of Texas, and trouble over boundary.	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	By treaty of Guadalupe Hidalgo Mexico gave up claim to Texas, about 522,955 sq. miles in New Mexico and Upper California, establishing present boundary line.
February Revolution in Paris, 1848.	**Parisian Revolutionists,** Imperialists.	Socialistic societies unite with National Guard in revolt because of government's reactionary policy.	**Barricade fights, Massacres** by laborers.	**Louis Blanc.**	Louis Philippe abdicated and the republic for the second time established.
Crimean, 1854-1856.	**Russia,** Western Powers and Turkey.	Nicholas I. of Russia covets Turkey.	**Sinope** (naval), Silistria, Alma, Sebastopol, **Balaklava,** Inkerman, **Malakhoff, Kars.**	**Paskevitch, Liprandi, Mentchikoff, Gortchakoff,** Pelissier (France), Raglan, Simpson (England).	By Peace of Paris, March 30, 1856, Russia ceded the mouth of the Danube, renounced the protectorate of Christians in Turkey, restored Kars, and promised not to establish arsenals on the Black Sea or maintain there a larger navy than Turkey. Sebastopol was restored. Thus the integrity of Turkey was maintained.
Sepoy Mutiny, 1857.	**English,** Sepoys.	Dissatisfaction among the conquered high caste of India. A rumor that English cartridges were greased with fat of pigs, an unclean animal to Mohammedans and Hindus.	Mutiny of Sepoys at Meerut, **Delhi,** Cawnpur, Siege of **Lucknow.**	**Nicholson, Havelock, Campbell,** Bahádur Sháh.	The rule of the East India Company was ended and the government of India transferred to the Crown.
Unification of Italy, 1859-1861.	**Sardinia** backed by **France** and **England. Austria,** from 1860. **Sardinia,** Two Sicilies, France. Papacy.	Cavour desired Sardinia to be the savior of Italy and forced a war with Austria.	**Magenta, Solferino,** Treaty of Zürich, 1859. Excommunication of king and people of Sardinia. **Palermo** revolted against Francis II. **Genoa** uprising, **Milazzo, Messina, Castelfidardo, Gaeta.**	**Cavour, Victor Emmanuel II.** (Sardinia), Francis II. (Two Sicilies), **Napoleon III.** (France), **Garibaldi, Fanti, Cialdini,** Lamoricière.	Austria's hands being tied by France and England she was compelled to give up her claims (except to Venice) and by conquest Victor Emmanuel becomes in 1861 "King of Italy." Profiting by Prussian victories in 1866, Italy comes into control of Venice and in 1871 of Rome.

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American Civil War, 1861-1865.	**The Northern States,** The Southern States.	The fear of eleven Southern States, that the right to keep slaves was in jeopardy, causes them to secede from the Union with the other states, a movement not countenanced in the North.	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	(See WARS OF U. S. and DICTIONARY OF HISTORY.)	Slavery was abolished and the integrity of the Union preserved.
Austro-Prussian or Seven Weeks, 1866.	**Allies of Prussia,** including **Italy.** Allies of Austria.	The desire of the German people for greater unity found pretext in a quarrel about the North Albingian duchies.	**In Bohemia:** Trautenau, **Münchengrätz, Soor, Koniggratz** or **Sadowa, Prague.** In the west: **Langensalza, Aschaffenburg.** In Italy: Custozza, Lissa (naval).	**Frederick Charles** (Prussia), Von Gablentz, **Von Moltke, William I.,** Benedek, Charles (Bavaria), **Victor Emmanuel,** Albert.	By the peace of Prague, Aug 23, 1866, the Austrian emperor consented to a reorganization of the German confederation without Austria; Austria ceded to Prussia Schleswig-Holstein, and paid a large war indemnity.
Franco-Prussian, 1870-1871.	**France,** Prussia.	The desire of France to have the Rhine the western boundary of Germany; French jealousy of German growth because of the Austro-Prussian War; the election of the prince of Hohenzollern to the throne of Spain.	Wörth, Spicheren, Colombey-Nouilly, Vionville, Gravelotte and St. Privat, Siege of Metz, Strassburg, Sedan, Proclamation of Third French Republic, 1870, Siege of Paris, Rome, Orleans, Le Mans, Capitulation of Paris.	**MacMahon, DeFially, Bazaine, Ladmirault,** Steinmetz, Frederick Charles (Mainz), Frederick William (Mannheim), William I., Von Moltke. **Napoleon III.**	By the peaces of Versailles and Frankfort on the Main, 1871, the results of the war were (1) the destruction of the military power of France; (2) the acquisition of a secure military boundary for Germany on the west; (3) the political unity of the German nation; (4) the acquisition by Germany of Alsace and Lorraine.
Turco-Russian, 1877-1878.	**Russia, Servia, Roumania,** Turkey.	A revolt in Bulgaria was bloodily suppressed so that Russia assumes the role of the protector of Christians in Turkey.	**Passage of Danube, Shipka Pass, Plevna, Storm of Kars.**	**Grand Duke Nicholas,** Suleiman Pasha, Osman Pasha, **Gurko, Grand Duke Michael, Alexander II., Radetzki, Skobeleff,** Mukhtar Pasha, **Totleben.**	By peace of San Stefano, March 3, 1878, Turkey recognized the independence of Montenegro, Servia, and Roumania; Bulgaria was to have a separate administration but remain subject to Turkey; the Porte was to introduce reforms in his remaining European possessions; Russia obtains large indemnity and part of Armenia and also Bessarabia.
Chinese-Japanese, 1894-1895.	**Japan,** China.	Japan, declaring Korea independent, objects to China's suppressing Korean insurrection.	**Yalu River** (naval), **Port Arthur, Weihaiwei, Niuchuang.**	**Ito,** Ting, **Yamagata, Oyama, Nogi.**	By treaty of Shimonoseki, April 17, 1895, China recognized the independence of Korea, ceded Formosa and the Pescadores, and paid to Japan $180,000,000 indemnity.
Spanish-American, 1898.	**United States,** Spain.	The United States interferes in the inhuman suppression by Spain of the Cuban rebellion by recognizing the independence of the people of Cuba.		By treaty of peace signed at Paris, Dec. 10, 1898, Spain retired from Cuba and ceded to the United States Porto Rico, Guam, and the Philippines, receiving $20,000,000 for the last.	
South African or Boer, 1899-1902.	**Great Britain,** Transvaal, Orange Free State.	Great Britain demands political rights for uitlanders or foreigners residing in the Transvaal.	**Siege of Ladysmith,** Colenso, **Spion Kop,** Vaal Krantz, Magersfontein, **Paardeberg.**	**Sir Geo. White, Buller, Methuen,** Cronje, **Gatacre, Roberts, Kitchener, French,** Botha, De Wet, Delarey.	Boers submitted in May 31, 1902, and renounced their independence. The conquered states became the crown colonies of Orange River and Transvaal.
Russo-Japanese, 1904-1905.	**Japan,** Korea, Russia.	The encroachments of Russians in Manchuria and their possession of Port Arthur arouse the Japanese.	Naval battles off **Port Arthur** and **Chemulpo, Kiu-lien-cheng, Kinchow** and **Nanshan Hill,** Vladivostok, Fengwang-cheng, Kinchow, **Ai-pien-men, Aiko River, Nanshan, Yinkow, Liaoyang,** Lone Tree Hill, **Port Arthur surrenders. Mukden, Sea of Japan** (naval).	**Togo, Kuroki,** Kuropatkin, Alexieff, Makaroff, Stoessel, Zassulitch **Oku, Nodzu, Oyamu,** Stakelberg, **Nogi,** Linievitch. {**Togo,** Rozhestvensky.	By the treaty of Portsmouth, Sept. 5, 1905, by mutual concessions Japan became paramount in Korea and the Liaotung Peninsula; Manchuria was to be returned to China; Japan was to control the Chinese Eastern Railroad south of Kunshien, and own part of the island of Sakhalin. Japan secured a position as a world power.

OUTLINE OF AMERICAN WARS.

The French-English Wars in America.

MOTIVE: The struggle for supremacy in Europe, continued by colonists in America.

WAR.	DATE.	INCIDENTS.	LEADERS.* English.	LEADERS.* French.	RESULTS.
King William's War. 1689-1697.	Feb. 8, 1690	Schenectady	Colonists	Iberville	Treaty of Ryswick; each party held same territory as before. French held Quebec.
	Mar., 1690-1697	Massacres in New England	Colonists	**Frontenac**	
	April, 1690	Siege of Quebec	Phips	**Frontenac**	
	1693-1697	Attack on "Five Nations"	Indians	**Frontenac**	"Five Nations" destroyed.
Queen Anne's War. 1702-1713.	Feb. 29, 1704	Deerfield Massacre	Colonists	**Indians**	Treaty of Utrecht; France ceded to England Hudson Bay and its borders, Acadia, and Newfoundland.
	Aug. 29, 1708	Haverhill Massacre	Colonists	Indians	
	1710	Conquest of Nova Scotia	**English**	French	
King George's War. 1744-1748.	June 16, 1745	Capture of Louisburg	**Pepperell**		Treaty of Aix-la-Chapelle: Louisburg restored to France.
French and Indian War. 1754-1763.	July 4, 1754	Surrender of Fort Necessity	Washington	**Villiers**	Peace of Paris, 1763; France gave to England, Canada and all her possessions east of the Mississippi; to Spain, New Orleans and all her possessions west of the Mississippi.
	July 9, 1755	Expedition against Fort Duquesne	Braddock	**Dumas**	
	June 16, 17, 1755	Deportation of Acadians			
CAUSE: Rival claims to territory beyond the Alleghanies: formation of Ohio Company. War declared 1756.	July 26, 1758	Capture of Louisburg	**Amherst**	Montcalm	
	Nov. 25, 1758	Capture of Fort Duquesne	**Forbes** Amherst	French	
	July 25, 26, 1759	Capture of Crown Pt. and Niagara	**Johnson**	D'Aubry	
	July 26, 1759	Ticonderoga	**Amherst**	French	
	Sept. 13, 1759	Capture of Quebec	**Wolfe**	Montcalm	This war showed the colonists the need of union.

1775-1783. The Revolutionary War.

A STRUGGLE BETWEEN HOSTILE PRINCIPLES: 1763-July 4, 1776, for the rights of Englishmen; 1776-1783, for the rights of men.

CAMPAIGNS.	DATE.	BATTLES.	AMERICAN FORCES. Leaders.*	Eng'ed.	Lost.	BRITISH FORCES. Leaders.*	Eng'ed.	Lost.	RESULTS.
	1775								
For control of Boston.	Apr. 19	Lexington and Concord	Parker		93	**Smith**	1,700	273	
	June 17	Bunker Hill	Warren, Prescott	3,000	450	**Howe**	4,500	1,050	
	1776								
	Mar. 17	Dorchester Heights	**Washington**			Howe			Evacuation of Boston.
	1775								
Invasion of Canada.	May 10	Ticonderoga	**Ethan Allen**	83		Delaplace	48		Capture and dispersal of invaders.
	Nov. 12	Montreal	**Montgomery**			Carleton			
	Dec. 31	Quebec	Arnold	900	160	**Carleton**	1,200	20	Fruitless siege.
	1776								
Attack on Charlest'n.	June 28	Ft. Moultrie	**Moultrie**	400	32	Clinton	4,000	225	British driven from So. Carolina.
For control of Hudson.	Aug. 27	Long Island	Sullivan, Putnam	10,000	2,000	**Howe**	20,000	400	Americans driven across Hudson.
	Sept. 15	Harlem Heights	Washington	12,000	15	**Howe**	25,000	22	British hold New York City.
	Oct. 28	White Plains	Washington	1,500	90	**Howe**	4,000	300	
To control New Jersey	Nov. 16	Ft. Washington	Magaw	3,000	2,600	**Howe**	5,000	700	
	Dec. 25	Trenton	**Washington**	2,400	9	Rahl	1,000	1,000	Evacuation of New Jersey.
	1777								
	Jan. 3	Princeton	**Washington**	3,000	100	Mawhood	1,800	400	Americans control New York.
Second attempt to control the Hudson and divide colonies.	July 6	Ticonderoga	St. Clair	1,000	500	**Burgoyne**	8,400		
	Aug. 6	Oriskany	**Herkimer**	800	400	St. Leger	1,200		
	Aug. 16	Bennington	**Stark**	2,000	200	Baum	1,200	1,134	
	Aug. 22	Ft. Stanwix	**Arnold**	400	150	St. Leger	200	?	
	Sept. 19	Bemis Heights or Stillwater	**Lincoln**	2,500	350	Burgoyne	6,000	600	
	Oct. 7	Bemis Heights	**Gates**	8,000	350	Burgoyne	5,000	57	British surr'nder.
Attack on Philadelphia.	Oct. 17	Saratoga	**Gates, Arnold**	8,000	350	Burgoyne	6,000	5,791	Aid from France.
	Sept. 11	Brandywine	Washington	11,000	1,300	**Howe**	18,000	500	British winter in Philadelphia.
	Oct. 4	Germantown	Washington	11,000	1,073	Howe	15,000	500	
Retreat from Philadelphia.	1778								
	June 28	Monmouth	**Washington**	12,000	227	Clinton	11,000	700	British return to New York.
Indian massacres.	July 4	Wyoming	Zeb. Butler	400	400	**Butler**	1,000	222	
	Nov. 11	Cherry Valley	Zeb. Butler			**Brant**			
In the West.	July 4	Kaskaskia	**Clark**			Indians			Americans control the Northwest.
	1779								
	Feb. 14	Vincennes	**Clark**			Hamilton			
For control of the South by British.	1778								
	Dec. 29	Savannah	R. Howe	900	553	**Campbell**	2,000	26	British control all but Charleston
	1779								
	Feb. 24	Kettle Creek	**Pickens**			Boyd			
	Oct. 9	Savannah	Lincoln	4,500		Provost	2,900		
To control Hudson.	July 15	Stony Point	**Wayne**	1,200	166	Clinton	600	36	Stopped ravages in Connecticut.
On the sea.	Sept. 23	Bon Homme Richard-Serapis	**J. Paul Jones**		49			49	
Against the Indians.	Aug. 29	Elmira	**Sullivan**		8	Johnson, Brant		12	Power of "Six Nations" broken.
	1780								
For control of South.	May 12	Charleston	Lincoln	3,700	265	**Clinton**	9,000	265	British in possession of South.
	Aug. 16	Camden	Gates	3,000	1,000	**Cornwallis**	2,000	225	
	Oct. 7	King's Mountain	**Shelby, Sevier**	900	28	Ferguson	1,100	460	
	1781								
British invasion of North Carolina.	Jan. 17	Cowpens	**Morgan**	900	70	Tarleton	1,100	320	British forced to retire towards the coast.
	Mar. 15	Guilford Court House	Greene	4,400	1,300	**Cornwallis**	2,400	258	
	April 25	Hobkirk's Hill	Greene	1,200	266	**Rawdon**	900	142	
	June 18	Ninety-Six	**Greene**	1,000	150	Cruger	550	386	
	Sept. 8	Eutaw Springs	Greene	2,000	547	Rawdon	2,800	800	Americans in control of South.
Invasion of Virginia.	Oct. 19	Siege of Yorktown	**Washington, Rochambeau De Grasse**	16,000	300	Cornwallis	8,000	550	Surrender of Cornwallis.

Final treaty of peace signed Sept. 25, 1783, secured independence in America and reform in England. The United States extended from the Atlantic to the Mississippi, from Florida to Canada.

Names of victors in **bold face**.

1801-1805. Wars with the Barbary States. 1815-1816.

CAUSE: Continued piratical attacks upon American merchant vessels in the Mediterranean and on the Atlantic; captives sold as slaves; vast sums paid as bribes.

COUNTRY.	DATE.	VESSELS.	COMMANDERS.	RESULTS.
War with Tripoli, 1801-1805.	July, 1801	President	Dale	Captured Tripolitan cruiser.
	Aug. 24, 1803	Philadelphia	Bainbridge	Vessel captured; crew enslaved.
	Feb. 16, 1804	Enterprise	Decatur	Burned the Philadelphia.
	Aug. 3-Sept. 3, 1804	Constitution	Preble	Blockaded ports. Bombarded Tripoli.
With Algiers, 1815-1816.	May, 1815	Guerrière	Decatur	Captured Algerian vessels. Secured treaties from all the Barbary States.

Treaty with Tripoli June 3, 1805; United States paid $60,000; prisoners exchanged. Ended trouble with Tripoli.

War of 1812. The Second War of Independence.

CAUSES: Commercial injuries; impressment of seamen; Indian hostilities incited by British agents.

CAMPAIGNS.	DATES.	BATTLES.	AMERICAN FORCES.			BRITISH FORCES.			RESULTS.
			Leaders.	Eng'ed.	Loss.	Leaders.	Eng'ed.	Loss.	
	1812								
Invasion of Canada.	Aug. 15	Fort Dearborn	Heald	57		**Indians**	1,327		Captured by British and surrender to British.
On the Frontier.	Aug. 16	Detroit	Hull	2,500	2,500	**Brock**	1,300		
	Oct. 13	Queenston Heights	Van Rensselaer	1,200	990	**Brock**		130	
	1813								Americans lose Michigan Territory; British and Indian alliance broken; Americans regained territory and secured some of upper Canada.
In the Northwest. To recapture Detroit	Jan. 22	River Raisin	Winchester	800	400	**Proctor**	1,500		
	May 5	Fort Meigs	**Harrison**	1,200	800	Proctor	2,000		
	May 29	Sackett's Harbor	**Brown**	1,000	167	Prevost	1,200	261	
	Sept. 10	Battle of Lake Erie	**Perry**	9 ves. 54 guns	60	Barclay	6 ves. 63 guns	527	
	Oct. 5	The Thames	**Harrison**	5,000	45	Proctor	2,000	644	
	1814								
On the Niagara Frontier.	July 5	Chippewa	**Brown**	1,900	328	Riall	2,100	200	Americans retreated.
	July 25	Lundy's Lane	**Brown**	2,600	860	Drummond	4,500	878	
	Aug. 15	Fort Erie	**Ripley**	2,500	510	Drummond	5,000	905	Retreat of British.
	Sept. 11	Lake Champlain	**McDonough**	14 ves. 86 guns		Downie	16 ves. 92 guns		
	Sept. 11	Plattsburg	**Macomb**	3,000	110	Prevost	12,000	200	
Capture Washington.	Aug. 24	Bladensburg	Winder	3,500	76	**Ross**	5,000	500	Abandonment of Washington.
	Sept. 13	Fort McHenry	**Armistead**	3,000	28	Ross	4,000	2,100	
To secure New Orleans.	1815								
	Jan. 8	New Orleans	**Jackson**	5,000	21	Pakenham	20,000	2,600	The British withdraw.

Treaty of Ghent concluded Dec. 24, 1814; settled no question causing the war, but gave the U. S. independence of Europe.

ON THE SEA.	DATES.	VESSELS.		COMMANDERS.				RESULTS.
		American.	English.	American.	Loss.	English.	Loss.	
Off Newfoundland.	Aug. 13, 1812	Essex	Alert	**Porter**		Langharne		
Off Massachusetts Bay.	Aug. 19	Constitution	Guerrière	**Hull**	7	Dacres	78	British blockaded Atlantic coast; privateering increased.
Off North Carolina.	Oct. 18	Wasp	Frolic	**Jones**	5	Whingates	62	
Off Canary Islands.	Oct. 25	United States	Maced'nian	**Decatur**	5	Carden	94	
Off San Salvador.	Dec. 29	Constitution	Java	**Bainbridge**	35	Lambert	161	
Off Demerara.	Feb. 24, 1813	Hornet	Peacock	**Lawrence**	5	Peake	38	
Off Massachusetts coast.	June 1	Chesapeake	Shannon	Lawrence	146	**Broke**	83	
In British Channel.	Aug. 14	Argus	Pelican	Allen	23	**Maples**	7	
Off coast of Maine.	Sept. 5	Enterprise	Boxer	**Burrows**	2	Blyth	21	Respect for American seamen fully established.
At Valparaiso	Mar. 28, 1814	Essex	Phœbe, Cherub	Porter	125	**Hilgar, Tucker**	15	
In British Channel.	June 28	Wasp	Reindeer	**Blakeley**	11	Manney	67	
Off Africa.	Sept. 1	Wasp	Avon	**Blakeley**	3	Arbuthnot	42	
Off Madeira.	Feb. 20, 1815	Constitution	Cyane, Levant	**Stewart**	14	Falcon, Douglas	77	

The Mexican War. 1846-1847.

CAUSES: Admission of Texas; dispute over Texan boundary; greed for territory; extension of slavery area.

CAMPAIGNS.	DATES.	BATTLES.	AMERICAN FORCES.			MEXICAN FORCES.			RESULTS.
			Leaders.	Eng'ed.	Loss.	Leaders.	Eng'ed.	Loss.	
	1846								
To hold the Rio Gr'nde.	May 8	Palo Alto	**Taylor**	2,300	46	Arista	6,000	229	Declaration of war.
	May 9	Resaca de la Palma	**Taylor**	2,000	122	Arista	5,000	388	
Invasion of Mexico and New Mexico.	Aug. 18	Santa Fé	**Kearny**						
	Sept. 24	Monterey	**Taylor**	6,600		Ampudia	10,000		
	1847								
	Feb. 23	Buena Vista	**Taylor**	4,700	723	Santa Anna	17,000	1,809	Americans invariably successful.
Vera Cruz to City of Mexico.	Apr. 18	Cerro Gordo	**Scott**	8,500	431	Santa Anna	12,000	600	
	Aug. 20	Contreras	**Twiggs**	4,000	60	Valencia	7,000	2,900	
	Aug. 20	Churubusco	**Pillow**	8,000	1,000	SantaAnna	25,000	4,000	City of Mexico surrendered Sept. 14, 1847.
	Sept. 8	Molino del Rey	**Worth**	3,500	899	Santa Anna	14,000	3,000	
	Sept. 13	Chapultepec	**Pillow**	7,200	787	Bravo	25,000	3,000	

Treaty of Guadalupe Hidalgo, Feb. 2, 1848. The United States gained all territory north of Rio Grande and Gila rivers; Mexico was paid more than $18,000,000.

1861-1865. The Civil War.

Causes: Sectional differences between the North and South; in interpretation of Constitution; in systems of labor; in industries and a want of intercourse between the people.

Campaigns.	Dates.	Battles.	Union Forces.			Confederate Forces.			Results.
			Leaders.	Eng'ed.	Loss.	Leaders.	Eng'ed.	Loss.	
To secure seceded and doubtful states.	April 12, 1861	Fort Sumter	Anderson	80	5	**Beauregard**	7,000	4	Call for troops.
	June 10, "	Big Bethel, Va	Pierce	3,000	68	**Magruder**	2,200	5	Seceded states held by Confederates; doubtful states by Federals.
	June 17, "	Boonville, Mo	**Lyon**	1,500	56	Marmaduke	2,000	8-150	
	July 11, "	Rich Mountain, W. Va	**Rosecrans**	7,000	46	Pegram	5,000	440	
	July 21, "	1st Bull Run (Manassas)	McDowell	18,000	2,708	**Beauregard**	27,000	1,752	
	Aug. 10, "	Wilson's Creek, Mo	Lyon	5,500	1,235	**McCulloch**	12,000	1,095	
	Sept. 10, "	Carnifex Ferry, W. Va	**Rosecrans**	4,500	118	Floyd	5,000		Federal forces driven back to Washington.
	Oct. 21, "	Ball's Bluff, Va	Baker	2,100	944	**Evans**	5,000	302	
	Nov. 7, "	Belmont, Mo	**Grant**	2,850	485	Polk	7,000	642	
To open the Mississippi.	Feb. 6, 1862	Fort Henry	**Grant, Foote**		62	Tilghman		66 g'ns	Confederates driven out of western Kentucky.
	Feb. 16, "	Fort Donelson	**Grant, Foote**	15,000	2,331	Buckner	20,000	15,067	
	Mar. 5, 6, "	Pea Ridge	**Curtis**	12,000	1,312	Van Dorn	35,000	5,200	Mississippi opened south to Tennessee and northern Mississippi.
	Mar. 13, "	New Madrid	**Pope**	20,000	557	Gantt, Stuart	9,000	500	
	Apr. 6, 7, "	Shiloh or Pittsburg Ldg.	**Grant** **Buell**	65,000	13,573	A.S. Johnston Beauregard	45,000	14,687	
	April 7, "	Island No. 10	**Foote, Pope**	12,000	51	Makall	7,000	7,000	
			Farragut	46 ves.		Hollins		4 g'bts	
	April 24, "	New Orleans	**Butler**	14,000	205	Mitchell	10,000	63	Mississippi opened north to Port Hudson.
	Sept. 19, "	Iuka	**Rosecrans**	17,000	790	Price	23,000	1,638	
	Oct. 3-5, "	Corinth	**Rosecrans**	19,000	2,359	Van Dorn	38,000	4,718	
Peninsular: Federals.	May 5, "	Williamsburg	Hooker		2,200	**Longstreet**	25,000	2,000	
	May 24, "	Winchester	Banks	5,000	904	**T. J. Jackson**	18,000	400	
To capture Richmond.	May 31, "	Seven Pines—Fair Oaks.	McClellan	11,000	5,739	**J.E. Johnston**	35,000	6,697	
Confeds., To capture Wash'tn.	June 26-30, "	Seven Days' Battles	McClellan	95,000	15,249	**Lee**	91,000	20,450	Federals successful in West; Confederates, in East.
	July 1, "	Malvern Hill	**McClellan**	80,000	1,000	Hill	80,000	3,000	
	Aug. 9, "	Cedar Mountain	Pope	7,000	1,400	**T J. Jackson**	20,000	2,500	
	Aug. 30, "	2d Bull Run, Va	Pope	32,000	14,500	**Lee**	25,000	9,500	
Lee's invasion of the North.	Sept. 14, "	South Mountain	**Franklin**	30,000	2,325	Lee	30,000	4,343	
	Sept. 16, "	Antietam, Md	**McClellan**	70,164	12,469	Lee	40,000	13,533	Bloodiest battle of war.
	Dec. 13, "	Fredericksburg, Va	Burnside	100,000	12,841	**Lee**	90,000	4,330	
Kentucky.	Oct. 8, "	Perryville, Ky	McCook	13,000	4,055	**Bragg**	33,000	4,500	Confederates capture stores.
Blockade.	Mar. 9, "	Monitor-Merrimac	**Worden**		1	Buchanan		2	
In East Tennessee.	Jan. 3, 1863	Murfreesboro, Tenn	**Rosecrans**	43,000	10,309	Bragg	62,000	18,060	
	Sept. 19-21, "	Chickamauga, Ga	Rosecrans	55,000	15,851	**Bragg**	70,000	17,000	
	Nov. 23, "	Chattanooga, Tenn	**Grant**	80,000	5,815	Bragg	45,000	6,687	
	" 24, "	Lookout Mountain	**Hooker**	10,000	4,000	Bragg		10,000	Confederates driven out of Tennessee.
	" 25, "	Missionary Ridge	**Sherman**			Bragg			
	Nov. 17-Dec. 5	Siege of Knoxville	**Burnside**	20,000	900	Longstreet	20,000	2,000	
Blockade.	April 27, 1863	Siege of Charleston	Dupont Hunter		21	**Beauregard**	45,000	3	Unsuccessful.
To open the Mississippi.	April 16, "	Bombardment of Vicksburg	**Farragut** **Porter**	15 ves.	1 gunboat	Pemberton			
	May 18 to July 4, "	Siege of Vicksburg	**Grant**	34,000	3,712	Pemberton	60,000		
	May 27 to July 8, "	Siege of Fort Hudson	**Farragut** **Banks**	15 ves.	700	Gardner	6,000	6,000	Mississippi opened.
Adv'nce on Richmond.	May 1, "	Chancellorsville	Hooker	90,000	17,197	**Lee**	90,000	13,019	Turning point of war.
	June 13, "	Winchester, Va	**Milroy**	6,500	1,800	Ewell	18,000	850	
Lee's 2d invasion.	July 1-3, "	Gettysburg, Penn	**Meade**	90,000	23,003	Lee	80,000	20,451	Greatest battle.
	May 5-7, 1864	Wilderness	Grant, Meade	150,000	15,387	Lee	130,000	11,400	Largest Union army.
	8-18, "	Spottsylvania	**Grant, Meade**	135,000	20,000	Lee	105,000	12,000	
	June 1-3. "	Cold Harbor	Grant, Meade	125,000	9,948	**Lee**	100,000	8,500	Confeds. retreat toward Richmond.
	June 15-19 "	Siege of Petersb'g begun	**Grant, Meade**	140,000	15,000	Lee	100,000	10,000	
Adv'nce on Wash'gton.	Sept. 19, "	Winchester, Va	**Sheridan**	40,000	3,500	Early	15,000	3,611	Federals control Shenandoah val.; ends adv. on Wash.
	Sept. 22, "	Fisher's Hill, Va	**Sheridan**	33,000		Early	11,500		
	Oct. 19, "	Cedar Creek	**Sheridan**	30,000	5,300	Early	30,000	4,100	
Sherman's "March to the Sea."	May 15, "	Resaca, Ga	**Sherman**	100,000	1,000	Johnston	55,000	1,000	
	May 28, "	Dallas, Ga	Sherman	40,000	2,400	Longstreet	20,000	3,000	
	June 27, "	Kenesaw Mountain, Ga.	Sherman	100,000	3,000	**Johnston**	60,000	630	
	July 22-Sep. 2	Siege of Atlanta	**Sherman**	100,000	3,641	Hood	40,000	8,500	City surrenders.
Counter attack, Tenn.	Nov. 30, 1864	Franklin	**Schofield**	25,000	1,222	Hood	50,000	8,000	Hood's army destroyed.
	Dec. 15, 16, "	Nashville	**Thomas**	50,000	3,000	Hood	44,000	5,000	
	Dec. 25, "	Savannah	**Sherman**	60,000	150	Hardee	15,000	380	Cut Confederacy in two.
In the West.	Sept. 27, "	Pilot Knob	**Ewing**		600	Price	20,000	1,500	Last military operations in West.
	Oct. 22, "	Independence	**Ewing**	8,000		Price	20,000		
Naval operations.	June 19, "	Alabama-Kearsarge	**Winslow**			Semmes			Tro'ble with Eng.
	Aug. 5, "	Mobile Bay	**Granger**	5,000	335	Page	2,500	26	Opening of coast.
			Farragut	18 ves.		Buchanan			
	Jan. 15, 1865	Fort Fisher, N. C	**Terry** **Porter**	9,200	955	Hoke	2,200	2,083	
				73 ves.					
Sherman's advance North.	Feb 17, "	Columbia occupied	**Sherman**	75,000					Cut off retreat from Richmond.
	Feb. 18, "	Charleston occupied	**Sherman** **Gillmore**	75,000	100	Beauregard Hardee	35,000	60	
	Mar. 14, "	Kinston, N. C	**Cox**	12,000	500	Bragg	12,000	775	
	Mar. 16, "	Averysboro, N. C	**Slocum**	60,000	678	Hardee	20,000	865	
	Mar. 19, "	Bentonsville, N. C	**Sherman**	65,000	2,300	J.E.Johnston	45,000	2,343	
Operations in Virginia about Richmond.	Feb. 27, "	Waynesboro, Va	**Sheridan**	8,000	69	Early	1,800	1,352	
	Mar. 25, "	Fort Steedman	**Meade**	40,000	1,646	Gordon	67,000	5,000	
	April 1, "	Five Forks, Va	**Sheridan**	100,000	7,000	Lee	50,000	15,000	
	" 2, "	Petersburg taken	**Grant**	70,000	8,000	Lee	42,000	9,000	
	" 6, "	Sailor's Creek	**Sheridan**	80,000	1,170	Lee	30,000	10,000	
	" 9, "	Appomattox	**Grant**	100,000	500	Lee	27,000	26,000	Lee surrenders.
	" 26, "	At Raleigh	**Sherman**	85,000		Johnston	45,000	30,000	Johnston surrenders; end of war.

Results: Slavery abolished forever; the Union preserved; nearly 1,000,000 men killed; cost nearly $8,000,000,000.

1898. Spanish-American War.

Cause: Sympathy for the Cubans; interference with United States trade interests in Cuba; destruction of the Maine; demand by United States that Spain give up Cuba.

Campaigns.	Dates.	Battles.	American Forces.			Spanish Forces.			Results.
			Leaders.	Eng'ed.	Loss.	Leaders.	Eng'ed.	Loss.	
Blockade of Cuban ports.	1898 May 1	Manila Bay	Dewey	9 ves.		Montojo	10 ves.	616	Heavy loss to Spanish.
	July 3	Santiago de Cuba	Sampson Schley	7 ves.	12	Cervera	6 ves.	2,050	Ships destroyed; men captured.
Land expedition against Santiago.	July 1-3	El Caney	Lawton	4,500	240	Toral	12,000	1,401	Surrender of Santiago July 17, 23,500 men. Island was surrendered.
		San Juan Hill	Garcia	5,000					
	July 25 to Aug. 12	Porto Rico	Miles	17,000	3				
	Aug. 13	Manila	Merritt	20,000	17		11,000	All.	City surrendered; war ended.

Result: Spain gave up Cuba, ceded Porto Rico, Guam, and the Philippines to the United States, for which $20,000,000 was paid. United all parts of the country. Trouble with Philippine insurrectionists continued till July, 1899.

Indian Wars.

Cause: Dissatisfaction with white men's occupation of land.

War.	Dates.	Battles.	Leaders.		Results.
			Americans.	Indians.	
Pequot.	1637	Stonington, Conn.	Mason		Destruction of Pequot tribe.
Algonquin.	1643	In New Netherlands			Nearly destroyed New Amsterdam.
King Philip's.	1675-1678	In New England		King Philip	600 colonists killed; 13 towns destroyed.
Five Nations with French.	1689	In Canada	Frontenac		Indians finally driven farther west.
	1690	Schenectady, N. Y.	Frontenac		
	1690-1697	In New England			
Tuscarora.	1711-1715	In North Carolina			Tribe nearly destroyed.
Pontiac's.	1763	In Northwest		Pontiac	War stopped temporarily.
Tories and Indians.	July, 1778	Wyoming Valley, Pa.	Sullivan		Destroyed Six Nations.
For control of western land.	1790	Fort Wayne	Gen. Harmar		
	1791	Wabash	St. Clair		Indians finally moved farther west.
	1794	Toledo	Wayne		
Tecumseh and British.	1811	Tippecanoe	Harrison	"The Prophet"	Ended union of British and Indians
	1813	Of the Thames	Harrison	Tecumseh	Tecumseh killed.
Creek.	1814	Horseshoe Bend, Ala.	Jackson	Red Eagle	Creeks moved west.
First Seminole.	1816-1818	Pensacola, Fla.	Jackson	Osceola	Stopped trouble temporarily.
Black Hawk.	1832	Bad Axe River	Dodge	Black Hawk	
Second Seminole.	1835-1843	In Florida	Jessup	Osceola	Capture of Osceola.
Sioux.	1862	Minnesota, Iowa	Sibley		Sioux expelled from Minnesota.
Modoc.	1872-1873	Lost River	Canby, Davis	Captain Jack	Indians returned to reservations.
Sioux.	1876	Little Big Horn	Custer	Sitting Bull	Massacre of Custer's forces.
Sioux.	1890	Wounded Knee	Miles	Sitting Bull	Ended trouble.

Canadian Wars.

Wars.	Dates.	Incidents.	Leaders.		Results.
French Colonists with Iroquois, 1609-1624.	1609	Crown Point	Champlain		Created hostility lasting 150 years.
	1610	Richelieu River	Champlain		
	1613	St. Saueur	Argal		
	1613	Port Royal	Argal		
English with French. March, 1627–April, 1629.	1628	Port Royal	Kirke		Canada, Cape Breton, and Acadia restored to France 1632.
	1628	Gulf of St. Lawrence	Kirke	Roquemont	
	1629	Quebec	Kirke	Champlain	
	1629	Louisburg		Daniel	
French Colonists with Iroquois. 1633-1645. 1652-1654. 1661-1666.	1644	Montreal	Maisonneuve		Extermination of Hurons
	1645	Fort La Tour	Charnisay		Destruction of mission.
	1652	Three Rivers	Duplessis	Indians	
	1652	Montreal	Classe		
	1654	Port Royal	Sedgwick		
	1660	Long Sault	Doulac	Indians	Whole garrison destroyed.
	1666	Mohawk Valley	De Courcelles		Stopped trouble for a time.
1687-1700.	1687	Seneca Country	Denonville		In 1701, treaty with Iroquois at Montreal ended hostility.
	1690	Schenectady	Frontenac		
	1696	Lake Onondaga	Frontenac		

THE CAUSES OF THE GREAT WAR.

The causes of the Great War still remain a subject of dispute among historians as well as among diplomats. A recent school of writers would distribute the blame impartially, whereas the more strongly nationalistic historians unhesitatingly place the guilt upon Germany and Austria, especially the former. Without discussing the more controversial points involved, certain facts in the historical background stand out clearly, and these are sufficient to give us a comprehensive idea of the major causes of the awful calamity which came upon the civilized world in 1914.

After the coalition of great powers had finally put an end to the menace of a Europe completely dominated by Napoleon I, these powers, under the direction of the Austrian statesman, Metternich, preserved an unbroken peace in the interest of conservatism from 1815 to 1853. In the latter year Russia's ambition to drive the Turks out of Europe and take over the Dardanelles and Constantinople resulted in the alignment against her of England and France, who feared, especially England, the Russian domination of the Near East, with the consequent approach of Russia to India. Although the Crimean War ended in the defeat of Russia, she never gave up her design of securing possession of the Dardanelles. This fact must be kept in mind.

At the close of the Napoleonic era Germany was still a "geographical expression"; but her regeneration began almost immediately, with well-laid plans for arousing the latent spirit of nationalism among the Germans. In this Prussia took the lead, as she also did in developing a strong army. By constant teaching and preaching the minds of the German people were prepared for what the nationalistic writers and speakers termed "the higher destiny" of the German nation. In 1861 William I became King of Prussia, and he called to be his Chancellor Count von Bismarck, one of the greatest statesmen of all times, whose career for nearly thirty years is virtually the history of Prussia. The rising spirit of liberalism was suppressed by this "parliament-tamer" and the construction of the greatest army the world has ever seen was carried on, Bismarck being fortunate in securing the services of Generals von Moltke and von Roon as strategists and organizers.

In the meantime France had recovered rapidly from the devastation wrought by the constant warfare carried on by Napoleon, and was making steady, if not brilliant progress. In 1852 a nephew of Napoleon I became Emperor, with the title of Napoleon III, and to his unsuccessful conduct of foreign affairs can be attributed the misfortune that befell France in 1870. Bismarck, who had put Austria out of the German confederation in 1866 and organized a new Confederation with Prussia at the head, cleverly and unscrupulously drew France into a war which resulted in a complete victory for the German allies. The treaty which ended the Franco-German War took Alsace and Lorraine from France—a most significant fact to remember. The hatred of the French for the Germans was never permitted to die down, and a "war for revenge" was always in the minds of the French people after 1871.

The history of the Balkan peoples in the 19th century is confusing, but insofar as it has to do with the causes of the Great War it may be traced in simple fashion. In 1815 Turkey was in possession of nearly all the Balkan peninsula that lay outside the Austrian Empire. Her rule was a cruel and oppressive one, and the subject nations longed for escape. In 1829 the Greeks won their independence, having the open sympathy of all Christian states. In the 'seventies the Rumanians, Servians, and Montenegrins became national states; and the Bulgarians freed themselves from the declining Turks in 1908. Perhaps in no part of the world are so many nationalities jumbled together as in the Balkans; Greeks, Turks, Bulgarians, Rumanians, Servians, Slovenes, Germans, Slovaks, Poles, Croatians, Hungarians and others are distributed aimlessly within the territory drained by the Danube River, or lying nearby. Little wonder that the racial and territorial problem of the Balkans is one which resists a satisfactory solution.

Austria's decline in the 19th Century was gradual, but none the less marked. Containing a mixture of non-Germanic races her reactionary policy alienated them all and foreshadowed her tragic end as an Empire. The ambitions of Austria and Russia clashed in the Balkans, where Russia dreamed of being the protector and patron of her Slavic neighbors, while Austria, secretly encouraged by Bismarck, who at the same time was pretending to be sympathetic with Russia, exerted a steady pressure upon the nearest Slavic states. In 1877 the Russians again made war on Turkey, and again the interference of the other great European powers prevented her from obtaining her objective. The Treaty of Berlin, in 1878, disregarded the wishes of the people most concerned—the Balkan races—and t' s gave rise to endless jealousies and disputes. Although Bismarck, who presided over the Congress of Berlin, professed to play the part of an "honest broker," Russia never trusted him fully thereafter, and the rift between Russia and Germany widened with each ensuing year, in spite of the fact that twice in the 'eighties the Emperors of Austria, Russia, and Germany formed leagues of friendship in the interest of the preservation of the status quo.

Just as Germany's pro-Austrian policy eventually alienated Russia, her new colonial policy aroused the suspicion of England, especially as along with the acquisition of colonies the necessity for a larger navy became apparent. Bismarck opposed these innovations as contrary to the true interests of Germany, but for once he had to yield. His support, however, was always lukewarm. England had been gradually increasing her South and Central African possessions when Germany entered the colonial field, but the latter state set about the creation of a colonial empire in such a vigorous and business-like manner that England was moved to protest. Here we have the key to the break between England and Germany—two countries whose relations hitherto had been uniformly pleasant. In 1890 the young German Kaiser, William II, dismissed Bismarck and thereafter acted as his own Foreign Minister. To this man's belligerent utterances, more than his deeds, must the final break between England and Germany be attrib-

uted. He announced his intention of building a navy powerful enough to compete with England's, although Germany had little need for a large naval force. Thus the ruinous race for armament was begun, and England felt compelled to lay down two keels for every one laid down by Germany. The Kaiser openly favored the Boers when they were fighting the English (1899–1902), and even hinted at giving them material support. As though the enmity of England was not enough he gratuitously alienated Russia and virtually drove her into an alliance with France (1893), an occurrence which Bismarck had always feared, and rightfully so, as later events proved. In 1893 Russia and France were in one alliance, and Germany, Austria, and Italy in another, Italy having joined because of the aggressiveness of France in Northern Africa where she had sought consolation for the loss of Alsace and Lorraine.

In the meantime, the relations between France and England had not improved, Africa again being the bone of contention. After several incidents which threatened to bring on war, these two countries made an amicable settlement of their differences, England being allowed a free hand in North Africa, and France taking land farther to the south and west. In 1901 Edward I became King of England, and Anglo-French relations improved to such an extent that in 1904 the two countries came to an understanding—the Entente Cordiale—, which, in effect, bound them together in a defensive alliance. Whereas France for years after the Franco-German war was conscious of her inferiority to Germany in a military way, now in alliance with two powerful states she began to assert herself. In return for giving England certain concessions, France undertook to extend her sphere of influence in Morocco, but Germany entered such vigorous objections that to disregard them meant war. The dispute was settled by ceding to Germany a large part of Equatorial Africa, but the bad blood engendered augured poorly for the peaceful relations of the countries involved, particularly as France had been compelled to dismiss her Foreign Secretary by Germany's order.

In 1911 Italy, without provocation, made war on Turkey, and, being easily successful, took from her Tripoli. Italy's example was followed the next year by Montenegro, Servia, Greece, and Bulgaria, who would have stripped Turkey of all her European territory if the great powers had not intervened. As it was, by the Treaty of London (1913), Turkey was left with little in Europe outside Constantinople. But the Balkan Allies quarrelled over the division of the spoils, Bulgaria demanding almost two-thirds, so another war broke out almost immediately, Servia, Montenegro, Greece, and Rumania fighting Bulgaria. The latter was defeated and Macedonia was divided up in a manner unsatisfactory to all. Turkey joined in the coalition against Bulgaria and got back Adrianople. The Balkan wars left all the states involved in bad humor, ready to join an alliance which would give them the territory they craved. Bulgaria and Turkey were especially aggrieved, and readily cast their fortunes with the Central Powers in the Great War.

In 1908 Austria, in violation of an agreement entered into at the Congress of Berlin, formally annexed Bosnia and Herzegovina, two provinces inhabited by people of Slavic blood related closely to the Servians. From this time on anti-Austrian demonstrations in Servia were common, and eventually became the immediate cause of the Great War. In June 1914 the heir to the Austrian throne, Francis Ferdinand, was assassinated at Sarajevo, the capital of Bosnia, by a fanatical Servian. Austria pretended to have evidence of a plot backed by the Servian government, and demanded concessions that, if granted, would seriously impair Servia's sovereignty. Russia urged Servia to refuse these exorbitant demands and Germany backed Austria to the limit, at the same time warning Russia to keep out. When the latter refused to comply, and began to mobilize, Germany declared war. England did her best to preserve peace, but, failing, entered the war on the side of her Allies. At the same time Germany declared war on Russia she also declared war on France, sending an army against France immediately. In order the more easily to reach France, Germany violated the neutrality of Belgium, and, while partly gaining her objective, spoiled any chance she might have had of getting Italy in on the side of the Central Powers, for Italy at once renounced her alliance, saying that it had been for defensive purposes only, and Germany and Austria were engaging in a war of aggression. Thus, after long years of preparation and apprehension, in August, 1914, the greatest Christian states in the world were engaged in a conflict, the bloodiest and most destructive that history records.

1914

June 28. Archduke Francis Ferdinand of Austria, heir-apparent to the throne and nephew of Emperor Francis Joseph, assassinated at Sarajevo, the capital of Bosnia, by a student. The act is attributed to the Pan-Servian Union, an anti-Austrian organization.

July 23. In a note to the Servian government, Austria demands the suppression of anti-Austrian societies, the punishment of the conspirators, and the participation of the Austrian government in the investigation. Invasion threatened if the demands are not complied with.

24. Servia's request for more time refused by Austria.

25. Servia accedes to all of the Austrian demands except the one dealing with Austrian participation. Austria refuses to submit the question to the Hague Tribunal, as suggested by Servia.

26. England, France, and Russia urge peaceful negotiation of the dispute.

27. England expresses the hope that all powers not directly concerned in the Servo-Austrian imbroglio stay out of the controversy.

28. Austria formally declares war on Servia. Germany assumes a belligerent attitude. Russians mass an army on the western border.

29. Russia, France, and Germany mobilize. War seems inevitable.

30. Germany demands that Russia stop mobilization. Austrian troops advance on Servia.

31. Russia assumes a defiant attitude. Servians check Austrians on the Bosnian frontier. Russia refuses to answer German note.

August 1. Germany declares war on Russia.

2. Russian troops cross the German border. Montenegro mobilizes.

3. Russian Poland invaded by the Germans. Dvina River scene of first fighting.

4. Russians fail in attack on Memel. Austrians checked by Servians. Turkey prepares to enter the war on the side of the Central Powers. England declares war on Germany as Germany declares war on Belgium.

5. Austria declares war on Russia. Belgrade, capital of Servia, under fire. East Prussia entered by the Russians. German assault on Liége, Belgium, repulsed.

6. Italy proclaims neutrality, saying that she was not bound to support the Central Powers in a war of aggression.
7. Germans enter Liége. French forces rush to Belgium's aid. English soldiers land at the front.
8. French and Germans fighting in Alsace. Fighting on the Eastern front general, as Austrians and the Russians come to grips.
9. Liége taken, but the forts hold out. Germans repulse Russians.
10. France breaks off diplomatic relations with Austria.
11. Germans advance to the French frontier. French retreat in Alsace.
12. Belgium again refuses to give passage to the Germans. Servians and Montenegrins enter Bosnia.
13. England declares war on Austria. Germans unable to break through the Belgian defence. Germans bring up siege guns.
14. Germans mass troops for assault on Brussels.
15. Western battle front now 250 miles in extent. Japan demands of Germany the surrender of Kiaochow.
16. Severe fighting in Alsace.
17. Antwerp becomes the Belgian seat of government. Russia requests of the Turks free use of the Dardanelles.
18. Germans checked in Belgium. Servians drive back the Austrians.
19. Germans sweep on in Belgium, capturing Louvain and threatening Brussels.
20. Brussels taken. Belgian army retreats toward Antwerp.
21. French withdraw from Lorraine. Germans take Ghent and press on toward Ostend.
22. Germany demands $40,000,000,000 from Belgium.
23. Japan declares war on Germany. Allies hold positions in Belgium. Russians advance fifty miles in East Prussia.
24. Germans push back allied armies in Belgium. Russian advance continues.
25. Zeppelin drops bombs on Antwerp, killing 12 noncombatants.
26. French Cabinet reconstructed to meet war emergencies.
27. Germans capture Namur and Longwy; advance toward the French border.
28. Louvain wantonly destroyed by the Germans. Allies fall back along the entire front. Russians press toward Königsberg.
29. Germans win at St. Quentin. Russians take Königsberg.
30. Russians victorious in East Prussia. Austrians defeated at Lemberg.
31. Allies left flank retreats. Paris in terror.

September 1. Russians checked by Germans. Allies center endangered.
2. Germans within 30 miles of Paris. French move capital to Bordeaux.
3. Germans capture Amiens and La Fere. Russians in Bukowina.
4. Russians capture Lemberg, Galicia. Germans drive in Allies' right flank, making a determined move toward Verdun.
5. Rheims taken by the Germans. Russians mass 20 army corps against the Germans in East Prussia.
6. Great battle for Paris now raging. Austrians reenforced by Germans.
7. Allies hold back the Germans all along the front.
8. Battle of the Marne still undecided.
9. Maubeuge taken by the Germans. British troops cross the Marne.
10. Germans retreat slowly along the western front. Russians invade Silesia and move toward Breslau.
11. Serbians invade Bosnia. Fighting along the entire eastern front.
12. Germans fall back in Belgium and France.
13. Germans give up Amiens. Heavy fighting in Belgium. Serbs join Russians as the latter advance into Austria.
14. Germans make stand on the Aisne. Austrians in imminent danger.
15. French take Rheims. Germans sending troops to relieve the Austrians.
16. Russians pursuing the Austrians in Galicia.
17. Austrians retreat toward Cracow.
19. Rheims Cathedral badly damaged by German bombardment.
20. Russians attack Jaroslav and Przemysl.
22. British cruisers sunk by German submarines with great loss of life.
23. Germans advance on Verdun. Austrian army in the Carpathians endangered.
24. French take Péronne. Russians near Cracow.
25. Germans defeat Allies at Noyon.
26. Germans gain ground on the Meuse.
27. Allies center gives way slightly. Germans go to relief of Cracow.
28. 35,000 Canadians leave to join the Allies. Russians invade Hungary.
29. Germans renew effort to take Antwerp. Russians cross the Carpathians.
30. Both wings of the western German army retreat.

October 2. Germans driven across the Meuse. Russians still on the offensive against the Germans and Austrians.
4. Arras the scene of hard fighting.
5. Antwerp hard pressed. Germans open offensive in the Argonne.
6. Russian patrols within 80 miles of Budapest.
7. German re-enforcements hold back the Russians in East Prussia.
9. Germans occupy Courtrai. Antwerp set on fire by bombardment.
10. Antwerp surrenders. Fighting at Arras still indecisive.
11. Germans advance toward Ostend. Russians sweep through Bukowina.
12. Russians retreating from Galicia. Germans attack Ypres, where the small British army is making a stand.
14. Battle for Ypres still in progress. Russians losing heavily.
16. Allies drive Germans from Armentiéres. Germans take Ostend.
19. Serbians and Montenegrins surround Sarajevo.
20. Germans driven in from Nieuport across the border.
23. Allies re-take Lille. Russians claim victory on the Vistula.
24. Germans advance slowly along the coast toward Nieuport.
27. Allies successful in Alsace.
28. Germans and Austrians retreat from Russian Poland.
29. Turkey enters the war by bombarding Russian towns in the Crimea.
30. German army on the Vistula retreats rapidly before the Russians.
31. Austrians now driving back the Russians in Bukowina. Germans have the advantage in Belgium.

November 1. Japanese bombard Tsing Tau. Russians gain in Poland.
2. Germans take Messines. Great Britain and Italy make agreement as to their interest in Africa.
3. British and French ships shell Turkish forts on the Dardanelles.
4. Turkey severs diplomatic relations with Great Britain, France, and Serbia.
5. Germans gain in the Argonne and the Vosges; checked at Arras.
6. Second Russian offensive goes ahead with the capture of Jaroslav. Japanese capture Tsing Tau after a siege of 65 days.
7. Fierce fighting on the western front, especially on the line of Dixmude-Arras-Roye. Austrians weakening before fierce Russian attacks.
8. French advance at Soissons.
10. Roving German cruiser, Emden, which had destroyed many Allied ships, is sunk by the Australian cruiser, Sidney.
11. Russian progress checked. Germans take Dixmude and cross Yser Canal.
12. Germans concentrate forces on Ypres.
13. Austrians evacuate central Galicia. British give ground at Ypres.
14. British super-dreadnought, Audacious, sunk by mine off coast of Ireland.
15. Russians again go forward in East Prussia.
16. Armies of Central Powers drive back the Russians.
17. Germans re-enforced by fresh troops. Battle raging along the entire eastern front, with the issue in doubt.
19. Russians gain in the center, but retreat on both flanks.
20. Russians now in the Masurian Lakes region, East Prussia.
22. German army within 40 miles of Warsaw, capital of Russian Poland. Austrians successful in their invasion of Serbia.
23. Great battle in progress between the Vistula and the Warthe rivers. Von Hindenburg opposing the Grand Duke Nicholas of Russia.
25. Russians encircle left wing of the German army in Poland, cutting off its connections with its support.
28. Russians take Czernowitz; split German armies in Poland.
29. Russians successful against the Austrians in the Carpathians. Arras under heavy German fire. New British army arrives in France.

December 1. Russians suffer heavy losses in Poland when the Germans defeat them near Lodz.
2. Austrians capture Belgrade. British army in Belgium re-enforced.

3. Battle around Lodz still going on. Germans attack between Dixmude and Ypres, but are repulsed.
6. Germans take Lodz, and press back the Russian center. Turks and Russians fighting along the southern littoral of the Black Sea.
7. Allies on the western front begin a general offensive.
8. Sea battle off the Falkland Islands, with British and German squadrons engaged; result indecisive, as both lose heavily.
9. Russia claims to have taken 750,000 prisoners since August.
10. Allies pressing back the Germans on the left wing.
11. Germans hard-pressed in Belgium. Austrians retreat in Galicia.
12. Allies push Germans across the Yser Canal. Russians withdraw from Lodz.
13. Serbians, fighting desperately, drive Austrian right wing into Bosnia.
14. Serbians re-occupy Belgrade. Russians fall back in the Carpathians.
15. Austrians drive Russians from the Carpathians. Allied drive continues.
16. Germans give up Dixmude, and lose along the line from Arras to the sea.
17. Russians seem to have lost in their drive for Silesia.
18. Allies take Roulers.
20. Russians retreating before Hindenburg's troops.
23. Austrian offensive in Galicia checked by the Russians.
28. Russians give up attempt to take Cracow, being compelled to draw back the center of their line to protect the flanks.
29. Bad weather impeding movements on all fronts.
31. Results on western front in doubt as the year closes. Germans and Austrians seem to have the Russians well in hand. Rumors heard of sinister influences at work in Russian official circles.

1915

January 1. Russians again on the offensive in the Carpathians. British battleship, Formidable, sunk by German submarine with a loss of 600 lives.
2. Turks making campaign in Russian Caucasus.
3. Eastern Hungary invaded by the Russians.
4. Russians clear Bukowina of enemy troops.
5. Report that Cardinal Mercier of Belgium has been imprisoned by the Germans.
8. Italian occupation of Albanian town, Avlona, protested by Austria.
9. Germans again on the offensive in Poland, Russians invade Transylvania.
11. Freezing of the Masurian Lakes hinders the Germans.
12. Allies strengthen center of their line in anticipation of attack.
13. Germans drive French across the Aisne, capture important positions, and take over three thousand prisoners.
15. Soissons now entirely in Germany possession; Allies' center in danger.
17. Allies attempt a diversion toward Lille.
19. French trying to straighten out the St. Mihiel salient.
20. Russians driving the Austrians out of Transylvania.
22. Russia puts reconstructed army in the field against the Germans.
23. Germans rush troops to the aid of the Austrians in Hungary, as Budapest is endangered.
24. Russians checked in Transylvania. Turks advance on Erzerum.
25. Hungary seems to be safe for the present. Germans now attacking French in Alsace, with indecisive results.
26. Germans gaining near Craonne and in Alsace.
28. Austro-Germans open a great offensive in the Carpathians along an 80 mile front. French lose more ground at Craonne.
30. Germans making steady progress in the Argonne.
31. Battle in Transylvania favors the Russians. Germans making determined attack on La Bassee.

February 1. Campaign in the Caucasus results in severe defeat for the Turks.
3. Russians again invade Hungary. Turks trying to cut off the Suez Canal.
4. Germany proclaims the waters around the British Isles to be a war zone; neutrals are warned of the danger of navigating these waters.
5. British forces relieve the pressure on the Suez Canal.
7. Germans bring up fresh troops in East Prussia.
9. Under strong attack, Russians retreat from Bukowina.
10. U. S. protests to Germany against indiscriminate submarine warfare.
12. Von Hindenburg's army wins complete victory over the Russians in the Masurian Lake region, capturing 50,000 prisoners.
15. Russians holding in the north, but fall back in the center and left.
16. French make advance in the Champaign district.
18. Germany refuses to modify the conditions of her submarine warfare.
20. Allies open campaign against the Dardanelles by heavy bombardment of forts.
22. Russians gain in Galicia and the Carpathians. U. S. proposes that in return for Germany rescinding her announcement of indiscriminate submarine warfare. Great Britain permit food supplies intended for German non-combatants to pass through.
25. U. S. protests against indiscriminate mine-laying.
26. Russians fighting the Germans and Austrians along a 260 mile front.
27. British and French capture 6 forts on the Dardanelles.
28. Austrians losing heavily in their struggle with the Russians. Germans drive back French 4 miles in the Vosges.

March 1. British announce intention of shutting off all supplies intended for Germany.
2. Russians defeat Germans in the fighting around Przasnysz.
4. Austrians compelled to evacuate Czernowitz.
5. Russian counter-offensive developing rapidly, with the defeat of the Austro-Germans at all points.
7. Greeks protest against their King's neutral policy.
8. Great battle for the Dardanelles at its height, with the result in doubt. British and French suffering heavy losses.
10. Allies advance one mile in Champaign.
11. British take Neuve Chapelle, both sides losing many men.
12. British advance upon Lille from La Bassee and Armentiéres.
14. French gain important position in the Argonne, as French and British win in Belgium. German cruiser Dresden sunk by British warships.
15. Allies about to launch a general offensive in the West.
16. Germans forced back of the Yser Canal. Dardanelles attack resumed.
18. British battleships Irresistible and Ocean, and French battleship Bouvet sunk by mines in the Dardanelles. Other ships badly damaged.
20. Protracted fighting in Poland causes damage estimated at $500,000,000.
22. Russians take Przemysl with 300 officers and 125,000 men; the greatest victory of the war.
24. Austrians losing in the Carpathians.
25. German attempt to have Austria cede the Trentino to Italy fails, and the Austrians mass troops on the Italian frontier.
26. Germans offering inducements for Bulgaria to enter the war.
29. Germans bombard Rheims cathedral. Heavy fighting along the entire front.
30. Austrians again on the offensive in Bukowina. Attack on the Dardanelles will be continued, Allies announce.

April 1. Austrians drive back Russians in Bessarabia.
2. British battle-ship Lord Nelson lost in the Dardanelles attack.
4. Allies deliver strong attack between the Meuse and the Moselle.
5. Germans give up positions in the Champagne.
6. Russians, by capturing Smolenk, separate Austrians and Germans.
7. Allied offensive gaining momentum, but the Germans hold stubbornly.
8. Germany reports total captures as 812,808 men.
9. Germany prohibits all exports to Italy.
10. French gain strategic position at Les Eparges.
11. 280,000 Germans aid the Austrians in their attempt to hold the passes of the Carpathians against the Russians.
12. U. S. and Great Britain in controversy over the seizure by the latter of U. S. ships carrying free goods.
14. Zeppelins raid British coast, causing death of many women and children. French advance in Alsace.
16. 3,500,000 soldiers now on the western front.
17. Melting snows slow up offensive operations on the Russian front.
19. Turkish army around Constantinople estimated at 500,000 men.

21. Germans and British in fierce fighting near Ypres.
22. Germans, by the use of gas, gain at Ypres, capturing many prisoners and a number of villages. Use of asphyxiating gas protested by the Allies as contrary to international law.
24. Canadian troops play important part in stopping the Germans at Ypres. Peace movement in Italy gains strength as Austria seems more willing to make concessions.
25. Germans gain at Ypres, and advance on La Bassee. Also gain at other points by the use of chlorine gas.
26. French cruiser, Leon Gambetta, sunk by Austrian submarine, with the loss of 550 lives.
28. Battle for Ypres still raging; Germans holding their ground.
29. Germans smash Russian line in East Prussia and advance into Russia. Allies land troops on the Gallipoli Penninsula in their attempt to capture the Dardanelles.
30. Russia's Baltic provinces invaded by the Germans. Terrific fighting for the possession of the Dardanelles going on.

May 1. U. S. oil steamer sunk by submarine without warning.
2. Germans and Austrians launch great offensive.
3. Russian center gives way in Galicia, with loss of nearly 50,000 men.
4. Germans gain at both fronts. Russians retreat from Hungary.
5. Russians fall back everywhere. British hard pressed at Ypres.
7. Russian retreat almost a complete rout; immense loss of supplies. Cunard liner Lusitania sunk by submarine off the coast of Ireland, with the loss of 1552 lives, including 114 Americans.
9. Russians continue to retreat, evacuating almost all invaded country.
10. Germany blames Great Britain for the sinking of the Lusitania.
11. Germans making tremendous effort to break through the Allies left flank on the western wing.
12. Russians making a stand. Arras the scene of heavy fighting.
13. Italian Premier and Cabinet resign. Allies losing heavily at Gallipoli.
14. French make drive between Arras and La Bassee. Russians drive back Austrians in Bukowina.
16. Allies make great gains north of Arras. Russians pursue the Austrians in Bukowina and East Galicia.
17. Germans driven across the Yser Canal.
18. Russians driven back along a 200 mile front in Galicia.
20. Russian army in West Galicia in danger of being wiped out.
21. Central Powers claim to have taken 300,000 Russian prisoners since the first of May.
22. Battle on the western front at a dead-lock. Russians holding on desperately, as the enemy attack lessens its intensity.
23. Italy declares war on Austria. Rival armies face each other in anticipation of hostilities.
24. Fighting now seems to favor the Russians, who have checked the Germans on the San river. Germany declares war on Italy.
25. Italians begin drive on Trieste. England forms coalition cabinet. General von Mackensen defeats the Russians north of Przemysl and takes 21,000 prisoners.
26. British offensive against La Bassee progressing. Italians capture Austrian territory in the Trentino.
27. Italians within 16 miles of Trieste.
28. Germans checked in their attempt to reach Przemysl.
29. Turks defeated in land fighting at Gallipoli. Germans and Austrians trying desperately to surround Przemysl.
30. Russians bring up re-enforcements to save Przemysl.
31. Austrians bring up large forces to oppose the Italians, as the latter spread over the Trentino and menace Austria's chief port, Trieste.

June 1. Italians advance far into Austrian territory.
2. Austro-Germans re-take the most important defenses of Przemysl.
3. Przemysl captured. Russians retreat to new positions. Germans sending re-enforcements to the western front.
4. Lemberg the next object of attack by the Austro-Germans. Submarines active in British waters, sinking 7 vessels.
5. French gain on the Aisne. Zeppelin raid on London does great damage.
6. Italians fail in attempt to cross the Isonzo.
8. Russians fall back on Lemberg. Italians repulsed on the Isonzo.
9. Allies making gains near Arras. Russian left flank being driven in.
10. Germans fall back across the Dniester before fierce Russian attacks.
11. Russians force back the Austro-Germans.
12. Austrians fighting hard to save Trieste.
13. Germans forced to fall back in Belgium. Italians bombarding Goritz.
14. Russians lose heavily when their line in central Galicia gives way.
16. On the western front, heavy fighting going on near Ypres and Arras.
17. Austro-German drive on Lemberg progressing, the Russians retreating slowly toward their own border.
18. The Italian army operating against Trieste is forced to relinquish the offensive as the Austrians are re-enforced.
20. French gain in their drive on Souchez. Lemberg's communications to the north cut off by the continued successes of the Germans.
21. French capture "The Labyrinth," a net-work of trenches near Neuville.
22. Austro-Germans take Lemberg, the capital of Galicia; Russians retreating in good order.
25. Austrians launch counter-offensive on the Isonzo.
26. 22 Americans lost when submarine sinks the British freighter Armenia.
27. French aviators drop bombs on Zeppelin factories at Friederichshofen.
28. Austro-Germans take Halicz and cross the Dniester.
29. Italians cross passes into Austria.

July 1. Austro-Germans take fortress of Zamost, bringing their captured Russians up to 200,000 for June.
3. Germans bringing up heavy re-enforcements in the Argonne. Russians continue to give ground along their entire front.
5. Von Mackensen's armies go forward with little opposition. Germans gain in the important St. Mihiel region.
7. Russians, re-enforced, are showing indications of holding.
10. Russians are now delivering smashing blows against the Austrians.
13. Germans, under the Crown Prince, begin their expected offensive against Verdun.
14. Germans gain nearly one mile at Verdun.
15. Warsaw endangered as Hindenburg's army advances from the north, and Mackensen advances from the south.
18. Austro-Germans advance along a 1000 mile front, and almost encircle Brest-Litovsk.
19. Russians fighting desperately to save Warsaw.
21. Russians retreating in the Baltic region, the Germans making Riga their objective.
23. Austrians defeat Russians near Lublin.
25. Russian disaster due to lack of munitions. Pro-German influence in court circles hinted at.
26. Austrians seem to be on the point of evacuating Gorizia.
27. Russians still holding at Warsaw.
28. Total of 229 British ships sunk by submarines to date.
29. Pope Benedict makes appeal for peace. Allies inclined to view it as inspired by the Central Powers.
30. Italians make gains in their drive on Trieste.
31. Russian troops leave Warsaw as its capture seems inevitable.

August 1. Germans now occupying 90,222 sq. miles of enemy territory.
5. Germans take Warsaw, but capture little booty.
6. Russians now in danger from an encircling movement undertaken by Mackensen's army.
7. Germans now occupy nearly the entire Vistula line.
8. Italians forced to give up attempt on Gorizia.
9. British re-capture lost ground near Hooge.
13. French begin offensive in the Arras region.
15. Austro-Germans advance toward Kovno. Austrians bombard Belgrade.
16. British transport sunk by submarine in the Aegean Sea with the loss of 1,000 men.
18. Germans take Kovno and threaten Vilna.
19. Russian fort at the confluence of the Narew and Vistula Rivers taken by the Germans along with 85,000 prisoners. White Star Liner Arabic sunk by submarine; 54 persons lost, including two Americans.
20. Germans take Novo Georgievsk with immense booty.
21. Italy declares war on Turkey.
26. Austro-Germans take Brest-Litovsk. Russians call 2,000,000 troops to the colors in their effort to save Russia from invasion.
28. Austrians now driving the Russians from southern Galicia.
30. Hindenburg's army presses toward Riga, while Mackensen's army in the south turns north.

September 1. Austrians take Lutsk. Germans claim to have captured 1,100,000 Russians since May.
2. Russians leave Grodno, retreating over the Nieman River.
3. Serbia, in attempt to keep Bulgaria out of the war, offers territorial concessions.
8. Grand Duke Nicholas is relieved of his command of the Russian armies in the west. 26 persons killed in a London air-raid.
9. Germans make important gains in the Argonne.
11. Artillery duels along the western front presage German offensive.
14. British total losses announced as 381,983.
16. Von Hindenburg's forces surround Vilna and Dvinsk.
17. Allies demand that Bulgaria express her intentions.
18. Austrians are compelled to retire from some of the fortifications of Lemberg.
20. Germans occupy Vilna. Bulgaria orders mobilization.
21. French make gains in Champagne and Lorraine.
23. Allies send large re-enforcements to the Dardanelles.
25. Russians take the Lutsk fortifications. Allies in the west open an offensive on a 300 mile front.
26. Allies drive back the Germans in Champagne and north of Arras, taking 23,000 prisoners.
27. Italian battleship blows up with great loss of life.
28. British gain at Loos. Great Austro-German army advances against Serbia.
29. Allies in sight of Lens. Franco-British army lands at Salonika.
30. Russians drive back Germans in the Dvinsk region.

October 1. Bulgarians mass troops against the Serbians. Russians continue to hold the Austro-Germans in check.
2. Von Hindenburg's army retreats as Russians are re-enforced.
5. Italian campaign against Trieste a failure.
6. People of Greece display pro-Ally sympathies, but King Constantine urges complete neutrality.
7. French renew Champagne offensive with some success.
8. Russians are attacking along the whole front.
10. Armies of the Central Powers capture Belgrade, the Serbians retreating along the Danube.
13. Miss Edith Cavell, English nurse, shot by the Germans in Brussels for harboring Allied fugitive soldiers.
14. Serbians fall back before combined armies of Germans, Austrians, and Bulgarians. Germans regain lost ground in Champagne.
16. Germans push back Russians in the Riga district.
18. New Italian offensive develops near Gorizia.
21. Important railway connections of Serbia cut off by the invading armies.
22. Russians attempt a flank movement at Riga, aided by naval forces.
24. Germans give up direct attack on Dvinsk, and try flanking movements.
25. Serbians check Bulgarians. Fierce fighting on the western front.
26. Italy renews offensive in order to divert the Central Powers from their Serbian invasion.
28. French Premier Viviani resigns; former Premier Briand forms coalition Cabinet.
30. New Russian attack in Galicia. Germans repulsed in the Artois region.

November 1. French army in Macedonia advances toward the Bulgarian border.
3. Austro-Germans drive south toward Monastir.
4. Old Serbian capital, Nish, almost surrounded by the Teutonic Allies.
7. Bulgarians capture Nish. Allies rush re-enforcements to the Balkans.
8. U. S. note to Great Britain protesting against the Allied blockade is made public. U. S. rests its case on established precedents of international law.
9. Intense artillery duel around Loos and in the Champagne country.
10. Serbian army almost surrounded.
13. Russians drive back Germans in the Riga district.
15. Heavy fighting going on along the Styr river.
16. British and Italians trying to save the Serbian army.
19. Monastir taken by the Bulgarians.
22. British army operating on the Tigris river defeats the Turks.
23. Russians continue to gain at Riga.
24. Allies losing steadily in the Balkans.
26. Austrians attack Russians in Galicia.
27. Serbians retreating to Albania and Montenegro.
28. British army in Mesopotamia is compelled to retire down the Tigris river, being pursued by the Turks.
29. Austrians drive Italians back along the Isonzo.

December 1. Central Powers concentrate forces against Montenegro.
4. Reports from Mesopotamia indicate that the British are losing.
7. Montenegrin invasion proceeds, with the Central Powers winning.
9. British army on the Tigris entrenches at Kut-el-Amara.
10. Fighting in the Caucasus renewed, the Russians gaining ground.
11. Re-enforcements being rushed to the relief of Kut-el-Amara.
12. Allied armies compelled to retreat into Greece, involving the latter country in a delicate question of international law.
14. Prussian losses to date over 2 million men.
15. Italians land troops in Albania. Allies send re-enforcements to Salonika.
16. Greece protests against German invasion of her territory.
18. Italian campaign against Gorizia being pursued vigorously.
21. British admit retreat at Gallipoli. Greeks take positions in opposition to the Bulgarians.
24. Heavy fighting in the Vosges mountains. Austrians begin an offensive near Gorizia.
25. Turks attack General Townshend's forces at Kut-el-Amara.
27. Germans withdraw from Greece and strengthen Macedonian line.
28. Russians prepare to renew Galician offensive. Austrians attack city of Scutari in Albania.
30. British steamer Persia sunk by submarine in the Mediterranean with heavy loss of life.
31. Russians report successes against both the Germans and the Austrians.

1916

January 1. Bad weather hinders operations on all fronts.
2. French make attack in the Champagne country.
6. Russians are driving enemies from Czernowitz.
8. British relief army stopped before it reaches Kut-el-Amara.
9. Germans win positions in the Vosges. Gallipoli entirely evacuated by the British, the operation being a failure.
10. Germans attack on a five mile front in Champagne. Affairs in Montenegro desperate. British battle-ship King Edward VII sunk by mine.
11. German attack in Champagne one of the most violent in the war.
12. Armistice between Austria and Montenegro being considered.
13. Austrians capture Cettinje, capital of Montenegro.
14. Russian offensive in Galicia makes little progress.
16. Russians now attacking in Bessarabia. British bombard Lille.
17. Turks retreat before the Russians in the Caucasus.
20. Turks driven back to Erzerum.
22. British army sent to relieve Kut-el-Amara unable to reach the city.
28. Germans and Austrians take Durazzo.
29. Germans gain near Arras. 24 persons killed in Zeppelin raid on London.
30. Germans continue to gain on the western front, making gains at Frisi.

February 1. Germans prepare to attack Riga in force.
4. Austrian army transferred from Montenegro to Macedonia, to make attack on Allied positions at Salonika.
6. Belgium the scene of terrific artillery action.
8. Germans renew attempt to drive the Russians out of their positions at Dvinsk.
9. Germans make big gains near Arras.
10. The English Compulsory Military Service Act becomes effective.
11. Russians gaining in Galicia. Italians attack Austrians near Durazzo.
15. Germans take British trenches near Ypres. Turks massacre Armenians.
16. The Champagne district the scene of desperate fighting.
17. Russians take Erzerum with valuable military supplies.
18. Armenian massacres cause U. S. to make protest to Turkey.
22. Germans gain in the Artois sector and at Brabant sur Meuse.
23. German Crown Prince in command of the armies preparing to launch big offensive against Verdun.
26. Germans capture Fort Douaumont, defending Verdun.
27. French send re-enforcements to defense of Verdun.

28. German attack west of Verdun gains 1 mile of French trenches.
29. Germans continue to gain at Verdun; 16,800 prisoners captured.

March 1. Russians pursue the Turks out of Armenia.
2. Germans checked at Verdun. Austro-German offensive in Volhynia begius.
3. Village of Douaumont taken by the Germans.
6. Germans now attacking Verdun from the north, with partial success.
7. Germans, driving on both flanks, make important gains at Verdun.
8. Hardaumont, important defense of Verdun, taken by the Germans.
10. Germans suffer reverse at Verdun when French take fortress of Vaux.
11. Rumania and Bulgaria near hostilities.
12. German losses at Verdun reported to be 200,000.
13. Italians attack in force on the Isonzo.
16. Germans repulsed in attack on Dead Man's hill at Verdun.
17. Russians near Trebizond, on the Black Sea. Germans repulsed in an attack on Fort Vaux.
20. Germans at Verdun shift attack to the west, with small gains.
22. New Russian offensive extends over a front of 800 miles, from the Baltic to the Rumanian border.
23. Russians drive back Austro-Germans at Dvinsk.
26. British combined air and naval attack on the German coast ends disastrously for the attacking forces.
27. In their first offensive for months, the British gain at Ypres.
28. Germans gain possession of Malancourt, near Verdun.

April 1. Germans drive French out of Vaux. Russian offensive at Riga aided by the breaking up of the ice.
3. Germans lose heavily in attack near Vaux.
4. German attempt to break through the French lines at Douaumont is frustrated.
5. Germans now attacking to the west of the Meuse. French gain in the Douaumont sector. Another British expedition sent to the relief of Kut-el-Amara.
8. Germans prepare attack in Champagne.
9. French retire at Bethincourt. Russians besiege Trebizond.
13. Austrians fall back before the Russians in Galicia.
15. French developing counter-offensive at Verdun.
17. Russians take Trebizond. Germans losing at Verdun.
19. Germans take trenches near Eparges, south-east of Verdun.
20. French still gaining ground at Verdun. Russian re-enforcements reach France.
23. German attack on Verdun at a stand-still.
27. Germans shift offensive to the British front.
28. Kut-el-Amara surrenders to the Turks after holding out 143 days. 9,000 prisoners captured by the Turks.
29. Germans again renew attacks at Verdun, but make no gains. Rebellion in Ireland giving the English trouble.

May 1. French continue to gain at Douaumont.
4. Germans now on the defensive at Verdun.
5. Germans bring up fresh troops for new assault on Verdun.
7. French forced back at Verdun, contesting every foot of ground.
9. Germans deliver 3 attacks on Hill 304 at Verdun, but all fail.
14. Severe fighting taking place at Armentiéres.
15. French make notable gains along the Meuse. Austrians, in their Tyrol offensive, take 2,500 prisoners.
16. Austrian offensive against the Italians successful, forcing the enemy out of strongly fortified positions.
17. Strong Turkish army now opposing the Russians in Mesopotamia.
18. 3 German war-ships sunk by British submarines in the Baltic.
20. Austrians pursue the Italians, taking many prisoners.
22. French re-capture most of Fort Douaumont. New British army now in Mesopotamia.
25. Germans again in possession of Fort Douaumont, and gain ground along the Meuse. Italians still retreating.
28. Germans bombard Verdun. Bulgarians occupy Greek forts.
31. Germans succeed in isolating important Verdun defences. In a naval battle off the coast of Denmark the British lose ships with a tonnage of 105,670 tons, the German loss being 95,000 tons.

June 2. Germans attack Fort Vaux desperately. Italians making a stand on the Adige-Brenta front.
3. Germans capture important ridge from the British at Ypres.
4. Germans again unsuccessful at Vaux. Austrians capture 5,600 prisoners as they continue to drive back the Italians.
5. German attack on Vaux results in the greatest artillery battle of the war. Turks drive back the Russians 25 miles in Armenia. Lord Kitchener goes down with the cruiser Hampshire when it is sunk by a mine or a submarine off the Orkney Islands.
5. Tremendous Russian offensive along their entire front. General Brusiloff commanding. German army of 600,000 swept back. Austrians now retreating in the Tyrolese Alps.
7. Germans take Fort Vaux. Russians capture 43,000 German prisoners.
8. Russians capture fortress of Lutsk with 110,000 prisoners.
9. Austrians losing heavily as the Russians sweep on.
10. Germans make some progress south of Verdun. Russians advance toward Bukowina.
11. Russians, by taking fortress of Dubno, compel Austrians to retreat 32 miles.
12. Germans send troops to the aid of the Austrians. Pressure upon Italy removed as a result of the Russian offensive.
13. Canadian troops gain important positions at Ypres.
14. Russians advance rapidly in Galicia.
15. Italians on the offensive along the Isonzo.
18. Germans make violent attacks on Dead Man's Hill and Thiaumont.
20. Russian advance in Galicia checked by the Germans.
22. Fighting going on along both banks of the Meuse.
23. Germans take Thiaumont. Russians now in possession of Bukowina.
24. French drive back Germans at Thiaumont. Italians slowly pushing back the Austrians.
26. British launch their long-expected offensive. Austrians retreat to the mountains of Transylvania.
27. Austrians still fall back, losing valuable supplies.
28. British offensive in Flanders developing. Russians checked at Volhynia.
30. French re-take Thiaumont, but Germans win it back. Italians again in the Trentino.

July 1. Thiaumont again in possession of the French. British offense along the Somme gains 5 miles; 5,500 prisoners taken.
2. British gather in 10,000 prisoners in their advance.
4. French offensive near Péronne successful. Germans capture Thiaumont for the fourth time.
6. French hold gains on the Somme in spite of repeated assaults of the Germans. Russians advance toward Kovel, taking 10,000 prisoners.
8. British and French drive back the Germans for 1 mile on the Somme. Russians threaten Lemberg.
9. French take two and one-half miles of German trenches.
10. German attack near Verdun fails. Germans fall back before the Russians.
11. British take 7,500 prisoners. Russian advance slows down.
12. Germans re-take some lost ground on the Somme.
14. British make notable gains on the Somme.
15. British take Delville Wood, capturing 2,000 Germans.
17. Russians drive the Germans across the Lipa river.
18. Germans making fierce counter-assaults on the Somme.
19. Russian invasion of Hungary begins, the Austrians retreating.
20. French and British make gains along a 6 mile front, taking 2,800 prisoners.
21. Russians cross the Lipa river in pursuit of the Germans. Russians recovering lost ground in Armenia.
24. Fighting along both fronts favors the Allies.
26. Allies capture Poziéres. Russians trying to encircle Lemberg.
27. Russians take 70,000 prisoners around Brody.
28. British win Longuèval.
29. Recent Russian offensive has resulted in the capture of 350,000 prisoners.
30. Germans fall back before French and British attacks.

August 1. Russians gain in drive on Lemberg. Turkish troops sent to the relief of the Germans and Austrians.
2. Germans renew offensive at Verdun.
3. French counter-offensive at Verdun results in big gains at Fleury and Thiaumont.
4. French re-take Thiaumont, which has changed hands 4 times.

5. British take 1 mile of German trenches at Poziéres.
6. Russians reach the west bank of the Sereth river.
7. Italians advance on the Isonzo, taking 3,600 prisoners.
8. Italians win bridge-head near Goritz, the key to Trieste.
9. Germans drive French from most of Thiaumont. Italians take Goritz, with 10,000 prisoners.
11. Russians take Stanislau. Austrians in full retreat toward Halicz.
12. French successful in attack around Hardecourt.
15. Russians capture important pass in the Carpathians. Italians within 13 miles of Trieste.
16. Allies gain on the Somme. Russians advance through the Carpathians.
17. French consolidate their gains on the Somme. Russians seem to be checked at all points.
19. Along the Somme, the British penetrate 600 yards of German trenches for a distance of 6 miles. French gain Fleury, defending Verdun.
20. Allied offensive begins in the Balkans.
21. Terrific battle along a 150 mile front in the Balkans.
22. German salient near Thiepval and Poziéres reduced.
23. French gain at Thiaumont.
24. French and British gain at Maurepas and Thiepval.
25. British take 700 yards of German trenches on the Somme. Russian offense at a stand-still.
26. Bulgarians and Greeks now fighting.
27. Rumania declares war on Austria-Hungary. Italy declares war on Germany.
29. Rumanian army joins the Russians. General von Hindenburg succeeds von Falkenhayn as Chief-of-Staff of the German armies.
30. Rumanian armies attack the Austrians and the Bulgarians.

September 1. Russians take 15,790 prisoners and 60 cannon.
2. Serbians drive back Bulgarians in Macedonia. Rumanians make gains.
3. In a well-prepared drive the French and British take 3,000 German prisoners, occupying Guillemont and Le Forest.
6. Allied drive threatens the important German positions at Combles.
7. French take German trenches at Verdun. Russians drive back the Germans at Halicz.
8. Bucharest, Rumanian capital, threatened. Russians send aid to the Rumanians, who are hard-pressed by the Bulgarians.
13. Allies, under Gen. Foch, drive wedge into the German lines between Combles and Péronne, taking 2,300 prisoners. Germans invading the Dobrudja opposed by the Russo-Rumanian army.
15. British use armored tanks for the first time. Allies in the Balkans drive back the Bulgarians. Germans win in the Dobrudja.
17. Two-mile trench system of the Germans at Thiepval taken by the British. Russian attacks drive Austrians and Germans toward Lemberg.
18. British take "The Quadrilateral" (elaborate trench system). Allies driving the Bulgarians out of Macedonia. Germans force banks of Belgium to loan them 1 billion francs.
21. Russo-Rumanians stop the progress of von Mackensen's army.
22. British and French continue to advance toward Combles and Bapaume.
25. French and British gain north and south of Combles.
26. Combles taken by the Allies. British capture Thiepval.
27. 5,000 prisoners taken by the allies in the last two days.
28. Russians announce that they have taken over 400,000 prisoners in their recent drive.
29. Allies on the western front begin encircling movement around Le Transloy. Germans defeat the Russians around Kovel.
30. Rumanian army in Transylvania almost wiped out by the Germans.

October 1. Tanks aid British in their drive on Bapaume. Russians press toward Lemberg, taking many prisoners
2. British almost encircle Le Sars. Russians stopped in their drive on Lemberg.
6. Great battle for Lemberg taking place. Allies gain near Bapaume.
7. Le Sars taken by the Allies, putting them within 2 miles of Bapaume.
8. Germans regain some lost ground on the Somme. French and Serbians win important positions in Macedonia.
10. Rumanian armies about wiped out as fighting organizations.
12. Italians pressing toward Trieste.
16. Allies recognize Venizelos' provisional government in Greece.
17. Germans claim Allied Somme drive is a failure. Greece practically in control of the Allies.
18. Commanding positions on the Somme taken by the Allies. Russians re-enforce Rumanians and stop invasion of the Dobrudja.
19. French reach outskirts of Peronne. In great battle, Germans take the offensive against the Russians.
20. Von Mackensen's army defeats the Rumanians in the Dobrudja.
21. Austro-Germans begin great offensive in Galicia. Germans almost reach Costanza, on the Black Sea.
23. German counter-attack on the Somme a failure. Serbians advance toward Monastir, the Bulgarians falling back.
24. In the greatest advance yet made, the French take Douaumont, Thiaumont, and other posts at Verdun, all former gains of the Germans at Verdun being wiped out.
26. German counter-attacks on Verdun fail.
30. Germans re-gain lost ground on the Somme.

November 1. French report taking 6,911 prisoners the last week.
2. Germans give up the last fort at Verdun held by them.
4. Kingdom of Poland re-established by joint decree of the Emperors of Austria and Germany.
5. Allies gain in the west, capturing positions near Bapaume. Rumanians suffer serious defeat by the Austrians.
9. Russo-Rumanian army holds back von Mackensen.
10. Germans, in surprise attack, capture 4,000 Russians in the Pinsk region.
11. Much aerial activity on the western front. Battle for the Dobrudja continues.
13. British take German trenches on a five-mile front near Ancre, capturing 3,000 prisoners.
14. British advance along the Somme, taking Beaucourt sur Ancre, with more than 5,000 prisoners.
17. Bulgarians retreat to Monastir. Germans sweep through the Dobrudja.
18. Allies capture Monastir.
21. Serbians in pursuit of the Bulgarians. Emperor Francis Joseph of Austria dies at the age of 86.
22. Rumanian situation apparently hopeless. British hospital ship, Britannia, sunk by a submarine with loss of 50 lives.
24. Germans now within 50 miles of Bucharest, capital of Rumania. Provisional government of Greece declares war on Germany and Bulgaria.
28. Rumanian government leaves Bucharest. Germans take important supplies in Wallachia.

December 1. Battle on the eastern front extends 600 miles. U. S. protests to Germany against Belgian deportations.
3. Armies of the Central Powers winning on the eastern front. By agreement with her Allies, Russia is to get Constantinople and the Dardanelles after the war.
5. British Cabinet resigns.
6. Bucharest captured by the Germans. David Lloyd-George becomes Prime Minister of England, succeeding Herbert Asquith.
7. Germans now on the offensive at Verdun.
11. Germans impose levy of one hundred and forty millions of dollars on Rumania.
13. Rumanians retreat toward Moldavia, followed by the Germans.
14. Allies fear that Constantine of Greece is plotting to enter into an alliance with Germany.
15. French defeat Germans at Verdun, taking 7,500 prisoners.
18. Recent attacks of the Germans at Verdun cost them 11,387 men, not counting those wounded or killed. Rumanians now in Russia. Armies of the latter country now holding a front of 1,000 miles unassisted.
20. Pres. Wilson sends peace note to all the warring powers asking them on what terms they will make peace.
24. Pope Benedict endorses the Wilson note; belligerents evasive.
27. Russians are routed near the Moldavian border and lose 9,000 men.

1917

January 4. British army on western front announced as 2,000,000 men.
5. Central Powers now in possession of all the Dobrudja. Greek government rejects Allied demand for reparations.
8. Great battle between the Russians and the Austro-Germans on the Sereth river ends in the retreat of the Russians.

11. Greece accedes to Allied demands in order to avoid drastic action. Allies, in their joint reply to the Wilson note, hold out for freedom of the small nationalities and indemnities from Germany.
18. Germans evacuate important positions on the Somme.
23. 7 German torpedo-boat destroyers sunk by British flotilla off Zeebrugge.
24. Russians cut off and almost annihilate Bulgarian army in Bessarabia.
26. British army in Mesopotamia now moving against the Turks.
29. Hill 304 at Verdun the scene of heavy fighting, the French making 4 unsuccessful attempts to take it. British drive back Turks on Kut-el-Amara.

February 1. Germany's unrestricted submarine warfare opens with the sinking of 10 ships.
2. Pres. Wilson, in an address to Congress, announces that the German Ambassador, Count von Bernstorff, has been given his passports, and that the U. S. Ambassador has been recalled from Germany.
7. German submarines sink ships with a total tonnage of 25,669 today.
8 U. S. merchantmen given permission to carry guns for defense. British capture Grandcourt, and proceed beyond.
10. British gain foot-hold on the Bapaume road.
13. Russia calls 1 million more soldiers to the colors.
14. Norway, Denmark, and Sweden protest against the submarine war being carried on by Germany.
16. Germans take 4 lines of trenches on a mile front in Champagne. Allies expecting a big German drive.
17. British army in Mesopotamia shuts up the Turks in Kut-el-Amara.
18. Allied blockade of Germany resulting in much suffering.
21. One year since the battle for Verdun began.
23. Heavy artillery fire along the western front indicates offensive.
24. Germans retire at Ancre before British attacks.
25. Germans give up 3 miles at Ancre.
26. Kut-el-Amara captured by the army of General Maude. 3 Americans lose their lives when the steamer Laconia is sunk.
28. British now 1 mile from Bapaume. Total tonnage of ships sunk by submarines since Jan. 1, 400,432 tons.

March 1. Turkish loss in Mesopotamia over 20,000 men.
2. Germany announces that no warning will be given to any ship within the restricted sphere. U. S. Congress appropriates $535,000,000 for the navy.
3. German Foreign Secretary Zimmermann admits trying to stir up the Mexicans and Japanese against the U. S.
6. Austria-Hungary, in a note to the U. S., endorses Germany's submarine warfare.
8. Report of British Commission blames Lord Kitchener for the disastrous failure at Gallipoli.
9. Pres. Wilson calls Congress into special session.
10. British resume offensive at Ancre, taking 3 miles of trenches.
11. British army under General Maude captures Bagdad. Instructions issued to naval officers on U. S. merchant ships to fire at sight on submarines.
13. British advance nearer to Bapaume. Russians winning in Persia.
15. British begin to encircle Péronne. Revolution in Russia results in the abdication of the Czar. Pro-German ministers imprisoned.
16. Council of Ministers, chosen from the Duma, administers affairs in Russia.
17. Germans retreat from 2 to 4 miles on the western front along a line of 35 miles.
18. British take Péronne. Germans retire on a 100 mile front. Turks suffer defeat in Mesopotamia, Armenia, and Persia.
20. Russia still undecided as to whether to establish a monarchy or a republic.
21. Germans now making a stand on the "Hindenburg" line.
22. Germans holding firm at St. Quentin and Le Fere.
23. New Russian government officially recognized by the Allied nations.
24. French capture important German fortifications at Le Fere, thereby endangering the German positions at St. Quentin. Grand Duke Nicholas removed as Commander of the Russian army.
27. British advance toward Cambrai. French take forest of Coucy.
28. General Nivelle begins new offensive south of Laon.
29. Germans lose near St. Quentin and Cambrai.

April 5. U. S. House of Representatives passes war resolution. Germans begin offensive near Rheims.
6. Pres. Wilson signs declaration of war against Germany. Mobilization of U. S. Naval forces ordered. Army bill approved by Congress providing for 1 million men, to be raised by selective draft. U. S. seizes German ships interned in the U. S., with a tonnage of over 600,000.
8. Austria-Hungary breaks off relations with the U. S. British begin offensive north and south of Arras, taking 6,000 prisoners.
10. Pres. Wilson commended by ex-Pres. Roosevelt. British drive at Arras goes on over a 12 mile front; 11,000 prisoners and 100 guns taken. Food situation in England causes worry. New Russian government disclaims any intention of adding territory by conquest.
12. British attack between Vimy Ridge and Givenchy successful.
13. North of Arras the French drive back the Germans.
14. U. S. House of Representatives passes 7 billion dollar war loan. British advance on the Bapaume-Cambrai road. Lens almost surrounded.
15. British patrols enter Lens. Germans destroy mines as they retreat.
16. French begin offensive along a 25 mile front between Soissons and Rheims; 10,000 Germans taken. Congress of the Council of Workmen's and Soldiers' Delegates demands greater share in Russian government.
18. French capture 17,000 Germans in their latest drive.
19. Germans bring up 240,000 soldiers to oppose General Nivelle.
20. Germans compelled to retire to the Hindenburg line.
22. British Commission, headed by Arthur Balfour, reaches U. S.
23. U. S. prepares to build ships to replace Allied losses.
24. French War Commission, headed by ex-Premier Viviani and Field Marshal Joffre, reach the U. S. Fighting along the Aisne and at Arras almost continuous.
25. U-boat activity reaches its height; situation serious for the English.
28. U. S. War Department announces plans for draft. Liberty Loan of 5 billions arranged by Secretary McAdoo.
30. French gain in the Champagne district. Discipline in the Russian army now at a low ebb, many desertions taking place.

May 1. Ships now being sunk faster than they are being built.
3. New British offensive results in the capture of Fresnoy and part of the Hindenburg line where it joins the Wotan line. Serious rioting reported from Petrograd.
4. U. S. first draft of 18,538 officers and 528,659 men announced. The French, between Craonne and Laon, capture first line trenches.
5. Allies plead with the U. S. to rush troops to Europe. French cut a salient of 4 miles from the Hindenburg line, taking 4,300 prisoners.
6. French continue to gain. Russians abandon Mush to the Turks.
8. Germans re-capture Fresnoy.
9. Provisional government of Russia unable to control the situation.
12. British advance on a 3 mile front on the Drocourt-Queant line. Council of Soldiers' and Workmen's Delegates decides not to support the Russian Provisional government.
15. Russian Commanders, General Brusiloff and General Gurko, resign.
16. U. S. Senate denounces Pres. Wilson for executive usurpation. U. S. lends Russia 100 millions of dollars. Russian Foreign Minister Miliukoff resigns.
18. 10 million Americans expected to register under the Draft act. 25,000 U. S. regular soldiers prepare to sail for France under General Pershing.
19. Herbert Hoover becomes Food Administrator of the U. S.
24. Rear-Admiral Sims appointed Vice-Admiral of the U. S. Navy. Italians capture 10,000 Austrians in a new drive for Trieste.
28. Workmen of Russia make impossible demands from their employers.
29. Italian captures total 23,000 prisoners since May 1st.

June 6. Russian radicals seize Cronstadt and set up independent government.
7. British capture salient near Ypres which has been held by the Germans for 2 years.
8. Gen. Pershing reaches England. British take 8,000 Germans at Ypres. Germany invites Russia to make separate peace.

11. British smash German trench system near Messines.
12. British continue to gain near Ypres. King Constantine of Greece abdicates.
13. British go two miles beyond Messines.
22. Sailors of the Russian Black Sea fleet rebel. Germans transferring troops from the Russian front to France.
27. Reports indicate that the submarine menace is lessening. Venizelos becomes Premier of Greece.
28. Russian Duma refuses to resign at the request of the Radicals.
29. Greece breaks off relations with Austria, Turkey and Bulgaria. Italians defeated by the Austrians in the Julian Alps.

July 1. Russian army in Galicia shows signs of activity.
5. British make gains south of Ypres.
6. German air-raid kills 37 Londoners.
8. German food situation relieved by importations from the Scandinavian countries.
11. Russians advance toward Halicz. Submarine losses decrease.
13. German Chancellor, Bethmann-Hollweg, resigns.
16. Controversy in the U. S. Shipping Board holds up building program. Germany declares her willingness to make peace on the basis of "status quo ante bellum."
20. Mutiny in the Russian army goes on. Premier Lvoff resigns.
21. Germans meet with little resistance by the Russians.
22. Crown Prince's army at Verdun again on the offensive.
24. Chairman Denman and General Goethals of the U. S. Shipping Board resign.
25. Russians evacuate Czernowitz, retiring without giving battle.
29. Premier Kerensky making a last effort to reorganize the Russian army.
31. Over a 20 mile front, the British and French advance to the German second and third line trenches, taking 3,500 prisoners.

August 3. Premier Kerensky and General Brusiloff resign.
5. British advance at Lens. Kerensky withdraws his resignation, and is given a vote of confidence by the joint councils.
10. Great battle raging in Flanders. British gaining at Lens.
14. Pope Benedict appeals for peace.
15. Canadian troops isolate Lens.
16. Lloyd-George announces that the submarine menace is less serious. British take 2,700 prisoners in Flanders.
20. French smash German lines north of Verdun. Italians capture 7,000 Austrians in their latest drive for Trieste.
24. U. S. makes another loan of 100 million dollars to Russia.
25. Italians win a great victory on the Isonzo.
26. General Petain's troops gain at Verdun. Italians report capture of 23,000 Austrians.
27. Pres. Wilson announces plans to prevent Germans from getting supplies through neutral countries.
28. Pres. Wilson replies to Pope Benedict to the effect that the U. S. is in the war to rid the world of the menace of German militarism.

September 1. New offense by the French in the Aisne sector. Germans advance on the Riga front. New revolution in Russia taxes strength of the Russian government.
2. Riga taken by the Germans.
4. German air-raid on London kills 107.
9. Italians suffer serious check at Monte San Gabrielle.
10. Kerensky deposes General Korniloff as a rebel, and declares martial law.
11. Paul Painlevé becomes Premier of France, succeeding Ribot.
12. French gain in the Champagne country. Kerensky in danger from the rebels under Korniloff.
16. Kerensky declares Russia a republic, but the Cossacks, under General Kalendine, hold the balance of power.
19. The Maximalists of Russia cause the Kerensky government trouble.
24. Official announcement is made that U. S. soldiers are at the front.
27. New Liberty Loan of 3 billions announced by Secretary McAdoo.
28. Great Britain urges the U. S. to hurry her ship-building program.

October 2. England shuts off all exports to the Netherlands and the Scandinavian countries.
4. East of Ypres, the British capture more than 3,000 Germans.
6. Indications point to civil war in Russia.
9. Allied drive endangers German submarine bases in Belgium.
10. Secretary of State Lansing produces documents showing that in 1916 Germany was plotting sabotage in the U. S. munitions factories.
12. British continue to gain in Flanders. Mutiny in the German fleet results in the resignation of Vice-Admiral von Capelle, Marine Minister.
13. Petrograd lies open to the Germans as a result of the occupation of the entire Riga district.
17. German agents in the U. S. cause much trouble.
18. Lack of fuel causes alarm in Italy. U. S. relied upon to relieve the situation through large coal exports.
19. U. S. transport Antilles sunk by submarine with loss of 70 men.
21. Program of the Russian Radicals calls for the neutralization of the Panama Canal, and the return of the German colonies, along with other things acceptable to Germany.
22. Germans nearing Petrograd. Shake-up in the French Cabinet expected.
23. French take 7,500 prisoners, and drive forward 2 miles north of the Aisne.
24. German re-enforcements enable the Austrians to drive back the Italians along a 23 mile front.
25. Recent drive of the French gathers in 12,000 Germans. Austro-German offensive is one of the largest operations of the war.
26. 30,000 Italians captured by the Austro-Germans. Italian Cabinet resigns.
28. Russian soldiers fraternizing with the Germans. Kerensky goes to the front to restore discipline. Von Mackensen is in charge of the drive against Italy. 100,000 Italians captured.
30. U. S. extends credit of 230 millions to Italy.
31. 1000 square miles of Italian territory now in possession of the enemy.

November 1. Announcement is made that the Germans have lost almost half of their submarines. French and British troops go to the aid of Italy.

2. Germans retreat from the Chemin Des Dames, north of the Aisne, and east of Soissons. Kerensky asks for Allied assistance.
3. American soldiers killed in German trench raid. Germans evacuate positions on the Aisne for a distance of 13 miles. French take 200 heavy guns, 222 trench guns and 720 machine guns.
4. French occupy Cerny, and Craonne.
5. Italians fall back behind the Tagliamento river, pursued by the Austro-Germans.
6. Important ridge in Flanders taken by the Canadians. Italians in full retreat toward the Piave river.
7. Revolutionaries in Russia seize important buildings in Petrograd. Kerensky exhibits weakness when he fails to use force against them.
8. Austro-Germans have captured 250,000 Italians in past few days. Bolsheviki now in control of Petrograd. Kerensky flees. Radicals demand immediate peace with Germany.
9. General Diaz succeeds General Cadorna as Commander-in-Chief of the Italian army. Lenine, Bolshevik leader, appeals for army support.
10. Allies make stand on the Piave river. British army in Palestine wipes out the Turks.
12. Two Russian armies fighting each other. Street fighting goes on in Petrograd. American soldiers experience their first gas attack.
14. Germans trying to encircle the Allies on the Piave.
16. Italians prepare to evacuate Venice. Kerensky's forces defeated by the army of the radicals. Georges Clemenceau now Premier of France.
17. Kerensky disappears when Bolshevik leaders order his arrest.
19. Austro-Germans bring up large guns for their attack on the Italian positions on the Piave.
20. Bolsheviki preparing to take Russia out of the war. Germans driven back over a 35 mile front near St. Quentin.
21. British smash the Hindenburg line over a 32 mile front, tanks being used very effectively. Prisoners taken number 10,000.
22. Allies holding their lines in Italy in face of terrific attacks.
23. Germany sends representatives to discuss peace with the Bolsheviki.
26. Fifty German submarines sunk since Nov. 1.

27. German staff officers now acting as advisors to Lenine. Italians drive back the Austro-Germans between the Brenta and the Piave.
29. Sweden acting as Bolshevik agent in transmitting peace terms to the Central Powers.
30. Germans drive back the British for 2 miles on the Bapaume-Cambrai road.

December 1. British recover some of the ground lost the preceding day.
2. Germans now have the advantage in the fighting around Cambrai.
5. Sec. of the Treasury McAdoo estimates that the war will cost the U. S. 36 billions of dollars. British positions near Cambrai endangered. Germany and Russia sign armistice agreement.
6. New German advance in Italy results in the capture of 10,000 prisoners. British take up new positions at Cambrai. Collision in Halifax harbor results in the blowing up of the munitions ship Mont Blanc. 1,500 persons killed.
7. U. S. declares war on Austria. Hostilities cease on the Russian front.
10. Jerusalem captured by British forces.
12. Germans make vigorous attack between Bullecourt and Queant. Submarine sinkings increase.
14. German-Russian peace negotiations going on at Brest-Litovsk.
19. Italy again endangered by strong pressure of the armies of the Central Powers.
21. The republic of Ukrania is proclaimed, being the first break in the old Russian empire.
23. Italians make successful counter-attack.
24. German Emperor's Christmas message to the army states that "the Lord is the avowed ally of the German people."
26. Railroads of the U. S. pass under the control of the Federal government. Italians lose positions in the Asiago Plateau.
28. Bolshevik Foreign Minister Trotsky asks Allies to announce basis on which they will make peace.
31. French and Italians more than holding their own against the Germans.

1918

January 2. German negotiators at Brest-Litovsk seeking to impose harsh terms on Russia.
8. Pres. Wilson, in an address to Congress, outlines the peace program of the U. S., including reduction of armaments, an association of nations to preserve peace, and the abolition of secret agreements.
12. British destroyer goes down, with all on board lost.
19. Republicans in U. S. Congress try to force Pres. Wilson to form a coalition Cabinet.
20. Russian Constituent Assembly is broken up by the Bolsheviki.
21. Internal chaos in the Austro-Hungarian Empire interferes with the participation of that state in the war.
22. Cold weather and fuel shortage lead to adoption of drastic measures by the government of the U. S.
23. Increasing artillery action along the western front indicates the imminence of a big German offensive. Austro-Germans forced to take up new positions in Italy.
26. Fires and explosions in U. S. munitions factories indicate the activity of German spies.
29. Germans withdraw nearly all their troops from the Russian front.
30. U. S. soldiers in France take over their first independent sector.
31. Strikes in Germany impeding operations.

February 1. Bolshevik forces take Odessa from the Cossacks.
6. Transport Tuscania, carrying U. S. troops to Europe, is sunk by a submarine with a heavy loss of life.
9. Germany completes the concentration of an army on the western front estimated at 3 million men.
20. Fighting on the western front increases in violence. French capture 400 Germans in Lorraine. St. Quentin the scene of much activity.
21. Food and war material taken from the Russians by Germany aids the latter country at a time when it is most needed.
24. Bolshevik leaders accept German peace terms, including the surrender of 100,000 square miles of territory, indemnity of $1,500,000,000, and German occupation of Petrograd.

March 2. Artillery fire along the western front the most intense of the war.
6. German army now out-numbers the Allies. Rumania makes peace with the Central Powers, giving up the Dobrudja.
8. Activity in the Dixmude-Ypres sector, the Germans attacking.
12. German air-raid kills 94 persons in Paris, mostly women and children.
15. Bolshevik conference ratifies peace with Germany. The Russian Empire is almost dismembered by the loss of territory.
17. Nearly 500,000 Americans now in France.
21. Big German offense opens. After a furious bombardment the Germans attack on a 50 mile front.
22. British compelled to retreat, being outnumbered by the Germans, who take 16,000 prisoners.
23. First stage of the great offensive ends with Germans occupying advanced positions from Arras to Le Fere. British retire 9 miles below St. Quentin. Northwest of Cambrai, the British retreat 4 miles.
24. Germans have now re-taken one-half of the territory they gave up in 1916. Germans cross the Somme near Péronne.
25. Germans take Bapaume, Nesle, and Guisard. French retreating. Germans prepare to bombard Paris.
26. British fall back farther, the enemy taking Miraumont, Braiche, and Baleux, crossing the Ancre.
27. Germans take Albert and advance on both sides of the Somme. German casualties estimated at 400,000.
28. Allies hold the Germans in check, the French gaining ground. German losses enormous, due to their mass attacks.
29. German offensive fails to accomplish its purpose thus far. German long-range gun kills 75 persons in a church in Paris.
30. General Foch placed in supreme command of all Allied armies.
31. British repel all attacks. French take Moreuil.

April 2. Turks reported to be in possession of most of Armenia.
5. Great battle in progress on a 35 mile front from Grivesnes to north of Albert.
8. Germans go forward slowly, and with great losses.
9. Along an 11 mile front, from Givenchy to La Bassee, the British are driven back 4 miles.
10. Germans gain north of Amentieres, capturing 6,000 prisoners. The failure of the U. S. air-craft program a serious blow to the Allies.
11. British retreat 6 miles at some points in Belgium.
12. Affairs on the western front have reached a crisis for the Allies. Field-Marshal Haig says "We are fighting with our backs to the wall."
16. Germans now going forward in their drive for the Channel ports. They capture Bailleul, thus threatening the ports most used by the Allies.
17. British retreat to new positions east of Ypres. Germans take Poelcapelle and Langemarck.
18. Germans now attacking west of La Bassee and Givenchy. Disorder in Austria due to the minor nationalities demanding autonomy.
19. Lull on the western front. Rheims has been completely destroyed.
23. Allies now out-numbered about 640,000. British flotilla fails in its attempt to block up the harbor of Zeebrugge.
24. German attack south of the Somme fails.
25. Along the northern edge of the Lys salient the Allies give up positions, tanks being used by both sides.
26. Germans capture Mont Kemel, most important position on the Lys salient.
28. Battle for Ypres now taking place.
30. Germans fail to gain at any point. U. S. losses so far: killed in action, 588; died of wounds or diseases, 1,311; wounded, 555.

May 1. Flanders again the scene of terrific artillery duels.
2. Germans occupy Sebastapol, thus controlling the Black Sea.
3. French take important positions at the apex of the Somme salient, at the nearest point to Amiens. U. S. has launched ships with a total tonnage of 1,576,877 during the past year.
4. Airplane fights reach their maximum, as many as 100 planes being engaged at one time.
5. Austria prepares for offensive against the Italians.
6. Australian and Canadian troops make appreciable gains in Flanders and Picardy.
7. Germans make preparations for another tremendous blow.
9. Submarine losses for April, 1918, only one-half their number in 1917.
11. U. S. draft has secured 1,300,000 men so far.
12. Central Powers compel Rumania to pledge her bank balances for 5 years.

15. Artillery fire heavy today, especially on the Somme and the Ancre.
17. American sector in Picardy heavily bombarded. 25 German planes destroyed.
19. Canadians take Ville sur Ancre, an important position.
27. Great German offensive renewed on the entire front. British forced back to their second line trenches in Flanders. In the Aisne valley, the Germans, attacking in mass formation, make some gains but suffer great losses.
28. Germans advancing everywhere, especially in the Aisne sector. 15,000 men captured by the Germans. Latter cross the Vesle river.
29. On the Aisne front, the Germans push the point of the salient forward. Germans take Soissons. French withdraw from many points as the enemy sends forward tremendous numbers of troops.
30. French check Germans on the eastern wing.
31. Germans reach the Marne at one point. 45,000 Allies taken. U. S. transport President Lincoln sunk by submarine, with loss of 23 lives.

June 1. German front on the Marne now extends 13 miles.
2. Germans now trying to reach Villers-Cotterets, one of the defences of Paris, down the Ourcq valley.
3. Germans fail to gain, the French bringing up reserves. German submarines now operating off the U. S. coast, doing great damage.
5. Germans try unsuccessfully to deepen their salient threatening Paris.
6. French and American troops, near Chateau-Thierry, drive back the Germans one mile on a two mile front.
7. French and Americans again advance, capturing strategic positions.
8. Desperate fighting going on in the Marne salient.
9. Germans now attacking on a 20 mile front between Montdidier and Noyon.
10. Germans make little gains, their losses being enormous.
11. Counter-offensive of the Allies between Montdidier and Noyon results in the capture of 1,000 prisoners. French take valuable points. Americans take Belleau Wood and 300 prisoners.
12. Germans reach the Oise, forcing the French to retire. West bank of the Oise now entirely in German possession.
15. Allies think that Paris has been saved. Austria opens attack on the Italians from the Asiago Plateau to the sea.
17. Austrians cross the Piave at several points.
19. Violent German attacks near Rheims repulsed.
20. Austrian advance on the Piave held up by floods. Strikes and rioting in Vienna cause the government much alarm.
22. "Rainbow" division of the U. S. army completes its 100th day at the front, and is cited for gallantry.
23. Germans attack Americans at Chateau-Thierry. Mobs in Vienna, desperate from hunger, threaten the government.
24. Austrians retreat in disorder from the Montello Plateau and the right bank of the Piave.
28. French and British, at extreme points, beat back the Germans, taking 1,000 prisoners.

July 2. Italians now on the offensive, being assisted by U. S. troops. Americans capture 1,000 Germans at Chateau-Thierry.
3. Italians, on the lower Piave, strike heavy blow at the invader. Czecho-Slovakian rebellion now admitted by Austria. Czecho-Slovaks now fighting the Bolsheviki in Siberia, taking Vladivostok.
4. Australians and Americans make big gains near Amiens over a 4 mile front, taking 1,500 prisoners. The French in an action between Autreches and Moulin sous Touvent, capture 1,066 prisoners.
9. Allies continue to drive back the Germans.
10. Austrian retreat from Italy becomes a rout.
11. Czecho-Slovakian troops in Siberia defeated by the Bolsheviki.
12. 300,000 U. S. troops now in front-line trenches on the western front.
15. Allies strike new blow, this time near Rheims. Fighting extends 65 miles, around the bend of the Marne to Chateau-Thierry and east along the Champagne line. Americans capture 1,500 prisoners.
17. General Pershing's troops drive the enemy across the Marne. Quentin Roosevelt, son of ex-President Roosevelt, killed in airplane battle.
18. French and Americans drive back the German Crown Prince's army for a distance of 8 miles, in the Soissons sector. Americans clear the south bank of the Marne of Germans.
19. French and Americans advance 2 miles, taking 17,000 prisoners in 2 days. British and Australians gain.
20. Germans retreat, giving up important positions.
21. French take Chateau-Thierry. Battle going on between the Marne and the Aisne, north of Ourcq. Americans have taken 17,000 prisoners.
22. Germans retreat slowly. Americans take 6,000 more prisoners.
23. Germans throw in re-enforcements, and hold their lines.
24. French take Brecy. French troops in Albania clear that country of the enemy. Submarine sinkings the lowest since 1916.
25. Strike of British munitions workers involves 200,000 persons.
26. French go forward in the Champagne country.
27. Germans retreat all along the north bank of the Marne.
28. French cross the Ourcq in pursuit of the enemy.
30. German counter-attack against the Americans fails. Latter go forward 2 miles north of Fere-en-Tardenois.

August 2. French enter Soissons and capture other positions.
3. Allies, on a 31 mile front, press toward the Vesle river. 50 villages wrested from the Germans.
4. Germans retreat for a distance of 6 miles between Montdidier and Moreuil, near Amiens. Fismes captured. Allies cross the Aisne near Soissons. Americans take 8,400 prisoners.
6. Allies wipe out completely the German salient between Soissons and Rheims.
7. Anti-Bolsheviks establish a government at Archangel. Russia considering a declaration of war against the Allies.
8. Allied offensive in Picardy results in an average gain of 5 miles. 10,000 prisoners and 100 guns taken.
9. Allies in Picardy advance 14 miles at some points, taking 17,000 prisoners.
10. Montdidier taken. Prisoners taken the past two days number 24,000.
13. Czecho-Slovaks formally recognized by Great Britain.
14. French take Ribecourt.
17. Japan lands troops in Vladivostok to fight the Bolsheviki. Americans in France now number nearly 1,500,000.
19. French strike between the Aisne and the Oise, advancing for two miles and taking 2,200 prisoners.
20. French take 8,000 more prisoners in an advance of 2 miles.
21. Northwest of Soissons, the French drive back the Germans 5 miles on a 15 mile front.
22. French advance 7 miles north of Soissons. Important town of Albert taken by the British, who advance 6 miles.
23. British drive now extends over a 30 mile front.
24. Bray, Thiepval, and other villages taken by the British.
25. British gain north and south of Bapaume.
26. Important positions on the Hindenburg line taken by the British.
27. French take Roye and go on for 2 miles. British cross the Hindenburg line near Arras, threatening Péronne.
28. French reach the Somme, going through the German lines for 8 miles at some points.
29. Noyon taken by the French; Bapaume taken by the British who close in on Péronne.
30. Allies stop to consolidate their lines. Lenine, leader of the Bolshiviks, shot and almost killed by an assassin.
31. Australians take Mont St. Quentin with 1,500 prisoners. Allies supreme in the air, despite the failure of the U. S. to carry out its program.

September 1. Australians take Peronne with 2,000 prisoners. Allies have now almost wiped out the Lys salient.
2. British break through the Queant-Drocourt line over a 6 mile front. Allies have taken 128,302 prisoners in the past two weeks.
4. Germans retreat on a 20 mile front north of the Vesle. British going forward on a 15 mile front north of Péronne.
5. French capture 30 towns on the Ailette front.
6. French and British gain 6 miles on a front of nearly 100 miles.
7. Allied drive gathers momentum as it sweeps on, gathering in scores of important positions and thousands of prisoners.
8. British now in possession of the lines they held at the time of the German drive of March, 1918.
18. French and British, north and south of St. Quentin, advance steadily.
19. British capture 10,000 prisoners in 2 days. In Macedonia, the combined Greek, French, and Serbian troops rout the Bulgarians.

22. British advance at 4 points, the greatest gain being made in Belgium. Turkish army in Palestine completely destroyed.
23. Allies in the Balkans crush the German-Bulgarians, taking supplies and prisoners.
25. British take the town of Selency and 1,000 prisoners. Bulgarians now in their own country, with the Allies in pursuit.
26. U. S. troops, attacking between the Meuse and the Aisne, break through the Hindenburg line for 7 miles, taking 5,000 prisoners.
27. French, east of Rheims, gather in 10,000 prisoners. British, aided by the Americans, take defenses of Cambria and 6,000 prisoners.
28. Allies going forward everywhere. Bulgaria refused an armistice.
29. Dixmude taken by the Allies with 5,500 prisoners. Germans prepare to make stand on the Kreimhilde line.
30. Allies near St. Quentin and Cambrai. Bulgaria surrenders unconditionally. German Chancellor, Vice Chancellor, and Foreign Secretary resign.

October 2. Germans prepare to evacuate Lille. Allies take St. Quentin.
3. French have cleared the country north and west of Rheims. British occupy Armentiéres and Lens. 60,000 Germans taken in the last week.
4. Germans evacuate all the Belgian coast. The Allies are now supreme in the Balkans.
5. Germans retreating rapidly everywhere. Allies go forward almost unopposed. Austria wants to propose an armistice.
6. Germans give up positions near Rheims. Germany proposes peace on the basis set forth by Pres. Wilson.
7. Americans attack on a 15 mile front between the Argonne and the Meuse. Reports from Germany indicate a hopeless feeling there.
8. Allies take the last of the Hindenburg line. Pres. Wilson replies to Germany and Austria, asking if they will accept the terms of his peace address to Congress.
9. Americans go forward almost at will between the Argonne and the Meuse. British capture Cambrai and Ramillies.
10. Allies pursue the Germans, as they evacuate their positions. British mail steamer Leinster sunk by submarine, with loss of 480 lives.

SUBSISTENCE SENT OVERSEAS TO THE ARMY OF THE U. S.

Bacon	147,956,223 pounds
Beef (frozen)	250,584,692 pounds
Beef (tinned)	140,843,476 pounds
Flour	542,874,797 pounds
Tobacco	27,449,645 pounds
Cigarettes	2,439,260,097 single
Sugar	160,180,225 pounds
Butter	16,200,797 pounds
Tomatoes	100,081,789 pounds
Coffee	39,185,167 pounds
Milk	42,922,743 pounds
Beans	39,646,677 pounds
Candy	7,895,053 pounds
Rice	25,466,547 pounds
Prunes	15,748,931 pounds
Salt	13,707,276 pounds
Oatmeal	4,661,732 pounds
Peas	4,689,425 pounds
Peaches	2,415,182 pounds
Cornmeal	16,074,678 pounds
Hard bread	27,978,830 pounds
Total cost of subsistence	$327,059,997

11. Americans clear the Argonne of Germans. Germans give up the Chemin des Dames.
12. British take Hamel. French and Americans drive the enemy out of the Champagne district.
13. French take Laon, La Fere, and other towns. 21,000 prisoners captured.
14. East of Ypres, the Germans retreat on a 25 mile front.
15. Allies advance on a 200 mile front, sweeping aside all resistance.
16. Germans leaving Belgium. Some resistance offered in the Vosges.
17. Ostend falls to the Allies. British take Douai and Lille.
20. Germans retreat into Holland, where they are interned.
23. Northwest of Verdun, the Germans put up strong fight against the Americans. Germans give up Ghent.
24. British take 7,000 prisoners.
25. Americans forcing back the Germans.
26. Germans holding in the east against the Americans, but the west and center give way. Italians capture 5,000 Austrians.
28. Americans take Belleau Wood.
29. Austrian resistance almost ceases. Italians take 21,000 prisoners.
30. German Kaiser promises his people to liberalize the government.
31. Turkey surrenders to the Allies.

November 1. Emperor of Austria compelled to flee.
2. Germans retreat between the Aisne and the Meuse.
3. Germans falling back along a 250 mile front as fast as possible. Allies take Trieste and Trent. Austria is granted an armistice.
4. British take 10,000 prisoners. Americans reach Sedan.
6. Germans make little or no resistance. German armistice delegates reach the Allied lines.
8. Conditions of the armistice explained to the German delegation. 72 hours allowed for a reply.
11. Armistice signed at 2:45 a. m. Hostilities cease at 11 a. m. Terms of the armistice: Evacuation by the Germans of all invaded territory and the left bank of the Rhine; occupation by the Allies of bridge-heads over the Rhine; surrender of the German fleet; disarmament of the troops; evacuation of all territory in the east.

THE UNITED STATES IN THE GREAT WAR.

Total strength of the army Nov. 11, 1918	3,703,273
Number of fighting men in Europe	1,949,316
Supplies sent to Europe for the army.	4,897,660 tons
Rounds of artillery ammunition	9,066,420
Rifle and machine-gun ammunition (rounds)	1,629,300,000
Rifles	1,800,000
Pistols and revolvers	615,000
Machine guns	49,350
Grenades	1,745,000
Blankets	19,419,000
Coats	7,294,000
Overcoats	7,748,000
Shirts	22,198,000
Shoes	26,423,000
Stockings	89,871,000
Undershirts	69,764,000

CASUALTIES IN THE ARMY OF THE U. S.

Dead, from all causes	105,284
Killed in action	67,813
Wounded	191,000
Taken prisoner	4,912

MONEY COST OF THE GREAT WAR (ESTIMATED).

United States	$32,080,266,968
Great Britain	44,029,011,868
France	25,812,782,800
Germany	40,150,000,000
Austria-Hungary	20,622,960,000
Russia	22,593,950,000
Italy	12,313,998,000
Belgium	1,154,467,914
Serbia	399,400,000
Rumania	1,600,000,000
Canada	1,665,576,032
Australia	1,523,208,040
Greece	270,000,000
Japan	40,000,000
Turkey	1,430,000,000
Bulgaria	815,200,000

Explanation: The enormous expenditures of the U. S. are due to the fact that this country was compelled to build its military organization from practically nothing. Also, prices of everything in the U. S. reached their peak in 1917 and 1918. The war debt of the Central Powers was wiped out by the disappearance of the German mark, the Austrian kronen, and the Russian ruble as money. The decline of the currency of all other European states enabled these states to repay some of their indebtedness in cheap money. Thus, maintaining the dollar at par was in one sense a costly thing for the U. S.
Attention must be called to the fact that this table merely represents the actual expenditures for war, and does not include losses resulting from the destruction of property. The disarrangement of business due to war conditions can never be more than approximated.

Total cost estimated variously from $208,305,000,000 (low) to $330,000,000,000.

HUMAN LOSSES IN THE GREAT WAR.

	Decline in birth-rate	Rise in deaths	War casualties
Austria-Hungary	3,800,000	2,000,000	1,500,000
France	1,500,000	1,840,000	1,400,000
Germany	3,600,000	2,700,000	2,000,000
Great Britain	850,000	1,000,000	800,000
Italy	1,400,000	880,000	600,000
Russia	8,300,000	4,700,000	2,500,000
Belgium	175,000	200,000	115,000
Bulgaria	115,000	120,000	65,000
Rumania	150,000	360,000	159,000
Serbia	320,000	1,330,000	690,000
Totals	20,210,000	15,130,000	9,829,000

AMERICAN WAR CASUALTIES BY STATES.

State	Casualties	Dead	State	Casualties	Dead
New York	40,222	9,196	Washington	3,070	877
Pennsylvania	35,042	7,898	Nebraska	3,041	855
Illinois	18,264	4,260	Arkansas	2,658	883
Ohio	16,007	4,082	North Dakota	2,560	700
Massachusetts	13,505	2,955	Mississippi	2,303	904
Missouri	10,385	2,562	Maine	2,090	518
Michigan	10,369	2,751	Louisiana	2,160	823
New Jersey	10,166	2,367	South Dakota	1,867	554
Texas	10,133	2,722	Colorado	1,759	537
Wisconsin	9,813	2,649	Oregon	1,577	512
Minnesota	7,323	2,133	Rhode Island	1,562	355
Iowa	7,311	2,161	New Hampshire	1,535	358
California	6,650	1,747	Idaho	1,351	409
Connecticut	6,625	1,265	Florida	1,171	467
Oklahoma	6,358	1,471	Vermont	1,170	300
Tennessee	6,190	1,836	Utah	1,006	302
Virginia	6,130	1,635	New Mexico	860	228
North Carolina	5,799	1,610	District of Columbia	773	202
Indiana	5,766	1,510	Wyoming	676	233
Kentucky	5,380	1,436	Arizona	557	150
Kansas	5,182	1,270	Delaware	303	87
Alabama	5,160	1,251	Nevada	250	71
Georgia	4,425	1,530	Alaska	15	6
West Virginia	4,018	1,063	Hawaii	13	4
South Carolina	3,919	1,138	Porto Rico	11	1
Maryland	3,812	975	Philippine Islands	7	3
Montana	3,443	934	Canal Zone	3	2

LEAGUE OF NATIONS.

The League of Nations is an association of fifty-two states which, while maintaining their sovereignty unimpaired, have signed a treaty—called the Covenant—pledging themselves (1) to submit their disputes to peaceful settlement and to joint action against any power infringing this fundamental obligation, and (2) to cooperate over a series of non-political questions, such as questions of public health, economic and financial matters, transit and communications, suppression of the traffic in opium, suppression of the traffic in women and children, etc.

To carry out the purposes to which they are pledged, the members of the League have undertaken, through signing the Covenant, and in subsequent conference, to create and maintain a series of administrative, advisory and executive organs, such as the Secretariat-General, technical organizations and various advisory commissions; and one judicial organ, namely, the Permanent Court of International Justice. In order to discuss and decide on the policies which these administrative and executive organs are to carry out, the contracting powers have decided to meet once a year in the General Assembly of the League, some meet every two months in the Council of the League, and all meet from time to time in special conferences for special purposes, such as the Brussels Financial Conference and the Barcelona Transit Conference. The delegates to the conference are government delegates sent by the nations they represent and responsible to the governments of those nations. On the other hand, members of the Secretariat are appointed by the Secretary-General, and members of some of the advisory commission by the Council of the League.

The organization of the League consists of a Council, Assembly and Secretariat-General. The Council is composed of representatives of the four great powers—France, Great Britain, Italy and Japan, each being permanently represented by one delegate. The Assembly, by majority vote elects six additional members. The present plan is that the term of office is to be three years, and that two of the total six shall retire every year, and after this be ineligible for a period of three years. At present the six members are Belgium, Brazil, China, Spain, Sweden and Uruguay. The Council can decide with the consent of the majority of the Assembly, to increase the number of powers permanently or temporarily represented. The Council meets annually and may deal with any question affecting the peace of the world.

The Assembly is made up of representatives of nations which are members of the League. It has power to deal with any matter affecting the peace of the world. Each state member of the League is represented at most by three delegates but is entitled to only one vote. Since five of the British Dominions and Colonies were admitted to membership, the British Empire may cast six votes. The Assembly meets annually on the first Monday of September at Geneva, Switzerland.

The Secretariat-General together with the necessary staff of secretaries and advisers is established at the headquarters of the League. The Secretariat prepares schedules of work for the meetings of the Assembly and Council, conducts official correspondence of the League, and is responsible for carrying out decisions of the Assembly and the Council.

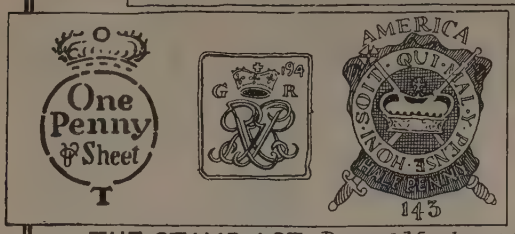
At the first meeting of the Assembly, November 15, 1920, forty-two states and self-governing dominions were members of the League. These are the following: Argentina, Australia, Belgium, Bolivia, Brazil, Canada, Chile, China, Columbia, Cuba, Czechoslovakia, Denmark, France, Great Britain, Greece, Guatemala, Haiti, Honduras, India, Italy, Japan, Jugo-slavia, Liberia, Netherlands, New Zealand, Nicaragua, Norway, Panama, Paraguay, Peru, Persia, Poland, Portugal, Rumania, Salvador, Siam, South Africa, Spain, Sweden, Switzerland, Uruguay and Venezuela.

On December 16, 1920, the First Assembly admitted the following six states to membership of the League: Albania, Austria, Bulgaria, Costa Rica, Finland and Luxemburg.

On September 22, 1921, the Second Assembly admitted the following three states to membership of the League: Esthonia, Latvia and Lithuania.

On September 18, 1922, the Third Assembly admitted Hungary to membership of the League. The League, therefore, now numbers fifty-two states.

The REVOLUTIONARY WAR



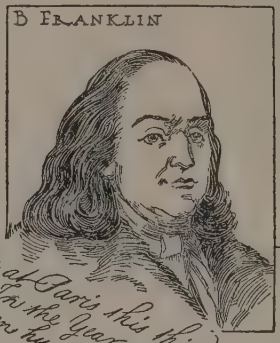
THE MINUTE MAN

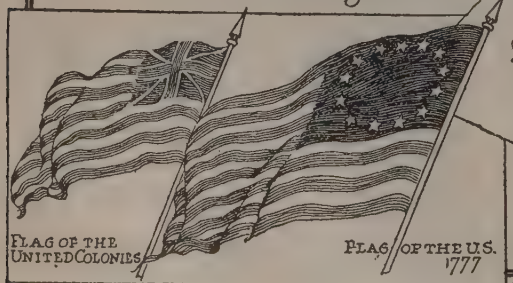
PAUL REVERE'S RIDE APRIL 18 1775

THE STAMP ACT *Passed March 22nd 1765*
A cause of our war with Great Britain
The **"DECLARATION of RIGHTS"**
formulated by colonists Oct 25th 1765
BOSTON RIOT *March 5th 1770*
BOSTON TEA PARTY *Dec 1773*
FIRST CONTINENTAL CONGRESS
Sept 5-26 **1774**
MINUTE MEN ORGANIZE
at Concord in **1775**
PAUL REVERE'S RIDE *Apr 18th*
"For the country folk to be up and to arm."
LEXINGTON *Apr 19th*
First engagement of the war
FORT TICONDEROGA
taken by Ethan Allen
May 17th
BATTLE of BUNKER HILL
June 17th
Washington takes command July 3rd
ST. JOHN MONTREAL *taken Nov 7th*
British evacuate Boston Mar 17th **1776**
DECLARATION of INDEPENDENCE
Adopted July 4th
Washington retreats up the Hudson, across New Jersey and into Philadelphia pursued by the British August-December
Washington crosses the Delaware and attacks the Hessians Dec 25th *BATTLE of TRENTON*

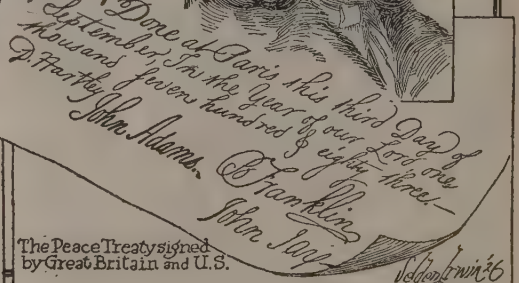
CHADD'S FORD *Sept 11th* **1777**
British take Philadelphia October 4th
British attack New York
BURGOYNE'S ARMY TAKEN *Oct 17th*
Washington in camp at Valley Forge Winter of 1777
British evacuate Philadelphia and the
BATTLE of MONMOUTH *follows, June 28th* **1778**
British invade the South and take Savannah
STONY POINT *July* **1779**
Paul Jones in the *Bonhomme Richard* takes the British frigate *Serapis* after a fierce engagement off the coast of Ireland *Sept. 23rd* **1779**
KING'S MOUNTAIN *October 7th* **1780**
COWPENS *January 17th* **1781**
SURRENDER of LORD CORNWALLIS
at Yorktown October 19th **1781**
Peace treaty signed at Paris Sept 3rd **1783**

WASHINGTON'S SWORD





FLAG OF THE UNITED COLONIES



FLAG OF THE U.S. 1777

The Peace Treaty signed by Great Britain and U.S.

Done at Paris this third Day of September, In the Year of our Lord One Thousand Seven hundred & eighty three.
John Adams.
B Franklin
John Jay

CONSTITUTION of the U.S. becomes effective at Philadelphia in 1789
Selden Irwin 1926
GEORGE WASHINGTON 1789 TO 1797
The JAY TREATY between the United States and Great Britain made in 1794
UNITED STATES MINT
LIBERTY
1793
Dollar of 1794
First Bank of the U.S. 1791
LETTERS PATENT
Patent Laws passed in 1793
ELI WHITNEY invents Cotton Gin in 1793
The United States mint established 1793
VERMONT
KENTUCKY
TENNESSEE
Admitted to the Union in 1790
John Fitch's Steamboat 1790
U.S.
First U.S. Census in 1791 Population less than 4,000,000

ADMINISTRATION OF GEORGE WASHINGTON—1789–1797.

The Cabinet.—Washington was inaugurated Apr. 30 at New York City, the first capital of the U. S. His first Cabinet consisted of Thos. Jefferson, Sec. of State; Alex. Hamilton, Sec. of Treasury; Henry Knox, Sec. of War; Edmund Randolph, Attorney General.

Financial Measures.—The first and greatest problem of the administration was to provide an adequate revenue. Hamilton proposed to levy a moderate tariff on imported goods, to assume the debts contracted by the states during the Revolutionary war, to issue U. S. bonds sufficient to cover the entire indebtedness, and to charter a Bank, somewhat like the Bank of England, which should act as the fiscal agent of the Federal government.

Party Divisions—These proposals divided the political leaders into two groups, the Federalists and the Anti-Federalists or Republicans, the latter, led by Jefferson, insisting upon a strict construction of the U. S. Constitution. Hamilton, the leader of the Federalists, believed that the Constitution was created for the benefit of the whole country, and that it should be so interpreted as best to serve that purpose. Washington, after much deliberation, supported Hamilton's views, and it was due to his influence that Congress passed the necessary laws. The tariff was very low, judged by modern standards; the consolidated national debt amounted to $75,000.00; the Bank was chartered for a twenty-year term, and a mint was set up at Philadelphia. So by 1791 the U. S. was a going concern.

The Judiciary Act.—Among the most important early acts of Congress was the Judiciary Act, providing for a Chief Justice and five Associate Justices to constitute the Supreme Court; four Circuit and thirteen District Courts to make up the inferior Courts. So wisely was this law drawn up that it remained for many years unchanged in essentials.

The Constitution Amended.—Complying with pre-ratification promises, Congress passed and submitted to the states ten amendments to the U. S. Constitution, the first eight of which were known as a Bill of Rights, protecting individuals from Federal encroachment upon their personal rights. The Union was completed when North Carolina and Rhode Island came in.

A Permanent Capital Provided for.—In order to get the support of the Virginia representatives in Congress for his plan of taking over the state debts, Hamilton made an agreement with them whereby, if they supported the Assumption Bill, the national capital was to be removed to Philadelphia for ten years, and then was to be established at some point on the Potomac river, the land to be ceded by Virginia and Maryland. This is the genesis of Washington, D. C.

Neutrality in Foreign Affairs.—The French Revolution which broke out in 1789 divided the people of the U. S. into two groups, one openly sympathetic and the other hostile or favoring a strict neutrality on the part of the U. S. The fact that the French had given us decisive aid in our Revolution inclined the Americans to the support of the French in their effort to get rid of a wicked and useless nobility. As a result it took all of Pres. Washington's firmness and tact to keep the U. S. from violating established

laws of neutrality. Genet, the French representative, soon after landing began to commission American privateers to prey upon English commerce. Washington at once stopped this, although by so doing he incurred the hostility of the ardent French supporters.

Trouble With England.—To make Washington's policy the more difficult to follow through, England began to seize U. S. ships bound for French ports and confiscate their cargo. Worse than this U. S. vessels were boarded anywhere on the high seas and sailors of British birth were taken off, regardless of the naturalization laws of the U. S. In some cases native-born Americans were impressed. Washington was conscious of these indignities but he realized that the U. S. was too weak to make more than formal protests. In all probability our independence might have been seriously jeopardized if any other than a neutral policy had been followed by the U. S.

Jay's Treaty.—Washington sent John Jay to England to negotiate a treaty, and after much difficulty he persuaded the British government to make some concessions, one of which was the agreement to give up the fur-trading posts. But the treaty said nothing about the right of search and impressment, nor did it leave the U. S. free to trade with the West Indian colonies. Jay's treaty aroused a storm of opposition, and for a while Jay was the most unpopular man in the U. S.; but Washington wisely saw that half a loaf was better than none at all, and he exerted his influence in having the Senate confirm the treaty, which it did.

Mississippi Trade.—For the people of the west a more important question than naval rights was that of opening the Mississippi river, the sole outlet for the trade of the western country. Spain had been restricting our use of that stream in a most exasperating manner, and the westerners were ready either to fight Spain, or to set up a separate republic for themselves. In 1795 Spain signed an agreement whereby the Mississippi should be open to the use of U. S. citizens and New Orleans should be a port of deposit.

The Whisky Rebellion.—The word "excise" had been hateful to the Americans since pre-Revolutionary days; therefore when Congress, following the suggestion of Hamilton, imposed an internal revenue tax on distilled spirits in 1789 there was a strong protest from the people of western Pennsylvania, Virginia, and North Carolina, who had been turning their corn into whisky unmolested by Federal taxes. Collection of the tax from the western Pennsylvanians especially became so difficult that Washington had to resort to the use of troops to put down the incipient rebellion. The six or seven thousand insurgents melted away before the Federal troops, and the government had exhibited its strength in a most useful and decisive manner. Had the Federal government weakened or compromised on this occasion the new Republic might have been called upon to face a similar situation every time a section or a group objected to a Federal law.

Cabinet Changes.—When Washington became President he declared his intention of ignoring party lines—in other words, of running the government on a bi-partisan basis. Thus, the leaders of the two extremes, Jefferson and Hamilton, were members of the first Cabinet. It was a great disappointment to Washington when he found that party differences were so irreconcilable that he would have to choose between them. His own good judgment told him what the U. S. most needed at that time was strength. Hence his support of Hamilton rather than Jefferson, who would sacrifice stability for theories of democracy. By the end of the year 1793 partisan quarrels had become so acrimonious that Jefferson resigned as Sec. of State. He and Washington parted the best of friends, although there is good reason for thinking that he was responsible for the newspaper and pamphlet attacks upon the President. In January, 1795, Hamilton retired from the position which he had so ably filled, leaving office with the satisfaction of knowing that he had refuted absolutely all the charges brought against him by the Republicans. To Hamilton this country owes a debt of gratitude, for without his confidence and enthusiasm the U. S. might not have had such an auspicious beginning. His private faults were petty compared with his public virtues.

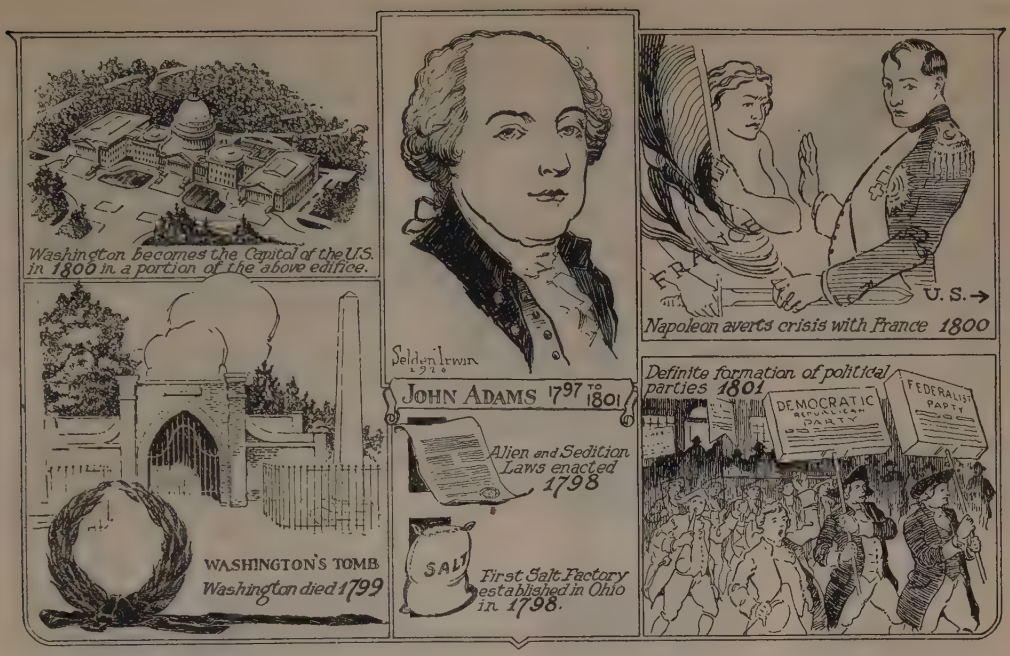
The North-West Ordinance.—The famous North-West Ordinance had been passed in 1787 by the old Congress, providing that the country north of the Ohio river and east of the Mississippi should be organized as territories until such a time as they possessed sufficient population to be admitted as states. Article 6 of the Ordinance was of great importance, providing as it did that "neither slavery or involuntary servitude should exist" in this territory.

Kentucky and Tennessee.—In 1788 Virginia consented to the breaking off of Kentucky, and in 1792 this territory became a state. Tennessee originally belonged to North Carolina but for years had been almost entirely neglected. After a vain attempt to set up for themselves without the consent of the mother state, in 1790 North Carolina gave up claim to Tennessee, and in 1796 the latter became a state.

Settlement of the North-West.—In the meantime the region north of the Ohio was rapidly filling up. The Great Lakes country was being settled by people from New York and New England whereas the settlers in the Ohio River valley came mainly from the middle states. The latter would start from the growing town of Pittsburgh, floating down the Ohio until they came to a favorable spot, where they would take up a claim.

Indian Troubles.—The new settlers had small regard for the rights of the Indians whom they found there, and warfare between the races was constant. In 1791 General St. Clair, the Governor of the Territory, was defeated by the Indians, but this defeat was redeemed later by General Anthony Wayne in the battle of Fallen Timbers.

Washington Retires.—Washington had accepted a second term with unfeigned reluctance, and so declined to consider a third term. On March 4, 1797 he retired from public office, having served in some public capacity for the greater part of his life. The Republicans welcomed his retirement with undisguised pleasure, but the mass of people estimated him at his true worth —one of the great characters of all times.


Washington becomes the Capital of the U.S. in 1800 in a portion of the above edifice.
Selden Irwin
JOHN ADAMS 1797 TO 1801
U. S.→
Napoleon averts crisis with France 1800
WASHINGTON'S TOMB
Washington died 1799
Alien and Sedition Laws enacted 1798
SALT
First Salt Factory established in Ohio in 1798.
Definite formation of political parties 1801
DEMOCRATIC REPUBLICAN PARTY
FEDERALIST PARTY

ADMINISTRATION OF JOHN ADAMS—1797–1801

Adams's Difficulties.—The difficulties confronting John Adams, at home and abroad, were so great that his administration is a record of little else than party strife and foreign humiliation. He made his first mistake in retaining Washington's Cabinet—a conglomeration of undistinguished men who were under the influence of Hamilton, the leader of the faction of the Federalist party opposed to Adams.

"War" with France.—The first external problem which Adams had to face was that of French seizure of U. S. ships in retaliation for Jay's Treaty. Upon hearing that our minister had been sent out of France Adams had Congress pass some bills designed to strengthen our army, But wishing to avoid war the President sent to France three envoys, C. C. Pinckney, Elbridge Gerry, and John Marshall. The French "Directory" refused to treat with these men on honorable terms, even demanding a bribe, so negotiations were not begun. Diplomatic relations were broken, and war appeared certain, when the French, not wishing to add another enemy to her list, consented to make a treaty, in 1800. Between 1796 and 1800, there was a virtual state of war existing, and the losses to American shipping were great.

The Alien and Sedition Laws.—The trouble with the French led the Federalists into passing the Alien and Sedition Laws, aimed at foreigners especially. The Alien Law gave the President the power to deport any alien who was deemed dangerous to the safety of the country; the Sedition Law forbade the printing of libelous statements against the Congress or the President, on penalty of a heavy fine and imprisonment. A new naturalization law extended the period of residence from five to fourteen years. Taken together, these acts infringed upon some valued American principles, and ultimately brought about the downfall of the Federalist party.

The Virginia and Kentucky Resolutions.—Jefferson, a most astute politician, lost no time in making capital of the mistakes of the Federalists, and the Virginia and the Kentucky Resolutions were the result. The Virginia Legislature adopted a set of resolutions drafted by James Madison to the effect that the states might "interpose" to stop the operation of a law of Congress. The Kentucky Resolutions asserted outright the power of states to nullify acts of Congress. Although no other states formally affirmed these doctrines at this time, these resolutions were destined to play an important part in the later history of the U. S.

The Judiciary Reorganized.—The last act of the Federalists was to pass a bill creating 16 new judgeships and relieving the Supreme Court of circuit duty. All new judges were Federalists, an inexcusable act of partisanship. Adams's last appointment was that of John Marshall to be Chief Justice.

An Estimate of the Adams Administration.—In summing up the John Adams administration it must be admitted that the four years were productive of little that was constructive. For this Adams can not be held entirely responsible; but had he been a man of tact, as he was a man of impeachable integrity, the country might have gone forward farther than it did. Adams's most solid accomplishment was his handling of the French controversy, and it is to his eternal credit that the U. S. escaped a useless and disastrous war at a time when it could least afford it.

ADMINISTRATION OF THOMAS JEFFERSON —1801–1809.

Republican Changes.—The Conservatives viewed the accession of Jefferson to the Presidency as a great calamity, but the worst fears were not realized, for, as is usually the case, the sense of power had a sobering effect upon Jefferson. The changes he made were showy, but of slight import. His inauguration was a simple affair, but pomp would have been incongruous in such a setting. The national capital consisted of a few plain buildings in the midst of a wilderness. Thus there were several reasons for Jefferson's preference for Monticello, his Virginia mansion, to Washington.

Appointments.—His first cabinet consisted of James Madison, Sec. of State, Albert Gallatin, Sec. of the Treasury, Henry Dearborn, Sec. of War, Levi Lincoln, Attorney General, and Robert Smith, Sec. of the Navy. Jefferson found himself hampered by the fact that practically all the Federal offices were filled by Federalists, and he complained that there were few deaths and no resignations. The custom of removing office-holders for political reasons was not established, and Jefferson was discriminating in his removals.

New Policies.—The Republicans had a working majority in both houses of Congress and put through their reforms without much difficulty. The whisky tax was repealed, and customs duties were depended on to bring in enough revenue to run the government. The policy of reducing the national debt was decided on, and, by cutting down expenses in decisive fashion, this was gradually accomplished.

Attack on the Judiciary.—Jefferson came into office resolved to wipe out the latest Judiciary Act, not merely because it increased expenses, but because Adams had appointed all Federalists to the judge-ships. After a bitter fight Congress repealed the Act, and the constitutional provision that judges should hold their positions for life was rendered void by the discovery that the same end could be attained by removing the office from the man.

The Tripolitan War.—Jefferson's first term is a record of great accomplishments and few failures. For years the pirates of the Mediterranean had been exacting tribute from the U. S., but in the Tripolitan War our navy put a stop to this degradation.

The Purchase of Louisiana.—The greatest of all the events of this period was the purchase of Louisiana, "the most gigantic real estate transaction of all time." In 1802 Spain broke her treaty by closing the Mississippi to American citizens, thus affecting the fast-growing population west of the Alleghanies. Jefferson knew well the spirit of the western people, so he started negotiations for the purchase of a strip of land at the mouth of the Mississippi. In 1800 Spain had ceded back Louisiana to France with the stipulation that France was not to dispose of it to any other power. Napoleon tried to establish a colonial empire, but when that failed he was so disgusted that he was ready to give up all the colonies. So when the U. S. approached him with a view to purchasing part of Louisiana he offered to sell all of it. This appealed to Jefferson's imagination, for he was much interested in exploration and discovery; but he was not sure that the Constitution gave Congress the power of buying new territory. Being a practical man, however, and forseeing the wonderful possibilities of Louisiana he arranged for its purchase, recommending

that an amendment to the constitution be adopted giving Congress the power of buying territory. The price paid was $15,000,000 and the area included parts of the present states of Colorado, Montana, Minnesota, Wyoming, Oklahoma; and all of Louisiana, Missouri, Arkansas, Iowa, Kansas, Nebraska, North and South Dakota. By this purchase the territory of the U. S. was doubled.

Hamilton Killed.—On July 11, 1804 Alexander Hamilton was killed in a duel by Aaron Burr who was protected from punishment by the unwritten law of the time.

Jefferson Re-elected.—In 1805 Jefferson was re-elected to the presidency with an electoral vote of 162 against 14 received by his opponent, C. C. Pinckney, thus indicating that the Federalist party was disappearing from the political scene. But Jefferson's second term brought him little that he could look back upon with pride.

Foreign Affairs.—Napoleon's imperial ambitions were so extensive that to defeat them almost the whole of Europe was arrayed against him. England tenaciously held out, and to put an end to Napoleon's pretensions fought him with his own weapons. The carrying trade of the U. S. was interfered with by both contending parties. By the Berlin and the Milan decrees Napoleon closed to foreign ships all the ports in the British Empire—a paper blockade, but dangerous to neutrals nevertheless. Great Britain retorted with her Orders in Council shutting out from commerce the ports of Europe under French control. Thus U. S. ships were safe in no part of the world, and the number of confiscated ships increased so fast that there seemed to be danger that U. S. vessels would disappear from the high seas. Jefferson was so pacific in disposition that he was willing to go to almost any length to avoid war.

Foreign Trade Cut Off—England's impressment of American seamen was flagrant enough to arouse almost any one to the fighting pitch, but Jefferson chose to make war in his own way, which was to cut off all the foreign trade of the U. S. In 1806 Congress passed a Non-Importation Act which prohibited trade with Great Britain and her colonies, but before there was time to test its efficiency Congress, following Jefferson's suggestion, passed an Embargo Act, practically prohibiting all trade between the U. S. and other nations. No vessel could leave a port of the U. S. without giving bond that she was bound for another port of the U. S.

New England Objects.—New England was outraged by this action, which threatened to cut off the chief source of revenue; but Jefferson held firm and the Embargo was nominally in force for several years, during which time smuggling became common.

Failure of the Embargo.—Jefferson had hoped that the Embargo would so cripple the manufacturing interests of England that they would force the government to modify its policy toward the U. S., but in this he was disappointed. Moreover, England's shipping trade gained by the embargo, since it was entirely free from American competition. The results of the Embargo in the U. S. were disastrous. An important industry was wiped out, and the chief source of revenue of the U. S. was diminished by more than half.

Home Manufacturing.—There were several other effects that were of more lasting importance. Cut off from imported manufactured goods, the people of this country hastened to make such goods themselves; and in a short time New England had begun to lay the foundation for the activity which was destined to give her a pre-eminent place in the economic world.

Westward Migration.—Another effect of the Embargo Act was that of hastening the settlement of the western country. The sea-coast population turned toward the west, and the years immediately preceding the War of 1812 were marked by a shifting of population from the east to the west. The states north of the Ohio river filled up rapidly, and each new wave went a little farther west than the preceding one.

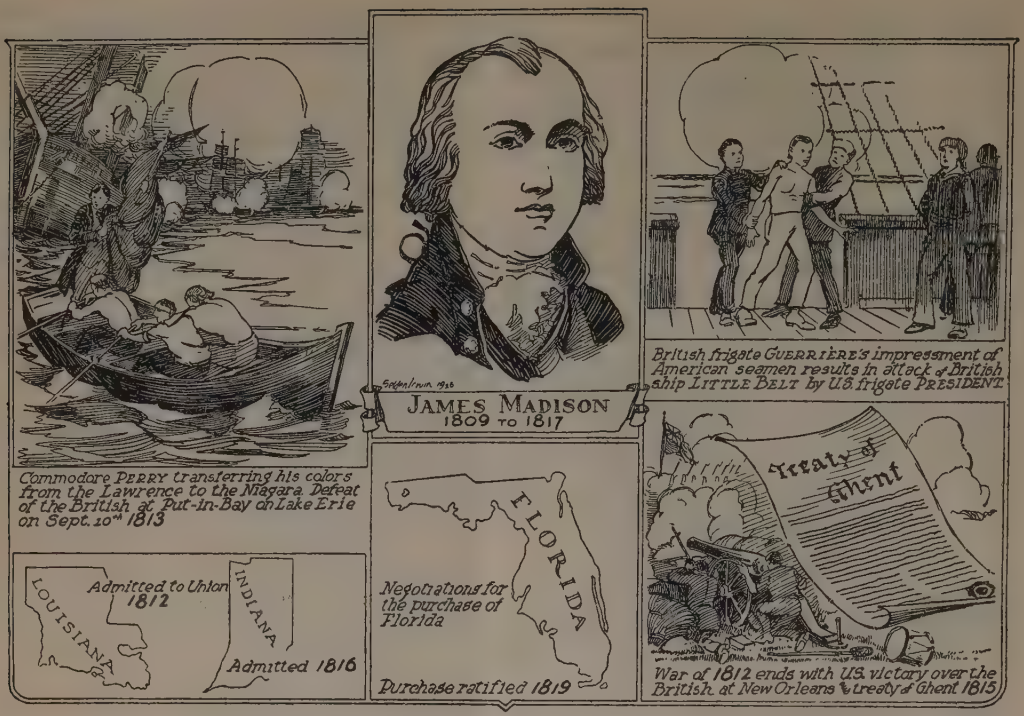
The National Pike.—In 1803 Ohio was admitted to state-hood. An immediate result was the construction of the first highway built in the U. S. by the Federal government. In 1806 Congress appropriated $30,000 for a road to be built from Cumberland, Maryland, to the Ohio river at Wheeling. Construction began in 1811, and by 1818 it had reached the Ohio, with the result that travel between the seaboard and the west increased enormously. Other sections of the country, observing the benefits to the communities immediately affected, made efforts to secure money for similar purposes, and the subject of public appropriations for local undertakings became one of the questions that Congress confronted at every session.

The Lewis and Clarke Exploration.—Jefferson was instrumental in setting on foot the famous Lewis and Clarke expedition to the Oregon country. These two officers of the U. S. army, after training intensively a small force of men, left St. Louis in 1804; went up the Missouri river to the Bitter Root Mountains; made their way laboriously across the Rockies until they came to one of the tributaries of the Columbia river, and followed it to the mouth. They reached St. Louis in 1806, completing one of the most successful explorations that history records.

The Fur Trade.—The effect was that the fur-traders now extended their activities to the north-west, thus bringing them into contact with the subjects of Great Britain who were plying a similar trade in that region. For a number of years the Oregon country was a live subject of dispute, and more than once threatened to disturb the relations between the U. S. and Great Britain.

Jefferson Retires.—In 1809, the Embargo Act proving a failure, a Non-intercourse Act was passed. A few days after, Jefferson retired from the Presidency, having declined to be a candidate for a third term.

Jefferson's Influence.—The influence of Thomas Jefferson upon the political philosophy of the U. S. has been greater than that of any other man. His doctrine that "the government is best that governs least" has played a powerful part in strengthening the natural individualism of the American people. He was viewed as a radical by his contemporaries, but if he were living today he would be considerd almost reactionary. To the end he believed that government at best was a necessary evil.


JAMES MADISON
1809 TO 1817
Commodore PERRY transferring his colors from the Lawrence to the Niagara. Defeat of the British at Put-in-Bay on Lake Erie on Sept. 10th 1813
British frigate GUERRIÈRE's impressment of American seamen results in attack of British ship LITTLE BELT by U.S. frigate PRESIDENT
LOUISIANA
Admitted to Union 1812
INDIANA
Admitted 1816
FLORIDA
Negotiations for the purchase of Florida
Purchase ratified 1819
Treaty of Ghent
War of 1812 ends with U.S. victory over the British at New Orleans & treaty of Ghent 1815

ADMINISTRATION OF JAMES MADISON—1809–1817.

Madison's Election.—Madison was Jefferson's personal selection, the Republican Congressional caucus obediently voting as Jefferson desired, although George Clinton of New York was rather more popular than Madison whose reticence and soberness had kept him from being better liked. Madison had been in public life for the greater part of his manhood and no man called to the Presidency has excelled him in thoroughness of preparation. His services to the country in the Philadelphia Convention entitled him to the highest gift the country had to offer. But he was unfortunate in being called upon to preside over the nation at a time when our foreign relations were in a most disturbed state.

Relations with England.—For a time in 1809 it seemed that the differences with Great Britain might be composed, for the British minister to the U. S. agreed that if the U. S. cut off France from trade the Orders in Council would be repealed. The Non-intercourse Act was repealed, and American ships prepared to take advantage of this promise of the restoration of trade, when word came from England that the British government had disavowed its minister's agreement. So the Non-intercourse Act was renewed, and the two nations drifted gradually into war.

Relations with France.—Napoleon's actions were even less excusable than England's, for he pretended to repeal the Berlin and the Milan Decrees, hoping thereby to seize foreign ships that would take him at his word. Madison tried to get England to withdraw her Orders but she refused on the ground that France was not acting in good faith, as it soon proved. As our Non-intercourse Act had been repealed so far as it applied to France, we were now put in the position of favoring one belligerent over another. That Madison had been trapped by the unscrupulous French Emperor there can be no doubt, and the effects were such that a war with England came to be recognized as certain to happen.

Indian Raids.—Added to the trouble over the impressment of our sailors and the searching of our ships there was another sore spot that touched the Americans almost as much as the other two. The Indians in the Northwest had been causing the white settlers much alarm, and there was good reason for holding the British responsible.

Events Leading to War.—In 1811 the American frigate President and the British ship Little Belt had an encounter in which the U. S. vessel worsted its opponent. Two young men, Henry Clay and John C. Calhoun, were the ardent leaders of the war-party. President Madison favored preparation for war but, with his usual caution, he backed away from the final step as long as possible. Clay and his followers, however, persuaded Congress that the time to attack England was while the latter was engaged in a life and death struggle with Napoleon, and Madison was borne down by the impetuosity of their attack.

War with England.—June 18, 1812, Congress passed a declaration of war against Great Britain, and once more the nation was called upon to face in battle its over-seas cousins. That the war was unnecessary is the opinion of historians today, especially in view of the fact that five

days after Congress had declared war Great Britain withdrew unconditionally her offensive Orders in Council. This action came too late, for the war-party was resolved upon war at all hazards.

The Unpreparedness of the U. S.—To say that the U. S. was not prepared for war would give little idea of the total unpreparedness of this country. The army of 6,000 was poorly drilled and worse armed. The navy consisted of a few ships which could by courtesy be called ships-of-war, but which were wholly inadequate to meet on equal terms a great navy such as England possessed. In addition, our finances were not in shape to stand the drain of war expenditure, and the settled opposition of the Americans to heavy taxes made the raising of the necessary funds an almost impossible task.

New England Opposes the War.—If all these discouragements were not enough, Federalist New England gave evidence of a disposition to withhold her support altogether. That section persisted in calling it "Mr. Madison's War," and gave little support to the cause. Worse than that, not a few New Englanders engaged in commerce with the enemies of their country, which made their refusal to enlist and contribute to the support of our army seem a slight offence.

Early Failures.—With these handicaps the government prosecuted a war that brought us little glory and no shame. Our first plan of campaign was to get possession of Canada, in which General Hull, an old Revolutionary officer, failed utterly. Not only that, Michigan was soon in possession of the enemy, and Ohio was always in danger.

Naval Successes.—This disaster was forgotten when the people learned that the U. S. ship Constitution had defeated the British frigate Guerriere, an occurrence almost unheard of in British sea annals. Following this there occurred the battle of Lake Erie when the U. S. squadron under the command of Commodore Perry wiped out an enemy fleet off the coast of Lake Erie near Sandusky, Ohio. The results of Perry's victory were immediately apparent for the British made no further effort to attack the Ohio country and soon gave up Detroit and most of Michigan. Another notable victory of the Americans was that of Captain McDonough's on Lake Champlain where, by defeating a British squadron, he prevented a contemplated invasion of New York.

England Indifferent Toward the War.—This was in the early part of 1814 when the outlook for American success was dark indeed. Napoleon had been defeated at Leipzig in the Battle of Nations, and Great Britain found herself free to deal with the Americans. The worst might have occurred if the British had been interested sufficiently; but when the hero of Waterloo, the Duke of Wellington, objected to taking command of the British forces operating against the Americans the British government declared its willingness to discuss terms of peace.

U. S. Invaded.—While preliminary negotiations were under way the Americans, after the battle of Lundy's Lane, withdrew from Canada and the British invaded Maryland and Virginia. Washington was captured and the Capitol and the White House were burned in reprisal for a similar act of the Americans in Canada. They made an attack on Baltimore but failed because of the protection afforded the city by Fort McHenry. "The Star-Spangled Banner" was the result of this thwarted attack, as its author, Francis Scott Key, took part in the defense of Baltimore, and was inspired to write the now-historic words of our national anthem when the British sailed away.

The Hartford Convention.—Encouraging incidents were few, however, and the Hartford Convention came as the climax. In December 1814 representatives from five New England states met at Hartford, Conn., to protest against the war. The doctrines set forth in the Virginia and the Kentucky Resolutions were affirmed as the true basis of our government, especially the right of the states to nullify laws of Congress. The right of the states to secede from the Union was hinted at, and certain amendments to the U. S. Constitution were suggested, dealing with the control of the states over some matters which had heretofore been left to Congress, especially war-powers and the admission of new states.

The Battle of New Orleans.—The last battle of the war, General Andrew Jackson's victory over General Packenham at New Orleans, was fought two weeks after the Treaty of Ghent had been signed so it had no effect upon peace negotiations.

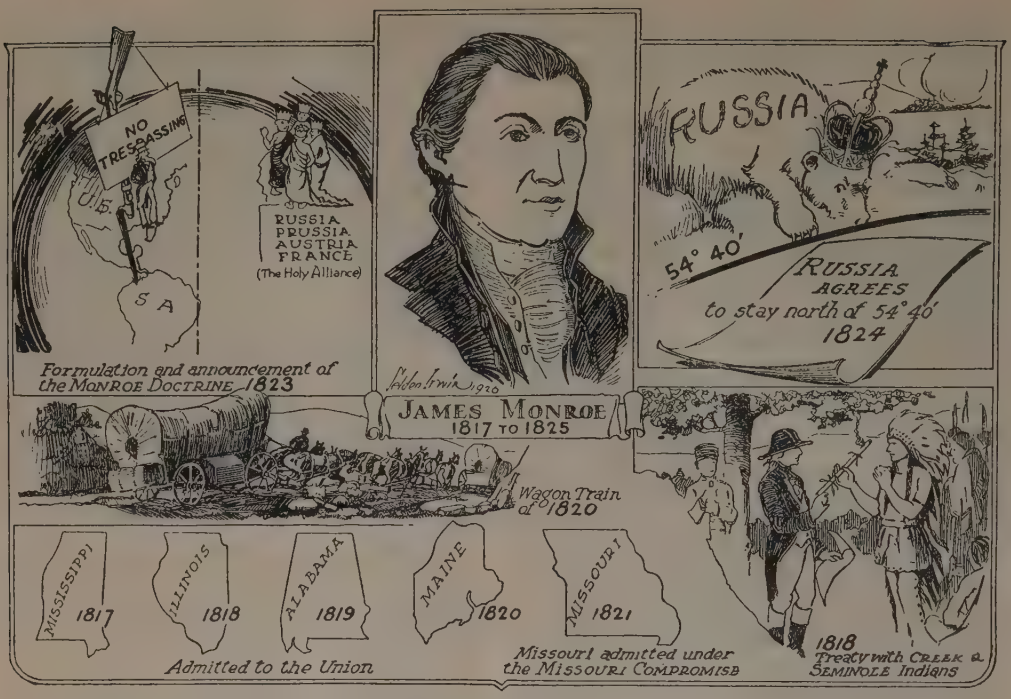
The Treaty of Ghent.—The American commissioners sent to arrange terms of peace with Great Britain had been instructed to secure at all costs a promise from the British that they would give up impressment of our seamen; but we were in no position to dictate terms, and had to be satisfied with a treaty that did not mention any of the important points of dispute. The Treaty of Ghent thus merely ended the war without settling anything.

The Cost of the War.—But if the U. S. gained nothing by the war she also lost little. The total number of men killed was less than 2,000, and the war-debt, large as it was, did not prove a serious burden in the prosperous years that were to come.

Effect of the War Upon Manufacturing.—During the war Americans had begun to engage in the manufacture of articles which England had been exporting. When the war ended English manufacturers sent over great quantities of these goods, and the American producer was threatened with extinction.

The Tariff of 1816.—This led to the demand for a higher tariff, and in 1816 the duties on iron, cotton, woolen goods, paper and sugar were increased. President Madison, laying aside his old beliefs for the time, approved the measure, which proved inadequate to protect the native manufacturer. So the tariff question becomes a live issue in our politics.

Madison Retires.—In 1817 Madison retires from the presidency, quite willing to hand over the responsibilities of the office to some one else. He had served the country to the best of his ability, and it is no detraction to say that his eight years as President added nothing to his reputation. The times required a man of action rather than a student of government.



ADMINISTRATION OF JAMES MONROE 1817–1825

The Era of Good Feeling.—The Hartford Convention had destroyed about all that was left of the Federalist party, so Monroe was elected with the votes of all but three of the states. For the first time in our history the country was free from strife of party, and when in 1817 Monroe made a tour which took him to all sections of the land, he even received a warm welcome in New England. The late war had helped to develop a stronger sense of nationality, and Monroe benefitted by it. The people turned away from European conflicts to domestic affairs, and undisturbed by foreign affairs they devoted their energies to the task of developing this huge empire.

The Missouri Compromise.—We hear little of the slave question in the first thirty years of our history. It disturbed the framers of the Constitution for a brief time, until they adopted the compromise whereby the slaves were to be counted as three-fifths in apportioning representation in the lower house of Congress. There was a clause in the Northwest Ordinance, adopted in 1787, prohibiting slavery in the territory north of the Ohio river. The Pennsylvania Quakers had petitioned Congress in early days to abolish slavery, and even the Southerners had been ready to admit that slavery was an evil institution. In 1793 Congress passed the first Fugitive Slave Act providing that escaped slaves must be returned to their masters, and the same year Eli Whitney invented the cotton-gin, which, unfortunately, by making profitable the raising of cotton perpetuated slavery for seventy years more. In 1808 Congress prohibited the bringing of slaves into the U. S. The first real slavery contest occurred in 1819 when a bill to admit Missouri as a state was being considered by the House of Representatives. Tallmadge of New York offered an amendment to the effect that there should be no further introduction of slaves into Missouri and that slaves born in the state after its admission should be free at the age of twenty-five. This provision passed the House but was rejected by the Senate, and the bill was carried over to the next session. In the meantime the entire country had been aroused to the importance of the issue. The question most discussed was whether or not Congress had the right to regulate a domestic concern such as slavery, the South taking the position that such interference did violence to the rights of states as reserved by the Constitution. The anti-slavery men argued that Congress could impose any conditions it saw fit on new states, and that the states north of the Ohio had come into the Union with a similar restriction. In the session of 1819–20 the bill to admit Missouri was tacked on to the bill to admit Maine, the latter having received the consent of Massachusetts to break away. The debate was bitter in the extreme, and led Jefferson, then in his old age, to predict that the Union would eventually be broken up over the issue of slavery. The question was finally settled by a compromise whereby Missouri was to be admitted as a slave state, but there were to be no more slave states west of the Mississippi and north of the parallel 36–30. Missouri promptly adopted a constitution which embodied the provisions of the strict slave codes of the southern states, including the prohibition of emancipation and the coming in of free negroes. Congress refused to admit

Missouri unless these provisions were taken out, but a second compromise was adopted binding the Missouri Legislature to the promise that these provisions were not to interfere with the rights of citizens under the Federal Constitution.

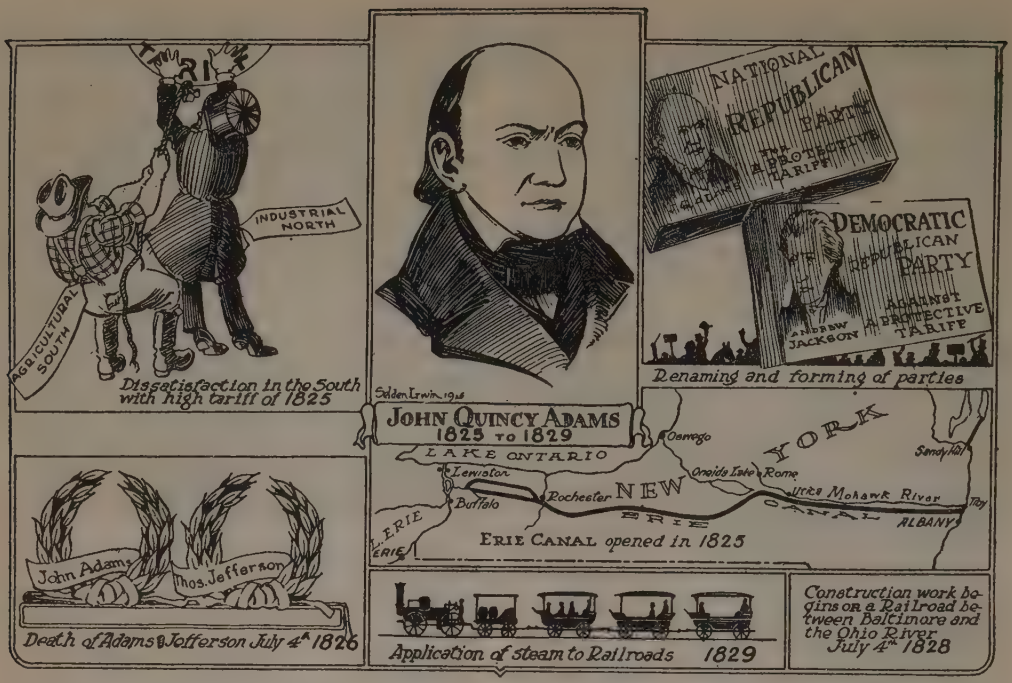
The U. S. Constitution Broadened.—Chief-Justice John Marshall, in many notable decisions, may be said to have breathed the breath of life into the Constitution. The Jeffersonians had asserted that the words of the Constitution must be taken literally, and Congress especially was held to doing only those things specifically enumerated in the Constitution. Thus their contention that Congress could not charter a National Bank. The Hamiltonians said that one power might be implied from another, and the Constitution was made to serve as an instrument of government. John Marshall in a series of decisions, especially Marbury vs Madison, Cohens vs Virginia, Gibbons vs Ogden and McCulloch vs Maryland, broadened the scope of the Constitution to include many powers not heretofore considered to be exercisable by the Federal government. In general terms, Marshall's doctrine was that Congress could exercise any powers which seemed necessary in order to carry out to the fullest extent the powers vested in Congress by the Constitution. The effects of John Marshall's opinions were far-reaching, and, although "strict constructionist" decisions are not uncommon, as a usual thing the U. S. Supreme Court is inclined to take the broader view.

The Purchase of Florida.—The acquisition of Louisiana only served to whet the appetite of the people of the U. S. Near at hand lay Florida, which had changed hands several times and now seemed destined by nature to be a part of the U. S. Jefferson had always claimed that West Florida had been included in the Louisiana territory, but Spain, which now possessed Florida denied the claim. In 1810 an uprising in West Florida caused Madison to instruct the authorities of New Orleans territory to take over that part of Florida lying between the Perdido and the Mississippi rivers. Spain was too weak to do more than make a protest, to which the U. S. paid no attention. East Florida was over-run by a motley crowd of Indians, escaped slaves, and desperate characters of all sorts who gave the states bordening on Florida much trouble. In 1817 General Jackson was sent to quell the Seminoles, which he easily did. His execution of two British subjects, Arbuthnot and Ambrister on the charge of spying might have brought on another war with England if that country had felt belligerently disposed. The U. S. was now in virtual possession of all Florida and, being unable to resist the U. S., Spain made a treaty of cession by which we were to obtain Florida for $5,000,000, most of which was to be turned over to Americans who had old claims against Spain. The boundary between the U. S. and Mexico was fixed as running from the mouth of the Sabine river to the forty-second parallel of latitude, thence to the Pacific. The U. S. gave up all claims south and west of that line, and Spain gave up her claims east and north.

The Monroe Doctrine.—During the Napoleonic wars some of the South American colonies of Spain had taken advantage of the difficulties of the mother-country to declare their independence. By 1822 Venezuela, Buenos Aires, Colombia, Peru, and Chile had been recognized by the U. S. as independent states, but they had to face the hostility of the combination of European powers known as the Holy Alliance. Great Britain, having succeeded in gaining the larger part of the trade of these states, refused to enter the Alliance; and when, in 1823 it became apparent that an effort would be made to re-conquer these newly-formed states, Canning, the British Foreign Secretary, suggested that the U. S. warn off all European powers from the American continent. To Monroe this seemed a wise suggestion, and acting upon it there was enunciated the famous Monroe Doctrine which stated in effect that the American continent was not open to conquest, and the U. S. would view any such attempt as an unfriendly act. By 1822, when the Doctrine was promulgated, the U. S. was strong enough to command the respect of the world, and the South American colonies were left to work out their problems as independent states.

Internal Improvements.—Should the Federal government build roads, construct canals etc., or should these matters be left to the states most concerned? This question was a live one for a number of years, and was not definitely settled until the Civil War placed the Republican party in power for a long term. In 1816 Congress passed the Calhoun bill providing for Federal construction of a system of roads and canals which could be used in time of war to transport men and goods from one part of the country to the other. Madison vetoed the bill on the grounds that Congress did not have the power to appropriate money for local purposes. He suggested that the Constitution be amended to give Congress that power. In 1822 Monroe vetoed a bill making a small appropriation for the repair of the National Road, but in 1825 he signed a bill extending this road from Wheeling to Zanesville, Ohio. The advocates of internal improvements, led by Henry Clay, argued that all sections of the country would benefit by the construction of such works, while the opponents were equally sure that public taxes would be spent in such a way that most sections would get nothing from them. The west strongly supported Clay's position, the south was opposed, and the east was rather indifferent and divided.

The Tariff.—Clay again took the lead, this time urging that the tariff be high enough to afford complete protection to the American manufacturer. He said that all sections would gain, even the agricultural, which would find a better market for their products. The argument of the other side was that only the persons interested in manufacturing would benefit; that the higher prices resulting from the cutting off of foreign competition would add to the cost of living without there being any corresponding advantage. On this issue the South was opposed to high tariff, the west was inclined to favor it, and the east, adverse at first, saw ultimately that they had the most of all to gain. In 1824 a bill was passed increasing the duties on wool, woolen goods, hemp, pig-iron, and iron manufactures.



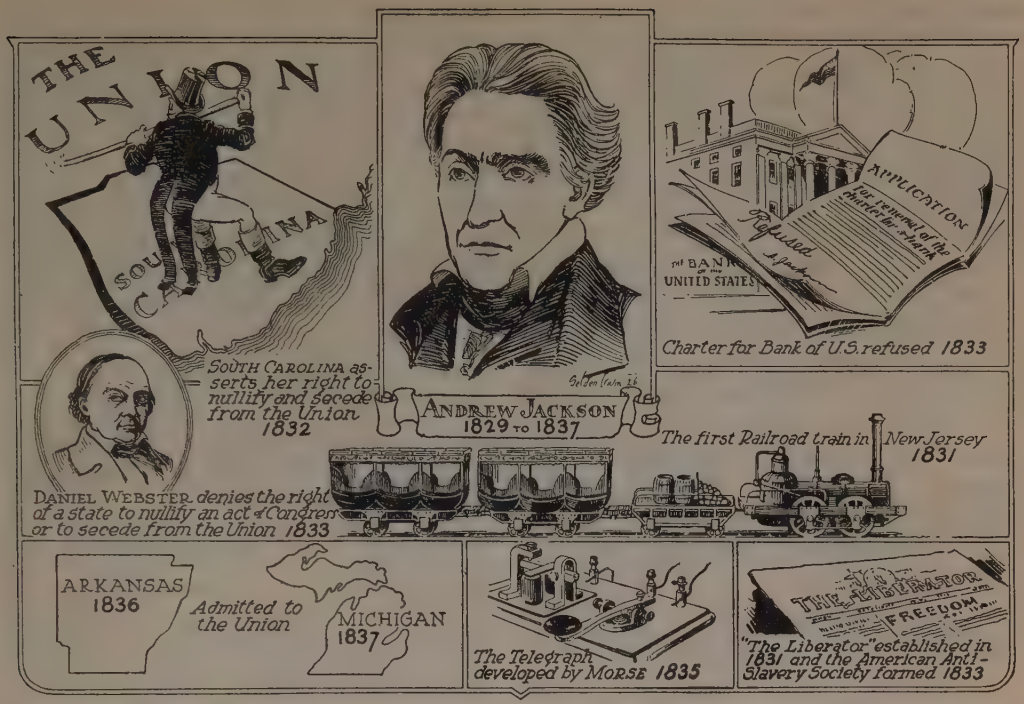
THE ADMINISTRATION OF JOHN QUINCY ADAMS—1825–29

The Election of Adams.—A number of candidates for the Presidency appeared in 1824, but none of them was prominent enough to secure a majority in the electoral college. Votes were cast for John Q. Adams, W. H. Crawford, Henry Clay, and Andrew Jackson. Thus the election was thrown into the House of Representatives, as provided for by the Constitution, each state getting one vote. Jackson had received the greatest number of electoral votes, but Clay, who did not like Jackson, used his influence to elect Adams, who got the vote of thirteen of the twenty-four states. This election embittered Jackson, who accused Adams and Clay of forming a corrupt bargain, through which Clay became Secretary of State.

The Rising Tide of Democracy.—During the first thirty years of our history the propertied class controlled the government by reason of the fact that in most states only those who had property could vote or hold office. As the states one by one abolished this qualification and adopted universal manhood suffrage our governments, state and national, underwent a change. The people of the west, where there were few persons of wealth, led in this democratic movement, and their first great leader was Andrew Jackson, who successfully capitalized his popularity. The Jeffersonians were less democratic in practice than in theory, and the now-defunct Federalists had been frankly aristocratic. So a new party, or several of them, had to arise to appeal to the new class of voters. Jackson's party, the Democratic, stood for equality, and opposed privilege in all forms. Thus it drew to it the people of the west, and the working people of the east, besides a share of the southerners. The National Republicans, Clay's party, was scarcely able to compete with the party that professed to stand so strongly for the rights of man.

Tariff Legislation.—The preceding tariff had failed to protect the American manufacturers as much as was expected, so a new demand was made for higher duties. At this time the east was divided on the tariff issue, so when the leaders were framing a bill they took this into consideration and bid for eastern support. The duties were made much higher than any one expected they would ever be put, but after some political maneuvering, the Tariff of Abominations was passed. The south was angered at this disregard of their interests, and it is true that this measure discriminated against that section, as most high tariffs have done.

Internal Improvements.—Adams was an ardent "nationalist," and favored everything that would tend to draw together the different sections of the country. So he advocated some construction of roads and canals wherever they might serve this purpose. Jackson and his supporters opposed this policy and made an issue of it. One might think that since the west was most interested in such improvements Adams would be popular there, but such was not the case, for he possessed to a marked degree the bluntness and tactlessness that had made his father unpopular. During his four years in office there was little constructive legislation accomplished, due partly to the fact that he was not able to form an "administration party," without which no President can be influential.


THE UNION
SOUTH CAROLINA
South Carolina asserts her right to nullify and Secede from the Union 1832
ANDREW JACKSON 1829 TO 1837
APPLICATION
Refused
UNITED STATES
Charter for Bank of U.S. refused 1833
Daniel Webster denies the right of a state to nullify an act of Congress or to secede from the Union 1833
The first Railroad train in New Jersey 1831
ARKANSAS 1836
Admitted to the Union
MICHIGAN 1837
The Telegraph developed by Morse 1835
THE LIBERATOR
FREEDOM
"The Liberator" established in 1831 and the American Anti-Slavery Society formed 1833

ADMINISTRATION OF ANDREW JACKSON
1829–37

The Election of Jackson.—Adams destroyed all hope he might have had of re-election by refusing to "play politics." He would not contribute money to the campaign fund or make speeches. As a statesman Adams takes high rank, but as a politician he was a failure, so Jackson, a master politician, won easily, receiving 178 electoral votes to 82 for Adams. Jackson got the votes of all states west of the Alleghanies, and was the undoubted choice of the people of the U. S.

A New Regime.—Before Jackson's day removals from public office for political reasons had been few, and the practice was frowned upon. Jackson's belief that one American was as good as another to hold office established the principle of "rotation in office," by which it became customary for each in-coming President to remove all office-holders who were of the opposite party. A most vicious system was thus fastened upon the country, and we are not altogether rid of it today. At the time of Jackson's accession thousands of office-seekers poured into Washington and received a welcome from their idol who liked the importance of his position. Removals began at once, and caused great hardship among the Federal employees who had considered themselves fixtures so long as their work was satisfactory.

South Carolina Nullification.—Was there any way by which the states could prevent the enforcement of an act of Congress to which they objected? This old question had been answered affirmatively by Jefferson and Madison in the Virginia and the Kentucky Resolutions and by the Hartford Convention in 1814. It bobbed up again in 1828 when South Carolina resisted the Tariff Law of that year. There can be little doubt that the south was injured by high tariff, but experience has shown that few laws affect all sections alike. Calhoun started the trouble by writing a broad-side entitled the "South Carolina Exposition," which was little more than the Virginia and the Kentucky Resolutions re-worded. In 1830 a notable debate took place in the U. S. Senate between Webster of Massachusetts and Hayne of South Carolina. When Hayne asserted the right of nullification Webster replied that if this was the case the Union was a "rope of sand." He said that the U. S. Supreme Court was the umpire in case a law of Congress was questioned. Jackson disappointed the South Carolinians by declaring against nullification, and when in 1832 South Carolina formally nullified the Tariff Law of that year Jackson issued a proclamation which stated that the laws of the U. S. would be enforced even though it took 40,000 soldiers to do it. Matters never went this far, however, for in 1833 a new Tariff Act was passed providing for a gradual reduction of the rates until 1842 when there should be no duty over 20 percent. The danger of disunion was over for the present, but many times in later history do we find states refusing to obey laws of Congress, treaties of the U. S., and decisions of the Supreme Court.

The Second U. S. Bank.—This bank had been chartered in 1816 for a term of twenty years; it took care of government deposits; had established branches in various parts of the country; and was controlled by a Board of Directors chosen

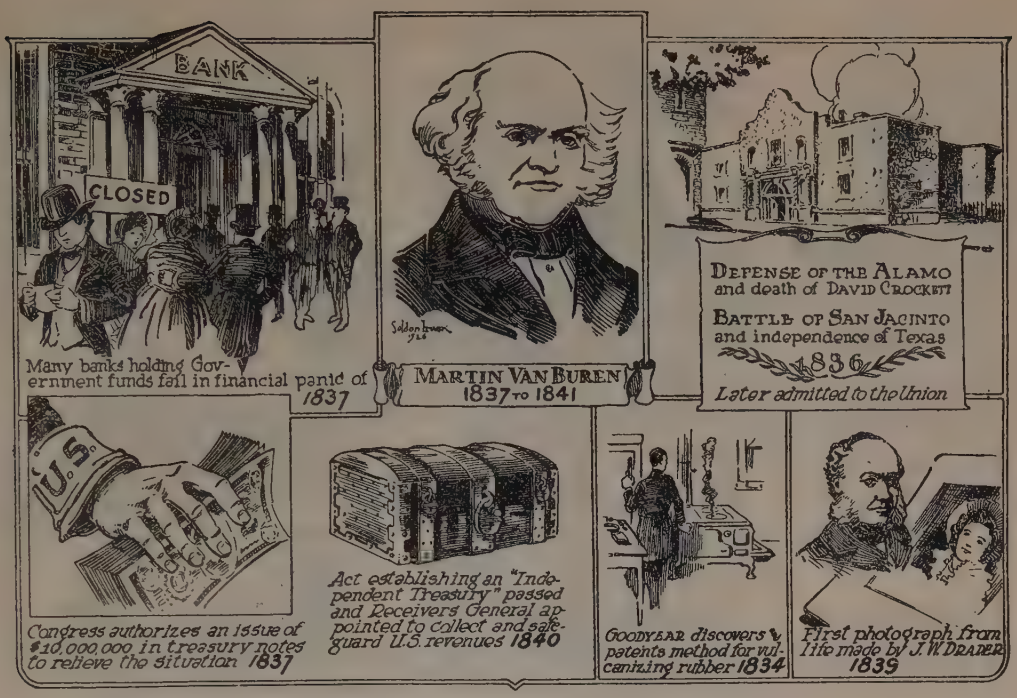
by the private stock-holders and the U. S. government. After a poor start it proceeded on a very successful career and contributed a great deal toward financial stability. Its branches came into direct competition with the state banks which steadily lost many of their best customers. This explains the hostility to the U. S. Bank of the people in the less settled sections of the country. Jackson, a "hard-money" man, understood very vaguely business and banking principles, and professed to think that the U. S. Bank was becoming a money monopoly. It is true that the Bank was using its influence against Jackson and had not been discreet in its opposition. So when in 1832, four years before the expiration of its charter, the Bank applied for a renewal of its charter a controversy of the bitterest kind arose. Jackson vetoed the bill that Congress passed, saying that he believed the Congress had no right to charter an institution which was in effect a monopoly. This veto became the chief issue of the presidential campaign of 1832, and Henry Clay, the nominee of the National Republicans, made the most of it. But the great American democracy was behind Jackson and, without understanding the economic questions involved, trusted Jackson implicitly. He received 219 electoral votes to Clay's 49, and, considering this a mandate from the people, continued his attack on the Bank. In 1833 he directed Duane, the Secretary of the Treasury, to withdraw the deposits of the U. S. government in the Bank and its branches and make no more deposits. Duane refusing to do this, Jackson appointed Roger B. Taney in his place, and Taney gave the necessary order. The effects were immediate, as the Bank upon surrendering its government deposits had to curtail its own loans. Business all over the country slowed up for want of funds and a money stringency of serious proportions resulted. Not content with this, Jackson openly questioned at various times the soundness of the Bank, and would not take the report of committees appointed by Congress to investigate as worthy of acceptance. The Senate, which was controlled by Jackson's enemies, Clay, Calhoun, and Webster, passed a resolution of censure against Jackson for his usurpation of powers not conferred upon him by the Constitution. Thomas H. Benton of Missouri led the fight against this resolution, and in 1837 succeeded in getting it taken off the Senate Journal.

Indian Affairs.—In 1802 Georgia ceded its western lands to the U. S. with the understanding that Indian land titles should be extinguished. By 1825 the Creeks and the Cherokees still retained nearly ten million of acres of good land. The latter had attained a rather high stage of civilization and the U. S. recognized this by making a treaty with them recognizing their right to hold land. In 1829 gold was discovered in the Cherokee country and white persons poured in. Jackson knew that the Indians could not long hold out against the whites no matter how just their case was, so he advised them to surrender their lands in Georgia and take up lands west of the Mississippi. The Cherokees objected to emigrating so Georgia, acting under a law of Congress, extended her jurisdiction over the Indian lands. Georgia passed an act prohibiting whites from residing within the Cherokee territory without a permit from Georgia. A missionary named Worcester disregarded this, was arrested and sentenced to four years imprisonment. The case was taken to the U. S. Supreme Court where John Marshall gave an opinion that the Georgia statute was unconstitutional, and that Worcester was therefore free. Georgia disregarded this decision and kept Worcester in prison until he was pardoned by the Governor of the state. Jackson was not sorry to have the opportunity of spiking Marshall's guns and refused to carry out the decision, saying, so the story goes, "John Marshall has made his decision; now let him enforce it." In 1835 the Cherokees yielded to the inevitable and gave up their lands east of the Mississippi, receiving $5,000,000 and new lands in the Indian territory. Neither the national nor the state governments had behaved toward the Indians in such a way as to be a matter of pride for us today.

Public Lands.—One of the great questions of the hour was what to do with the public lands. The old policy of selling them for a nominal sum and taking in exchange the depreciated currency of the states had broken down. Its greatest effect had been that of causing land speculation, and this had had a discouraging effect upon the serious buyer of lands. Jackson was in favor of reducing the price so that the U. S. would not make a profit on the sale of these lands, but he believed that the money paid for the land should be good money. In 1835 an order went forth to the effect that hereafter only gold and silver would be received in payment for public lands. The western banks were seriously affected by this order as they had been taking in all kinds of money, and their debtors had little specie. But for a time speculation was stopped.

Party Conventions.—The electoral college devised by the framers of the Constitution had ceased to function in anything but name after Washington's retirement, and nominations for the presidency had been made in various ways, usually by caucus of the members of the party in congress. In 1831 the Anti-Masons called a convention to nominate candidates for President and Vice President, and within a short time this became the established custom.

Jackson as President.—The place of Andrew Jackson in the history of our country is still a matter of dispute among historians. Some credit him with great virtues and few faults, while others can not overlook his temperamental deficiencies. The latter are inclined to view him as a successful politician rather than a statesman. Some even rank him as a demagogue, but the general opinion is that he was honest in his convictions. He was essentially a man of the frontier, with all the merits and the weaknesses of the west; its optimism and courage, and its distrust of wealth and indifference to the cultural and esthetic side of life. Jackson was an American product and embodied the good and the evil side of our people.

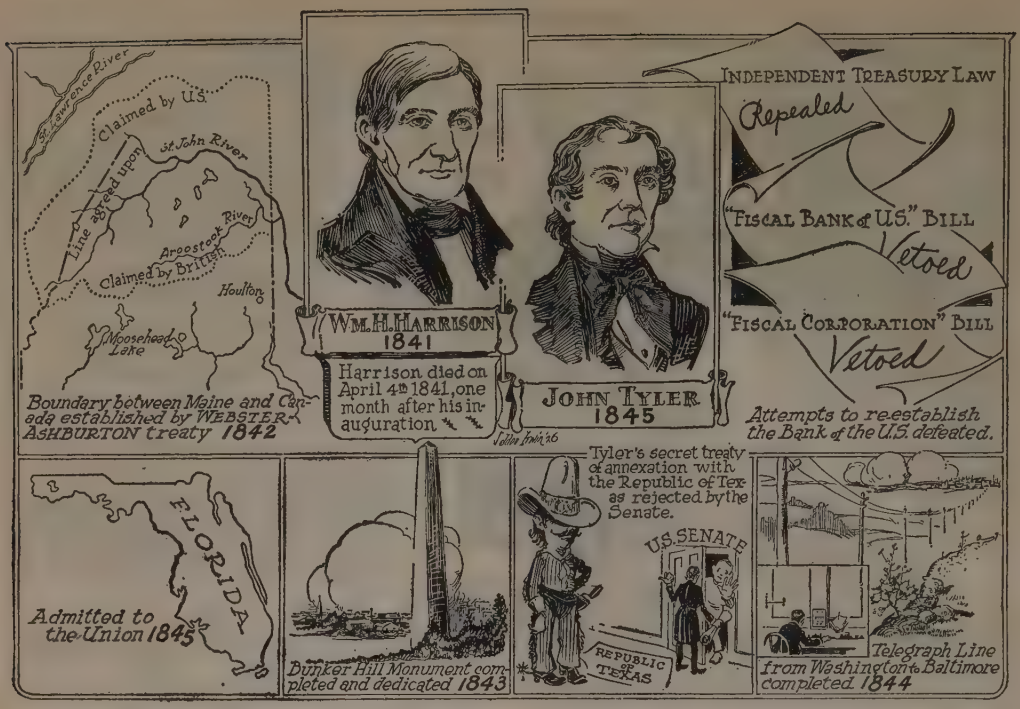

BANK
CLOSED
Many banks holding Government funds fail in financial panic of 1837
MARTIN VAN BUREN 1837 TO 1841
DEFENSE OF THE ALAMO and death of DAVID CROCKETT
BATTLE OF SAN JACINTO and independence of Texas
1836
Later admitted to the Union
U.S.
Congress authorizes an issue of $10,000,000 in treasury notes to relieve the situation 1837
Act establishing an "Independent Treasury" passed and Receivers General appointed to collect and safeguard U.S. revenues 1840
GOODYEAR discovers & patents method for vulcanizing rubber 1834
First photograph from life made by J. W. DRAPER 1839

ADMINISTRATION OF MARTIN VAN BUREN
1837–41

The Election of Van Buren.—Jackson was getting old, and so declined to run for a third term, but he virtually named his successor, Martin Van Buren, a New York politician whose mind went along with Jackson's in everything. His opponent, William Henry Harrison, the Whig candidate, did not make a good candidate, and Van Buren won easily.

The Panic of 1837.—Van Buren had to suffer for Jackson's shortcomings. The attacks on the U. S. Bank and the refusal to re-charter it had been the beginning of an economic disturbance that reached its worst consequences shortly after Van Buren's inauguration. Hundreds of state banks had been established and all of them were issuing currency the volume of which increased immensely after the U. S. Bank went out of business. It is estimated that during the last year of Jackson's administration $50,000,000 of "wild-cat" currency was issued, little of which was worth anything. This inflation caused wild speculation, especially in land which the government was now selling for a dollar and a quarter an acre. The sale of this land enabled the Federal government to pay off its national debt and still have left $35,000,000. Congress provided for the distribution of this surplus among the states as a nominal loan, and $28,000,000 was paid over. This was another source of trouble for it led to the issuance of more paper money, and speculation increased in proportion. Jackson's Specie Circular brought about a sudden curtailment of loans and money of all kinds became scarce. The banks, being unable to redeem their currency in specie, shut up their doors, and many merchants did the same. To meet the crisis Van Buren called a special session of Congress but he refused to withdraw the Specie Circular, believing that the country would get along better without paper money. He proposed an Independent Treasury to handle government funds, but the banks were influential enough to keep such an act from being passed until 1840. The effects of this panic wore away gradually, but hard times recurred periodically. That they could have been avoided by a wise Federal banking system is probable.

The Slavery Question.—Following the discussion over the admission of Missouri there arose a group of anti-slavery men known as the Abolitionists. The man now commonly recognized as the soul of the movement was William Lloyd Garrison, and he had to face not only the bitterest hostility of the south, but the disapproval of most of the people of the north who believed that while slavery was an evil it could only be dealt with by state laws. John Quincy Adams, who was now in the House of Representatives, gave his valuable aid to the anti-slavery cause. Several bloody slave insurrections in the south had frightened that section into passing severe laws against free negroes. Their grievance against the Federal government was that the U. S. mails were used by the Abolitionists to carry anti-slavery literature to the south where it sometimes fell into the hands of the slaves. A Federal order stopped this, but it gave the anti-slavery men a chance to say that one of the rights sacred to the Americans had been destroyed. In 1836 the House of Representatives passed the "Gag Law," by which anti-slavery petitions could not be presented in the House. Adams fought hard against this, and in 1840 the Law was repealed.


St. Lawrence River
Claimed by U.S.
Line agreed upon
St. John River
Aroostook River
Claimed by British
Houlton
Moosehead Lake
Boundary between Maine and Canada established by WEBSTER-ASHBURTON treaty 1842
WM. H. HARRISON
1841
Harrison died on April 4th 1841, one month after his inauguration
JOHN TYLER
1845
INDEPENDENT TREASURY LAW
Repealed
"FISCAL BANK of U.S." BILL
Vetoed
"FISCAL CORPORATION" BILL
Vetoed
Attempts to reestablish the Bank of the U.S. defeated.
FLORIDA
Admitted to the Union 1845
Bunker Hill Monument completed and dedicated 1843
Tyler's secret treaty of annexation with the Republic of Texas rejected by the Senate.
U.S. SENATE
REPUBLIC OF TEXAS
Telegraph Line from Washington to Baltimore completed 1844

ADMINISTRATION OF WILLIAM HENRY HARRISON AND JOHN TYLER—1841–45

The Election of Harrison.—Van Buren was nominated unanimously by the Democrats for a second term, and the Whigs, passing by Clay, nominated William Henry Harrison of Ohio. For Vice President they chose John Tyler of Virginia whose admiration for Clay was responsible for his being in the Whig party. The campaign of 1840 was one of the noisiest campaigns in our history and the Whigs made the most of the fact that Harrison was a war hero and a man of the people. He was elected by 234 electoral votes to 56 for Van Buren who even lost his own state, New York.

The Death of Harrison.—The President was nearly seventy years of age when he was elected, and not in the best of health, but undoubtedly his death was hastened by trying to please the numerous office-seekers who poured into Washington. He was the first President to die in office.

Tyler's Difficulties.—Clay, rather than Tyler, was the Whig leader, and trouble began when Clay attempted to dictate the policy that the President should follow, particularly with regard to a National Bank which Clay wanted to have chartered and which Tyler opposed as vigorously as did Jackson. A Bank bill was passed, providing the opportunity for Tyler to assert himself, which he did by vetoing it, stating that the bill was unwise and unconstitutional. Another bill was drawn up which was supposed to meet the objections of the President, but this was vetoed also. Tyler's break with his party was now complete and every member of the Cabinet except Webster resigned. As his former party, the Democratic, refused to have him back he was isolated for the remainder of the term. Webster resigned in 1843 when he found that Tyler favored the annexation of Texas.

The Tariff of 1842.—The Compromise Tariff of 1833 ran out in 1842 and the Whigs replaced it with a new measure which restored most of the rates in force in 1832. With this act the Tariff ceases to be a live subject of political discussion for many years, partly because a more exciting issue pushed it into the background.

The Webster–Ashburton Treaty.—The northeast boundary between the U. S. and Canada had never been definitely fixed and several times threatened to cause trouble between the two countries. A local disturbance, known as the "Aroostook War" brought matters to a head, and in 1842 a treaty was signed giving the U. S. 7015 square miles of the disputed territory.

The Annexation of Texas.—Texas won her independence from Mexico in 1837 and, after trying to join the U. S., set up an independent republic. France and England tried to extend their influence in Texas, and England was believed to be trying to get special trade concessions. The southerners became alarmed at the possibility of losing Texas while the people of the north were inclined to view the whole thing as a "bluff" of Texas to force annexation. Tyler reflected the opinions of his fellow slaveholders by doing all in his power to admit Texas. A treaty was made whereby Texas was to be admitted, but the U. S. Senate defeated it, and the matter was left over until the next administration. The annexation of Texas and the dispute with England over Oregon became the issues of the campaign of 1844.

War between Mexico and the U.S. follows the admission of Texas to the Union and the question of the boundary line 1846
JAMES K. POLK 1845 TO 1849
Sutter's Mill, near Sacramento, where gold was first discovered in California 1848
The Mormons establish themselves at Nauvoo Ill. where their leader Joseph Smith and his brother are murdered 1843
Book of Mormon
MEXICAN TERRITORY
IOWA Admitted to the Union 1846
WISCONSIN Admitted to the Union 1847
RIO GRANDE
Texas admitted to the Union 1845
Mexican territory ceded to the U.S. upon payment of fifteen million dollars. Treaty of Guadalupe Hidalgo 1848

ADMINISTRATION OF JAMES K. POLK
1845–49

The Election of Polk.—Texas was the big issue and both parties had to consider this in making their nominations. Van Buren spoiled his chances for the nomination by declaring against the annexation of Texas, thereby alienating the south. Clay had straddled the issue, but his strength in the north was enough to secure him the nomination. The campaign was bitterly fought but Polk won by 170 electoral votes to Clay's 105.

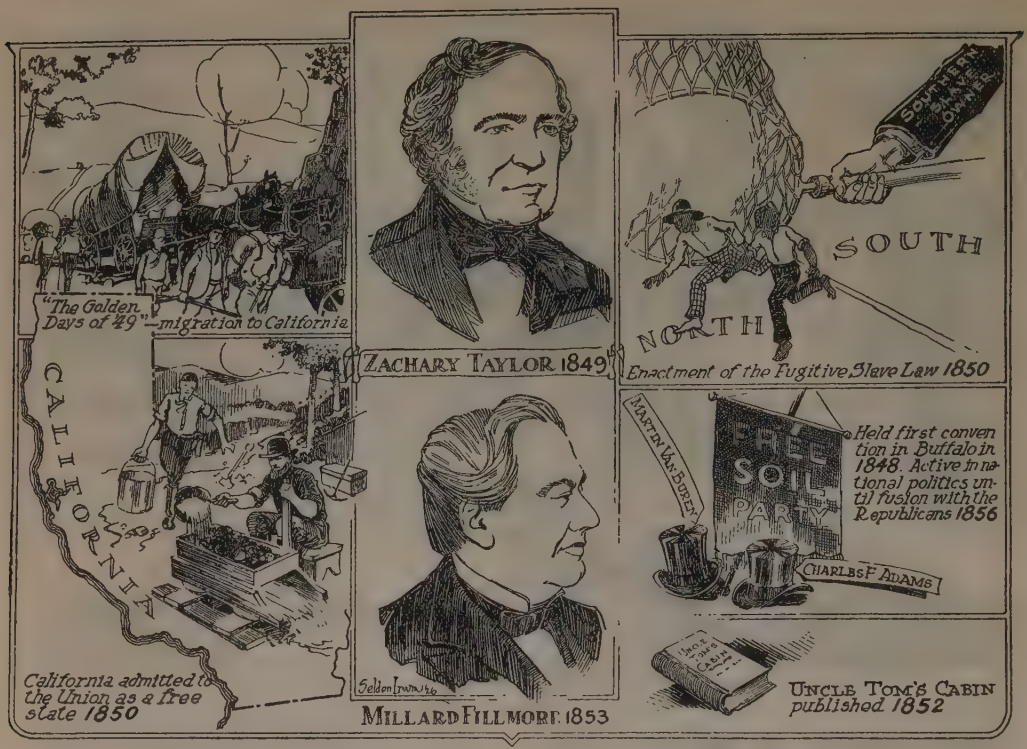
Texas Annexed.—Just before Tyler went out of office Congress passed a joint resolution providing for the admittance of Texas into the Union when her constitution should be accepted by Congress. Tyler at once entered into negotiations with the Texan government, and Polk, on becoming President, hastily brought the affair to a conclusion. Texas was admitted in December, 1845. Mexico at once broke off diplomatic relations with the U. S.

The Tariff of 1846.—The Democrats were displeased with the existing tariff rates and lost no time in passing a new bill which reduced the duties to a revenue basis and which remained on the statute books until 1857. The manufacturing interests were now strongly enough established to get along without high protection, and did not suffer because of the reduction.

The Oregon Question Settled.—In the campaign of 1844 the Democrats had made their slogan, "fifty-four forty or fight," but now that they were in power they adopted a more moderate attitude toward England. Polk's offer to settle on the 49th parallel as the boundary was finally accepted.

The Mexican War.—Polk was very desirous of acquiring California and New Mexico, and to that end he sent Slidell to Mexico to make an offer of $25,000,000 for California and $5,000,000 for New Mexico. We were in Mexico's bad graces at that time and the offer was never considered. The boundary between Texas and Mexico had never been settled, and Polk used this disagreement as a means of getting into war. He ordered General Taylor to cross over into the disputed territory; the Mexicans attacked an American force, and Congress declared war May 12, 1846. Taylor soon defeated the Mexicans in the hard-fought battle of Buena Vista, and early in 1847 General Scott, starting from Vera Cruz, marched through Mexico and captured Mexico City, ending the war. By the treaty of Guadaloupe Hidalgo it was agreed that the boundary should follow the Rio Grande to the New Mexican line, thence west to the first branch of the Gila river, thence with the river to the Colorado, and from that point with the boundary between upper and lower California to the Pacific. We agreed to pay Mexico $15,000,000 for New Mexico and California.

The Wilmot Proviso.—The addition of all this new territory only served to make the slavery question more acute. In 1846 and 1847 Congress was debating a resolution in the form of a proviso that none of the territory which was to be added to the U. S. was to be open to slavery. Although the proviso was ultimately defeated it set the country in an uproar and divided the U. S. hopelessly into sections.


"The Golden Days of '49"—migration to California
ZACHARY TAYLOR 1849
SOUTHERN SLAVE OWNER
SOUTH
NORTH
Enactment of the Fugitive Slave Law 1850
CALIFORNIA
MARTIN VAN BUREN
FREE SOIL PARTY
CHARLES F ADAMS
Held first convention in Buffalo in 1848. Active in national politics until fusion with the Republicans 1856
California admitted to the Union as a free state 1850
Seldon Irwin '26
MILLARD FILLMORE 1853
UNCLE TOM'S CABIN
UNCLE TOM'S CABIN published 1852

THE ADMINISTRATION OF ZACHARY TAYLOR AND MILLARD FILLMORE
1849–53

The Election of Taylor.—The Whigs once more nominated a war-hero, General Taylor. A factional fight in New York prevented Polk from getting a re-nomination, and the Democratic convention named Lewis Cass of Michigan, a former Cabinet officer under Jackson. The anti-slavery people were not satisfied with the position taken by either of the two major parties on the slavery question, and formed the Free Soil party, nominating Van Buren. New York, by going for Taylor, decided the election. Taylor received 163 electoral votes and Cass 127.

The Compromise of 1850.—When Congress met in December, 1849, affairs were critical. California and New Mexico had not been given any status, and California had formed an irregular state government. Three courses were open: to admit them as states (or territories) without saying anything about slavery; to prohibit slavery; or to compromise. Under the doctrine of popular sovereignty slavery was a domestic question, to be settled by the people of the states or territories, and we hear much of this in the next ten years. It remained for Henry Clay to round out his long political career by proposing the terms of the compromise ultimately agreed to: California was to come in as a free state; New Mexico and Utah were to be created territories without restrictions as to slavery; the prohibition of the slave-trade in the District of Columbia; a more effective fugitive-slave law. The debate over these proposals takes rank as probably the greatest ever delivered in our Congress. Calhoun, now in his last days, spoke against the compromise. He foresaw the time when the slave states would be so outnumbered that their rights would be taken from them. Each successive decade had witnessed a decline in the influence of the south. The Northwest Ordinance, the Missouri Compromise, the protective tariff, and the general policy of Federal consolidation had all worked hardships on the south. Clay's proposals would increase the difficulties of the south. Calhoun realized better than anyone else that such a compromise could only be of temporary duration. Webster took a moderate attitude, condemning the Abolitionists for their radical views, and supporting Clay's proposals. After a three months debate the Compromise of 1850 was passed.

The Nashville Convention.—While the above matters were under consideration by Congress nine southern states met in convention at Nashville, Tennessee, for the purpose of protecting the interests of their section. Some of the delegates were ready for immediate secession, especially those from South Carolina and Mississippi, but calmer counsel prevailed, and the Convention adjourned without taking any decisive action. However it paved the way for southern co-operation later.

The Death of President Taylor.—July 9, 1850, Taylor died, worn out by the duties of his office. He had exhibited an unusual independence in his attitude toward public questions, and, although a slave-holder himself, frowned upon the southern "fire-eaters."

KANSAS AND NEBRASKA DOMAIN
36°30'
SLAVERY FORBIDDEN INSIDE by MISSOURI COMPROMISE
KANSAS NEBRASKA BILL
MO. COMPROMISE
Kansas-Nebraska Bill, fought by Free-Soilers as extending slavery, passed 1854
FRANKLIN PIERCE 1853 TO 1857
Newly formed REPUBLICAN party holds first NATIONAL CONVENTION at Philadelphia, nominating John C. Frémont & W. L. Dayton 1856 after marked success in state politics.
CAL.
NEW MEXICO
GILA RIVER
GADSDEN PURCHASE
AREA 45,535 SQ.M.
LOWER CALIFORNIA
Purchased from Mexico for $10,000,000 1853
MEXICO
First company formed to produce and market Petroleum products 1854
CYRUS FIELD lays the first Atlantic Cable 1857

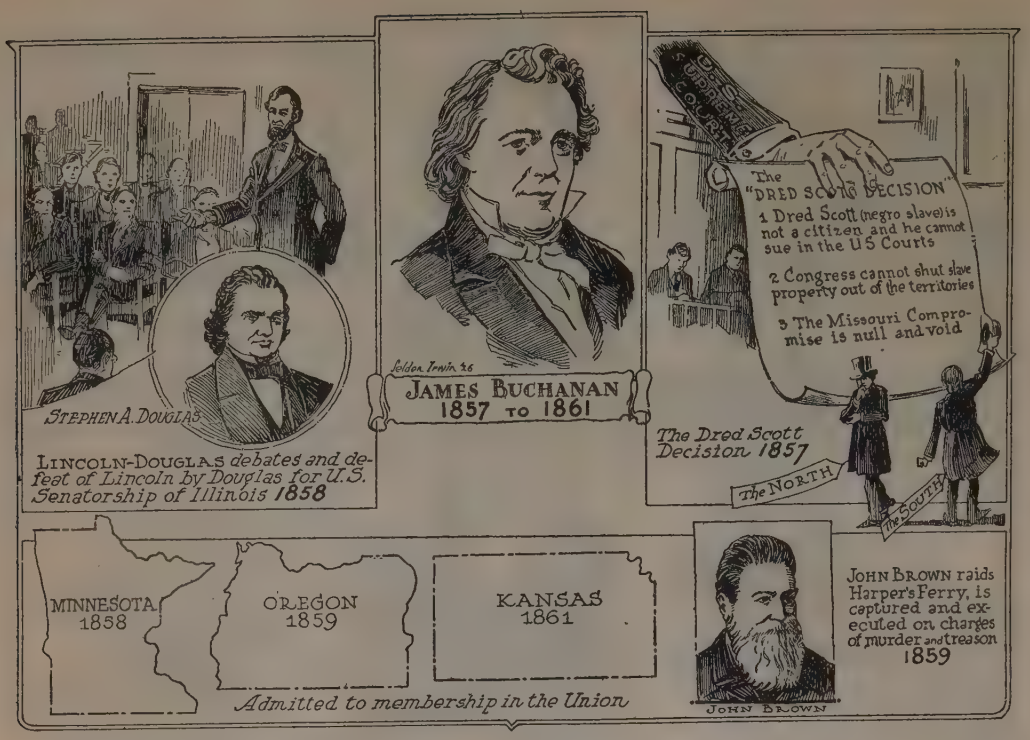
THE ADMINISTRATION OF FRANKLIN PIERCE—1853–57

The Election of Pierce.—With the exception of the Abolitionists and the southern extremists the people of the U. S. hoped that the Compromise of 1850 had finally settled the slavery controversy, and both the Whig and the Democratic conventions adopted resolutions to that effect. The Democrats finally gave the nomination to a "dark horse," Franklin Pierce of New Hampshire, after forty-nine ballots. The Whigs continued their policy of nominating military men by selecting General Winfield Scott. The Free Soil party also put a candidate in the field. Pierce received 254 electoral votes and Scott 42, thus proving beyond doubt that the great mass of Americans endorsed the Compromise.

Trouble over Fugitive Slaves.—"Slave-stealing" had been increasing steadily, especially after the Abolitionists had put into operation the "Underground railroad," which systematically took care of escaped slaves until they reached Canada. Not only that, but when fugitive slaves were captured in the north they were often rescued by mobs. States in the north began passing "personal liberty laws" by which the people were forbidden to aid in the return of fugitive slaves. As the Federal law on the subject directed the return of such persons these states were put in the position of nullifying a law of Congress.

The Kansas-Nebraska Controversy.—Nebraska was the unorganized territory west of Iowa and Missouri. In January, 1854, S. A. Douglas of Illinois, reported to the Senate a bill providing for two territories. When the bill passed it had been so amended that one of these territories was to be free, the other slave, and the Missouri Compromise was to be repealed. Douglas defended the measure on the ground that the people of a territory had the right to decide their own problems, and that climate determined slavery. The whole country was aroused again, and a new host of leaders arose to take the place of Clay, Webster, and Calhoun, now all dead. William H. Seward, S. P. Chase, and Benjamin Wade opposed slavery extension; Jefferson Davis and Toombs represented the interests of the slave-holders; Douglas and James Buchanan took the middle ground.

Bloody Kansas.—After Kansas became an organized territory settlers poured in, at first mainly from slave states, and the legislature drew up a slave code. An influx of New Englanders made it possible for them to set up a separate government, and the U. S. had to choose between them. Congress wrangled over the matter while anarchy prevailed in Kansas. Two hundred persons were killed in this guerilla warfare, in which John Brown took a leading part. Pierce, who was very much under the domination of the southern leaders, especially Jefferson Davis, was inclined to favor the slave party in Kansas, and denounced the free-state government as rebellious. When Pierce retired in 1857 Kansas was still disputed territory. The effect of the Kansas controversy was to bring home to the people of the country the near possibility of civil war.


STEPHEN A. DOUGLAS
LINCOLN-DOUGLAS debates and defeat of Lincoln by Douglas for U.S. Senatorship of Illinois 1858
JAMES BUCHANAN
1857 TO 1861
The "DRED SCOTT DECISION"
1 Dred Scott (negro slave) is not a citizen and he cannot sue in the U S Courts
2 Congress cannot shut slave property out of the territories
3 The Missouri Compromise is null and void
The Dred Scott Decision 1857
THE NORTH
THE SOUTH
MINNESOTA 1858
OREGON 1859
KANSAS 1861
Admitted to membership in the Union
JOHN BROWN
JOHN BROWN raids Harper's Ferry, is captured and executed on charges of murder and treason 1859

THE ADMINISTRATION OF JAMES BUCHANAN—1857–61

The Election of Buchanan.—The Whigs were hopelessly disrupted. The northern and southern wings could never be brought together again. The Democratic party in the south gained by the accession of many Whigs, while northern Democrats were still inclined toward conservatism. A new party, the Know-Nothing, drew its strength mainly from the Whigs. It was principally an anti-foreign party, and may be said to be the fore-runner of the modern Ku Klux Klan. In 1854 the Republican party was formed, carrying over the principles of the Free Soil party. The candidates in 1856 were, John C. Fremont, Republican; James Buchanan, Democratic; Millard Fillmore, Know-Nothing. Buchanan got 174 electoral votes, Fremont 114, Fillmore 8.

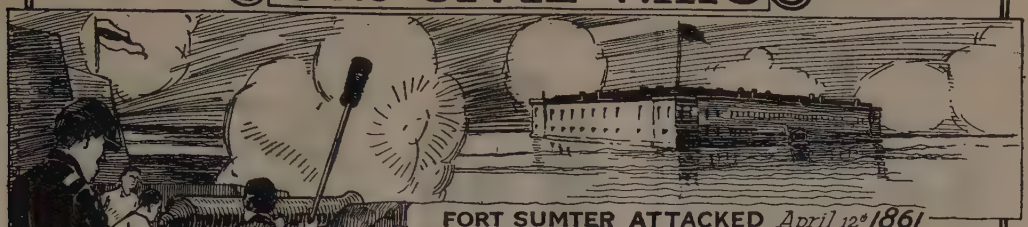
The Dred Scott Decision.—Dred Scott was a slave who had been taken by his master into free territory and brought back to slave territory. He sued for freedom, claiming that his residence in a free state had made him free. The case reached the U. S. Supreme Court where two points were considered: was Scott a citizen of Missouri, and did the Missouri Compromise protect him? The decision of the majority was read by Chief-Justice Taney who said that Scott, not being recognized as a citizen of Missouri, was not a U. S. Citizen. Furthermore, the Missouri Compromise was null and void. A dissenting opinion delivered by Justice Curtis upheld Scott's contentions.

The Lincoln-Douglas Debates.—Lincoln first became widely known through his debates with Douglas over current issues centering around slavery. Both were candidates for the U. S. Senate at the time. Lincoln said that "a house divided against itself can not stand. I believe this government can not endure permanently half slave and half free." Douglas denounced this as Abolition doctrine. Lincoln destroyed Douglas's chances for the Presidency by forcing the latter to say that if the people of the states did not want slavery they would keep it out in spite of any Supreme Court decision. This alienated the southern Democrats, although it served to elect Douglas to the U. S. Senate.

The John Brown Raid.—After a wild career in the west John Brown went east with a crazy scheme for a slave insurrection. Receiving some aid from Abolitionists he fixed on Harper's Ferry, Virginia, as the base of operations. Oct. 16, 1859 he seized the U. S. arsenal at Harper's Ferry, only to be captured on the 18th by U. S. troops. He was hanged for starting a rebellion, and the incident might soon have been forgotten if the country had not been on the verge of war.

The Gulf States Secede.—The nomination of Lincoln, and the split of the Democratic party, making Lincoln's election almost sure, convinced the radical southerners that slavery was doomed so long as the Union in its present form existed. Seeing no hope for their cause South Carolina passed an ordinance of secession Dec. 20, 1860, and by Feb. 4, 1861 Georgia, Alabama, Mississippi, Louisiana and Florida had followed suit. They set up the Confederate States of America electing Jefferson Davis President, and Alexander H. Stephens Vice President. Buchanan, about to retire, did nothing to stop the progress of secession, as indeed there was little anyone could do.

The Civil War

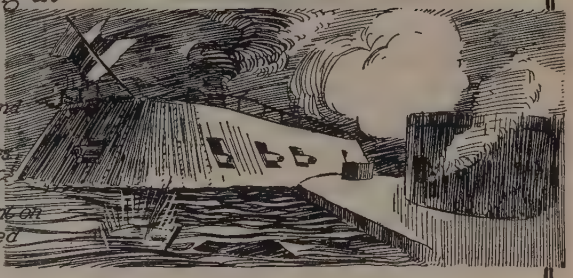


FORT SUMTER ATTACKED *April 12th 1861*
The first act of war against the Union
LINCOLN'S CALL TO ARMS
A call for 75000 volunteers for 3 months
BATTLE of MANASSAS *or Bull Run July 21st*
FORT DONELSON FORT HENRY *taken in Feb* 1862
Battle between the MONITOR *and* MERRIMAC
This engagement marked the beginning of a new era in naval warfare – and the passing of the wooden battleship – March 8th
FARRAGUT *takes* NEW ORLEANS *Apr. 25th*
PENINSULAR CAMPAIGN *against Richmond May-Aug.*
Battle of SHILOH *and capture of* FORT PILLOW *June 4th*
ANTIETAM *September 17th*
IUKA *and* CORINTH *Sept 19-Oct 4th*
BRAGG'S RAID *Oct. 8th*
FREDERICKSBURG *December*
MURFREESBORO *Dec. 31st*
BATTLE of GETTYSBURG *July 1-3* 1863
VICKSBURG SURRENDERS *July 4th*
CHICKAMAUGA
AND
CHATTANOOGA *Sept. 19-20th*
LOOKOUT MOUNTAIN
"The Battle above the Clouds" – Nov 24th
GEN. U. S. GRANT *is put in command of the Army of the Potomac in the Spring of* 1864
and plans an attack on Richmond.
GEN. SHERMAN *marches against Johnson with an army of 98000 men proceeding toward Atlanta which he captures and destroys, continuing on "The march to the sea" – November*
THE WILDERNESS CAMPAIGN *May 4th*
EARLY'S RAID *May and June*
SHERIDAN'S RIDE *Oct. 19th*
GEN SHERMAN *takes* FORT McALISTER *and* SAVANNAH *Dec. 13th*
In Feby 1865 Alexander H. Stevens, Vice Pres. of the Confederacy met LINCOLN *and Sec. Seward to discuss terms of peace. The terms were not accepted and the war went on*
GEN LEE *retreats from Richmond pursued by* GEN. GRANT.
LEE SURRENDERS
at Appomattox Court House on April 9th 1865

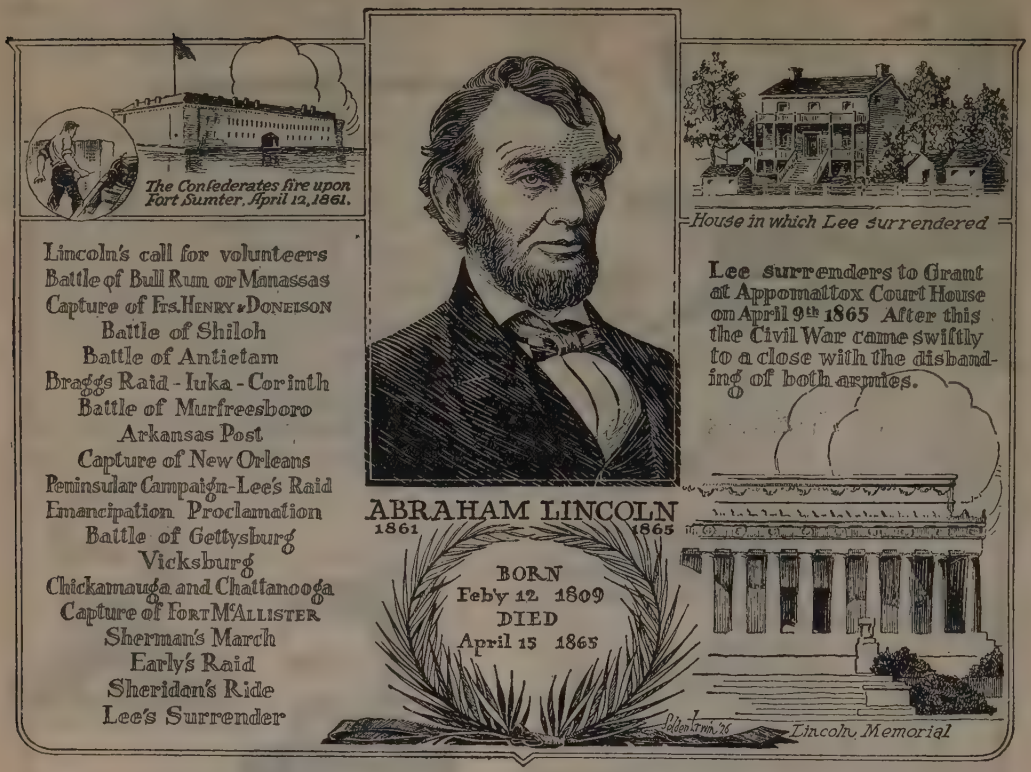
Fort Sumter was defended by Major Anderson and evacuated after a thirty-four hour bombardment

GEN. U. S. GRANT

GEN. ROBERT E. LEE



The MONITOR *and* MERRIMAC


The Confederates fire upon Fort Sumter, April 12, 1861.
Lincoln's call for volunteers
Battle of Bull Run or Manassas
Capture of Frs. Henry & Donelson
Battle of Shiloh
Battle of Antietam
Braggs Raid - Iuka - Corinth
Battle of Murfreesboro
Arkansas Post
Capture of New Orleans
Peninsular Campaign-Lee's Raid
Emancipation Proclamation
Battle of Gettysburg
Vicksburg
Chickamauga and Chattanooga
Capture of Fort M'Allister
Sherman's March
Early's Raid
Sheridan's Ride
Lee's Surrender
ABRAHAM LINCOLN
1861 1865
BORN
Feby 12 1809
DIED
April 15 1865
House in which Lee surrendered
Lee surrenders to Grant at Appomattox Court House on April 9th 1865 After this the Civil War came swiftly to a close with the disbanding of both armies.
Lincoln Memorial

THE ADMINISTRATION OF ABRAHAM LINCOLN—1861–65

The Election of Lincoln.—The Republicans turned away from their most prominent men, Seward, Wade and Chase, to select a candidate who had not been in public life prominently enough to have made enemies. The Democrats met in convention at Charleston, S. C., only to find that the party was hopelessly divided; so one wing met at Baltimore and nominated Douglas, while the radicals met at Richmond and nominated J. C. Breckenridge, Kentucky. With John Bell, of Tennessee, selected by the Whig-Know-Nothing party, there were four prominent candidates in the field. Lincoln was the only one who got the undivided support of his party and was elected, receiving 180 electoral votes to 72 for Breckenridge, 39 for Bell, and 12 for Douglas.

Lincoln's Inaugural Address.—The whole country waited anxiously to hear what Lincoln proposed to do. In his inaugural address he assured the South that slavery was safe, but expressed his intention of enforcing Federal laws. He denied the right of secession, but was evidently very anxious to conciliate the South.

The Outbreak of the Civil War.—Fort Sumter, at Charleston, S. C., was cut off from Union aid, and ships finally sent to Major Anderson's relief arrived too late. The Confederates bombarded the fort, and on April 13 it surrendered. War was assured and Lincoln called for 75,000 volunteers. By June all the southern states had joined the Confederacy. The border states, Maryland, Kentucky, and Missouri were held in the Union, although in all three southern sympathizers were in the majority. The north had the advantage in material supplies and number of possible soldiers. The southerners were better soldiers and went into the war with more enthusiasm.

The Battle of Bull Run.—Two large Union armies under Generals McDowell and Patterson were sent toward Richmond, and before advancing far they came into conflict with Confederate forces under the command of Generals Beauregard and Johnston. The battle at first favored the Union troops, but at the crisis the Confederates received re-enforcements and the Union soldiers began a disorderly retreat. If the Confederates had realized it they might have captured Washington. This battle served to nerve both sections of U. S. for a long struggle.

Trouble with Great Britain.—European peoples were inclined to favor the South, believing that it was a fight for freedom. European governments would have been glad to see the U. S. broken up into sections, and thus gave the South aid whenever they could. At the outbreak of the war the British government made an official recognition of belligerency which gave the Confederates a legal status in their dealings with foreign powers. The Lincoln government protested against this, but an affair of greater importance soon engaged the attention of both countries. The U. S. ship, San Jacinto, stopped the British ship, Trent, and took off two Confederate emissaries, Mason and Slidell. War between the U. S. and England was barely

averted, the U. S. disavowing the act of Captain Wilkes and restoring the Confederate agents. In the next point of dispute England was in the wrong. She permitted warships for the southern Confederacy to be built in her shipyards—a violation of international law, and these ships, the Alabama and the Florida especially, did untold damage to American shipping.

The War in the West.—General Grant was put in charge of operations in the West, and in the early part of 1862 by capturing Confederate forts on the Tennessee and Mississippi rivers drove the enemy farther south. By the middle of the year the Union forces were in control of most of the Mississippi, Admiral Farragut having taken New Orleans in April. The next year Grant renewed his operations and on July 4 captured the Confederate stronghold, Vicksburg. After a long period of severe fighting, in which the battles of Chickamauga, Chattanooga, and Lookout Mountain stand out most prominently, the whole of Tennessee was in Union hands. In Feb., 1864, the command of the army in the West was given to General Sherman after Grant was made commander of all the Union forces, and in Sept., 1864, Atlanta was taken. By the end of the year Sherman had taken Savannah and the Confederacy was cut in two.

The War in the East.—General McClellan, in 1862, tried to fight his way to Richmond but his over-caution and the excellent strategy of the Confederate leaders, Generals Lee and Jackson, made the operation a failure and he was removed from command, being succeeded by General Halleck. General Pope was put in command of the Union army in the field but the choice was a poor one, for he was completely out-generaled by Lee and Jackson. Finally at the second battle of Manassas he was driven back upon Washington and was deprived of his command. Lee now invaded Maryland and McClellan was restored to his former position to oppose him. The battle of Antietam which occurred Sept. 17, 1862, was one of the major engagements of the war, and while neither side could claim victory the Confederates were checked. Burnside now took McClellan's place with orders to move toward Richmond. He bungled the campaign and, after suffering terrible losses at Fredericksburg, gave way to Hooker who had no better success, finally being defeated at Chancellorsville. The Confederates lost more than they gained, however, for General "Stonewall" Jackson was killed. In June, 1863, the southern army started north. General Meade was put in command of the Union forces and put his army in front of the Confederates as they reached Pennsylvania. The great battle of Gettysburg lasted three days, and when it ended Lee was on his way back to Virginia. The north had been saved from invasion. In March, 1864, Grant took command of the Union armies and started for Richmond. The Wilderness campaign lasted for two months, May and June, 1864, and resulted in Grant's being checked after an enormous loss of life. With the opening of 1865 the Confederacy was fighting a lost cause. Its man-power was low; the blockade had effectually cut off supplies from foreign countries, and the war-spirit was declining. In the spring Grant renewed his attacks with an army immensely superior in numbers to Lee's, and, on April 9, 1865, Lee surrendered, virtually ending the war.

Draft Riots During the War.—The North and South both had to resort to conscription to raise enough troops. This draft met with opposition among the foreign-born people of the north, and bloody riots occurred. In July, 1863, 1,000 persons were killed or wounded and much property destroyed in riots that occurred in New York City.

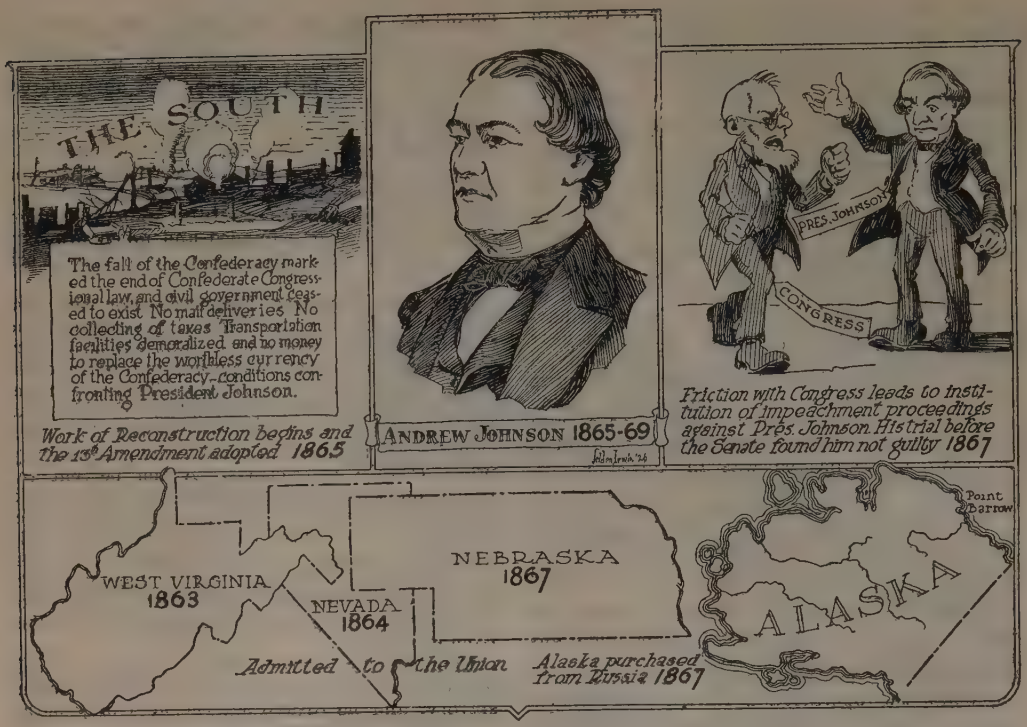
How the War was Financed.—For the first time in its history the Federal government had to resort to an income tax. But expenses were too heavy to be met altogether out of taxes so bonds were sold. In addition Treasury notes were issued and made legal tender. The National Banking Act of 1863 provided for the chartering of national banks which could issue paper money, under certain restrictions. A ten percent tax levied on the currency issues of state banks forced the latter to become national banks or give up the privilege of issuing currency. In 1864 the expenses were so enormous that the government had to issue paper money to the amount of $431,000,000, besides levying taxes on almost every thing. Gold and silver were driven from circulation.

Emancipation.—From the beginning Lincoln had insisted that the war was not fought to end slavery, and he disavowed the acts of generals who took the matter into their own hands, having in mind the slave states which had remained in the Union. But by the middle of 1862 he had made up his mind that freeing the slaves would injure the Confederacy, so he decided upon it as a war measure. Sept. 23, 1862, he issued the Emancipation Proclamation, declaring free all slaves which were held in the Confederate states.

Lincoln Re-elected.—The Republicans re-nominated Lincoln in 1864, and the Democrats chose General McClellan to oppose him. Lincoln won by 212 electoral votes to 21 for McClellan.

Lincoln's Plan of Reconstruction.—Lincoln held to the theory that the southern states were not out of the Union because they could not constitutionally secede. His policy was to re-build the so-called seceded states around whatever loyal element existed in them, that nucleus being fixed by him at one-tenth of the voters of the state. Thus he insisted upon the recognition of the state of West Virginia which had been erected by a small number of Virginians living in northwestern Virginia, and whenever one of the states of the Confederacy was conquered by Union troops he proceeded to reconstruct it by urging the loyal persons to re-form the state government.

Lincoln Assassinated.—On April 14, 1865, while attending a theatrical performance, Lincoln was shot by an actor, John Wilkes Booth who crazily thought he was redressing the wrongs of the South. Lincoln died the next day. The assassin was killed and four other conspirators were executed.


THE SOUTH
The fall of the Confederacy marked the end of Confederate Congressional law, and civil government ceased to exist. No mail deliveries. No collecting of taxes. Transportation facilities demoralized and no money to replace the worthless currency of the Confederacy—conditions confronting President Johnson.
Work of Reconstruction begins and the 13th Amendment adopted 1865
ANDREW JOHNSON 1865-69
PRES. JOHNSON
CONGRESS
Friction with Congress leads to institution of impeachment proceedings against Pres. Johnson. His trial before the Senate found him not guilty 1867
WEST VIRGINIA 1863
NEVADA 1864
NEBRASKA 1867
Admitted to the Union
Alaska purchased from Russia 1867
ALASKA
Point Barrow

THE ADMINISTRATION OF ANDREW JOHNSON—1865–69.

Johnson's Unfitness.—The Republicans had selected Johnson, a southern Democrat, as their candidate for Vice President in 1864, in order to get votes from the opposing party. The choice was unfortunate, for Johnson was cursed with an uncontrollable temper that was made worse by a fondness for liquor. His tactlessness made it impossible for him to work with the leaders of Congress, and without their support he could do little.

Plans of Reconstruction.—Lincoln's theory had been that the Union was indestructible, and that the so-called seceded states had never been out of the Union. His plan of reconstruction was to re-build the southern states around any loyal element that existed, and to make it easy for the disloyal to come back into their proper relation. Johnson, who had at first favored severe punishment for the "rebels," came around to Lincoln's views when he became President. The radicals in Congress, led by Charles Sumner and Thaddeus Stevens, wanted to inflict penalties upon the southerners. Congress insisted that reconstruction was a matter for it to handle, while Johnson insisted that it came under his powers. At first Johnson, having popular support, had his way, and before the end of 1865 had restored most of the former Confederate states on easy terms. They abolished slavery and repudiated their war debts. Sumner and Stevens wanted to keep the former Confederates from having any share in the state governments.

The Freedmen's Bureau.—To take care of the newly freed negroes Congress established the Freedmen's Bureau which was to act as the guardian of the blacks. Northern men and women were sent South to put the plan in operation. They frequently clashed with southerners, and the bad feeling stirred up both the North and the South to such an extent that both sections did foolish things. The negroes were led to believe that the government would take care of them.

The Fourteenth Amendment.—This provided that all persons born or naturalized in the U. S. were citizens of the U. S. and the state in which they resided, and that the states could not deprive U. S. citizens of their rights. The southern states rejected it, and this gave the radicals the chance to say that the control in the South must be taken from the whites.

The Reconstruction Acts of 1867.—Johnson's lack of dignity and tact had turned the country against him, so the radicals were able to pass a series of acts depriving the southern states of self-government and putting them under military government. Control of the southern states passed to the negroes and the "carpet-baggers," northern whites.

The Impeachment of Johnson.—Secretary of War Stanton had played false with Johnson and the latter wanted to remove him. Congress passed the Tenure-of-Office act by which the consent of the Senate was made necessary to remove a Cabinet officer. Johnson believed this to be unconstitutional, and removed Stanton. He was impeached on a number of charges, and the Senate failed to convict, lacking one vote. Historians today are more inclined to deal gently with Andrew Johnson. His plan of bringing about a reconciliation between the sections was a benevolent one, but the mis-informed public did not sustain him.

THE ADMINISTRATION OF ULYSSES S. GRANT—1869–77.

The Election of Grant.—The Republican convention nominated Grant unanimously, although he had been a Democrat. Governor Seymour of New York was nominated by the Democrats. The Republicans made the most of the lawlessness of the Ku Klux Klan and the attempts of the South to keep the freedmen down. The Democrats denounced the Reconstruction Acts and upheld Johnson's policies. Grant won by 214 to 80 electoral votes, but his popular vote exceeded Seymour's by only 300,000.

Grant's Cabinet.—The men selected by Grant for the Cabinet illustrated his unfitness for civil office. Fish, Sec. of State, and Hoar, Attorney General, were good men, but the others ranged from mediocre to very poor. Grant's love of money and his admiration for rich men, combined with a trustful disposition, made his appointments to office the worst in our history.

Reconstruction.—Grant was not in the least vindictive and would have been glad to see the South restored on easy terms. But the radicals responsible for his election were otherwise inclined and Grant followed their lead. The military governments of the South were a sore burden to the South, and may be said to have caused most of the disorder. After the native whites were disfranchised the government of the states was in the hands of the blacks and the "scalawags," who indulged in orgies of extravagance. The whites organized to meet these conditions and the entire section was in a state of anarchy. The black legislature of South Carolina spent millions of dollars for wines, whiskey, food, clothes, tapestries, rugs, etc., besides what the members appropriated for their personal use. Little wonder that the southerners rebelled. Gradually affairs went back to normal. Several amnesty acts removed the disabilities against the former Confederates and when they were restored to citizenship they wrested the government from the usurpers.

The Fifteenth Amendment.—This measure was designed to perpetuate the Republican party in power. When first proposed it was not popular even in the North, and the radicals were forced to wait until the southern legislatures were in control of the negroes before it could be adopted. It provided that the right of voting should not be denied by the U. S. or by any state on account of race, color, or previous condition of servitude. The amendment was effective only so long as the South abstained from making it of no effect, which they did before long.

Foreign Affairs.—Grant was an expansionist, and had it not been for the opposition of Sumner, chairman of the Foreign Relations committee, the U. S. would have annexed Santo Domingo. On his own responsibility he negotiated a treaty providing for this, but the Senate, much to Grant's disappointment, rejected it. The settlement of the Alabama dispute reflected credit upon both the U. S. and Great Britain. The damage to American shipping caused by the British government permitting the Confederate cruisers to be built in her ship-yards was very great, and the U. S. had never ceased to press her claims for reparation. In 1870 Secretary Fish induced Great Britain to leave the matter to arbitration. By the Treaty of Washington, 1871, the two countries left the question to be settled by a joint high commission, one representative from each of the countries concerned,

with the President of Switzerland, the King of Italy, and the Emperor of Brazil as the neutral arbitrators. The U. S. was awarded damages to the amount of $15,500,000.

Financial Disturbances.—Our national debt amounted to more than two and a half billions. U. S. paper money in circulation exceeded three hundred and fifty millions. Holders of U. S. securities did not know whether they would be paid in gold or in paper money. The western part of the U. S., needing more money for development, favored inflation; the conservative east feared the results of inflation, and favored contraction. Gold was out of circulation.

The Panic of 1873.—Speculation in gold went on until a crash was certain to come. Two New York speculators, Jay Gould and James Fisk, set about to corner the market. To make their game sure they had to keep the U. S. from selling gold, and, working through Grant's brother-in-law, they made the President's acquaintance and even entertained him in New York. They bid the price up to 162 and were about to make a huge profit when the Secretary of the Treasury began to sell gold. The price fell amid wild scenes. This was known as "Black Friday." Hard times ensued, and it was several years before the U. S. recovered.

"The Crime of 1873."—This was an act whereby silver was demonetized, and gold was made the single standard. To the people of the west this was a crime, for the effect was to tighten money at a time when the west needed it most.

The Redemption Act.—Soon after the war the government adopted the policy of retiring the "greenbacks" whenever they came back to the treasury. By 1868 the amount had been reduced to $356,000,000, and many people believed that deflation had gone far enough. In 1875 Congress passed the Redemption Act by which after January, 1879, the greenbacks were to be redeemed at par in gold if the holders desired. In 1878 Congress yielded to western demands sufficiently to enact a law whereby whenever a greenback was redeemed in specie it was to be re-issued, thus keeping up the amount in circulation. When the time arrived for redemption practically none were presented, and thus they were on a par with gold. They are still in circulation.

The Credit Mobilier.—This was a construction company which built most of the Union Pacific Railroad. The big stockholders controlled both companies, and were enabled to pay themselves enormous profits out of the construction. Congress was drawn into it when a number of the members accepted presents of stock in the Credit Mobilier, in return for which Congress was to give the company a free hand. A number of prominent politicians were found to be implicated, including Vice President Colfax, James A. Garfield, and James G. Blaine. They professed to be innocent of any corruption, but as Prof. Dunning says, "they saved their virtue at the sacrifice of their intelligence."

The Liberal Republicans.—The rotten conditions prevailing during Grant's administration brought about a cleavage in the Republican party, a group breaking away because they believed the party to be in the hands of corruptionists. The leaders of this movement were Horace Greeley and Carl Schurz. Their chief demand was civil service reform, concerning which Grant had expressed himself as being skeptical.

Grant Re-Elected.—The regular Republicans brought about Grant's re-nomination without difficulty, but there was a strong group, headed by Horace Greeley, editor of the New York Tribune, who attacked the Grant administration for its oppressive measures in relation to the South, and its corruption. These Liberal Republicans nominated Greeley for the Presidency, and the Democrats endorsed his nomination. Greeley's personality was against him, as he was too easily caricatured. The public conscience at the time was not sensitive to corruption, and the people still remembered that Grant had rendered great services to the Union. Grant was elected by a vote of 272 to 66. Greeley died shortly afterward.

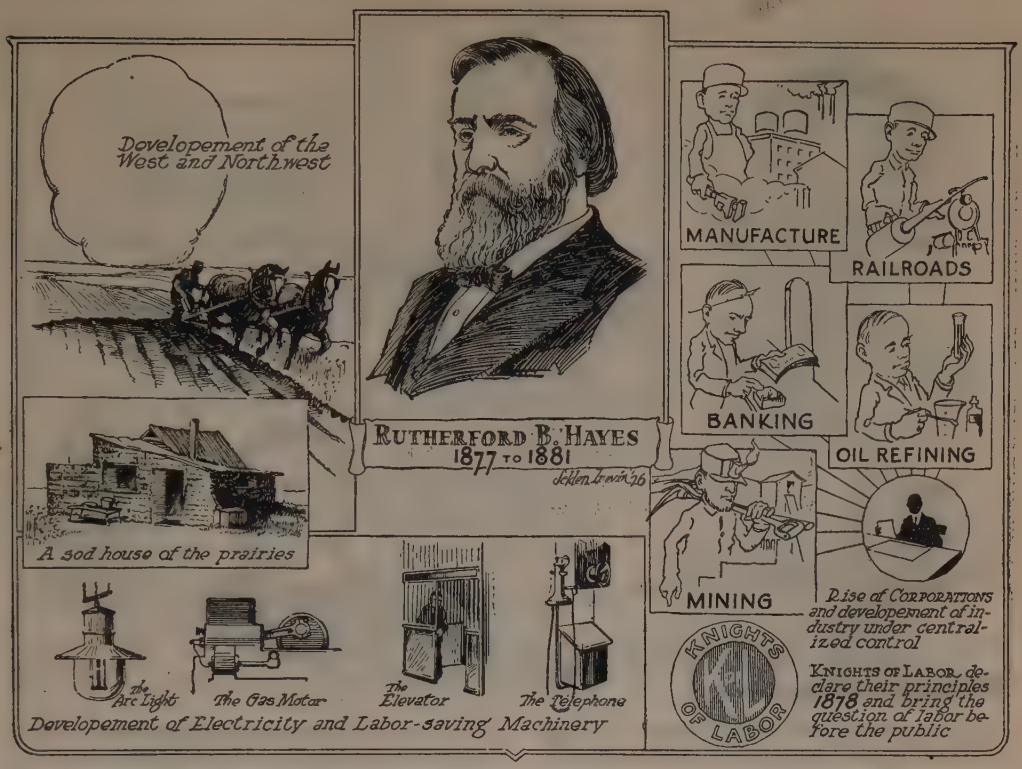
The Salary Grab Act.—Congress was encouraged by the indifference of the people to the irregularities of Grant's administration, and so an act was passed increasing the pay of the President, the members of the Cabinet, Federal judges, and members of Congress. The increase was made to apply to the two years preceding 1873, and was called the "back pay steal." This was too much even for the tolerant American people, and the outcry that arose scared Congress into repealing the law at the next session so far as it applied to Congress, the inferior judges, and the members of the Cabinet.

The Whiskey Ring.—The government of the U. S. was being defrauded of its revenues from whiskey by a gang with headquarters in St. Louis. Grant's private secretary was involved, and Grant himself had accepted a valuable present from one of the ring-leaders. He went so far as to oppose the prosecution of the "ring," and removed a U. S. officer who tried to bring them to justice. The U. S. was defrauded of $3,000,000, and Grant can not be acquitted of all blame. He did not share directly in the loot, but he evinced no desire to punish the guilty.

The Belknap Affair.—Grant's Secretary of War, Belknap, had been selling government offices, and a committee of the House of Representatives recommended his impeachment. To save Belknap from this disgrace, Grant accepted his resignation.

Grant as President.—The eight years of Grant's administration constitute one of the most disgraceful periods in our history. Grant was elected to the presidency as a result of his war record. His term of office was marked by political intrigues and corrupt politics. The "Whiskey Ring" largely dominated the government during his administration.

As a soldier, Grant was far more outstanding than as a statesman. His two terms as president are marked by the absence of constructive measures.


Dovelopement of the West and Northwest
RUTHERFORD B. HAYES
1877 TO 1881
MANUFACTURE
RAILROADS
BANKING
OIL REFINING
A sod house of the prairies
MINING
Rise of Corporations and developement of industry under centralized control
KNIGHTS OF LABOR
KNIGHTS OF LABOR declare their principles 1878 and bring the question of labor before the public
The Arc Light
The Gas Motor
The Elevator
The Telephone
Dovelopement of Electricity and Labor-saving Machinery

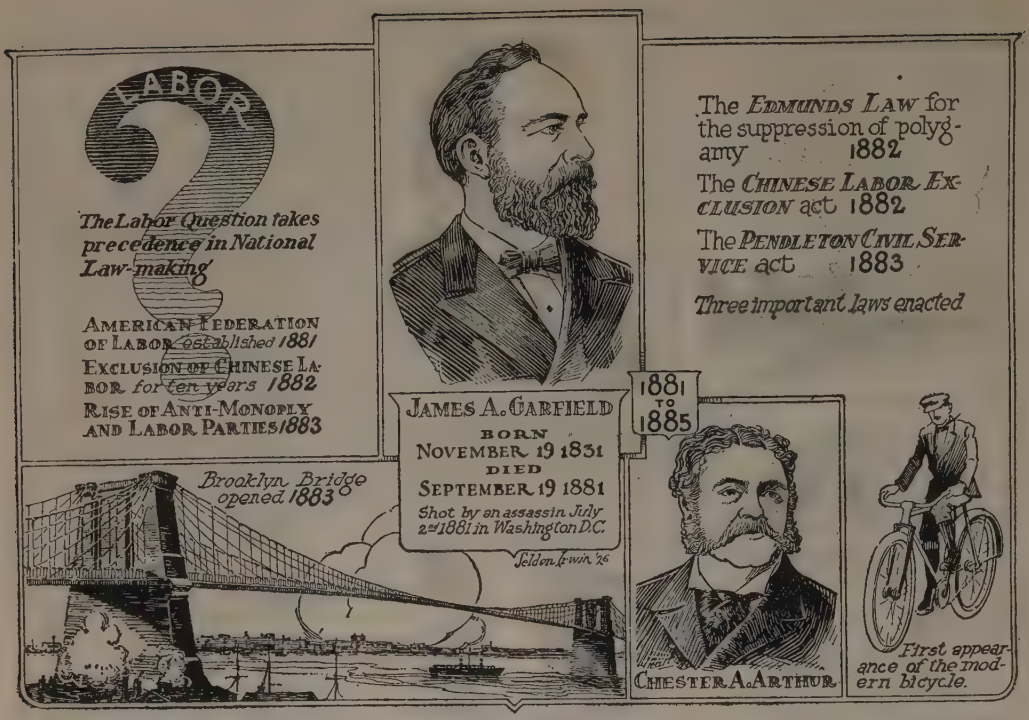
THE ADMINISTRATION OF RUTHERFORD B. HAYES—1877–81.

The Election of Hayes.—Things were going badly for the Republicans. The corruption of the preceding eight years combined with hard times were a serious handicap, and now the Democrats were in control of the House of Representatives. Most of the Republican leaders had been involved in political scandals, so they finally chose as their candidate Rutherford B. Hayes of Ohio, against whom nothing was known. The Democrats nominated Samuel B. Tilden of New York, a reformer. The election turned upon the results in South Carolina, Florida, Louisiana, and Oregon, in all of which there were disputed returns. Both sides claimed the electoral votes of the first three states so the matter was thrown into Congress which passed a bill providing for an Electoral Commission consisting of five senators, five representatives, four justices of the Supreme Court, and a fifth justice to be chosen by the other four. As finally constituted, the Commission was composed of eight Republicans and seven Democrats. In all disputed cases the Commission divided on party lines, so Hayes was declared elected. Although it is probable that partisanship and not lack of votes defeated Tilden the Democrats behaved with commendable self restraint.

Hayes's Difficulties.—Hayes came into office with a dubious title, although no blame is attached to him. He was a man of scrupulous honesty, and because he would not play the game the way the Republican leaders wished they turned against him and made things uncomfortable for him. His kindly policy toward the South especially angered them. He brought military rule there to a final end, although he knew that his party was at an end in that section if he did so.

The Bland-Allison Silver Bill.—With a Congress divided and with his own party leaders bitterly opposed to him Hayes was able to do little. The only law of real importance passed was one providing that the Secretary of the Treasury should buy not less than $2,000,000 nor more than $4,000,000 worth of silver each month and coin it into silver dollars. This was pure inflation and the country lived to regret it; but the owners of silver mines and the debtor farmers of the west possessed enough influence to have the legislation they wanted passed. Hayes saw that the measure was unsound and vetoed it, but the Democrats wanted to secure votes in the west and, combined with the Republican inflationists, were able to pass the bill over the President's veto. A feature of the original bill, sponsored by Bland of Missouri, and providing for free coinage of silver was rejected.

An Estimate of Hayes.—President Hayes was a man with whom history has not dealt kindly. His enemies were able to get the ear of the public and he was too proud and too scrupulous to fight them with their own weapons. Under different circumstances he might have made a name for himself that would rank today with that of Washington and Lincoln. Woodrow Wilson said of him: "He was upright, public-spirited, inclined to serve the country unselfishly and in the interest of sound policy."


LABOR
The Labor Question takes precedence in National Law-making
AMERICAN FEDERATION OF LABOR established 1881
EXCLUSION OF CHINESE LABOR for ten years 1882
RISE OF ANTI-MONOPLY AND LABOR PARTIES 1883
JAMES A. GARFIELD
BORN NOVEMBER 19 1831
DIED SEPTEMBER 19 1881
Shot by an assassin July 2nd 1881 in Washington D.C.
Brooklyn Bridge opened 1883
The EDMUNDS LAW for the suppression of polygamy 1882
The CHINESE LABOR EXCLUSION act 1882
The PENDLETON CIVIL SERVICE act 1883
Three important laws enacted
1881 TO 1885
CHESTER A. ARTHUR
First appearance of the modern bicycle.

THE ADMINISTRATION OF JAMES A. GARFIELD AND CHESTER A. ARTHUR—1881–5.

The Election of Garfield.—Hayes was opposed in principle to a second term and refused to be a candidate in 1880. Grant's friends worked hard to secure the nomination for him and he would have been glad to get it, but James G. Blaine wanted it for himself, and he controlled enough votes to defeat Grant. The Republican Convention compromised on James A. Garfield of Ohio. The Democrats wanted Tilden to run but he refused, so they nominated General Hancock whose war record had been excellent. The only issue of prominence was the tariff, with the Republicans promising higher duties and the Democrats a reduction. Garfield's popular plurality was only 7018.

Party Quarrels.—Trouble arose when Garfield nominated Blaine for Secretary of State, Conkling, the New York "boss" being the leader of the faction opposed to Blaine. Garfield had his way in this and in other appointments so to show his disapproval Conkling resigned his seat in the U. S. Senate, expecting the New York legislature to re-elect him. It failed to do so.

Garfield Assassinated.—On July 2, 1881, while in a railroad station in Washington, Garfield was shot by a disappointed office-seeker. He lingered several months before finally succumbing.

Vice-President Arthur Becomes President.—Arthur's nomination for the Vice Presidency had been dictated by the "spoilsmen" of New York and his accession to the Presidency was considered a calamity by the friends of pure government. But to the surprise of everyone Arthur administered the duties of his office with unusual independence and ability, disregarding his former friends if it was to the interest of the public to do so.

Civil Service Reform.—For many years thoughtful people had denounced the spoils system that Jackson introduced, but no leaders had yet appeared who were able to get public opinion back of the plan to introduce the merit system. President Arthur urged it with all his might; the public was at last aroused to the necessity, and in 1883 Congress passed the Pendleton Act which provided for the appointment of a Civil Service Commission to examine candidates for certain public positions. The number of these positions was small at first, but the number was extended to include a majority of public offices.

High Tariff Continued.—Civil war duties were still being imposed, with the result that the government piled up a surplus each year. Arthur saw the necessity for tariff reduction and got Congress to appoint a committee to study the situation. It reported that the tariff should be reduced twenty per cent on an average. Congress, which had usually disregarded reports of special investigators, drew up a new tariff measure in 1883 which virtually left the tariff as it was, the slight reductions being more than counter-balanced by the increases. A powerful manufacturers lobby, by using all the legal and illegal means they could, were responsible for this iniquitous measure. It is interesting to note that William McKinley, later President, voted against the bill because the rates were too low. In 1884 hard times came, the surplus was reduced, and demand for tariff reform was not so insistent.

Anti Contract Labor Law 1885
Interstate Commerce Act 1887
2nd Chinese Labor Exclusion Act forbidding the return of laborers once leaving the country 1888
Establishment of Dep't of Labor 1888
Important laws enacted for the benefit of Labor
Grover Cleveland 1885 to 1889
Surplus of 50,000,000 with all Govt Debts Paid
Uncle Sam's troublesome surplus 1887
Statue of Liberty on Bedloe's Island Designed by Bartholdi and presented to America by France Five years were required for its construction. Unveiled 1886
Patrons of Husbandry
Farmers League
Agricultural Wheel
Patrons of Industry
Grange
The Farmers' Alliance, an amalgamation of numerous agricultural societies effected by a convention at St. Louis 1889
One of the first phonographs invented by Edison

THE FIRST ADMINISTRATION OF GROVER CLEVELAND—1885–89.

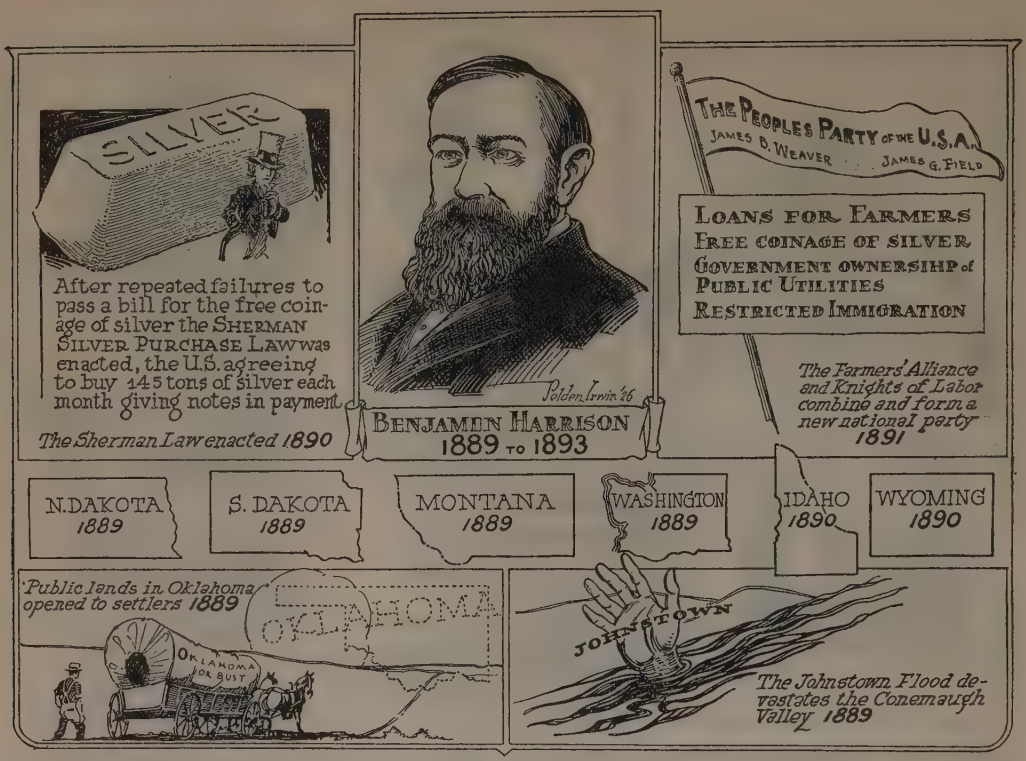
The Election of Cleveland.—Blaine managed to overcome the opposition of the reformers in his party and was nominated for the Presidency. The Democrats chose as their candidate Grover Cleveland, the reform Governor of New York. Blaine's public career had not been free from irregularities, and one deal that he had made with the Union Pacific showed him up as a man who was not averse to taking favors from large corporations. A number of the leading reformers in the Republican party supported Cleveland who won the election by carrying his own state. Blaine's cause was injured by an injudicious speech made in his behalf by Rev. Burchard, who referred to the Democrats as the friends of "Rum, Romanism, and Rebellion." Enough New York Catholics took this seriously to vote for Cleveland. His popular plurality was only 23,000.

Civil Service.—The Democrats had been out of power for many years so their desire to take over the public positions filled by Republicans was natural. The Civil Service laws protected some, and Cleveland's own inclination was to leave in office all competent persons; but he had to yield somewhat, and about two-thirds of the unclassified offices were filled with Democrats. During the course of his administration Cleveland extended the Civil Service and set an example of watchfulness and self-restraint.

Presidential Succession.—By the law of succession to the Presidency, in case of the death, resignation, or removal of the President the office devolved upon the President pro tem of the Senate, and then upon the Speaker of the House. The death of Vice President Hendricks in 1885, occurring when there was no Congress, brought up the necessity for a new law; hence one was passed providing that the succession should pass to the Cabinet officers in the order of the establishment of their offices, beginning with the Secretary of State.

Regulation of the Railroads.—During the seventies and the eighties railroad building was at its height. To secure franchises and appropriations the railroad companies got into politics, and corruption was rife. Competition among themselves was giving way to agreements, and the public was being gouged. The western farmers especially were discriminated against. After much agitation Congress passed the Interstate Commerce Act of 1887, the main provisions of which were as follows: A Commission of five was to be appointed by the President to supervise the actions of the railroads so far as the public interest was affected; rates were to be reasonable, and were to be printed; more could not be charged for a short than a long haul.

The Tariff Issue.—A group of high-tariff Democrats united with the Republicans to prevent revision of the tariff. In his message of December, 1887, Cleveland denounced the tariff as productive of high prices and over-speculation. The surplus had been piling up for several years and there was no good use to which it could be put. The House of Representatives passed the Mills Bill, but it was rejected by the Senate.


SILVER
After repeated failures to pass a bill for the free coinage of silver the SHERMAN SILVER PURCHASE LAW was enacted, the U.S. agreeing to buy 145 tons of silver each month giving notes in payment.
The Sherman Law enacted 1890
Peiden Irwin '26
BENJAMIN HARRISON
1889 TO 1893
THE PEOPLES PARTY OF THE U.S.A.
JAMES B. WEAVER
JAMES G. FIELD
LOANS FOR FARMERS
FREE COINAGE OF SILVER
GOVERNMENT OWNERSHIP of PUBLIC UTILITIES
RESTRICTED IMMIGRATION
The Farmers' Alliance and Knights of Labor combine and form a new national party 1891
N.DAKOTA 1889
S. DAKOTA 1889
MONTANA 1889
WASHINGTON 1889
IDAHO 1890
WYOMING 1890
Public lands in Oklahoma opened to settlers 1889
OKLAHOMA
OKLAHOMA OR BUST
JOHNSTOWN
The Johnstown Flood devastates the Conemaugh Valley 1889

THE ADMINISTRATION OF BENJAMIN HARRISON—1889–93.

The Election of Harrison.—The Democrats nominated Cleveland without so much as taking a ballot. The Republicans nominated Benjamin Harrison of Indiana, rejecting a much stronger man, John Sherman of Ohio. The issue of the campaign was the tariff, and the manufacturing interests contributed large sums of money to defeat Cleveland whom they accused of being a free-trader. Cleveland denied this, but the people of the country seemed to think that a reduction of the tariff meant the loss of prosperity, so Harrison was elected by 233 electoral votes to 168, although Cleveland got more popular votes than Harrison.

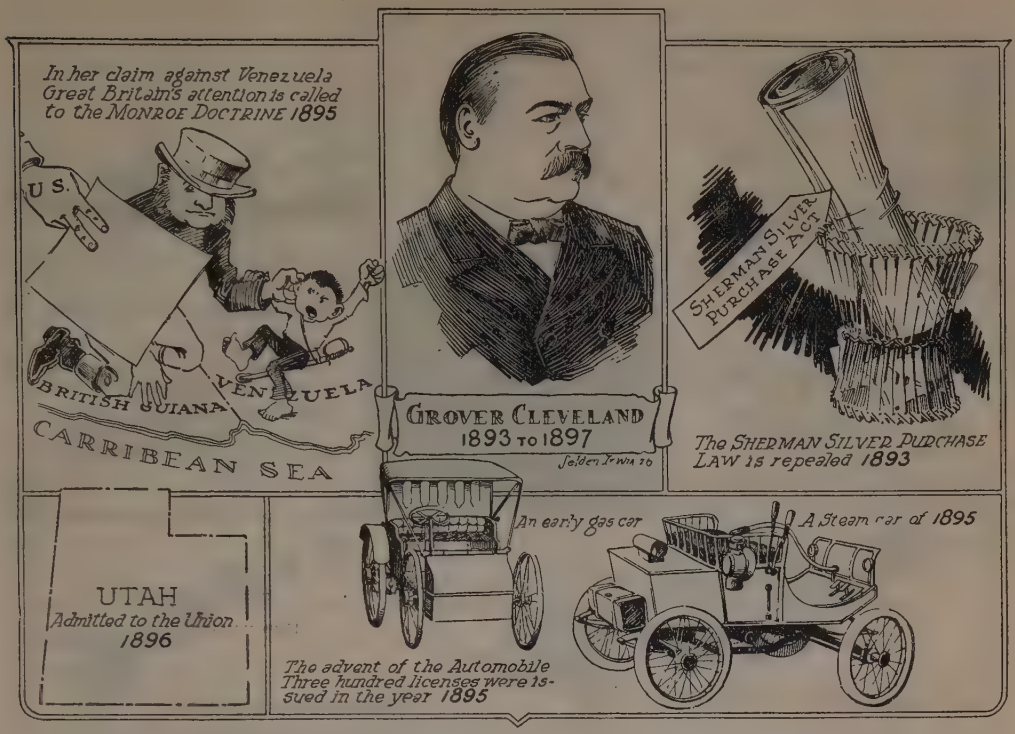
The Spoils System.—Harrison was a believer in Civil Service but the urge of office seekers was too much for him. He managed to protect the Civil Service rules from serious inroads but almost every Democrat in the unclassified service was removed. 30,000 Democrats lost their positions the first year. Harrison allowed the bosses of Pennsylvania and New York, Matthew S. Quay and Thomas Platt, to dictate removals and appointments, and he himself took good care of his relatives and friends.

Foreign Affairs.—Blaine, Secretary of State, pursued an aggressive foreign policy, and several times the U. S. was seriously involved in controversies with other countries. The question of what country owned Samoa was settled by a conference of Germany, Great Britain, and the U. S., but not until bad feeling between Germany and the U. S. had resulted. Another bothersome issue was that of the Alaska seal-fisheries. British and Canadian seal fishermen had been killing seals in the open sea off Alaska, and the U. S. made the claim that the whole of the Bering Sea belonged to the U. S. After many irritating incidents the matter was left to a board of arbitration which decided against the U. S. on almost every point.

Pension Legislation.—In 1890 a Pension Law was passed giving all veterans of the Civil War, Union, of course, a pension of not more than twelve dollars a month, and the act applied to widows, dependents, and children of the veterans. In 1893 the number of pensioners amounted to 1,000,000, and the money paid annually to $157,000,000. The surplus was thus easily disposed of.

The McKinley Tariff Bill.—By this law, passed in 1890, duties on articles of common use were raised, including agricultural products. The duty on sugar was reduced but a bounty to domestic sugar raisers was granted which cost the government about $10,000,000 a year. Duties under the McKinley bill averaged fifty per cent, and the cost of living rose proportionately.

The Sherman Anti-Trust Act.—High tariffs had bred trusts and other forms of business combinations, and the public was in the grip of these selfish interests. The agitation to exercise some control over them had been growing until Congress could not afford to disregard it. So the Sherman Act was passed making illegal "every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade." Prosecutions were rare, and convictions rarer.


In her claim against Venezuela Great Britain's attention is called to the MONROE DOCTRINE 1895
U.S.
BRITISH GUIANA
VENEZUELA
CARRIBEAN SEA
GROVER CLEVELAND 1893 TO 1897
Selden Jewett
SHERMAN SILVER PURCHASE ACT
The SHERMAN SILVER PURCHASE LAW is repealed 1893
UTAH
Admitted to the Union 1896
An early gas car
A Steam car of 1895
The advent of the Automobile Three hundred licenses were issued in the year 1895

THE SECOND ADMINISTRATION OF GROVER CLEVELAND—1893–97.

The Election of Cleveland.—Harrison was renominated with little opposition. He was not in the least a popular man and had been an undistinguished President, but he controlled the party machinery. The Democrats again chose Cleveland. The parties took their old stand on the tariff, but Cleveland let it be known that manufacturing interests were safe from him. A third party, the Populist, nominated a candidate on the platform of free silver. The Republicans suffered from the fact that hard times were upon the country and labor disturbances were frequent. Cleveland was elected by 277 electoral votes to 145 for Harrison. The Populists carried four states in the west.

Financial Troubles.—The McKinley Act had decreased the revenues from imports. Paper money redeemable in gold amounted to $500,000,000 and the U. S. Treasury's gold reserve amounted to only $100,000,000. As fast as the legal-tender notes were redeemed they were reissued and paid out, only to come back soon for redemption. Cleveland persuaded Congress to repeal an act of 1890 which instructed the Secretary of the Treasury to buy silver. This was unavailing, and the gold reserve dropped lower until the U. S. was facing virtual bankruptcy. Cleveland had to suffer for the sins of the preceding administration. To remedy the situation he bought gold from New York bankers, and then sold U. S. bonds to the public. The silver people used this as an illustration of what occurred under the single monetary standard.

The Panic of 1893.—The causes of this disturbance were varied, but probably the most important cause was the expectation that the U. S. would abandon the gold standard. The Republicans have always claimed that it was due to the Wilson Tariff Law, but since hard times were upon the country before this Law was passed it could have had little to do with it. The depression was severe, and the resultant evils great. Strikes were common, that of the employees of the Pullman Company being the worst. During this strike a judge of the U. S. District Court ruled that the violation of an injunction was contempt of court and could be punished by the judge without trial by jury. The labor unions have never ceased to combat this.

Foreign Questions.—The matter of annexing Hawaii had long been thought of and it had been a virtual protectorate of the U. S. for years. An American had overthrown the old government, and Cleveland had a report made. On the basis of that report Cleveland ordered the American to give up the throne, which he refused to do. The U. S. Senate evidently supported the usurper, for it would not support Cleveland in his attempt to restore the legitimate ruler of Hawaii. In 1898 Hawaii was annexed to the U. S. The Venezuela dispute was a serious one indeed. The boundary between Venezuela and British Guiana had long been disputed, and by 1895 the British were evidently going to encroach upon Venezuela's territory. Cleveland objected in the strongest terms he could find to this violation of the Monroe Doctrine, but fortunately for the world the British government was not equally belligerent, and the dispute was settled by arbitration.

Transports off for Cuba 1898
WILLIAM McKINLEY
1897 1901
BORN JAN. 29 1843
DIED SEPT. 14 1901
Capron's battery at El Caney
U.S. Battleship Maine blown up in Havana Harbor, Feb. 15th 1898
WAR BETWEEN the U.S. and SPAIN 1898
Spain's misrule of her West Indian possessions led to war with the US and the complete independence of Cuba
The US acquired the island of Porto Rico and the Philippine Islands
APARRI
LUZON I.
SAMAR I.
MANILA
MINDANAO I.
MINDORO I.
PANAY
COTABATO
The PHILIPPINE ISLANDS purchased from SPAIN for $20,000,000 1898
OAHU I.
HONOLULU
HAWAII I.
HAWAIIAN ISLANDS annexed 1898

THE ADMINISTRATION OF WILLIAM McKINLEY—1897–1901.

The Election of McKinley.—Cleveland left his party in a demoralized condition, the "gold" and "silver" Democrats being hopelessly split. The latter secured the nomination of William J. Bryan after a bitter fight, but at the cost of losing the support of the "gold" Democrats who nominated a separate candidate. The Republicans took Mark Hanna's man, William McKinley of Ohio, a friend of high tariff. Bryan's brilliant oratory was not sufficient to win for him, and McKinley won the election with 271 electoral votes to Bryan's 176.

The Dingley Tariff Act.—McKinley urged tariff revision, and Congress rushed through a bill which raised duties to the peak. Raw materials were restored to the dutiable list. The Dingley Act was denounced by the Democrats as a betrayal of the interests of the people, and the Republicans praised it as the source of the prosperity of the country.

The Spanish-American War.—Cuba had more than once caused trouble between the U. S. and Spain, our people always sympathizing with the Cubans in their attempts to be free. A revolution which broke out in 1895 brought forth severe retaliation from the Spanish Governor and caused much indignation in the U. S. McKinley protested, and Spain promised the Cubans self-government, but the Cubans would be satisfied with nothing short of independence. The U. S. battleship Maine, anchored in Havana harbor, was blown up February 15, 1898, and investigation seemed to prove that it had been caused by a mine. McKinley reluctantly sent a message to Congress urging intervention, and in April Spain declared war on the U. S. Spain was in no condition to fight, and in a few months declared her readiness to make peace. By the terms of the treaty Spain gave up Cuba, the Philippines, Porto Rico, and other islands, all but Cuba being ceded to the U. S., which paid Spain $20,000,000 for the Philippines.

The Open Door in China.—This was a period of world imperialism, and all the great powers were looking for new lands to conquer or "protect." China offered a fair field for exploitation, and several European nations had marked out fields for themselves there. To prevent the shutting out of U. S. commerce Secretary of State John Hay announced what has since been known as the "open door" policy in China, asserting that the interests of the U. S. could not be disregarded. Great Britain acceded, but the other nations would not. Nevertheless, this pronouncement did much both for China and the U. S.

The Gold-Standard Act.—In 1900 exports exceeded imports by over $500,000,000, and gold was pouring into the country. In March, 1900, Congress passed the Gold-Standard Act which declared the gold dollar to be the standard unit of value and provided that all legal-tender notes were to be redeemed in gold the reserve of which was to be increased to $150,000,000. Bi-metallism now became a dead issue. Another part of this law amended the National Banking Act to permit the establishment of national banks in places of 3,000 inhabitants or less, with capital of $25,000.

THE ADMINISTRATION OF McKINLEY AND THEODORE ROOSEVELT—1901–5.

McKinley Re-Elected.—The unprecedented prosperity of the McKinley administration assured his re-nomination, which took place on the first ballot. Bryan again received the Democratic nomination. The Republicans played up the "full dinner-pail" idea and gave their party the sole credit for prosperity, while the Democrats, saying less than they had the preceding campaign about free silver, made imperialism the chief issue. The people were not interested in this and the issue fell flat. McKinley received 292 electoral votes to Bryan's 155.

McKinley Assassinated.—On Sept. 5, 1901, while in the city of Buffalo, N. Y., visiting the Pan-American exposition President McKinley was shot and killed by an anarchist. McKinley had many of the qualities that make for popularity and his death was mourned by everyone.

Law against Threatening the President.—So great was the public revulsion when a third president was shot within a generation in the United States that steps were taken almost at once to secure the passage of a special act dealing with those who threaten or attempt the life of the President. The federal law quoted below makes it a crime even to threaten to harm or kill our chief executive.

Chapter 64—U. S. Statutes—An act to punish persons who make threats against the President of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that any person who knowingly or wilfully deposits or causes to be deposited for conveyance in the mail or for delivery from any post office or by any letter carrier, paper, writing, printing, or document containing any threat to take the life of, to inflict bodily harm upon the President of the United States, or who knowingly or wilfully otherwise makes any such threat against the President, shall upon conviction be fined not exceeding $1,000 or imprisoned not exceeding five years, or both.

Roosevelt Becomes President.—Roosevelt had taken a spectacular part in the Spanish war and had been known in a small way as a reformer. He kept McKinley's Cabinet and announced his intention of continuing McKinley's policies.

The Trusts.—Republican policy had fostered the gigantic combinations known as trusts. Many of the commonest articles of consumption were controlled by these corporations, and competition scarcely existed. The Sherman Act was a dead letter, not one trust being prosecuted under the McKinley administration. The public was being mulcted by these monopolies.

Roosevelt Attacks the Trusts.—Roosevelt made a distinction between good and bad trusts; the latter must go, he said. With his ability to dramatize a situation he aroused the people to the dangers from these organizations, but Congress remained unmoved. Roosevelt then resorted to the Sherman Act, and by his direction the U. S. Attorney General began the prosecution of some of the more notorious trusts. The government won a number of these suits but the result so far as the public interest was concerned was little. Roosevelt won great popularity, not with "big business," of course, but with the general public.

The Coal Strike.—In the early part of 1902 there was a strike in the anthracite coal mines of Pennsylvania. The whole country was affected and Roosevelt took a hand. The operators tried to maintain that the affair was one wholly between the miners and the operators, but public opinion forced them to agree to arbitration, and the strike was thus settled.

The Panama Canal.—The question of a canal in Central America to connect the Atlantic and the Pacific was a very old one. The attempt of the builder of the Suez Canal, de Lesseps, had failed. Roosevelt set about accomplishing it. In 1901 the Hay-Pauncefote agreement between the U. S. and Great Britain recognized the right of the U. S. to build a canal, the only restriction being that all vessels must be "on terms of entire equality." Colombia owned Panama and provoked the U. S. by its unstable policy and double dealings. The people of Panama, in 1903, rebelled against Colombia, and U. S. war-vessels prevented the Colombian government from suppressing the insurrection, so it was successful. A treaty was signed with the new Republic of Panama by which the U. S. purchased a zone for the building of the canal. Roosevelt never made any apologies for his part in the Panama affair—to the contrary, he was proud of it.

The Open Door in China.—The annexation of the Philippines brought the United States into contact with the politics of the far East at a time that European powers were engaged in the economic exploitation of that part of the world. China, especially, was being absorbed by the great European states; Great Britain had taken Hong Kong, France was established in southwestern China, and Germany occupied the Shantung Peninsula. The United States was building up a large trade with the Chinese and this was endangered by the aggressive attitude of the European powers. John Hay, the United States Secretary of State, addressed a note to these states requesting that each would agree, in effect, not to interfere in the trade of China with countries which did not possess a foothold in China. Although no formal assent to Hay's "open door policy" was ever given, the states to which the note was addressed understood its import and respected our rights.

TREATY of PORTSMOUTH
JAPAN and RUSSIA, at the invitation of the U.S. make the treaty at PORTSMOUTH, N.H., which brings their war to an end 1905
THEODORE ROOSEVELT 1901 TO 1909
CARIBBEAN SEA
PANAMA
COLUMBIA
PACIFIC OCEAN
Work on the PANAMA CANAL begins 1906
OKLAHOMA
Admitted to the Union 1907
Advent of a practicable airplane 1904
LANGLEY'S Machine
The WRIGHT Bi-plane

THE ADMINISTRATION OF THEODORE ROOSEVELT—1905–9.

Roosevelt Elected.—The Republican leaders were rather doubtful about Roosevelt, but they could not resist popular demand, so he was nominated. The conservatives were now in control of the Democratic party and nominated Alton B. Parker of New York. Free silver dropped out altogether as an issue, as did imperialism. Both parties were lacking issues, so the popular candidate won with an electoral vote of 321 to 162.

The Hepburn Act.—The railroads had for years been discriminating against certain shippers and communities, giving better rates to their favorites, especially to the concerns in which they had an interest. The evils were very great, and the western farmers especially were hurt. The Elkins Act of 1903 forbade rebates, but little attempt was made to enforce it. In 1906 Congress passed the Hepburn Act giving to the Interstate Commerce Commission the power of fixing rates.

Pure Food Laws.—The public had been at the mercy of manufacturers of food products. Spoiled meats, adulterated medicines, poisonous patent-medicines, had been sold for years with no effort on the part of the states to stop it. To Roosevelt's lasting credit he forced through a reluctant Congress a law with the following provisions: All meat shipped in inter-state commerce had to be from healthy animals; it had to be inspected by government officials; and it had to be prepared under sanitary conditions. Although evaded sometimes, these laws were productive of great good.

Conservation.—Roosevelt was an "out-of-doors" man, and hence interested in the preservation of natural resources, forests especially. Acting under authority of a law passed in 1891 he withdrew nearly 150,000,000 acres of public land to be used as a forest reserve. Through his initiative the U. S. and the states set about the irrigation of the desert lands and in a short time many millions of acres had been reclaimed.

Campaign Funds.—In 1905 it was discovered that the great corporations had been contributing large sums of money to campaign funds, and even had prominent senators on their payroll. To break up the first practice a law was passed prohibiting corporations from making any contributions to campaign funds. Experience has since determined that the law was futile, for no method can be devised that will keep the prominent officials of corporations from making such donations as they please.

Roosevelt as President.—Not much in the way of constructive legislation was accomplished during the seven years that Roosevelt was President, but public interest in important questions was stimulated to heights it had not reached since the early days of the republic. For this Roosevelt deserves the credit. Wall Street found that his bark was worse than his bite, and as time went on the great bankers and corporation officials ceased to fear him. Roosevelt was a nationalist above all, and he believed that the rights of the states ought to be subordinated to the interest of the entire people of the U. S.

The Steamship TITANIC sinks in midocean by collision with a huge iceberg 1912
WILLIAM H. TAFT 1909 TO 1913
PEARY
NORTH POLE 1909
AMUNDSEN
SOUTH POLE 1911
ARIZONA NEW MEXICO
Admitted to the Union 1912
PARCEL POST
INSURED
The PARCEL POST system established 1913
Marconi's application of Wireless Telegraphy comes into general use 1912

THE ADMINISTRATION OF WILLIAM HOWARD TAFT—1909–13.

The Election of Taft.—Roosevelt refused to be a candidate in 1908, although strictly speaking he had been elected but one term. He was strong enough to name his successor, Secretary of War Taft, a former judge and Governor-General of the Philippines. The Democrats returned to Bryan as their best chance, and not only nominated him but allowed him to write the platform, which contained some constructive suggestions for the control of monopolies. Taft won with 321 electoral votes to 162 for Bryan.

The Payne-Aldrich Tariff Bill.—Taft called a special session of Congress almost as soon as he became President, the purpose being tariff revision. The House bill was not high enough to suit Senator Aldrich, now the boss of the Senate, and when the bill was finally passed it was far more of a Senate than a House measure.

Progressivism.—By this time there was a rift in the Republican party. It finally began to dawn upon the middle west especially that the interest of that section was not well taken care of by the corporation lawyers who controlled Congress and Cabinet. High tariff was profitable for the manufacturers, but less so for the farmers.

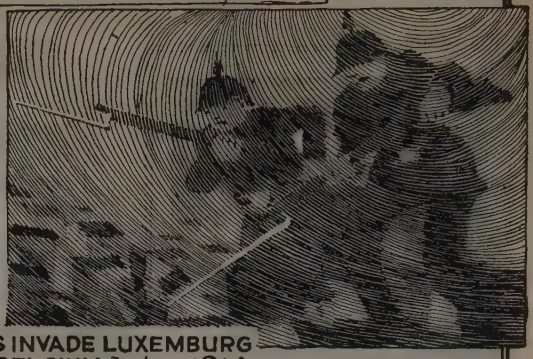
The Ballinger-Pinchot Controversy.—Upon his retirement Roosevelt withdrew more land for reserves, with the idea of keeping water-power sites out of the hands of private corporations. Taft's Secretary of the Interior, Richard Ballinger, rescinded this order, and the U. S. Chief-Forester, Gifford Pinchot, attacked the action of his superior officer as one designed to turn over the valuable reserves of the U. S. to water-power corporations. Pinchot was dismissed, but the affair did not end until Roosevelt and Taft were estranged, Taft supporting Ballinger.

Progressive Legislation.—Taft, while not a progressive, was not a reactionary either, and he supported a good deal of advanced legislation. In 1910 a postal savings-bank system was set up. The same year a Bureau of Mines was established for the purpose of aiding the states in the prevention of accidents. Another act required the names of all persons contributing to campaign funds to be published along with the amounts subscribed. The most important law was the Mann-Elkins Act which gave the Interstate Commerce Commission power to make investigations on its own initiative and change rates. The most important part of the original bill was struck out by the Senate, that requiring the consent of the Commission before stock or bond issues could be sold by common carriers. Two amendments to the U. S. Constitution were passed by Congress and ratified by the states during Taft's administration, the 16th permitting Congress to levy an income tax, the 17th providing for the election of Senators by the direct vote of the people.

Trust Prosecution.—Public opinion forced Taft to proceed with the prosecution of the great trusts, and the government won several decisions, notably in the cases of the American Tobacco Co. and the Standard Oil Co., both of whom were declared to be combinations in restraint of trade. Their dissolution was ordered, but the companies were not adversely affected.

The WORLD WAR

Assassination of Archduke Ferdinand of Austria Hungary at Sarajevo, Bosnia on June 28th 1914



GERMANS INVADE LUXEMBURG AND BELGIUM Aug 1-4 1914
LIEGE FORTS Aug 15
BRUSSELS Aug. 20
NAMUR Aug. 22
English expedition under Gen. French arrives Aug. 8th

A British "Whippet Tank"

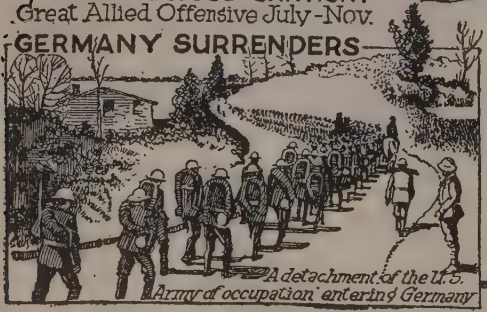
Russians invade Prussia and Galicia Aug. 18th Sept. 3rd
MONS CHARLEROI Aug. 21-23
THE MARNE (FIRST) Sept. 6-10
Germans retreat to Aisne
FALL of ANTWERP Oct. 8
YSER Oct. 16-28
YPRES Oct. 22
NEUVE CHAPELLE Mar. 10 1915
YPRES (SECOND) Apr 22-26
ARRAS May 9th
Germans in Galicia & Poland
VERDUN Feb'y-July 1916
British fail at Dardanelles
SOMME Sept. 1-26
Abdication of Czar Mar. 10 1917
ARRAS Vimy Ridge taken Apr. 9th
SOISSONS RHEIMS
MESSINES RIDGE
First American troops reach France June 26th
FLANDERS July 31st
LENS (CANADIANS) August 15th
Germans at Riga Sept. 3
CAMBRAI Nov-Dec.
Allied drive between ARRAS & LAFERE 1918
Fall of BAILLEUL
AISNE H'GTS OURCQ
SOISSONS CHATEAU-THIERRY
DORMANS ST. QUENTIN
BELLEAU WOOD CANTIGNY
Great Allied Offensive July-Nov.

French masked battery in action in retreat from Mons.

Scene of the American attack upon the Germans at Cantigny

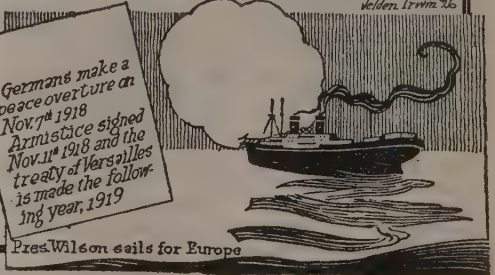
Velden Irwin '16

GERMANY SURRENDERS



A detachment of the U.S. Army of occupation entering Germany

Germans make a peace overture on Nov. 7th 1918
Armistice signed Nov. 11th 1918 and the treaty of Versailles is made the following year, 1919



Pres. Wilson sails for Europe

WAR
EUROPE
U.S.
U.S. DECLARES WAR on Germany, Austria and Turkey 1917
WOODROW WILSON 1913 to 1921
VICTORY FOR ALLIES 1918
Declaration of Armistice
ARMISTICE DAY Nov 11th
NATIONAL PROHIBITION by Constitutional Amendment 1920
Woman Suffrage granted 1920
PANAMA CANAL — Opened 1914
The ocean liner LUSITANIA sunk by a German submarine 1915
N.C.4
The first airplane flight across the Atlantic Ocean. Rockaway L.I. to Plymouth, England May 8th 1919

THE ADMINISTRATION OF WOODROW WILSON—1913–21.

The Election of Wilson.—The break between Roosevelt and Taft became complete after the former returned from his African trip. Taft displayed an independence that Roosevelt did not like, and to defeat him went after the nomination himself in 1913. Republican leaders much preferred Taft, and they controlled the nominating convention. That Roosevelt was the choice of the rank and file of the party is probably true, but Taft got the nomination. The Roosevelt men seceded and formed a Progressive party, naming Roosevelt as their nominee. The Democrats had the choice of several prominent men, notably Bryan, Champ Clark, and Oscar Underwood. When Bryan saw that he could not be nominated he threw his strength to the man who seemed to be the most progressive, Woodrow Wilson, Governor of New Jersey, and former President of Princeton University. Wilson won the election by virtue of the split in the Republican party. Wilson's electoral vote was 435, Roosevelt's, 88, and Taft's, 8.

A New Kind of Statesman.—Wilson was a genuinely new kind of President. All but two years of his mature life had been spent in scholarly pursuits, and his knowledge of politics was theoretical rather than practical. As governor of New Jersey he had sponsored many progressive laws, and this attracted Bryan to him. To many, a "scholar in politics" was a man out of place; but Wilson was destined to accomplish more constructive legislation than any President we have ever had. He was fortunate in that his party controlled both houses of Congress at first.

The Underwood Tariff Bill.—Wilson called a special session of Congress to consider the tariff, and for the first time since 1801 a President read his message to Congress in person. The Underwood Bill reduced the tariff on 1,000 articles and made it necessary to levy an income tax to make up the expected deficit. This act was denounced by the Republicans as a blow at business, but manufacturing interests did not suffer apparently.

The Federal Reserve Act.—A better Federal banking system had been talked of for many years, but the Republicans did not push it, and allowed a Democrat to get the credit for it. The Owen-Glass Federal Reserve Act of 1913 contained the following provisions: Twelve Federal Reserve banks were set up in as many cities, and the national banks of the region were to be member banks, with the addition of as many state banks as would come in; currency could be issued by these Reserve banks on the commercial paper of the member banks; the whole system was to be under the direction of the Federal Reserve Board, composed of 6 members appointed by the President. Few legislative acts in our history have had so beneficent an effect upon the country.

The Clayton Act.—Wilson now turned his attention to the trusts, with the result that a Congress wholly under his control passed the Clayton Anti-Trust Law of 1914 forbidding the discrimination in price between purchasers where

the effect is to stifle competition; it forbade inter-locking directorates and the purchase of stock by a corporation of another corporation where competition was lessened; it exempted labor unions and farmers organizations from the provisions of the Act. The last provision was declared void by the Supreme Court so far as it exempts labor unions. The Clayton was a serious attempt to put teeth in the Sherman Act.

Latin-American Troubles.—In 1914 the U. S. made a treaty with Nicaragua whereby we acquired the right to build a canal in Nicaraguan territory and to supervise fiscal affairs. In 1916 we assumed a similar protectorate over Haiti. Both of these treaties were destined to disturb our relations with other states of Latin America which feared "Yankee" imperialism. The Mexican situation was bad when Wilson became President, due to the murder of Madero and the accession of Huerta. Wilson would not recognize Huerta, especially as Mexico was in a state of anarchy and lives and property of Americans were in danger. In spite of many provocations Wilson refused to intervene, proclaiming his policy to be that of "watchful waiting." In 1915 Huerta was overthrown by Carranza who sometime later was recognized by the U. S. government. But Mexico remained a thorn in the side of this country.

The Great War Breaks Out.—After 1914 foreign affairs engaged the attention of the U. S. almost to the exclusion of domestic matters. At the outbreak of the Great War President Wilson issued a proclamation of neutrality, but it was a difficult thing to live up to because of the fact that millions of Germans, Slavs, Irish, English, etc. were living here, and most of them supported the mother country enthusiastically.

German Plots.—Another source of difficulty was the plots set on foot by Germans mainly, having for their purpose the destruction of plants engaged in making supplies for the Allies. Our government was compelled to be on its guard constantly against such acts.

Dispute with England.—When U. S. vessels attempted to carry goods to Germany they were stopped by British ships sent out to enforce the blockade. Wilson protested against this as an unwarranted extension of international law, but in the end was forced to give in.

Wilson Re-Elected.—The Republicans took their nominee from the Supreme Court, Chas. E. Hughes, and he got the support of Roosevelt who did not like Wilson's policy. Wilson was re-nominated by the Democrats, and won the election by 274 electoral votes to 257 for Hughes.

The U. S. Joins the Allies.—The sinking of the Lusitania with the loss of more than 100 Americans almost got us into the war in 1916; but Wilson was averse to fighting if it could be avoided. But Germany disregarded her promises to spare American vessels and at last Wilson's patience was exhausted, and on April 5 Congress declared war on Germany.

Raising an Army.—No time was lost in assembling a military force, and a Conscription Act was passed to provide an adequate army. By the time the war ended the U. S. army numbered more than 4,000,000 men, and the whole force had been raised with a minimum of objection, in contrast with the conscription riots of the Civil war.

Food and Fuel.—To assure an adequate supply of food for the army as well as civilians the U. S. government put the regulation of the sale of food in the hands of a Food Administration under Herbert Hoover. Hoarding was forbidden, prices regulated somewhat, and the farmers were given every encouragement to increase the crops. A Fuel Administrator was appointed to conserve the supply of coal especially. Both these organizations functioned efficiently, in contrast with the Aircraft Board whose administration was a disgrace.

Wilson as War Leader.—After we were once in the war Wilson became an inspiring leader. His addresses were master-pieces of eloquence and did much to unite the American people. Some Republicans were disposed to be jealous of him but in the main he was supported by all persons regardless of party.

Our Part in Winning the War.—The U. S. troops arrived in France at a most critical time for the Allies. Whether or not we actually won the war we at least prevented Germany from winning it. Our losses were not great, considering the magnitude of the conflict, and on the whole the money appropriated was well spent.

The Armistice.—In October, 1918, the Germans realized that they were beaten, and so asked for an armistice on the basis set forth by Wilson some time before, the "Fourteen Points." These had stipulated for the freedom of the subject races of Europe, freedom of the seas, etc., all of which seemed mild to the Germans now. The Armistice was granted on terms laid down by General Foch, the French Commander-in-Chief. The Germans were in no position to refuse, although they protested that they had been tricked.

The Treaty of Versailles.—To make a permanent settlement of European affairs the nations engaged in the war sent representatives to Paris, and Wilson chose to go himself. For this he has been much criticized, but it remains for future historians to appraise this act. He was unable to embody all the liberal provisions that he desired in the Treaty, but it is safe to say that had he not been there even worse terms would have been imposed.

The U. S. Senate Rejects the Treaty.—Senator Lodge, the Republican leader of the Senate, was the bitter personal enemy of Wilson's, and when the latter brought back the Treaty of Versailles containing a provision for a League of Nations the Senate supported Lodge's contention that the U. S. ought not to take part in European affairs to such an extent as would be necessary under the League. Wilson used his waning strength to convert the people of the U. S. to his views, but his health broke down and during the last year of his administration was unable to carry on the duties of his office. He died in February, 1924.

"TEN YEAR NAVAL HOLIDAY"
PEACE TREATY WITH GERMANY
W.S.
A "DISARMAMENT CONFERENCE" is held in Washington to discuss the practicability of reducing armaments-1921. Some progress is made. Most individuals with a fair degree of intelligence stopped carrying weapons long ago.
RADIO
Phenomenal developement of Radio Broadcasting
WARREN G. HARDING 1921 TO 1923
WARREN G. HARDING
BORN 1865 NOVEMBER 2d
DIED 1923 AUGUST 2d
Wis.
N.Y.
ILL.
Nev.
Four states vote for modification of the present National Prohibition Laws.
Dr. W. D. Coolidge does important work in the developement of the CATHODE-RAY TUBE.
CALVIN COOLIDGE 1923–29

THE ADMINISTRATIONS OF WARREN G. HARDING AND CALVIN COOLIDGE— 1921-29

The Election of Harding.—The leader of the Republican party was Senator Penrose of Pennsylvania, but, like Mark Hanna and other bosses, he was too well known to secure the nomination. He did secure the selection of a man of the McKinley type, Senator Harding of Ohio, and naturally was the power behind the throne. Progressive sentiment was ignored. The Democrats could have taken Wilson's son-in-law, W. G. McAdoo, who had displayed remarkable administrative ability during the war and who was popular with the laboring people, but McAdoo had made many enemies. Their choice was Governor James M. Cox of Ohio who had made a good record in that state. The issue of the campaign was the League of Nations and the people apparently repudiated it by electing Mr. Harding by a huge majority, 404 electoral votes to 127.

The Budget System Established.—Wilson had vetoed a Budget Bill because it took away from the President powers that he thought the President should have. Harding was not so sensitive as to his prerogatives and gladly signed a bill establishing a budget system. There was to be a Director whose duty it was to prepare a budget and submit it to the President who passed it on the Congress. Differing from the English system there was nothing to prevent Congress from raising the estimates, and this proved to be the vital weakness of the system.

The Washington Conference.—Since the U. S. had rejected the League of Nations, Harding, a well-meaning man, thought that we might contribute to world peace in a practical way by having a conference of the great powers meet in Washington for the purpose of considering disarmament. In November, 1921, this conference met and came to an agreement affecting naval establishments. The U. S. and Great Britain were to be on equal terms, Japan could have a navy about three-fifths as large as the two Anglo-Saxon states, and France and Italy were limited still more.

Harding Dies.—While on a trip through the far west in the summer of 1923 President Harding was taken ill and died unexpectedly. Like McKinley he was a very popular man and the people of the country were shocked by his death. He had not been President long enough to accomplish much, but there were indications that if he had lived out his term he would have asserted his leadership.

Coolidge Becomes President.—Calvin Coolidge had been obscure until the newspapers had played him up as the strong man who had settled the policemen of Boston when they went on a strike. This occurred when he was Governor of Massachusetts, and was the best kind of publicity. He now stepped from the obscurity of the Vice Presidency to the glare of the Presidency, but, being of phlegmatic disposition, his new duties did not outwardly disturb him. He retained all of Harding's Cabinet and announced his intention of carrying on Harding's policies.

Congressional Investigations.—The 68th Congress spent much of its time investigating charges of corruption that were brought against public officials. Affairs in the Bureau of War Risk Insurance were shown to be rotten in the extreme, and criminal charges were made against the Director, Colonel Forbes. The reason why the expenditure of hundreds of millions of dollars for aircraft during the war failed to produce results was looked into. Most important of all was the charge of corruption brought by Senator Walsh of Montana against certain Cabinet officers that they had given away valuable oil lands belonging to the government. Specifically, Secretary of the Interior Fall was accused of illegally leasing The Teapot Dome oil field to a company headed by Harry Sinclair, and California reserves to Edward L. Doheny. The leases were made secretly and Secretary Fall was alleged to have received a large sum of money from Sinclair and Doheny. Fall resigned, and Secretary of the Navy Denby, who had transferred the control of the oil lands from his department to the Interior Department, also resigned. Suits were brought by the government to set aside the leases, but the lower court held them to have "been made in accordance with the law."

The Campaign of 1924.—There was no question that President Coolidge would be nominated by the Republican party, and this was done unanimously by the Cleveland Convention. A group of Progressives, led by Senator LaFollette, broke away from the old parties, and nominated LaFollette and Senator Wheeler of Montana, who had taken a prominent part in the investigation of the oil scandals. The two most prominent candidates for the Democratic nomination were Governor Alfred Smith of New York, and William McAdoo, former U. S. Secretary of the Treasury. The New York convention balloted for nearly two weeks, and finally nominated John W. Davis of West Virginia, who had served as Ambassador to Great Britain. Coolidge polled nearly as many votes as his opponents combined, and won easily.

The Foreign Debt Question.—During the Great War and the period immediately following the U. S. had loaned its Allies nearly eleven billion dollars. England, whose loans abroad were larger than the U. S., offered to cancel the debts owed her if the U. S. would do likewise. Arguments favoring this were: The war had been fought in a common cause and the U. S. had not borne her share. The U. S. emerged from the war by far the richest state in the world. The interest the U. S. would receive from year to year would upset still more the balance of trade, and would impoverish Europe for years, at the same time injuring the U. S. by hampering the buying capacity of Europe. The U. S. Government replied: The other Allied states had taken their recompense in territories formerly belonging to the Central Powers. The U. S. had little at stake compared with the other Allies. To cancel debts contracted in good faith was a bad precedent, which might hamper future borrowing. The U. S. taxpayers should not be called upon to assume European debts. If the states of continental Europe would go on a peace basis (cutting down their expenditures for military purposes) they could balance their budgets and pay their debts. Secretary Mellon and Chancellor of the Exchequer Baldwin came to an agreement regarding the British debt whereby sixty-two annual payments were to be made, interest to range from three to three and one-half per cent. Baldwin's successor, Winston Churchill, condemned the agreement, and a controversy between him and Mellon ensued, disturbing somewhat the good feeling between England and the U. S. The chief point at issue had to do with the time the money was loaned, and the use made of it, Mellon stating that the U. S. had practically canceled the debts contracted during the war and was only demanding the payment of its post-war loans. Mellon announced that all of the U. S. debtors with the exception of Russia had signed agreements to pay the U. S. The terms were based on their respective capacity to pay, the severest terms being imposed upon Great Britain and the most lenient upon Belgium.

The World Court.—President Coolidge made a mild effort to have the U. S. enter the World Court, and the Senate passed a resolution authorizing our entry but with stringent reservations which would give us the position of the most favored state. Senator Borah, the leader of the "Irreconcilables," fought against the adhesion of the U. S. to the Court on any terms, and in the end he won because the World Court states would not accept all the U. S. reservations. Coolidge made a statement to the effect that if the great world powers did not agree to a reduction of armament the U. S. would embark on a naval-building program calculated to be the greatest ever undertaken by any nation.

Tax-Reduction.—The prosperity of the U. S. was so great that the amount of Federal taxes collected exceeded all official expectations. The surplus could be used to pay off the U. S. domestic debt, or it could be returned to the tax-payers as a rebate. The income and corporation taxes had been greatly lowered for the year 1926 and Secretary Mellon opposed any further cut, stating that the government had better be on the safe side. But by the close of the year the surplus had piled up to such an extent that President Coolidge on his own initiative declared that tax-payers should be given a rebate on their 1926 taxes. Mr. Coolidge vetoed some bills calling for increased expenditures, but Congress enacted several of them over his protest. He also vetoed the McNary-Haguen bill designed to promote farm relief.

Refuses to Run.—Many supposed Mr. Coolidge intended to try for another term in 1928. In the summer of 1927, however, he sought to quiet all such rumors by making his famous pronouncement, "I do not choose to run again." In August, 1928, the United States became a party to the Treaty of Paris, by which fifty-five nations agreed to outlaw war. Mr. Coolidge followed this with a clear exposition of U. S. policy on Armistice Day, reenforced in magazine articles since his retirement in March, 1929.

THE ADMINISTRATION OF HERBERT HOOVER
1929—

Election of 1928.—Hoover was elected after a tense campaign complicated by various issues—including farm relief, prohibition, and foreign policy—by an electoral vote of 444 to 87 for Alfred E. Smith. He began at once to prepare for his office by making a close study of all problems facing him and by making a good-will tour of the Latin-American countries for direct contact and personal information. In his campaign he had announced that he would favor strict law enforcement, equal opportunity for all, especially for children, better conditions for the farmer, without direct subsidy to him, and a business administration. He also favored conservation of national resources, control and development by the Federal Government, and any measures that might make the land more productive.

Special Session of Congress.—At the call of Mr. Hoover, Congress assembled in April to consider farm relief, some tariff revisions, and a few minor problems. Though opposed by the President, the Senate enacted a farm bill of which an export debenture plan was a chief feature. After a series of conferences, the House finally forced the adoption of a measure suitable to the administration, and this revised bill was signed by President Hoover. Previously a tariff measure had been enacted making certain changes in rates without any radical revision of general policy.

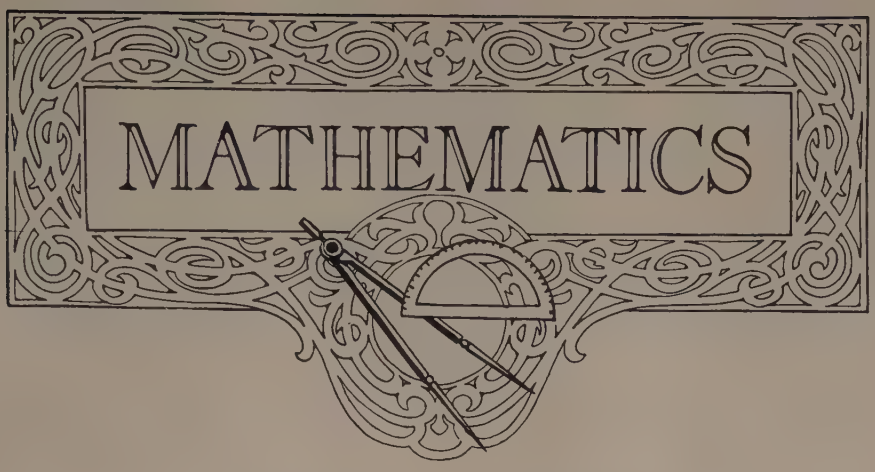
Law Enforcement.—In his acceptance speech, Hoover proposed "an organized searching investigation" of prohibition. By inaugural time, he proposed to go into the "entire question of law enforcement and organized justice," the lack of which he declared threatened the very life of the nation. He therefore appointed a committee of eleven headed by former Atty.-Gen. Geo. W. Wickersham to study this question. He asked this body to recommend measures that might tighten the enforcement of all laws.

Reparation Conference.—Once more representatives of the United States assisted in revising the terms which Germany and her allies must meet to settle the debts of the World War. New schedules of amounts, payments, and credits made it easier for Germans to meet their agreements. The outstanding figure in the Second Dawes Conference, as it was termed, was Owen D. Young of G. E. Co. The tact and patience of Mr. Young more than once saved the conference from going on the rocks.

Disarmament.—The election of Ramsay MacDonald, head of England's Labor Party, together with Pres. Hoover's attitude on disarmament, paved the way for a new and forceful sentiment for world disarmament.

Boulder Dam.—When the Boulder Dam bill was passed by Congress, it was subject to approval by six of the seven interested states, Cali-

fornia, Colorado, New Mexico, Nevada, Utah, Wyoming, and Arizona. June, 1929, the act became effective, having been agreed upon by six of the seven states. Arizona refused to ratify the compact. President Hoover stated, "This represents the most important action ever taken in that fashion under the Constitution." A movement has now started in the Southwest to name the structure Hoover Dam. Millions of acres of arid land will become tillable.



IMPORTANCE OF MATHEMATICS
THE HOME AND ARITHMETIC
EARLY NUMBER WORK
FRACTIONS
DECIMALS
METRIC SYSTEM
PRACTICAL MEASUREMENTS
MENSURATION
GRAPHS
COMMERCIAL ARITHMETIC
DICTIONARY OF WEIGHTS AND MEASURES
ALGEBRA
GEOMETRY

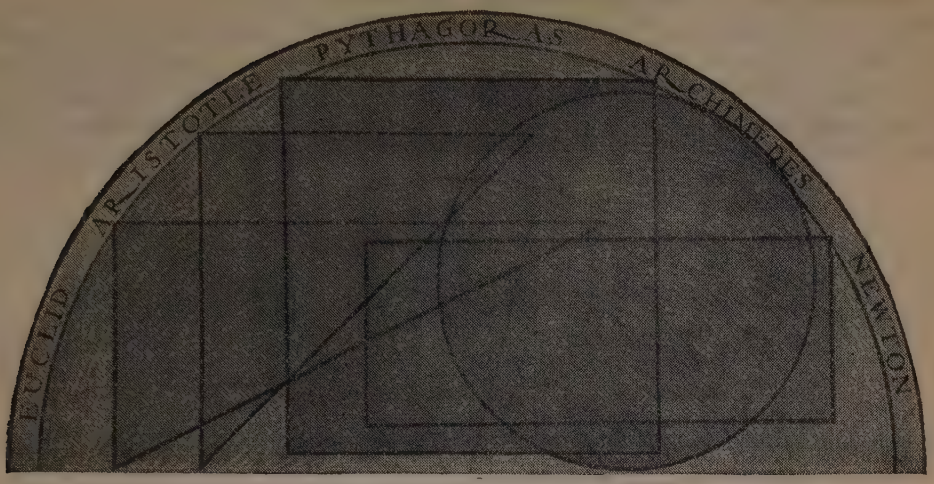
All Photos from Keystone View Co.

FAMOUS MATHEMATICIANS

Karl Frederick Gauss
Sir Isaac Newton
Johan Kepler
Archimedes
Euclid
Prof. Albert Einstein
Joseph Louis Lagrange
Gottfried Wilhelm Leibnitz

BOOK IV.

MATHEMATICS.



Drawing by SELDEN IRWIN.

PURPOSE AND HISTORY OF MATHEMATICS. PARENTS AS TEACHERS, NUMBER PREPARATION, TEACHING WITH GAMES, NOTATION AND NUMERATION. INTRODUCTION TO FRACTIONS, FUNDAMENTAL OPERATIONS, SHORT METHODS OF COMPUTATION, ALIQUOT PARTS. SQUARE AND CUBE ROOT. DECIMALS. ABBREVIATED MULTIPLICATION AND AVERAGES. METHOD OF TESTING PROBLEMS. PRACTICAL MEASUREMENTS. PAPERING, CEMENT AND MASONRY, CONCRETE WORK, ETC. DENOMINATE NUMBERS, DICTIONARY OF WEIGHTS AND MEASURES. ALGEBRA. POSITIVE AND NEGATIVE NUMBERS. EQUATIONS. GEOMETRY. LINES, ANGLES, TRIANGLES, QUADRANGLES, REGULAR POLYGONS, CIRCLES.

MATHEMATICS.

Recent investigations show many interesting as well as instructive facts concerning our present national life. A glance at some of these results helps to direct us in planning the work of our own lives as well as that of others. These results have served as a *guide* in the preparation of this department.

Today, our public schools reach practically all our children with at least a minimum of education. A rapidly increasing number of our young people are receiving further training in the secondary or high schools of the country. In the past ten years, the number of students enrolled in the high schools of one of the larger cities has increased from less than 3,000 to over 13,000. At the present time, the board of education in this city is planning for over 20,000 students before 1930. Just recently, the United States Commissioner of Education stated that in his opinion within twenty years a high school education would be as essential as a grade school education is now. It is evident the future will demand fuller preparation of its leaders.

The number of young people who are seeking still further training is so great that they have crowded the classrooms and strained the equipment and faculties of our colleges and universities. The World War placed a great emphasis on the value of education. The trained man was able to render a larger service, and was at the same time able to accept opportunities and responsibilities that were coveted by all.

Statistics of insurance actuaries show us that the percentage of men who gain financial independence is very limited.

A second and, for our purpose, more instructive study has been made as to the kind of preparation made by those who are called successful. The accompanying graph shows in a forceful fashion the relation between the groups considered. See page 368.

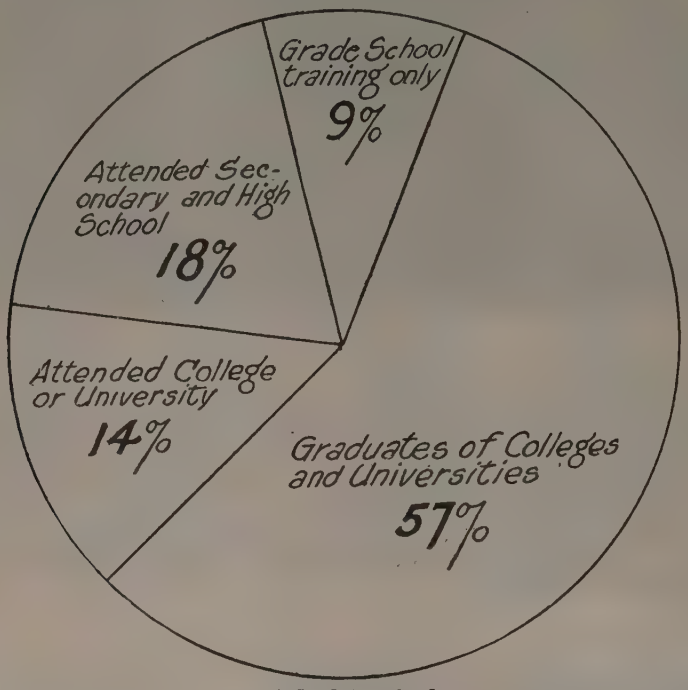
A consideration of this graph cannot fail to emphasize the importance of securing as complete an education as possible. Such an education must include a certain amount of knowledge about the science of mathematics. This has long been deemed second in importance only to a knowledge of how to read and write. In the present social and economic order, each individual must be able to "figure" if he is to protect his own best interests.

Mathematics is the oldest of the sciences. It is also one of the most modern. Developments in recent years have caused writers to call this the golden age of mathematics. The ancients must have known many of its facts and principles long before they built their temples and

pyramids. The earliest written work on the subject yet discovered is a treatise written by a scribe named Ahmes, which dates back to about 1700 B. C. It is a copy, according to its author, of a manuscript which was even then very old, authorities estimating that the original was probably written as far back as 3000 B. C.

After the Egyptians, the Babylonians and the Greeks in turn added to the knowledge of the subject. The great names in the History of Human Thought are all met as one reads the history of this subject. Thales, Plato, Aristotle, Euclid, Archimedes among the ancients, Descartes, Leibnitz, Newton among the moderns are only a few of those whose names are written high by their achievements both here and in other fields as well.

Today, the field of mathematics has become so extensive that students find time to specialize within the subject. Progress is still dependent on mathematics for the tools with which it works. The aeroplane and the radio were perfected by men who knew how to use its principles.



2% Undetermined.

It is still important for one who hopes to take his or her place in affairs to know something of the fundamental principles of the different branches of the science, Arithmetic, Algebra, and Geometry. Many are unable to avail themselves of opportunities offered by institutions of higher education, even though these institutions are supported by the state. Yet one ambitious of better equipping himself for life's tasks can do so by home study as has been dramatically illustrated in our national history. With this in mind, the following sections have been prepared. The arrangement includes work on "Arithmetic in the Early Grades," "The Principles of Arithmetic," "Commercial Arithmetic," "Practical Measurements in Arithmetic," "Algebra," "Plane Geometry," and a "Dictionary of Weights and Measures."

The child needs careful help and direction in the forming of his elementary concept of number. A right beginning is of great importance. The thoughtful parent as well as the earnest teacher will find many valuable plans and useful suggestions here which will help them in leading the child into a correct idea of the meaning of figures. Many new and improved methods are now being used in the early grades. The use of the play instinct is being greatly increased. To any one who has been out of touch with the progress being made in education since the days when they were themselves students of the "Three R's," the following pages will be a revelation.

The section on arithmetic sets forth in simple form with easy illustrations the rules under which numbers may be combined. Integers, fractions and decimals are considered. As each new number is introduced, the various operations, addition, subtraction, multiplication, division, and the extraction of roots are explained and the processes illustrated.

In commercial arithmetic, the problems which arise in transacting one's personal business are considered. Buying and selling goods, borrowing and paying money, commission, interest, insurance and kindred topics are treated.

Everyone has occasion at some time or other to figure areas and volumes of various kinds. How much paper is needed to paper a room, how much carpet to cover a floor, how many shingles

to cover a roof, how much lumber to lay a floor, these and similar questions are answered in the section on practical measurements.

The Dictionary of Weights and Measures is a reference section which contains the value of most of the Standard measures used throughout the world. Constant reference is made to it in the section on Practical Measurements.

In Algebra, the methods of arithmetic are generalized. The student who wishes to become acquainted with the subject for the first time will find the explanations clear and concise. The student who is studying the subject in high school will find the point of view developed here helpful. Those who have finished the work years ago will find the essential rules and principles explained here in convenient form.

The same purpose directed the preparation of the section on Plane Geometry. At all times, the writers of these pages have been mindful of the actual needs of prospective readers. Those who master the work set forth in the following sections, will find before them an interesting and profitable field for further study.

PRIMARY ARITHMETIC.

Arithmetic is the science which deals with numbers. It also refers to the art of computation, or "figuring" with numbers. The word comes from the Greek word, *arithmos*, which means number.

The aims and purposes of present courses in arithmetic may be variously stated. In the preface to one of the leading text books on this subject, the author states that the aim of the book is threefold:

1. To give the pupil skill in the art of computation.
2. To make him a good mathematician.
3. To give him a working knowledge of modern business methods.

In the course of study adopted by the Pittsburgh Public Schools, the aims and objectives of the course in arithmetic are stated as follows:

1. To give the pupils a knowledge of arithmetical facts and processes necessary to interpret and solve the problems met in everyday life, and to develop skill in using them.
2. To develop in the child power to reason accurately in the face of as complicated data as occur in problems adapted to the growth and development of the child.
3. To secure skill, rapidity, and accuracy in the use of numbers required in ordinary business transactions and practical affairs of life.
4. To satisfy the child's felt need for a knowledge of the laws of number and to aid him in interpreting the quantitative relations of life.

In the following pages the best methods of computation and proof of problems are given. Following this theoretical phase of the subject, the problems of business are considered. Problems in mensuration together with many practical illustrations are next developed. The rules and principles are stated in simple language. In many cases, rules are used without attempting to develop them in detail.

While the article on Primary Number Work is arranged principally for the benefit of parents as teachers in the home, it will be found just as practical as an outline for teachers to follow in building up a proper course of study for the first four grades. No text book can solve all the problems that arise in the teaching of arithmetic. The alert teacher is ever ready for new and helpful suggestions.

THE PARENT AS TEACHER.

"Come, now, let us live with our children."

The period of childhood and youth is the strategic period (in the life of the home, the school, the church, and the world), and it is imperative that parents and teachers realize their responsibilities and measure up to them.

The mother is the natural educator of the child in its early years. In early Roman history the mother had entire charge of the child's education during the first six or seven years of its life; only when Rome had begun to decay did she commit their training to nurses and slaves. The Roman mother taught strict obedience, politeness, poems from the great masters, and instructed them in the "Twelve Tables of Roman Law" and thus they came to have respect for authority.

The child's first idea of number concept comes when an infant. All authorities are agreed that the first two or three years of life are the years in which we learn most.

The most important thing in the education of the child is *sense training*. "His mind is like a fallow field, waiting for any seed that may be sown therein,—good, bad or indifferent. The harvest is always sure." Every child learns to talk by its own efforts. It concentrates by listening intently, watching movements of the lips, and practicing sounds all day long. Thus it is important in the early years of a child's life, that he be taught the things that will count most in his mental development—to see, to think and to do.

The development of consciousness of fingers and toes is very important. Every mother should become familiar with Emilie Poulsson's "Finger Plays," such as,

"This is our father,
This is our mother,
This is our brother tall.
This is our sister,
This is our baby,
Oh, how we love them all."

This introduces earliest counting of fingers and toes. In all times and among all nations, finger plays have been a delight to childhood. However, their value is not solely based upon the pleasures derived from them, but by their judicious and early use a foundation can be laid for number concept.

Before the child forms a definite number concept, we find him comparing objects—large, small; round, square; regular, irregular; long, short; much, little—etc.

Let it be urgent that the parent take advantage of this stage in the child's development and help him to arrive at truthful conclusions. He

is constantly making discoveries; hence, he should lead and the parent follow. Give the craving numerical instinct something to work upon and wisely guide it to its richest development. If he were permitted to continue in this process, he would become mentally independent, an investigator rather than a mere learner of facts.

There are few children who do not delight in number work. Counting (the fundamental process in arithmetic) is a thing of joy to them. It is the promise of higher things. The one, two, three of the very small child is the expression of a higher energy struggling for complete utterance. He has acquired some vague idea of numbers because he has been acting under the number instinct—he has been counting and measuring.

No doubt among the early ideas of number, the idea of two is first to appear; his experience has been rich in twos: two eyes, two ears, two hands, two feet. The number three is a much more difficult idea for the child, since it has no seeming relationship to the child's world. It cannot be mastered without the use of higher numbers. It is best taught by contrast or by constructing groups of three with pegs, splints, etc.; in nature we may contrast the three-leaf and the four-leaf clovers. If he knows three he can master counting to the number ten in a few lessons and will have the higher numbers within easy reach. Encourage his counting every thing within his environment.

Play is instinctive with children; hence, we refer you, as a further development in forming number ideas to the games listed under each grade. "Motion Picture," "Climbing the stairs," etc.

Recent developments in home and community life insistently demand a higher order of service and a more economical expenditure of time and energy.

School methods are not yet ideal; under present conditions, it is impossible to adapt subjects and methods to the intelligence of the individual pupil. Children having more or less than average capacity require special treatment. The parent at home has unlimited opportunities to approach the child's number problems—in work and play, on hikes, in confidential talks, and in countless other ways that the routine of the home affords. The closer the learning process comes to being a part of the immediate daily life the more permanent the value of the education.

Boys and girls waste a great deal of time at home because they do not know what to do. They should be doing some type of *constructive* work. Since ingenuity is better than the finished product, every boy should have some sort of work shop at home even though it be equipped very meagerly at first; it will be better equipped when its value is discovered. The person whose every early wish was granted finds it hard to adjust himself to life. Valuable experience could be obtained by utilizing *waste* material; reconstructing old clocks, electric bells; by constructing play houses, toys, air ships, radios, etc. The girl does not call for a special shop, the whole house is hers. These experiences would supply a real need for number work, the ideal condition under which it should be taught.

Children are susceptible to suggestion. Like sheep they follow a good leader. Here is the golden opportunity for the parent.

Children want room to think—their minds must grow as well as their bodies; hence, they are continually asking questions. The common error into which busy parents fall is that of ignoring or rebuking the oft repeated questions of children. Such inquiries should be encouraged. Every indication that the mind is being roused is a mark of progress and all such tendencies should be fostered by the wise parent. Some one has said, "If the pupil could have his individual mathematics lesson as he has his individual music lesson, not one out of a thousand would fail."

The mother of a child two and one-half years old once questioned Darwin as to when she should begin its education. His reply was: "Madam, you have already lost two and one-half years."

NUMBER PREPARATION FOR FIRST GRADE.

Children upon entering school have some number concepts learned through home experiences; therefore, the first problem of the teacher is to make a survey of the lives of the pupils and their environment to find situations which involve number problems.

Such a survey would reveal problems from various sources; such as, games, apportioning of school supplies, cost of school lunches, marketing, disposition of allowance, cost of amusements, etc. Since we proceed from the known to the unknown these should be utilized as a medium for arousing his interest in numbers and incidentally for building a background for work of second grade.

'Tis true, arithmetic, like other subjects, should be taught when the *need* for it arises, yet a definite amount of work should be accomplished in each year of the child's life.

Business men today are constantly complaining that pupils on leaving our schools cannot *add, subtract, multiply* and *divide* and they are hopelessly lost in the simplest problems involving fractions.

If our pupils are to be prepared for life we must aim to have them *completely master the fundamental processes;* however, it is not enough to know these processes, they must be able to "size up" the situation and know when to use them.

"It is the function of the teacher and the text so to present the thing to be done, so to propose the problems to be solved that they require real discovery on the part of the child."

As a preparation for the formal study of combinations it is necessary that the child be able to do the following work:

1. Rote counting 1–100.
2. Counting by 2's, 5's, 10's.
3. Read numbers to 100.
4. Write numbers to 100.
5. Recognize at sight groups of 2, 3, 4, and 5 objects.
6. During the first school year children should become familiar with house numbers, street numbers, telephone numbers, calendar dates, their own weights, ages, etc.

The fundamentally important thing for beginners is learning to count. They should first count objects serially related and later think the symbols that represent them. This counting serves to fix in the pupil's mind the sequence of numbers; therefore,

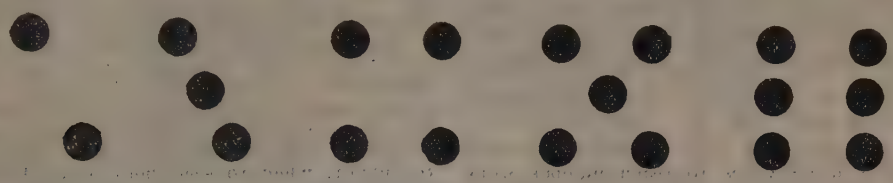
1. Let children count to the bouncing of a ball or to the tapping of a bell. At first count in concert, then individually.

2. Count objects in room: doors, windows, pictures, desks, erasers, piano, gold fish, rabbits, plants, etc.

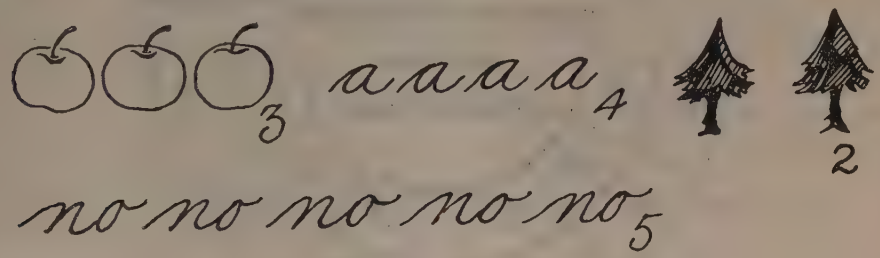
3. Have children tell the number of trees in their yard; automobiles, cars and people passed on their way to school; how many brothers and sisters in the family; how many plates are needed at the table.

4. To count by 2's, have children count hands, feet, eyes, ears; to count by 5's and 10's, use fingers and toes, nickels and dimes.

For practice in recognizing groups, let each home provide some form of blackboard, be it ever so crude, upon which the following groups may be placed with colored crayons:



Have children make groups of simple objects—trees, apples, letters, etc. The Domino Game may be used to advantage in recognizing these groups.



Let the child learn the digits by association with objects; count doors and pictures in the room and let the crayon tell how many there are.

When using Primer teach children to read the numbers of the pages and to refer to them by numbers.

For writing numbers from 1-100, arrange the work in the following manner, building up the form with the child:

0	10	20	30	40	50	60	70	80	90	100
1	11	21	31	41	51	61	71	81	91	
2	12	22	32	42	52	62	72	82	92	
3	13	23	33	43	53	63	73	83	93	
4	14	24	34	44	54	64	74	84	94	
5	15	25	35	45	55	65	75	85	95	
6	16	26	36	46	56	66	76	86	96	
7	17	27	37	47	57	67	77	87	97	
8	18	28	38	48	58	68	78	88	98	
9	19	29	39	49	59	69	79	89	99	

In order to use this form independently, make use of the following game:

Parent:—Touch each number in second column.
Touch all the 20's, 30's, 40's, and read them.
Touch the number after 29, 39, 49, etc.
Touch the numbers beginning with 2, 3, and 5 and read them.
Touch number that tells your age, etc.
Let the child copy this form until he is able to reproduce it from memory.

The following exercise will fix in the child's mind the relative value of the numbers represented by the above figures:

6	4	8	10	7
2	0	14	12	9
1	5	3	13	15

Parent:—Jack may erase the number which means nothing.
Betty may erase the largest number.
Erase the number which tells how many days in the week.
Erase the number which tells how many eyes you have, etc.

Number work may be taught incidentally by association with Physical Training, Music, Paper Folding, Writing and Drawing.

As a rest exercise, we may play "Picking Apples" thus—

Parent:—Pick up two apples. (Children pretend).
Put them into your basket. Now pick up two more apples. Put these into your basket. How many apples have you, John?
John—I have four apples.
Children, eat one apple. (Children pretend). How many have you now?
Children—We have three apples left.

Occasionally, during the music lesson, children may count tones as they are played on the piano, or sung by the teacher.

In teaching the lines and spaces on the staff, have children use the terms first, second, third, fourth and fifth.

Practice in number work by means of the paper folding lesson can be gained in the following way:

Jimmy, place your paper before you and fold it through the middle. How many equal parts has your paper now?

Jimmy: It has two equal parts.

Parent: Fold it through the middle of each half. How many parts has your paper now?

Jimmy: It has four parts.

Parent: Fold it again through the middle, then again through the middle of each half. Count the squares in your paper. Play this is your school room and number the seats. How many children in the first row? In the second row? How many in all?

In a similar way take advantage of other subjects and activities to teach number work incidentally.

While the exercises suggested above apply particularly to the school room, the parent can find countless opportunities to lead the child to think about numbers in a natural way.

SOCIALIZING NUMBER WORK.

Much has been said in recent years about bringing the school into more intimate contact with the activities and problems of social life. Play is one of the important phases of every day life. The child is by nature very active and should be taught games that have real value.

"The game socializes the child, and since it is through social co-operation that man lives, this activity is a fundamentally important one—educationally. Through games the child learns the fine art of getting on with his fellows, how to co-operate, how to influence, how to lead, when to submit, when to seek help, when to resist, when to command, manners, customs, morals."

GAMES FOR FIRST GRADE.

MOVIES.

Recognition Game.

Let us play we are ushers and help John to find these seats:

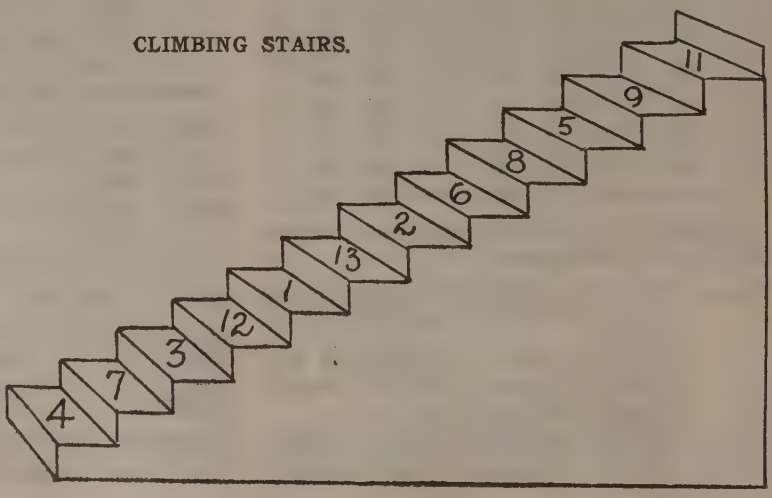
Seat 5	Seat 4	Seat 7	Seat 2
Seat 6	Seat 3	Seat 9	Seat 8

Mary purchased tickets for seats 3, 5, and 7. Sara purchased tickets for seats 2, 4, and 6. Help John to find them.

CLIMBING STAIRS.

Parent: Draw thirteen steps on the blackboard and on each step write one of the numbers from 0 to 12.

Children: Stand in the aisles near their desks, one row at a time. Have each child climb stairs by recognizing figures. If a child stumbles on a step, he must take his seat. The row having greatest number standing at the close, wins the game.



THE TOY SHOP.

Let children contribute toys for the toyshop, such as dolls, balls, blocks, pocket books, etc.

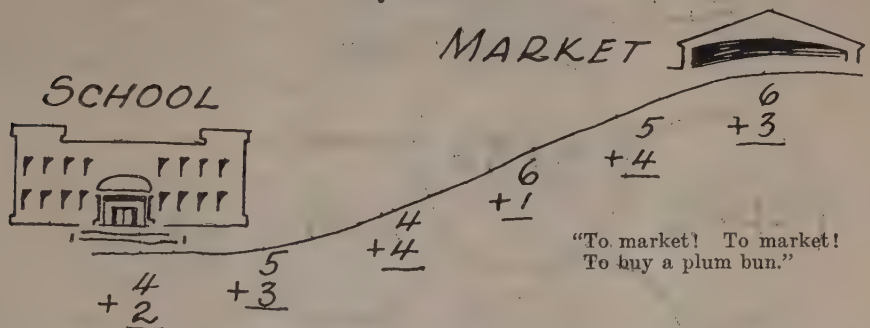
Parent: Let the first store be a "cent shop" where all sorts of toys may be bought for a few cents, nothing should cost more than ten cents.

Children: The shop keeper stands in front of the room near his toys. The other players, all customers—remain in their seats except when they are making purchases. A purchase is made like this:

Customer: What is the price of this doll?
Shopkeeper: That doll is 8 cents.
Customer: I would like that doll if you please. Here is a dime.
Shopkeeper: Your change is 2 cents. Thank you.

GOING TO MARKET.

Easy Combinations.



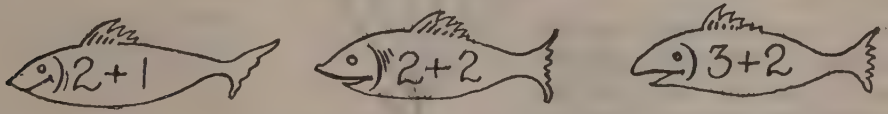
Parent: Sketch on the board the school and a market. Between the two buildings, write several combinations.

A child going to market must recognize each group he meets and call it by name.

Children: One pupil at a time goes to market. If he fails to recognize a group, he can go no further, but must return to school (seat). If he reaches market he should be clapped, etc.

FISHING GAME.

Easy Combinations.



Cut any number of fish from heavy paper. On one side of each fish write a number combination. Place fish in a brook (ledge of the blackboard), with blank side showing.

Parent: Divide class into two parties of fishers. Each fisher stands facing the front, ready

to run forward, when his turn comes to fish. As a signal to begin the parent repeats:

Little fishes in the brook,
I can catch you without a hook.

Players: As soon as the last word of rhyme is spoken, the leader of one row runs quickly to the brook and catches a fish. If he can correctly name his fish (give the result of combination) he takes it to his seat. If not, he must put it back into the brook. The leader of the other row immediately follows, and so on until all have tried.

The party having the larger catch, wins the game.

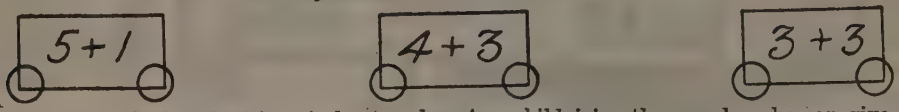
THE CALLER.
Counting Game.

Parent: Send one child into the cloakroom. Give each of the remaining children a number—not higher than 20.

Children: Players in their seats must listen attentively, while the child who has been sent out raps on the door for admittance. Suppose the caller knocks at the door seven times. The parent says: Who is wanted? If Alice has been given the number seven, she should promptly reply:

"I, seven, am wanted," and change places with the caller by taking her place in the hall. Should Alice fail to recognize her number the caller raps again, (a different number of times.)

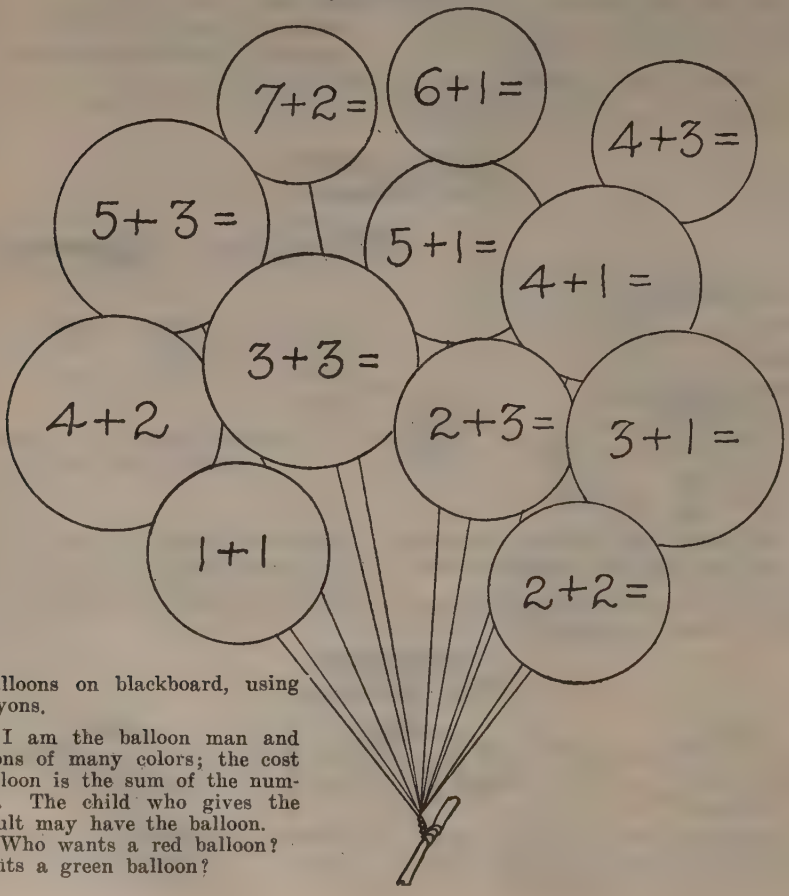
JOINING THE PARADE.



Draw oblong on the board with a circle at each of the lower corners. Call these drawings the "circus parade" and write numbers on them.

Any child joins the parade, who can give combinations correctly.

THE BALLOON GAME.
Easy Combinations.

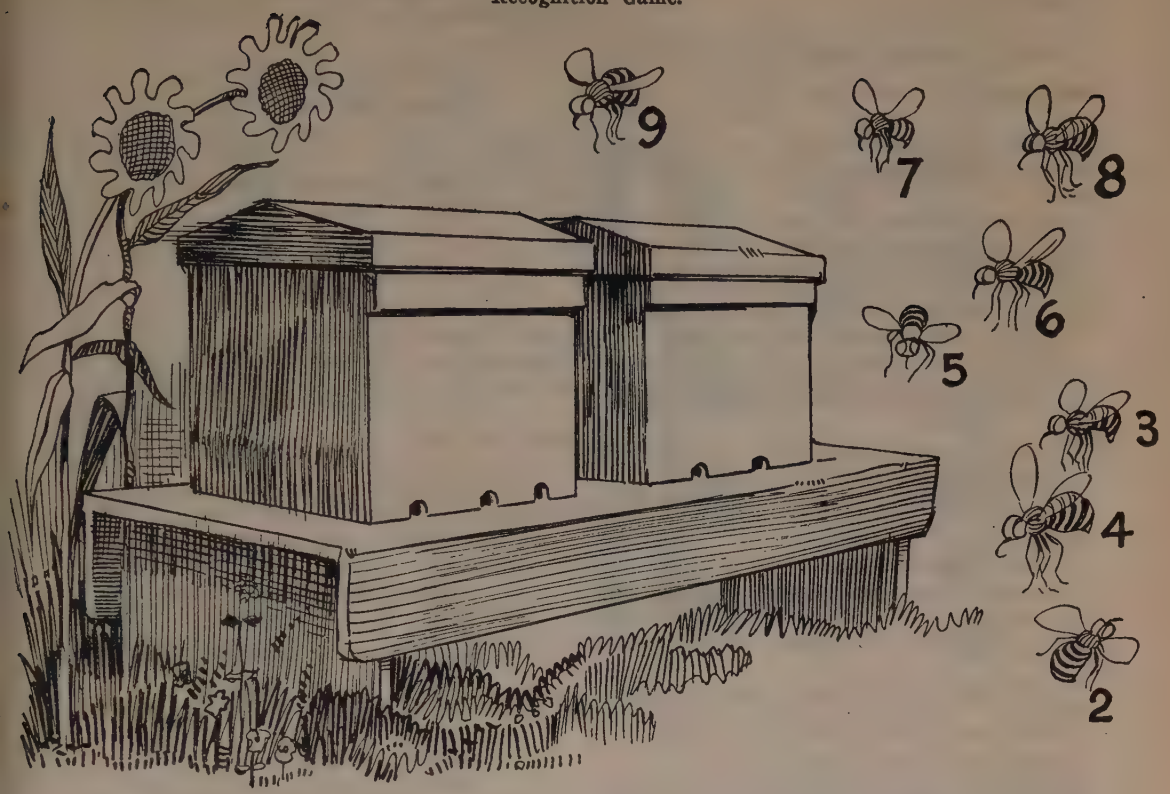


Draw balloons on blackboard, using colored crayons.

Parent: I am the balloon man and have balloons of many colors; the cost of each balloon is the sum of the numbers on it. The child who gives the correct result may have the balloon.

Parent: Who wants a red balloon? Who wants a green balloon?

BEE HIVE.
Recognition Game.



Draw on the board a beehive around which a number of bees are swarming, and number each bee. Have the child try to get all the bees into the hive by recognizing the numbers. When he fails to give the correct number he has been stung by that bee and the next child takes his turn.

SECOND GRADE NUMBER WORK.

The child upon entering the second grade should have a thorough review on the basic work of the first grade. "A woodchopper who takes time in the morning to sharpen his ax, will soon make up the time thus taken out."

Children memorize facts and form mental habits easily; and, since "First impressions are the lasting impressions," it is important when learning the basal facts, that they form correct habits which are to serve them through life.

The aim of the second grade should be to complete the following work:

1. The 45 Combinations in Addition.
2. Counting, Reading, Writing Numbers to 1,000.
3. The Subtraction Process.
4. The Addition Process.
5. Simple Units of Measure.
6. United States Money.
7. Introduction to Fractions.

The 45 combinations can be made an interesting game. Its value will be greatly increased if the child is encouraged to develop his own number cards. The cards will look like this:

$$\begin{array}{r} 1 \\ 1 \\ \hline 2 \end{array}$$

1	2	3	4	5	6	7	8	9		2	3	4	5	6	7	8	9
1	1	1	1	1	1	1	1	1		2	2	2	2	2	2	2	2
2	3	4	5	6	7	8	9	10		4	5	6	7	8	9	10	11
3	4	5	6	7	8	9		4	5	6	7	8	9		5	6	7	8	9
3	3	3	3	3	3	3		4	4	4	4	4	4		5	5	5	5	5
6	7	8	9	10	11	12		8	9	10	11	12	13		10	11	12	13	14
	6	7	8	9				7	8	9					8	9			9
	6	6	6	6				7	7	7					8	8			9
	12	13	14	15				14	15	16					16	17			18

The following lesson will suggest one way in which these cards may be used:

Parent (Pointing to $\frac{2}{\frac{4}{6}}$): This combination means 6. Show me another card that means 6.

John chooses $\begin{array}{ccc} 5 & 3 & 4 \\ 1 & 3 & 2 \\ \hline 6 & 6 & 6 \end{array}$.

Parent: You may write all the combinations which mean 6. John writes: $\begin{array}{cccccc} 1 & 5 & 2 & 4 & 3 & \\ 5 & 1 & 4 & 2 & 3 & \\ \hline 6 & 6 & 6 & 6 & 6 & \end{array}$

Parent: You have 6 rabbits. Four are white and the others are gray. Tell how many are gray.

The child is naturally active—mentally and physically—and it is important that the parent keep him mentally alert and interested in his work. It is more realistic to learn that 5 and 4 are 9 by counting children, pictures, toys, etc., than by merely using abstract numbers.

The ingenious parent can easily provide something pleasing to the child by letting the season and the child's environment suggest the problem, as

Halloween: Black cats, witches, owls.
Thanksgiving: Turkeys, pumpkins.
Christmas: Santa Claus, Christmas trees, bells.
Washington's Birthday: Flags, hatchets, cherries.
Easter: Eggs, chickens, rabbits.

The child should be encouraged to originate problems from his experience; it will not only be a source of delight, but also an aid in clear thinking.

Subtraction. By leading the child to see that these same combinations can be expressed in a different manner, we have laid the foundation for the Additive Method of Subtraction.

This method is fast coming into use in the business world; it naturally follows the addition combinations since it does not require the introduction of a new idea; it eliminates "borrowing" and substitutes the "carrying" idea which is a part of the addition process; it is also the method used in making change.

Suggestive Lesson.

Parent: You may bring me 4 balls, Mary. Now bring one more ball. How many balls have I now?

Mary: You have 5 balls.
Parent: What kind of problem is that?
Mary: It is a problem in addition.
Parent: I am going to teach you a new kind of problem. Let us throw one ball away. How many have we left?
Mary: We have 4 balls left.
Parent: You know this because the ball we threw away and the 4 we have left make 5 balls. We had 5 balls and one rolled away. How many have we left?
Mary: We have 4 balls left.
Parent: How do you know?
Mary: Because it takes one more than 4 to make 5.
Parent: Let me show you a new way to write it:

5 balls
−1 ball (rolled away)
—
4 balls (left)

Parent (Pointing to sign): We call this sign "minus." It means "take away" or "subtract." The following jingle helps to fix the method of procedure:

"Begin at the sign 1
Go to the bottom 4
Go to the top" 5

Similar problems involving the subtraction idea (sell, fly away, give away, etc.) should be given—the child repeating the jingle as he points to the figures.

$\begin{array}{ccc} 8 & 7 & 6 \\ -1 & -3 & -4 \\ \hline 7 & 4 & 2 \end{array}$

1 and 7 are 8 3 and 4 are 7 4 and 2 are 6

Parent: We can make a large problem by writing these figures close together and using only one sign: $\begin{array}{r} 876 \\ -134 \\ \hline 742 \end{array}$.

Mary (pointing to numbers) repeats: 4 and 2 are 6; 3 and 4 are 7; 1 and 7 are 8.

Parent: Today we shall learn how to do examples like this:

$\begin{array}{r} 723 \\ -169 \\ \hline 554 \end{array}$

In this example 9 is more than 3, so we think. "9 and 4 are 13." Write 4 and carry 1 to 6. 7 is more than 2, so we think. "7 and 5 are 12." Write 5 and carry 1 to 1. "2 and 5 are 7." Write 5.

Borrowing Method.

$\begin{array}{r} 723 \\ -169 \\ \hline 554 \end{array}$

In this example we think:
"9 from 13 are 4." Write 4.
"6 from 11 are 5." Write 5.
"1 from 6 is 5." Write 5.

Never teach more than one method to the primary child.

Column Addition. The first step in column addition is to show the need for adding more than two numbers.

Parent: Mary, let the chalk tell how many plates we need at the table. (Parent, talking as she writes.)

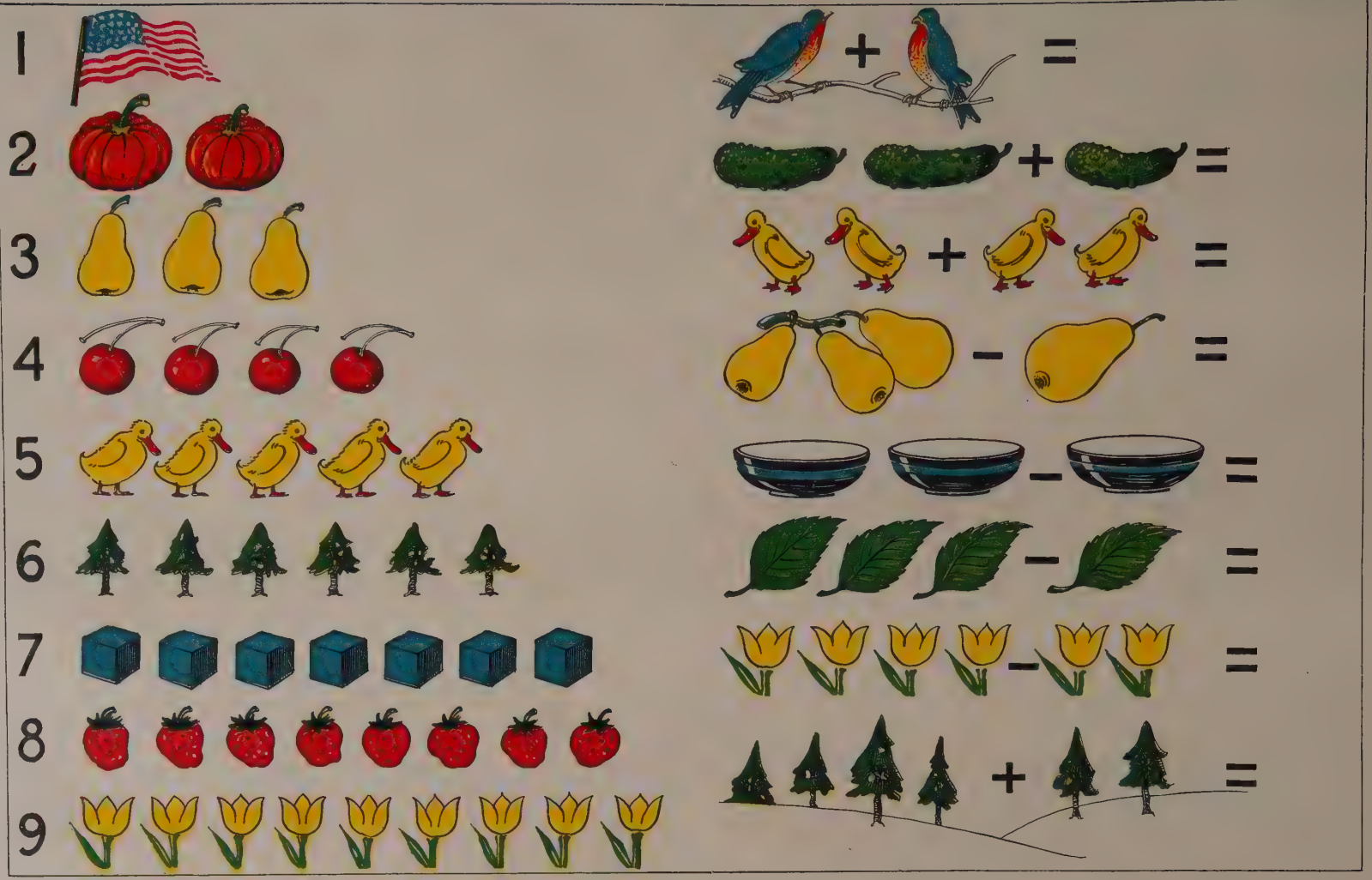
1 Father
1 Mother
3 Brothers
1 Mary
2 Sisters
—
8 Plates needed

The next step is to add by endings. Lead the child to see that a certain combination appears each time as the end of the example:

$\begin{array}{ccc} 2) & 2) & 2) \\ 12 & 32 & 52 \\ \hline 14 & 34 & 54 \end{array}$ $\begin{array}{ccc} 3) & 3) & 3) \\ 12 & 42 & 62 \\ \hline 15 & 45 & 65 \end{array}$

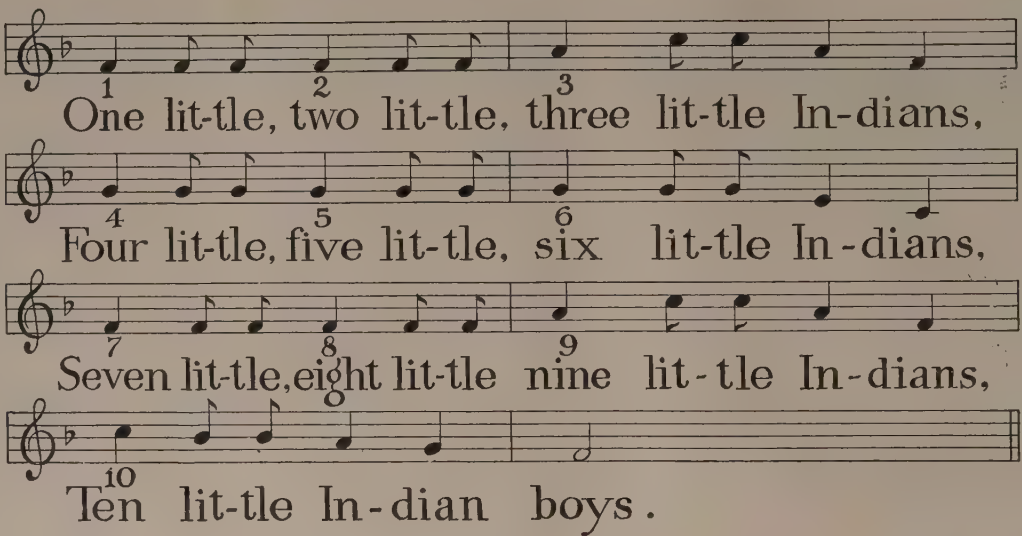
$\begin{array}{ccc} 4) & 4) & 4) \\ 13 & 33 & 23 \\ \hline 17 & 37 & 27 \end{array}$ $\begin{array}{ccc} 5) & 5) & 5) \\ 13 & 73 & 93 \\ \hline 18 & 78 & 98 \end{array}$

When the sum of the endings is 10 or more, write only the last figure of the sum and carry



Drawn by Selden Irwin

NUMBER WORK


1 2 3
One lit-tle, two lit-tle, three lit-tle In-dians,
4 5 6
Four lit-tle, five lit-tle, six lit-tle In-dians,
7 8 9
Seven lit-tle, eight lit-tle nine lit-tle In-dians,
10
Ten lit-tle In-dian boys.

Drawn by Selden Irwin

TEN LITTLE INDIANS

1 (or more) to the next column. Gradually increase the difficulty and length of the column.

			2	6	7	24	37	21
			4	1	1	36	25	62
			3	7	3	43	15	75
			5	8	4	21	13	20
7	7	7	6	2	6	62	41	33
3	13	24	1	3	2	10	20	51
10	20	31	21	27	23	196	151	262

Insist that work be accurately done the first time.

Reading and Writing Numbers. Since the child already knows how to read and write numbers to 100, he can easily learn to read 300, 600, 800, etc., by merely changing the digit in 100 to some other number. Emphasize the fact that hundreds requires three numbers.

Parent (writing 47): Read this number.
Mary: Forty-seven.

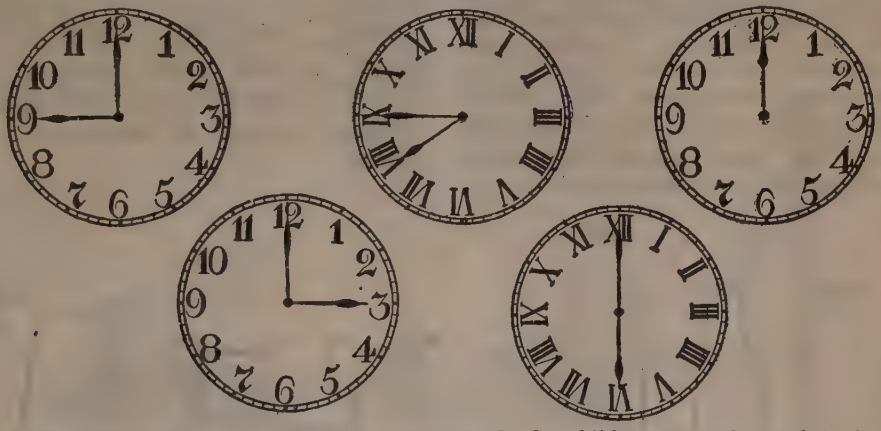
Parent (placing 1 before 47 and calling the one, 100): Read this number.
Mary: One hundred forty-seven.
Parent (changing 1 to 5): Read it now.
Mary: Five hundred forty-seven.

Numbers in which zero appears may require special attention. He should write similar numbers from dictation.

Writing in thousands requires four figures.
Parent: What number is one more than 999?
Mary: One thousand.
Parent: Read this number—527.
Mary: Five hundred twenty-seven.
Parent (placing 1 before 527): Read it now.
Mary: One thousand five hundred twenty-seven.

Continue in this manner until the child can write any number containing four figures.

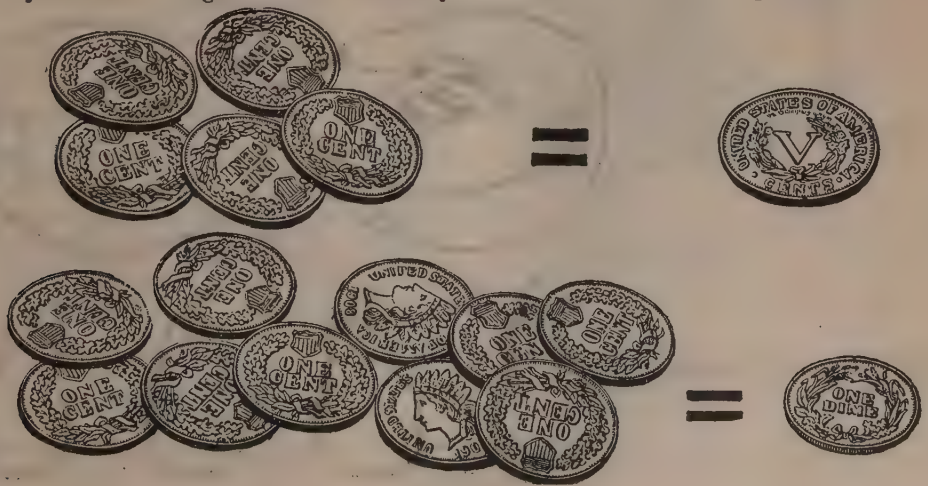
Telling Time. Early number training may include occasional lessons in "Telling Time." Let the child draw a clock on the blackboard.



Parent: Show me how the clock looked when you went to bed. When you ate breakfast. When we ate lunch. When sister came home from school. When father came home from work, etc.

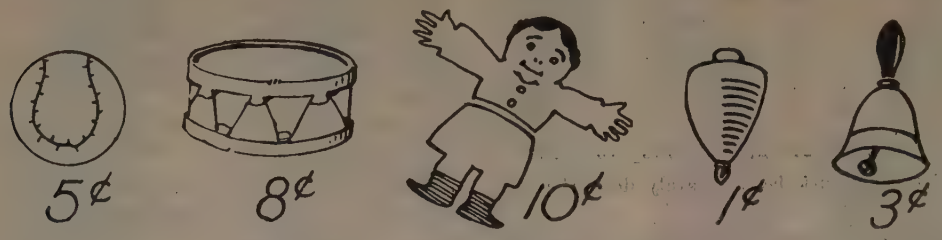
Money Values. Through the use of real money teach the child to recognize and to know the value of the cent, nickel, dime, quarter, half-dollar and dollar bill.

If possible provide toy money so that the child may play store and learn to make change from a nickel, a dime, a quarter.



Help him to make lists of articles that are for sale and teach him to write the cost of each.

If you sell a ball and a bell, how much will you receive for both articles?



More and more we are coming to realize the priceless need of "thrift." Take your child to the savings bank to get a deposit book such as "big folks" have, and encourage him to save a part of his weekly allowance. This habit involves more than the mere saving of money; it is moral training in self-denial, reasoning, and a correct attitude toward the family finances. History teaches that thrifty nations prosper and thriftless ones pass away. "Economy means happy homes and sound nations. Instil it deep."

Measurements. Kindergarten and primary construction work—making the simplest kind of box, scrapbook or doll's house, all require measuring. The more accurate the measurements are, the better will be the results.

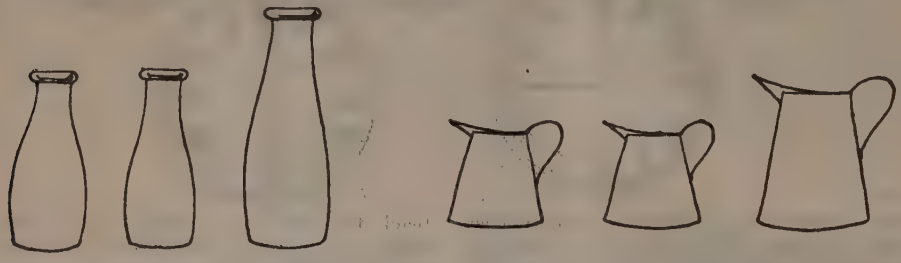
Parent: What measures do people use to find how tall they are?

Parent: Using ruler, measure your blackboard. How long is it? How wide?

Measure the table, door, window-sill, and tell how wide they are.

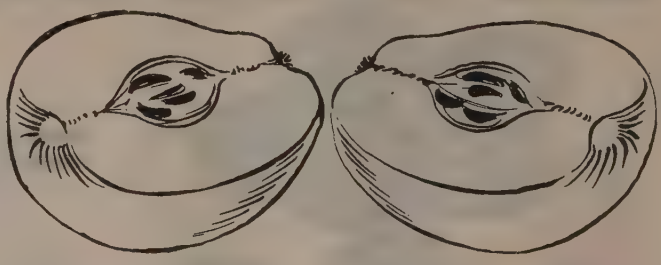
Using yard stick, tell how long and how wide the rug is.

Parent: What measure does your teacher use when she finds your weight? How much do you weigh? To insure correct weight you should drink at least one quart of milk each day. What part of this amount should you drink in the morning? At noon? In the afternoon? In the evening?

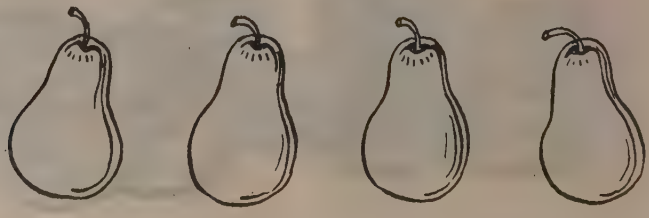


Introduction to Fractions. The child's experience in sharing things with others can be utilized to introduce fractions; and, in a simple way he can grasp all four ideas:

1. Part of single object.

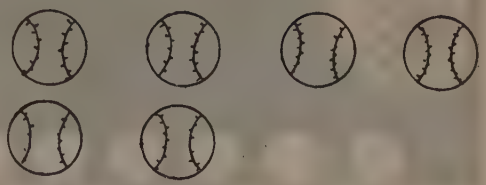


2. Part of group of objects.



3. Comparison of two single objects.

4. Comparison of two groups of objects.

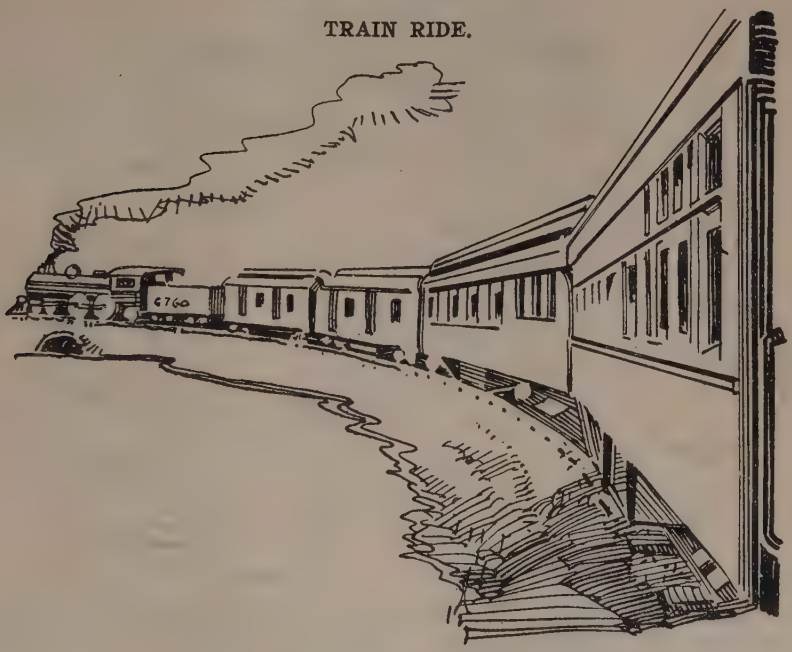


In a conversational way lead the child to see that one of the two equal parts into which a unit is divided equals ½; that two units equals ½ of a group of four units; that one article may equal ½ the value of another article; that a group of three objects is ½ as large as another group containing twice as many similar objects.

This incidental work in simple fractions is all that is necessary in second grade.

GAMES FOR SECOND GRADE.

TRAIN RIDE.



The gatekeeper distributes tickets containing number facts. Each child shows his ticket and *if he knows the combination* passes into the car. Each child places his hands on the shoulders of the child in front of him and when the train is made up the bell rings and they are off for a run around the room.

GATHERING NUTS.

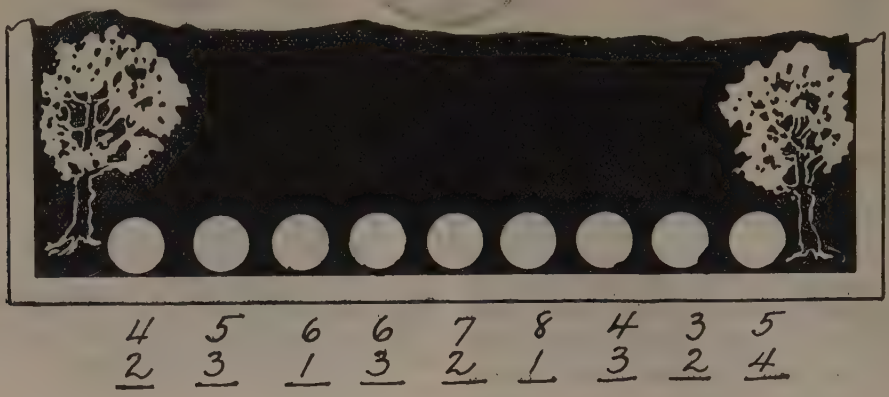
Cut any number of four-inch circles from pasteboard. These will represent the nuts. On each "nut" write a combination.

Parent: On the blackboard, at some distance apart, roughly sketch two trees. On the ledge of blackboard place the nuts with blank sides toward the class. Divide the players into two groups of nut gatherers.

Players: At a signal from the parent—the first child on one side runs quickly to the board

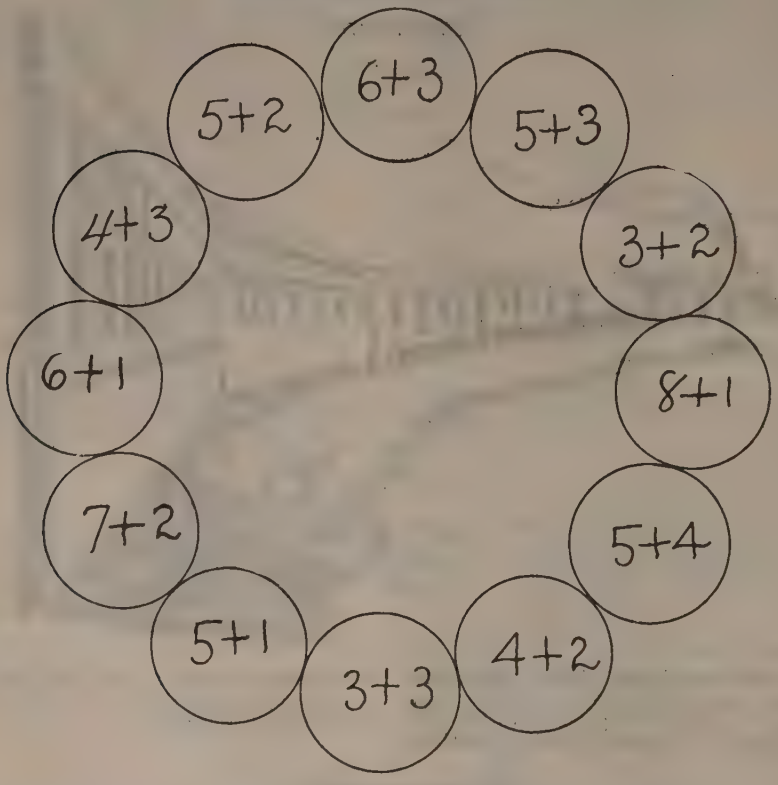
and picks up a nut. If he gives the correct answer to the combination he may pick up another. If that result is also correctly given he may have one more nut. No player may have more than three nuts. The first player on the other side follows; then the second player on first side, etc.

The parent keeps score, and the side gathering the greater number wins the game.



4	5	6	6	7	8	4	3	5
2	3	1	3	2	1	3	2	4

THE MERRY-GO-ROUND.



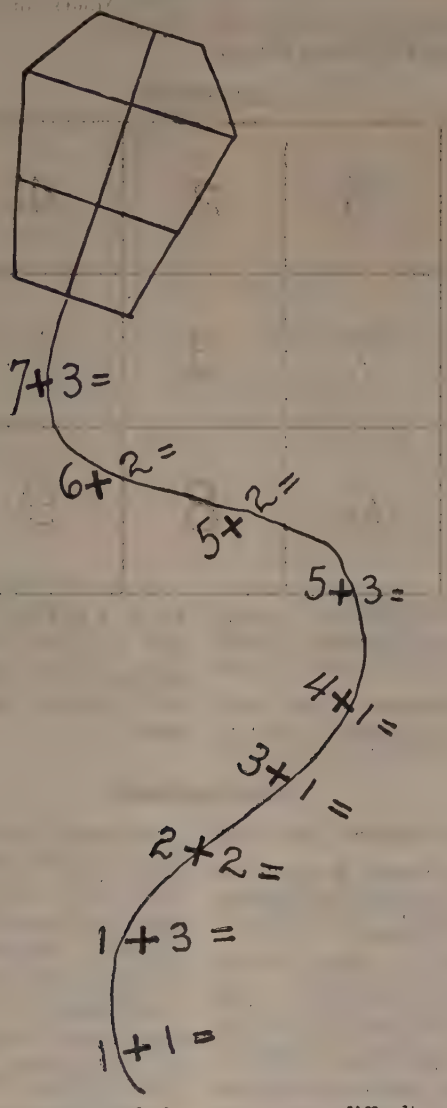
Material: None required.

Parent: Draw circles on blackboard. The circles represent the rings that hang from the bars of the merry-go-round.

Children: Let the children pretend they are riding on a merry-go-round. A ring is taken when the result of the combination in that ring is correctly given. John has the first ride. He tries to ride fast and catch all the rings he can. When he misses a ring, another player takes a ride. Clap every rider who takes all the rings.

FLYING THE KITE.

Combinations.



When the early spring days come much interest can be created by playing this game. Each child will be anxious to fly the kite higher than his playmate. The addition facts should grow more difficult as they near the top. The child begins at the bottom and if possible gives all the combinations. If he fails on one, another child must assist in order to fly the kite higher.

DAYS OF THE WEEK.

FIRST SECOND THIRD FOURTH

FIFTH SIXTH SEVENTH

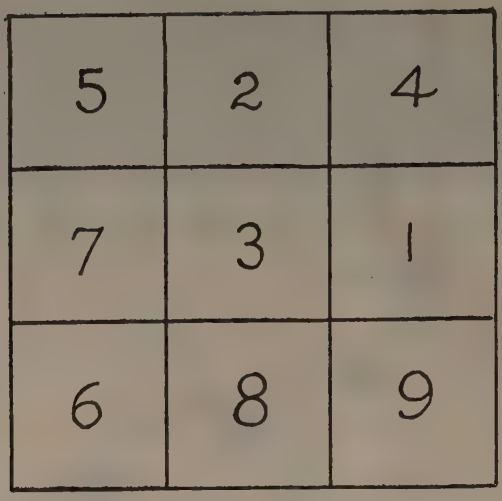
From pad backs make seven cards and on each write one of the seven ordinals. Stand cards in irregular order on the ledge of the blackboard. Each ordinal represents a day of the week.

Parent: Take away one of the cards and call upon a child to arrange the remaining cards in their right order.

Children: The player chosen to arrange the cards, must give the name of the missing ordinal. If answer is given correctly, the players in their seats should clap.

The Months of the Year may be played in the same way.

HOP SCOTCH.



Parent: Draw on the blackboard a square and divide it into nine smaller squares. In each square write a figure. Divide the class into two rows facing the diagram.

Players: Start with the figure in the center. Then go in any direction, giving the sum of the combination, as: 3 and 9 are 12; 3 and 6 are 9; 3 and 5 are 8. Players take turns—one side and then the other. If a child fails to "hop" (give the combination correctly), he must take his seat. The side having greatest number of players standing at the close wins the game.

THE POSTMAN.

Pieces of pasteboard to represent post cards, or use old post cards.

Parent: Let children "make believe" the aisles are streets and the desks are houses. Choose two players for postmen. Give each postman a pack of post cards to deliver.

Children: Make believe it is Xmas, Thanksgiving, New Year's Day, Valentine Day. Postmen start on their rounds from opposite sides of room. They go down one street, and up the next, leaving cards at every house (any number not to exceed 5 may be left). After postmen have finished their rounds, each child tells how many cards he received.

John says: "The first postman left me 4 cards, and the second postman left me 3 cards, so I have 7 cards altogether."

Mary says: "The first postman left me 5 cards and the second gave me 4—I have 9 cards in all."

Parent: Instead of collecting the cards, let each child mail them by bringing the cards and telling the amount of postage required.

John brings his cards and says: I want 7 one-cent stamps for my cards. Here are a nickel and two pennies. (He may make believe the money is in any form that he chooses).

THIRD AND FOURTH GRADE NUMBER WORK.

The beginning of each year is always the time for balancing accounts; most of the world then weighs its best efforts in order that it may know just where it stands. Mankind's seeming need for renewal and refreshment is proverbial; this is especially true in the learning process,—therefore, begin the work of the third grade with a thorough review of second grade work.

Automatic mastery of the fundamentals is the chief objective of the third and fourth grades. It is impossible to do effective work in the upper grades until that of the previous grades has been mastered.

Obtaining correct results with minimum effort is important. With this end in view the child should have frequent, short, snappy drills.

"If one wishes to produce correct number habits with the least possible expenditure of energy and time he should permit no exceptions,—the correct answer must be given every time," for no matter how the child responds to number work—correctly or incorrectly—the tendency of the nervous system is to respond in that same way again.

"Our nervous systems have grown to the way in which they have been exercised, just as a coat, once creased or folded, tends to fall forever in the same identical folds."

As soon as the new processes—Multiplication and Division—have been learned, they should immediately be used in problems and when difficulties arise, time should be taken for drill. The child will then be convinced that drills are necessary, and if they are varied from day to day, it will be easier to secure a high degree of attention. A short, snappy drill daily is much more valuable than a long drill occasionally.

Insist upon accuracy. Teach the child that "similar" does not mean "same." Make him call things by their correct names. "He can learn anything that is important to him if the power to learn is secured;" as mechanics say, "when one has learned the use of tools it is easy to learn a new craft."

One of the chief causes of failure in arithmetic is the child's inability to interpret the problem; hence, solving problems without numbers (telling the processes to be used and why) is a valuable aid to clear thinking.

Remember, it is not what the child is told to do, but what he *does* that educates him.

Aim:

Multiplication.
Division.
Measurements (Continued).
Money Values (Continued).
Fractions (Continued).
Roman Numerals.

Multiplication. The child already knows:

0	1	2	3	4	5	6	7	8	9	10	11	12
+0	+1	+2	3	4	5	6	7	8	9	10	11	12
0	2	4	6	8	10	12	14	16	18	20	22	24

also

2	2	2	2	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	2	2	2	2
	4	2	2	2	2	2	2	2	2	2	2
		6	2	2	2	2	2	2	2	2	2
			8	2	2	2	2	2	2	2	2
				10	2	2	2	2	2	2	2
					12	2	2	2	2	2	2
						14	2	2	2	2	2
							16	2	2	2	2
								18	2	2	2
									20	2	2
										22	2
											24

Lead him to see that the same thing can be expressed in a shorter way by using a different sign (×) and saying "times."

The sign is not always written but when told to multiply we must *think* the sign.

0	1	2	3	4	5	6	7	8	9	10	11	12
×2	×2	×2	2	2	2	2	2	2	2	2	2	2
0	2	4	6	8	10	12	14	16	18	20	22	24

Multiplication can also be expressed in this way:

$2 \times 0 = 0$. Think—"Two times zero equals zero."
$2 \times 5 = 10$. Think—"Two times five equals ten."

```
  93   Think—"Two times 3 is 6."  Write 6
   2   under 2.
  --   Think—"Two times 9 is 18."  Write 18
 186   to the left of 6.

  96   Think—"Two times 6 is 12."  Write 2,
   2   remember 1.
  --   Think—"Two times 9 is 18."  18 + 1 (re-
 192   membered) = 19.
```

The number by which we multiply is called Multiplier.

The number multiplied is called Multiplicand.

The result is called Product.

Drill problems:

24	63	82	50	45	56	95	38	89
2	2	2	2	2	2	2	2	2

The other basic tables should be developed in a similar manner. The child should then be ready to use the following table for drill work:

MULTIPLICATION TABLE.

	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

TWO-FIGURE MULTIPLIER.

```
  735
   25
  ----
 3675
1470
-----
18375
```

First, multiply 735 by 5. Be sure to write each figure in its proper place.

Then multiply 735 by 2. Place the first figure of your product (0) under the multiplier (2) and keep all figures in straight columns.

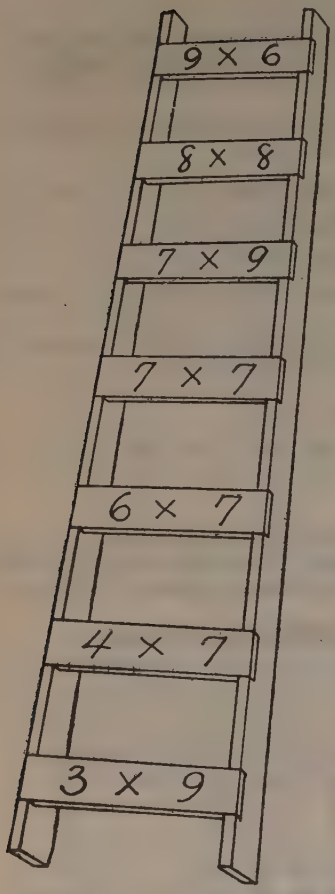
The sum of the numbers between the lines (18,375) is the product.

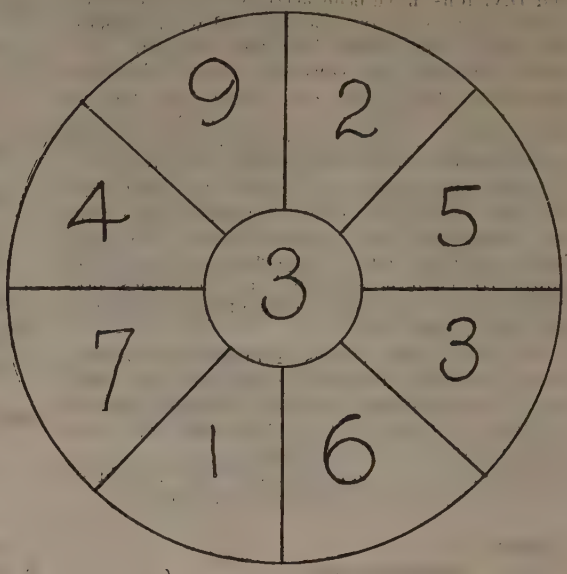
THREE-FIGURE MULTIPLIER.

```
 1048
  432
 ----
 2096
 3144
4192
-------
452736
```

The three-figure multiplier is a continuation of the above process. When multiplying by 4, notice that the first product number (2) is placed directly under the 4 of the multiplier.

DRILL WORK—MULTIPLICATION TABLES.





12
8
6
1
4
0
5 × 2, 3, 4, 5, 6, 7, 8, 9.
10
9
2
7
3
11

Drill, DRILL, DRILL.

MULTIPLIERS CONTAINING ZERO.

48
70
3360

Notice the position of the multiplier. Place 0 of the product under 0 of the multiplier, then multiply by 7.

48
700
33600

Place two 0's in product, then multiply by 7.

237 Multiplicand
403 Multiplier
711
948
95511 Product

Be careful to place the first figure in each partial product exactly under the figure by which you are multiplying. (1 under the 3) (8 under the 4).

SUGGESTIVE PROBLEMS IN MULTIPLICATION.

School Supplies.

Tablet	5¢	Crayon	10¢
Pencil	5¢	Paints	25¢
Ink	10¢	Brush	10¢
Pen	5¢	Eraser	5¢

What materials do you need in your school work? What would your supply cost? There are 30 pupils in your class. What would it cost to supply each one with a pencil? What would the crayon supply cost? What would be the total cost of all the supplies listed above for your class?

843	986	846	387	618	425	372
56	87	76	396	392	160	406

DIVISION:

PREPARATORY DRILL FOR SHORT DIVISION.

How many 2's in	How many 3's in	How many 4's in
24	36	48
8	18	24
10	6	4
16	30	36
2	15	8
8	3	44
12	12	12
18	21	32
6	9	16
14	27	28
22	9	20
4	24	40
20		

Continue this drill with 5's, 6's, 7's, 8's, 9's.

After thorough drill in preceding work take up each table in the following way—teaching *remainder*:

How many 3's in:

3 = 1	18 = 6
4 = 1 + 1	19 = 6 + 1
5 = 1 + 2	20 = 6 + 2
6 = 2	21 = 7
7 = 2 + 1	22 = 7 + 1
8 = 2 + 2	23 = 7 + 2
9 = 3	24 = 8
10 = 3 + 1	25 = 8 + 1
11 = 3 + 2	26 = 8 + 2
12 = 4	27 = 9
13 = 4 + 1	28 = 9 + 1
14 = 4 + 2	29 = 9 + 2
15 = 5	
16 = 5 + 1	
17 = 5 + 2	

When dividing by 3 no remainder can be greater than 2. When dividing by 4, no remainder can be greater than 3. In division, a remainder can never be as large as the divisor.

Short Division:

32 — How many 2's in 6? 3. Write 3 over 6.
$2\overline{)64}$ — How many 2's in 4? 2. Write 2 over 4.

29 — How many 2's in 5? 2 and 1 remaining.
$2\overline{)58}$ — Write 2 over 5 and think 18 instead of 8.
How many 2's in 18? 9. Write 9 over 8.

$76\frac{1}{2}$ — How many 2's in 15? 7 and 1 remaining.
$2\overline{)153}$ — Write 7 over 5 and think 13 instead of 3.
How many 2's in 13? 6 and 1 remaining.
Write 6 over 3 and a small 1 to represent the remainder.

The number divided is called Dividend.
The number by which we divide is called Divisor.
The result in division is called Quotient.

23 — Divide: How many 21's in 48? (First think how many 2's in 4) 2. Write 2 over 8.
$21\overline{)483}$
42 — Multiply: $2 \times 21 = 42$
63 — Subtract: $48 - 42 = 6$
63 — Compare: 6 is less than 21. Bring down 3.
Divide: How many 21's in 63? Write 3 in quotient over 3 in dividend.
Proof: $21 \times 23 = 483$.

Remember the order: Divide, Multiply, Subtract, Compare.

230 — When partial dividend is "zero," place zero in the quotient over zero in dividend.
$21\overline{)4830}$
42
63
63
0 — Proof: $21 \times 230 = 4830$.

Suggestive Problems in Division:

A gardner planted 1575 cabbage plants in 15 rows, with an equal number in each row. How many plants were in each row?

A train of 17 cars contained 2448 barrels of potatoes. What was the average number of barrels in one car?

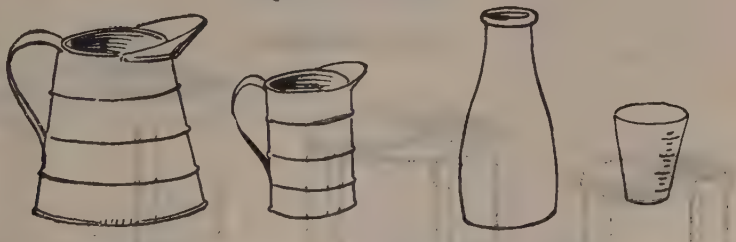
If 25 lots sell for $37,500.00 what is the average price of a lot?

Mary promised to read 180 pages of a book about gardening. How long would it take her to read it at the rate of 20 pages in one hour?

78)13555 73)8328 47)5766 29)8976

Measurements:

LIQUID MEASURE.



2 pints = 1 quart
2 pt. = 1 qt.

4 quarts = 1 gallon
4 qt. = 1 gal.

How many pints will fill 4 quart bottles?
How many quarts will fill a 3 gallon jar?
How many pints in one gallon?
How many gallons in 12 quarts?
How many quarts in 2 gallons?

How many gallons in 16 pints?
A family uses 3 pints of milk each day. How many quarts of milk do they use in four days? How many gallons? How many gallons will they use in 6 days?

MEASURE OF LENGTH.

12 inches = 1 foot. 3 feet = 1 yard.
12 in. = 1 ft. 3 ft. = 1 yd.

Draw three lines of different lengths. Have the child measure them in inches and in feet.

Have the child draw a line 12 inches long.

Have the child draw a line 3 feet long. How many inches in this line?

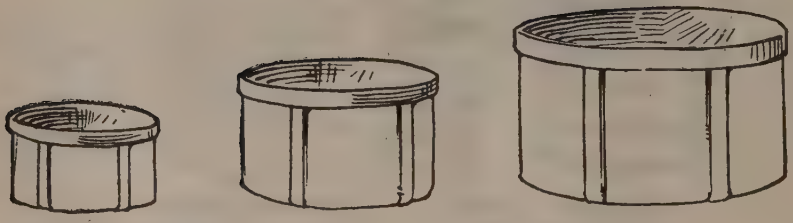
How many inches in 1 yard?

MEASURE OF WEIGHT.

16 ounces = 1 pound 16 oz. = 1 lb.

How old are you?
How tall are you?
How many pounds do you weigh?
How many ounces in 5 pounds?
How many pounds in 32 ounces?

DRY MEASURE.



2 pints = 1 quart
8 quarts = 1 peck
4 pecks = 1 bushel

2 pt. = 1 qt
8 qt. = 1 pk.
4 pk. = 1 bu.

How many pecks are there in 2 bu.?
How many quarts are there in 2 pecks?

How many quarts are there in one bushel?
How many pints are there in one peck?

MEASURE OF TIME.

The numbers on this clock are *Roman Numerals*. The Romans used the letters I, V, L and C to write numbers from one to one hundred.

I means	1	IV means	1 less than 5
V means	5	VI means	1 more than 5
X means	10	XL means	10 less than 50
L means	50	LX means	10 more than 50
C means	100	XC means	10 less than 100

The long hand measures the time in minutes; the short hand tells the hour. It takes the long hand 5 minutes to go from one number to the next. How long does it take it to go from XII to IV? What is the time when the long hand is on the XII and the short hand at VI?

60 minutes = 1 hour	60 min. = 1 hr.
24 hours = 1 day	24 hr. = 1 da.

How many minutes in 3 hours? In one-half hour?

How many hours in 4 days? In one-half day?

1926	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JAN.						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31						
FEB.		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28						
MAR.		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31			
APR.					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	

1926	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
MAY							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					
JUNE			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30			
JULY					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
AUG.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				

1926	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
SEPT.				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		
						1	2
OCT.	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31						
NOV.		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30				
DEC.				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	

7 days = 1 week	7 da. = 1 wk.
12 months = 1 year	12 mo. = 1 yr.
52 weeks = 1 year	52 wk. = 1 yr.

How many days in one week? Name them.

How many months in one year? Name them.

Look at the calendar and name the months that have 30 days, 31 days. Name the month that has less than 30 days.

Memorize:

Thirty days hath September,
April, June and November;
All the rest have thirty-one,
Except the second month alone,
Which has but twenty-eight in line,
Till leap year makes it twenty-nine.

How many days in 5 weeks? How many days in the months of August and September?

How many weeks in 56 days? How many weeks in 3 years? How many months?

MONEY VALUES.

Show by using real money that:

A nickel	= 5 cents
A dime	= 2 nickels; 10 cents
A quarter	= 2 dimes and a nickel; 5 nickels; 25 cents
A half-dollar	= 2 quarters; 5 dimes; 10 nickels; 50 cents

The game of playing store is the best method of teaching money values to the child, as it involves problems of buying and selling. Teach him how the grocer counts change. John's purchase amounted to 7 cents and he gave the grocer a quarter. Begin with the amount of the purchase and say: 7, 10, 20, 25.

When the need arises teach the child how to write numbers meaning dollars and cents, thus introducing the dollar sign ($). A period called the decimal point is always placed between dollars and cents. Cents are written in two places at the right of the decimal point.

Thus 7 dollars and 25 cents is written: $7.25.
5 dollars and 5 cents is written: $5.05.

Milk bills and grocery bills may be used to illustrate the need for a knowledge of U. S. money.

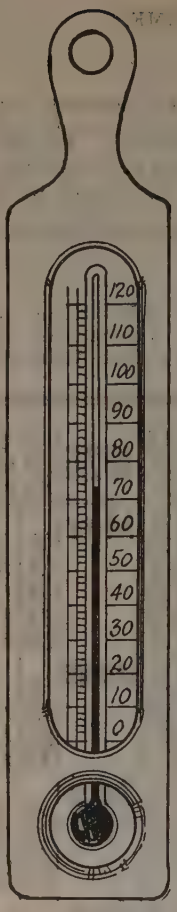
"Playing Cashier."

Tell how you would make change for the following purchases:

4 cents from a nickel.
2 cents from a dime.
8 cents from a quarter.
35 cents from a half dollar.
61 cents from 75 cents.
17 cents from a dollar.
60 cents from a two-dollar bill.
50 cents from a five-dollar bill.

When giving drill problems, insist upon the correct position of the decimal point:

$132.05	$535.43
+ 29.50	− 40.85
$161.55	$494.58
$75.43	$127.15
× 8	5)$635.75
$603.44	



MEASURING TEMPERATURE.

Temperature is measured by a *Thermometer* and is marked in degrees. (Sign = °.) Water freezes at 32°. It boils at 212°. Zero is 32° colder than freezing point.

Heat causes the mercury to rise; cold causes it to fall.

The temperature of the blood is 98°.

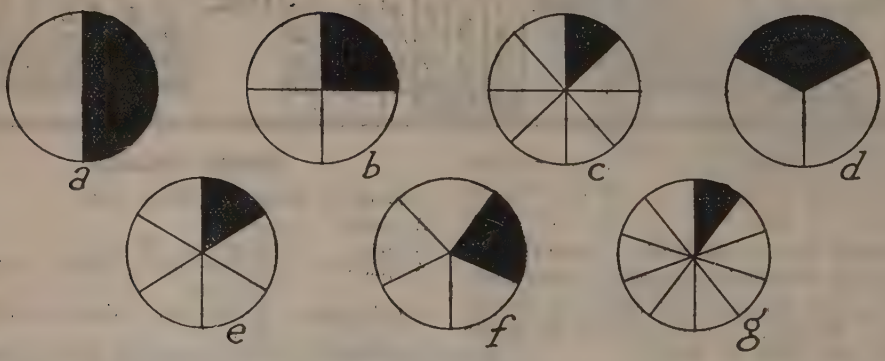
The temperature of your room should be 68°.

On January 10th, the mercury fell from 12° above zero to zero.

How much colder was that?

How many degrees too warm is your room when the temperature is 75°?

When mother was sick her temperature was 105°. How much above normal was that?



FRACTIONS.

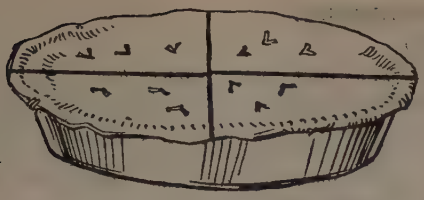
To introduce and to develop the fraction idea in its simplest forms is the aim of the first four grades.

In an informal way they should know ½, ¼, ⅛, 1/3, 1/6, 1/5, 1/10 of objects and groups of objects.

The circle (a) is divided into two equal parts. Each of these parts is a half of the whole circle; that is, each is a fraction of a circle. Each part, or fraction, is one-half, which is written ½.

Another circle (d) is divided into three equal parts; each of these parts is called one-third, and is written 1/3.

The circle (f) is divided into five equal parts, each of which is called one-fifth and is written 1/5.



Into how many equal parts is this pie divided?

How many persons would it serve?

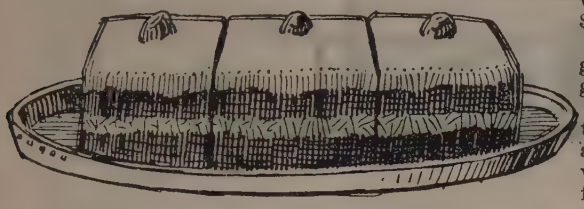
When anything is divided into four equal parts we call each part one-fourth.

Mother cut two pies into fourths. How many pieces would that be?

How many halves in one pie? How many fourths?

How many fourths in one-half?

If mother and John each ate one-fourth of a pie, what part would remain?



Mary, how shall we divide this cake so that you and each of your two playmates may have equal parts? Into three parts.

When anything is divided into three equal parts, we call each part one-third (1/3).

When two of these parts are taken, the fraction is called two-thirds (2/3).

Follow the above plan to develop fourths, eighths, sixths, fifths, tenths.

Before beginning the work of the fifth grade the child should know the meaning and use of the terms, *fraction*, *numerator*, and *denominator*.

A fraction is one or more of the equal parts into which a unit is divided. It is expressed by means of two numbers, one over the other, separated by a line.

Thus, $\frac{3}{4}$ is a fraction. 4 is called the *denominator* and means that something has been divided into fourths. 3 is called the *numerator* and means that three of these parts have been taken.

A clear idea of the above terms and the ability to use easy fractions insures a valuable foundation for the work of the next grade.

PROBLEMS WITHOUT NUMBERS.

If you know what percent you have in each of six lessons, how would you find your average grade?

If you know the cost of a quart how can you find the cost of a peck?

If you know the cost of a pint of milk and use one quart per day, how can you find your milk bill per week?

If you know the cost of a daily paper and the cost of a Sunday paper, how would you find the cost of your papers per week?

Given the daily temperature for one week, how would you find the average temperature for that week?

Given the number of pupils in a class, and the total cost of supplies, how would you find the cost of supplies for each pupil?

Given the number of stamps on one page and the cost of each stamp, how would you find the amount of money invested per page?

Given the salary per month and the expenses per month, how would you find the amount saved?

SUGGESTIVE PROJECTS IN NUMBER WORK.

The child should be given opportunities to originate problems. Projects that are worked out in a social way not only stimulate thought in arithmetic, but also provide worth-while drill in spelling, writing and English.

Father's automobile cost $1,600.00. He paid $15.00 extra for a bumper, $6.00 for a mirror, $4.00 for a clock, $20.00 for a spare tire. What was the total cost? If the car depreciated $500.00 the first year, what was it worth then?

On our trip this car traveled 50 miles on 10 gallons of gasoline. How far did it travel per gallon?

If gasoline is worth 25c per gallon, what was the total cost of gasoline? If depreciation amounted to 4c a mile, cost of oil ½c a mile, wear on tires 2c per mile, find the total cost for the 50 mile trip.

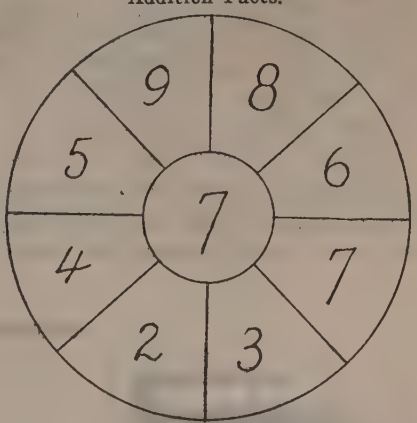
Five passengers traveled in this car. If they had traveled by rail at 4c per mile, what would have been the total cost?

Similar projects may be developed using the following ideas:

Birthday parties, picnics, gardening, banking, building a radio, camping trip, school lunches, etc.

GAMES FOR THE THIRD AND FOURTH GRADES.

BEAN BAG.
Addition Facts.



Draw this diagram on the floor with chalk. Several feet away a line is drawn behind which the player stands and throws a bean bag toward the center. Each player is given two throws and his score is the sum of the two numbers hit. In order to get this score the child must state the sum of the two numbers correctly.

OF WHAT ARE YOU THINKING?

(Table Drill.)

Material: No material required.

Parent: Have children form in a circle around one of their number.

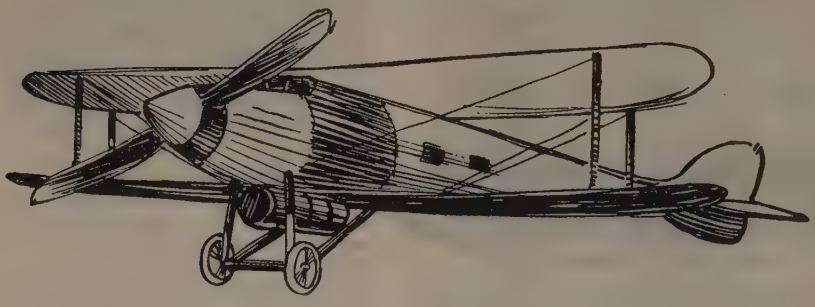
Children: The player in the center of the circle must think of a result in a multiplication table.

The players in turn ask the "Thinker" such questions as: "Are you thinking of 4×9?" The answer may be: "No, I am not thinking of 36." The next player may ask: "Are you thinking of 3×8?" "No, I am not thinking of 24." The third may ask: "Are you thinking of 6×7?" If the thinker has in mind 42, he answers: "Yes, I am thinking of 42." When the right guess is made, the "Questioner" and the "Thinker" change places.

After three calls and failures to guess correctly, the "Thinker" tells his combination and then chooses another one.

AN AEROPLANE FLIGHT.

Subtraction Facts.



		6	8	7	9	5	4	8	9	6	8	9	7	
Washington		−1	−5	−4	−2	−3	−1	−6	−6	−4	−3	−7	−3	San Francisco
		—	—	—	—	—	—	—	—	—	—	—	—	

Fly from Washington City to San Francisco. Each error means a stop for repairs. See if you can make a record flight.

THE TUG OF WAR.

(Table Drill.)

Material: None.

Parent: Two rows of children at a time may play this game. The parent names a table to be written on the blackboard and at a given signal the "Tug of War" between the two rows begins. The signal may be given in this way:

"The tug of war will now begin,
The stronger side will surely win."

Children: At the word "win" the first in each of the two rows runs quickly forward and writes on the blackboard the first step of the table. As soon as he finishes writing, the second child immediately follows and writes the second step of the table. Going to the blackboard a child leaves his seat from the right hand side and returns on the left—thus avoiding danger of collision. The third child follows the second, and so on. The row which finishes the table (correctly) first is the stronger and wins the "Tug of War." Let the other children clap. When the first and second rows have tugged, the third and fourth rows have a contest, and so on. Change about so that the same rows shall not always compete; the first and third rows, and the second and fourth rows, etc.

MOTORING TO NEW YORK.

(Table Drill.)

6	7	8	9	7	5	6	7	9	8	8	5	6	4	7
×7	×7	×6	×6	×4	×9	×6	×9	×9	×9	×8	×7	×5	×9	×6
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Each failure to give the correct product means a delay. Try to get to New York on schedule time.

FORMAL ARITHMETIC.

What number is. The word number comes to have meaning to the child early in his school life if he does not form this idea even earlier. At first it is difficult to get him to think in terms of numbers rather than in terms of things. Slowly the idea takes form. The one, two and many are replaced by a system of counting. Five comes to mean something of itself instead of a group of things, as five fingers, five apples, five pennies and so forth. *Numbers* are the things we use in arithmetic.

What arithmetic is. Arithmetic is the science of numbers and the art of computation. The word itself comes from the Greek word, *arithmos*, which means number.

After the child learns to count with numbers, he must learn to read and write numbers. The writing of numbers is called *notation*. The reading of written numbers is called *numeration*.

There are two systems of notation in more or less common use today. The first is known as the *Arabic system*. It is so called because it was introduced into Europe by the Arab traders of the tenth and eleventh centuries. This method of notation is really of Hindu origin and is very old. The figures or symbols now used are very different from those used in olden times but the method of arrangement is unchanged.

The other method of writing numbers is known as the *Roman System* of notation. Numbers are not so easily written in this system nor are they so readily read. Computation is difficult with them. For these reasons, Roman numerals are not used in the solution of problems. They are used mostly to mark the hours on watches and clocks; to designate the chapters and sections of books; to number the pages of extra material in books, as in the introduction or the appendix; and to mark dates in inscriptions on monuments and buildings.

NOTATION AND NUMERATION.

Roman numerals. In writing a number with Roman numerals, seven letters are used.

I = 1; V = 5; X = 10; L = 50; C = 100; D = 500; M = 1,000.

1. A straight line placed above a letter multiplies its value by 1,000. Eg., $\overline{V}$ = 5,000 etc.

2. The same letter written twice, means double the number; written three times, it indicates three times the number. Eg., XX = 20. CCC = 300.

At one time I was written four times to indicate 4, five times to indicate 5, and so on. In time the upper half of the X came to mean half of ten and was written V. To meet a similar problem, L came to mean 50 and D to mean 500. This called for additional rules.

3. If a letter folows a letter of greater value, its value is added to the value of the greater letter. Eg., XI = 10 + 1 = 11. CL = 100 + 50 = 150.

4. If a letter comes before a letter of greater value, its value is subtracted from the value of the greater letter. Eg., XL = 50 − 10 = 40. CM = 1,000 − 100 = 900.

The number is written thousands first, then hundreds, tens and units. The following examples show how numbers are written in this system.

Numbers to one hundred are written in the following manner.

I	= 1	XX	= 20
II	= 2	XXX	= 30
III	= 3	XL	= 40
IV	= 4	L	= 50
V	= 5	LX	= 60
VI	= 6	LXX	= 70
VII	= 7	LXXX	= 80
VIII	= 8	XC	= 90
IX	= 9	C	= 100
X	= 10		

The years are written as follows.

MCMXXVI = 1926
MCMXXVII = 1927
MCMXXVIII = 1928
MCMXXIX = 1929
MCMXXX = 1930

Arabic numerals. The Arabic system makes use of ten signs or symbols, called *figures*. They are

1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

These figures are also called *numerals* or *digits*, and by their use any number can be written.

The figures are written in a horizontal line. Each has a value determined by the place it occupies in the number represented. The value of each figure, however, is always equal to the value of the figure when it stands alone multiplied by some power of ten. For this reason, this method of reading and writing numbers is also called the *decimal system*.

Numbers are divided into *periods* of three figures each beginning at the right of the number. The figures and the periods are named to enable one to read them readily.

Billions Period			Millions Period			Thousands Period			Units Period		
Hundred Billions	Ten Billions	Billions	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
7	2	8,	4	3	6,	5	0	9,	1	4	3

This number is read *"seven hundred twenty eight billion, four hundred thirty six million, five hundred nine thousand, one hundred forty three."*

Do not use "and" between the periods.

Additional periods to the left of billions are called trillions, quadrillions, quintillions, etc.

Unless stated to the contrary, the word number is used to refer to numbers in the Arabic system.

Kinds of numbers. In arithmetic, three kinds of numbers are used. They are called *integers*, *fractions*, and *decimal fractions* or *decimals*.

INTEGERS.

A *unit* is a single thing or a group of things thought of as one.

An *integer* is a whole number. It is made up of one or more units. It is represented by a figure or a group of figures, as 3, 7, 36, 407.

Abstract numbers are numbers used without reference to things. Problems using numbers of this kind are called abstract problems. They are used for purposes of instruction and drill.

Concrete numbers are numbers used to denote a certain group of things or quantities. Problems using numbers of this kind are called concrete or practical problems. A great deal of emphasis is being placed upon problems of this kind at present. They should deal with questions that arise in the actual experience of the pupil. Examples of this kind of number are 5 days, 7 quarts, 3 dollars, 6 miles, etc.

An integer which when multiplied by another integer gives a number, is called a *factor* of the number. 2 is a factor of 4, of 6 and of 10. Factors of 12 are 2, 3, 4 and 6. Some writers speak of 1 and the number itself as being factors of the number. It is apparent that every integer has 1 and itself as factors.

A *prime number* is a number which has no factors except itself and 1. It is often valuable to know if a number is prime. Tables are printed showing all prime numbers up to several millions. Many numbers do not need to be considered in testing for prime numbers.

All numbers ending in 0, 2, 4, 6, or 8 have 2 as a factor and are called *even numbers*. No even number except 2 is prime.

All numbers ending in 5 have 5 as a factor. Except 5 itself, no such number is prime.

Numbers which are not even numbers are called *odd*. It follows from the above that all prime numbers greater than 2 are odd numbers.

The prime numbers to 100 are as follows,

2,	3,	5,	7,	11,	13,	17,
19,	23,	29,	31,	37,	41,	43,
47,	53,	59,	61,	67,	71,	73,
79,	83,	89,	97,			

Integers which are not prime are called *composite* numbers.

If a number is a factor of two or more numbers it is a *common factor* of the numbers.

Two numbers which do not have a common factor are said to be prime to each other or *relatively prime*.

If a factor is a prime number, it is called a *prime factor*.

The largest number that is a factor of two or more numbers is called the *greatest common factor* of the numbers.

A number is a *multiple* of any of its factors. It may be thought of as a *common multiple* of two or more of its factors. Thus 12 is a multiple of 2 and of 3, etc. or it is the common multiple of 4 and 6.

The *least common multiple* of two or more numbers is the smallest number that has both the given numbers as factors. Thus 12, 24, and 36 are all common multiples of 4 and 6, but 12 is their least common multiple.

FUNDAMENTAL OPERATIONS.

The four fundamental operations of arithmetic are *addition*, *subtraction*, *multiplication*, and *division*. Numbers are combined with one another in accordance with certain laws. These laws or rules must be carefully developed to see how they work for the three kinds of numbers used in arithmetic.

There are certain axioms or truths that must be accepted by the student of any science. In elementary arithmetic, these truths are not even stated to the child. A collection of the axioms commonly used in mathematics is given in connection with the section on geometry, Par. 18. Attention is here called to only two. 1. Things equal to the same thing are equal to each other. 2. The whole is equal to the sum of all its parts and is greater than any of its parts.

ADDITION.

Addition is the process of collecting two or more numbers into one equivalent number.

The numbers combined are called the *addends*.

The result obtained by the process is called the *sum*.

Any number of abstract numbers can be added together.

In adding concrete numbers, it is necessary that they refer to the same kind of things or quantities.

The sign of addition is +, read *and* or *plus*.

The sign of equality is =, read *equals* or *is equal to*.

EXAMPLE. Add 7,246, 51 and 398.

$$\begin{array}{r} 7,246 \\ 51 \\ 398 \\ \hline 7,695 \end{array}$$

Addends

Sum

In adding, write the numbers so that figures of the same order will be in the same column. Begin at the right. Add the units column. Write the unit part of the sum in the units column "carrying" the tens part to the next or tens column. Repeat this process, writing each time the units part of the sum in the column just added, carrying the tens part of the sum to the next column.

In the example, the sum of the units is 15, write the 5 and carry 1 saying 1 + 9, etc. The sum of the tens column is 19, write the 9 and carry 1. The sum of the hundreds column is 6, write the 6. There is nothing to carry. The sum of the thousands column is 7, write the seven.

In adding columns of figures, speed will be gained if the numbers are added in pairs or groups of numbers as indicated in the accompanying illustration.

7
10
3
9
13
4
6
11
5
1
2 6
3
40

In adding, do not repeat the numbers. Say six, seventeen, thirty, forty.

With a little practice, the student will be able to add by this method in much shorter time than formerly. This method assumes a thorough knowledge of the 45 combinations which are explained in the work relating to the second grade. These combinations should be learned so that the numbers 4 and 9 in the above problem together with the idea of addition mean 13. *Speed as well as accuracy is to be gained if one is to become a good arithmetician.*

Problems in arithmetic must be worked correctly. Even when all possible care is taken, mistakes will be made. In order to be sure of a result, every problem should be tested or checked. This checking is an important part of the problem. Even in banks where adding machines are used for speed and accuracy, the figures are all checked a second time to make sure that the wrong key was not pressed by the operator.

There are several methods used to prove or check problems in addition.

1. *Add beginning at the top.* In the example, say 10, 23, 34, 40.

2. *Divide the column into two parts, add each part separately, then add the sums.*

3. *Add each column separately,* writing the units of each sum under the column added. *Then add these sums.* This method is illustrated in the accompanying example.

4, 318
5, 684
6, 857

15
1 7
14
19

16, 859

4. *Casting out the nines.* This is accomplished by finding the *excess* of each of the numbers over 9. By the *excess* is meant the remainder when the number is divided by 9. The excess is readily found due to the fact that the excess of any number over 9 is equal to the excess of the sum of its digits over 9.

To test addition by casting out the nines, find the excess over 9 of each of the addends and of the sum. The excess of the sum of the excesses of the addends must equal the excess of the sum if the problem is correct.

EXAMPLE.

74,826 Sum of Digits = 27, Excess = 0
36,519 Sum of Digits = 24, Excess = 6
42,680 Sum of Digits = 20, Excess = 2
51,432 Sum of Digits = 15, Excess = 6

205,457, Sum of Digits = 23, Excess = 5

Sum of excesses = 0 + 6 + 2 + 6 = 14, Excess = 5. Check.

This test does not give an absolute check to the accuracy of a problem. Numbers may be interchanged or mistakes may cancel each other. The test may be applied very rapidly, however, and is much used by accountants and others.

[1] This method is much shortened in practice by dropping of "casting out" nine every time the sum of the digits becomes equal to or greater than 9. In the above problem, starting in the top row, say 7 + 4 = 11, cast out 9, 2 + 8 = 10, cast out 9; 1 + 2 + 6 = 9, cast out 9; 0 + 3 = 3, 3 + 6 = 9; etc, getting 5 as the remainder in the addends. Any combination which gives 9 may be ignored. In practice, casting the nines out of the sum, say 2 + (ignoring the combination 54) 5 + 7 = 14 gives 5 as the excess of the sum over 9.

SUBTRACTION.

Subtraction is the process of finding the difference between two numbers.

The *minuend* is the larger of the two numbers, or the number from which the other is to be subtracted.

The *subtrahend* is the number to be subtracted. It is the smaller of the two numbers.

The *difference* or *remainder* is the number left after subtraction.

The sign of subtraction is —, read *minus.*

There are three methods of subtraction in more or less common use in this country.

7426
5638

1788

First Method. Since 8 cannot be taken from 6, "use" one ten from the tens column. Say 8 from 16 leaves 8, write the 8 in the units column in the answer. Since one ten was used, say 3 from 11 leaves 8, write the 8 in the tens column. In this step 1 was used from the hundreds column. Say 6 from 13 leaves 7, write the 7 in the hundreds column. In this step one was used from the thousands column. Say 5 from 6 leaves 1, write the 1 in the thousands column.

Second Method. The principle in this method is the same as that used in the first method. Here, the number that is "borrowed" from the minuend, is "paid back" to the subtrahend. Say 8 from 16 leaves 8, write the 8. The one that was "borrowed" is added to the 3 in the subtrahend. Say 4 from 12 leaves 8. 7 from 14 leaves 7. 6 from 7 leaves 1.

Third or Additive Method. Advocates of this method insist that it makes use of the adding principle and the 45 fundamental combinations. Also that it is the natural method for most counting. The ordinary practice in making change is an example of this method.

In the example the student finds the figures in the remainder by asking himself the following questions.

8 + how many = 16? 8 + 8 = 16. Write 8.

The one borrowed for the 6, is repaid to the 3 in the subtrahend.

4 + how many = 12? 4 + 8 = 12. Write 8, and 1 to carry.

7 + how many = 14? 7 + 7 = 14. Write 7, and 1 to carry.

6 + how many = 7? 6 + 1 = 7. Write 1.

A recent survey shows that the first method is most used in our schools, at this time. Any

one of these methods is satisfactory. Select the one you prefer and use it always.

Test all problems in subtraction by adding the remainder to the subtrahend. The sum should be the minuend.

Other tests. The problem may also be checked by subtracting the remainder from the minuend, getting the subtrahend as the new remainder.

The method by casting out the nines will also work in this case but is no shorter than either of the other methods and is not so sure a check. For this reason it is not often used in subtraction problems.

Substraction is the reverse of addition. Hence, *only like numbers can be subtracted from each other.*

Drill by counting. Proficiency in addition, can only be attained by drill on the fundamental operations. This drill may be varied somewhat by "counting" by twos, threes, fours, and so on, starting with any number between 1 and 10. To drill on subtraction, start with any number in the nineties and count backwards by different numbers.

Counting by twos; 1, 3, 5, 7, ...
Counting by fives; 3, 8, 13, 18, 23, ...
Backward by sixes; 98, 92, 86, 80, 74, ...
Backward by nines; 95, 86, 77, 68, 59, ...

MULTIPLICATION.

Multiplication is the process of taking one number as many times as there are units in another.

The *multiplier* is the number with which one multiplies.

The *multiplicand* is the number multiplied.

The multiplier and the multiplicand are factors of the result of the process which is called the *product.*

The sign of multiplication is ×, read *times* or "*multiplied by.*"

The multiplier is always considered as an abstract number. The multiplicand may be either abstract or concrete.

In multiplying two numbers together, either number may be taken as the multiplier and the other as the multiplicand.

To multiply two numbers together, write one number above the other as in the example, being careful to have units under units, tens under tens, etc.

Starting at the right, multiply by the units digit, writing the partial product so that its right hand figure will fall in the units column. Then multiply by the tens digit, writing this partial product so that its right hand figure will fall in the tens column. Continue till all the figures of the multiplier are exhausted.

Add the partial products to find the product.

EXAMPLE. Multiply 1024 by 564.

```
1024 Multiplicand.
 564 Multiplier.
------
4096 First partial product.
6144 Second partial product.
5120 Third partial product.
------
577536 Total product.
```

Interchanging the multiplier and multiplicand gives,

```
 564 Multiplicand.
1024 Multiplier.
------
2256 First partial product.
1128 Second partial product.
 564 Fourth partial product.
------
577536 Product.
```

The third partial product, obtained by multiplying the multiplicand by zero, is not written. The fourth partial product is written with its right hand number in the thousands place.

Tests of Multiplication.

1. *Multiply the multiplier by the multiplicand.* See above.

2. *Divide the product by either the multiplier or the multiplicand.* The result must be the other number.

3. *Casting out the nines.* Cast the nines out of the multiplicand, multiplier, and product. The excess of nines in the product of the excesses of the multiplier and multiplicand must equal the excess of nines in the product.

EXAMPLE.

```
1024 Excess = 7.
 564 Excess = 6.
------
4096          42 Excess = 6.
6144
5120
------
577536        Excess = 6.
```

Short methods of multiplication.

1. To multiply a number by 10, 100, 1000, etc, annex one, two, three, etc., zeros to the number.

$$48 \times 10 = 480. \quad 48 \times 1000 = 48000.$$

2. To multiply a number by 5, 50, 500, etc. annex one, two, three, etc., zeroes to the number and divide by 2.

$$48 \times 50 = 4800 \text{ divided by } 2 = 2400.$$

3. To multiply a number by 2.5, 25, 250, etc., annex one, two, three, etc., zeroes and divide by 4.

$$48 \times 25 = 4800 \text{ divided by } 4 = 1200.$$

4. To multiply by a number near 100, take 100 times the multiplicand and, if the multiplier is less than 100, subtract the product of the multiplicand and the difference between the multiplier and 100. If the multiplier is greater than 100, add the product obtained in this manner.

$$\begin{aligned} 428 \times 97 &= 42800 - 428 \times 3. \\ &= 42800 - 1284. \\ &= 41516. \end{aligned}$$

Speed in multiplication depends upon a thorough knowledge of the 45 combinations in multiplication. This comes through drill and constant practice. Cards such as are used in teaching the combinations in addition can be used to great advantage. Drill at this work until the pairs of numbers with the thought of multiplication *means* the answer. In the applications of arithmetic, one should not need to stop to figure out simple problems in computation. The results should be ready for use when needed.

DIVISION.

Division is the process of finding how many times one number is contained in another num-

ber. It is also the process of dividing or separating a number into a certain number of equal parts.

The *dividend* is the number to be divided.

The *divisor* is the number by which to divide.

The *quotient* is the result obtained by division. It indicates how many times the divisor is contained in the dividend.

The *remainder* is the amount of the dividend that is left when the divisor is not a factor of the dividend. It is obviously less than the divisor.

The sign of division is ÷, read "divided by."

In division, the numbers may be either concrete or abstract. If both are concrete, they must be the same kind of number.

Division is indicated in several ways, as

$24 \div 6$; $6\overline{)24}$; $\frac{24}{6}$; etc.

EXAMPLE.

771 Quotient

Divisor 758) 584676 Dividend
5306

5407
5306

1016
758

258 Remainder.

The first group of figures that will contain the divisor is 5846. 758 is contained in this number 7 times. This is a partial quotient and is to be written in the quotient over the last number in the dividend that is used, in this case over 6. The product of this partial quotient and the divisor is written under the part of the dividend used. Subtract, getting 540 as a remainder. Bring down the next number in the dividend. This gives 5407 as the new or partial dividend. The divisor is contained in this number 7 times with a remainder of 101. Write this partial quotient over the number brought down. Bring down the 6 and divide 758 into 1016. It is contained once, with a remainder of 258. Write this partial quotient over the 6 which was brought down, completing the quotient. The remainder, 258, is often written 558/758.

This process is repeated till all the digits in the dividend have been used.

If, at any time, after a figure is brought down, the partial dividend is still too small to contain the divisor, write 0 in the quotient over the number brought down and bring down another figure.

The above method of solution is called *long division.*

In dividing by a single number, the multiplication and subtraction is performed mentally. The process is called *short division.*

Divisor 7) 52486 Dividend

7498 Quotient.

When there is no remainder, as in the above problem, one number is said to be contained *evenly or exactly* in the other.

Tests of Division.

1. *Multiply the quotient by the divisor and add the remainder to the product so found.* The result will equal the dividend if the division is correct.

2. *Casting out the nines.* Cast out the nines from the divisor, dividend, quotient and remainder. Multiply the excess in the quotient by the excess in the divisor. To the excess in this product add the excess in the remainder. The excess of this sum will be equal to the excess of the dividend if the division is correct.

In the example of long division above,

Quotient = 771.	Excess = 6.
Divisor = 758.	Excess = 2.
6 × 2 = 12.	Excess = 3.
Remainder = 258.	Excess = 6.
3 + 6 = 9.	Excess = 0.

Dividend = 584676. Excess = 0. The last two excesses are the same and the division is probably correct.

As mentioned under tests of addition, casting out the nines does not give an absolute test.

Short methods of division.

1. To divide a number by 10, 100, 1000, etc., point off as many places as there are zeros in the divisor. The number left will be the quotient and the number pointed off will be the remainder.

42861 ÷ 100 = 428 and 61/100.

2. To divide by any number ending in zeros, point off as many places as there are zeros at the right of the number. Divide the number left by the divisor without the zeros. The quotient found will be the desired quotient. To get the remainder, annex the figures pointed off to the remainder left on dividing. This will be the desired remainder.

785436 ÷ 4000 = 785 ÷ 4 and 436
= 196 and 1436/4000.

3. To divide by 5, 50, 500, etc., multiply by 2 and divide by 10, 100, 1000, etc.

4856 ÷ 50 = 2 × 4856 ÷ 100
= 97 and 12/100.

4. To divide by 2.5, 25, 250, etc., multiply by 4 and divide by 10, 100, 1000, etc.

3728 ÷ 25 = 4 × 3728 ÷ 100
= 149 and 12/100.

For a further explanation of the special methods of multiplication and division, see multiplication and division of decimals and the section on aliquot parts.

FACTORING.

It is often necessary to determine the factors of a number. From the definition of a factor, it follows that *a number is exactly divisible by any of its factors.*

Factoring is the process of finding the factors of a number.

There are certain tests that make the work of factoring much simpler.

Tests of divisibility.

1. An even number is divisible by 2.

2. A number whose unit's figure is 0 or 5 is divisible by 5.

3. A number is divisible by 3 if the sum of its digits is divisible by three.

4. A number is divisible by 9 if the sum of its digits is divisible by 9.

Other tests are often given but like number 4, they are combinations of the first three.

To find the prime factors of a number, divide the number by its least prime factor, divide the quotient so found by its least prime factor, etc., till the last quotient so found is a prime number. The divisors and the last quotient are the prime factors of the number.

EXAMPLE. Factor 1428.

2) 1428 By Test 1.
2) 714 By Test 1.
3) 357 By Test 3.
7) 119 The next possible prime.
17 A prime number

The prime factors are 2, 2, 3, 7, and 17.

To find the greatest common factor of two or more numbers.

CASE 1. When the numbers can be factored easily.

Find the prime factors of each of the numbers. The product of all the factors common to all the numbers is the greatest common factor of the numbers.

This number is also called the *greatest common divisor* of the numbers. Written G. C. D.

EXAMPLE. Find the G. C. D. of 24, 60 and 210.

Factoring $24 = 2 \times 2 \times 2 \times 3$.
$60 = 2 \times 2 \times 3 \times 5$
$210 = 2 \times 3 \times 5 \times 7$
$\therefore$ G. C. F. $= 2 \times 3 = 6$.

CASE 2. When the factors are not immediately apparent.

Divide the greater by the smaller number. Divide the first divisor by the remainder. Repeat this process till a remainder is found that is contained evenly in the preceding divisor. This number is the required G. C. D. If the process continues till 1 is the remainder, the numbers are prime to each other.

EXAMPLE. Find the G. C. D. of 4656 and 10767.

4656) 10767 (2
9312
1455) 4656 (3
4365
291) 1455 (5
1455

$\therefore$ G. C. D. = 291.

If more than two numbers are given, find the G. C. D. of any two, then find the G. C. D. of this number and the third number, and so on.

To find the least common multiple of two or more numbers.

CASE 1. When the numbers can be factored readily.

First method. Find the prime factors of the numbers. The product formed by multiplying together all the prime factors, each factor being taken as many times as it occurs in any single number is the least common multiple. Written L. C. M.

EXAMPLE. Find the L. C. M. of 10, 15, and 24.

$10 = 2 \times 5$
$15 = 3 \times 5$
$24 = 2 \times 2 \times 2 \times 3$.
L.C.M. $= 2 \times 2 \times 2 \times 3 \times 5 = 120$.

Second method. Arrange the numbers horizontally. Divide by any number common to two or more of the numbers. Bring down the quotients of all numbers divided, together with those numbers which are not divisible by the divisor being used. Continue in this manner until no two of the quotients have a common factor. The product of the divisors and last quotients is the L. C. M.

EXAMPLE. Find the L. C. M. of 10, 15, and 24.

2) 10 15 24
5) 5 15 12
3) 1 3 12
1 1 4

L. C. M. $= 2 \times 5 \times 3 \times 4 = 120$.

CASE 2. When the factors are not immediately apparent.

Find the G. C. D. of the numbers. Divide each number by the G. C. D. The product of these quotients and the G. C. D. is the L. C. M.

EXAMPLE. In the example under Case 2 for finding the G.C.D., $4656 \div 291 = 16$ and $10767 \div 291 = 37$.
L. C. M. $= 16 \times 37 \times 291 = 172272$

When there are only two numbers, it is not necessary to divide both numbers by the G. C. F. The L. C. M. may be found by multiplying one number by the quotient obtained by dividing the other number by the G. C. F.

In the above example, the L. C. M. $= 10767 \times 16 = 172272$.

The following statements may be readily verified.

1. In addition, multiplying or dividing each of the addends by a number, multiplies or divides the sum by the same number.

2. In subtraction, multiplying or dividing the minuend and subtrahend by a number, multiplies or divides the difference by the same number.

3. In multiplication, multiplying or dividing either the multiplier or multiplicand by a number, multiplies or divides the product by the same number.

4. In division, multiplying or dividing both the dividend and the divisor by the same number does not affect the quotient.

Other propositions of a similar nature can be verified without difficulty.

CANCELLATION.

The fourth proposition stated above furnishes a means of greatly shortening many computations.

Cancellation is the process of shortening computations in division by dividing out or cancelling equal factors from both dividend and divisor.

In cancellation, division is usually indicated by a horizontal line with the dividend written above and the divisor below it.

EXAMPLE. Divide $8 \times 24 \times 36 \times 50$ by $48 \times 75 \times 18$.

$$\frac{\overset{1}{\cancel{8}} \times \overset{4}{\cancel{24}} \times \overset{4}{\cancel{36}} \times \overset{2}{\cancel{50}}}{\underset{6}{\cancel{48}} \times \underset{3}{\cancel{75}} \times \underset{2}{\cancel{18}}} = \frac{16}{3} = 5 \text{ and } \frac{1}{3}$$

Cancel 8 from dividend and divisor, leaving 1 in place of 8 and 6 in place of 48. Cancel 6, leaving 4 in place of 24 and 1 in place of 6. Do not write the 1. Cancel 25, leaving 2 in place of 50 and 3 in place of 75. Cancel 9, leaving 4 in place of 36 and 2 in place of 18. Cancel 2. Multiply the factors in the dividend and divide by the product of the factors left in the divisor. This will give the required quotient and remainder.

In cancellation, many different plans can be followed. Smaller factors may be used, or if they are recognized, larger numbers may be cancelled. In the illustration, 18 could have been cancelled instead of 9. *Be sure and cancel the same factor in both dividend and divisor.*

FRACTIONS.

The second kind of number studied in arithmetic is called a *fraction.*

Anything that may be thought of as a whole may be considered as a unit.

A fraction is one or more of the equal parts of a unit.

A fraction is written by placing one number above and one below a horizontal line. One third $= \frac{1}{3}$, etc.

The *terms* of a fraction are the *numerator* and the *denominator.* The *numerator* is the number above the line. It indicates the number of parts of the unit taken. The *denominator* is the number below the line. It indicates into how many equal parts the unit is divided.

In the fraction $\frac{3}{4}$, the unit is divided into 4 equal parts and 3 of these parts are taken. The numerator is 3 and the denominator is 4. The fraction is read three fourths.

When two or more fractions have the same denominator, this denominator is called a *common denominator.* Fractions which have a common denominator are said to be *similar.*

The notation used in writing fractions suggests the idea of division. In fact, *a fraction is an expressed division.* The numerator of the fraction is to be divided by the denominator. The quotient of this division is the *value* of the fraction.

A *proper fraction* is a fraction whose value is less than 1; as $\frac{1}{2}$, $\frac{3}{4}$, $\frac{15}{16}$, etc.

An *improper fraction* is a fraction whose value is equal to or greater than 1; as $\frac{5}{5}$, $\frac{7}{4}$, $\frac{24}{16}$, etc.

A *mixed number* is a number composed of an integer and a fraction. Its value represents the sum of the integer and the fraction. Eg., $2\frac{3}{5}$, $15\frac{7}{16}$, etc.

REDUCTION OF FRACTIONS.

Reduction of fractions is the process of changing the terms of a fraction without altering its value. If the terms are increased, the fraction is reduced or raised to *higher* terms. If the terms are lessened, the fraction is reduced to *lower* terms.

A fraction is *raised to higher terms* by multiplying the numerator and denominator by the same number. From the laws of division it follows that this does not alter the value of the fraction.

EXAMPLE. $\frac{3}{4} = \frac{3}{4} \times \frac{6}{6} = \frac{18}{24}$.

A fraction is *reduced to lower terms* by dividing the numerator and denominator by the same number. This does not alter the value of the fraction.

EXAMPLE. $\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$.

A fraction is *reduced to its lowest terms,* when the numerator and denominator have no common factor.

To reduce a fraction to its lowest terms, divide the numerator and denominator by their greatest common factor.

EXAMPLE. Reduce $\frac{24}{36}$ to its lowest terms.

$$\frac{\overset{2}{\cancel{24}}}{\underset{3}{\cancel{36}}} = \frac{2}{3}$$

Or,

G. C. D. of 24 and 36 = 12.

$$\frac{24 \div 12}{36 \div 12} = \frac{2}{3}.$$

Use the method of cancellation to take out common factors or find the G. C. F. and divide both terms by it.

To change a mixed number into an improper fraction. Any integer may be thought of as a fraction with the denominator 1. Reduce the integral part of the mixed number to a fraction with the same denominator as the fractional part by multiplying the numerator of 1 by the denominator of the fraction. Add the numerator so found to the numerator of the fractional part of the number.

EXAMPLE. Change $15\frac{7}{8}$ to an improper fraction.

$$15 = \frac{15}{1} = \frac{15 \times 8}{1 \times 8} = \frac{120}{8}$$

$$15\frac{7}{8} = \frac{120}{8} + \frac{7}{8} = \frac{127}{8}.$$

To change an improper fraction into a mixed number. Divide the numerator by the denominator. The quotient will be the integral part, and the remainder will be the numerator of the fractional part of the mixed number.

To reduce two or more fractions to similar fractions. Find a common multiple of the denominators and reduce each fraction to a fraction having this common multiple as its denominator. The case usually met with in practice is the following.

To reduce two or more fractions to their least common denominator. The least common denominator of two or more fractions is the least common multiple of their denominators.

Find the L. C. M. of the denominators. Reduce each fraction to a fraction having this L. C. M. as the new denominator.

EXAMPLE. Change to similar fractions having a least common denominator, $\frac{3}{7}, \frac{11}{14}, \frac{19}{28}$.

The L. C. M. of the denominators is 28.

$$\frac{3}{7} = \frac{3 \times 4}{7 \times 4} = \frac{12}{28}.$$

$$\frac{11}{14} = \frac{11 \times 2}{14 \times 2} = \frac{22}{28}.$$

$$\frac{19}{28} = \ldots \quad \frac{19}{28}.$$

ADDITION OF FRACTIONS.

CASE 1. SIMILAR FRACTIONS.

Add the numerators and place the sum over the common denominator.

EXAMPLE. $\frac{3}{16} + \frac{7}{16} + \frac{11}{16} = \frac{3 + 7 + 11}{16}$

$= \frac{21}{16} = 1\frac{5}{16}.$

When the answer is an improper fraction, it is customary to reduce it to a mixed number.

CASE 2. FRACTIONS HAVING DIFFERENT DENOMINATORS.

Only like numbers can be added. In fractions, this means that only like parts of units can be added. If the parts are not the same, they must be expressed in terms of other parts which are. The rule follows.

Make the fractions similar by reducing them to fractions whose denominators are the L. C. M. of the given denominators. Add the resulting numerators and place the sum over the L. C. M.

EXAMPLE. $\frac{1}{3} + \frac{3}{10} + \frac{11}{15} = \frac{10}{30} + \frac{9}{30} + \frac{22}{30}$

$= \frac{10 + 9 + 22}{30}$

$= \frac{41}{30} = 1\frac{11}{30}.$

CASE 3. MIXED NUMBERS.

Add the fractional parts of the mixed numbers as explained in cases 1 and 2. Add this sum to the sum of the integral parts of the numbers.

EXAMPLE. Add $23\frac{2}{9}$, $36\frac{11}{15}$, and $50\frac{8}{45}$.

Add the fractions first.

$\frac{2}{9} + \frac{11}{15} + \frac{8}{45} = \frac{10 + 33 + 8}{45}$

$= \frac{51}{45} = 1\frac{6}{45} = 1\frac{2}{15}.$

$23 + 36 + 50 + 1\frac{2}{15} = 110\frac{2}{15}.$

$23\frac{2}{9}$

$36\frac{11}{15}$

$50\frac{8}{45}$

$110\frac{2}{15}$

Addition of mixed numbers is usually performed by placing the integral parts above each other as in addition of integers. The student should learn to add small fraction mentally and as readily as he adds integers. In many problems the reduction to a common denominator and the adding of the numerators can be carried out in this way with great saving in time. In the illustration, the fractions add to give $1\frac{2}{15}$. The whole part of this number, the 1, is carried to the digits column and added with the integers.

SUBTRACTION OF FRACTIONS.

In subtraction, as in addition, only like numbers can be subtracted. Hence if the fractions are not similar they must be reduced to a common denominator. Subtract the resulting numerators and place the difference over the common denominator.

In the case of mixed numbers, the fractions are subtracted and then the integers. It may be necessary to borrow 1 from the units place in order to make the fraction in the minuend greater than the fraction in the subtrahend. In this case the fraction in the minuend will be an improper fraction.

EXAMPLE. Subtract $54\frac{9}{15}$ from $82\frac{4}{9}$.

$82\frac{4}{9}$ Reducing $\frac{4}{9}$ and $\frac{9}{15}$ to their L. C. D.;

$54\frac{9}{15}$ gives $\frac{20}{45}$ and $\frac{27}{45}$. Since $\frac{20}{45}$ is the smaller

$27\frac{38}{45}$ number it is necessary to borrow 1 from 82 leaving 81 and adding $1 = \frac{45}{45}$ to $\frac{20}{45}$. This gives $\frac{65}{45} - \frac{27}{45} = \frac{38}{45}$. 4 from 11 leaves 7; 6 from 8 leaves 2

MULTIPLICATION OF FRACTIONS.

CASE 1. A FRACTION AND AN INTEGER.

Multiply the numerator of the fraction by the integer and place the product over the denominator. Reduce this fraction to its lowest terms.

EXAMPLE. Multiply $\frac{5}{12}$ by 14.

$\frac{5}{12} \times 14 = \frac{5 \times \cancel{14}^{7}}{\cancel{12}_{6}} = \frac{5 \times 7}{6} = \frac{35}{6} = 5\frac{5}{6}.$

In multiplication, the multiplier and multiplicand may be interchanged without changing the product. Hence, the multiplication of a fraction by an integer is the same as multiplying an integer by a fraction. This principle is called the *commutative law* for numbers.

CASE 2. TWO OR MORE FRACTIONS.

Multiply the numerators for the new numerator and multiply the denominators for the new denominator. Reduce the result to its lowest terms.

In multiplying fractions, cancel factors common to both numerator and denominator before multiplying when possible.

EXAMPLE. Multiply $\frac{21}{32}$ by $\frac{12}{35}$.

$\frac{21}{32} \times \frac{12}{35} = \frac{\cancel{21}^{3} \times \cancel{12}^{3}}{\cancel{32}_{8} \times \cancel{35}_{5}} = \frac{9}{40}.$

In multiplying fractions, the sign × is read *times* or *of*; for example, $\frac{1}{2} \times \frac{2}{3}$ is read one half *times* two thirds or one half *of* two thirds.

CASE 3. MIXED NUMBERS.

I. **To multiply a mixed number by an integer,** multiply each part of the mixed number by the integer and add the results. Reduce to lowest terms.

EXAMPLE. $9 \times 26\frac{5}{6} = 9 \times 26 + 9 \times \frac{5}{6}.$

$= 234 + \frac{\cancel{9}^{3} \times 5}{\cancel{6}_{2}}$

$$= 234 + \frac{15}{2} = 234 + 7\frac{1}{2}$$

$$= 241\frac{1}{2}.$$

II. To multiply a mixed number by a fraction, multiply each part of the mixed number by the fraction and add the results. Reduce to lowest terms.

EXAMPLE. $\frac{3}{4}$ of $14\frac{2}{9}$.

$$\frac{3}{\cancel{4}_{2}} \text{ of } \frac{\cancel{14}^{7}}{2} = \frac{21}{2}; \quad \frac{\cancel{3}}{\cancel{4}_{2}} \text{ of } \frac{\cancel{2}}{\cancel{9}_{3}} = \frac{1}{6}$$

$$\frac{21}{2} + \frac{1}{6} = \frac{64}{6} = 10\frac{2}{3}.$$

III. To multiply two mixed numbers.

First method. Reduce the mixed numbers to improper fractions, multiply the numerators for the new numerator and the denominators for the new denominator, reduce to lowest terms.

EXAMPLE. $7\frac{1}{4} \times 11\frac{3}{7}$.

$$7\frac{1}{4} = \frac{29}{4}, \quad 11\frac{3}{7} = \frac{80}{7}$$

$$\frac{29}{4} \times \frac{\overset{20}{\cancel{80}}}{7} = \frac{580}{7} = 82\frac{6}{7}.$$

Second method. When the integers in the mixed numbers are large it is often more convenient to perform the multiplication by the four step method. The following example will illustrate the rule.

EXAMPLE. Multiply $456\frac{3}{4}$ by $87\frac{2}{9}$.

$456\frac{3}{4}$

$87\frac{2}{9}$

$\frac{1}{6}$ First step. $\frac{\cancel{2}}{\cancel{9}_{3}} \times \frac{\cancel{3}}{\cancel{4}_{2}} = \frac{1}{6}$.

$101\frac{1}{3}$ Second step. $\overset{152}{\cancel{456}} \times \frac{2}{\cancel{9}_{3}} = \frac{304}{3} = 101\frac{1}{3}$.

$65\frac{1}{4}$ Third step. $87 \times \frac{3}{4} = \frac{261}{4} = 65\frac{1}{4}$.

3192 Fourth step. 87×456.
3648

$39838\frac{3}{4}$ Answer.

The four steps are as follows:

First step. Multiply the fractions.

Second step. Multiply the integer in the multiplicand by the fraction in the multiplier.

Third step. Multiply the integer in the multiplier by the fraction in the multiplicand.

Fourth step. Multiply the two integers.

Add these four products to obtain the required product.

It should be noticed that the method in case 2 for multiplying two fractions is the general rule. If one regards an integer as a fraction whose denominator is 1, case 1 and case 3 and even the multiplication of integers are covered by this rule. This is true for the rules for all the fundamental operations as worked out for fractions. They are a more general statement of the rules for integers.

DIVISION OF FRACTIONS.

Dividing the numerator of a fraction by a number, divides the value of the fraction by that number.

Multiplying the denominator of a fraction by a number, divides the fraction by that number.

These principles will be recognized as true from a consideration of the meaning of fractions. They are used in the process of division of fractions.

CASE 1. DIVIDING A FRACTION BY AN INTEGER.

Divide the numerator by the integer if it goes evenly and place the quotient over the denominator. Or multiply the denominator by the number and place the product under the original numerator.

EXAMPLE. $\frac{14}{15} \div 7 = \frac{14 \div 7}{15} = \frac{2}{15}$.

Or $\frac{14}{15} \div 7 = \frac{1}{\cancel{7}} \text{ of } \frac{\overset{2}{\cancel{14}}}{15} = \frac{2}{15}$.

CASE 2. TO DIVIDE ANY NUMBER BY A FRACTION OR MIXED NUMBER.

First method. Reduce both numbers to fractions having a common denominator. The quotient of the numerators will be the required number.

EXAMPLE. Divide $61\frac{1}{4}$ by $7\frac{7}{8}$.

L. C. D. is 8.

$$61\frac{1}{4} = \frac{490}{8}; \quad 7\frac{7}{8} [= \frac{63}{8}$$

$$63)490(7\frac{7}{9} \text{ Ans.}$$
$$441$$
$$\frac{49}{63} = \frac{7}{9}.$$

Second method. Reduce both numbers to fractional form, invert the divisor and multiply. Use cancellation whenever possible.

EXAMPLE. Divide $43\frac{3}{4}$ by $7\frac{7}{8}$.

$$43\frac{3}{4} = \frac{175}{4} \text{ and } 7\frac{7}{8} = \frac{63}{8}.$$

$$\frac{175}{4} \div \frac{63}{8} = \frac{\cancel{175}^{25}}{\cancel{4}} \times \frac{\cancel{8}^{2}}{\cancel{63}_{9}}$$

$$= \frac{50}{9} = 5\frac{5}{9}.$$

COMPLEX FRACTIONS.

A *complex fraction* is a fraction which has mixed or complex numbers in either the numerator or denominator or both.

To find the value of a complex fraction, reduce the numerator and denominator to fractional form, and multiply the numerator by the inverse of the denominator.

EXAMPLE.

$$\frac{12\frac{1}{2} + 3\frac{1}{3}}{10\frac{5}{6}} = \frac{\frac{95}{6}}{\frac{65}{6}} = \frac{\cancel{95}^{19}}{\cancel{6}} \times \frac{\cancel{6}}{\cancel{65}_{13}} = \frac{19}{13} = 1\frac{6}{13}$$

DECIMALS.

In actual experience with practical problems, fractions with denominators greater than 32 are seldom encountered. When fractions with larger denominators do occur, they are usually all reduced to fractions having some power of ten as a denominator. By a power of ten is meant 10, $10 \times 10 = 100$, $10 \times 10 \times 10 = 1000$, etc. The number of times ten is taken is indicated by a number called the exponent. Using this notation, $1000 = 10^3$.

Fractions whose denominators are powers of ten are called *decimal fractions or decimals.* They are written in a special way. The denominator is not expressed, the number of tens in it being indicated by the number of figures to the right of a dot called the *decimal point.* The integral part of a mixed number is written to the left of the decimal point and the fractional or decimal part is written to the right. As in the case of integers, the places to the right of the decimal point are named to enable them to be read easily.

The names assigned to each place are indicated in the accompanying chart.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units	Decimal Point	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths	Millionths	Ten Millionths	Hundred Millionths
3,	7	2	4,	1	9	0	.	1	0	7	2	9	3	1	4

Additional places to the right are named in a manner similar to that indicated in the notation and numeration of integers.

In reading a mixed decimal, the word and is used between the integral and fractional part of the number.

The above number is read: 3 million, 7 hundred 24 thousand, 1 hundred 90 *and* 10 million, 7 hundred 29 thousand, 3 hundred 14 hundred millionths.

Zeros between the decimal point and the first significant figure of the decimal do not affect the reading of the numerator of the decimal but they are counted in determining the number of zeros in the denominator. That is, .00143 is read 1 hundred 43 hundred thousandths.

A most important property of decimals is the ease with which decimals can be reduced to a common denominator. All that is required is to add zeros to the right of any of the numbers till all have the same number of figures to the right of the decimal point.

Because of this, addition and subtraction of decimal fractions is accomplished more easily than in the case of common fractions.

ADDITION OF DECIMALS.

To add decimals, set the numbers down so that the decimal points are directly under each other and add as in integers, the decimal point in the sum being placed directly below the other decimal points.

It is not necessary to add zeros at the right unless they are needed to help one to keep figures of like value under each other. It is important that the columns be kept straight.

The most common application of decimal fractions in the United States is in handling money. The unit in our money is One Dollar, written $1.00. One tenth of a dollar is written $.10. One one hundredth of a dollar or one cent is written $.01.

EXAMPLES Add

$ 5,095.76	28.9014
9,172.85	316.4823
8,763.76	7.92
	18.015
$23,032.37	240.2
	611.5187

SUBTRACTION OF DECIMALS.

To subtract decimals, set the numbers down so that the decimal points are directly under each other and subtract as for integers, placing the decimal point in the difference directly below the other decimal points.

If there are more places to the right of the decimal point in the subtrahend than in the minuend, zeros are added to the minuend to make up the number.

EXAMPLES.

$11,007.91	91.42600
7,892.83	37.02846
$ 3,115.08	54.39754

MULTIPLICATION OF DECIMALS.

To multiply decimals, multiply the numbers exactly as if they were integers. Place the decimal point so that the number of decimal places in the product is equal to the sum of the decimal places in the numbers.

EXAMPLE. Multiply 41.08 by .093

```
  41.08
   .093
 -------
  12324
 36972
 -------
 3.82044
```

Short methods of multiplication.

1. To multiply by 10, 100, 1000, etc., move the decimal point one, two, three, etc., places to the right in the number.

EXAMPLE. $42.831 \times 100 = 4283.1$.

2. To multiply by 5, 50, 500, etc., move the decimal point one, two, three, etc., places to the right and divide the number by 2.

EXAMPLE. $37.423 \times 5 = 374.23 \div 2 = 187.165$.

3. To multiply a number by 2.5, 25, 250, etc., move the decimal point one, two, three, etc., places to the right and divide the number by 4.

EXAMPLE. $9.928 \times 250 = 9928. \div 4 = 2482$.

In multiplying decimals, it is a good plan to estimate the result mentally before multiplying. This will often furnish a valuable check on the position of the decimal point. To estimate a result, multiply the first significant figures of the numbers.

In the above example, $9 \times 200 = 1800$ and the answer will be larger than this number.

In multiplying two decimals, the number of places in the product is often more than is needed in practical problems. In fact, the data involved in the problem are often such that decimals after the first or second place are meaningless. For this reason, it is important to know what degree of accuracy is necessary or desirable in a problem. In measuring a farm, an error of .001 of an acre would not bother much. In this case, all figures after the third place may be dropped and the answer "rounded off" by taking the number to three places that is nearest to the number obtained. In case the product lies exactly between them, a good rule is to take the nearest even number.

Abbreviated multiplication. This rounding off process can be performed in connection with a form of multiplication known as abbreviated multiplication. An illustration will serve best to explain the method. The solution is shown in three ways, by the regular method, with the multiplier reversed, and with the partial products rounded off in each step.

Regular method

```
    41.26
    3.1416
  --------
    24756
     4126
   16504
    4126
 12378
 --------
 129.622416
```

Reversed method

```
    41.26
    6141.3
  --------
   12378
     4126
   16504
    4126
 24756
 --------
 129.622416
```

Abbreviated method

```
  * * * *
  41.26
 6141.3
 -------
 123.78   Locate dec. pt. in 1st partial product.
   413    Round off 4126, getting 413.
   165    Round off 16504.
     4
     2
 -------
 129.62
```

After multiplying by 8, place the decimal point and decide how many decimal points are wanted in the answer. Check the figure in the multiplicand which is multiplied by 3 to get the last number to be kept. In multiplying by the next digit, 1, multiply the starred number mentally, i.e. 6. This being greater than 5, 1 is carried and the multiplication goes on regularly. Again star the first number whose product by 1 was kept and in multiplying by the next digit do not write its product. 4×2 is 8 so carry 1. In the next multiplication, 1×1 is 1 and this number is dropped. In the last multiplication, the 4 is already starred. 6×4 is 24. The 4 is dropped and only the 2 is carried. There is nothing to go with it, so it is written in the right hand column.

In case the product of a starred number ends in 5, carry it as 1 if the preceeding number is odd and drop it if the preceeding number is even.

In the above problem, the answer is not apt to be correct to more than two decimal places since the multiplicand is given to only two places. The answer when rounded off is the same by the regular method as by the abbreviated method. It will sometimes vary in the last figure, but the result will be as satisfactory for practical purposes, as that obtained by the longer method.

DIVISION OF DECIMALS.

To divide decimals, divide the numbers exactly as if they were integers. There are several ways that are used in determining where the decimal point is to be placed in the quotient.

First method. Multiply the dividend and divisor by that power of ten which will make the divisor a whole number. This is done by moving the decimal point in the divisor and dividend as many places to the right as there are decimal places in the divisor. Divide the numbers as in the case of integers, placing the decimal point in the quotient directly above (in the case of short division, below) the new decimal point in the dividend.

EXAMPLE. Divide 4.2 3 1 6 by .0 0 8.

Move decimal point three places to the right.

```
8 ) 4 2 3 1.6 0
  -------------
    5 2 8.9 5
```

Division may be continued indefinitely or until there is no remainder by adding zeros to the right of the last significant figure in the dividend.

EXAMPLE. Divide 2 5 0 0.6 by 7 5.4 3.

Move decimal point two places to the right.

```
          3 3.1 5
      ------------
7 5 4 3 ) 2 5 0 0 6 0.0 0
          2 2 6 2 9
          ---------
            2 3 7 7 0
            2 2 6 2 9
            ---------
              1 1 4 1 0   Rem. = 955/7543 thousandths.
                7 5 4 3
              -----------
              3 8 6 7 0
              3 7 7 1 5
              -----------
                  9 5 5
```

In division of decimals it is customary to round off the remainder, taking the nearest number after the desired amount of accuracy has been reached. If the numbers in this example represented dollars and cents, the remainder would have no meaning in money and would be "dropped."

Second method. This method is based on the same principles as the first but it does not require the actual moving of the decimal points.

Instead, the first figure of the quotient is written as many places to the left of its normal position as there are decimal places in the divisor. The decimal point in the quotient is placed directly above the decimal point in the dividend.

EXAMPLE Divide 2.0 4 by .6 2 5.

```
        3.2 6 4
      ------------
.6 2 5 ) 2.0 4 0 0 0 0
         1 8 7 5
         -------
           1 6 5 0
           1 2 5 0
           -------
             4 0 0 0
             3 7 5 0
             -------
               2 5 0 0
               2 5 0 0
               -------
```

The natural place for the first figure of the quotient to be written is above the first zero after the 4 in the dividend. Counting three places to the left, it is written above the 2.

Third Method. Divide without regard to decimal points, and when the division is completed, point off as many places in the quotient as the number of decimal places used in the dividend is greater than the number of decimal places in the divisor. In this method, zeros added to the dividend to continue the division are counted as places in the dividend.

While the last method is probably more used than any of the others, many teachers prefer to use the first method in presenting the subject to their pupils for the first time.

In practice, it is cutomary to indicate in the dividend by a caret (∧) or some other mark, the same number of decimal places in the dividend as are present in the divisor, placing the decimal point in the quotient after the last number to the left of the caret has been used.

EXAMPLE. Divide 4 5.2 6 by 7.5 2 1.

```
          6.0 1 7 8
        ------------
7.5 2 1 ) 4 5.2 6 0∧0 0 0 0
          4 5 1 2 6
          ---------
            1 3 4 0 0
              7 5 2 1
              -------
              5 8 7 9 0
              5 2 6 4 7
              ---------
                6 1 4 3 0
                6 0 1 6 8
                ---------
                  1 2 6 2
```

Remainder = $\frac{1262}{7521}$ hundred thousandths.

The quotient can be rounded off by dropping the remainder or it may be written, $6.0178\frac{1262}{7521}$.

A quotient that has been rounded off is an *incomplete or approximate decimal.* If the remainder is dropped in the process, the sign + is added; eg., 6.0178 +. If, in the process, the next higher number is taken, the sign − is added; eg., rounding off the above after the second decimal gives 6.02−.

If the remainder is written as a part of the quotient the number is a *complex decimal.*

Short methods of division.

1. To divide by 10, 100, 1000, etc., move the decimal point, one, two, three, etc., places to the left in the number.

Other special rules can be stated similar to those in the work on multiplication.

Abbreviated Division. The work of division can often be greatly shortened when the degree of accuracy desired has been determined. By this method, the last example worked above would appear as follows.

```
Regular form                                  Abbreviated form
          6.0 1 7 8                                   * * *
        ------------                                6.0 1 7 8
7.5 2 1 ) 4 5.2 6 0 0 | 0 0 0          7.5 2 1 ) 4 5.2 6 0 0 |
          4 5 1 2 6   |                           4 5 1 2 6   |
          ---------   |                           ---------   |
            1 3 4 0 0 | 0                           1 3 4 0 | 0
              7 5 2 1 | 1                             7 5 2 | 1
              ------- | -                           ------- | -
              5 8 7 9 0 | 9 0                         5 8 8 | 9 0
              5 2 6 4 7 | 4 7                         5 2 6 | 4 7
              --------- | ---                         ----- | ---
                6 1 4 3 0 | 1 4 3 0                     6 2 | 1 4 3 0
                6 0 1 6 8 | 1 6 8                       6 0 | 1 6 8
                --------- | -----                       ---- | -----
                  1 2 6 2 | 1 2 6 2                       2 | 1 2 6 2
```

All numbers are rounded off at a line under the desired number of decimal places in the quotient.

If the answer is desired to only two places, the work would appear as follows.

```
            6.0 1
          * * *
7.5 2 1 ) 4 5.2 6 | 7 8
          4 5 1 3 |
          ------- |
            1 3   |
              7   |
              -   |
              6   |
```

The remainder is 6/7, and makes the quotient 6.02.

A mark is placed over the numbers in the divisor that are not used in the first partial division. After each division, one of the remaining numbers is checked. If it is desired to have a number correct to two places, round it off in the third place.

With practice, this method may be used to great advantage and is quite as accurate as the tables that are used to aid in work of this kind.

REDUCTION OF A FRACTION TO A DECIMAL.

To reduce a common fraction to a decimal, perform the indicated division, adding as many zeros to the numerator as may be needed.

EXAMPLE. Reduce $\frac{3}{8}$ to decimal form.

Divide 3 by 8: 8) 3.0 0 0

.3 7 5

Hence, $\frac{3}{8} = .375$.

Fractions are reduced to decimals to simplify many problems. When it is decided by the nature of the problem that a certain degree of accuracy is sufficient, the decimals express the values of several fractions in a satisfactory manner, stopping the division when this degree of accuracy is obtained.

The magnitude of fractions can be compared more readily when the fractions are in decimal form.

EXAMPLE. Which is the greater number, $\frac{7}{15}$ or $\frac{15}{31}$?

```
   .4 6 +                          .4 8 +
15 ) 7.0 0                      31 ) 1 5.0 0
     6 0                             1 2 4
     -----                           -----
       1 0 0                           2 6 0
         9 0                           2 4 8
         -----                         -----
           1 0                             1 2
```

Hence, $\frac{15}{31}$ is the greater number.

Any decimal may be written as a common fraction by writing the number without the decimal point as the numerator and 1 followed by as many zeros as there are places to the right of the decimal point in the given number.

EXAMPLE. $4.2\,1\,6 = \frac{4216}{1000} = \frac{527}{125}$.

ALIQUOT PARTS.

An *aliquot part* of a number is any part of the number which is contained an integral number of times in the given number.

By the use of aliquot parts, the work of multiplication and division by certain numbers is made much easier and the work can be performed much more rapidly. Some of the short methods of multiplication and division are based upon the methods of aliquot parts. For example, 25 is an aliquot part of 100, and to multiply by 25 multiply by 100 and divide by 4, ie., number of times 25 is contained in 100.

Prices are very often fixed at aliquot parts of one dollar. This is equivalent to a certain number of units for one dollar, and makes it possible for the salesman to tell the price of any number of units very quickly.

Tables of aliquot parts are often furnished in stores and offices. In these cases, the number used is one dollar or 100 cents.

Below is a list of the more important aliquot parts of 100. In the first row, how many such parts there are in 100 is shown by the denominator of the fractions. The second row of the table shows the value of the aliquot parts.

ALIQUOT PARTS OF 100.

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{10}$	$\frac{1}{11}$	$\frac{1}{12}$	$\frac{1}{13}$	$\frac{1}{14}$	$\frac{1}{15}$	$\frac{1}{16}$	$\frac{1}{20}$	$\frac{1}{25}$	$\frac{1}{30}$	$\frac{1}{40}$	$\frac{1}{50}$
50	$33\frac{1}{3}$	25	20	$16\frac{2}{3}$	$14\frac{2}{7}$	$12\frac{1}{2}$	$11\frac{1}{9}$	10	$9\frac{1}{11}$	$8\frac{1}{3}$	$7\frac{9}{13}$	$7\frac{1}{7}$	$6\frac{2}{3}$	$6\frac{1}{4}$	5	4	$3\frac{1}{3}$	$2\frac{1}{2}$	2

There are other aliquot parts of 100 but these include all that are commonly met with in business.

To multiply and divide by aliquot parts of 100.

Multiplication. Multiply by 100 and divide by the number of times the aliquot part is contained in 100.

EXAMPLE. $54 \times 33\frac{1}{3} = \frac{5400}{3} = 1800$.

Division. Divide by 100 and multiply by the number of times the aliquot part is contained in 100.

EXAMPLE. $39420 \div 16\frac{2}{3} = \frac{39420}{100} \times 6$

$= 394.20 \times 6$

$= 2365.20$.

Multiples of aliquot parts may be used in a similar manner by using as many times 100 as the aliquot part is taken.

EXAMPLE. Multiply 14.28 by $37\frac{1}{2}$.

$37\frac{1}{2} = \frac{3}{8}$ of 100, hence multiply by 300 and divide by 8.

$\frac{14.28 \times 300}{8} = \frac{4284.00}{8} = 535.50$.

EXAMPLE. Divide 698.60 by $83\frac{1}{3}$.

$83\frac{1}{3} = \frac{5}{6}$ of 100, hence divide by 500 and multiply by 6.

$\frac{698.60}{500} \times 6 = \frac{4191.60}{500} = 8.3832$.

Combinations of aliquot parts. It is often possible to consider a number as the sum of two aliquot parts of a number or as the sum or difference of the number and an aliquot part of the number. Practice will develop skill and suggest many new methods. The pupil should endeavor to perform as much of the computation mentally as possible. The time spent in drill will save a great deal of work at a later period. Practice with the simpler aliquot parts first. A few additional examples will be suggestive.

EXAMPLE. $920 \times 7\frac{1}{2}$.

$7\frac{1}{2}$ is $\frac{3}{40}$ of 100.

Hence, $\frac{\overset{23}{\cancel{920}} \times 3 \times 100}{\underset{2}{\cancel{40}}} = 6900$.

EXAMPLE. $3090 \times 23\frac{1}{3}$.

$23\frac{1}{3} = 20 + 3\frac{1}{3} = \frac{1}{5}$ of $100 + \frac{1}{30}$ of 100

Hence, $\frac{3090 \times 100}{5} + \frac{3090 \times 100}{30} = 61800 + 10300$

$= 72100$

EXAMPLE. $1280 \times 133\frac{1}{3}$.

$133\frac{1}{3} = 100 + \frac{1}{3}$ of 100

Hence, $1280 \times 100 + \frac{1280 \times 100}{3} = 128000 + 42666\frac{2}{3}$

$= 170666\frac{2}{3}$.

EXAMPLE. $640 \times 87\frac{1}{2}$.

$87\frac{1}{2} = 100 - 12\frac{1}{2} = 100 - \frac{1}{8}$ of 100.

Hence, $640 \times 100 - \frac{\overset{80}{\cancel{640}} \times 100}{\underset{1}{\cancel{8}}} = 64000 - 8000$

$= 56000$.

DENOMINATE NUMBERS.

Measurement. Measurement is always a comparison of the thing being measured with something else of the same kind. For purposes of convenience, the elements that are used for comparison are fixed by law or custom. They are called the *units of measure.*

From these fundamental units, other elements are derived to facilitate the measurement of magnitudes of different sizes. The relation between different units of the same kind are set forth in what are called *tables of denominate numbers.*

A *denominate number* is a unit of measure whose value has been fixed by custom or by law.

Tables of denominate numbers are given in the Dictionary of Weights and Measures.

The kinds of denominate numbers depend upon the nature of the quantity to be measured.

There are two systems of denominate numbers that are in general use. One is *the English system* and the other is *the metric system.*

The fundamental unit of *length* in the English system is the foot. The inch, the yard, the mile and other linear units are derived from this. (See Long Measure.) The fundamental unit in the metric system is the *meter.* In the metric system only decimal parts of the meter are used as the millimeter, centimeter, decimeter, decameter, hectometer, and kilometer.

In measuring area, a square is used each side of which is equal to the unit of length. In the English system, the units are the square foot, square inch, square mile, etc. In the metric system, they are the square meter, the square centimeter, and the area which is equal to 100 square meters.

In measuring volume, a cube is used each side of which is equal to the unit of length. In the English system, the units are the cubic foot, the cubic inch, and the cubic yard. In the metric system, they are the cubic meter, the cubic decimeter and the cubic centimeter, etc.

In each of these cases there are other units that are sometimes used. The ones named are the more common ones.

In measuring *capacity,* the English system has one set of units for liquids and another for dry substances as grain, vegetables, etc. The unit of liquid measure is the *gallon.* (See gallon. Also, liquid measure.) The unit of dry measure is the *bushel.* (See bushel. Also, dry measure.) The unit of measure for capacity in the metric system is the *liter.*

In measuring *weight,* four kinds of units are in common use. 1. *Troy weight,* used in weighing gold, diamonds, and other precious minerals. (See grain, pennyweight, ounce, and pound.) 2. *Apothecaries weight,* used by druggists in preparing medicines. (See grain, scruple, dram, ounce, and pound.) 3. *Avoirdupois weight,* used to weigh all kinds of heavy articles. (See ounce, pound, and ton.) 4. The *metric system,* used almost entirely in scientific work and increasingly in general work. (See gram, kilogram, and quintal.)

Time is the measure of duration.

The unit of time is the second. (See time.)

Reduction of denominate numbers consists in changing the units of measure of a number without changing its value. A denominate number may be reduced from a lower to a higher or from a higher to a lower denomination.

The work of reducing or combining denominate numbers is of such a simple nature that no particular solution will be given for it. The principles are developed in the sections dealing with arithmetic in the third and fourth grades.

INVOLUTION AND EVOLUTION.

Involution.

The *power* of a number is the product obtained by multiplying the number by itself a certain number of times. If the number is multiplied by itself, the product is the *second* power of the number. If this product is multiplied again by the number, the resulting product is the *third* power of the number, and so on.

An *exponent* is a small number placed to the right and above the number to indicate the power of the number, i. e. the number of times the number is to be used as a factor.

The second power of 4 is written 4^2, and is equal to $4 \times 4 = 16$.

Similarly, $15^3 = 15 \times 15 \times 15 = 3375$.

$1.4^4 = 1.4 \times 1.4 \times 1.4 \times 1.4 = 3.8416$.

The process of finding the power of a number is called *involution.*

Evolution.

The *root* of a number is that number which multiplied by itself one or more times as a constant factor gives the number.

The square root of a number is that number which used twice as a factor will give the number.

The cube root of a number is that number which used three times as a factor will give the number.

Higher roots are defined in the same manner.

The root of a number is commonly indicated by the *radical sign,* $\surd$. Which root is meant is indicated by placing a small number just above and to the left of the radical sign. This number is called the *index.*

The square root of 16 is written $\sqrt{16} = 4$. The index is not written for square roots.

Similarly, $\sqrt[3]{125} = 5$.

$\sqrt[6]{64} = 2$.

It is not always possible to find the exact root of a number. The methods below will give the result to any desired degree of accuracy by carrying the operation on for additional steps. The nature of the problem will usually determine how much accuracy is desirable.

Any number of two digits may be thought of as the sum of the tens and units of the number. Actual trial with different numbers will convince one of the truth of the following statement.

The square of any number of two digits is equal to the square of the tens plus twice the product of the tens by the units plus the square of the units.

The rule for finding the square root of any number is based upon the above principle.

To find the square root of any number.

Beginning at the decimal point, point off the number into periods of two figures each.

Determine the largest perfect square in the left hand period. Write its root as the first figure of the required root. Subtract its square from the first period and bring down the second period with the remainder.

Use twice the root already found as a trial divisor. A zero is added to the trial divisor to make allowance for the next number in the root. Divide the remainder by this divisor, writing the quotient as the next number of the root. Add this number to the trial divisor. Multiply

this sum by the number in the root just found and subtract the product from the remainder. If the product is too large, try a smaller number in the root. Bring down the next period and proceed as above till all the periods have been used or, in the case of decimals, till the desired degree of accuracy has been reached.

There will be as many places to the left of the decimal point in the root as there are periods to the left of the decimal point in the number.

EXAMPLE. Find the square root of 265.294.

```
                * *  * *
              2 6 5.2 9 4 0  ( 1 6.2 8
                1
              ---
2 0 |  6      1 6 5
2 6 |          1 5 6
    ---------------
      3 2 0 |  2      9 2 9
      3 2 2 |         6 4 4
      -----------------------
        3 2 4 0 |     8      2 8 5 4 0
        3 2 4 8 |            2 5 9 8 4
        -------------------------------
                              2 5 5 6
```

If it is desired to continue the process, a period of two zeros would have to be added to the right of the number. This can be repeated indefinitely.

In the example, the first trial divisor, 20, is contained 8 times in the remainder, 165. But when 8 is added to 20 and the sum multiplied by 8 the product is too large. The same is true for 7. Hence 6 is used as the second number of the root.

The last period to the right of the decimal point is completed by the addition of a zero.

To find the cube root of a number.

Beginning at the decimal point, point off the number into periods of three figures each.

Determine the largest perfect cube in the first period. Write its root as the first figure of the required root. Subtract its cube from the first period and bring down the next period with the remainder.

The trial divisor is formed by taking three times the square of the root already found. Two zeros are added to make allowance for the next figure in the root. Divide the remainder by this divisor, writing the quotient as the next number in the root.

To the trial divisor, add three times the product of the first part of the root with a zero attached by the last number of the root plus the square of the last number. This sum is the complete trial divisor.

Multiply it by the last number of the root and subtract from the preceding remainder. If the product so found is too large, a smaller number must be used in the root.

Bring down the next period and repeat the process.

In pointing off the root, allow one place for every period in the number.

EXAMPLE. Find the cube root of 52486.

```
                * *  *
              5 2 4 8 6.0 0 0  ( 3 7.4
                2 7
              ---
2 7 0 0 |  3   2 5 4 8 6
  6 3 0 |
    4 9 |
3 3 7 9 |      2 3 6 5 3
        ---------------
                1 8 3 3 0 0 0
```

Repeat the process.

Tables are available which give the squares and cubes, and the square root and cube root of all numbers from 1 to 1000. They are so arranged that they give approximate values for the powers and roots of all numbers.

A small table of this kind is given below.

n	n^2	n^3	$\sqrt{n}$	$\sqrt{10n}$	$\sqrt[3]{n}$	$\sqrt[3]{10n}$	$\sqrt[3]{100n}$
1.	1.	1.	1.	3.162	1.	2.154	4.642
2.	4.	8.	1.414	4.472	1.260	2.714	5.848
3.	9.	27.	1.732	5.477	1.442	3.107	6.694
4.	16.	64.	2.000	6.325	1.587	3.420	7.368
5.	25.	125.	2.236	7.071	1.710	3.684	7.937
6.	36.	216.	2.449	7.746	1.817	3.915	8.434
7.	49.	343.	2.646	8.367	1.913	4.121	8.879
8.	64.	512.	2.828	8.944	2.000	4.309	9.283
9.	81.	729.	3.000	9.487	2.080	4.481	9.655
10.	100.	1000.	3 162	10.000	2.154	4.642	10.000

In the above table, the fifth column gives the square root of 10, 20, 30, and so on. The seventh and eighth columns give the cube root of 10, 20, 30, ... and 100, 200, 300 and so on. In larger tables of this kind, this arrangement makes it possible to look up the square root or cube root of any number by simply looking up the number as if the whole part was composed of the left hand period. Values between the numbers in the table can be estimated approximately. The process of finding values not given in the tables is called *interpolation.*

PERCENTAGE.

Percentage is an application of decimal fractions in which one one-hundredth or *one per cent* is used as the unit for computation. In decimal fractions any power of ten may be the denominator. In percentage, the denominator is always 100.

The words *"per cent"* come from the Latin words "per centum" and mean by the hundred.

One one-hundredth is called one per cent. The symbol for per cent is %. Four per cent is written 4%, and means .04 or 4/100 of the quantity.

Obviously, any per cent may be written as a decimal or as a common fraction. Also, any decimal or common fraction can be expressed in per cent and fractions of a per cent to any desired degree of accuracy.

EXAMPLES. $\frac{2}{3} = .6667 = 66.67\%$

$4\frac{1}{2}\% = .045 = \frac{45}{1000} = \frac{9}{200}$

$\frac{1}{4}\% = .0025 = \frac{25}{10000} = \frac{1}{400}$.

The principle numbers involved in percentage problems are the *base*, the *rate*, and the *percentage*. The terms *amount* and *difference* are also used.

The *base* is the number of which a certain number of per cents, or hundredths is taken.

The *rate* is the number of per cents, or hundredths taken.

The *percentage* is the amount of the number taken.

The *amount* is the sum of the base and the percentage.

The *difference* is the base minus the percentage.

When any two of the five numbers defined above are given, it is possible to find the others. Most problems deal only with the first three. The following rule is the basis of all computations in percentage.

Base × *rate* = *percentage.*

1. To find the percentage when the base and rate are given. Write the rate in decimal form and multiply the base by it.

EXAMPLE. A man bought a house for $6500 and sold it at a profit of 12%. What was his profit? What was the selling price?

$6500	Base
.12	Rate
$ 780.00	Percentage
6500.00	Base
$7280.00	Amount or selling price.

2. To find the rate when the base and percentage are given.

The use of percentage is so common that it is desirable to express the number of per cent one number is of an other. From the general rule, it follows:

Rate = Percentage ÷ base.

Hence, to find the rate per cent, divide the percentage by the base and express the resulting decimal as per cent.

EXAMPLE. A baseball team won 84 out of 156 games played in a season. What per cent of games did they win?

$$\begin{array}{r} .53\ 11/13 \text{ Rate} \\ \text{Base } 156 \overline{)\ 84.0000} \text{ Percentage} \\ 780 \\ \hline 600 \\ 468 \\ \hline 132 \end{array}$$

$$\frac{132}{156} = \frac{33}{39} = \frac{11}{13}$$

The team won $53\frac{11}{13}\%$ of their games.

3. To find the base when the rate and percentage are given.

From the general rule, it follows

Base = Percentage ÷ rate.

Hence, to find the base, express the rate as a decimal and divide the percentage by it.

EXAMPLE. The monthly income from an apartment house, is $640, which represents a gross annual income equal to 12½% of the value of the property. What is the value of the property?

$640 × 12 = $7680 Annual income.

$12\frac{1}{2}\% = .125$ Rate in decimal form.

By aliquot parts,

$$\frac{\$7680}{.125} = \frac{\$7680 \times 8}{1} = \$61{,}440. \text{ Base or value.}$$

4. Given the amount and rate to find the base and percentage.

The amount is equal to the base plus the percentage.

The base is equal to 100% and the percentage is equal to the base times the rate. Hence the amount is equal to 100% of the base plus the rate times the base. The base is found by dividing the amount by the sum of the rate and 100% expressed in decimal form.

EXAMPLE. The total sales in a department in December were $2416 which was an increase of 8% over the sales for November. What were the total sales in November? The increase?

November sales = 100%.
December sales = 100% + 8% = 108%
$2416 = 108% = 1.08

$$\text{Hence, } 100\% = \frac{\$2416}{1.08}$$

= $2237.04 − November sales = base.
$2416 − $2237.04 = $178.96 Increase = percentage.

In a similar manner, rules may be developed that state how to find any of the quantities in percentage when two are given. If the amount and percentage are given, the base can be found by subtraction and the problem reduces to Case 2 above. If the difference and rate are given, the difference is set equal to 100% of the base minus the rate per cent, and the base is found by dividing the difference by the above per cent expressed as a decimal.

These processes are the same throughout all computations, though different names are used for the terms.

Base = Cost, capital, principal, valuation.
Rate = % of gain or loss, interest, commission.
Percentage = Gain or loss, discount, interest, premium.
Amount = Selling price with gain, total cost.
Difference = Selling price at a loss, net cost, proceeds.

Important Per Cents and Their Fractional Equivalents.

Per Cent.	Fractional Values.	Per Cent.	Fractional Values.
50%	1/2, .5	87-1/2%	7/8, .875
25%	1/4, .25	16-2/3%	1/6, .166
75%	3/4, .75	33-1/3%	1/3, .333
20%	1/5, .2	66-2/3%	2/3, .666
40%	2/5, .4	6-1/4%	1/16, .0625
100%	1, 1.	6-2/3%	1/15, .0666
12-1/2%	1/8, .125	8-1/3%	1/12, .0833
37-1/2%	3/8, .375	11-1/9%	1/9, .1111
62-1/2%	5/8, .625	14-2/7%	1/7, .1428

COMMERCIAL ARITHMETIC

PROFIT AND LOSS.

There are many applications of percentage in business. The whole theory of profit and loss, discount, bank discount, interest, commissions, taxes, stocks and bonds, insurance, exchange, and many other topics is based upon percentage. In some of these, the numbers used are the same as are used in percentage problems, in others the element of time enters into the problem and makes the computation more difficult. The simpler problems will be considered first.

In business, goods are bought and sold. The purpose of engaging in business is to make a profit from the transactions.

The *cost* is the price paid by a merchant for his goods. It is usually made to include freight and delivery charges. Sometimes additional items are charged against the purchase price and included in the cost. Individual concerns have different practices in this regard.

If goods are sold for more than cost, the amount over the cost is the *profit* or *gain* on the transaction.

If goods are sold at less than cost, the amount less than the cost is the *loss* on the transaction.

The *selling price* is the price at which goods are sold.

In figuring profit and loss, either the cost or the selling price may be taken as the base.

If the cost is taken as the base, the profit or loss is the percentage, the rate of gain is the per cent the profit is of the base, and the selling price is the amount or difference.

Many elements enter into the determination of the per cent of profit which the merchant needs to allow for in order to show a net profit. In large stores, the rent is pro-rated according to the area of floor space used by a department. The cost of heat, light, office expense, shipping expense, advertising, damaged goods, left overs, clerks salaries, and so on, must be allowed for in addition to a certain amount known as the *net profit* which is the real return on the money invested and the business itself. In order to guarantee a net profit of 10%, it is necessary to sell goods at a gross profit of much greater amount. In the case of seasonable or perishable goods, the per cent is much higher than in staples in which there is little or no loss due to handling.

A few illustrations of the type of problems met with in considering profit and loss are given below.

1. To find profit when cost and rate per cent of profit are given.

Multiply the cost by the rate per cent.

EXAMPLE. An article costing $5 was sold at a profit of 25%. What was the gain? What was the selling price?

$5 × .25 = $1.25, gain.
$5 + $1.25 = $6.25, selling price.

2. To find the rate per cent of profit when cost and selling price are given.

Subtract the cost from the selling price to find the profit, and divide the profit by the cost to find the rate per cent of profit.

EXAMPLE. Shoes were bought at $4.50 and sold for $6.00. What was the gain per cent?

$6.00 − $4.50 = $1.50

$1.50 ÷ $4.50 = $33\frac{1}{3}$% of gain.

3. To find cost, when selling price and per cent of profit are given.

The cost is 100%. The selling price is 100% plus the per cent of profit. *Divide the selling price in dollars by the selling price in per cent to get the cost in dollars.*

EXAMPLE. A grocer sells sugar at $7.60 per hundred pounds which gives him a gross profit on the transaction of 16%. What was the cost per hundred pounds?

Selling price = Cost + profit.
= 100% + 16%.
= 116%.
116% = $7.60

$$100\% = \frac{\$7.60}{1.16} = \$6.55 \text{ Cost price.}$$

4. To find cost when profit and per cent of profit are given.

The profit is a per cent of the cost. *Divide the profit in dollars by the per cent of profit to get the cost in dollars.*

EXAMPLE. A merchant showed a gross profit of $13,650 for the year 1926. If this represents 26% of profit, what was the cost price of the goods handled?

$$\text{Cost} = \frac{\text{Profit}}{\text{\% of profit}}$$

$$= \frac{\$13,650}{.26} = \$52,500 \text{ Cost.}$$

These rules and many others may be expressed best by use of letters to represent the quantities being used. In all cases where multiplication or division by per cent of profit or loss is called for, the decimal form of the per cent is to be used.

This method of notation is explained in the section on algebra.

In the following brief rules or formulas,

c = Cost
g = Gain or profit
s = Selling price
l = Loss
% of g = Per cent of gain
% of l = Per cent of loss.

1. Given c and % of g; $g = c \times$ % of g.

2. Given c and s; % of $g = \frac{s - c}{c}$

3. Given s and % of g; $c = \frac{s}{100\% + \text{\% of g}}$

4. Given g and % of g; $c = \frac{g}{\text{\% of g}}$

5. Given c and % of l; $l = c \times$ % of l.

6. Given c and s; % of $l = \frac{c - s}{c}$

7. Given s and % of l; $c = \frac{s}{100\% - \text{\% of l}}$

8. Given l and % of l; $c = \frac{l}{\text{\% of l}}$

9. $s = c + g$ or $s = c - l$.

In case the selling price is taken as the base, these rules and formulas have to be changed slightly. The same principles determine the solution in this case and the problems are worked in a similar manner. It is necessary to remember that if the selling price is the base, it is taken as 100% and the cost is less than 100% in case profit is realized on the transaction.

MARKING GOODS.

In many lines of business, it is necessary to have the selling price of goods marked on them. It is also convenient to have the cost price marked on the goods. Even though the per cent of profit being taken may be entirely justifiable, it would occasion dissatisfaction on the part of many customers if these prices were known to them. When merchants desire to keep their cost or selling prices from the public, the price marks are written in letters or characters, the interpretation of which depends upon a knowledge of what is called the key word.

The key word may be any word or phrase composed of ten different letters. To this key certain letters called repeaters are added to allow the same figure to be repeated without disclosing the key.

If both the cost price and selling price are

marked on the goods in code, a separate key is used for each.

Cost Key.

C E N T U R Y B O K
1 2 3 4 5 6 7 8 9 0

Repeaters A and B

Selling Key.

S E L P R I C O D A
1 2 3 4 5 6 7 8 9 0

Repeaters X and Y.

Any word or phrase may be used. They are sometimes spelled backwards to make it more difficult for strangers to interpret the prices.

If the cost price is $4.25 and the selling price is $5.25, the price card would then be marked as follows:

Cost	T EU	T EU
	or	
Sell	R ER	R ER

If an article costs $6.66 and sells for $8.00, the marking is as follows:

Cost	R AB	R AB
	or	
Sell	O AX	O AX

Here, the two repeaters are used in the cost price to avoid showing R three times, while one repeater is used in the selling price to indicate the second zero. If the two prices are written above and below a horizontal line, as in the second form, the upper number is the cost and the lower the selling price.

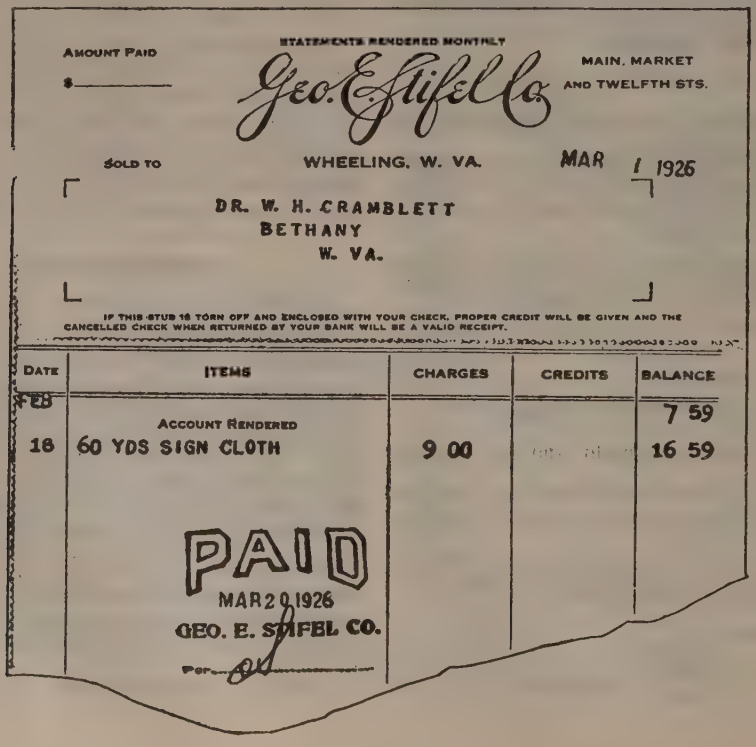
Many goods are bought from the wholesaler by the dozen and sold by the piece. In this case, the marking shows the wholesale price per dozen and the retail price per piece.

The person marking goods, is told to allow for a certain amount of profit. The retail or selling price is usually figured mentally and calls for a knowledge of the value in cents of the various twelfths of a dollar. In figuring the profit and selling price, the rate may be applied to the cost per dozen and then 1/12 taken, or the cost of a single article may be figured and the profit figured on this base.

BILLING AND TRADE DISCOUNT.

When goods are bought or sold, it is customary for the seller of the goods to furnish the buyer with a memorandum of the sale. This is called a *bill* or *invoice*. It contains a heading on which appears the buyer's name and address, the seller's name and address, the date of the bill; and an itemized statement of the goods purchased, the price of each item, and the total value of the entire bill. Somewhere on the bill the terms of the sale are stated. In case the purchase was with cash the bill should so state. If the buyer is to pay the shipping and delivery charges, this should appear on the bill and any part of this amount that is advanced by the seller is added to the total of the bill.

Goods are very often sold on terms and the terms are set out in the bill. Stores carry charge accounts for the convenience of their customers. These bills are due each month and are to be paid on or before the tenth of the month following that in which the purchase was made. Large stores usually furnish the buyer with a sales slip at the time of purchase and a monthly invoice or bill showing all goods purchased the preceding month.



AMOUNT PAID
$_____

STATEMENTS RENDERED MONTHLY

Geo. E. Stifel Co.

MAIN, MARKET AND TWELFTH STS.

SOLD TO WHEELING, W. VA. MAR 1 1926

DR. W. H. CRAMBLETT
BETHANY
W. VA.

IF THIS STUB IS TORN OFF AND ENCLOSED WITH YOUR CHECK, PROPER CREDIT WILL BE GIVEN AND THE CANCELLED CHECK WHEN RETURNED BY YOUR BANK WILL BE A VALID RECEIPT.

DATE	ITEMS	CHARGES	CREDITS	BALANCE
FEB				
	ACCOUNT RENDERED			7 59
18	60 YDS SIGN CLOTH	9 00		16 59

PAID
MAR 20 1926
GEO. E. STIFEL CO.
Per

Bills are often made out subject to certain reductions for prompt payment or other causes.

Discount is a deduction from an amount for any reason.

Cash discount is discount made because of prompt payment of an account. The amount of discount is usually stated in per cent. A ten day period is often allowed to enable the goods to be checked and the money received in what is called the cash period. Goods are billed with 2% discount allowed for cash in ten days or net in thirty days. This is indicated on the bill and the buyer is supposed to figure the discount he may take if the bill is paid within the time limits.

DEPARTMENTS
Sash Doors and Millwork
Paints, Oils Varnishes and Brushes
Builders' Hardware Nails and Roofing
Window Plate and Ornamental Glass
Art Glass and Mirrors

Bell Telephone 2080
Private Branch Exchange

W. A. WILSON & SONS
BUILDERS SUPPLIES
1409, 1411 AND 1421 MAIN STREET

W. A. WILSON, Estate
W. P. WILSON
A. A. WILSON

WHEELING, W. VA. July 2 1926

ORDER NO.

F. O. B.

Terms: 60 Days Net, 2% 15 Days excepting on
WINDOW GLASS, LINSEED OIL, MIRRORS, PLATE AND ORNAMENTAL GLASS — 30 Days Net 2% 10 Days
TURPENTINE: Net Cash
All Estimates and Contracts: Net Cash Positively No Discount Allowed on Freight

SOLD TO
Bethany College
Bethany W Va

Our responsibility ceases when we receive receipt from Transportation Company. If goods are short or damaged upon arrival, insist on agent noting same on freight bill, otherwise do not accept them. Check invoice and material carefully, as no claim will be considered after 10 days.

SHIPPED VIA Car TO 7th Street Station

4	Gal P & L #38	5 50	22 00	
	Less 25-10%		14 85	
1	2" Blk Pilgrim Brush		80	
		Carfare	25	
				15 90
	M. V. Danford	Less 2% on $15.65		.31
				15.59

Commercial discount is a reduction from the price of anything. It occurs often in special sales where the merchant desires to move left over or damaged stocks quickly. A flat twenty or twenty-five per cent reduction is made on the selling price of all goods in the sale.

Trade discount is a reduction from a trade list. It is made to enable the retailer to buy from a wholesaler at a price which will enable him to resell at a fair price and with a reasonable profit. The catalogue can then be used by the retailer with his customers without letting them know the cost price of the article. The discount allowed by the wholesaler may vary from time to time. It often happens that rather than publish a new catalogue, a new or an additional discount is allowed on goods bought between certain dates.

Trade discounts are figured by the seller and appear on the bill as a credit. Additional credits for cash etc., are figured by the buyer

When several discounts are allowed on a bill, they are called a *discount series.* In a discount series, the first discount is figured and the reduction made and then the second discount is figured on the remainder, and so on. Or the first per cent of discount is subtracted from 100%, and the per cent of the whole which is equivalent to the second per cent of discount is figured and subtracted, and so on till all the series have been used. The resulting per cent is called the net cost rate factor. The product of the list price and the net cost rate factor (N. C. R. F.) is the net cost price.

EXAMPLE. Electric light bulbs are sold with 40% and 10% trade discounts and a 2% cash discount. The list price of an order is $160. Find the net cash cost.

FIRST METHOD.

40% of $160 = $64.00 First discount.
$160 − $64 = $96.
10% of $96 = $ 9.60 Second discount.
$96 − $ 9.60 = $86.40 Net price.
2% of $86.40 = $ 1.73 Cash discount.
$86.40 − $ 1.73 = $84.67 Net cash price.

SECOND METHOD.

100% − 40% = 60%
10% of 60% = 6%
60% − 6% = 54% N. C. R. F.
54% of $160 = $86.40 Net price.

Since the cash discount is always figured by the buyer when he pays the bill or invoice, it is not figured as a part of the series when the seller makes out the bill for the goods.

This method is especially valuable when the discounts to be figured are aliquot parts of 100.

A third method is also used for figuring discount series. The N. C. R. F. is found by subtracting each discount in the series from 100% and multiplying the remainders.

EXAMPLE. On a radio listed at $250.00, discounts of 33-1/3%, 10%, and 5% are allowed. What is the net price of the set?

$$\begin{array}{cccc} 100\% & 100\% & 100\% & \\ 33\text{-}1/3\% & 10\% & 5\% & \\ \hline 66\text{-}2/3\% & \times\ 90\% & \times\ 95\% & = 57\%\ \text{N. C. R. F.} \end{array}$$

$$\$250 \times .57 = \frac{.57 \times 1000}{4} = \$142.50 \text{ Net price.}$$

Tables showing the N. C. R. F. for the more common discount series are published and are a great convenience when much work of this kind is to be done.

Some Rate Per Cents, Their Equivalents, and the Net Price.

N. C. R. F.	N.P. %	N. C. R. F.	N.P. %
2-1/2, 2-1/2 = .0494	.9506	2-1/2, 5, 2-1/2 = .0969	.9031
2-1/2, 10 = .1225	.8775	5, 5, 2-1/2 = .1201	.8799
15, 2-1/2 = .1713	.8287	10, 5, 2-1/2 = .1664	.8336
20, 2-1/2 = .22	.78	15, 10, 2-1/2 = .2541	.7459
25, 7-1/2 = .3063	.6937	20, 10, 2-1/2 = .2980	.703
30, 2-1/2 = .3175	.6825	25, 2-1/2, 2-1/2 = .2871	.7129
32-1/2, 10 = .3925	.6075	25, 7-1/2, 2-1/2 = .3236	.6764
35, 5 = .3825	.6175	30, 7-1/2, 5 = .3849	.6151
37-1/2, 7-1/2 = .4219	.5781	35, 5, 5 = .4134	.5866
40, 2-1/2 = .415	.585	37-1/2, 10, 5 = .4656	.5344

COMMISSION AND BROKERAGE.

A large part of the business today is carried on by middle men called commission merchants, brokers, or agents. This is especially true of such businesses as the selling or buying of farm products, insurance, real estate, stocks and bonds, etc.

The *principal* is the person or firm for whom the business is transacted.

The *commission* or *brokerage* is the rate per cent on the volume of business charged by the *commission merchant* for his services in the transaction. In some cases, a flat amount per unit of goods is agreed upon instead of a per cent.

Material forwarded by the principal to his agent is called a *consignment*. The person or firm shipping the goods is the *consignor*. The person or firm to whom the goods are shipped is called the *consignee*.

The *gross proceeds* of a sale is the total amount for which the goods are sold.

The *net proceeds* is the amount left from the gross proceeds after the commission and all expenses have been deducted.

The *prime cost* of a purchase is the net cost or first price paid by the agent for the merchandise.

The *gross price* is the net price plus the commission and all expenses of the transaction.

When goods are sold, the agent furnishes the principal an *account sales* showing all the details of the transaction and remits the net proceeds to him.

When goods are bought, the agent sends the principal an *account purchase* showing all details of the transaction and the principal remits the gross price to the agent.

Problems in commission and brokerage are problems in percentage where the elements considered are as follows;

The gross sales or prime cost is the base.

The rate of commission is the rate.

The amount of commission is the percentage.

Since other factors than these enter into the net proceeds, or the gross price, the terms amount and difference have little significance.

1. To find the amount of commission when the rate of commission and the gross proceeds or the net price are given.

EXAMPLE. A commission merchant sells a consignment of goods for $2,400. His commission is at the rate of 6%. How much did he receive and how much did he remit to the principal.

6% of $2,400 = $144 Commission to agent.
$2,400 − $144 = $2,256 Remitted to principal.

The commission is found by multiplying the gross proceeds, or the net price, by the rate of commission.

2. *To find the gross proceeds* when the rate of commission and commission are given.

EXAMPLE. A trust company charges 3% on the income from an estate for handling the investments of its funds. If the trust company receives $1,692.66 in one year, what was the gross income and what was the net income to the estate.

The commission is figured on the gross income.
3% of the gross income = $1,692.66

$$\text{Gross income} = \frac{\$1692.66}{.03} = \$56{,}422.00 = \text{Gross income.}$$

$56,422.00 − $1692.66 = $54,729.34 Net income.

The gross proceeds, or the prime cost, is found by dividing the commission in dollars by the rate of commission in per cent.

3. *To find the rate of commission* when the commission and gross income are given.

EXAMPLE. An agent collected a gross rental of $7,240 from the tenants of an apartment house. His commission amounted to $362. What was his rate of commission?

$$\frac{\$362}{\$7240} = .05 \text{ Rate of commission.}$$

The rate of commission is found by dividing the amount of the commission by the gross proceeds or the prime cost.

Let g = gross proceeds. p = prime price.
n = net proceeds. t = total or gross price.
c = commission. r = rate of commission.

The following formulas may be stated.

1. Given g and r; $c = g \times r$.
2. Given p and r; $c = p \times r$.
3. Given c and r; $g = \frac{c}{r}$, or $p = \frac{c}{r}$.
4. Given g and c; $r = \frac{c}{g}$.
5. Given p and c; $r = \frac{c}{p}$.

INSURANCE.

Insurance is an agreement wherein one party, for a consideration, guarantees to indemnify another in the event of certain events or happenings.

The agreement between the parties is called the *policy.* It is usually issued by the insurance company through its authorized agents and when properly signed is binding upon the company and the insured.

Many new forms of insurance are now being offered to the public. In some lines of insurance, the field is so new that the prices vary widely. In others, where there is much experience to determine probable hazards, the business is well established. The companies are carefully inspected by the authorities and the rates that may be charged are usually either fixed by law, or are determined by a board appointed under state control.

The consideration paid the insurance company by the insured is called the *premium.* The premium may be a certain per cent of the face of the policy, or it may be figured as a certain amount per $100 or per $1000.

There are two general kinds of insurance; namely *property insurance* and *personal insurance.*

Property insurance is of many kinds; as fire, theft, collision, rain, hail, tornado, cyclone, flood, transportation and baggage, live stock, crops, etc. In fact, some of the large companies advertise that they will insure anything.

The most common kind of property insurance is fire insurance. This kind of insurance guarantees the owner of property against loss by fire.

Fire insurance policies in the various states are quite similar. It is important that one understand the terms of his policy or he may unintentionally violate some of its conditions.

The rate of fire insurance is usually a certain amount per $100 for one year's insurance. The rate for two years is 1¾ times the one year rate. The rate for three years is 2½ times the one year rate. If a policy is written for less than one year, a "short rate" table is used to determine the percentage of the annual rate that should be charged. When a policy is cancelled, the amount to be refunded to the insured is sometimes figured "pro-rata" and at other times it is figured from the "short rate" table.

SHORT RATE TABLE FOR ONE YEAR POLICIES.

Time, days	Percentages to be charged or retained	Time, Days	Percentages to be charged or retained
1	2%	20	17
2	4	25	19
3	5	30 (1 mo.)	20
4	6	35	23
5	7	40	25
6	8	45	27
7	9	50	28
8	9	55	29%
9	10	60 (2 mo.)	30
10	10	65	33
11	11	70	36
12	11	75	37
13	12	80	38
14	13	85	39
15	13	90 (3 mo.)	40
16	14	105	46
17	15	120 (4 mo.)	50
18	16	135	56
19	16	150 (5 mo.)	60
165	66	270 (9 mo.)	85
180 (6 mo.)	70	285	88
195	73	300 (10 mo.)	90
210 (7 mo.)	75	315	93
225	78	330 (11 mo.)	95
240 (8 mo.)	80	345	98
255	83	360 (12 mo.)	100

Problems in insurance make use of the principles of percentage.

The value of the policy is the base.

The premium is the percentage.

The rate of premium per $100. is the rate.

1. EXAMPLE. The annual rate for a frame dwelling is published by the inspection bureau as .40 per $100. What is the premium on $3500 for three years?

$$2\tfrac{1}{2} \times .40 = 1.00 \text{ per } \$100 = 1\% \text{ Rate.}$$

$$1\% \text{ of } \$3500 = \$35.00 \text{ Premium.}$$

The premium is equal to the value of the policy multiplied by the rate per cent.

2. A company spends $2000 per year on insurance written at the three year rate. If the annual rate is .6%, how much insurance will the company be carrying after three years?

$$2\tfrac{1}{2} \times .6\% = 1.5\% \text{ 3 year rate.}$$

$$\frac{\$2000}{.015} = \$133{,}333.33 \text{ Insurance written per year.}$$

$$\$133{,}333.33 \times 3 = \$400{,}000.00 \text{ Total insurance after 3 years.}$$

The premium divided by the rate equals the value of the insurance.

3. The annual rate is .32 per $100. How much will a policy for $7400 cost for 64 days?
Use the short rate table.
Annual premium = $23.68.
64 days takes 65 days charge.
Percentage to be charged is 33.
33% of $23.68 = $7.81 cost for 64 days.

Personal insurance includes all kinds of insurance on the life or person of an individual. One may insure his own life for any amount. The right of a person to take out insurance on the life of another is an unsettled question. Various decisions have been rendered by the courts and it seems from them that actual interest in the life of the person covered by the policy must be shown.

Among the common forms of personal insurance, may be mentioned life insurance, accident insurance, health insurance, disability insurance, and insurance against liability for injury to the person of others or personal liability insurance.

There are three general forms of life insurance:

1. *Life policies.* In policies of this kind, the policy is payable only at death of the insured. The premium may be made payable annually, in which case the policy is called *a straight life policy.* The premium may be paid entirely in advance, or in 5, 10, 15, or 20 annual payments. When these payments have been made, the policy becomes a *paid up policy.*

2. *Term policies.* In policies of this kind, the policy is payable only in the event of the death of the insured during the term of the policy. At the expiration of the term the insurance ceases.

3. *Endowment policies.* Policies of this kind represent both insurance and investment. They are payable in the event of the death of the insured at any time or at a fixed date if he is then living.

Policies are made payable to one's estate or to some person named in the policy. The person to whom the policy is to be paid is called *the beneficiary.*

Insurance is based upon certain vital statistics. Perhaps the most well known is the American experience table of mortality. From this table, the probable life expectancy is calculated. A portion of every premium is required by law to be set aside and invested in approved securities. The amount set aside is such that it will at stated interest rates amount to the value of the policy at the end of the period of life expectancy.

This reserve really belongs to the insured and determines the cash or loan value of the policy at any time. If the insured cancels a policy, he may receive this cash value or he may elect to take the value of the policy in paid up insurance. The various values of these options are printed on and made a part of the policies.

Since the life expectancy varies with the age of the individual, the cost of the same kind of insurance also varies. The amount charged by the company for a policy of $1000 for any age is printed in a rate book furnished the agent by the company. This amount is called the rate.

The rate per thousand dollars is multiplied by the number of thousands covered by the policy to find the annual premium.

The mathematics of life insurance goes beyond the limits of arithmetic. However, the computations involved in the buying and selling of insurance are all simple problems in percentage.

INTEREST.

Interest is money charged for the use of money.

The *principal* is the sum of money borrowed or used.

The *amount* is the sum of the principal and the interest.

The amount of the interest on a sum of money is determined by the *rate of interest.* The *rate of interest* is that part of $1, expressed as per cent, which is charged for the use of $1 for one year. The maximum rate of interest which may be charged is usually fixed by law. This varies in different states but is commonly from 6 to 8 per cent. The charging of a higher rate than that allowed by law is called *usury.*

The *time* is an important element in the figuring of interest. The rate of interest is usually stated for one year.

Simple interest is interest calculated on the principal only.

Compound interest is interest calculated on the sum of the principal and unpaid interest, the calculation being made at stated intervals.

Ordinary interest is figured on the basis of 360 days in a year.

Exact interest is figured on the exact number of days.

The principles of percentage are used in the solution of all interest problems.

The principal is the base.

The interest is the percentage.

The rate of interest is the rate.

When the interest is for a period other than one year, the time is expressed as a fraction of a year. The interest for one year multiplied by this fraction gives the interest for the period. In practice this general method is modified in different ways to secure a rapid solution.

SIMPLE INTEREST.

There are many ways in which the work of computing interest can be materially shortened.

1. Ordinary interest by the 60 day method. Since, in ordinary interest, 60 days or 2 months equals 1/6 of 360 days or one year; the interest for 60 days is 1/6 of the interest for one year.

Hence, if the rate is 6%, the interest for 60 days is 1/6 of 6% or 1% of the principal.

RULE. *To find the interest at 6% for 60 days, move the decimal point two places to the left in the principal.*

Also, *to find the interest at 6% for 6 days, move the decimal point three places to the left in the principal.*

To find the interest at 6% for one day, take 1/6 of the interest for 6 days.

Any period of time may be expressed as a certain number of 60 day periods plus a certain number of 6 day periods plus a certain number of days. The interest for these various times are found and added separately.

In practice, the use of the aliquot parts of 60 will be found helpful.

30 = 1/2 of 60.
20 = 1/3 of 60.
15 = 1/4 of 60.
12 = 1/5 of 60.
10 = 1/6 of 60.
6 = 1/10 of 60.
5 = 1/12 of 60.
3 = 1/2 of 1/10 of 60.
2 = 1/3 of 1/10 of 60.
1 = 1/6 of 1/10 of 60.

RULE. *To find the interest at any rate, divide the amount of the interest at 6% by 6 and multiply the quotient by the given rate.*

EXAMPLE. What is the interest on $890.50 at 6% for 11 months 10 days?

11 mo. 10 da. = 10 mo. + 1 mo. 10 da.
= 5 × 2 mo. or 60 da. + 40 da.

$ 8.9050 = Interest for 2 mo. or 60 da.
5

$44.5250 = Interest for 10 mo.
4.4525 = Interest for 30 da. (1/2 of Int. for 60 da.)
1.4842 = Interest for 10 da. (1/3 of Int. for 30 da.)

$50.4617 = Interest for 11 mo. 10 da.

EXAMPLE. What is the interest on $450 for 7 mo. 17 da. at 4-1/2%?

7 mo. 17 da. = 3 × 60 da. + 47 da.

$4.50 = Interest for 60 da.
3

$13.50 = Interest for 3 × 60 da.
2.25 = Interest for 30 da.
1.125 = Interest for 15 da.
.15 = Interest for 2 da.

$17.025 = Interest for 7 mo. 17 da. at 6%.

Custom determines whether this amount is called $17.02 or $17.03. The number is not rounded off till all computation is completed.

6)$17.025 Interest at 6%.
2.8375 Interest at 1%.
4-1/2 given rate.
1.41875
11.3500
$12.76875 or $12.77 = Interest for 7 mo. 17 da. at 4-1/2%.

2. Exact interest by the cancellation method.

In exact interest, the time is expressed in days and divided by 365, the number of days in one year.

When the interest is for a period other than one year, the interest is found by the following relation:

$$Interest = Principal \times Rate \times Time,$$

where interest and principal are expressed in dollars, the rate as a decimal fraction and the time as a fraction of one year of 365 days.

In the above relation any one of the elements can be determined if the other three are given.

The number of days between two dates can be figured out for each case but it is customary to refer to a table that tells at a glance the number required. Such a table is given under the heading of time in the dictionary of weights and measures. When the period of time includes the extra day of leap year or Feb. 29, one must be added to the figures in the table.

EXAMPLE. What is the exact interest on $890.50 from Mar. 10, 1925 to Feb. 20, 1926 at 6%?

From the table, the number of days between the given dates are 416 − 69 = 347.

$$\$890.50 \times .06 \times \frac{347}{365} = \frac{178.10}{\cancel{\$890.50} \times 6 \times 347} = \$50.79 \text{ Exact int. at 6\%.}$$

EXAMPLE. What principal invested at 4% will bring in a return of $90.00 every 6 months?

From the interest relation.

$$\text{Principal} = \frac{\text{Interest}}{\text{Rate} \times \text{Time}} = \frac{\$90.00}{.04 \times 1/2} = \frac{\$90.00}{.02} = \$4500.00 \text{ Principal.}$$

EXAMPLE. How long will it take for $1000 to double itself at simple interest at 5%.

From the interest relation.

$$\text{Time} = \frac{\text{Interest}}{\text{Principal} \times \text{Rate}} = \frac{\$1000}{\$1000 \times .05} = 20 \text{ years.}$$

3. By the use of tables.

Many tables for computing simple interest have been developed. These are much used as they reduce the amount of work very materially. The following table is for ordinary interest from one to ten dollars. The times given may be readily combined to total any required time. The principal is broken up into the sum of units, tens, hundreds, etc. and the interest on each part is figured separately.

INTEREST TABLE AT 6%.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10
1 da.	.00017	.00033	.0005	.00067	.00083	.001	.00117	.00133	.0015	.00167
2 da.	.00033	.00067	.001	.00133	.00167	.002	.00233	.00267	.003	.00333
3 da.	.0005	.001	.0015	.002	.0025	.003	.0035	.004	.0045	.005
4 da.	.00067	.00133	.002	.00267	.00333	.004	.00467	.00533	.006	.00667
5 da.	.00083	.00167	.0025	.00333	.00417	.005	.00583	.00667	.0075	.00833
6 da.	.001	.002	.003	.004	.005	.006	.007	.008	.009	.01
7 da.	.00117	.00233	.0035	.00467	.00583	.007	.00817	.00933	.0105	.01167
8 da.	.00133	.00267	.004	.00533	.00667	.008	.00933	.01067	.012	.0133
9 da.	.0015	.003	.0045	.006	.0075	.009	.0105	.012	.0135	.015
10 da.	.00167	.00333	.005	.00667	.00833	.01	.01167	.01333	.015	.01667
20 da.	.00333	.00667	.01	.01333	.01667	.02	.02333	.02667	.03	.03333
1 mo.	.005	.01	.015	.02	.025	.03	.035	.04	.045	.05
2 mo.	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10
3 mo.	.015	.03	.045	.06	.075	.09	.105	.12	.135	.15
4 mo.	.02	.04	.06	.08	.10	.12	.14	.16	.18	.20
5 mo.	.025	.05	.075	.10	.125	.15	.175	.20	.225	.25
6 mo.	.03	.06	.09	.12	.15	.18	.21	.24	.27	.30
7 mo.	.035	.07	.105	.14	.175	.21	.245	.28	.315	.35
8 mo.	.04	.08	.12	.16	.20	.24	.28	.32	.36	.40
9 mo.	.045	.09	.135	.18	.225	.27	.315	.36	.405	.45
10 mo.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
11 mo.	.055	.11	.165	.22	.275	.33	.385	.44	.495	.55
1 yr.	.06	.12	.18	.24	.30	.36	.42	.48	.54	.60
2 yr.	.12	.24	.36	.48	.60	.72	.84	.96	1.08	1.20

Tables are also published for other rates though they can readily be computed from the 6% table.

EXAMPLE. What will be the interest at 6% on $456.00 for 3 mo. 26da.?

$6.00 = .06 × 100 = Int. on $400 for 3 mo.
1.333 = .01333 × 100 = Int. on $400 for 20 da.
.40 = .004 × 100 = Int. on $400 for 6 da.
.75 = .075 × 10 = Int. on $50 for 3 mo.
.1667 = .01667 × 10 = Int. on $50 for 20 da.
.05 = .005 × 10 = Int. on $50 for 6 da.
.09 = Int. on $6 for 3 mo.
.02 = Int. on $6 for 20 da.
.006 = Int. on $6 for 6 da.
$8.8157 = $8.82 = Int. on $456 for 3 mo. 26 da.

COMPOUND INTEREST.

In many lines of business, the interest is allowed to remain with the principal to become a part of the investment. Compound interest is used to determine the value of a savings bank deposit at any time. The same is true of the value of life insurance policies. Again, in order to have the proper amount of money in a sinking fund at some future date, certain sums must be laid aside each year. This also requires the use of compound interest.

Compound interest can not be collected at law. However it is not against the law to charge compound interest and to collect the same.

When the payments run over a long period of time and involve additions to the principal other than the accumulated interest, the solution of the problem becomes both tedious and complicated. To avoid making the problem too difficult, savings banks usually fix a day on

which the interest will be computed and make no allowance for fractional periods of less than one month.

Compound interest is always greater than simple interest after the first interest period. This is due to the fact that the interest on the interest is added at the end of the second and succeeding periods.

EXAMPLE. Compare the value of $500 at the end of 1, 2, 3, and 4 years at simple and at compound interest at the rate of 6%

SIMPLE INTEREST	COMPOUND INTEREST
$500.00 Principal.	$500.00 Principal.
30.00 Simple int. 1 yr.	30.00 Compound int. 1 yr.
$530.00 Value end 1st yr.	$530.00 Value end 1st yr.
30.00 Simple int. 2nd yr.	31.80 Compound int. 2nd yr.
$560.00 Val. end 2nd yr.	$561.80 Val. end 2nd yr.
30.00 Simple int. 3rd yr.	33.71 Compound int. 3rd yr.
$590.00 Val. end 3rd yr.	$595.51 Val. end 3rd yr.
30.00 Simple int. 4th yr.	35.73 Compound int. 4th yr.
$620.00 Val. end 4th yr.	$631.24 Val. end 4th yr.

The relative value of money at simple and compound interest at various rates of interest may be seen by a comparison of the amounts.

The times in which money will double itself at simple and compound interest are shown in the following table.

Time in Which Money Doubles at Several Rates.

Rate.	Simple Interest.	Compound Interest.
1%	100 yrs.	69 yrs. 245 da.
2%	50 yrs.	35 yrs.
2½%	40 yrs.	28 yrs. 26 da.
3%	33 yrs. 4 mo.	23 yrs. 164 da.
3½%	28 yrs. 208 da.	20 yrs. 54 da.
4%	25 yrs.	17 yrs. 246 da.
4½%	22 yrs. 81 da.	15 yrs. 273 da.
5%	20 yrs.	14 yrs. 75 da.
6%	16 yrs. 243 da.	11 yrs. 327 da.
7%	14 yrs. 114 da.	10 yrs. 89 da.
8%	12 yrs. 183 da.	9 yrs. 2 da.
9%	11 yrs. 40 da.	8 yrs. 16 da.
10%	10 yrs.	7 yrs. 100 da.

If the interest is computed once a year and added to the principal, the interest is said to be *compounded annually*. It may be done more often than this, in which case it is said to be *compounded semi-annually* or twice a year, *compounded quarterly* or four times a year, and so on. It will be seen that the oftener the interest is compounded the greater the value of the amount will be.

In order to solve problems in compound interest easily and accurately, tables which show the amount of $1 compounded annually for any number of years at different rates are used. The following is an example of such a table.

Table Showing Amounts of $1 at Compound Interest. Compounded Annually.

Years	2%.	2½%.	3%.	3½%.	4%.	4½%.	5%.	6%.	7%.	Years
1	1.0200	1.0250	1.0300	1.0350	1.0400	1.0450	1.0500	1.0600	1.0700	1
2	1.0404	1.0506	1.0609	1.0712	1.0816	1.0920	1.1025	1.1236	1.1449	2
3	1.0612	1.0769	1.0927	1.1087	1.1249	1.1412	1.1576	1.1910	1.2250	3
4	1.0824	1.1038	1.1255	1.1475	1.1699	1.1925	1.2155	1.2625	1.3108	4
5	1.1041	1.1314	1.1593	1.1877	1.2167	1.2462	1.2763	1.3382	1.4026	5
6	1.1262	1.1597	1.1941	1.2293	1.2653	1.3023	1.3401	1.4185	1.5007	6
7	1.1487	1.1887	1.2299	1.2723	1.3159	1.3609	1.4071	1.5036	1.6058	7
8	1.1717	1.2184	1.2668	1.3168	1.3686	1.4221	1.4775	1.5938	1.7182	8
9	1.1950	1.2489	1.3048	1.3629	1.4233	1.4861	1.5513	1.6895	1.8385	9
10	1.2190	1.2801	1.3439	1.4106	1.4802	1.5530	1.6289	1.7908	1.9672	10
11	1.2434	1.3121	1.3842	1.4600	1.5395	1.6229	1.7103	1.8983	2.1049	11
12	1.2682	1.3449	1.4258	1.5111	1.6010	1.6959	1.7956	2.0122	2.2522	12
13	1.2936	1.3785	1.4685	1.5640	1.6651	1.7722	1.8856	2.1329	2.4098	13
14	1.3195	1.4130	1.5126	1.6187	1.7317	1.8519	1.9799	2.2609	2.5785	14
15	1.3459	1.4483	1.5580	1.6753	1.8009	1.9353	2.0789	2.3966	2.7590	15
16	1.3728	1.4845	1.6047	1.7340	1.8730	2.0224	2.1829	2.5404	2.9522	16
17	1.4002	1.5216	1.6528	1.7947	1.9479	2.1134	2.2920	2.6928	3.1588	17
18	1.4282	1.5597	1.7024	1.8575	2.0258	2.2085	2.4066	2.8543	3.3799	18
19	1.4568	1.5987	1.7535	1.9225	2.1068	2.3079	2.5270	3.0256	3.6165	19
20	1.4859	1.6386	1.8061	1.9898	2.1911	2.4117	2.6533	3.2071	3.8697	20

EXAMPLE. Find the value of $4500 compounded annually at 4-1/2% after 12 years.

From the table, $1 at 4-1/2% amounts to $1.6959 after 12 years.

$4500 × 1.6959 = $7631.55 amount after 12 yrs.

If the interest is compounded semi-annually, use half the rate and twice the number of years to find the amount of $1. If it is compounded quarterly, use one-fourth the rate and four times the number of years.

EXAMPLE. Find the value of $512 after 8 years, interest at 5%, compounded semi-annually.

From the tables, $1 at 2-1/2% for 16 years amounts to $1.4845.
$512 × 1.4845 = $760.06 Amount after 8 years.

A compound interest problem closely connected with the problems of insurance is to find the value of any amount deposited annually for any number of years with interest compounded at regular intervals at a given rate. The premium on a life insurance policy is this kind of annual payment. The following table will show the value of $1 deposited annually for any number of years up to 30 at various rates of interest.

YEARS	ONE DOLLAR PER ANNUM PAID IN ADVANCE AT THE BEGINNING OF EACH YEAR						
	3%	3½%	4%	4½%	5%	5½%	6%
1							
2	1.030	1.035	1.040	1.045	1.050	1.055	1.060
3	2.091	2.106	2.122	2.137	2.153	2.168	2.184
4	3.184	3.215	3.246	3.278	3.310	3.342	3.375
5	4.309	4.362	4.416	4.471	4.526	4.581	4.637
6	5.468	5.550	5.633	5.717	5.802	5.888	5.975
7	6.662	6.779	6.898	7.019	7.142	7.267	7.394
8	7.892	8.052	8.214	8.380	8.549	8.722	8.897
9	9.159	9.368	9.583	9.802	10.027	10.256	10.491
10	10.464	10.731	11.006	11.288	11.578	11.875	12.181
11	11.808	12.142	12.486	12.841	13.207	13.583	13.972
12	13.192	13.602	14.026	14.464	14.917	15.385	15.870
13	14.618	15.113	15.627	16.160	16.713	17.287	17.882
14	16.086	16.667	17.292	17.932	18.599	19.292	20.015
15	17.599	18.296	19.024	19.784	20.579	21.409	22.276
16	19.157	19.971	20.825	21.719	22.657	23.641	24.673
17	20.762	21.705	22.698	23.742	24.840	25.996	27.213
18	22.414	23.500	24.645	25.855	27.132	28.481	29.906
19	24.117	25.357	26.671	28.064	29.539	31.103	32.760
20	25.870	27.280	28.778	30.371	32.066	33.868	35.786
21	27.676	29.269	30.969	32.783	34.719	36.786	38.993
22	29.537	31.329	33.248	35.303	37.505	39.864	42.392
23	31.453	33.460	35.618	37.937	40.430	43.112	45.996
24	33.426	35.667	38.083	40.689	43.502	46.538	49.816
25	35.459	37.950	40.646	43.565	46.727	50.153	53.865
26	37.553	40.313	43.312	46.571	50.113	53.966	58.156
27	39.710	42.759	46.084	49.711	53.669	57.989	62.706
28	41.931	45.291	48.968	52.993	57.403	62.233	67.528
29	44.219	47.911	51.966	56.423	61.323	66.711	72.640
30	46.575	50.623	55.085	60.007	65.439	71.435	78.058
	49.003	53.429	58.328	63.752	69.761	76.419	83.802

NEGOTIABLE PAPER.

A *negotiable paper* is the written promise or order for the payment of money which may be transferred by indorsement and delivery, or by delivery only, the indorser in turn guaranteeing the payment of the same.

The more common forms of negotiable paper are checks, notes, drafts, certificates or deposit, money orders, and bonds.

A *check* is an order drawn on a bank calling for payment in cash on demand. The individual signing the check must have deposited with the bank subject to check, an amount sufficient to cover it.

The person whose name is signed to the check is called the *drawer;* the bank on which it is drawn is called the *drawee;* the person to whom it is to be paid is called the *payee.*

WASHINGTON, PA. March 12 1926 No. 317

WASHINGTON TRUST COMPANY 60-295

PAY TO THE ORDER OF Chas. A. Allard $321 21/100

Three Hundred twenty one 21/100 DOLLARS

FOR Elec. Equip. B. W. White

When checks are transferred or paid, the payee writes his name across the back of the check, thereby *indorsing* it. Each person through whose hands the check passes adds his indorsement till it is finally stamped paid by the bank on which it is drawn.

If a check is drawn on a bank and there are not sufficient funds on deposit to cover it, it may be protested; in which case, each indorser is called upon in turn for the payment of the check.

A *draft,* or *bill of exchange,* is a written order by one person on another, requiring the person to whom it is addressed to pay on demand, or at a certain fixed time, a certain sum of money to a person named therein, or to bearer.

The person or firm whose name is signed to the draft is called the *drawer;* the person or firm ordered to pay the amount is called the drawee; the person to whom the money is to be paid is called the *payee.*

A draft payable at sight is called a *sight draft.* Sight drafts are often attached to the bill of lading and they must be paid before the goods are delivered.

A draft payable a certain time after date or after sight is called a time draft.

A draft must be accepted by the drawee before it is binding upon him. In a time draft, "after sight," means after the date of acceptance.

$626.00 Dayton, O. 4/20 1926

Thirty days after sight Pay to

the order of A. C. Carney

Six Hundred twenty six Dollars

Value received and charge the same to account of

To O. M. Preston
#1230 Wagner Ave.
No 66 Philadelphia, Pa.

Martin G. Shively

A *trade acceptance* is a time draft drawn by the seller of goods on the buyer for the amount of the purchase price of the goods which has been accepted by the buyer. It is as binding as a note after his acceptance is written on it. If an oral acceptance can be established, it is as binding as a written acceptance.

A *bank draft* is a draft drawn by one bank on another payable to a third party.

A *promissory note* is the written promise to pay a certain sum of money to a person named in the note, to order or to bearer, on a certain date.

The person who signs the note is called the *maker;* the person to whom the note is to be paid is called the *payee.*

A promissory note is without interest unless the rate of interest is stated in the note.

TRADE ACCEPTANCE

No. 1472 March 21 1926 $ 876 00

Thirty days after date pay to the order of

Smith Brown & Co. Eight Hundred Seventy six ——— Dollars

in settlement of the purchase of goods as billed in our invoice No. 2744 dated Mar 21 1926

To Bank & Trust Co

New York

Due Apr 20 1926

Accepted 1926

Date March 28

Payable at Bank

Drawn

Location of Bank

Drawer

Invoice

Signature

By John Doe Co

JOHN J. WARD, MFG. PRINTERS & STATIONERS, 316 JACKSON AVE., L. I. CITY

An ordinary note signed by one or two persons is called a *several note.* A note reading "we or either of us" is called a *joint and several note.*

An indorsement is anything written on the back of negotiable paper. An indorsement may add to the security of the paper; it may serve to transfer the paper to another; or it may record the payments made, thereby reducing the face value of the paper.

$ 450 00 Wellsburg, W. Va., March 21st 1926

Four months AFTER DATE WE OR EITHER OF US PROMISE TO

PAY TO THE ORDER OF WELLSBURG BANKING & TRUST COMPANY

Four hundred & fifty DOLLARS

with interest at 6%

The drawers and endorsers severally waive presentment for payment protest, and notice of non-payment of this note, and allow renewals on this note from time to time by prepayment of interest by any party hereto.

John Doe

Richard Roe

BANK DISCOUNT.

Bank discount is the amount charged by a bank for cashing a note or draft before maturity. The amount of the discount is determined by reckoning the simple interest on the amount of the note from the day it is discounted to the date of maturity. This period is called the *term of discount.* The rate of interest charged is called the rate of discount. Exact interest is used in computing discount.

Problems in bank discount involve the principles of simple interest.

The principal is the value of the note at maturity.

The rate of discount is the rate.

The discount is the interest.

The period of discount is the time.

EXAMPLE. A time draft, 90 days after sight, for $1240 was accepted Feb. 24, 1925 and discounted by a bank on March 13, 1925. What were the proceeds from the note, if the rate of discount was 8%?

From the table for days between dates, 90 days after Feb. 24 would make the draft due May 25. The number of days between March 13 and May 25 is 145 − 72 = 73, the period of discount.

$$\frac{\cancel{\$1240} \times .08 \times \cancel{73}}{\cancel{365}} = \$19.84 \text{ Bank discount.}$$

$$\$1240 - \$19.84 = \$1220.16 \text{ Proceeds.}$$

EXAMPLE. A note for $3500, bearing 6% interest, dated Oct. 1, 1924, and payable in 4 months was discounted at 7%, Dec. 29, 1924. What was the proceeds and the bank discount?

4 mo. = 1/3 year.

$3500 × .06 × 1/3 = $70.00 Int. on note.

$3500 + $70 = $3570 Principal at maturity.

From Dec. 29 to Feb. 1 = 397 − 363 = 34 days.

$$\frac{\$3570 \times .07 \times 34}{365} = \$23.28 \text{ Bank discount.}$$

$3570 − $23.28 = $3546.72 Proceeds.

EXAMPLE. A firm needs $4286 to meet its payroll April first. What must be the face value of a note that will realize this amount if the note is payable in 60 days and the discount rate is 6%?

There is a discount of $.01 on each $1 of the face of the note. Hence the proceeds of each $1 is $.99.

$$\frac{\$4286}{.99} = \$4329 \text{ Face of note.}$$

Discount for 60 da. = 1% of face

= $43.29.

TAXES.

The expenses of the various branches of the government are met by funds collected from the people of the country through a system that attempts to distribute this expense equitably. Money collected in this way is called a *tax.*

Taxes are of two kinds; *direct* and *indirect.*

A *direct tax* is a tax levied directly upon a person or his property, or his business. This tax is to be paid by him from his own income. Examples of taxes of this kind are poll taxes, property taxes, income taxes, license fees, etc.

An *indirect tax* is a tax charged upon certain goods when they are imported into the country, or it is a tax on the manufacture or sale of certain commodities. In a tax of this kind, while the money is collected from some firm or individual, the actual burden of the tax is passed on in the price of the goods to be paid by the consumer. During the World War, many forms of indirect taxation were used to help raise the money needed for the unusual expenses of the Federal government. Examples of taxes of this kind are duties collected by the Bureau of U. S. Customs, sales taxes, excise taxes, etc.

Federal taxes are collected by the Federal government through the customs offices or through the department of internal revenue.

Some state taxes are collected by the state itself. The state personal and property taxes are collected for the state by the counties along with their own taxes.

Counties and incorporated towns and cities levy and collect their own taxes.

For purposes of taxation, property is of two kinds; real and personal.

Real property or *real estate* is immovable property, as houses and lands.

Personal property is movable property, as household furnishings, automobiles, machinery, stocks, bonds, mortgages, notes, cash, etc.

The *rate of taxation* is determined by the ratio between the needs of the government and the total value of the property subject to the tax.

In order to determine the total value of the property, *assessors* are elected or appointed who determine the taxable value of each person's property. The value placed upon property by the assessors is the *assessed valuation* of the property.

The total tax is levied upon the total assessed valuation of the property subject to the tax. Each person owning property is charged his proportionate share of the total tax.

The person who collects the tax is called a *collector.*

Problems in taxation are solved by the principles used in percentage.

The assessed valuation is the base.

The tax rate is the rate.

The tax is the percentage.

The tax rate is expressed in mills per dollar, or cents per hundred dollars. The rate per cent is found from the rate in mills by moving the decimal point one place to the left. The rate per cent is found from the rate in cents by moving the decimal point two places to the left. This is the same as thinking of the rate as so many dollars, usually a fraction, per hundred dollars.

1. To find the tax, when the assessed valuation and tax rate are given.

Assessed valuation × *rate* = *tax.*

EXAMPLE. Find the tax on property assessed at $15,000 if the tax rate is $1.845 per $100.

$1.845 per $100 = 1.845% = .01845

$15,000 × .01845 = $276.75 Amount of tax.

2. To find the tax rate, when the total assessed valuation and the estimated expense of the government are given.

Estimated expense ÷ *total valuation* = *tax rate.*

EXAMPLE. The assessed valuation of the property in a school district is $7,460,000. The estimated expense of the schools for the coming year is estimated at $56,700. Find the school levy.

$$\frac{\$56,700}{\$7,460,000} = .0076+ = \$.76 \text{ per } \$100. \text{ Tax rate}$$

In this example, no allowance is made for uncollected taxes. In actually levying the tax, the board might ask for $.77 per $100 or more.

3. To find the assessed valuation, when the tax and rate are given.

Tax ÷ *rate* = *assessed valuation.*

EXAMPLE. The tax levy is $1.82 per $100. Find the assessed valuation of property if the tax on it is $121.94.

$$\frac{\$121.94}{.0182} = \$6,700 \text{ Assessed valuation.}$$

STOCKS AND BONDS.

A *corporation* is a group of individuals authorized by a charter from the state to transact business as an individual. Its rights and powers are set forth in its charter and it can transact only such business as is allowed by its charter.

The money used in carrying on a business is called *capital.* The capital of a corporation is generally called *stock* or *capital stock.*

The *capital stock* of a corporation is divided into *shares.* These shares may have a definite par value, usually $100 per share. Par value of shares varies from 10 cents to $500. Some stocks have no par value.

The *market value* of stock is the value for which it can be sold. This varies above and below par, in which case the stock is said to be selling at a premium or at a discount.

Any person who holds one or more shares of stock is a *stockholder* in the corporation. A certificate of stock is issued to all stockholders.

The profits of the business are distributed to the stockholders of the corporation. These profits when they are distributed are called *dividends.* A dividend is usually declared as a certain per cent of the par value of the stock.

Capital stock is of two kinds, common and preferred. *Preferred stock* is stock on which a certain dividend must be paid before any dividend can be declared on the common stock. Common stock has no specified dividend.

The control of the corporation is in the hands of the stockholders who elect a group of men, called the directors to represent them in carrying on the business.

An *assessment* is sometimes levied against the stockholders to pay losses. special expenses, etc.

A *bond* is a written obligation, promising to pay, for value received, a certain sum of money,

called the face value, at a certain time, with interest at a stated rate to be paid at regular intervals during the life of the bond.

Bonds are issued by the government, by corporations, firms or individuals. They are secured by a first mortgage upon the property of the person issuing them. Federal bonds are guaranteed by all the resources of the federal government. Because of this security, the interest rate is lower than on some other bonds.

Many things enter into a determination of the value of bonds. Among the more important elements are the reputation of the government, municipality, or corporation issuing them, the rate of interest they bear, the date of maturity, the purpose for which they were issued, freedom from taxation and the type of security back of them.

Coupon bonds have interest coupons attached which are to be clipped and presented for payment in order on or after the date printed on them. Coupon bonds and coupons are payable to bearer.

Registered bonds are so called because the name of the owner is registered with an agent of the parties issuing the bonds. Interest on registered bonds is sent direct to the owner of the bonds on the interest dates. Such bonds are payable only to the owner or to some one legally appointed to act for him.

Stocks and bonds are bought and sold through agents called *brokers.* The fee or compensation paid him for his services is called *brokerage.*

When a broker buys stocks or bonds, the brokerage is added to the net cost to determine the actual cost to the customer. When a broker sells stocks or bonds, the brokerage is deducted from the actual selling price to determine the net proceeds of the sale to the customer. The amount of the brokerage is sometimes calculated as a certain per cent of the par value of the stocks or bonds. At other times, a fixed charge is made for bonds of different denominations and for shares of different par values. The problems of brokerage are similar to the problems of commission.

1. To find the cost of a purchase or the proceeds of a sale.

EXAMPLE. For stock selling below $10 per share the brokerage is $.075. Find the cost of buying 750 shares of stock quoted at $7-3/8.

$$\$7\frac{3}{8} = \$7.375$$

$7.375 + $.075 = $7.45 Actual cost per share.
$7.45 × 750 = $5587.50 Total cost.

2. To find the number of shares.

EXAMPLE. How many shares quoted at $108.50 must be sold to realize $33,700, if the brokerage charge is .15 per share? How much money will be left over?

$108.50 − $.15 = $108.35 Proceeds per share.
$33,700 ÷ $108.35 = 311 shares + $3.15 still needed
= 312 shares + $105.20 money left over.

3. To find the amount of dividend, when the rate and number of shares are given.

EXAMPLE. Find the dividend due on 75 shares, par value $100 per share, when the company declares a 7% dividend.

75 × $100 × .07 = $525.00 dividend.

4. To find the actual income on an investment.

EXAMPLE. Find the annual income on $24,000 invested in 5% bonds purchased at $83-1/3, par value $100. This is equivalent to what rate of interest on the cash invested?

$$\$24{,}000 \div \$83\frac{1}{3} = 288 \text{ No. of } \$100 \text{ bonds.}$$

$28,800 × .05 = $1440 Annual income.
$1440 ÷ $24,000 = .06 = 6% on the investment.

PRACTICAL MEASUREMENTS.

Most persons are called upon at one time or another to find by measurement or otherwise, the length of lines, the area of surfaces and the volume of solids.

In this section, the general rules and formulas needed in the solution of problems of this kind are stated and their use explained. Following the general statement of the rules, many of the more common applications are explained as they occur in the home, in construction work, in business, and elsewhere.

Most readers are already familar with the terms used in measurements as well as many of the elementary rules. Simple problems of this kind are introduced into the course of arithmetic in the early grades. In the work which follows, informal definitions are given of all terms likely to cause difficulty.

The rules and formulas stated here are proved in the higher branches of mathematics, as geometry, algebra, trigonometry and calculus. All that is necessary, for one to be able to use them readily, is a satisfactory knowledge of the fundamental operations of arithmetic.

Wherever possible, two methods of solution should be used.

1. Graphical solution. Draw a figure to scale showing the relations between the given dimensions. Construct and measure to the same scale the required dimensions.

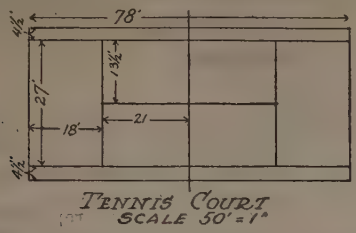
This method is much used by engineers and others in many practical problems; as in finding the load part of a bridge will carry.

2. Mathematical or analytical solution. Study the figure explained in (1) or draw a sketch showing the relation between the several dimensions. Determine the rule or formula that will express the unknown dimensions in terms of known magnitudes. Substitute in this formula, being careful to use numbers of like denomination.

DRAWING TO SCALE.

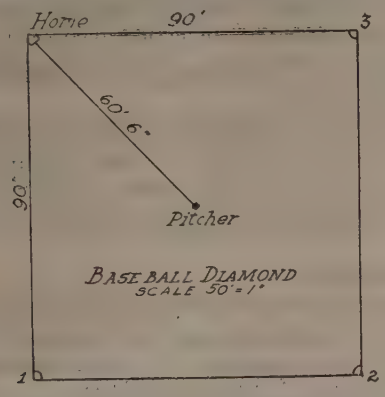
It is often impracticable to draw a picture of an object as large as the object itself. They are drawn, however, in such a way that each dimension of one figure will have a constant ratio to the corresponding dimension of the original object. To do this, a certain unit of length, such as one inch, in the drawing is made to correspond to some definite distance, such as 1 foot, 50 feet, 200 feet, 1 mile, or any convenient amount, in the original object. The ratio between these two distances is the *scale* of the drawing.

In the accompanying figure, the scale is 1" to 50', or 1 : 600". The figure represents a tennis court. The actual dimensions are marked on the sides.



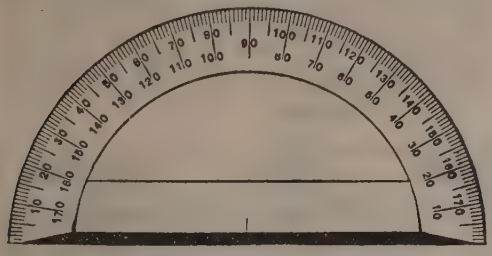
TENNIS COURT
SCALE 50' = 1"

Using the same scale, the drawing of a baseball field is a square. Each side is 1⅜ inches long. The pitchers box is located on a line between the home plate and second base. The actual distance from the pitchers box to home plate is 60' 6", represented on the drawing by a line 1⅛ inches long.



BASE BALL DIAMOND
SCALE 50' = 1"

The angles of a figure drawn to any scale must be equal to the corresponding angles of the original figure. In order to draw figures with the proper angles, an instrument called a *protractor* is used.



In measuring angles, the unit used is the *degree*.

The *degree* is defined to be 1/360th of the total of the angles at a point, or 1/90th of a right angle.

The protractor is a semi-circle which is divided into degrees from 0° to 180°. By placing the center of the circle at the vertex of the angle to be constructed or measured with the zero point of the circle falling over some point on one side of the angle, the location of a point on the other side may be determined or the value of the angle read directly from the protractor.

To construct an angle of 60°, draw a line from a point 0. Place the center of the protractor at 0, letting the zero of the protractor fall on the line. Mark the point where 60° on the protractor falls on the drawing. The line through 0 and this point is the other side of the angle.

GRAPHS.

A *graph* is a picture or diagram that illustrates relationship between the elements represented on the graph. It is in many cases a drawing to scale of the elements being studied.

Graphs are being used more and more to show the significance of statistical information. Formerly the graph was used mainly in the study of higher mathematics and economics. Now it is used in all the sciences. In addition to these technical uses, an examination of the daily and monthly publications in any locality will furnish one with examples of the many ways in which graphs are now being used.

To mention only a few of the more common uses to which graphs are being put at the present time, one lists the following, temperature, interest, receipts and disbursements, height and weight, distribution of expenditures, industrial statistics, etc.

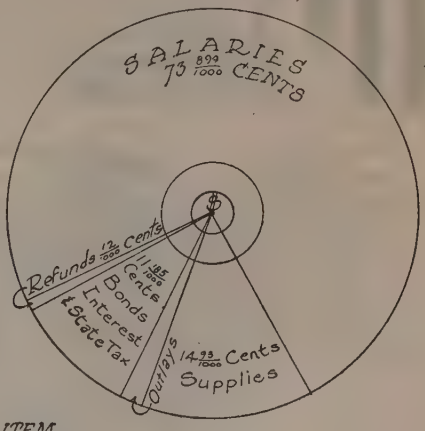
The graph is also used as a means of rapid calculation. Price-scales are really a form of this kind of graph.

The graph is usually presented in one of the three following forms.

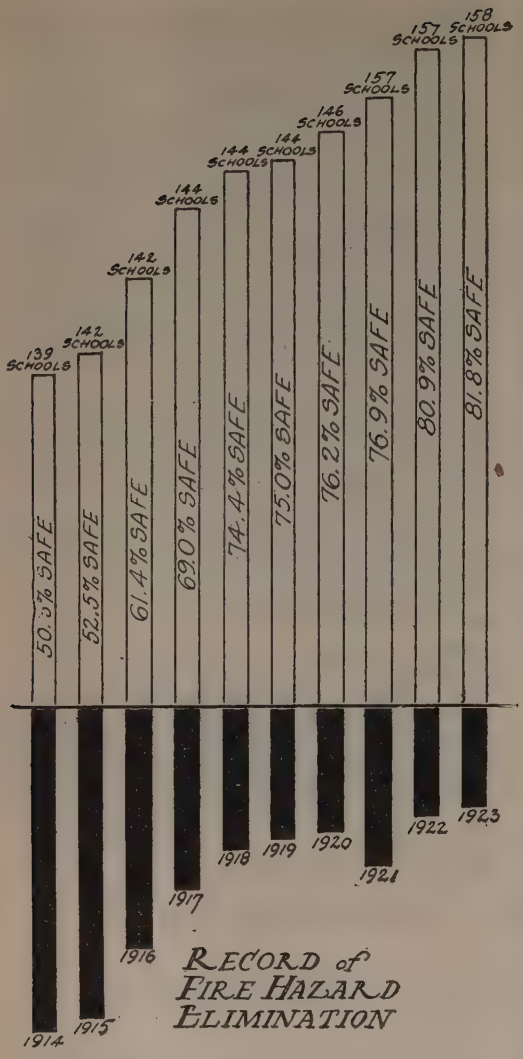
The area graph.

In graphs of this kind, the circle is usually used. This is divided into parts by lines drawn from the center to the circumference. The areas of these divisions are in the same proportion as are the quantities which they represent. This is accomplished by measuring the angles at the center of the circle and making each angle bear the same relation to 360° that the quantity represented by its division bears to the entire amount under consideration.

Distribution of payment of each dollar from JANUARY 1, 1923 to DEC. 31, 1923



ITEM NUMBER			
1a	Teachers' salaries	6198984.09	
1c	Other salaries	1353427.20	7,552,411.29
2	Supplies		1,440,263.03
3	Outlays		82,893.29
4	Bonds, Interest & State Tax		1,143122.91
6	Refunds		1176.18
	TOTAL PAYMENTS		10219866.70



This graph shows the way in which each dollar received by the Board of Public Education of Pittsburgh was spent. The area of each part of the circle is to the area of the circle as the amount of money spent for the items indicated is to the whole amount.

The bar graph.

In graphs of this kind, lines of different lengths are placed side by side, vertically or horizontally, showing at a glance the relative value of the statistics they represent.

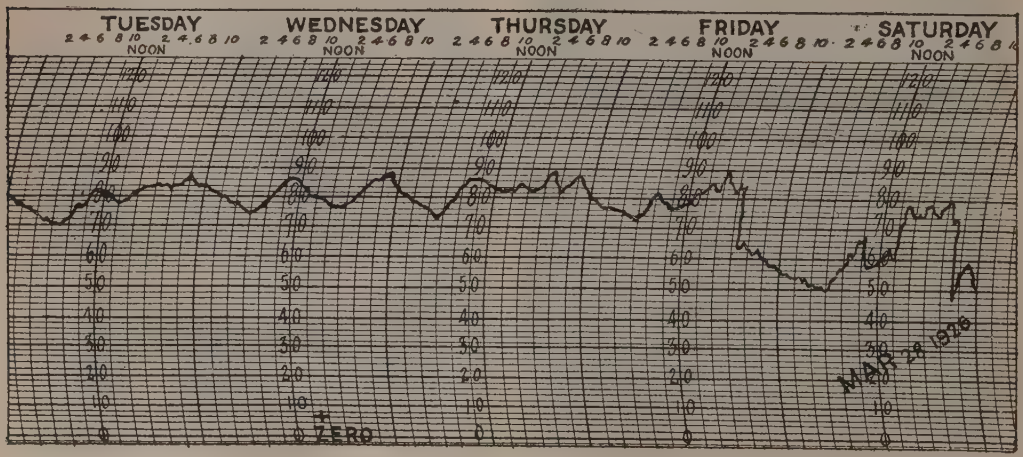
The black part of the bars represents the percentage of schools that did not have adequate means of taking care of the children in case of fire. This is the story of the progress that has been made by one city over a period of several years. Their program calls for the elimination of the unsafe school buildings by 1926. The effect of the World War and the high prices of 1921 are shown by an actual increase of unsatisfactory buildings. The original program called for the modernizing of the buildings by the end of 1920.

Very often, in practice, the bars are replaced by men of different heights to represent population at different times, by ships of different lengths to indicate the volume of shipping, by cigars of different lengths to indicate comparative consumption in certain years, and so on.

Rate graphs.

Graphs of this kind show, by means of straight lines or curves the way in which one quantity varies with respect to another. From the point of view of mathematics, it is much more valuable that any of the other methods.

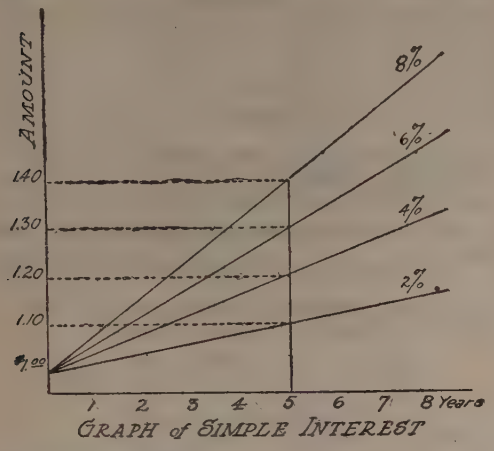
The direction of the lines or curves tells at once whether one quantity is increasing or decreasing as the other quantity increases. Curves of this kind may be drawn mechanically. An example of this kind of graph is seen in connection with the recording thermometer. It tells us at a glance when the temperature was increasing, when it was decreasing, what the temperature was at any time, when it was coldest, and when it was warmest during the interval covered by the graph.



Of especial interest here is the *straight line graph*. It is used when one quantity changes *uniformly* with respect to another.

THE GRAPH OF SIMPLE INTEREST.

The accompanying graph shows the value of $1 at various rates of simple interest over a period of 8 years. It will be noticed that the greater the rate of interest, the steeper the graph.

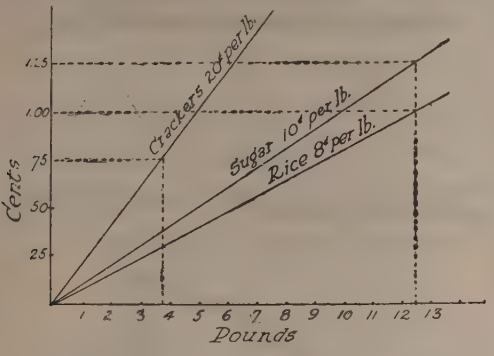


GRAPH of SIMPLE INTEREST

THE PRICE GRAPH.

Graphs of this kind are used to show the price of any number of units, when the price per unit is given. They are also valuable as showing how many units can be purchased for any given amount of money.

The following graph is drawn for rice @ 8c per lb., sugar @ 10c per lb., and crackers @ 20c per lb.



From the graph, the answers to the following questions can be read at once.

How many pounds of rice can be bought for $1? Ans. 12½ lbs.

How many pounds of sugar can be bought for $1.25? Ans. 12½ lbs.

How many pounds of crackers can be bought for $.75? Ans. 3¾ lbs.

In these problems, the amount is found on the vertical line at the left. Follow out along a horizontal line till the line representing the commodity is reached. From this point, follow a vertical line down to the horizontal line where the number of pounds is read immediately. In the following problems, this process is just reversed.

How much will 5½ lbs. of sugar cost? Ans. $.55.

How much will 7¼ lbs of rice cost? Ans. $.58.

How much will 5 lbs. of crackers cost? Ans. $1.

A modification of this kind of graph is used on all those scales which tell at a glance the price of any number of pounds at any price per pound.

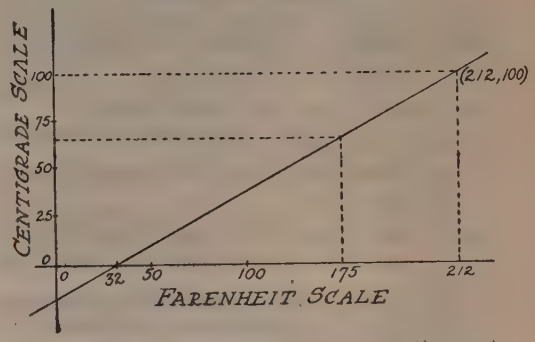
THE TEMPERATURE SCALE.

Temperature is measured by the *Fahrenheit system* in which freezing is 32° and boiling is 212°, and also by the *Centigrade system* in which freezing is 0° and boiling is 100°.

The relation between them is expressed by the formula,

$$C = \frac{5}{9}(F - 32°) \text{ or } F = \frac{9}{5}C + 32°.$$

The conversion of temperature Fahrenheit into temperature Centigrade and vice versa can be performed rapidly by the following graph.



Temperature Fahrenheit is measured on the horizontal line. Below zero is represented to the left of the point 0.

Temperature Centigrade is measured on the vertical line. Below zero is represented below the point 0.

The graph is drawn through the two known common points in the two systems, i.e., freezing and boiling.

To express 77° Fahrenheit in degrees Centigrade. Go up vertically from 77° F to the graph, then to the left horizontally to the Centigrade scale where the number of degrees Centigarde is read, namely 25°.

By reversing the process, it is seen that 40° C is equal to 104° F.

In all straight line graphs, increased accuracy may be secured by increasing the size of the scales.

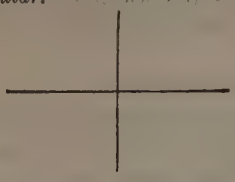
MENSURATION.

LINES AND ANGLES.

A line has only one dimension; *length*.

An *angle* is formed when two lines meet. If the lines are allowed to extend on both sides of their point of intersection, they form four angles at the point.

When two lines meet so that the four angles formed at their intersection are equal, the angles are called *right angles* and the lines are said to be *perpendicular.*



Two lines which will not meet even if they are extended indefinitely are equally distant everywhere and are said to be *parallel.*

PLANE FIGURES.

A plane figure bounded by straight lines is called a *polygon.* Polygons are named according to the number of their sides.

A *quadrilateral* is a plane figure bounded by four straight lines. It has four angles.

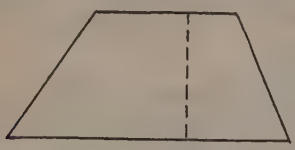
The side on which a figure may be thought of as resting is called the *base.*

The intersection of any two adjacent sides is called a *vertex.*

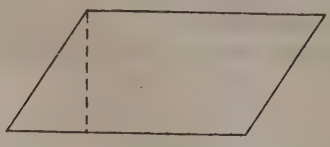
The *altitude* of a figure is the distance from the highest vertex to the base measured along the perpendicular drawn from this vertex to the base.

When certain relations exist between the sides and angles of a quadrilateral, the figure is given special names.

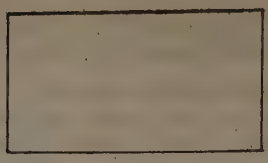
A *trapezoid* is a quadrilateral two of whose sides are parallel. The parallel sides are called *the bases.* The non-parallel sides are called *legs.* The altitude of a trapezoid is the perpendicular distance between the bases.



A *parallelogram* is a quadrilateral whose opposite sides are parallel. The opposite sides are also equal. Either pair of parallel lines may be taken as the *bases.* The other two are called *sides.* The altitude of a parallelogram is the perpendicular distance between the bases.



A *rectangle* is a parallelogram all of whose angles are right angles. The altitude of a rectangle is equal to the sides.



A *square* is a rectangle all of whose sides are equal.

A *diagonal* is a line joining two opposite vertices of a figure.

The following facts are stated for reference.

The diagonals of a parallelogram bisect each other.

The diagonals of a rectangle are equal.

A figure bounded by three straight lines is called a *triangle.* It has three angles.

A triangle is named from the nature of its angles:

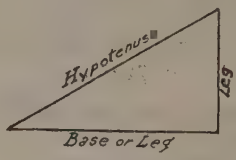
Acute, if all its angles are acute angles,
Obtuse, if one of its angles is an obtuse angle,
Right, if one of its angles is a right angle,
Equiangular, if all its angles are equal.

A triangle is named from the nature of its sides:

Scalene, if the sides are unequal,
Isosceles, if two of its sides are equal,
Equilateral, if all of its sides are equal.

The *hypotenuse* of a right triangle is the side opposite the right angle.

The other two sides are called *legs.*



In a triangle, any side may be taken as the base, and the vertex opposite the base is the vertex of the triangle.

The *altitude of a triangle* is the length of the perpendicular from the vertex to the base. If necessary, the base is extended so that the perpendicular from the vertex will meet it.

The following statements are given for reference.

The sum of the angles of any triangle is two right angles or 180°.

The angles opposite the equal sides in an isosceles triangle are equal.

Equilateral triangles are also equiangular. Each angle is equal to 60°.

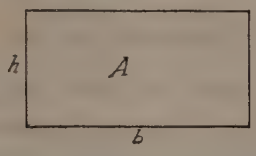
AREA.

The *area of a surface* is the ratio that the total surface bears to some surface taken as the unit of surface measure. (See Denominate Numbers and Dictionary of Weights and Measures.)

Many of the areas met with in common experience are made up of combinations of the plane forms just defined.

The rules for finding the areas of these figures will now be stated, following which many practical problems will be solved to indicate how these rules and formulas are used.

The area of a rectangle is equal to the product of its base and altitude.



The truth of this statement can be readily seen by dividing the rectangle into unit squares and counting the squares.

Let A = area, b = base, h = height or altitude.
Then $A = b \times h$.
Also, $h = A \div b$.
And $b = A \div h$.

EXAMPLE. The two adjacent sides of a rectangle are 4.8 inches and 7.5 inches. Find the area.

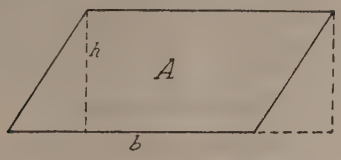
Multiplying by aliquot parts, $7.5 = \frac{3}{4}$ of 10.

$A = 4.8 \times 7.5 = \frac{3}{4}$ of $10 \times 4.8 = 36$ sq. in.

EXAMPLE. The area of a rectangle is 624 sq. ft. and the base is 26 ft. Find the altitude.

$$h = \frac{624}{26} = 24 \text{ ft.}$$

The area of a parallelogram is equal to the product of its base and altitude.



The truth of this statement can be seen by noticing that the triangle at the left may be moved to the right hand end of the parallelogram thus forming a rectangle having the same base and altitude.

Using the same notation as before.

$A = b \times h$.
$h = A \div b$.
$b = A \div h$.

EXAMPLE. Find the area of a field in the form of a parallelogram, the base equal to 17.4 rods and the altitude equal to 4.5 rods.

Sketch such a field. Notice that the area of the field does not depend upon the length of the sides of the figure.

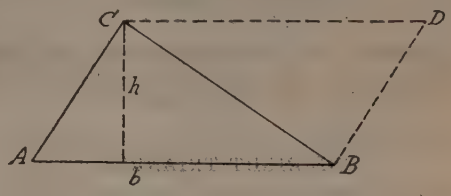
Area = 17.4 rd. × 4.5 rd.
= 78.3 sq. rd.

EXAMPLE. The area of a parallelogram is one-half acre. The base is 330 feet. Find the altitude.

Reducing to units of the same denomination, 1 Acre = 43,560 sq. ft.

$$h = \frac{21780}{330} = 66 \text{ ft.}$$

The area of a triangle is equal to one half the product of its base and altitude.



In the figure, the triangle, ABC, is obviously the same size as the triangle BDC. The two triangles together form a parallelogram. Hence, the area of any triangle is half the area of a parallelogram having the same base and altitude.

$$A = \frac{1}{2} \times b \times h.$$

$$b = \frac{2 \times A}{h}.$$

$$h = \frac{2 \times A}{b}.$$

EXAMPLE. Find the area of a triangle whose base is 4 feet 3 inches and altitude is 2 feet 8 inches.

4 ft. 3 in. $= 4\frac{1}{4}$ ft.

2 ft. 8 in. $= 2\frac{2}{3}$ ft.

$$A = \frac{1}{2} \times \frac{17}{4} \times \frac{8}{3} = 5\frac{2}{3} \text{ sq. ft.}$$

$= 5$ sq. ft., 96 sq. in.

EXAMPLE. Find the base of a triangle if its area is 426.8 square meters and its altitude is 12.8 meters.

$$b = \frac{2 \times 426.8}{12.8} = 66.687 \text{ meters.}$$

Area of a triangle in terms of its sides.

Let the sides of a triangle equal a, b, and c,

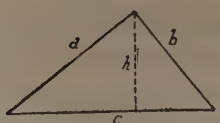
$s = \frac{1}{2}(a + b + c)$, h = altitude, A = area.

$$h = 2\frac{\sqrt{s\,(s-a)\,(s-b)\,(s-c)}}{b}$$

$$A\sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

$$h = 2\,A \div b$$

Fig. on page 424



EXAMPLE. Find the altitude and area of a triangle if a = 120′; b = 296′. and c = 186′.

$$s = \frac{1}{2}(120 + 296 + 186) = 301.$$

$$A = \sqrt{301 \times 181 \times 5 \times 115}$$

$$= 5597 \text{ sq. ft. nearly.}$$

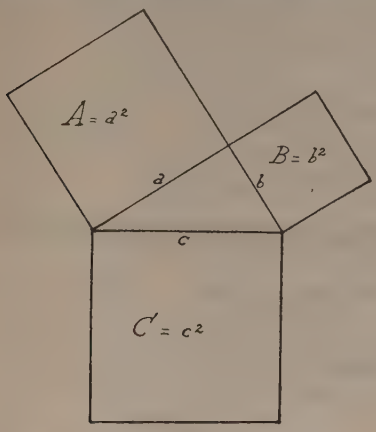
$$h = \frac{2 \times 5597}{296} = 37.8 \text{ nearly.}$$

Computations of this kind involve very large numbers. The work is greatly simplified by the use of special tables called *logarithms*.

THE RIGHT TRIANGLE.

One of the most famous theorems of mathematics is known as the Pythagorean theorem.

The area of the square on the hypotenuse of a right angle is equal to the sum of the areas of the squares on the two legs.



If a represents the hypotenuse, and b and c the legs of a right triangle.

$$a^2 = b^2 + c^2$$
$$a = \sqrt{b^2 + c^2}$$
$$b = \sqrt{a^2 - c^2}$$
$$c = \sqrt{a^2 - b^2}$$

Actual measurement of the areas of the squares will convince one of the truth of the theorem.

By the above theorem, the length of the diagonals of rectangles and the altitude of isosceles triangles can be found.

In a rectangle or square, if d = the diagonal.

$$d = \sqrt{b^2 + h^2}$$
$$h = \sqrt{d^2 - b^2}$$
$$b = \sqrt{d^2 - h^2}$$

EXAMPLE. Find the hypotenuse and area of a right triangle whose legs are 2′ 4″ and 1′ 7″ respectively.

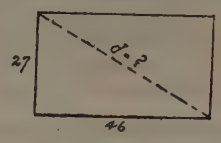
b = 2′ 4″ = 28″, c = 1′ 7″ = 19″.

$a = \sqrt{28^2 + 19^2} = 33.84''$ nearly.

$A = \frac{1}{2} \times 28 \times 19 = 266$ sq. in.

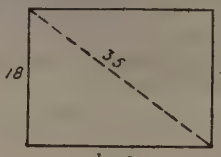
$= \frac{266}{144} = 1$ sq. ft., 122 sq. in.

EXAMPLE. A rectangular field has its two adjacent sides equal to 46 rd. and 27 rd. respectively. Find the length of the diagonal.



$d = \sqrt{46^2 + 27^2} = \sqrt{2845} = 53.34$ rd. nearly.

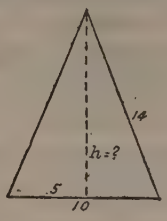
EXAMPLE. One side of a room is 18′ and the diagonal is 35′ Find the length of the other side.



$b = \sqrt{35^2 - 18^2} = \sqrt{901} = 30' +.$

EXAMPLE. Find the altitude of an isosceles triangle whose sides are equal to 14″ and whose base is 10″.

Note. This problem can be worked by the three side method but its solution is much simplified by the fact that the altitude of an isosceles triangle bisects the base and is perpendicular to it.

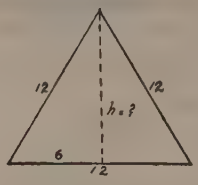


The problem is to solve the right triangle with hypotenuse equal to 14 and one leg equal to 5.

$$h = \sqrt{14^2 - 5^2} = \sqrt{171} = 13.07'.$$

EXAMPLE. Find the altitude and area of an equilateral triangle whose sides are equal to 12 inches.

NOTE.—An equilateral triangle is also isosceles.



$h = \sqrt{12^2 - 6^2} = \sqrt{108} = 10.39''$ nearly.

$A = \frac{1}{2} \times 12 \times 10.39 = 62.34$ sq. in. nearly.

APPLIED PROBLEMS.

Painting.

In figuring the price of painting, it is customary to calculate the number of square yards of surface to be painted. This is multiplied by the price per yard. In calculating the area of the surface no allowance is made for openings.

EXAMPLE. Find the cost of painting a wall 30′ long by 9′ high at 24c. per square yard.

$$\frac{30 \times 9}{9} = 30 \text{ sq. yd. of surface.}$$

$.24 \times 30 = \$7.20$ cost of painting.

Lathing and Plastering.

In lathing and plastering the unit of measure is the square yard. Allowance is made in the contract for openings. It is not often that the full opening is allowed. The lathing and plastering may be contracted for separately or as a single job.

EXAMPLE. Find the cost of lathing and plastering a room 16′ long by 12′ wide by 9″ high at 75c., per square yard, allowing 10 sq. ft. for each of three windows and 12 sq. ft. for each of two doors.

Area of walls $= 2 \times 16 \times 9 + 2 \times 12 \times 9 = 504$ sq. ft.

Area of ceiling $= 16 \times 12 = 192$ sq. ft.

Total allowed for openings $= 3 \times 10 + 2 \times 12 = 54$ sq. ft.

Net area $= 504 + 192 - 54 = 642$ sq. ft.

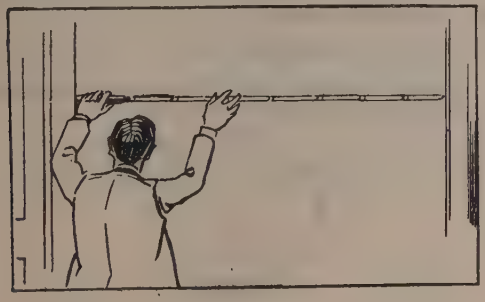
$$= 71\frac{1}{3} \text{ sq. yd.}$$

$71\frac{1}{3} \times .75 = \$53.50$ cost.

Papering.

Paper is bought by the single or double roll. A single roll is 18 inches wide and 8 yards long. In estimating the number of single rolls, the total width of all openings is deducted from the perimeter of the room. (It is estimated that the ends of the rolls, etc., will be sufficient to paper above and below all openings.) Divide this net perimeter by 18″ to find the number of strips required. Divide this quotient by the number of strips that can be cut from a double roll, being sure to make allowance for matching patterns. Many stores sell paper only by the double roll. Border strips are sold by the linear yard.

The price of papering may include the cost of the paper and the expense of hanging it, or these items may be cared for separately.



EXAMPLE. How much paper is needed to paper the walls of a room 20′ × 18′ × 10′ 6″, allowing for 2 windows 4′ wide, 1 door 3′ 6″ wide, and 6″ on each strip for matching patterns.

$2\ (20 + 18) = 76'$	Total perimeter.
$2 \times 4' + 3'\ 6'' = 11'\ 6''$	Allowance for openings.
$76 - 11'\ 6'' = 64'\ 6''$	Net perimeter
$64\text{-}1/2 \div 1\text{-}1/2$ ft. $= 43$	Strips required.
$10'\ 6'' + 6'' = 11'$	Length of each strip.
$48 \div 11 = 4$	Number of strips from double roll.
$43 \div 4 = 10\text{-}3/4 = 11$	Double rolls required.

Carpeting.

Carpet is sold by the linear yard. One cannot buy a fractional width of carpet. Most carpets are ¾ of a yard wide, except ingrain which is 1 yard wide. Carpet is usually laid lengthwise of a room. Allowance must be made for matching patterns. First find the number of strips required and multiply this by the length of each strip.

EXAMPLE. How much brussels carpet is required to cover a floor 16 ft. long and 14 ft. wide? Allow 1 ft. for matching pattern.

¾ yd. $= 2\frac{1}{4}$ ft. Width of carpet.

$14' \div 2\frac{1}{4}' = 6\frac{2}{9}$ or 7 Number of strips.

$16'$ = Length of first strip since it matches nothing.

$16' + 1' = 17'$ Length of each of the other 6 strips.

$6 \times 17' = 102'$ of carpet in 6 strips.

$102' + 16' = 118'$ or $39\frac{1}{3}$ yds, of carpet needed.

Flooring.

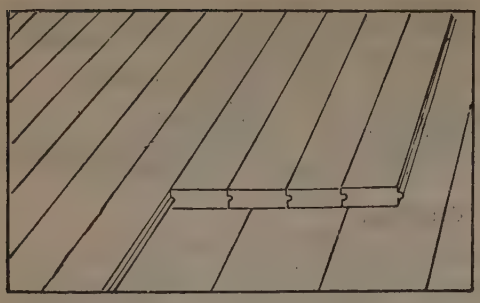
Flooring is usually bought by the *square foot* or by the *thousand board feet.* Flooring is finished with a tongue and groove. Lumber dealers always figure the lumber before it is "matched." Hence 1,000 square feet of flooring will not cover 1,000 square feet of floor. An allowance must be made to take care of the waste due to matching. This allowance is different for different widths of flooring. It is customary to allow 1/5 for waste, etc. Hence, to cover a floor, 1/5 more than the area of the floor or 6/5 of the area of the floor will give the amount of lumber needed.

EXAMPLE. A floor is 18′ 6″ by 14 6″. How much lumber is needed to floor it?

$$\frac{6}{5} \times 18\frac{1}{2} \times 14\frac{1}{2} = \frac{\overset{3}{\cancel{6}} \times 37 \times 29}{5 \times 2 \times 2}$$

$= 321.9$ square or board feet.

In practice the lumber dealer will furnish the nearest number of square feet above this amount that will come out in even boards. In the above problem, if the flooring is in 16′ pieces, 4″ wide, the amount would be 324 square feet.



Roofing.

Roofing is usually bought and laid by the *square* of *100 square feet.* The actual amount of tile, slate, shingles, etc., vary with the size used and the nature of the roof. Contractors and builders have tables which show how many tile, etc. of a certain size are needed to cover a square. It takes about 900 standard shingles to roof a square. If the roof is quite steep, more of the shingle may be exposed to the weather and less shingles will be needed.

EXAMPLE. Each slope of a roof is 40′ by 20′. How many slate, 10″ by 16″, 4″ exposed to the weather, should be ordered to roof it?

$$\frac{2 \times 40 \times 20}{100} = 16 \quad \text{No. of squares in the roof.}$$

$$4'' \times 10'' = 40 \quad \text{sq. in.}$$

$$= \frac{40}{144} \quad \text{sq. ft. surface covered by each slate.}$$

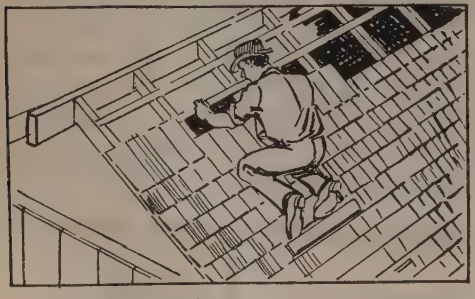
$$100 \div \frac{40}{144} = 360 \quad \text{No. of slate per square.}$$

$$16 \times 360 = 5760 \quad \text{Number of slate required.}$$

Shingles are either 12, 14, or 16 inches long. They are of varying widths, but the average width of a shingle is taken as 4 inches.

Each bunch of shingles is regarded as containing 250 shingles, each 4 inches wide, because a bunch of shingles consists of 25 double layers (or 50 single layers) each 20 inches (the width of 5 average shingles) wide. For this reason the bunch is regarded as containing 250 shingles, and 4 such bunches make a thousand shingles.

Shingles are usually laid with 4 inches of the butt, or thick part, exposed to the weather, the other parts of the shingles overlapping.



To find the number of shingles in a roof.

(1) Find the whole area of the roof in square inches.

(2) Multiply the width of an average shingle (4 inches) by the number of inches of the shingle to be exposed to the weather.

(3) Divide the whole area of the roof in square inches by the last named product and the result is the number of shingles required.

(4) To find cost, divide number of shingles required by 1,000, multiply quotient by cost per M.

EXAMPLE. How many shingles are needed to cover a roof which measures 20′ by 12′, if the shingles are laid 4″ to the weather?

$$\frac{20 \times 12 \times \overset{3}{\cancel{12}} \times \overset{3}{\cancel{12}}}{\underset{1}{\cancel{4}} \times \underset{1}{\cancel{4}}} = 2160 \text{ shingles.}$$

$$= 9 \text{ bundles.}$$

Miscellaneous applications.

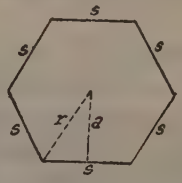
There are many other practical problems in which the cost is figured at a certain price per square unit. Sidewalks, street pavements and similar problems are figured by the square yard. Etchings and engravings are charged for by the square inch. Most land problems are figured by the acre. In all cases, the rules for finding areas of simple figures are used as much as possible.

REGULAR POLYGONS AND CIRCLES.

A *regular polygon* is a polygon all of whose angles and all of whose sides are equal.

The *center* of a regular polygon is a point equally distant from all the vertices of the polygon.

The lines drawn from the center of the polygon to the vertices, are called the *radii* of the polygon. They divide the polygon into as many equal isosceles triangles as the polygon has sides. The altitude of these triangles is called the *apothem* of the polygon.



The *perimeter* of a regular polygon is equal to the sum of the sides. If P = perimeter, s = one side, and n = the number of the sides.

$$P = n \times s.$$

The *area* of a regular polygon is equal to one half the product of a side by the apothem, taken as many times as the polygon has sides. If A = area, s = one side, a = apothem, and n = number of sides,

$$A = \tfrac{1}{2}s \times a \times n.$$

EXAMPLE. Find the area of a regular hexagon (six sided polygon) one side of which is 12 inches.

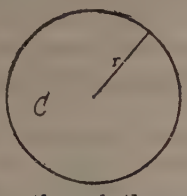
The radii divide the polygon into 6 equilateral triangles, since the angles at the center are all equal to 60°. Hence the radii are also equal to 12,

$$a = \sqrt{12^2 - 6^2} = 10.39'' \text{ nearly.}$$

$$A = \frac{1}{2} \times 12 \times 10.39 \times 6 = 374.04 \text{ sq in. Total area.}$$

By means of tables and relations studied in Trigonometry, the area, radius, and apothem of a regular polygon can be found if the number of sides and the length of one side are known. These tables are called trigonometric tables. They are used a great deal in problems in physics and engineering.

A *circle* is a plane figure bounded by a curved line every point of which is equally distant from a point within called the *center*. The curved line is called the *circumference*.



A straight line through the center of a circle, and having both its ends on the circumference, is called a *diameter*. A line from the center to the circumference is called a *radius*. All radii are equal and equal to half of a diameter.

It is proved in higher mathematics, and it may be shown true by careful measurements, that the ratio between the circumference and diameter is the same for every circle. The value of this ratio has been determined to a great degree of accuracy. For practical purposes it is taken equal to $3\frac{1}{7}$ or 3.1416. It is usually represented by the Greek letter π, pronounced pī.

It follows from the above, that the circumference of any circle is equal to π times the diameter. If C = circumference, d = diameter, and r = radius,

$$C = \pi d = 2\pi r.$$
$$r = C \div 2\pi.$$
$$d = C \div \pi.$$

EXAMPLE. Find the circumference of a circle whose radius is equal to 8.5'.

$$C = 2 \times 3\frac{1}{7} \times 8.5 = 53.428 \text{ feet}$$

or $C = 2 \times 3.1416 \times 8.5 = 53.4072$ feet.

The value 3-1/7 is larger than the real value of π. If accuracy is desired beyond the third significant figure, use the second value for π.

A circle may be thought of as being a regular polygon of a great number of sides. The circumference is the perimeter of the polygon. The radius of the circle is the apothem and also the radius of the polygon. The area of the circle is the same as the area of the polygon. These statements are actually true as the number of the sides of the polygon approaches infinity.

Hence, *the area of a circle* is equal to one half the product of the circumference by the radius. Using the same notation as above,

$$A = \frac{1}{2} \times C \times r = \pi r^2.$$

$$r = \sqrt{A \div \pi}$$

EXAMPLE. Find the area of a circle of radius 4'.

$$A = 3\frac{1}{7} \times 4^2 = 50\frac{2}{7} \text{ sq. ft.}$$

EXAMPLE. Find the area inclosed by a 1 mile circular race track.

1 mi. = 5280 ft., circumference of track.

$$r = \frac{5280}{2 \times 3.1416} = \frac{2640}{3.1416}$$

$$A = \cancel{3.1416} \times \frac{\overset{2}{\cancel{2640}} \times \overset{80}{\cancel{2640}}}{\cancel{3.1416} \times 3.1416} \times \frac{1}{\cancel{\overset{23}{25300}}}$$

$$= \frac{160}{3.1416} = 50.930 \text{ acres.}$$

Note. Much work is avoided by indicating the solution and reduction to acres before multiplying. The cancellation eliminates some long problems in multiplication and division.

Any number which can be expressed as the quotient of two integers is called a *rational number*. All common fractions and all decimals which either end after a certain number of figures or start to repeat themselves are rational numbers.

All other numbers are called *irrational numbers*. It is impossible to find the value of an irrational number exactly. Among the more common irrational numbers are $\sqrt{2}$, $\sqrt{3}$ and π. Proofs that show these numbers irrational, establish the following facts.

A square and its diagonal have no common unit of measure that will be contained exactly in both of them.

It is impossible to construct a square whose area will be exactly equal to a given circle. This is known as the problem of squaring the circle and has engaged the attention of scholars through the centuries.

The ratio between a square and the circle that can be drawn within it touching its sides is 1.273, approximately.

VOLUME.

The *volume* of a solid is the ratio that the total volume bears to some volume taken as the unit of volume or capacity. (See Dictionary of Weights and Measures.)

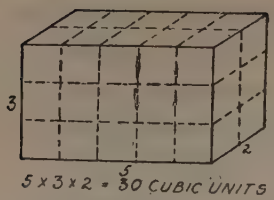
A solid figure in the shape of a box is called a *rectangular solid*. It has six rectangles for faces. The faces on opposite sides of the solid are equal and parallel. The face on which the figure seems to rest is called the *lower base*. The face parallel to it is the *upper base*. The other faces of the solid are called *sides*.

It can be readily seen that the number of cubic units in the solid illustrated equals the product of the *length*, *breadth*, and *depth*. These are called the *dimensions* of a solid.

The volume of a rectangular solid is equal to the product of the length, breadth, and thickness. These dimensions must be measured in terms of the same unit. The volume will be in terms of a cubic unit whose edge is equal to the linear unit used in measuring the dimensions of the solid.

Let a, b, and c, be the three dimensions. V = Volume.

$$V = a \times b \times c.$$
$$a = V \div b \times c.$$
$$b = V \div a \times c.$$
$$c = V \div a \times b.$$



EXAMPLE. How many cubic feet in a box 2' × 4' × 6'?

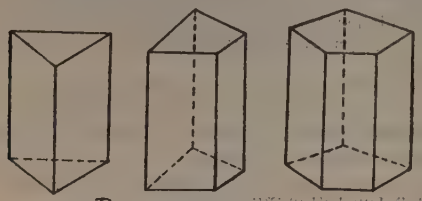
$V = 2 \times 4 \times 6 = 48$ cu. ft.

EXAMPLE. The volume of the largest rectangular box that can be sent by parcel post is 3 cu. ft. 304 cu. in. Find its height if the base is a square 14" on a side.

3 cu. ft. 304 cu. in. = 5488 cu. in. Volume.

$$c = \frac{5488}{14 \times 14} = 28''.$$ Height of box.

A *rectangular prism* is a solid whose bases are equal polygons and whose sides are rectangles.



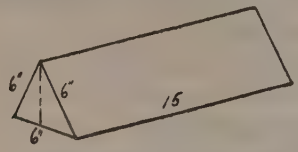
The *altitude* of a prism is the perpendicular distance between the bases. In a rectangular prism, it is equal to one of the edges of the prism.

The volume of a prism is equal to the product of the area of the base by the altitude. The area of the base must be found by the methods outlined in the previous sections.

Let, V = volume, A = area of base, h = altitude.

$$V = A \times h.$$

EXAMPLE. Find the volume of a triangular prism whose base is an equilateral triangle each side of which is 6", and whose altitude is 15".



A = 15.588. See equilateral triangles.
V = 15.588 × 15 = 233.82 cu. in.

A solid whose side is a curved surface and whose bases are equal and parallel curves is called a *cylinder*. The cylinders met with in ordinary work are all right circular cylinders. The *bases* are equal circles and the side curves uniformly and is at right angles with the bases.

The *altitude* is the distance between the bases.

The volume of a cylinder is equal to the product of the area of the base by the altitude.

The lateral area is the area of the side or curved part of the cylinder.

Let V = volume, A = area of base, h = altitude, L = lateral area, r = radius of base, T = total area.

$$V = A \times h = \pi \times r^2 \times h.$$
$$L = 2 \times \pi \times r \times h.$$
$$A = \pi r^2.$$
$$T = 2A + L = 2\pi r^2 + 2\pi \times r \times h.$$
$$= 2\pi r \times (r + h).$$

EXAMPLE. Find the volume and total area of a cylinder whose radius is 8' and whose altitude is 10'.

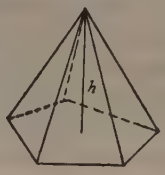
$$V = 3\frac{1}{7} \times 8 \times 8 \times 10 = 2011\frac{3}{7} \text{ cu. ft.}$$

$$T = 2 \times 3\frac{1}{7} \times 8 \times (8 + 10) = 905\frac{1}{7} \text{ sq. in}$$

A *pyramid* is a solid whose base is a polygon and whose sides are triangles which have a common vertex, called the vertex of the pyramid.

The *altitude* of a pyramid is the perpendicular distance from the vertex to the base.

The volume of a pyramid is equal to the one-third the volume of a prism having the same base and altitude. Hence, *the volume of a pyramid* is equal to one-third the product of the base by the altitude.



Use the same notation as that used for prisms.

$$V = \tfrac{1}{3} A \times h.$$

In practice, the figures met with are usually *regular pyramids*, i.e., the bases are regular polygons and the faces are isosceles triangles. The vertex is directly above the center of the polygon.

EXAMPLE. The base of a pyramid is a square whose sides are 8". If its altitude is 11", find the volume.

$$V = \frac{1}{3} \times 8 \times 8 \times 11 = 234\frac{2}{3} \text{ cu. in.}$$

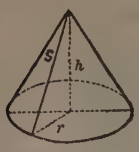
A *cone* is a solid whose base is a curved figure, usually a circle, and whose lateral surface tapers uniformly to a point called a vertex.

The *altitude* of a cone is the perpendicular distance from the vertex to the base. In a right circular cone, this line is measured from the vertex to the center of the base.

The *slant height* of a cone is the distance from the vertex to a point in the circumference of the base.

The volume of a cone is equal to one-third the product of the area of the base by the altitude.

Let V = volume, A = area of base, r = radius of base, h = altitude, s = slant height, L = lateral area, C = circumference of base.



$$V = \frac{1}{3} A \times h = \frac{1}{3} \times \pi r^2 \times h.$$

$$L = \frac{1}{2} C \times s = \pi r \times s.$$

$$s = \sqrt{r^2 + h^2}.$$

EXAMPLE. The diameter of the base of a right circular cone is 10'. If the altitude is also 10', find the volume and lateral area.

$$V = \frac{1}{3} \times 3.1416 \times 25 \times 10 = 261.8 \text{ cu. ft.}$$

$$s = \sqrt{25 + 100} = 11.18' \text{ nearly.}$$

$$L = 3.1416 \times 5 \times 11.18 = 175.62 \text{ sq. ft. nearly.}$$

A *sphere* is a solid bounded by a curved surface, every point of which is equally distant from a point within called the *center*.

The *radius of a sphere* is a straight line joining the center with any point on the surface.

A *diameter* is any line through the center of the sphere terminating in the surface.

Let V = volume, S = surface, and r = radius.

$$V = \frac{4}{3} \pi r^3.$$

$$S = 4 \pi r^2.$$

EXAMPLE. The radius of the earth is approximately 4000 mi. Assuming it to be spherical in shape, find its total area and its total volume.

$$V = \frac{4}{3} \times \frac{22}{7} \times 4000^3 = 258{,}180{,}000{,}000 \text{ cu. mi.}$$

With the approximate assumptions made in this problem, there is no value in more than three or four significant figures. An error of 1 mile in the radius will result in an error of over 2,500,000 cu. mi. in the volume.

$$S = 4 \times \frac{22}{7} \times 4000^2 = 201{,}000{,}000 \text{ sq. mi.}$$

APPLIED PROBLEMS, VOLUME.

Bricklaying and Masonry.

A standard brick for building purposes measures about 8" × 4" × 2". It occupies more space than this in a wall however, due to the mortar between the joints.

Masons and builders use various methods in figuring the number of bricks required to build a wall. The following is a method in common use in many places.

From the area of the outside surface of the wall or building deduct the area of all the openings and the area of one side of each of the corners. (This is necessary to keep from counting the volume of the corners twice.)

For a wall 1 brick thick (4" thick) allow 7 bricks for each square foot of surface.

For a wall two bricks thick (8½" thick) allow 14 bricks for each square foot of surface.

For a wall three bricks thick (12¾" thick) allow 21 bricks for each square foot of surface.

A wall one brick thick is used as a brick veneer over frame or tile, for partitions, and so forth. A wall two bricks thick is used in the construction of small buildings, to fill the spaces between steel pillars in larger constructions, and for other purposes.

Other materials are used beside bricks, as stone, tile, concrete blocks, etc., which require special methods of computation depending upon the size of the unit used and the specifications of the construction.

Bricks are quoted by the thousand (M) but they may be bought in any fractional part of this amount.

EXAMPLE. The walls of a brick house are 32 feet long, 24 feet wide and 19 feet high and 3 bricks thick. Allowing for 15 windows averaging 3-1/2 ft. by 6 ft. and 3 doors averaging 3-1/2 ft. by 7 ft., find the number of bricks required to build the wall.

$$2\,(24 + 32) \times 19 = 2128 \text{ sq. ft. Total surface.}$$

$$4 \times \frac{13}{12} \times 19 = 82\frac{1}{2} \text{ sq. ft. Corners.}$$

$$15 \times 3\frac{1}{2} \times 6 = 315 \text{ sq. ft. Windows.}$$

$$3 \times 3\frac{1}{2} \times 7 = 73\frac{1}{2} \text{ sq. ft. Doors.}$$

$$82\frac{1}{3} + 315 + 73\frac{1}{2} = 470\frac{5}{6} \text{ sq. ft. Total allowance.}$$

$$2128 - 470\frac{5}{6} = 1657\frac{1}{6} \text{ sq. ft. Surface counted.}$$

$$\frac{21 \times 1657\frac{1}{6}}{1000} = 34.8 \text{ M bricks required.}$$

Concrete.

The cost of concrete is usually figured in terms of a *cubic yard*. In figuring the volume, allowance is made for all openings. A separate charge is made for *forming*, unless this is included in the estimate.

Concrete is a mixture of cement, sand, gravel or crushed stone, and water. The proportions of these various substances vary according to the nature of the construction. The mixture is named by stating in order the number of parts of cement, sand, and gravel. Recent experiments indicate that the mix should be made with as little water as possible.

When the sand and gravel are mixed together, the volume of the mixture is less than the sum of the volumes of the two materials. This is again true when the cement is added. This is due to the fact that the smaller particles fill the voids or spaces between the larger pieces. The volume is increased over that of the gravel in the different mixtures used.

The following table shows the amount of the various materials in the mixtures listed. Cement is measured by the barrel = 400 lbs. gross = 386 lbs. net. In the mixtures, one measure of cement is one sack or 1/4 barrel; the sand and cement are measured in cubic feet.

Mixture	Sacks of cement per cu. yd. of concrete
1 1	19.2
1 1½	15.5
1 2	12.8
1 2½	11.0
1 2: 3	7.0
1 2: 4	6.0
1 3: 5	4.7
1 3: 6	4.3

To find the amount of sand necessary to make a cubic yard of concrete, multiply the number of sacks of cement by the number of parts of sand in the mixture to be used and divide by 27.

To find the amount of gravel necessary to make a cubic yard of concrete, proceed in the same way with the number of parts of gravel in the mixture to be used.

EXAMPLE. The excavation for a cellar is 32′ by 24′ by 5′. How much of cement, sand, and gravel are needed to build 12 inch walls of a 1:3:5 mixture?

$$2 \times (32 + 22) \times 5 \times 1 = 540 \text{ cu. ft.}$$
$$= 20 \text{ cu. yd. Total volume.}$$

From the table,

$$4.7 \times 20 = 94 \text{ sacks} = 23\frac{1}{2} \text{ bbls. cement.}$$

$$\frac{94 \times 8}{27} = 10\frac{4}{9} \text{ cu. yd. sand.}$$

$$\frac{94 \times 5}{27} = 17.4 + \text{cu. yd. gravel.}$$

Notice that the width of the cellar is taken as 22′ to avoid counting the corners twice. In practice, it is not necessary to solve for the amount of sand and gravel in a cubic yard. Instead, multiply the total number of sacks by the number of parts of sand and gravel in the mix. This gives number of 100 lbs. of each.

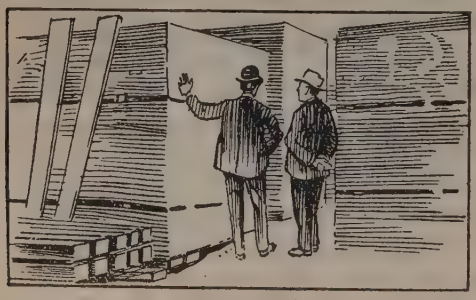
Board measure.

One foot in board measure or one board foot is equal to a board one foot square and one inch thick. Its volume is one-twelfth of a cubic foot.

Boards less than one inch thick are figured as if they were one inch in thickness.

To find the number of board feet, multiply the length in feet by the width in feet by the thickness in inches. It is obvious that any one of these three dimensions may be expressed in inches and the other two in feet.

Lumber is sold by the thousand (M) board feet.



Many special methods are used in lumber yards to figure quickly the number of board feet in lumber of various widths and thicknesses.

The following are samples of some of these special rules.

Thickness	Width	To find number of board feet.
1 inch	2 inches	Take 1/6 of the length.
1 inch	3 inches	Take 1/4 of the length.
1 inch	4 inches	Take 1/3 of the length.
1 inch	6 inches	Take 1/2 of the length.
1 inch	8 inches	Deduct 1/3 the length.
1 inch	10 inches	Deduct 1/6 the length.
1 inch	12 inches	Take the length.
2 inches	4 inches	Deduct 1/3 the length.
2 inches	6 inches	Take the length.
2 inches	8 inches	Add 1/3 the length.
2 inches	10 inches	Add 2/3 the length.
2 inches	12 inches	Take twice the length.

EXAMPLE. How many board feet are there in 42 plank, 2″ × 8″ × 16′ long?

First method.

$$42 \times \frac{1}{6} \times 16 \times 8 = 896 \text{ board feet.}$$

Second method.

$$16 \times 42 = 672 \quad \text{Total length.}$$
$$\text{Add} \quad 224 \quad 1/3 \text{ length.}$$
$$896 \quad \text{Board feet.}$$

Capacity of Bins, Reservoirs, etc.

Many products are now sold by weight, as coal, wheat, grain of all kinds, fruit, vegetables, and so on. It is still customary to speak of these products in terms of bushels. In order to secure uniformity in this connection, the federal government and the several states have established by statute the weight of a bushel of these various commodities.

One bushel of the following substances has the indicated weights:

Product	Weight	States
Wheat	60 lbs.	All
Shelled corn	56 lbs.	All
Oats	32 lbs.	All
Potatoes	60 lbs.	Most
Beans	60 lbs.	All
Apples	48 lbs.	Most

The variation between states, when it exists, is very slight. The tendency is toward uniformity.

It is often desirable to reach an estimate as to the amount of material in a bin without going to the expense of weighing or measuring the material in it. This is accomplished readily by the use of the following rules.

The same remarks hold with regard to the contents of cisterns, resevoirs, vats, etc.

A heaped bushel contains 2,747.71 cubic inches.
A stricken bushel contains 2,150.42 cubic inches.
A peck contains 537.6 cubic inches.
A quart contains 67.2 cubic inches.
A pint contains 33.6 cubic inches.
A hogshead contains 8.422 cubic feet.
A barrel contains 4.211 cubic feet.
A gallon (liquid) contains 231 cubic inches.
A quart (liquid) contains 57.75 cubic inches.
A pint (liquid) contains 28.875 cubic inches.

(1) Find the cubic contents of the vessel or bin in inches.

(2) Divide the contents by the number of cubic inches contained in the chosen unit, whether gallon, bushel, or barrel.

For quick, rough estimates it may be remembered that 1 cubic foot equals nearly .63 of a heaped bushel, or equals nearly .80 of a stricken bushel, or equals nearly 7.5 liquid gallons, or equals nineteen eightieths of a barrel. These fractions are to be used as multipliers of the cubic contents in corresponding dimensions. Thus—

Volume in cubic feet × .63 gives the number of heaped bushels.

Volume in cubic feet × .80 gives number of stricken bushels.

Volume in cubic feet × 7.5 gives number of liquid gallons.

Volume in cubic feet × nineteen eightieths gives the number of barrels.

ALGEBRA.

In the Aahmes copy before mentioned, the simple equation appears thus: Hau (literally heap), its seventh, its whole, it makes 19; if put in modern symbols means $\frac{x}{7} + x = 19$. The Egyptians made no further progress in algebra; the Greeks used it in connection with their wonderful system of geometry. In Euclid (c. 300 B. C.), we find formulas for $(a + b)^2$ with other algebraic relations worked out by geometric figures. Heron of Alexandria (c. 100 B. C.) solved quadratic equations. To Diophantus (last half third or first part of fourth century A. D.) we are indebted for the first book written on algebra chiefly. He used one unknown quantity, symbols for equality and subtraction, while his favorite subject was indeterminate equations of the second degree. Aryabhatta, a Hindu mathematician (476), made some contributions, but no additions to the science. About 800 there came a mathematician, known from his birthplace as Al-Khowarazmi, who wrote the first great work and gave the science its present name. He called it "al-jabir;" it became in Latin, "algebrae," in the sixteenth century English, "algiebar," and modern English, "algebra." For 700 years little advance was made in the science, until in Italy, Cardano, Ferro, and Fiori solved cubic equations. Vieta, a Frenchman, was the founder of our present symbolic system (1591).

Algebra is at first but a continuation and extension of arithmetic. The methods employed are so improved however that many problems that were not solved in arithmetic are worked easily here. Other subjects grow out of the study that have no seeming connection with arithmetic. The field of algebra as the term is now understood, is very large. It is safe to say that much of modern science has been discovered by use of the principles and theorems of algebra. A knowledge of the science is necessary to one who plans to do work in mathematics, physics, engineering, chemistry, economics, or in practically any technical or professional field. It is usually studied in the ninth grade or first year of the high school course. It is an almost universal requirement for entrance to colleges and technical schools. This is true not only because of the "cultural" value of the study, but also because of the practical usefulness of the content of the course.

While algebra is now a science of itself, the best approach to an understanding of the subject is by noticing its close relation to arithmetic. For many centuries, its sole purpose was to furnish a short and systematic solution for the problems of arithmetic. The rules used there are stated concisely by use of the letters and symbols of the new science.

Three new ideas are introduced at the very beginning of Algebra. It is necessary to gain a clear understanding of each of these before the science can be developed. A brief statement concerning each of these is given here, after which each idea is developed in detail.

The most obvious difference, that is the difference which is noticed immediately is the use of letters to represent numbers. Science and industry make much use of this practice in expressing general laws and rules in brief and concise form. Several examples of this kind appear in various sections on arithmetic. For example in the section on profit and loss, page 407 and the sections on area and volume on pages 423 and 424 and 427 to 430.

The second new idea involves a new concept of number or rather an extension of the number system used in arithmetic. The new numbers are called negative numbers. This extension of the number system calls for an examination of the fundamental operations and a restatement of the rules of addition, subtraction, multiplication and division. These new rules must be so stated that they do not contradict any of the work in arithmetic. This is done on pages 432 and 433.

When these two ideas are combined the number system of algebra is complete. The various laws for combining the algebraic numbers are developed considering in order polynomials, fractions and irrational expressions.

The third new idea is that of the equation. The use of letters as numbers in arithmetic referred to above, also illustrates the form of the equation. Many problems can be solved easily when the principles of the equation are understood. Various examples of problems of this kind appear in the following pages. They are placed along with the material which explains the operations on algebraic numbers used in their solution.

The signs of arithmetic; $+$, $-$, $\times$, $\div$, $\vee$, $=$; have the same significance in algebra as in arithmetic. The sign of multiplication is sometimes the dot written above the line, $\cdot$. In many cases the sign is not written at all.

Eg. 4 times a times b may be written $4 \times a \times b$ or $4 \cdot a \cdot b$ or $4ab$.

LETTERS USED AS NUMBERS.

In the problems of percentage and interest as well as in problems of measurement, this use of letters is often made.

The percentage equals the rate times the base. The formula is $p = r \times b$
which is written in the algebra notation as follows:

$$p = rb.$$

Interest is equal to the principle times the rate times the time. In algebra this is written:

$$i = prt.$$

The area of a circle is equal to the square of the radius times π. In algebra this is written:

$$A = \pi r^2$$

Def. A general rule written in algebraic form is called a *formula.*

In the above examples, the letter used is the first letter of the word that signifies the quantity each represents. This does not need to be the case so long as the relation is understood. Any letter may be used to represent any number or magnitude. The letters most used in actual practice are the first and last letters of the alphabet, a b c ..... being used to represent

"known" or given values, and x y z .... to represent *"unknown"* or wanted values.

By the theory of equations, a formula may be changed in various ways so that any one of the quantities may be found if the others are given.

E.g. From the percentage formula, by dividing both sides of the equation by r and b, the following formulas are derived for the base and the rate respectively:

$$b = \frac{p}{r} \quad \text{and} \quad r = \frac{p}{b}.$$

Def. An *algebraic expression* is a combination of figures, letters, and symbols used to represent any number or quantity.

E.g., 2a, a — b, 3ax, xy + 2.
2a is read 2 times a or simply "2 a."
a — b is read "a minus b."
3ax is read "3 a x" and means 3 times a times x.
xy + 2 is read "x y plus 2" and means that 2 is to be added to the product of x and y.

Def. The value of the number represented by an algebraic expression can not be known until the values of the various letters are determined and these values put in the original expression. The process of putting values in an expression for a certain letter or symbol is called *substitution.*

After the substitutions have been made, the indicated operations are performed. The entire process is called the *evaluation* of the expression.

EXAMPLE. If a = 2; b = 3; x = 1; y = 4: Evaluate the following expressions.

1. $2a + 3b = 2 \cdot 2 + 3 \cdot 3 = 4 + 9 = 13.$
2. $2ax - y = 2 \cdot 2 \cdot 1 - 4 = 4 - 4 = 0.$
3. $ay - bx = 2 \times 4 - 3 \times 1 = 8 - 3 = 5.$

Difficulty arises in evaluating the following problem.

$$4ax \div 2a = ?$$

If the division is performed before the values for the letters are substituted the result is 2x which with the values assumed above is equal to 2.

Substituting the values before dividing gives the following:

$$4 \cdot 2 \cdot 1 \div 2 \cdot 2 = ?$$

Here, if the multiplications are performed first, the result;

$$8 \div 4 = 2$$

is the same as that obtained by the above process. If, however, the multiplications and divisions are performed in order, as in arithmetic, the result would be

$$8 \div 2 \times 2 = 4 \times 2 = 8$$

which contradicts the result obtained by simplifying results before substituting.

In the above examples, the multiplication is always performed before the addition or subtraction. This practice must be followed at all times. In general, the order of the operations in any problem is determined by the following rule.

Order of indicated operations. *In any problem, perform all indicated multiplications first. Next perform all indicated divisions. Additions and subtractions are performed last and may be taken in any order.*

There is sometimes confusion due to the fact that in arithmetic, it is usually customary to perform multiplications and divisions in order as they occur. The change in algebra is due to the fact that it is customary to think of an expression involving only multiplications as a single number, as one writer puts it, "the multiplication is considered as being already performed."

Parentheses. Various symbols are used to indicate that several terms are to be treated as one number or to be operated on in the same way. These symbols are called the *symbols of aggregation.* The one that is used most often is the *parenthesis,* ( ). Other signs are the *bracket* [ ], the *brace,* { }, and the *vinculum* —.

3(a + b) means that the sum of a and b is to be multiplied by 3. [2a — 3x] ÷ 4a means that the difference between 2a and 3x is to be divided by 4a. $\sqrt{x^2 + 2x + 1}$ means that the square root of the sum of x^2 and 2x and 1 is to be taken.

Within a parenthesis, the rules for the order of operations applies as stated above.

For convenience, the word parenthesis is used to refer to the various signs of aggregation, brackets, braces and so forth.

While the processes used in algebra have not yet been considered, a comparison of the solution of a problem as worked in arithmetic and as worked in algebra will serve to show the nature of the latter method.

Problem. The area of the surface of a cube is 486 sq. ft. Find the length of one edge.

Solution. Let x = length of edge.
Then x^2 = area of one face.
Since there are 6 faces to a cube, the total area = $6x^2$.
Hence, $6x^2 = 486.$
Dividing by 6, $x^2 = 81.$
Transposing $x^2 - 81 = 0.$
Factoring, $(x + 9)(x - 9) = 0.$

Setting each factor equal to zero gives $x = \pm 9$ = one edge. The root, —9, has no significance as an edge of a cube.

The arithmetical solution of this problem follows the same outline as the above. It is as follows:

If the area of the whole cube is 486 sq. ft., the area of one face is one-sixth of 486 or 81 sq. ft. Each side of a cube is a square, hence the edge of the cube which is equal to a side of this square is equal to the square root of 81 or 9 ft.

In many of the problems of arithmetic, the algebraic method serves simply to write the arithmetic solution in better form.

Problem. A train leaves Pittsburgh for New York at 8:00 A. M. travelling at the rate of 30 miles per hour. Three hours later, a second train starts in the same direction from Pittsburgh travelling at the rate of 40 miles per hour. When and where will the second train overtake the first?

ARITHMETICAL SOLUTION. The first train travelling at the rate of 30 miles per hour will have gone 3 × 30 = 90 miles when the second train starts.

The second train will gain 40 — 30 = 10 miles per hour on the first train after it starts.

The number of hours it will take for the second train to gain 90 miles at 10 miles per hour is given by 90 ÷ 10 = 9 hours.

Hence the first train will travel 3 + 9 = 12 hours, when it will be 8:00 P. M.

The trains will at that time be 12 × 30 = 360 miles from Pittsburgh.

ALGEBRAIC SOLUTION.

Let t = number of hours after 8:00 A. M.
30t = miles travelled by first train, t hours after 8:00.
t — 3 = hours the second train is running.
40 (t — 3) = miles travelled by second train t hours after 8:00 A. M.

The trains will be together when the expressions which represent the distances they each have travelled are equal.

Hence $30t = 40\ (t - 3)$
$= 40t - 120$
$-10t = -120.$

Dividing both sides of the equation by -10, gives

$t = 12$. hrs., after 8:00 A. M. which means that they are together at 8:00 P. M.

$30t = 360$ miles distance each train has travelled.

In the algebraic solution, $40t$ was subtracted from $30t$. the answer was written $-10t$. In the next step, each side of the expression was divided by -10. Up to this point in our study of numbers, both of these operations are impossible. This problem will now be considered.

POSITIVE AND NEGATIVE NUMBERS.

There are many situations in which the numbers of arithmetic are cumbersome. An elaborate explanation is often necessary to indicate what a number really means. A few examples of this nature will indicate the meaning of this statement.

New York and Chicago are each about 440 miles from Pittsburgh via the Pennsylvania Railroad. It is customary to speak of New York as being 440 miles east of Pittsburgh and Chicago as being 440 miles west of Pittsburgh.

In describing the motion of a ball thrown from the top of a building, it is necessary to tell whether the ball is above or below the place from which it was thrown.

In telling about the temperature on a certain day or place, one says it was a certain number of degrees above or below zero. The thermometer is marked off in degrees above and below a point called zero.

In deciding the financial condition of a firm or of an individual, the total assets and the total liabilities of the concern are considered. If the amount of the assets is greater than the liabilities, the balance is considered as credit or surplus. On the other hand, if the liabilities are the greater, the difference between the two items is called the debt or deficit.

Many other examples might be sighted where it is desirable to have some agreement that will indicate the significance of various numbers.

In mathematics, this is accomplished by calling one set of numbers *positive* and the other set *negative*. The conventions that determine which of the opposite numbers is called positive and which negative are rather well defined.

Distance east is usually called positive, west is called negative. Distance north is positive, south is negative.

Distance upward or to the right is called positive, downward or to the left is called negative.

Temperature above zero is positive, below zero is negative.

Assets and surplus are represented by positive numbers. Liabilities and deficits are represented by negative numbers.

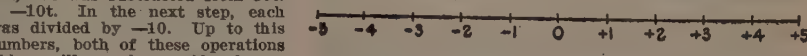
Motion is positive if it takes place in a positive direction, negative if it takes place in a negative direction.

It is generally agreed that positive rotation shall be opposite to the motion of the hands of a clock or counter-clock-wise. Motion around a point in the same direction as the hands of a clock is called negative.

The sign $+$ is used to indicate positive numbers and is read plus or positive. The sign $-$ is used to designate negative numbers and is read minus or negative. When no sign is written, the positive sign is always understood.

Def. Positive and negative numbers are also called *signed numbers* or *directed numbers*. The reason for the second name will appear below.

Graphical representation of directed numbers. If a point is taken on a line and distances are measured off to the right corresponding to the various units, as in the accompanying figure,



any positive number can be represented by some point to the right of the zero point.

Positive numbers are the numbers of arithmetic. To add two positive numbers on the scale, as $2 + 3 = 5$, from the point 2 count 3 places to the right arriving at the point 5. Notice that in this process, the counting is to the right or in the direction in which the positive numbers are measured.

To subtract two positive numbers on the scale, as $7 - 3 = 4$, from the point 7 count 3 places to the left arriving at the point 4. Notice that in this process the counting is to the left or in the opposite direction from that in which the positive numbers are measured.

If distances are measured off to the left of the zero, each point will have a certain distance from the point 0. The sign $-$ is placed before the numbers which represent these distances. *The points are said to represent the negative numbers graphically.*

The ideas of addition and subtraction of positive numbers are extended to include addition and subtraction of directed numbers.

Multiplication is an extended form of addition while division is the inverse process of multiplication. The graphical method of performing these operations is explained below.

Def. The *absolute value* of a signed number is the value of the number considered as positive regardless of the sign of the number.

E.g. The absolute value of -3 is 3; of $+4$ is 4; of -5 and $+5$ is 5; of $-a$ is a; etc.

For purposes of reference, the rules for performing the fundamental operations on signed numbers are stated below. The various operations will then be considered separately.

Rules for combining signed numbers.

1. Addition. To add two numbers of like sign, that is, two positive or two negative numbers, find the sum of their absolute values and prefix their common sign to the result.

To add two numbers of unlike signs, that is a positive and a negative number, find the difference between their absolute values and prefix the sign of the number having the greater absolute value to the result.

2. Subtraction. To subtract one signed number from another, change the sign of the subtrahend and add the resulting number to the minuend.

3. Multiplication. To multiply two signed numbers, find the product of their absolute values. This product is positive if the numbers being multiplied have like signs. It is negative if the numbers have unlike signs.

4. Division. To divide two signed numbers, find the quotient of their absolute values. This quotient is positive if the divisor and dividend have like signs. It is negative if they have unlike signs.

Addition of signed numbers. To add a positive number, one counts forward or to the right from a given number. To add a negative number, one counts backward or to the left from a given number.

To add −4 to +6, count from 6, 4 to the left, getting 2.
To add −4 to −6, count from −6, 4 to the left, getting −10.
To add +4 to −6, count from −6, 4 to the right, getting −2.

In adding two numbers which are opposite in sign but which have the same absolute value, one arrives at the zero point on the line. In this case the sum is called zero, and the numbers are said to cancel each other.

Def. The sum of two signed numbers is called the *algebraic sum* of the numbers. It is immediately evident that the algebraic sum of two signed numbers is often different from the value of the sum of their absolute values.

In algebra, to add means to find the algebraic sum.

Subtraction of signed numbers. To find the difference between two numbers means to find the number which must be added to the subtrahend to give the minuend. On the directed line, this corresponds to finding the number of units from the subtrahend to the minuend, indicating the direction of the counting by a plus sign if it is to the right and by a minus sign if it is to the left.

This process may be simplified by starting from the minuend and counting as many places as are indicated in the subtrahend, in the opposite direction to that indicated by the sign of the subtrahend. This means that in subtracting a positive number, one counts to the left; and in subtracting a negative number one counts to the right.

To subtract +5 from +8, count 5 to the left from 8 getting +3.
To subtract +8 from +5, count 8 to the left from 5 getting −3.
To subtract −5 from +8, count 5 to the right from +8 getting +13.
To subtract −5 from −8, count 5 to the right from −8 getting −3.

The advantage of this second method lies in the fact that the number reached on the scale is the answer required.

It will be noticed that this process is the same as changing the sign of the subtrahend and then adding algebraically.

By the use of signed numbers, it is possible to find the difference between any two signed numbers. This is a distinct advantage over the work in arithmetic where many problems can only be solved by the aid of a great deal of explaining of terms.

Def. The difference between two signed numbers is called the *algebraic difference* between them.

Multiplication of signed numbers. The idea of multiplication must be extended to take care of this larger number system. Four cases exist. Both numbers may be positive. Both may be negative. The multiplier may be positive and the multiplicand negative. The multiplier may be negative and the multiplicand positive. These cases will be considered in turn.

1. $+3 \times +5 = +15$.
This is the problem of arithmetic. It means that +3 is to be taken or added 5 times.
$(+3) + (+3) + (+3) + (+3) + (+3) = 15$.

2. $-3 \times +5 = -15$.
This means that −3 is to be added 5 times.
$(-3) + (-3) + (-3) + (-3) + (-3) = -15$.

3. $+3 \times -5 = -15$.
This means that +3 is to be subtracted 5 times.
$-(+3) - (+3) - (+3) - (+3) - (+3) = -15$.

4. $-3 \times -5 = +15$.
This means that −3 is to be subtracted 5 times.
$-(-3) - (-3) - (-3) - (-3) - (-3) = +15$.
since to subtract −3 is the same as adding +3.

Multiplication means addition when the numbers are positive and subtraction when the numbers are negative.

Cases 1 and 4 are covered by the first part of the rule for multiplication while cases 2 and 3 are covered by the second part.

Division of signed numbers. Division may be thought of as the inverse of the process of multiplication. The dividend corresponds to the product, the divisor to one of the factors of the product. The problem is to find the other factor. This is the quotient. Hence the signs of the quotient are determined by the considerations set forth in connection with multiplication. Notice that one of the three numbers is always positive. Also, that if one number is negative one of the others will be negative.

If the dividend and divisor have like signs, the quotient is positive.

$(+24) \div (+4) = +6$.
$(-21) \div (-7) = +3$.

If the dividend and divisor have unlike signs, the quotient is negative.

$(+18) \div (-3) = -6$.
$(-27) \div (+9) = -3$.

Zero. The introduction of the number zero in the number system presents a special case. No difficulty arises in addition and subtraction. Multiplying any number by zero always gives zero as a result. Division by zero leads to many contradictions, such as $2 = 1$, and so on. For this reason, *division by zero is not permitted in mathematics.*

ALGEBRAIC EXPRESSIONS.

Def. The factors of an algebraic expression are those numbers or expressions which multiplied together give the original expression.

E.g. 12axy has the factors 2, 2, 3, a, x, and y.

The reader should notice that the definitions and processes of algebra will always include those already worked out for arithmetic. This is true because the number system of algebra includes the number system of arithmetic and no rules or processes can be introduced in algebra that will conflict with the laws and principles of arithmetic. In the above example, the factors of the numerical part of the number are found by the methods of arithmetic.

Def. When an algebraic expression is the product of two or more numbers, either of the numbers may be called the *coefficient* of the other

in the product. The coefficient indicates how many times the other number is taken in the expression.

E.g. In the term, 4ax, 4 may be called the coefficient of ax; 4a may be called the coefficient of x; a may be called the coefficient of 4x; etc.
It is customary to think of the coefficient as being composed of arithmetical numbers and those algebraic numbers represented by the first letters of the alphabet.

When a coefficient is composed only of arithmetical numbers it is called a *numerical coefficient.* When it is composed only of letters, it is called a *literal coefficient.* When the coefficient contains both arithmetical numbers and letters, it is called a *mixed coefficient.*

E.g. In the expression 15x, 15 is a numerical coefficient.
In the expression ay, a is a literal coefficient.
In the expression ½ax, ½a is a mixed coefficient.

Def. When a factor occurs more than once in an algebraic expression, the number of times it occurs is indicated by a small number written to the right and a little above the number. These numbers are called *exponents.* The factor is said to be raised to the power indicated by the exponent. When the exponent is not written, 1 is always understood.

E.g. $2aaa = 2a^3$; $3axx = 3ax^2$.

Any kind of number may be used as an exponent.

Def. An algebraic expression which involves only the idea of multiplication of arithmetical numbers and letters is called a *term.* As a special case, all numbers of arithmetic are considered as single terms if they stand alone or are separated from the rest of an expression by plus or minus signs.

E.g. 20, 3ax, 4bxy, are examples of terms.

Def. A *monomial* is an algebraic expression of a single term.

E.g. 10; 5ax; ¼xy.

Def. An algebraic expression made up of the sum and difference of algebraic terms is called a *polynomial.*

E.g. $2a + 3b - c$; $x^2 + 2x + 1$.

Def. A polynomial of two terms is called a *binomial.*

E.g. $a + b$; $2x - 3y$.

Def. A polynomial of three terms is called a *trinomial.*

E.g. $a + b - c$; $x^2 - 4x - 5$.

Def. A *root* of an algebraic number is one of the equal factors whose product gives the number. This is the same idea as that developed in arithmetic. The symbol used is also the same.

E.g. $\sqrt{9} = 3$; $\sqrt{4a^2} = 2a$; $\sqrt[3]{27x^3} = 3x$.

Def. Two or more terms are said to be *similar* if they have the same literal factors. In other words, they differ only in their numerical coefficients. This name is sometimes applied to terms having any common factor but the advantages of this more general definition are not great.

E.g. 2a and 5a are similar terms since they have the common factor a. Under the definition, 2x and 3xy are not similar since their literal parts are not the same.

Def. A number or algebraic expression which has no factors is called a *prime number.*

The prime numbers of arithmetic are also prime in algebra. 3a is not prime since it has the factors 3 and a. $a + b$ and $2x - y$ are prime numbers since they have no factors.

It is often important to know if a number is factorable or not. From the definition, a prime number is not factorable.

The simplest kind of algebraic expression is the monomial or term. Next to this is the combination of several terms called polynomials. The elementary operations on these numbers, i.e., addition, subtraction, multiplication and division, will now be considered.

ADDITION.

MONOMIALS.

1. To add similar terms.

In arithmetic, only like numbers can be added. In algebra, this rule takes the following form.

Rule. To add similar terms, find the algebraic sum of the numerical coefficients and prefix this result to the common factor.

EXAMPLE. Add 12a, − 4a and + a.

$$\begin{array}{rl} +12a & \text{The algebraic sum of} \\ -4a & +12-4+1=9. \text{ This} \\ +a & \text{is to be written before} \\ \hline +9a & \text{the common factor a.} \end{array}$$

2. To add dissimilar terms.

This can only be indicated by writing the terms one after another, giving to each its proper sign. The result of the sum of several dissimilar terms is a polynomial. See definition above.

EXAMPLE. Add x^2, 3x, and − 4.
Since these terms are dissimilar, write the sum as
$$x^2 + 3x - 4.$$

These terms may be written in any order but it is customary to write the letters of the alphabet that come first ahead of those that come later. Also, if different powers of the same letter are present in the expression, the terms should be arranged in ascending or descending powers of the letter.

E.g. The expression $-2b - 3c + a$ would be written
$$a - 2b - 3c$$
while $4x - x^2 + x^3 - 10$ is usually arranged as follows:
$$x^3 - x^2 + 4x - 10.$$

POLYNOMIALS.

In adding two or more polynomials, the similar terms are added together as in the case of monomials and the dissimilar terms are written after these sums giving to each term its proper sign.

In practice the process is much simplified by the following plan.

Rule. Write the polynomials under each other, arranging the terms so that similar terms will all be in the same column. Find the algebraic sum of each column, writing the results

of each such addition at the bottom of the column added with their proper signs.

EXAMPLE. Add $7x - y + 3z$, $6y - 2z$, $3x - 4y - 3z$.

$$\begin{array}{r} 7x - y + 3z \\ 6y - 2z \\ 3x - 4y - 3z \\ \hline 10x + y - 2z \end{array}$$

Addends.

Sum.

To check an operation in algebra. The letters used in problems may represent any number. Hence the result obtained by any of the various processes must be true if *any* value is substituted for the letters involved. The following general method will furnish a rapid and accurate check on all algebra operations.

Assign values to the various letters involved in the problem. Evaluate each of the expressions entering in the problem. Perform the indicated operations on these values. The result must be the same as that obtained by evaluating the results of the algebraic process.

E.g. In the above problem, let $x = 1$, $y = 2$, and $z = 3$

$$\begin{array}{rl} 7x - y + 3z = & 7 - 2 + 3\cdot 3 = 7 - 2 + 9 = 14 \\ 6y - 2z = & 6\cdot 2 - 2\cdot 3 = 12 - 6 = 6 \\ 3x - 4y - 3z = & 3 - 8 - 9 = -14 \\ \hline 10x + y - 2z = & 10 + 2 - 6 = 6 \qquad = 6 \end{array}$$

Check.

The same value may be used for more than one of the letters. It simplifies the work to use small numbers as much as possible. *It is important to always check the result of any mathematical process.* In important applications of this subject, results are checked and rechecked. An error may often cause the loss of money or of life. Form the habit of checking all results as the problem is worked. The time taken will be well spent. With experience, many short cuts will suggest themselves to the thinking student. The number 1 is most often used where the exponents are of the first degree only. If some of the letters are squared or raised to higher powers, 2 will give a surer test.

SUBTRACTION.

MONOMIALS.

Since the numbers of algebra are signed numbers, the methods for subtracting signed numbers explained above apply for monomials.

Rule. To subtract one term from another, change the sign of the subtrahend and add the resulting number to the minuend.

If the terms are similar, the difference will be the term formed by writing the algebraic difference of the coefficients as the coefficient of the common literal part.

EXAMPLE. Subtract $-4ax$ from $-2ax$.

By the rule this is equivalent to adding $+4ax$ to $-2ax$.

$$\begin{array}{rr} -2ax & -2ax \\ --4ax & +4ax \\ \hline & +2ax \end{array}$$

Change signs, then add.

If the terms are not similar, the subtraction can be indicated by writing the terms, the sign of the subtrahend being changed.

EXAMPLE. Subtract $4ax$ from $5by$.

Change the sign of $4ax$, getting $-4ax$. Write the difference as follows:

$$5by - 4ax.$$

POLYNOMIALS.

Rule. To subtract one polynomial from another, write the subtrahend below the minuend so that similar terms are in the same columns. Change the signs of all terms in the subtrahend.

Find the algebraic sum of each column, writing the results below each column with their proper sign.

EXAMPLE. Subtract $3x - y + 4z$ from $7x + 2y - 6z$.

Solution. Check with $x = 1$, $y = 1$, $z = 1$.

$$\begin{array}{rl} 7x + 2y - 6z = & 7 + 2 - 6 = 3 \\ 3x - y + 4z = & 3 - 1 + 4 = 6 \\ \hline 4x + 3y - 10z = & 4 + 3 - 10 = -3 \end{array}$$

Check.

The change of sign is made mentally.

EQUATIONS.

The third new idea developed in algebra is the theory of equations. It has already appeared that the use of letters furnishes a simple and concise method of treating many of the rules of arithmetic. In the study of equations, one learns how to use these formulas as well as many other relations in the solution of practical problems.

Def. An *equation* is a statement of equality between two algebraic numbers.

E.g. $2a - 3 = a + 6$.

Def. An *identity* is an equation which is true for any values that may be assigned to the letters involved.

E.g. $2\cdot 3 - 4 = 7 - 10/2$ is an identity in which only numerical values are involved since the expression on each side of the equality sign reduces to 2.

$2x + 3 = 4x - 6 - 2x + 9$ is an identity since the expression on the right of the equality reduces to the expression on the left when similar terms are combined as indicated.

Def. An *equation of condition* is an equation which is true for certain values of the letters involved.

Def. Letters which represent values which are to be determined are called *unknowns*.

Def. Any value of an unknown which reduces the equation to an identity is called *a root* of the equation. Such a value is said to satisfy the equation.

E.g. 4 is a root of the equation $2x + 3 = 11$ since when 4 is substituted for x the equation becomes $11 = 11$.

Def. The part of an equation on the left of the equality sign is called the *left hand member;* that on the right is called the *right hand member*.

Def. A *simple equation* is an equation in which only the first power of the unknown occurs. Such an equation is said to be of the first degree in the unknown.

E.g. $2x - 3 = x + 6$ is a simple equation.

Def. To solve an equation is to find the roots of the equation.

Axioms. In dealing with equations, certain statements are assumed as true without proof. Their truth is so obvious that it is said to be self evident. Such statements are called *axioms*.

Each axiom will be illustrated by an example illustrating its use.

1. If equals are added to equals, the results are equal.

2. If equals are subtracted from equals, the results are equal.

3. If equals are multiplied by equals, the results are equal.

4. If equals are divided by equals, the results are equal.

5. Things equal to the same thing are equal to each other.

EXAMPLE. 1. Solve the equation $x - 4 = 3$.

By axiom 1, the same number can be added to the members of this equation without affecting the equality.

Adding 4 to each member, gives

$$x - 4 + 4 = 3 + 4$$

or $$x = 7$$

which is the required solution.

EXAMPLE. 2. Solve the equation $x + 6 = 3$.

By axiom 2, the same number can be subtracted from each member of this equation without affecting the equality.

Subtracting 6 from each member, gives

$$x + 6 - 6 = 3 - 6$$

or $$x = -3$$

which is the required solution.

EXAMPLE. 3. Solve the equation $\frac{1}{2}x = 3$.

By axiom 3, each member of this equation can be multiplied by the same number without affecting the equality.

Multiplying each member by 2, gives

$$2 \cdot \tfrac{1}{2}x = 2 \cdot 3,$$

or $$x = 6,$$

which is the required solution.

EXAMPLE. 4. Solve the equation $3x = 15$.

By axiom 4, each member of this equation can be divided by the same number without affecting the equality.

Dividing each member by 3, gives

$$\frac{3x}{3} = \frac{15}{3}$$

or $$x = 5,$$

which is the required solution.

In examples 1 and 2 above, the numerical value in the left member is moved to the right member where it appears with the opposite sign. This may be done with any term of either member.

Rule. A term may be transposed from one member of an equation to the other by changing the sign of the term.

E.g. The equation $2x - 3 = x + 5$ may be written

$$2x - x = 5 + 3$$

by transposing x from the right to the left member and -3 from the left to the right member.

Equations are useful in solving problems. They furnish a convenient and brief method for explaining the solution. Any kind of an algebraic expression may occur in the solution of various problems. In connection with the various forms and operations, problems will be solved illustrating the various methods. Whenever it is practicable, the problems used for purposes of illustration will be drawn from the experience of the pupil.

Problem. The sum of two numbers is 55 and difference is 17. What are the numbers.

Solution. Let $x =$ one number.

$x + 17 =$ the other number.

Since the sum of the two numbers is 55,

$$x + x + 17 = 55.$$

Transpose the 17 to the right hand member, and combine the x's.

$$2x = 55 - 17$$
$$= 38.$$

Divide each member by 2.

$x = 19$, one number.

$x + 17 = 36$, the other number.

To check the solution. See that the numbers found actually satisfy the conditions of the problem.

Here $19 + 36 = 55$, and $36 - 19 = 17$. Check.

By studying the above type solution, the steps in the process will appear as follows.

1. A study of the problem to determine what quantity will serve best as the unknown in the problem.

2. Represent this quantity by some letter, as x, and express all other quantities in terms of this letter.

3. Combine these expressions into an equation which expresses the conditions stated in the problem.

4. Solve this equation for the unknown and find the other required values by substitution.

5. Always check the results by testing to see that they actually satisfy the conditions of the problem. It is not enough to substitute in the equation as this may have been formed incorrectly.

PARENTHESES.

Problems in addition and subtraction of polynomials are written in convenient form by the aid of the signs of aggregation.

E.g. To write out a problem showing that $2x - 3y$ is to be added to $3x + y$, proceed as follows.

$$2x - 3y + (3x + y) = 2x - 3y + 3x + y$$
$$= 5x - 2y$$

Rule. Parentheses preceded by the sign + may be removed without any change in the signs of the terms within them.

E.g. To write out a problem showing that $3x + y$ is to be subtracted from $2x - 3y$, proceed as follows:

$$2x - 3y - (3x + y) = 2x - 3y - 3x - y$$
$$= -x - 4y$$
$$= -(x + 4y).$$

Rule. Parentheses preceded by the sign − may be removed by changing each term within them.

In many problems, one sign of aggregation may be contained within another. In problems of this sort the following procedure is to be followed.

Rule. Rewrite the expression, removing the inner parenthesis, giving to each term its proper sign in accordance with the above rules.

Repeat this process till all the parentheses are removed.

If, at any time, similar terms occur in the inner parenthesis, they should be combined by the rules for addition and subtraction.

EXAMPLE. Remove parentheses and simplify

$$\begin{aligned} 2x - \{2(x-1) + [x - (2x-1)]\} &= 2x - \{2x - 2 + [x - 2x + 1]\} \\ &= 2x - \{2x - 2 + [-x + 1]\} \\ &= 2x - \{2x - 2 - x + 1\} \\ &= 2x - \{x - 1\} \\ &= 2x - x + 1 \\ &= x + 1 \end{aligned}$$

To place a parenthesis around several terms in an expression. The principles that govern this procedure are the converse of the rules for removing parenthesis.

Rule. Two or more terms may be inclosed in a parenthesis preceded by a plus sign, +, without changing the signs of any of the terms.

Two or more terms may be inclosed in a parenthesis preceded by a minus sign, −, provided the sign of every term inclosed in the parenthesis is changed.

EXAMPLE. $2a - 3b + c - 2d = 2a - 3b + (c - 2d)$
$= 2a - (3b - c + 2d)$

In this connection, it should be noticed that the sign of the first term in a parenthesis is positive unless the minus sign is written before it. In the example, the sign of 3b was minus originally but in the second case it is changed to plus within the parenthesis in accordance with the above rule.

MULTIPLICATION.

In addition, it was assumed without further remark, that the terms may be arranged and combined in any desired order. A similar assumption is necessary in multiplication. The laws governing this are called the commutative and associative laws of numbers.

The *commutative law* states that terms of a sum or the factors of a product may be combined in any order.

E.g. $a + b = b + a$, and $ab = ba$.

The *associative law* states that the terms of a sum or the factors of a product may be grouped together in any combination.

E.g. $a + b + c = (a + b) + c = a + (b + c)$.
$abc = a(bc) = (ab)c$.

Besides these general laws which have to do with the theory of numbers in general, the following rules are used in multiplying algebraic expressions.

Law of signs. In multiplying two terms, the sign of the product is + if the terms have like signs, and − if they have unlike signs.

Law of coefficients. In multiplying two terms, the coefficient of the product is equal to the product of the coefficient of the terms.

Law of exponents. In multiplying two terms, the exponent of each letter in the product is equal to the sum of the exponents of that letter in the given terms.

These rules or laws are all that is needed to enable one to multiply monomials.

EXAMPLE. 1. $6ax \times 5by = 6ax5by$
$= 6 \cdot 5\ abxy$
$= 30\ abxy.$

EXAMPLE. 2. $4ax\ (-3by) = -4 \cdot 3\ axby$
$= -12\ abxy.$

EXAMPLE. 3. $(-2ax)\ (-3ax^2) = 2 \cdot 3\ a \cdot a \cdot x^2$
$= 6a^2x^3.$

Polynomials.

To multiply a polynomial by a monomial, multiply each term of the polynomial by the monomial and write the resulting products in any order with their proper sign.

EXAMPLE. Multiply $7x^2 - 5$ by $-4x^2$.

Solution. Check, using $x = 1$.

$$\begin{array}{rr} 7x^2 - 5 & = 7 - 5 = 2 \\ -4x^2 & = -4 = -4 \\ \hline -28x^4 + 20x^2 & = -28 + 20 = -8 \text{ Check.} \end{array}$$

Rule. To multiply a polynomial by a polynomial, multiply one polynomial by each term of the other and add the partial products.

In work of this kind, it is customary to arrange the two polynomials in the same order, i.e., in ascending or descending powers of the same letter. Then write the partial products under each other, letting similar terms fall under each other. In this way, the final product will also be arranged in the same order as the factors.

EXAMPLE. Multiply $-x^2 + 3x^3 - 5x - 1$ by $1 - x$.

Solution. Write in descending powers of x.

$$\begin{array}{rl} 3x^3 - x^2 - 5x - 1 & \\ -x + 1 & \\ \hline -3x^4 + x^3 + 5x^2 + x & \text{Partial Product} \\ \quad + 3x^3 - x^2 - 5x - 1 & \text{Partial Product} \\ \hline -3x^4 + 4x^3 + 4x^2 - 4x - 1 & \text{Product.} \end{array}$$

Check using $x = 1$.
First factor $= 4$.
Second factor $= 0$.
Product $= 0$ $\quad 4 \times 0 = 0$.

When one of the factors equals zero, it is a good plan to try some other number for x.

Check using $x = 2$.

$$\begin{array}{rl} 3x^3 - x^2 - 5x - 1 & = 3 \cdot 8 - 4 - 5 \cdot 2 - 1 \\ & = 24 - 4 - 10 - 1 \\ & = 9. \\ -x + 1 & = -2 + 1 = -1 \\ \text{Multiply} \quad 9 & (-1) = -9 \\ -3x^4 + 4x^3 + 4x^2 - 4x - 1 & = -48 + 32 + 16 - 8 - 1 \\ & = -9 \quad \text{Check.} \end{array}$$

There are many special rules for multiplying certain expressions. These are explained in the sections following the work on division.

Problem. A carpet has its length five feet longer than its width. The room in which it is placed is 3 feet longer and 3 feet wider than the rug. The floor of the room contains 96 square feet more area than the carpet. What is the size of the carpet?

SOLUTION.

$$\begin{array}{rl} \text{Let } x & = \text{the width of the carpet.} \\ \text{Then, } x + 5 & = \text{the length of the carpet.} \\ x(x+5) & = \text{area of the carpet.} \\ x + 3 & = \text{the width of the room.} \\ x + 8 & = \text{the length of the room.} \\ (x+3)(x+8) & = \text{area of the room.} \end{array}$$

From the problem.

$$(x+3)(x+8) - x(x+5) = 96.$$

Multiplying out and collecting similar terms,

$$6x + 24 = 96.$$

Transposing,

$$\begin{aligned} 6x &= 96 - 24 = 72. \\ x &= 12, \text{ width of carpet.} \\ x + 5 &= 17, \text{ length of carpet.} \end{aligned}$$

To check this result, notice that $12 \times 17 = 204$; while $15 \times 20 = 300$. The difference is 96 as given.

DIVISION.

Division is the reverse of multiplication. The three special laws for multiplication have corresponding statements in division.

Law of signs. In dividing two terms, the sign of the quotient is + if the divisor and dividend have like signs, and − if they have unlike signs.

Law of coefficients. In dividing terms, the coefficient of the quotient is the quotient of the coefficients of the terms.

Law of exponents. In dividing terms, the exponent of each letter in the quotient is equal to the difference found by subtracting the exponent of the letter in the divisor from its exponent in the dividend.

MONOMIALS. In finding the quotient of two monomials, the work is simplified by writing the terms in the form of a fraction as in arithmetic. Factors common to the two terms may then be cancelled and the exponents of each letter may be combined.

EXAMPLE. Divide $12a^2x^3y$ by $3ax^2y$.

$$\frac{\overset{4}{\cancel{12}a^{\cancel{2}}x^{\cancel{3}}\cancel{y}}}{\underset{1}{\cancel{3}}a\cancel{x^2y}} = \frac{4a^2x^3}{ax^2} = 4ax$$

Zero and negative exponents.

Division of monomials presents some interesting problems. If the law of exponents is to always apply, some new definitions are necessary. This can best be seen by studying the following cases.

1. Divide x^3 by x^3.

In arithmetic, it is stated that anything divided by itself is equal to 1. If the rule for division stated above is followed, a new expression is found.

$$\frac{x^3}{x^3} = x^{3-3} = x^0$$

Now x to the zero power has not been defined. The value of the expression is determined by the above considerations.

The following principle may therefore be stated.

Any number raised to the zero power is equal to 1.

2. Divide x^2 by x^5.

In arithmetic, when one number is greater than another, the quotient is indicated by a fractional form. This form is always reduced to its lowest terms. Proceeding in this manner, cancelling x^2 from both terms, the quotient would be written.

$$\frac{x^2}{x^5} = \frac{1}{x^{5-2}} = \frac{1}{x^3}$$

If the rule for exponents in division is followed, another expression is found.

$$\frac{x^2}{x^5} = x^{2-5} = x^{-3}$$

Up to the present x to a negative power has had no meaning. It is important to realize that any meaning can be assigned to this expression that does not contradict previous work. Two forms have been found for the above quotient. The assumption made should be such as to recognize this agreement.

The following principle may therefore be stated.

Any number raised to a negative power is equal to 1 divided by that same number raised to the same positive power.

E.g. $\frac{1}{x^3} = x^{-3}$; $a^{-1} = \frac{1}{a}$.

The theory of exponents is considered in detail after other topics of algebra are developed. It is shown there that an exponent may be any kind of number. Hence, as in our number system in both arithmetic and algebra, the rules under which exponents may be added, subtracted, multiplied, and divided are studied. The most practicable method of computation, namely logarithms, is an application of this theory.

For the present, negative and zero exponents are to be used only as a convenient notation in writing numbers.

EXAMPLE. Divide x^2yz^2 by xy^2z^6, and simplify.

$$\frac{x^2yz^2}{xy^2z^6} = x^{2-1}\,y^{1-2}\,z^{2-6} = xy^{-1}z^{-4} = \frac{x}{yz^4}$$

Check, using $x = 2$, $y = 2$, $z = 2$.

$$x^2yz^2 = 2^2\cdot 2\cdot 2^2 = 32 \qquad xy^2z^6 = 2\cdot 2^2\cdot 2^6 = 512 \qquad \frac{32}{512} = \frac{1}{16}$$

$$xy^{-1}z^{-4} = 2\cdot 2^{-1}\cdot 2^{-4} = \frac{2}{2\cdot 2^4} = \frac{1}{16} = \text{Check.}$$

POLYNOMIALS.

To divide a polynomial by a monomial, divide each term of the polynomial by the monomial and write the resulting quotients in any order with their proper sign.

EXAMPLE. Divide $6x^3 - 9x^2 + 3x$ by $3x$.

Solution. Check, using $x = 2$.

$$\frac{6x^3 - 9x^2 + 3x}{3x} = \frac{6x^3}{3x} - \frac{9x^2}{3x} + \frac{3x}{3x} = 2x^2 - 3x + 1$$

$$\frac{48 - 36 + 6}{6} = 3 = 8 - 6 + 1 = 3 \text{ Check}$$

To divide a polynomial by a polynomial. The rule will be understood more readily by considering the following example.

EXAMPLE. Divide $x^3 + 65xy^2 - 15x^2y - 63y^3$ by $x - 7y$

Writing the dividend in descending powers of x, the problem solved as follows:

$$\begin{array}{l|l} \text{Dividend } x^3 - 15x^2y + 65xy^2 - 63y^3 & x - 7y = \text{Divisor.} \\ \hline x^3 - 7x^2y & x^2 - 8xy + 9y^2 = \text{Quotient} \\ \quad - 8x^2y + 65xy^2 & \\ \quad - 8x^2y + 56xy^2 & \\ \hline \qquad + 9xy^2 - 63y^3 & \\ \qquad + 9xy^2 - 63y^3 & \\ \hline \end{array}$$

The first term of the quotient is obtained by dividing the first term of the dividend by the first term of the divisor, $x^3 \div x = x^2$. The first partial product ($x^3 - 7x^2y$) is obtained by multiplying the entire divisor by this term. The partial product is written below the dividend with similar terms below each other, and then subtracted from the dividend. All terms of the dividend may not need to be rewritten or brought down but they are all included in the remainder after the subtraction.

The second term in the quotient is obtained by dividing the first term of this remainder by the first term of the divisor—, $-8x^2y \div x = -8xy$. The next partial product is obtained by multiplying the divisor by this term. This partial product is subtracted from the remainder and the process is repeated.

In this way the third term in the quotient is $+ 9y^2$.

After this operation, there is no remainder. Hence, the divisor is a factor of the dividend. So is the quotient.

If a remainder is present, and further division with positive exponents is impossible, the remainder is written over the divisor in the form of a fraction and added to the quotient.

To check the above problem, let $x = 1$, and $y = 1$.

Dividend $= 1 - 15 + 65 - 63 = -12$

Divisor $= 1 - 7 = -6$

$$-12 \div -6 = \frac{-12}{-6} = 2.$$

Quotient $= 1 - 8 + 9 = 2$ Check.

Here 1 may be used to advantage in checking the result since the exponents are easily seen to be correct. A little experience with problems of this kind will enable one to see that the quotient is always arranged in the same order as the dividend and divisor, in this case in descending powers of x.

The above process is very similar to that used in long division in arithmetic. In fact, the method of arithmetic is proved by this work here. The reason for the various steps becomes evident if the divisor is multiplied by the quotient. The result, of course, must be the dividend.

$x - 7y =$ Divisor
$x^2 - 8xy + 9y^2 =$ Quotient.

$x^3 - 7x^2y$ First partial product.
$- 8x^2y + 56xy^2$ Second partial product.
$+ 9xy^2 - 63y^3$ Third partial product.

$x^3 - 15x^2y + 65xy^2 - 63y^3$ Product or dividend.

The first term of each partial product is the product of the first term of the divisor and a term of the quotient.

Rule for division by polynomials.

1. Arrange both dividend and divisor in ascending or descending powers of some letter.

2. Divide the first term of the dividend by the first term of the divisor, writing the result as the first term of the quotient.

3. Multiply all terms of the divisor by the term so found, and subtract the resulting partial product from the dividend.

4. If there is a remainder, consider it as a new dividend and proceed as before, i.e. divide the first term of this expression by the first term of the divisor, writing the result as the first term of the quotient.

5. If there is a remainder and division is no longer possible without using fractions or negative exponents, write this expression over the divisor in the form of a fraction and add it to the quotient.

Problem. The distance from New York to Pittsburgh is 440 miles. A train leaves Pittsburgh for New York travelling 30 miles per hour at the same time that a train leaves New York for Pittsburgh travelling 25 miles per hour. When and where will they meet?

Solution.

Let x = distance from Pittsburgh to any point.
Then $440 - x$ = distance from New York to same point.

$\frac{x}{30}$ = hours the first train takes to get to x.

$\frac{440 - x}{25}$ = hours the second train takes to get to x.

If the trains meet at x, the two times will be equal.

Hence, $$\frac{x}{30} = \frac{440 - x}{25}$$

Multiplying both sides of the equation by 30×25,

$$\frac{30.25x}{30} = \frac{30.25\,(440 - x)}{25}$$

Or $$25x = 30\,(440 - x)$$
$$= 13200 - 30x$$

Transposing, and solving,

$25x + 30x = 13200$
$55x = 13200$
$x = 240$ Miles from Pittsburgh.

$\frac{x}{30} = \frac{240}{30} = 8$ Number of hours till the trains meet.

To check, notice that one train goes 240 miles in 8 hours and that the other goes 200 miles in the same time. Their sum is 440 miles or the total distance.

Problem. A and B start from two towns 144 miles apart. A travels 2 miles an hour faster than B. If they meet after each has been travelling 9 hours, how far has each gone?

Solution.

Let x = miles A travels per hour.
$x - 2$ = miles B travels per hour.
Then $x + x - 2 = 2x - 2$ = distance travelled by A and B in one hour.

By the conditions of the problem, they meet after 9 hours. This gives the relation

$$9\,(2x - 2) = 144$$

Solving,

$18x - 18 = 144.$
$18x = 144 + 18$
$= 162$
$x = 9$ miles per hour, A's rate.
$x - 2 = 7$ miles per hour, B's rate.

To check these results, notice that in 9 hours A will travel 81 miles and B will travel 63 miles. The sum of these distances is 144 miles.

EQUATIONS WITH LITERAL COEFFICIENTS.

It is often possible to express a general relation by means of an equation with literal coefficients and from this to solve for other relations. In the case of formulas, this amounts to considering first one and then another of the quantities as unknown. Equations of this kind are solved in the same manner as other equations.

Problem. Find the value of x in

$$ax - a^2 + 3a = 2x + a$$

Solution.

Transpose all x terms to the left and all other terms to the right.

$ax - 2x = a^2 - 3a + a$
$(a - 2)\,x = a^2 - 2a$
$= a\,(a - 2)$.

Dividing by the coefficient of x.

$$x = \frac{a\,(a - 2)}{(a - 2)}.$$

Hence, $x = a$.

To check the solution of a literal equation, substitute the result for the unknown in the original equation. This gives,

$aa - 2a = a^2 - 3a + a$
or $a^2 - 2a = a^2 - 2a$ which is an identity. Check.

SPECIAL PRODUCTS.

Some products occur very frequently in algebra. The special forms of the more important of these should be learned at once.

The square of the sum of two terms.

$$(a + b)\,(a + b) = a^2 + 2ab + b^2.$$

PROOF.

$$\begin{array}{r} a + b \\ a + b \\ \hline a^2 + ab \\ \quad ab + b^2 \\ \hline a^2 + 2ab + b^2 \end{array}$$

EXAMPLE. $(3x + 2y)^2 = 9x^2 + 12xy + 4y^2$.
The above relation is true for any values of a and b.

The above identity may be expressed as a rule in the following words.

Rule. The square of the sum of two numbers is equal to the square of the first, plus twice the product of the first by the second, plus the square of the second.

In all the work in this section, the letters a, b, c and so on are used to indicate any algebraic number or term.

The square of the difference of two terms.

$$(a - b)\,(a - b) = a^2 - 2ab + b^2.$$

The proof is by multiplication as above.

The identity states that *the square of the difference of two numbers is equal to the square of the first, minus twice the product of the first by the second, plus the square of the second.*

EXAMPLE. $(3x - 2y)^2 = 9x^2 - 12xy + 4y^2$.

The product of the sum and difference of two numbers.

$$(a + b)(a - b) = a^2 - b^2.$$

PROOF.

$$\begin{array}{r} a + b \\ a - b \\ \hline a^2 + ab \\ \quad - ab - b^2 \\ \hline a^2 \quad - b^2 \end{array}$$

Rule. The product of the sum and difference of two numbers is equal to the difference of their squares.

EXAMPLE. $(2x + 3y)(2x - 3y) = 4x^2 - 9y^2$.

The product of two binomials having a common term.

$$(x + a)(x + b) = x^2 + (a + b)x + ab.$$

PROOF.

$$\begin{array}{r} x + a \\ x + b \\ \hline x^2 + ax \\ \quad + bx + ab \\ \hline x^2 + ax + bx + ab \end{array}$$

or $x^2 + (a + b)x + ab$

Rule. The product of two binomials having a common term is equal to the square of the common term, plus the product of the common term by the algebraic sum of the other two terms, plus the product of these terms.

It should be noticed that in this case, any of the numbers may be positive or negative. The phrase, algebraic sum, covers all cases. In a similar manner, the rules for the square of the sum of two numbers and the square of the difference of two numbers may be combined into one statement by considering the sign of the second term as being such that the expression may be considered as the sum of two numbers.

EXAMPLES.

$$(x + 2)(x + 3) = x^2 + 5x + 6$$
$$(2x + 3y)(2x - y) = 4x^2 + 4xy - 3y^2$$

The square of any polynomial.

$$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2ac + 2bc.$$

PROOF. Regard $a + b$ as one number.

$$\begin{aligned} (a + b + c)^2 &= [(a + b) + c]^2 \\ &= (a + b)^2 + 2(a + b)c + c^2 \\ &= a^2 + 2ab + b^2 + 2ac + 2bc + c^2. \end{aligned}$$

Rule. The square of any polynomial is equal to the sum of the squares of each of its terms plus twice the product of each term by every term which follows it in the expression.

In the above, the sign preceding each term is considered as a part of the term.

EXAMPLE. Square $x + y - z$.

$$(x + y - z)^2 = x^2 + y^2 + z^2 + 2xy - 2xz - 2yz.$$

The expression is regarded as being composed of the terms x, y, and $-z$.

The cube of a binomial.

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3.$$

PROOF. Multiply the square of $a + b$ by $a + b$.

Rule. The cube of a binomial is equal to the cube of the first term, plus three times the square of the first times the second, plus three times the first times the square of the second, plus the cube of the second.

This rule covers the case of the difference as well as the sum of two numbers.

EXAMPLES. $(2x + y)^3 = 8x^3 + 12x^2y + 6xy^2 + y^3$.
$(2x - y)^3 = 8x^3 - 12x^2y + 6xy^2 - y^3$.

Special methods of division may be derived from these special products. They are considered in the section on factoring, however, so they are not stated here. They furnish a rapid means for finding the quotient of two numbers.

FACTORING.

Def. *Factoring* an algebraic expression is the process of finding two or more expressions which when multiplied together produce the given expression.

Def. A *prime factor* is an algebraic expression which has no factor except itself and unity.

1. Factors of a monomial.

The factors of a monomial are the factors of the numerical coefficient and the various letters each taken as many times as is indicated in the exponent of the letter.

EXAMPLE. The factors of $12ax^2y^3$ are 2, 2, 3, a, x, x, y, y, y.

2. Roots of a monomial.

Def. The *square root* of an expression is one of the two equal factors whose product is the expression. Symbol, $\sqrt{\ }$.

In arithmetic, there is only one such number. That is, the square root of 4 is +2, of 9 is +3, etc.

In algebra, with the introduction of negative numbers, 4 has two square roots, namely +2 and −2; 9 has two square roots, namely +3 and −3; etc.

Every positive number and every algebraic expression that is equivalent to a positive number, has two square roots which differ only in sign.

The presence of the two roots is shown by the sign ($\pm$) written before the root. It is read "plus or minus."

Rule. To find the square root of a letter raised to any power, divide the exponent of the letter by 2, writing the letter to this power preceded by the $\pm$ sign.

EXAMPLE. $\sqrt{x^2} = \pm x$.

$\sqrt{a^4} = \pm a^2$.

Rule. The square root of a monomial is equal to plus or minus the square root of the numerical coefficient times all the letters of the monomial, each with an exponent equal to one-half its exponent in the monomial.

EXAMPLE. $\sqrt{16a^2x^4} = \pm 4ax^2$.

$\sqrt{225x^4y^6} = \pm 15x^2y^3$.

Def. The *cube root* of an expression is one of the three equal factors whose product is the expression.

At present, it is not possible to extract the square root of a negative number. It is possible, however, to find the cube root of any number, either positive or negative. E.g., the cube root of $+27$ is $+3$, and the cube root of -27 is -3.

In general, every number or algebraic expression has a cube root which has the same sign as the expression.

Rule. In extracting the cube root of a letter to a power, the new exponent is found by dividing the old exponent by 3.

EXAMPLE. $\sqrt[3]{a^3} = a$; $\sqrt[3]{a^3x^6} = ax^2$; $\sqrt[3]{-x^6y^{12}} = -x^2y^4$

Rule. The cube root of a monomial is equal to the cube root of the numerical coefficient with its sign, times all the letters of the monomial, each with an exponent equal to one-third its exponent in the monomial.

EXAMPLE. $\sqrt[3]{64x^3y^6} = 4xy^2$.

$\sqrt[3]{-125a^3x^9} = -5a^3x^3$.

The above process may be extended to any root desired. The required root is found by dividing the exponent by the index of the root. Obviously, it is not always possible to divide an exponent, evenly, as in the case of the square root of x^3. Problems of this kind are treated in the theory of exponents.

3. Polynomials with a common monomial factor.

Polynomials of the form

$$ax + ay - az$$

may be factored by dividing the polynomial by a.

$$(ax + ay - az) = a(x + y - z).$$

Rule. Divide the expression by the monomial factor, writing the polynomial equal to the monomial factor times the quotient thus obtained.

EXAMPLES. $ax - a = a(x - 1)$.

$2x^2y - xy + xy^2 = xy(2x - 1 + y)$.

4. Trinomials that are perfect squares.

From the work on special products, the trinomial is of one of the following forms.

$$a^2 + 2ab + b^2 = (a + b)(a + b) = (a + b)^2$$
$$a^2 - 2ab + b^2 = (a - b)(a - b) = (a - b)^2$$

In both these type forms, two terms are perfect squares.

Both the square terms have the sign $+$.

The third term is equal to 2 times the product of the square roots of the other two terms.

The two cases are distinguished from each other by the sign of the third term.

There are two steps in factoring such a trinomial. First test to see if its terms satisfy the above conditions. Then apply one of the type forms given above.

If the expression is arranged in descending powers of some letter, the first and third terms will be the square terms.

Rule 1. Test. A trinomial is a perfect square if, after arranging in descending powers of some letter, the absolute value of the middle term is equal to twice the product of the absolute values of the square roots of the other two terms.

2. Factor. The square root of the trinomial is the sum or difference of these square roots, the sum if the middle term is positive, the difference if the middle term is negative.

EXAMPLES. Find the square root of each of the following trinomials when possible.

$x^2 + 4y^2 + 4xy = x^2 + 4xy + 4y^2 = (x + 2y)^2$

$9a^2 - 12ab + 4b^2 = (3a - 2b)^2$

$4x^2 + 6ax + 9a^2 = \ldots\ldots$

This trinomial is not a perfect square since

$2 \cdot 2x \cdot 3a = 12ax$ is not equal to $6ax$.

5. Binomials, the difference of two squares.

From the work on special products, the following relation is obtained.

$$a^2 - b^2 = (a + b)(a - b).$$

Rule. A binomial which is the difference of the squares of two numbers, is equal to the product of the sum of these numbers by their difference. The number whose square is preceded by the sign $-$ in the original binomial must have a minus sign in one of the factors of the binomial.

EXAMPLES. Factor $4x^2 - 9y^2$.

$4x^2 - 9y^2 = (2x + 3y)(2x - 3y)$.

Therefore, the factors are $2x + 3y$ and $2x - 3y$.

Factor. $81a^2x^4 - 49b^2y^4$.

$81a^2x^4 - 49b^2y^4 = (9ax^2 + 7by^2)(9ax^2 - 7by^2)$.

Therefore, the factors are $9ax^2 + 7by^2$ and $9ax^2 - 7by^2$.

6. Quadratic trinomials.

Def. A *quadratic trinomial* is of the form

$$x^2 + bx + c.$$

From the work on special products, using h and k instead of a and b, the following relation is obtained.

$$x^2 + (h + k)x + hk = (x + h)(x + k).$$

The following rule is obtained from a comparison of these two expressions.

Rule. Find two numbers whose algebraic product is equal to c (the constant term) and whose algebraic sum is equal to b (the coefficient of x).

One factor of the trinomial is x plus one of these numbers, the other factor is x plus the other number.

EXAMPLE. Factor $x^2 - 7x + 12$.

It is necessary to find two factors of $+12$, whose algebraic sum is -7. Since 12 is positive, the numbers must have the same sign. This sign is $-$ since, the sum of the numbers is to be -7. Consider the pairs of factors of 12, discarding those whose sum is not -7.

-1 and -12 No.

-2 and -6 No.

-3 and -4 Yes.

Hence, $x^2 - 7x + 12 = (x - 3)(x - 4)$

and the factors are $x - 3$ and $x - 4$.

EXAMPLE. Factor $x^2 + 11x - 42$.

Since 42 is negative, the factors must be opposite in sign. The greater factor is positive since the algebraic sum is $+11$. Consider the factors of 42 that satisfy these conditions, discarding those whose sum is not $+11$.

$+42$ and -1. No.

$+21$ and -2. No.

$+14$ and -3. Yes.

Hence, $x^2 + 11x - 42 = (x + 14)(x - 3)$
and the factors are $x + 14$ and $x - 3$.

The testing for factors of c should always be done mentally, if possible.

If factors of c cannot be found which satisfy the conditions, the trinomial is prime, i.e., it has no binomial factors.

7. Binomials the sum or difference of the same power of two numbers.

The case of the difference of the squares of two numbers has already been considered.

The sum of the squares of two numbers is always prime.

E.g. $a^2 + b^2$; $x^4 + y^4$; etc. may be thought of as the sum of two squares. They cannot be factored using the numbers of elementary algebra.

The sum of two cubes. $a^3 + b^3$.

Divide by $a + b$.

$$\begin{array}{rl|l} a^3 & + b^3 & a + b \\ \underline{a^3 + a^2b} & & \underline{a^2 - ab + b^2} \\ -a^2b & & \\ \underline{-a^2b - ab^2} & & \\ +ab^2 + b^3 & & \\ \underline{+ab^2 + b^3} & & \end{array}$$

Hence, $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$.
Similarly, $a^5 - b^5 = (a - b)(a^2 + ab + b^2)$.

Rules covering this and other cases are more complicated than the formulas themselves. The student should be familiar with these relations and their uses.

EXAMPLE. Factor $x^6 - 64$.

From the formula, the first term is $(x^2)^3$, the second is 4^3.

$$x^6 - 64 = (x^2 - 4)(x^4 + x^2 \cdot 4 + 4^2)$$
$$= (x^2 - 4)(x^4 + 4x^2 + 16).$$

Hence, the factors are $x^2 - 4$ and $x^4 + 4x^2 + 16$.

EXAMPLE. Factor $27x^3 + 1$.

$$27x^3 + 1 = (3x + 1)(9x^2 - 3x + 1).$$

Hence, the factors are $3x + 1$ and $9x^2 - 3x + 1$.

Similar rules may easily be found for factoring the sum and difference of odd powers, as 5, 7, and so on.

The difference of two numbers to the fourth power, may be factored by the rule for the difference of two squares. One of the resulting factors can sometimes be factored by the same rule.

EXAMPLE. Factor $x^4 - 16$.

$$x^4 - 16 = (x^2 + 4)(x^2 - 4)$$
$$= (x^2 + 4)(x + 2)(x - 2).$$

Oftentimes it is necessary to use more than one method in finding the prime factors of an expression.

EXAMPLE. Factor $x^6 - x^3 - 2$.

Use the rule for a quadratic trinomial.

$$x^6 - x^3 - 2 = (x^3 - 2)(x^3 + 1)$$

The first factor is prime. The second may be factored by the rule for the sum of two cubes.

$$x^6 - x^3 - 2 = (x^3 - 2)(x + 1)(x^2 - x + 1).$$

EQUATIONS SOLVED BY FACTORING.

Def. *A* polynomial is said to be an *integral polynomial*, if its numerical coefficients are integers.

E.g. $3x^2 + 3x - 5$ is an integral polynomial in x.

Def. The *degree* of a polynomial is the same as the highest power of the unknown in it.

When a polynomial is set equal to zero, an equation is formed the degree of which is the same as the degree of the polynomial.

Equations of the first degree are called *linear*, if of the second degree they are called *quadratics*, if of the third degree they are called *cubics*, if of the fourth degree they are called *biquadratics*, etc.

Equations of the second and higher degrees may often be solved by using the following principle.

PRINCIPLE. *If the product of two or more factors is equal to zero, one of the factors must be equal to zero.*

In solving an equation which can be factored, each of the factors must be set equal to zero and the resulting equations solved to find all the possible values of the unknown.

Problem. Solve the quadratic equation,

$$x^2 + 5x - 24 = 0.$$

Solution. Factoring the left of this equation,

$$(x + 8)(x - 3) = 0$$

Set the first factor equal to zero,

$$x + 8 = 0.$$
$$x = -8, \text{ One root.}$$

Set the second factor equal to zero,

$$x - 3 = 0.$$
$$x = 3, \text{ Other root.}$$

To check, substitute each value in the given equation.
-8 gives $64 + (-40) - 24 = 64 - 40 - 24 = 0$, check.
$+3$ gives $9 + 15 - 24 = 24 - 24 = 0$, check.

Problem. Find two consecutive odd numbers, the sum of whose squares is 290.

Solution. Let x = any number
Then $2x + 1$ = an odd number
and $2x + 3$ = the next consecutive odd number.

By the conditions of the problem,

$$(2x + 1)^2 + (2x + 3)^2 = 290$$

Squaring and collecting terms,

$$8x^2 + 16x + 10 = 290.$$

or $$8x^2 + 16x - 280 = 0.$$

Dividing by 8, gives

$$x^2 + 2x - 35 = 0$$

Factoring,

$$(x - 5)(x + 7) = 0$$

Setting each factor equal to zero,

$x - 5 = 0$ which gives $x = 5$.

or $x + 7 = 0$ which gives $x = -7$.

Using $x = 5$, the two odd numbers, $2x + 1$ and $2x + 3$ are 11 and 13 respectively.

Using $x = -7$, they are -13 and -11 respectively.

To check, add the squares of these numbers.

HIGHEST COMMON FACTOR.

Def. The *degree of a term* is equal to the sum of the exponents of the letters which compose it.

E.g. ax is a term of the second degree, x^2y^2 is a term of the fourth degree, etc.

Corresponding to the greatest common factor of two or more numbers in arithmetic, is the highest common factor in algebra.

Def. The *highest common factor* of two or more algebraic expressions is the factor of highest degree with the greatest numerical coefficient which is common to the expressions. Abbreviation is H. C. F.

To find the highest common factor of expressions which can be readily factored.

Rule. *Separate each expression into its prime factors. Find the product of all factors which are common to all the expressions, taking each the least number of times it occurs in any of the expressions.*

EXAMPLE. Find the H. C. F. of $a^3 + 2a^2 + a$; $a^3 - a$; and $a^3 + 5a^2 + 4a$.

$a^3 + 2a^2 + a = a(a + 1)\ (a + 1)$.
$a^3 - a = a(a + 1)\ (a - 1)$.
$a^3 + 5a^2 + 4a = a(a + 1)\ (a + 4)$.
Therefore, the H. C. F. $= a(a + 1)$ or $a^2 + a$.

If two expressions have a common factor, this is also a factor of the difference between the expressions. This fact may be generalized as follows:

Rule. *If two expressions have a common factor, the remainder obtained by dividing one by the other will have as a factor the H. C. F. of the original expressions.*

This furnishes a convenient method for testing two expressions for a common factor when the expressions are not readily factorable. The process is illustrated in the following example.

EXAMPLE. Find the H. C. F. of $x^3 - 8x^2 + 19x - 12$ and $x^4 - 7x^3 + 10x^2 - 9x + 5$.

Solution.

$$\begin{array}{r|l} x^3 - 8x^2 + 19x - 12 & x^4 - 7x^3 + 10x^2 - 9x + 5 \mid x + 1 \\ & x^4 - 8x^3 + 19x^2 - 12x \\ \hline & x^3 - 9x^2 + 3x + 5 \\ & x^3 - 8x^2 + 19x - 12 \\ \hline & -\ x^2 - 16x + 17 \end{array}$$

It is permissible at any time to multiply or divide by any numerical coefficient. The common factor of the original expressions is a factor of this remainder. Change the sign of the terms in the remainder, i.e., multiply by -1, and divide the former quotient by this remainder. The above principle still holds.

$$\begin{array}{r|l} x^2 + 16x - 17 & x^3 - 8x^2 + 19x - 12 \mid x \\ & x^3 + 16x^2 - 17x \\ \hline \text{Divide by } -12 & -24x^2 + 36x - 12 \\ & 2x^2 - 3x + 1 \mid +2 \\ & 2x^2 + 32x - 34 \\ \hline \text{Divide by } -35 & -35x + 35 \\ & x - 1 \end{array}$$

The common factor of the original expressions is also a factor of this last remainder. Divide the preceding quotient by this last remainder.

$$\begin{array}{r|l} x - 1 & x^2 + 16x - 17 \mid x + 17 \\ & x^2 - x \\ \hline & +17x - 17 \\ & 17x - 17 \end{array}$$

When a remainder is found which exactly divides the preceding divisor, it is the H. C. F. required.

Hence, the H. C. F. of the above numbers is $(x - 1)$.

If the process is continued until the final remainder is a numerical quantity, there is no common factor and the numbers are prime to each other.

LOWEST COMMON MULTIPLE.

Def. The *lowest common multiple* (L. C. M.) of two or more algebraic expressions is the expression of lowest degree and smallest numerical coefficient which exactly contains each.

To find the lowest common multiple. First method.

Rule. *Separate each expression into its prime factors. The least common multiple is the product of all the different prime factors, each taken as many times as it occurs in any of the original expressions.*

EXAMPLE. Find the L. C. M. of
$(x^2 - 1)$, $(x^2 + 2x + 1)$, $(x^2 + 8x + 7)$.

Factoring,
$x^2 - 1 = (x + 1)\ (x - 1)$.
$x^2 + 2x + 1 = (x + 1)^2$.
$x^2 + 8x + 7 = (x + 1)\ (x + 7)$.

In order that an expression may be a multiple of $x^2 - 1$, it must contain $x + 1$ and $x - 1$.

In order that it may contain $x^2 + 2x + 1$, it must contain the factor $x + 1$ repeated.

In order that it may contain $x^2 + 8x + 7$, it must contain the factors $x + 1$, and $x + 7$.

However, if an expression contains $x + 1$ repeated, it needs only to contain $x - 1$ to be multiple of $x^2 - 1$, and $x + 7$ to be a multiple of $x^2 + 8x + 7$.

Hence,
L. C. M. $= (x + 1)^2\ (x - 1)\ (x + 7)$.

Second method.

Rule. *Divide each expression by the H. C. F. of the given expression. The L. C. M. is the product of the H. C. F. and the quotients so found.*

EXAMPLE. Find the L. C. M. of
$x^2 - 5x + 6$, $x^2 - 7x + 12$.

The H. C. F. $= x - 3$.
$(x^2 - 5x + 6) \div (x - 3) = x - 2$.
$(x^2 - 7x + 12) \div (x - 3) = x - 4$.
$\therefore$ L. C. M. $= (x - 3)\ (x - 2)\ (x - 4)$.

FRACTIONS.

In arithmetic, a fraction is first regarded as indicating how many equal parts of a unit are to be considered. Later, a fraction is seen to be an indicated division. By their use, division of any number by any other number is possible. The same holds true for the numbers of algebra.

Def. An *algebraic fraction*, or more briefly, a *fraction*, is an indicated division between two algebraic expressions. The fraction is written $\frac{a}{b}$. The expression above the line is called the *numerator* of the fraction. It is the dividend in the indicated division. The expression below the line is called the *denominator*. It is the divisor in the indicated division. The *value* of the fraction is the quotient.

The letters, a and b, may represent any number, positive or negative, or any algebraic expression with only one exception. This exception which was noted in the section on division, follows:

The denominator, b, of a fraction can never be zero. (Division by zero is not permitted).

Def. The *terms* of a fraction are the numerator and the denominator.

The same operations can be performed on the terms of a fraction in algebra as in arithmetic.

1. The terms may both be multiplied by the same number without changing the value of the fraction.

2. The terms may both be divided by the same number without changing the value of the fraction.

3. Multiplying the numerator by any number multiplies the value of the fraction by the same number.

4. Dividing the numerator by any number divides the value of the fraction by the same number.

5. Dividing the numerator is the same as multiplying the denominator, and multiplying the numerator is the same as dividing the denominator.

The laws for signs in division may be extended to fractions by recalling the relation between the terms of a fraction and the terms of a division.

There are three signs in connection with a fraction; the *sign of the fraction* which is written before the dividing line, the *sign of the numerator*, and the *sign of the denominator*.

Since two minus signs in multiplication and division combine to make a plus, it follows that any two of the signs of a fraction may be changed without changing the value of the fraction.

E.g. The same fraction may be written in any of the following forms:

$$\frac{a}{b} = \frac{-a}{-b} = -\frac{-a}{b} = -\frac{a}{-b}.$$

Def. A *proper fraction* in algebra is a fraction in which the degree of the numerator is less than the degree of the denominator.

EXAMPLE. $\dfrac{ax}{x^2+1}$.

Def. An *improper fraction* in algebra is a fraction in which the degree of the numerator is equal to or greater than the degree of the denominator.

EXAMPLE. $\dfrac{x^2-2x+3}{x+1}$.

Def. A *mixed number* is an algebraic expression which contains both integral and fractional parts.

EXAMPLE. $x-1+\dfrac{x+1}{x}$.

REDUCTION OF FRACTIONS.

Def. To *reduce a fraction* is to change its form without changing its value.

Def. A fraction is *reduced to its lowest terms*, when its terms have no common factor.

To reduce a fraction to its lowest terms.

Write the numerator and denominator in factored form. Cancel the factors common to both.

EXAMPLES. $\dfrac{3ax^2y}{12axy^2} = \dfrac{\cancel{3}\cancel{a}\cancel{x}\cancel{x}\cancel{y}}{\cancel{3}\cdot 4\cancel{a}\cancel{x}\cancel{y}y} = \dfrac{x}{4y}$.

$$\frac{x^2-4}{x^2-5x+6} = \frac{(x+2)(x-2)}{(x-3)(x-2)} = \frac{x+2}{x-3}$$

In cancelling, one must be sure that the terms cancelled are factors of the entire numerator or of the entire denominator. Students often make the mistake of cancelling numbers which are alike even when they are part of polynomial expressions connected with the rest of the term of the fraction by plus or minus signs. The following method of cancelling is incorrect.

$$\frac{x^2-4}{x^2-5x+6} = \frac{\cancel{x^2}-4}{\cancel{x^2}-5x+6} = \frac{-4}{-5x+6}.$$ Wrong.

The terms must first be factored.

$$\frac{x^2-4}{x^2-5x+6} = \frac{(x+2)\cancel{(x-2)}}{\cancel{(x-2)}(x+3)} = \frac{x+2}{x+3}.$$ Correct.

To reduce an improper fraction to a mixed number.

Divide the numerator by the denominator. Write the quotient as the integral part and the remainder over the denominator as the fractional part of the mixed number.

EXAMPLE. $\dfrac{x^3+3x^2-2x+1}{x^2+1} = x+3-\dfrac{3x+2}{x^2+1}$

Divisor. x^2+1) x^3+3x^2-2x+1 ($x+3$ Quotient

$x^3 \quad +x$

$+3x^2-3x+1$

$3x^2 \quad +3$

$-3x-2 = -(3x+2)$ Remainder.

To reduce a mixed number to an improper fraction.

Multiply the integral part of the number by the denominator of the fractional part. Add this product to the numerator of the fractional part and write the result over the original denominator.

EXAMPLE. $x^2-4x+1-\dfrac{4}{2x} = \dfrac{2x^3-8x^2+2x-4}{2x}$

To reduce two or more fractions to their lowest common denominator.

Find the L. C. M. of the denominators. This is the least common denominator. (L. C. D.)

Divide the L. C. D. by each denominator.

Multiply the corresponding numerator by the quotient thus obtained and write the products over the L. C. D.

Notice that this involves multiplying the terms of the fraction by the same number or expression. By (1) above, this does not change the value of the fraction.

EXAMPLE. Reduce $\dfrac{1}{x^2-3x-4}$ and $\dfrac{1}{x^2+3x+2}$ to a common denominator.

$$\frac{1}{x^2-3x-4} = \frac{1}{(x-4)(x+1)} = \frac{x+2}{(x-4)(x+1)(x+2)}.$$

and

$$\frac{1}{x^2+3x+2} = \frac{1}{(x+2)(x+1)} = \frac{x-4}{(x-4)(x+1)(x+2)}.$$

Since the L. C. D. $= (x-4)(x+1)(x+2)$.

ADDITION AND SUBTRACTION OF FRACTIONS.

Only like numbers can be added to or subtracted from each other. With this in mind, the following rule may be stated.

Rule. To add or subtract two or more fractions, reduce the fractions to a common denominator, preferably the L. C. D.

To add, find the algebraic sum of the new numerators.

To subtract, change the sign of each term in the numerator of the fraction to be subtracted and add.

Place the resulting expression over the common denominator and reduce the resulting fraction to its lowest terms.

EXAMPLE. Simplify,

$$\frac{x^2}{x^2-1} + \frac{x}{x+1} - \frac{x}{x-1}.$$

The L. C. D. $= x^2-1 = (x+1)(x-1)$

$$\frac{x^2}{x^2-1} = \frac{x^2}{(x+1)(x-1)}$$

$$\frac{x}{x+1} = \frac{x(x-1)}{(x+1)(x-1)} = \frac{x^2-x}{(x+1)(x-1)}$$

$$-\frac{x}{x-1} = -\frac{x(x+1)}{(x+1)(x-1)} = \frac{-x^2-x}{(x+1)(x-1)}$$

The sum of the numerators is $x^2 + x^2 - x - x^2 - x = x^2 - 2x$.

Hence, $\frac{x^2}{x^2-1} + \frac{x}{x+1} - \frac{x}{x-1} = \frac{x^2-2x}{(x+1)(x-1)} = \frac{x(x-2)}{x^2-1}$

Notice that the sign of subtraction in the last fraction is changed along with the sign of the numerator. The algebraic sum of the numerators is then found and placed over the L. C. D

MULTIPLICATION.

With proper regard for the signs of the various terms, fractions in algebra are multiplied in the same manner as in arithmetic.

Rule. To multiply two or more algebraic fractions, find the product of the numerators and write it as the required numerator over the product of the denominators which is the required denominator.

The above process is greatly simplified by the following operations.

Factor each numerator and each denominator.

Write the indicated product of all the numerators over the indicated product of all the denominators.

Cancel all factors which are common to numerators and denominators.

Multiply the remaining factors in the numerator and denominator to get the terms of the required product.

The sign of the product is governed by the laws of signs as stated in the section on multiplication above.

EXAMPLE. Find the product of the following $\frac{x+1}{x^4-1}$ and $\frac{x^2-1}{(x+1)^2}$.

$$\frac{x+1}{x^4-1} \times \frac{x^2-1}{(x+1)^2} = \frac{\cancel{(x+1)}}{\cancel{(x+1)}\cancel{(x-1)}(x^2+1)\cancel{(x+1)}(x+1)} \cancel{\frac{(x+1)(x-1)}{}}$$

$$= \frac{1}{(x^2+1)(x+1)} = \frac{1}{x^3+x^2+x+1}$$

DIVISION.

Division is the reverse of multiplication.

Rule. To divide by a fraction, invert the divisor and multiply.

This is the same rule as is used in arithmetic.

The work of division by fractions is simplified by following the same steps in the solution of the problem as in multiplication.

EXAMPLE. Divide $\frac{x^2-6x-16}{x^2+4x-21}$ by $\frac{x^2+9x+14}{x^2-8x+15}$

$$\frac{x^2-6x-16}{x^2+4x-21} + \frac{x^2+9x+14}{x^2-8x+15} = \frac{x^2-6x-16}{x^2+4x-21} \cdot \frac{x^2-8x+15}{x^2+9x+14}$$

$$= \frac{(x-8)\cancel{(x+2)}\cancel{(x-3)}(x-5)}{(x+7)\cancel{(x-3)}\cancel{(x+2)}(x+7)}$$

$$= \frac{(x-8)(x-5)}{(x+7)(x+7)} = \frac{x^2-13x+40}{x^2+14x+49}$$

Def. A *complex fraction* is a fraction containing fractional expressions either in the numerator or in the denominator or in both.

To simplify a complex fraction.

Reduce both the numerator and denominator to fractional form. Then multiply the numerator by the inverse of the denominator.

EXAMPLE. Simplify $\frac{a+1-\frac{1}{a}}{a+\frac{3}{a}-\frac{1}{a^2}}$.

Reduce numerator and denominator to fractional form.

$$\frac{a+1-\frac{1}{a}}{a+\frac{3}{a}-\frac{1}{a^2}} = \frac{\frac{a^2+a-1}{a}}{\frac{a^3+3a-1}{a^2}}$$

$$= \frac{a^2+a-1}{\cancel{a}} \times \frac{\cancel{a^2}}{a^3+3a-1}$$

$$= \frac{a(a^2+a-1)}{a^3+3a-1}$$

FRACTIONAL EQUATIONS.

Many problems lead in their solutions to equations involving fractions.

In order to solve equations of this kind, notice is taken of the fact that if a fraction is equal to zero, its numerator must be zero. Hence, if the entire expression can be reduced to a single fraction equal to zero, the equation can be replaced by the numerator set equal to zero.

In practice, it is customary to reduce each member of the equation to the same denominator, and then drop this denominator. This process may be accomplished in one operation by the following rule.

Rule. Remove all parenthesis.

Multiply both members of the equation by the L. C. D. of the fractions involved, and solve the resulting equation.

In simplifying the resulting expressions, remember that a minus sign before a fraction changes all the signs in the numerator when it is to be combined with other numerators. If the work is correctly performed, the members of the equation will be clear of fractions.

EXAMPLE. Solve $\frac{1}{x} + \frac{2}{x-1} = \frac{8}{x(x-1)}$.

Solution. L. C. D. $= x(x-1)$.

Multiplying both members by $x(x-1)$.

$$\frac{\cancel{x}(x-1)}{\cancel{x}}\frac{1}{} + \frac{x\cancel{(x-1)}}{\cancel{(x-1)}}\frac{2}{} = \frac{\cancel{x}\cancel{(x-1)}}{\cancel{x}\cancel{(x-1)}}\frac{8}{}$$

$$x - 1 + 2 = 8$$
$$3x = 9$$
$$x = 3$$

To check, substitute above

$$\frac{1}{3} + \frac{2}{3-1} = \frac{8}{3(3-1)}$$

$$\frac{1}{3} + 1 = \frac{8}{3 \cdot 2}$$

$$\frac{4}{3} = \frac{4}{3}$$ Check.

Problem. A, B, C can do a piece of work in 6 days. A can do it alone in 15 days, B can do it alone in 18 days. How long will it take C to do the work?

Solution. Let x = Number of days it will take C to do the work,

Then $\frac{1}{15}$ = Amount A does in one day.

$\frac{1}{18}$ = Amount B does in one day.

$\frac{1}{x}$ = Amount C does in one day.

$\frac{1}{6}$ = Amount they do working together in one day.

Hence, $\frac{1}{15} + \frac{1}{18} + \frac{1}{x} = \frac{1}{6}$

Multiplying by the L.C.D. $= 90x$ gives

$6x + 5x + 90 = 15x$

Transposing,

$11x - 15x = -90$

$x = \frac{90}{4} = 22\frac{1}{2}$ days.

To check, substitute in the equation.

Problem. Two men start at the same time to travel from A to a town B 80 miles distant. One man travels 4 miles an hour faster than the other and arrives at the town first. He immediately starts back and meets the other man 64 miles from A. How fast did each man travel?

Solution. Let x = rate per hr. of slower man.

Then $x + 4$ = rate per hr. of faster man.

$\frac{64}{x}$ = time first man was traveling.

$\frac{96}{x+4}$ = time second man was traveling.

By the conditions of the problem these times are equal.

$$\frac{96}{x+4} = \frac{64}{x}$$

Multiplying by the L.C.D. $= x(x+4)$,

$96x = 64(x+4) = 64x + 256$.

or $32x = 256$.

$x = 8$ rate of one man.

$x + 4 = 12$ rate of other.

To check, notice that one will have gone $8 \times 8 = 64$ miles while the other will have gone $8 \times 12 = 96$ miles.

SIMULTANEOUS SIMPLE EQUATIONS.

An equation in two or more unknowns is satisfied by an indefinitely great number of pairs or sets of values for the unknowns.

E.g. $2x - y = 4$ is satisfied by the following pairs of values; the x value being written first and the y value second: (2, 0), (3, 2), (6, 8), (1, −2), etc.

Def. An equation is said to be of the *first degree in two variables* if neither is multiplied by itself or by the other. If the variables are x and y, powers of either of these letters are excluded and so are terms containing the product xy.

Def. A set of equations is said to be *simultaneous* if each is satisfied by the same sets of values of the unknowns. If there are two unknowns, there must be two equations. If there are three unknowns, there must be three equations, etc.

Not all sets of equations are simultaneous. Some may not be satisfied by the same set of values. These are called *contradictory* equations. Others are so related that any set of values which satisfies one equation will also satisfy the other. These are called *dependent equations.* Equations of this kind can be derived from each other by addition and subtraction.

Def. Two equations are said to be *independent,* if neither can be derived from the other.

EXAMPLES.

The equations $2x - y = 4$ are independent.
$x + y = 6$

The equations $2x - 3y = 1$ are dependent.
$6x - 9y = 3$

The equations $x + 2y = 6$ are contradictory.
$x + 2y = 10$.

To solve simultaneous independent equations.

Def. *Elimination* is the process of combining the equations in such a way that one of the unknowns is cancelled.

Rule. To solve simultaneous equations, eliminate all but one of the unknowns. Solve the resulting equation for this unknown and substitute in the preceding equations to find the values of the other unknowns.

1. Elimination by addition or subtraction.

In this process, an examination of the equations will indicate which variable can be eliminated most easily. Multiply each equation by some number which will make the coefficient of this letter the same in each equation.

If these coefficients have like signs, subtract the equations; if they have unlike signs, add.

Solve for the remaining unknown. Substitute this value in either of the preceding equations and solve for the other variable.

To check, substitute the pair of values so found in both the original equations.

EXAMPLE. Solve and check the following pair of equations,

$$\begin{cases} x + y = 6 & (1) \\ 5x - 2y = 21 & (2) \end{cases}$$

Using the smaller coefficient, multiply the first equation (1) by 2. (NOTE.—This means, of course, multiplying both members of the equation by (2).) Subtract the result from the second equation, (2).

$5x - 2y = 21$ (2)
$2x - 2y = 12$ (3)

$3x = 9$

or $x = 3$

Substituting in (1) above, gives,

$3 - y = 6$

$-y = 3$

or $y = -3$

Hence, the solution is $x = 3$, $y = -3$.

To check, substitute in the original equations.

and $3 - (-3) = 3 + 3 = 6$

$5 \cdot 3 - 2(-3) = 15 + 6 = 21$ check.

2. Elimination by substitution.

In this process, solve one of the equations for one of the unknowns in terms of the other unknown.

Substitute the expression so found for this unknown in the other equation and solve the resulting equation.

Complete the solution as in Case 1.

EXAMPLE. Solve and check the following pair of equations.

$$\begin{cases} 2x + y = 3 & (1) \\ 3x - 4y = 10 & (2) \end{cases}$$

Solve (1) for y.

$y = 3 - 2x$ (3)

Substitute (3) in (2), and solve.

$3x - 4(3 - 2x) = 10$

$3x - 12 + 8x = 10$

$11x = 22$

or $x = 2$

Substituting in (1) gives,

$$y = -1$$

To check, substitute in the original equations,

$$2 \cdot 2 + (-1) = 4 - 1 = 3$$
$$3 \cdot 2 - 4(-1) = 6 + 4 = 10 \quad \text{Check.}$$

3. Elimination by comparison.

In this process, each equation is solved for the same unknown in terms of the other unknown.

The expressions so found are set equal to each other and the resulting equation solved.

Complete the solution as in the other two cases.

EXAMPLE. Solve and check the following pair of equation

$$2x + 3y = 5 \quad (1)$$
$$5x + 2y = 7 \quad (2)$$

From (1)

$$3y = 5 - 2x$$
$$y = \frac{5 - 2x}{3} \quad (3)$$

From (2)

$$2y = 7 - 5x$$
$$y = \frac{7 - 5x}{2} \quad (4)$$

Equating these values of y

$$\frac{5 - 2x}{3} = \frac{7 - 5x}{2} \quad (5)$$

Clear fractions and solve

$$10 - 4x = 21 - 15x$$
$$11x = 11$$
$$x = 1$$

Substituting in (3) $y = \frac{7 - 5}{2} = 1$

To Check, substitute in the original equations.

$$2 + 3 = 5$$
$$5 + 2 = 7 \quad \text{Check.}$$

Simultaneous equations in more than two unknowns are solved by an extension of the above methods.

The graph. A linear equation in two unknowns may be represented by a straight line. Simultaneous independent equations are shown by two intersecting straight lines. The point of intersection represents the solution of the equations.

Many problems occur where it is necessary to form the equations from the conditions which are given. To check problems, the values found must be tried in the problem rather than in the equations as the equations may be incorrect.

Problem. The sum of the length and width of a room is 32 feet. If 2 feet is added to the length and 6 feet is added to the width, the area of the room is increased by 148 sq. ft. What are the dimensions of the room?

Solution. Let x = length of room.
y = width of room.

Then, xy = area of room,
$x + 2$ = length increased by 2,
$y + 6$ = width incresed by 6,

and $(x + 2)(y + 6)$ = new area.

By the conditions of the problem,

$$x + y = 32 \quad (1)$$

and $(x + 2)(y + 6) = xy + 148$

or $xy + 6x + 2y + 12 = xy + 148$

The xy term cancels and this equation becomes,

$$6x + 2y = 136$$

or $3x + y = 68, \quad (2)$

$$x + y = 32. \quad (1)$$

Eliminate by subtracting, (1) from (2).

$$2x = 36$$
$x = 18$ length of room,

and $y = 14$ width of room,

To check, notice that $18 + 14 = 32$, $18 + 2 = 20$ while $14 + 6 = 20$. Also, $20 \times 20 = 400$ which is 148 greater than $18 \times 14 = 252$. Check.

QUADRATIC EQUATIONS.

A quadratic equation has been defined as one made up of a polynomial of the second degree set equal to zero.

$$ax^2 + bx + c = 0.$$

Def. A *pure quadratic equation* is a quadratic equation which does not contain a term of the first degree in the unknown. Such equations are of the form $ax^2 + c = 0$.

To solve a pure quadratic.

Solve the equation for the square of the unknown.

The value of the unknown is the square root of the right hand member with the ± sign.

EXAMPLE. Solve $5x^2 - 3 = 1 - 4x^2$.

Given $5x^2 - 3 = 1 - 4x^2$

Transpose $5x^2 + 4x^2 = 1 + 3$

Combine $9x^2 = 4$

Divide by 9 $x^2 = \frac{4}{9}$

Extract the square root.

$$x = \pm\sqrt{\frac{4}{9}} = \pm\frac{2}{3}$$

Check by substituting in original equation.

$$5\left(\pm\frac{2}{3}\right)^2 - 3 = 1 - 4\left(\pm\frac{2}{3}\right)^2$$
$$\frac{20}{9} - 3 = 1 - \frac{16}{9}$$
$$-\frac{7}{9} = -\frac{7}{9} \quad \text{Check.}$$

Def. A quadratic equation that is not a pure quadratic is called *an affected quadratic equation.* It contains terms of the first and second degree in the unknown. The constant may or may not be zero.

There are 4 methods in common use in solving quadratic equations. The method by factoring, has already been noticed in connection with the section on factoring. The others are illustrated below.

1. By completing the square.

In this process the constant term is transposed to the right and such a number is added to both members of the equation *that the left member is the square of a binomial.*

The square root of both sides of the equation is then taken placing the ± sign in front of the right hand member only.

This gives two equations, one for the + sign and one for the − sign. Each of these is solved giving, in general, two values for the unknown.

EXAMPLE. Solve for x in $x^2 - 8x + 14 = 0$

Given $x^2 - 8x + 14 = 0$

Transposing $x^2 - 8x = -14$

Completing the square

$x^2 - 8x + 16 = -14 + 16 = 2$

Extracting the square root of both sides

$$x - 4 = \pm\sqrt{2} = \pm 1.414 \text{ approx.}$$

Using + sign $x - 4 = +1.414$
$x = 5.414$ root

Using − sign $x - 4 = -1.414$
$x = 4 - 1.414 = 2.586$ root

In problems of this nature where the roots are obtained approximately, the checked solution is only approximately equal to 0.

2. The "Hindu" or "4a" method.

This method is a modification of the preceding and is used when the former would involve the use of fractions in completing the square.

In this process, the equation is *multiplied by 4 times the coefficient of the square term.* The square on the left is then completed by adding the square of the original coefficient of the unknown to both sides of the equation. The remainder of the solution is the same as that explained above.

EXAMPLE. Solve for x in $3x^2 - 7x + 4 = 0$.

Given $3x^2 - 7x + 4 = 0$

Transpose $3x^2 - 7x = -4$

Multiply by $4.3 = 12$

$36x^2 - 84x = -48$

Complete the square by adding $7^2 = 49$ to both members.

$36x^2 - 84x + 49 = -48 + 49 = 1$

Extract the square root of both members.

$6x - 7 = \pm 1$

+ sign gives $6x - 7 = 1$

$6x = 8$

$x = \frac{8}{6}$ or $\frac{4}{3}$

− sign gives $6x - 7 = -1$

$6x = 6$

$x = 1$

To Check

$3\left(\frac{4}{3}\right)^2 - 7\left(\frac{4}{3}\right) + 4 = \frac{16}{3} - \frac{28}{3} + 4 = 0$ Check.

and $3 - 7 + 4 = 0$ Check.

3. By the formula.

Any quadratic equation can be expressed in the form $ax^2 + bx + c = 0$. Using the 4a method on this equation with literal coefficients, the following general result is obtained.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

This expression may be used as a formula and the values of x found by substituting the values of the coefficients as they occur in the equation.

Solution. Solve for x in $5x - 1 = 4x^2$.

Writing the equation in standard form.

$4x^2 - 5x + 1 = 0$

Here $a = 4$, $b = -5$, $c = 1$.

Substituting in the formula.

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4.4.1}}{2.4}$$

$$= \frac{5 \pm \sqrt{25 - 16}}{8}$$

$$= \frac{5 \pm \sqrt{9}}{8} = \frac{5 \pm 3}{8}$$

$= \frac{8}{8} = 1$, using + sign

or $= \frac{2}{8} = \frac{1}{4}$, using − sign

To Check

$4.1^2 - 5.1 + 1 = 4 - 5 + 1 = 0$

and $4\left(\frac{1}{4}\right)^2 - 5\left(\frac{1}{4}\right) + 1 = \frac{1}{4} - \frac{5}{4} + 1 = 0$ Check

Problem. The area of a triangle is 40 square feet. The base of the triangle is seven times the altitude plus 2 feet. Find the lengths of the sides of the triangle.

SOLUTION. Let x = Altitude of triangle.

$7x + 2$ = Base of triangle

By the conditions of the problem

$\frac{1}{2}x(7x + 2) = 40$

or $7x^2 + 2x = 80$

or $7x^2 + 2x - 80 = 0$

Substituting in the formula

$$x = \frac{-2 \pm \sqrt{2^2 - 4.7(-80)}}{2.7}$$

$$= \frac{-2 \pm \sqrt{4 + 2240}}{14}$$

$$= \frac{-2 \pm \sqrt{2244}}{14}$$

$$= \frac{-2 \pm 47.3 +}{14}$$

$$= \frac{45.3}{14} = 3.23 \text{ Approx.}$$

The − sign gives x neg which has no meaning in the problem.

Hence $x = 3.23$ Approx. altitude

$7x + 2 = 24.61$ Approx. base

To Check, $1/2 \times 3.23 \times 24.61 = 39.79+$ which is approximately 40.

If the solution of a quadratic leads to the extraction of the square root of a negative number, the equation has no real roots.

SQUARE ROOT.

The square and square root of monomials have already been considered.

The rule for squaring a binomial, i.e.,

$$(a + b)^2 = a^2 + 2ab + b^2.$$

furnishes the basis for a general solution of the problem; *To find the square root of a polynomial.*

In order to understand the steps in the process, it is necessary to notice that any polynomial may be considered as a binomial expression in which the first term of the polynomial is regarded as the first term, and the algebraic sum of the rest of the polynomial as the second.

The first term of the root is obviously the square root of the first term, i.e., a.

The second term of the square root is seen to be the second term divided by 2 times the first term; i.e., b.

This process may be extended by considering the first two terms of the polynomial as the first term of the above binomial form and the balance of the polynomial as the second term.

E. g. Find the square root of $24a^2 - 8a^3 + 16 - 32a + a^4$.

Arrange in descending powers of a.

$a^4 - 8a^3 + 24a^2 - 32a + 16 \mid a^2 - 4a + 4$

a^4

$2.a^2 = 2a^2 \mid -8a^3 + 24a^2$

$-4a$

$2a^2 - 4a \mid -8a^3 + 16a^2$

$2(a^2 - 4a) = 2a^2 - 8a \mid +8a^2 - 32a + 16$

$+4$

$2a^2 - 8a + 4 \mid 8a^2 - 32a + 16$

Hence, the square root $= \pm (a^2 - 4a + 4)$.

The steps in the process are explained in the following rule.

Rule. To extract the square root of a polynomial, proceed as follows.

Arrange the polynomial according to ascending or descending powers of some letter in it.

Extract the square root of the first term, writing the expression so found with the plus sign as the first term of the root, and subtract its square from the polynomial.

Use twice the root already found as a trial divisor, and the first term of the remainder as a dividend, writing the quotient as the second term of the root, at the same time annexing it to the trial divisor to form the complete divisor.

Multiply the complete divisor by the term of the root just found and subtract the product from the remainder of the polynomial.

If there is still a remainder, use twice the root already found as a trial divisor and repeat the process. This may be continued till there is no remainder, in which case the polynomial is a perfect square; or it may be continued by the use of negative exponents until the required number of terms have been found.

The double sign, ±, is then placed before the root so found.

In arithmetic, this same process is used. The number 4356 is treated as

$$(4\cdot10^3 + 3\cdot10^2 + 5\cdot10 + 6)$$

and the above method applied. Problems of this nature are solved in the section on arithmetic.

SQUARE ROOT IN ARITHMETIC.

The number 66, is treated as 6.10 + 6. The square of this number is found by the rule for the square of a binomial.

$$(6\,.\,10 + 6)^2 = (6\,.\,10)^2 + 2\,.\,6\,.\,10\,.\,6 + 6^2$$
$$= 3600 + 720 + 36 = 4356.$$

The $(6\,.\,10)^2$ corresponds to 3600. This taken from 4356 leaves 756 which is equal to $(2\,.\,6\,.\,10 + 6)\,.\,6$. The arrangement is as follows:

$$\begin{array}{rl} & \begin{array}{cccc} * & * & & \\ 4 & 3 & 5 & 6 \end{array} \;\Big|\; \underline{6\;6} \\ & \underline{3\;6} \\ 2\,.\,6\,.\,10 = 120 & \Big|\; 7\;5\;6 \\ \underline{+\;6} & \\ 126 & \Big|\; 7\;5\;6 \end{array}$$

For a detailed explanation as to how to point off the number in periods, etc., see the section on square root in the article on arithmetic.

CUBE ROOT.

The rule for cubing a binomial, i.e.,

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3,$$

in like manner furnishes the basis for the solution of the problem; *To find the cube root of a polynomial.*

The above expression may be written in the following form, $a^3 + (3a^2 + 3ab + b^2)b$.

Hence, the cube root of the first term of the polynomial must be found by inspection. The second divisor is made up of $3a^2 + 3ab + b^2$, i.e., three times the square of the root already found, plus three times the root already found times the next number of the root (found by dividing the first term of the remainder by three times the square of the root already found), plus the square of the next number of the root.

The method of extracting the cube root of an arithmetical number is an adaption of this method.

EXAMPLE. Find the cube root of $27x^3 - 54x^2y + 36xy^2 - 8y^3$,

$$\begin{array}{rll} & 27x^3 - 54x^2y + 36xy^2 - 8y^3 & \Big|\; \underline{3x - 2y} \\ & \underline{27x^3} & \Big| \\ 3a^2 = 3\,.\,(3x)^2 = 27x^2 & -54x^2y + 36xy^2 - 8y^3 & \Big| \\ 3ab = 3\,.\,(3x)\,(-2y) = -18xy & & \Big| \\ b^2 = (-2y)^2 = 4y^2 & & \Big| \\ \text{Adding} \quad 27x^2 - 18xy + 4y^2 & -54x^2y + 36xy^2 - 8y^3 & \Big| \end{array}$$

RADICALS.

Def. A *radical expression*, or *radical*, is the indicated root of an algebraic expression. The small number written just above and to the left of the radical, called the *index*, indicates what root is to be taken. If no index is written, the square root is to be taken.

Def. The number under the radical sign is called the *radicand*.

E.g. In the radical expression $\sqrt{3ax}$, the radicand is $3ax$.

Def. An expression is said to be *rational* if it can be expressed as a polynomial or as the quotient of polynomials.

E.g. $3ax$, $5x^2 - 3$ and $ax + y$, are rational expressions.

Def. Any expression which is not rational is said to be *irrational*.

Def. A *surd* is a radical which cannot be reduced to a rational expression.

E.g. $\sqrt{3x}$, $\sqrt{x-1}$, $\sqrt{x^2 - ax + 4}$ are surds.

Def. The *order of a surd* or radical is the number of the root to be taken as indicated by the index.

E.g. $\sqrt{3ax}$ is a surd of the second order, sometimes called a quadratic surd. $\sqrt[3]{x+1}$ is a surd of the third order.

Def. The product of a rational factor and a surd is called a *mixed surd*.

E.g. $(x + 1)\sqrt{3x - 2}$ is a mixed surd.

Def. An *entire surd* is a surd which has no rational factor other than 1.

E.g. $\sqrt{x^2 - 3}$ is an entire surd.

Def. *To reduce a radical* is to change its form without changing its value.

To reduce a surd to its simplest form.

Factor the radicand so that one factor will be a perfect power of the same degree as the order of the radical. Extract the indicated root of all such factors, and write the product of these roots times the given root of the remaining factors.

EXAMPLE. Simplify

$$\sqrt[3]{32x^6y^4} = \sqrt[3]{8\,.\,x^6y^3\,.\,4y}$$
$$= \sqrt[3]{(2x^2y)^3}\,.\,\sqrt[3]{4y}$$
$$= 2x^2y\,\sqrt[3]{4y}\,.$$

EXAMPLE. Simplify $\sqrt[4]{625x^5y\,(x-y)^4}$

$$\sqrt[4]{625x^5y\,(x-y)^4} = \sqrt[4]{5^4x^4\,(x-y)^4}\,.\,\sqrt[4]{xy}$$
$$= 5x\,(x-y)\,\sqrt[4]{xy}$$

The above process makes use of the fact that the square root of a perfect square is the number, that the cube root of a perfect cube is the number, and in general the nth root of a perfect nth power of a number is the number itself. This problem is considered further in the section on exponents.

To reduce a mixed surd to an entire surd.

Raise the rational part of the expression to a power equal to the order of the radical. Multiply this result by the expression under the radical sign and write the result under the radical sign.

EXAMPLES. Reduce to entire surds.

$$b^2\sqrt{a^3} = \sqrt{b^4} \cdot \sqrt{a^3} = \sqrt{a^3b^4}$$

$$(a+b)\sqrt{\frac{1}{a+b}} = \sqrt{(a+b)^2} \cdot \sqrt{\frac{1}{a+b}}$$

$$= \sqrt{(a+b)^2 \cdot \frac{1}{(a+b)}} = \sqrt{a+b}.$$

Def. Two surds are said to be *similar* when they have the same index and the same radicand.

The introduction of radicals has led to a *new kind of number*. This calls for an examination as to the conditions under which and the ways in which these numbers can be added, subtracted, multiplied and divided.

The enlarging of the number system has removed many of the original restrictions governing the use of numbers. When dealing with integers in arithmetic, a number can be subtracted only from numbers as large or larger than itself, a number can be divided only by a factor of itself, while square roots can be taken of comparatively few numbers. *The introduction of fractions* makes it possible to divide any number by any other number. *The introduction of negative numbers in algebra,* makes it possible to subtract any number from any other number. *The introduction of radicals* and irrational numbers makes it possible to extract the square root of all positive numbers.

The two operations on which restrictions are still placed are division and extraction of roots. *Division by zero is not permitted at any time* In the number system as at present developed *the extraction of the square root of negative numbers is not possible.* This last exception is removed by the definition of a new number, called *the imaginary.* It is defined to be the number whose square is -1. The numbers in this enlarged number system are called *complex numbers.*

Much of present progress in scientific lines is made possible by the use of these numbers. The operations on complex numbers will not be studied here.

The operations on radicals or surds are greatly simplified by the introduction of fractional exponents.

EXPONENTS AND RADICALS.

Exponents originally indicated the number of times a number was to be taken as a factor, as x^2, a^3, etc.

Since an exponent is a number, the meaning of addition, subtraction, multiplication and division must be considered. This results in what are known as the laws of exponents.

Laws of exponents.

ADDITION. *To multiply two or more powers of the same quantity, add the exponents of the quantity in each factor and write the sum as the exponent in the product.*

$$a^p \cdot a^q \cdot a^r = a^{p+q+r}$$

EXAMPLE. Multiply $4a^2x^3y$ by $3ax^2y^2$.

$$4a^2x^3y \cdot 3ax^2y^2 = 12a^{2+1}x^{3+2}y^{1+2}$$

$$= 12a^3x^5y^3.$$

SUBTRACTION. *To divide powers of the same quantity, subtract the exponents of the quantity in the divisor from the exponent in the dividend and write the difference as the exponent in the quotient.*

$$a^m \div a^n = \frac{a^m}{a^n} = a^{m-n}$$

EXAMPLE. Divide $12a^3b^4$ by $2a^2b^6$.

$$\frac{12a^3b^4}{2a^2b^6} = 6a^{3-2}b^{4-6}$$

$$= 6ab^{-2}$$

MULTIPLICATION. *To raise the power of a quantity to a power, multiply the exponent of the quantity by the required power and write the result as the exponent of the quantity.*

$$(a^m)^n = a^{mn}$$

EXAMPLE. Simplify $(2ab^2x^3)^3$

$$(2ab^2x^3)^3 = 2^3a^3b^{2\cdot3}x^{3\cdot3}$$

$$= 8a^3b^6x^9$$

DIVISION. *To extract a root of a power of a quantity, divide the exponent by the index of the root and write the quotient as the exponent in the required root.*

$$\sqrt[n]{a^m} = a^{\frac{m}{n}}$$

EXAMPLE. Find the cube root of $27a^6b^3$

$$\sqrt[3]{27a^6b^3} = \sqrt[3]{27}\cdot a^{\frac{6}{3}}\cdot b^{\frac{3}{3}}$$

$$= 3a^2b.$$

It is always possible to add and multiply numbers, and also exponents.

It is necessary to define zero and negative exponents so that the subtraction of exponents is always possible. This was done in connection with the work on division of monomials.

If division of exponents is always to be possible, the idea of exponents must be farther extended. E.g. Following the rule for extracting roots by dividing the exponent, the following interesting result is obtained.

$$\sqrt{a^3} = a^{\frac{3}{2}}$$

Here, the exponent 3/2 is made to mean the square root of the cube of a. It may also be considered as the cube of the square root of a.

It can be shown without difficulty that the laws of exponents holds when the exponents, powers and indices are *any kind of algebraic number.*

Relation between radicals and exponents.

Obviously, the fractional notation furnishes a convenient means of writing radicals. Certain operations on radicals are made much easier by the use of this notation.

To reduce two radicals to the same index.

Replace the radicals by fractional exponents. Reduce the exponents to a common denominator, performing the indicated operations. Rewrite in radical form.

EXAMPLE. Reduce $\sqrt[3]{ax^2}$ and $\sqrt{ax^3}$ to radicals having a common index.

$$\sqrt[3]{ax^2} = (ax^2)^{\frac{1}{3}} = (ax^2)^{\frac{3}{6}} = \sqrt[6]{(ax^2)^2} = \sqrt[6]{a^2x^4}.$$

$$\sqrt{ax^3} = (ax^3)^{\frac{1}{2}} = (ax^3)^{\frac{3}{6}} = \sqrt[6]{(ax^3)^3} = \sqrt[6]{a^3x^9}.$$

Addition and subtraction of radicals.

Similar radicals can be combined in one radical by adding the rational parts and writing the algebraic sum as the coefficient of the common radical.

EXAMPLE. Combine $\sqrt{50} + 3\sqrt{72} - 4\sqrt{18}$.

$$\sqrt{50} = \sqrt{25.2} = 5\sqrt{2}$$
$$3\sqrt{72} = 3\sqrt{36.2} = 3.6.\sqrt{2} = 18\sqrt{2}$$
$$-4\sqrt{18} = -4\sqrt{9.2} = -4.3\sqrt{2} = -12\sqrt{2}$$
$$\therefore 5\sqrt{2} + 18\sqrt{2} - 12\sqrt{2} = 11\sqrt{2}$$

Multiplication of radicals.

To multiply radicals having a common index, multiply the product of the coefficients by the product of the radicands written under a radical with the common index.

Surds or radicals having different indices must be reduced to surds having a common index. This is best done by the use of fractional exponents.

EXAMPLE. Multiply $\sqrt{3}$ by $\sqrt{27}$.

$$\sqrt{3} \cdot \sqrt{27} = \sqrt{3.27} = \sqrt{81} = 9.$$

EXAMPLE. Multiply $\sqrt[3]{ax^2}$ by $\sqrt{a^3x}$.

$$\sqrt[3]{ax^2} = (ax^2)^{\frac{1}{3}} = (ax^2)^{\frac{2}{6}} = (a^2x^4)^{\frac{1}{6}} = \sqrt[6]{a^2x^4}$$
$$\sqrt{a^3x} = (a^3x)^{\frac{1}{2}} = (a^3x)^{\frac{3}{6}} = (a^9x^3)^{\frac{1}{6}} = \sqrt[6]{a^9x^3}$$

Therefore,

$$\sqrt[6]{a^2x^4} \cdot \sqrt[6]{a^9x^3} = \sqrt{a^2x^4 \cdot a^9x^3}$$
$$= \sqrt[6]{a^{11}x^7}$$
$$= ax\sqrt[6]{a^5x}.$$

EXAMPLE. Multiply $(a + \sqrt{x})$ by $(b - \sqrt{x})$

$$\begin{array}{l} a + \sqrt{x} \\ \underline{b - \sqrt{x}} \\ ab + b\sqrt{x} \\ \underline{-a\sqrt{x} - (\sqrt{x})^2} \\ ab + (b-a)\sqrt{x} - x \text{ Product.} \end{array}$$

Division of radicals.

To divide monomial surds, having a common index, multiply the quotient of the coefficients by the quotient of the radicands written under a radical with the common index.

$$a\sqrt{x} \div b\sqrt{y} = \frac{a\sqrt{x}}{b\sqrt{y}} = \frac{a}{b} \cdot \sqrt{\frac{x}{y}}.$$

Monomial surds having different indices must be reduced to a common index by the use of fractional exponents.

EXAMPLE. Divide $\sqrt{8}$ by $\sqrt{24}$.

$$\frac{\sqrt{8}}{\sqrt{24}} = \sqrt{\frac{8}{24}} = \sqrt{\frac{1}{3}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}.$$

EXAMPLE. Divide x^3 by $\sqrt[3]{x}$.

$$\frac{x^3}{\sqrt[3]{x}} = \frac{x^3}{x^{\frac{1}{3}}} = \frac{x^{\frac{9}{3}}}{x^{\frac{1}{3}}} = x^{\frac{9}{3} - \frac{1}{3}} = x^{\frac{8}{3}} = \sqrt[3]{x^8}$$

When a divisor is a surd, especially if it is other than a monomial, it is best to write the indicated division as a fraction and then reduce it, when possible, to a fraction *whose denominator is rational.*

EXAMPLE. Rationalize the expression $x\sqrt{2ax}$.

The rationalizing factor is $\sqrt{2ax}$ since multiplying by this will make $\sqrt{2ax}$ rational.

$$x\sqrt{2ax} \cdot \sqrt{2ax} = x.2ax = 2ax^2.$$

This process is known as *rationalizing the expression.* It is accomplished in fractions by multiplying both terms of the fraction by an expression which will make the denominator a rational expression. The factor used in this process is called the *rationalizing factor.* It is determined by inspection.

When the divisor is a binomial, involving only the sum or difference of square roots, the denominator is rationalized by multiplying by the same terms connected by the opposite sign.

EXAMPLE. Rationalize the denominator of $\frac{a + \sqrt{x}}{a - \sqrt{x}}$.

Rationalizing factor $= a + \sqrt{x}$.

$$\frac{a + \sqrt{x}}{a - \sqrt{x}} \cdot \frac{a + \sqrt{x}}{a + \sqrt{x}} = \frac{a^2 + 2a\sqrt{x} + x}{a^2 - x}$$

EXAMPLE. Rationalize the denominator of $\frac{\sqrt{x} - \sqrt{y}}{\sqrt{x} + \sqrt{y}}$.

Rationalizing factor $= \sqrt{x} - \sqrt{y}$.

$$\frac{\sqrt{x} - \sqrt{y}}{\sqrt{x} + \sqrt{y}} \cdot \frac{\sqrt{x} - \sqrt{y}}{\sqrt{x} - \sqrt{y}} = \frac{x - 2\sqrt{xy} + y}{x - y}$$

GEOMETRY

1. Arithmetic. In the study of arithmetic, one learns to use numbers in particular computations. In connection with the work on mensuration and elsewhere, rules are given for finding areas, volumes, distances, weights and many other magnitudes. These rules are stated without any proof being offered. In some cases, the rules are made to look reasonable by actual examples in measuring. The number of pints in a gallon, the number of cubic inches in a cubic foot, the number of square yards in a carpet are often introduced in this way.

2. Algebra. In the study of algebra, one learns to use symbols and letters to indicate quantities that may take on many values in different problems and even in the same problem. By means of these letters and symbols, many of the rules used in arithmetic are stated in short general forms called formulas. If area is represented by A, the length of the base by b, the height by h, then the area of a rectangle is given by the formula; $A = b.h.$ Similarly, the area of a triangle is given by $A = \frac{1}{2}b.h.$ The area of a circle is stated; $A = \pi r^2$, where $\pi = 3.1416$ and r is the radius of the circle. No proof is attempted in algebra for relations of this kind.

3. Geometry. One comes now to a study of forms and to a proof of the rules and formulas used in arithmetic and algebra. The science which deals with the forms of bodies is called *Geometry*. It is one of the most ancient, and in many ways is the most elegant of the sciences. A brief history of the development of this subject will be of interest.

4. History of Geometry. The original meaning of the word, "geometry" was "measure of land," and, in this sense, we find the ancient Egyptians using the methods of the science in order to determine the equitable tax upon different plots of land as these changed with the annual inundation of the Nile. The Babylonians advanced beyond the areas of squares and rectangles to a consideration of the circumference and area of circles, calling the ratio between the diameter and the circumference three. In this connection, the writer of the Book of Kings says of the molten sea in the temple of Solomon that it was "ten cubits from brim to brim, round in compass, . . . and a line of thirty cubits compassed it round about." (1 Kings 7:23).

So far as is known, these early peoples were interested in the applications of geometry to the pressing problems of peace and war. In war, to solve the problems of destruction that would aid in conquest or protect in case of hostile attack. In peace, to erect pyramids and towers, buildings and monuments, that still stand as memorials to the greatness of their achievements.

The Greek mind was impressed not only with the practical value of geometry but even more with the beauty of its logic and the certainty of its conclusions. From Thales and Protagoras to Plato and Aristotle we find their philosophers examining, adding to and perfecting the subject. Plato causes Socrates to find a recognition or "recollection" of the truths of geometry in the mind of an untutored slave, and argued from this that, as the slave could not possibly have learned these facts from any one else, his mind must have contained these ideas from the beginning. This served as one of his arguments in support of the theory of innate ideas, a philosophy of thought that has had a great influence on the thinking of men in all succeeding times.

The achievements of the Greek mind in the field of geometry were collected and arranged by Euclid in the closing years of the fourth century B. C. His famous work was called the "Elements," a treatise containing fifteen "books," in which he developed the axioms, postulates and theorems of plane geometry in a form that has been little changed by time. Throughout 2200 years the study of geometry has held so high a place in the opinions of educators that they have continued to write over the entrance to higher education as Plato wrote over the door of the Academy in ancient Athens,

"Let none enter here without a knowledge of geometry."

5. Plane geometry was originally limited to a study of those forms which can be drawn with an unmarked ruler or straightedge and compasses. Some recent additions have left the field rather undefined so that writers on the subject are not in complete agreement as to what should and what should not be included in the subject. It is still made up in the main of the work set forth in Euclid's "Elements" and the mensuration of the circle, to which is added some work on the problems of loci or paths of moving points.

6. Much progress has been made in the study of other forms in the plane and in space. René Descartes joined algebra to geometry in the sixteenth century and laid the foundations for modern analytical geometry and the related fields of projective and descriptive geometry. More recently, the use of the calculus has given us new fields of study and the branch of the science known as differential geometry.

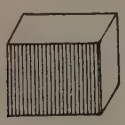
7. The field of mathematics naturally divides itself into the analytical, the geometrical, and the applied. The first of these begins with the theory of numbers in arithmetic and algebra. The second is first considered in plane geometry. The applications of both these branches of mathematics are begun in arithmetic. It is unfortunate that these various subjects are not studied together so that the relation between them could be observed. Many efforts are being made along this line both in this country and in Europe. The movement abroad has met with considerable success but no satisfactory combined course is yet available in this country. This tendency has helped a great deal, however, in bringing about many improved methods of presentation of the subjects in both the classrooms and the textbooks.

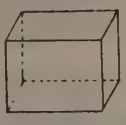
8. Plane geometry is and will continue for some time to come to be the main way of approach to a thorough understanding of mathematics. Apart from the importance of its theorems; the practice given the student in separating the essential from the non-essential,

the training given in thinking in an accurate and orderly manner, the ability trained to recognize a sufficient and completed proof, and other benefits will continue to recommend its study.

9. Geometry lays a careful foundation for itself. The terms used are defined with all the accuracy and precision possible. All statements made are either proved from the preceding statements and definitions, or the cause of accepting them as true is made clear. Some of these statements have to be accepted as true without proof. All such are carefully examined and stated for reference.

10. Certain of the terms used do not admit of satisfactory definition. Unless the student has a knowledge of the meaning of the words, point line, and plane, the pages of geometry will be unintelligible to him. These are called the *elements* of geometry and experience must help us to understanding of their meaning. The child playing with his blocks, balls, and





wheels is laying the foundations on which later we will erect his knowledge of our science. From his idea of a box, we will lead him naturally to the idea of the form of the box and so to a knowledge of the forms and elements that make up the same.

11. Plane. One side of the box is a square or rectangle. The sides of the box, being flat, are called *surfaces*, or *plane surfaces*. A plane surface extended indefinitely in every direction is called a *plane*.

In plane geometry, we have to do only with figures which lie in a plane. They have no thickness. They do have length and breadth. These are called the *dimensions* of the figure. Any figure in a plane is a plane figure. It cannot have more than two dimensions.

12. Line. Plane figures are composed of parts, which are called *lines*. The edge of the box extended in each direction is called a *line*. A line has only one dimension, which is length. Any part of a line such as is formed by the edge of the box produced is called a *straight line*. Any part of it can be placed on any other part and they will coincide. The child learns early that not all lines are straight.

13. Point. Two lines meet in a *point*. The corners of the box represent points. They have location or position, but no dimensions. We say, a point has neither length, breadth, nor thickness.

14. The statements used in geometry, the proof of which is not given, are of two kinds. The first are those that relate themselves to the whole field of mathematics most of which have been noticed and used in arithmetic and algebra. The second group consists of statements that have to do with relations between geometrical elements. Most of these relations are so evident that it is not difficult to lead one to accept them without question.

15. Def. An *Axiom* is a statement dealing with magnitudes in general that is accepted as true without proof.

16. Def. A *Geometrical Axiom or Postulate* is a statement dealing with geometrical magnitudes that is accepted as true without proof.

17. Axioms. Much work has been done in an attempt to determine the necessary axioms and postulates of geometry. In a properly selected list, no one axiom or postulate will depend upon another. None of them can be proved true or untrue. They are like the rules of a game. They may be changed by agreement, but, once they are accepted, the nature of the game is determined. So, in geometry, once the axioms and postulates are agreed upon, the conclusions follow in logical sequence. Much investigation has been undertaken to determine the nature of the science that would follow if certain of the axioms and postulates were assumed false and other statements substituted in their places. These studies do not concern us at this time.

It is sufficient to remember that while most of these statements seem true, our acceptance of them is voluntary. It is interesting to note that the Theory of Relativity, about which the scientists of the world are so concerned at present, is based upon assumptions the truth of which is not yet accepted by many people. In a case of this kind, as in all cases, the real test of the assumptions is the validity of the conclusions reached by their use.

18. The general axioms have already been used in algebra but they are stated here for reference.

Ax. 1. Things which are equal to the same thing, or to equal things, are equal to each other.

Ax. 2. If equals are added to equals the results are equal

Ax. 3. If equals are taken from equals the results are equal.

Ax. 4. If equals are taken an equal number of times, i. e. are multiplied by equals, the results are equal.

Ax. 5. If equals are divided into an equal number of parts, i. e. divided by equals, the results are equal.

From this and axiom 1 it follows that the parts are all equal to each other.

Division by zero is not permissible.

Ax. 6. The whole is equal to the sum of all its parts.

Ax. 7. The whole is greater than any of its parts.

Ax. 8. Any quantity may be substituted for its equal in a mathematical expression.

Ax. 9. If unequals are operated on by positive equals, the results are unequal in the same order.

If $a < b$, read, a less than b,
and $c = d$,
Then $a + c < b + d$
$a - c < b - d$
$a \times c < b \times d$
$\frac{a}{c} < \frac{b}{d}$

and similarily for a greater than b, written $a > b$.

Ax. 10. If unequals are subtracted from equals, the results are unequal in the reverse order.

If $a = b$ and $c > d$,
Then $a + c < b + d$.

Ax. 11. If, of three quantities, the first is greater than (less than) the second and the second is greater than (less than) the third, then the first is greater than (less than) the third.

If $a > b$ and $b > c$,
Then $a > c$.

19. **Def.** A *straight line* is a line which has the same direction throughout its whole extent. A straight line will lie entirely in a plane surface even when the line is turned over and over. A straight line is the intersection of two planes.

20. **Def.** A *broken line* is a line made up of two or more straight lines.

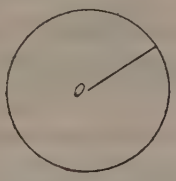
21. **Def.** A *curved line* is a line no part of which is straight. A part of the edge of a wheel is a curved line. The direction of a curve changes at every point. The part of a curve between two points is called an *arc*.

22. **Def.** A *rectilinear figure* is a figure formed by a broken line. Eg. A square is a rectilinear figure.

23. **Def.** The portion of a straight line between two points is called a *line segment* or simply a *segment*.

24. **Def.** Associated with every line segment is a unique element or value called its *length*. This length is measured in terms of units. Hence, the same length may be represented by several different numbers depending on the units used. For example, a segment 1 yard long, may be spoken of as 3 feet, 36 inches, or as a fractional part of some longer unit.

25. **Def.** A *curvilinear figure* is a figure bounded by curved lines. In plane geometry, one considers only those curves which can be drawn with the compasses.



26. **Def.** A *circle* is a curvilinear figure in which every point of the curve is equally distant from a fixed point within it. The fixed point is called the *center* of the circle. The curved line is called the *circumference*. A line segment from the center to the circumference is called a *radius*.

It is evident that a circle is the only curvilinear figure which can be drawn with the compasses. For this reason, figures bounded by circles and parts of circles are the only curvilinear figures treated in this section.

27. **Postulates.** The following geometrical axioms or postulates can now be stated.

Post 1. One and only one straight line can be drawn between two points.

This fact may also be stated as follows:

Two points determine a line.

Post. 2. A straight line may be extended indefinitely in either direction.

In the following, the word line is used to signify straight line unless the contrary is stated.

Post. 3. The length of the segment between two points is the shortest distance between them.

Post. 4. A geometrical figure may be moved from place to place without changing its size or shape.

Post. 5. A circumference may be drawn with any point as center and any line segment as radius.

28. **Def.** Two geometric figures are said to be *congruent* if one can be placed upon the other in such a way that they coincide in all their parts. Symbol $\cong$.

29. **Def.** When two geometric figures are congruent, the parts and magnitudes of the figures which coincide when one is placed upon the other are called *corresponding or homologous parts*.

Without writing out detailed proofs, the following statements will be recognized as true.

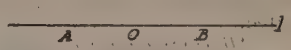
30. *Corresponding magnitudes of congruent figures are equal.*

31. *Congruent figures are equal.*

32. *Two circles having equal radii are congruent.*

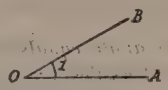
33. *If two circles are equal, their circumferences are equal and their radii are equal.*

34. **Def.** A point O divides a line into the two parts OA and OB, called *half lines* or *rays*.



The point O is the *end point* of the ray OA and also of the ray OB. The ray extends indefinitely in one direction from its end point.

35. **Def.** An *angle* (Symbol $\angle$ or $\measuredangle$) is the figure formed by two rays having a common end point. This point is called the *vertex* of the angle. The rays are called the *sides* of the angle.



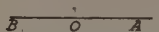
When no confusion results, we designate an angle by its vertex, and write $\angle$ O. At other times, we indicate a point on one ray, the vertex, and a point on the other ray, and write $\angle$ AOB. At other times it is more convenient to place a number or letter within the angle, and write $\angle$ 1.

36. **Def.** Two angles which are congruent are said to be *equal*, and it follows that *equal angles are congruent*.

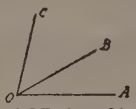
37. **Def.** The *bisector* of a geometric magnitude is the element, point, line or plane, which divides it into two equal parts.

38. In considering the size of angles, we think of the amount of turning necessary to bring one side into the position of the other. It is evident that the size of an angle does not depend on the length of its sides.

39. Def. A *straight angle* is the angle between the half lines or rays of a given line.

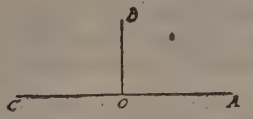


40. Def. Two angles are said to be *adjacent* when they have the same vertex and a common side between them.



In the figure $\angle$ AOB is adjacent to $\angle$ BOC.

41. Def. When two lines meet in such a way that the two adjacent angles are equal, each of these angles is called a *right angle.* Symbol, rt. $\angle$.



42. Def. Two lines are said to be *perpendicular* to each other if they form a right angle with each other. Each line is called a *perpendicular.* Symbol $\perp$.

OB $\perp$ CA

43. Def. An *acute angle* is an angle less than a right angle.

44. Def. An *obtuse angle* is an angle greater than a right angle and less than a straight angle.

At present we will not consider angles larger than a straight angle.

45. The geometrical axiom for angles may now be stated.

Post. 6. All right angles are equal.

46. The following statements follow so directly from the preceding that no proof is stated for them.

1. Two points determine a line.

2. Two straight lines can intersect in only one point.

3. A segment can be bisected by only one point.

4. A straight angle equals two right angles.

5. All straight angles are equal.

6. At a given point on a given line only one perpendicular can be drawn to that line.

If two can be drawn at a point, they make two right angles. But all right angles are equal by Post. 6. Hence the angles are congruent and the two lines coincide.

47. Def. If the sum of two angles is equal to a right angle, each angle is called the *complement of* the other and the angles are said to be *complementary.*

48. Def. If the sum of two angles is equal to a straight angle, each angle is called the *supplement* of the other and the angles are said to be *supplementary.*

49. Def. The sum of all the successive adjacent angles about a point is called a *perigon* and is equal to two straight angles or four right angles.

50. Def. The unit commonly used in measuring angles is the *degree* which is defined by the statement "360 degrees are equal to one perigon." Symbol 360°. From this it follows that a straight angle equals 180° and a right angle equals 90°. Each degree is divided into sixty equal parts called *minutes.* Symbol 60′. Each minute is divided into sixty equal parts called *seconds.* Symbol 60″.

See that the following statements are true.

51. *Complements or supplements of the same or equal angles are equal.*

52. *If two adjacent angles have their exterior sides lying in the same straight line, they are supplementary.*

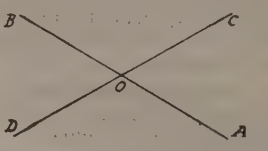
53. *If two adjacent angles are supplementary, their exterior sides lie in the same straight line.*

54. Def. In the last two statements the conclusion of one is the premise of the other. When statements are related in this way, one statement is said to be the *converse* of the other. The converse of a true statement is not always true. It must be examined carefully in every case.

55. Def. *Vertical angles* are angles which have a common vertex the sides of one angle being the extension of the sides of the other.

We shall now consider the nature of the formal proof of a geometrical statement in connection with the following example.

56. *Theorem 1. If two lines intersect, the vertical angles are equal.*



Given. Lines AB and CD intersecting at O forming the vertical $\angle$s AOC and BOD.

To be proved. $\angle$ AOC = $\angle$ BOD.

Proof. $\angle$ AOC is the supplement of $\angle$ BOC. Par. 52.

(*If two adjacent angles have their exterior sides lying in the same straight line, they are supplementary.*)

Likewise, $\angle$ BOD is the supplement of $\angle$ BOC.

$\therefore$ $\angle$ AOC = $\angle$ BOD q. e. d. Par. 51.

(*Supplements of the same angle are equal.*)

57. Def. *A theorem* is a geometrical statement to be proved. When formally stated, a theorem consists of two parts, the *hypothesis* and the *conclusion.* The hypothesis states the special conditions that are assumed as true for the case under consideration, the conclusion states a fact that results from them.

58. The Nature of Proof. Much of the value of a study of geometry comes from an appreciation of what constitutes an exact proof. There are certain rather clearly defined steps in any consistent process of thought. The formal proof of a geometric theorem makes these steps clear and distinct. In writing out a proof of a theorem the following procedure should be followed.

1. Write down a general statement of the theorem.

2. Draw a figure showing all the facts stated in the hypothesis. All the drawing necessary in plane geometry can be done with an un-marked ruler and a pair of compasses. For convenience, an instrument called a protractor is sometimes used to measure and construct angles but no figure is allowed that requires its use. The points, lines, angles, etc., should be lettered or marked in some way so that they can be referred to readily.

3. *Given.* Under this title state the facts given in the hypothesis in terms of the figure.

4. *To be proved.* Under this title state the facts of the conclusion in terms of the figure.

5. *Proof.* Explain any additional construction that may be necessary. State such relations as are needed which are true in the figure as drawn. State the definition, axiom, postulate, or theorem which proves each such statement. These are called the reasons for the statements. In a complete proof, every such reason is stated in full.

6. These statements are to be so selected that they lead up to a restatement of the conclusion. This is usually preceded by the symbol ∴ meaning "therefore," and is followed by the letters q. e. d. which is an abbreviation for the Latin phrase "*quod erat demonstrandum*," meaning "*which was to be proved.*"

59. Def. A *problem* is a construction to be made. As mentioned above, only the rule and compasses should be used.

60. Def. When certain known or accepted truths are put together in such a way that they lead up to the conclusion as in Theorem 1, the proof is said to be *synthetic.*

TRIANGLES

60. Def. A *triangle* is a rectilinear figure composed of three line segments called *sides.* Symbol △ and ▲.

A triangle in general is *scalene.*

If two of its sides are equal, it is *isosceles.*

If all its sides are equal, it is *equilateral.*

Triangles are also named from the nature of the angles.

If all the angles are acute, the triangle is *acute.*

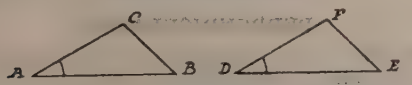
If one angle is obtuse, the triangle is *obtuse.*

If one angle is a right angle, the triangle is a *right triangle.*

If all the angles are equal, the triangle is *equiangular.*

Any side of a triangle may be taken as the *base* of the triangle. The angle opposite the base is the *vertical angle* of the triangle. Its vertex is the *vertex* of the triangle.

62. *Theorem 2. If two triangles have two sides and the included angle of one equal respectively to two sides and the included angle of the other, the triangles are congruent.*



Given. In ▲ ABC and DEF; AB = DE, AC = DF, ∠ A = ∠ D.

To be proved. △ ABC ≅ △ DEF.

Proof. Place △ DEF on △ABC in such a way that point D will fall on point A and side DE will fall along side AB. Post. 4

(A figure may be moved from place to place without changing its size or shape.)

Point E will fall on point B. Given.

(Since AB = DE.)

Side DF will fall along side AC. Def.

(∠ A = ∠ D and equal angles are congruent.)

Point F will fall on point C. Given.

(Since DF = AC.)

∴ EF will coincide with BC. Post 1.

(One and only one straight line can be drawn between two points.)

∴ △ DEF coincides with △ ABC

∴ △ ABC ≅ △ DEF q. e. d. Def.

(Two geometric figures are said to be congruent if one can be placed upon the other in such a way that they coincide in all their parts.)

63. Def. When a theorem is proved by placing one figure on another as in the above, the method is called *proof by superposition.*

64. Def. In a right triangle, the side opposite the right angle is called the *hypothenuse,* and the other sides are called *legs or sides.*

Corol. Two right triangles are congruent, if the legs of one are equal respectively to the legs of the other.

The right angles are equal by Postulate 6 and the corollary is a special case of the preceding theorem.

65. Def. A statement which follows readily from a preceding one is called a *corollary.* Often a corollary simply restates the theorem in different form.

66. *Theorem 3. If two triangles have two angles and the included side of one equal respectively to two angles and the included side of the other, the triangles are congruent.*

Given. In ▲ ABC and DEF; ∠ A = ∠ D, ∠ B = ∠ E, and AB = DE.

To be proved. △ ABC ≅ △ DEF.

Proof. Place △ DEF on △ ABC in such a way that line DE will coincide with its equal AB. Post. 4.

(A figure may be moved from place to place without changing its size or shape.)

Then DF will fall along AC and EF along BC. Given.

(Since ∠ A = ∠ D and ∠ B = ∠ E.)

∴ Point F will fall on point C. Par. 48, 2.

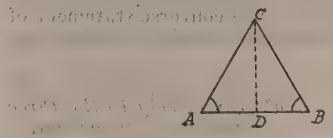
(Two straight lines can intersect in only one point.)

∴ The triangles coincide in all their parts.

∴ △ ABC ≅ △ DEF. q. e. d. Def.

(Two geometric figures are said to be congruent if one can be placed upon the other in such a way that they coincide in all their parts.)

67. *Theorem 4. If a triangle is isosceles, the angles opposite the equal sides are equal.*



Given. △ ABC is isosceles.

To be proved. ∠ A = ∠ B.

Proof. Draw line CD bisecting ∠ C. See below.

Then in ▲ ACD and BCD

AC = BC. Given.

(If two sides of a triangle are equal, the triangle is isosceles.)

CD = CD

(Common to both triangles.)

and ∠ ACD = ∠ BCD By construction.

(The bisector of a geometric magnitude, is the element which divides it into two equal parts.)

$\therefore \triangle ACD = \triangle BCD.$ Theo. 2.

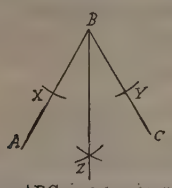
(If two triangles have two sides and the included angle of one equal respectively to two sides and the included angle of the other, the triangles are congruent.)

$\therefore \angle A = \angle B.$ q. e. d. Par. 30.

(Corresponding magnitudes of congruent figures are equal.)

In the above proof, it is necessary to draw the bisector of an angle. This construction is explained here but the proof is deferred till later.

68. *Problem 1. To bisect an angle.*



Given. The angle ABC.

Required. To draw the bisector of $\angle$ ABC.

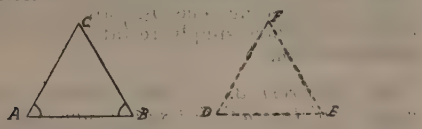
Construction. With B as center and any length as radius draw an arc of a circle cutting BA at X and BC at Y.

With X and Y as centers and the same radius as before draw arcs which intersect at the point Z.

Draw the line BZ.

This is the required bisector.

69. *Theorem 5. (Converse of Theorem 4.) If two angles of a triangle are equal, the triangle is isosceles.*



Given. $\triangle$ ABC with $\angle A = \angle B$.

To be proved. AC = BC.

Proof. Suppose $\triangle$ DEF is a reproduction of $\triangle$ ABC so that the corresponding parts are equal.

Place $\triangle$ DEF on $\triangle$ ABC in such a way that point E will fall on A and Point D will fall on B. Post. 4.

Since $\angle A = \angle B$ Given.

and $\angle B = \angle E$ By. Con.

$\therefore \angle A = \angle E$ Ax. 1.

(Things which are equal to the same thing or to equal things are equal to each other.)

Similarly $\angle B = \angle D$.

$\therefore$ Side EF will lie along AC and DF along BC. Def.

(Equal angles are congruent.)

$\therefore$ Point F will fall on C. Par. 46.

(Two straight lines can intersect in only one point.)

$\therefore EF = AC$

(Corresponding parts of congruent figures are equal.)

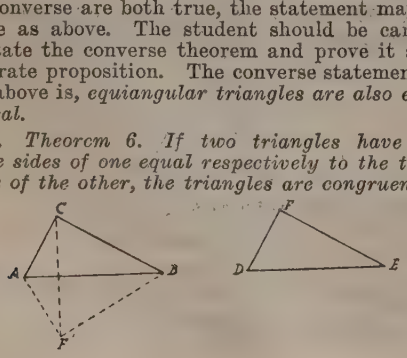
But $EF = BC$. By Const.

$\therefore AC = BC.$ q. e. d. Ax. 1.

70. *Corollary. Equilateral triangles are also equiangular and conversely.*

The proof follows directly from the two preceding theorems. For brevity, if a theorem and its converse are both true, the statement may be made as above. The student should be careful to state the converse theorem and prove it as a separate proposition. The converse statement of the above is, *equiangular triangles are also equilateral.*

71. *Theorem 6. If two triangles have the three sides of one equal respectively to the three sides of the other, the triangles are congruent.*



Given. In $\triangle$ ABC and DEF; AB = DE, AC = DF, BC = EF.

To be proved. $\triangle$ ABC $\cong$ $\triangle$ DEF.

Proof. Place $\triangle$ DEF on $\triangle$ ABC so that side DE will coincide with its equal AB with D on the point A and E on B, the point F falling at the point F′ opposite to the vertex C.

Draw the line CF′.

Since AC = AF′ Given.

the triangle ACF′ is isosceles and Def.

$\angle ACF' = \angle AF'C$ Theo. 4.

(If a triangle is isosceles, the angles opposite the equal sides are equal.)

Similarly $\angle BCF' = \angle BF'C$

$\therefore \angle ACF' + \angle BCF' = \angle AF'C + \angle BF'C$ Ax. 2.

(If equals are added to equals, the results are equal.)

$\therefore \angle ACB = \angle AF'B$ Ax. 8.

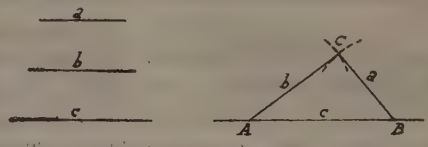
(Any quantity may be substituted for its equal in a mathematical expression.)

$\therefore \triangle ABC \cong \triangle ABF'$ Theo. 2.

$\therefore \triangle ABC \cong \triangle DEF.$ q. e. d. Ax. 8.

From now on, a full statement of the reasons for each step of the proof will at times be omitted but the student should supply them in every case.

72. *Problem 2. To construct a triangle, given its three sides.*



Given. The lines a, b and c.

Required. To construct a triangle with these lines as sides.

Construction. On any line, lay off with the compasses the segment AB equal to c.

With A as center and b as radius draw an arc.

With B as center and a as radius draw a second arc intersecting the first at the point C.

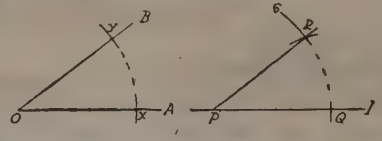
Draw AC and BC.

$\triangle$ ABC is the required triangle.

Why?

EXERCISE. Give the proof for Problem 1.

73. *Problem 3. At a given point on a given line, to construct an angle equal to a given angle.*



Given. $\angle$ AOB and point P on line L.

Required. To construct an angle at P equal to $\angle$ AOB.

Construction. With O as center and any line as radius, draw an arc cutting OA at X and OB at Y.

With P as center and the same radius draw an arc QS cutting L at the point Q.

With Q as center and a radius equal to the length of the segment XY, draw an arc cutting the arc QS at R.

Draw PR.

$\angle$ QPR is the required angle.

Proof. Draw XY and QR.

In the $\triangle$ OXY and PQR, we have

OX = PQ.

and OY = PR. Par. 33.

(Radii of the same or equal circles are equal.)

and XY = QR Const.

$\therefore \triangle OXY = \triangle PQR.$ Theo. 6.

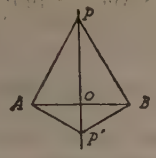
(If two triangles have the three sides of one equal respectively to the three sides of the other, the triangles are congruent.)

$\therefore \angle QPR = \angle AOB.$ Par. 30.

PERPENDICULARS.

73. Def. A line perpendicular to a segment at its mid point is called the *perpendicular bisector* of the segment.

74. *Theorem 7. If two points are each equally distant from the end points of a segment, they determine the perpendicular-bisector of the segment.*



Given. The points P and P' each equally distant from the ends of the segment AB.
To be proved. The line PP' is the ⊥ bisector of AB.
Proof. Draw the lines as indicated in the figure with PP' cutting AB at O.
In △ APP' and BPP',

	AP = BP.	Given.
	AP' = BP'	Given.
and	PP' = PP'	Common.
	∴ △ APP' ≅ △ BPP'	Theo. 6.
	∴ ∠ APP' = ∠ BPP'	Par. 30.
Then	△ APO ≅ △ BPO.	Theo. 2.
	∴ AO = OB	Par. 30.

and PP' bisects AB. q. e. d.

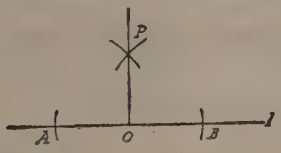
Also	∠ AOP = ∠ BOP.	Par. 30.
	∴ PP' ⊥ AB. q. e. d.	Def.

(When two lines meet in such a way that the two adjacent angles are equal, each of these angles is called a right angle and the lines are said to be perpendicular.)

75. *Problem 4. To construct the perpendicular bisector of a segment.*

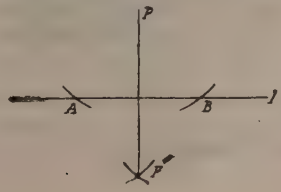
Given. The segment AB.
Required. To construct the perpendicular bisector of AB.
Construction. With A and B as centers and with the same radius draw arcs of circles intersecting each other in points P and P'.
The line PP' is the required line.
Why? Write out a complete proof.

76. *Problem 5. At a point on a line, to construct a perpendicular to the line.*



Given. The point O on the line l.
Required. To construct a line ⊥ to l at O.
Construction. With O as center and any length as radius draw a circle cutting l in points A and B.
Construct the perpendicular bisector of AB.
It is only necessary to locate the point P.
Why?
Write out a complete proof.

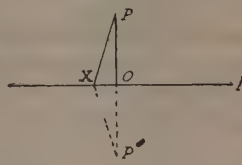
77. *Problem 6. From a point not on a line, to drop a perpendicular to the line.*



Given. The point P not on the line l.
Required. To drop a perpendicular from P to l.
Construction. With P as center and a line sufficiently long as radius, draw an arc cutting l in points A and B.
Using this or some convenient radius, construct the perpendicular bisector of AB.
This is the required line.
Prove.

78. In construction problems, it is best to set the compasses as few times as possible. Also, in determining a line, but two points are necessary. In the last two problems, directions are given to determine only two points. All figures should be drawn neatly and accurately. In this way the figure will help to make the proposition *"look true."*

79. *Theorem 8. One and only one perpendicular can be drawn from a point outside a line to that line.*



Given. Point P not on line l.
To be proved. One and only one line can be drawn ⊥ to l from P.
Proof. By Problem 6 above one such line PO, can be drawn.
Suppose the theorem not true.
Suppose PX is another ⊥ to l.
Prolong PO to P' so that PO = OP'.
Draw XP'.
By construction POP' is a straight line.
∴ PXP' is not a straight line. Post. 1.
(One and only one straight line can be drawn between two points.)
In rt. △ POX and P'OX,

PO = OP'	By Const.
OX = OX.	Common.
∴ △ POX = △ P'OX.	Theo. 2. Cor.

(Two right triangles are congruent, if the legs of one are equal respectively to the legs of the other.)

and ∠ PXO = ∠ P'XO = Rt. ∠.	Hyp.
∴ ∠ PXP' = 2∠ PXO = St. ∠.	

But this is impossible since PXP' is not a straight line.
Hence the assumption of a second perpendicular leads to a contradiction. Since all other steps in the proof are correct, the assumption must be false.
∴ PX is not ⊥ to l. q. e. d.

80. In proving a theorem, assumptions are often made and, in referring statements which follow to them, they are said to be true by *Hypothesis.* When the assumption leads to a contradiction of the axioms or postulates or previously accepted propositions, we are forced to deny the assumption and affirm its opposite. Such a method of proof is called *proof by reductio ad absurdum.*

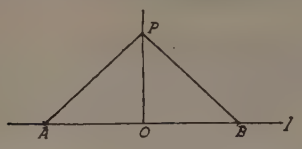
The above theorem may be proved directly by drawing the line PX as any other line from P to l. The indirect method is given here to illustrate a kind of proof that is often valuable.

81. *Theorem 9. The perpendicular is the shortest line that can be drawn from a point to a given line.*

Suggestion. From the figure in Theorem 8 we see that it is only necessary to prove PO less than PX. But they are respectively half of the distances POP' and PXP'. By Post. 3, POP' < PXP'. Ax. 5.

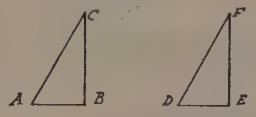
The length of the perpendicular from a point to a line is called *the distance from the point to the line.*

82. *Theorem 10. If two lines drawn from a point in a perpendicular to a given line cut off on the given line equal distances from the foot of the perpendicular, they are equal and make equal angles with the perpendicular.*



Given. PO ⊥ line l, and PA and PB cutting off equal segments OA and OB.
To be proved. AP = BP
and ∠ APO = ∠ BPO.
Proof. △ AOP and BOP are rt. △. Given.
and AO = OB. Given.
Also OP = OP. Common.
∴ △ AOP ≅ △ BOP. Theo. 2 Corol.
∴ PA = PB
and ∠ APO = ∠ BPO. q. e. d. Par. 30.
(Corresponding parts of congruent figures.)

83. *Theorem 11. Two right triangles are congruent if the hypothenuse and an adjacent angle of one are equal respectively to the hypothenuse and an adjacent angle of the other.*



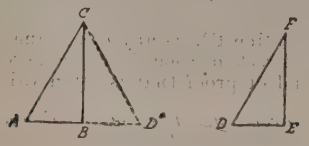
Given. Rt. △ ABC and DEF with AC = DF and A = D.
To be proved. △ ABC ≅ △ DEF.
Proof. Place △ DEF on △ ABC in such a way that DF coincides with its equal AC, point D falling on A and F on C.
Then, since ∠ A = ∠ D, DE will fall along AB.
Also, the line EF will fall along BC. Theo. 8.
(One and only one perpendicular can be drawn from a point outside a line to that line.)
∴ Point F will fall on point C. Par. 46.
∴ △ ABC ≅ △ DEF. q. e. d. Par. 28.

84. Def. It will be proved that in a right triangle the angles other than the right angle are both acute. They are called the *acute angles* of the triangle. We can now combine the above theorem and theorem 3 to prove the following.

85. *Corol. Two right triangles are congruent if a side and an acute angle of one triangle are equal respectively to a side and an acute angle of the other.*

Write out formal proof.

86. *Theorem 12. Two right triangles are congruent if the hypothenuse and a leg of one are equal respectively to the hypothenuse and a leg of the other.*



Given. Rt. △ ABC and DEF, with AC = DF, and BC = EF.
To be proved. △ ABC ≅ △ DEF.
Proof. Place △ ABC and DEF together in such a way that BC coincides with its equal EF, A and D' being on opposite sides of this common line.
Then ABD' is a straight line. Par. 53.
(If two adjacent angles are supplementary, their exterior sides lie in the same straight line.)
How do we know that ∠ ABC and ∠ BCD' are supplementary?

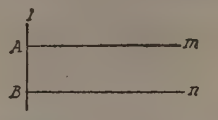
In the triangle AD'C, AC = D'C. Given.
∴ ∠ A = ∠ D' Theo. 4.
(If a triangle is isosceles, the angles opposite the equal sides are equal.)
∴ ∠ A = ∠ D Ax. 1.
∴ △ ABC ≅ △ DEF. q. e. d. Theo. 11.
(Two right triangles are congruent if the hypothenuse and acute angle of one are equal respectively to the hypothenuse and an acute angle of the other.)

PARALLEL LINES.

87. Def. Two lines which lie in the same plane and do not meet, however far they are extended, are called *parallel lines.* Symbol ∥.

The existence of such lines is shown in the following theorem.

88. *Theorem 13. Two lines in the same plane perpendicular to the same line are parallel.*



Given. Lines m and n ⊥ l, at A and B respectively.
To be proved. m ∥ n.
Proof. Assume that the lines will meet at some point, as X, if the lines are sufficiently produced.
This would give us two perpendiculars from a point outside a line to that line which is impossible by Theo. 8.
The assumption must be false.
∴ m and n do not meet.
∴ m ∥ n. q. e. d. Def. Par. 87.

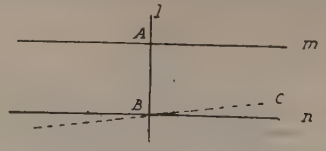
89. There has been a great deal of study and investigation in recent years into the significance of the *parallel axiom.* It may be stated as follows:

Post. 7. *Postulate of parallels. Through a given point only one line can be drawn parallel to a given line.*

90. *Corol. Two lines each parallel to a third line are parallel to each other.*

In plane geometry all three lines are considered as lying in the same plane but this statement is true in general as may be seen by referring to the box in Par. 1. There, four edges extending in the same direction are all parallel to each other but only two lie in any one plane.

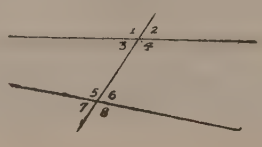
91. *Theorem 14. If a line is perpendicular to one of two parallel lines, it is perpendicular to the other also.*



Given. Lines m ∥ n, and l ⊥ m, at A and cutting n at B.
To be proved. l ⊥ n.
Proof. At B draw BC ⊥ k.
Then BC ∥ m. Theo. 13.
(Two lines in the same plane perpendicular to the same line are parallel.)
But m ∥ n. Given.
∴ BC and n must coincide. Post. 7.
∴ l ⊥ n. q. e. d. By Const.

92. Def. A line which cuts two or more lines is called a *transversal of those lines.*

If two lines are cut by a transversal eight angles are formed which are designated as follows:



∡ 3, 4, 5 and 6 are called *interior angles.*

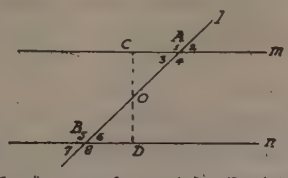
∡ 1, 2, 7 and 8 are called *exterior angles.*

∡ 3 and 6 are called *alternate-interior angles,* so also ∡ 4 and 5.

∡ 1 and 8 are called *alternate-exterior angles,* so also ∡ 2 and 7.

∡ 2 and 6, 1 and 5, 3 and 7, 4 and 8 are called *corresponding angles.*

93. *Theorem 15. If two parallel lines are cut by a transversal, the alternate-interior angles are equal.*



Given. The ∥s, m and n, cut by the transversal l at the points A and B respectively.
To be proved. ∠ 3 = ∠ 6 and ∠ 4 = ∠ 5.
Proof. Through O, the mid-point of AB draw CD ⊥ m.
Then CD ⊥ n. Theo. 14.
(A line perpendicular to one of two parallel lines is perpendicular to the other also.)
By construction, △ AOC and BOD are rt △.
Also ∠ AOC = ∠ BOD. Theo. 1.
and AO = OB Const.
∴ △ AOC ≅ △ BOD Theo. 11
∴ ∠ OAC = ∠ OBD Par. 30.
or ∠ 3 = ∠ 6 q. e. d.
and ∠ 4 = ∠ 5 q. e. d. Par. 51.
(Supplements of equal angles are equal.)

94. *Corol. 1. If two parallel lines are cut by a transversal, the corresponding angles are equal.*

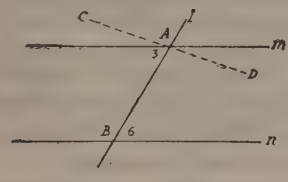
In the figure ∡ 2 and 3 are vert. ∡ and equal, while ∠ 3 = ∠ 6 by the above theorem. A similar discussion holds for each pair of corresponding angles.

95. *Corol. 2. If two parallel lines are cut by a transversal the two interior (exterior) angles on the same side of the transversal are supplementary.*

In this case, ∡ 2 and 4 are supplementary and ∠ 2 = 6 by the preceding corollary. Therefore, ∡ 4 and 6 are supplementary.

96. *Corol. 3. If two parallel lines are cut by a transversal, the alternate-exterior angles are equal.*

97. *Theorem 16. If two lines are cut by a transversal, making the alternate-interior angles equal, the lines are parallel.*



Given. Lines m and n cut by transversal l making ∠ 3 = ∠ 6.
To be proved. m ∥ n.
Proof. Through A draw a line parallel to n. This line must coincide with m.
For ∠ CAB = ∠ 6 Theo. 15.
And ∠ 3 = ∠ 6 Given.
∴ ∠ CAB = ∠ 3 Ax. 8.
∴ CD and m must coincide. Def.
(Equal angles are congruent.)
But CD is ∥ to n. Const.
∴ m, coinciding with CD, is ∥ to n. q. e. d. Post. 7.

This theorem and the corollaries which follow are the converse of the preceding theorem and its corollaries.

98. *Corol. 1. If two lines are cut by a transversal, making the corresponding angles equal, the lines are parallel.*

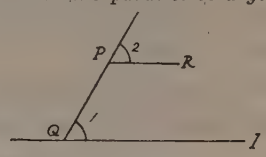
99. *Corol. 2. If two lines are cut by a transversal, making the two interior (exterior) angles on the same side of the transversal supplementary, they are parallel.*

100. *Corol. 3. If two lines are cut by a transversal, making the alternate-exterior angles equal, the lines are parallel.*

EXERCISE.

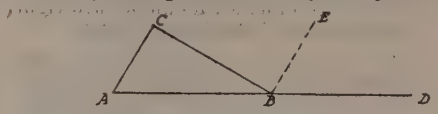
Write out proof of the corollaries stated under theorems 15 and 16.

101. *Problem 7. Through a given external point, to draw a line parallel to a given line.*



Given. Point P not on line l.
Required. To construct a line through P, ∥ to l.
Construction. Draw any line m through P cutting l in the point Q.
At P construct ∠ 2 = ∠ 1, drawing the line PR.
PR is the required line.
Proof to be supplied by pupil.
What other angles might have been constructed at P?
Would it have helped to have drawn the line through P ⊥ to l?

102. *Theorem 17. The sum of the angles of a triangle is equal to two right angles.*



Given. △ ABC.
To be proved. ∠ A + ∠ B + ∠ C = 2 rt ∡.
Proof. Extend the base AB to D and draw BE ∥ to AC.
At B we have
∠ ABC = ∠ B
∠ DBE = ∠ A Par. 94.
∠ CBE = ∠ C. Par. 93.
Adding ∠ ABC + ∠ DBE + ∠ CBE = ∠ A + ∠ B + ∠ C
= 2 rt ∡, q. e. d.
since ABD is a straight angle.

103. Def. The *exterior angle* of a rectilinear figure is the angle between one side and an adjacent side produced.

Corol. 1. The exterior angle of a triangle is equal to the sum of the two opposite interior angles.

In the above figure, ∠ DBC is an exterior angle.

104. *Corol. 2. The exterior angle of a triangle is greater than either of the two opposite interior angles.*

105. *Corol. 3. A triangle can have but one right or one obtuse angle.*

It follows, that the other angles of a right triangle are acute angles. See par. 84.

106. *Corol. 4. If two triangles have two angles of one equal to two angles of the other, their third angles are equal.*

EXERCISE. 1. Prove theorem 17 by drawing a line through the vertex parallel to the base.

2. Two triangles are congruent if a side and two angles of one are equal respectively to a side and two corresponding angles of the other.

107. *Theorem 18. If the sides of one angle are parallel respectively to the sides of another, the angles are equal or supplementary.*

Produce two of the non-parallel sides till they meet. The figure will indicate the proof, the angle formed at the intersection of these lines being equal to one of the angles and equal or supplementary to the other. Distinguish between the cases.

A similar theorem may be stated and proved if the sides of the angles are perpendicular

QUADRILATERALS.

108. Def. A rectilinear figure having four sides is called a *quadrilateral*. If two of the sides are parallel, the figure is a *trapezoid*. If the opposite sides are parallel, the figure is a *parallelogram*. Symbol $\square$.

109. Def. If the adjacent sides of a parallelogram are equal, the figure is a *rhombus*. It can be shown that all the sides of a rhombus are equal.

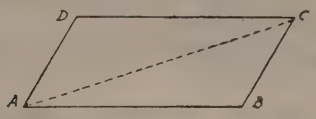
110. Def. If one angle of a parallelogram is a right angle, the figure is a *rectangle*. It will appear that all the angles of a rectangle are right angles.

111. Def. If the adjacent sides of a parallelogram are equal and one angle of the parallelogram is a right angle, the figure is a *square*. It follows from the above, that a square may be thought of as a rhombus or as a rectangle. All its sides are equal and all its angles are right angles. See Exercises following par. 120.

112. Def. The side on which the figure seems to rest is called the *base*. In case the side opposite the base is parallel to it, it is called the *upper base*. The perpendicular distance between the bases in this case is called the *altitude*. In the case of a triangle, the perpendicular distance from the vertex to the base is called the *altitude* of the triangle.

The *diagonal* of any rectilinear figure is the segment joining any two vertices which do not lie on a common side.

113. *Theorem 19. The opposite sides of a parallelogram are equal.*



Given. ABCD a $\square$.
To be proved. AB = CD and AD = BC.
Proof. Draw the diagonal AC.
In $\triangle$ ABC and ACD,

AC = AC	Common.
$\angle$ BAC = $\angle$ ACD	
and $\angle$ ACB = $\angle$ CAD	Theo. 15.
$\therefore$ $\triangle$ ABC $\cong$ $\triangle$ ACD.	Theo. 3.
$\therefore$ AB = CD and AD = BC. q. e. d.	Par. 30.

114. *Corol. 1. The opposite angles of a parallelogram are equal.*

This follows from the above or it may be proved immediately from Theorem 18.

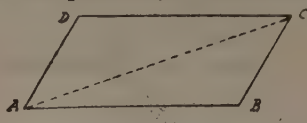
115. *Corol. 2. A diagonal bisects a parallelogram into two congruent triangles.*

116. *Corol. 3. Segments of parallel lines cut off by parallel lines are equal.*

117. *Corol. 4. Two parallel lines are everywhere equally distant.*

The distance is measured along the perpendiculars dropped from points on one line to the other. What is true of perpendiculars to the same line?

118. *Theorem 20. (Converse of Theo. 19.) If the opposite sides of a quadrilateral are equal, the figure is a parallelogram.*

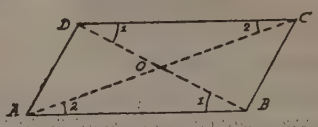


Suggestion. Draw the diagonal AC, and prove the $\triangle$ ABC and ACD congruent by Theorem 6. Then $\angle$ ACB = $\angle$ CAD and AB is $\parallel$ to CD. Similarly, AD $\parallel$ BC.

119. *Theorem 21. If two sides of a quadrilateral are equal and parallel, the figure is a parallelogram.*

Use the same figure as above.
Show $\triangle$ ABC and ACD congruent by Theorem 2, and proceed as in the preceding theorems.

120. *Theorem 22. The diagonals of a parallelogram bisect each other.*



Given. $\square$ ABCD, with diagonals AC and BD meeting at O.
To be proved. AO = OC and BO = OD.
Proof. In $\triangle$ ABO and CDO, we have

AB = CD	Theo. 19.
$\angle$ ABO = $\angle$ CDO	
and $\angle$ BAO = $\angle$ DCO.	Theo. 15.
$\therefore$ $\triangle$ ABO $\cong$ $\triangle$ CDO.	Theo.
$\therefore$ AO = OC	
and BO = OD. q. e. d.	Par. 30.

EXERCISES.

Prove the following true statements.

1. The angles of a rectangle are all right angles.

2. All the sides of a square are equal and all its angles are right angles.

3. If the diagonals of a quadrilateral bisect each other, the figure is a parallelogram.

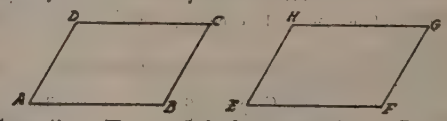
4. The diagonals of a rhombus bisect each other at right angles.

5. The diagonals of a rectangle are equal.

6. If one angle of a parallelogram is given, the others are determined.

7. If the diagonals of a quadrilateral bisect each other and are equal, the figure is a rectangle.

121. *Theorem 23. Two parallelograms are congruent if an angle and the two adjacent sides of one are equal respectively to an angle and the two adjacent sides of the other.*

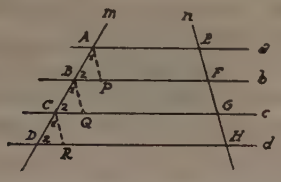


Suggestion. The proof is by superposition. Place $\square$ EFGH on $\square$ ABCD so that the equal angles and corresponding sides of the two figures coincide. The opposite sides will coincide by Post 7.

122. *Corol. Two rectangles are congruent if two adjacent sides of one are equal respectively to two adjacent sides of the other.*

EXERCISE. When are squares equal?

123. *Theorem 24. If three or more parallels cut off equal segments on one tranversal, they cut off equal segments on every transversal.*



Given. ∥s a, b, c, and d cut by transversal m at the points A, B, C and D, AB = BC = CD, and transversal n cutting the ∥s at E, F, G and H.

To be proved. EF = FG = GH.

Proof. Through A, B, and C draw lines ∥ to n, cutting the parallels at P, Q and R as in the figure.

Then AP, BQ, and CR are ∥. Par. 90.

The angles marked 1 are equal. Par. 94.

Similarly, the angles marked 2 are equal.

also AB = BC = CD. Given.

∴ △ ABP ≅ BCQ ≅ △ CDR. Par. 66.

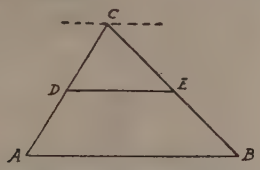
∴ AP = BQ = CR.

But AP = EF, BQ = FG, CR = GH. Par. 116.

(Segments of parallel lines cut off by parallel lines are equal.)

∴ EF = FG = GH. q. e. d. Par. 18.

124. *Corol. A line through the mid-point of one side of a triangle parallel to the base, bisects the other side.*



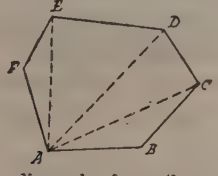
Draw a line through the vertex parallel to the base. This gives three parallel lines and we can apply the theorem.

POLYGONS.

125. Def. A rectilinear figure of more than four sides is called a *polygon.* This term is also used to include triangles and quadrilaterals. Special terms are used to designate polygons having a certain number of sides. A *pentagon* is a five sided figure. A *hexagon* is a six sided figure. Other names used are heptagon, octagon, decagon, duodecagon, etc.

The sum of the lengths of the sides of a polygon is called the *perimeter.*

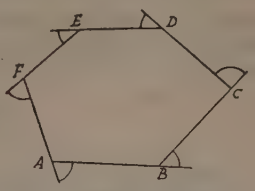
126. *Theorem 25. The sum of the interior angles of a polygon is equal to the number of sides less two times two right angles.*



Draw all the diagonals from the point A. Notice that the number of triangles formed in this manner will always be equal to the number of the sides less two, the two adjacent to A. The sum of the angles of these triangles is equal to the sum of the interior angles of the polygon. But the sum of the angles of a triangle is equal to two right angles. The theorem follows.

Write out complete proof.

127. *Theorem 26. The sum of the exterior angles of a polygon, made by producing each side in succession, is equal to four right angles.*



The sum of the interior and exterior angle at each vertex is equal to 2 rt ∠. The sum of the interior angles is (n − 2) × 2 rt ∠ = n × 2 rt ∠ − 4 rt ∠. Since there are n vertices, the first part of this expression represents the sum of the interior and exterior angles. Therefore, the last part must be the sum of the exterior angles, i. e., 4 rt. ∠.

LOCI.

128. Def. *The locus of a point, or locus of points,* is the path traced by a point moving under certain geometric conditions. It includes (1) all points that satisfy the given conditions, and (2) no other points.

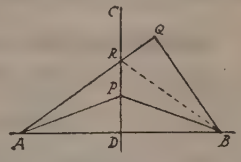
For example, the circle can be defined as the locus of points equally distant from a fixed point.

The locus of points equally distant from two parallel lines is a line parallel to and mid-way between them.

The locus of points one inch from a given line is composed of two lines, one on each side of the given line, parallel to it at a distance of one inch.

129. To prove that a straight or curved line is the locus defined by a given set of conditions two things are necessary. (1) Proof that every point on the line or lines satisfies the given conditions. (2) Proof that any point not on the line or lines does not satisfy the conditions.

130. *Theorem 27. The locus of points equally distant from the ends of a segment is the perpendicular-bisector of the segment.*



Given. CD the perpendicular-bisector of AB.

To be proved. CD is the required locus.

Proof. (1) Every point on CD satisfies the conditions.

Let P be any point on CD, and draw AP and BP.

In rt. ∠ PAD and PBD,

AD = BD Const.

and PD = PD Common.

∴ △ PAD ≅ △ PBD. Par. 64.

∴ PA = PB. q. e. d. ?

and any point P on CD is equally distant from A and B.

(2). Any point Q not on CD is not equally distant from A and B.

Draw QA and QB and let QA intersect CD at R.

Draw RB.

Then BQ < BR + RQ Post. 3.

(A segment is the shortest distance between two points.)

But AR = BR (1) above.

and BQ < AR + RQ. Ax. 8.

∴ BQ < AQ

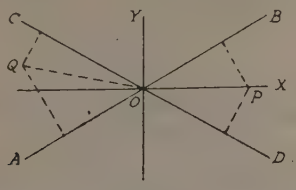
and any point Q not on CD is unequally distant from A and B.

∴ CD is the required locus. q. e. d.

EXERCISE. The locus of a point equally distant from the vertices of a triangle is the intersection of the perpendicular-bisectors of the sides.

131. **Def.** When three or more lines pass through the same point, as in the above exercise, they are said to be *concurrent.*

132. *Theorem 27. The locus of points equally distant from two intersecting lines is the pair of bisectors of the angles formed by the given lines.*



Given. AB and CD intersecting at O and OX and OY bisectors of the angles so formed.

To be proved. OX and OY is the required locus.

Proof. (1) Take P any point on the assumed locus and drop ⊥s on the given lines. The rt △s so formed are congruent, and, therefore, the perpendiculars are equal.

(2). Take any point Q not on the bisectors and drop ⊥s to the given lines. Show that these ⊥s are unequal by showing that if they are equal then Q will have to lie on the bisectors.

EXERCISES.

1. The perpendicular-bisectors of the sides of a triangle are concurrent.
2. The bisectors of the angles of a triangle are concurrent.

Def. The line segment drawn from a vertex of a triangle to the middle point of the opposite side is called a *median.*

3. The medians of a triangle are concurrent in a point two thirds of the distance from the vertex to the base.
4. The altitudes of a triangle are concurrent.

133. Many interesting and valuable theorems concerning the properties of rectilinear figures can be developed from the preceding work. The student should notice all theorems that prove lines or angles equal or figures congruent. It is helpful to write out a list of all theorems that might be valuable in solving particular types of propositions. The statement of what is "to be proved" indicates the group of theorems in which the "reasons" of the proof are most likely to be found.

INEQUALITIES.

134. Many times it is necessary to prove certain magnitudes greater or less than others. This calls for a group of theorems which are stated here for reference. They are not necessary in the further development of geometry, but they are useful many times in the applications of the science.

EXERCISES.

1. If one angle of a triangle is greater than a second, the side opposite the greater angle is the greater side.
2. Converse of 1. If one side of a triangle is greater than a second, the angle opposite the greater side is the greater angle.
3. If two lines drawn from a point in a perpendicular cut off unequal distances from the foot of the perpendicular, they are unequal and the more remote is the greater.
4. Two lines drawn from a point to the extremities of a segment are greater than the lines from any point within the triangle so formed.
5. The sum of any two sides of a triangle is greater than the third side, and the difference is less than the third side.

CIRCLES.

135. A circle was defined in Par. 26. The terms center, radius and circumference were also explained. Symbol is ⊙.

136. **Def.** A *chord* of a circle is any segment whose end points lie on the circumference of the circle.

137. **Def.** A *diameter* is a chord which passes through the center of the circle.

It follows at once that *all diameters of the same circle or of equal circles are equal.*

The diameter equals twice the radius.

138. **Def.** A part of the circumference is called an *arc.*

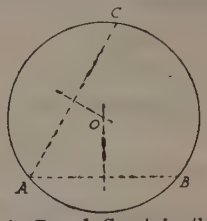
Half of the circumference is called a *semi-circumference.*

An arc less than a semi-circumference is called a *minor arc.* One greater than a semi-circumference is called a *major arc.* Unless otherwise stated, the word arc will mean minor arc.

139. **Def.** An angle whose vertex is at the center of the circle is called a *central angle.* It is said to *intercept* the arc between its sides while the arc is said to *subtend* the central angle. The chord joining the end points of the arc is said to *subtend* the arc.

140. **Def.** An angle whose vertex is on the circumference and whose sides are chords is called an *inscribed angle.*

141. *Problem 8. To draw a circle which will pass through three given points not in the same straight line.*



Given. Points A, B and C not in the same straight line.

Required. To draw a circle through A, B and C.

Construction. Construct the perpendicular-bisector of the segments AB and AC. Let these ⊥s meet at O.

With O as center and OA as radius, draw the required circle.

Proof. OA = OB.
and OB = OC. Par. 130.
(O lies on the ⊥ bisector of each segment,)
∴ OA = OB = OC. q. e. d.

Def. A circle is said to be *circumscribed* about a polygon when all the vertices of the polygon lie on the circumference of the circle.

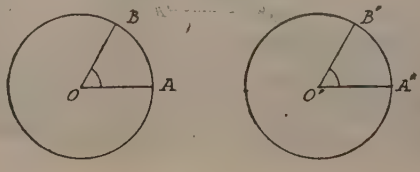
142. *Corol. 1. A circle can be circumscribed about a triangle.*

143. *Corol. 2. Through three points not in the same straight line, one and only one circle can be drawn.*

It is only necessary to show that any other point than O is not equally distant from A, B and C.

See Exercise 3 following Par. 134.

144. *Theorem 28. In the same circle or in equal circles, equal central angles intercept equal arcs on the circumference.*



Note: It will be sufficient to consider the case of equal circles.

Given. Equal ⓢ O and O′ and ∠ AOB = ∠ A′O′B′.

To be proved. Arc AB = Arc A′B′.

Proof. Place ⊙ O′ on ⊙ O so that O′ will fall on O and O′A′ will fall on OA.

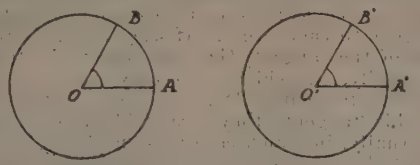
Then O′B′ will fall along OB since ∠AOB = ∠ A′O′B′ and B′ will fall on B, since OB = O′B′.

(Radii of equal circles are equal.)

∴ Arc A′B′ will coincide with AB. q. e. d.

(Equal circles are congruent.)

145. *Theorem 29. In the same circle or in equal circles, equal arcs subtend equal central angles.*

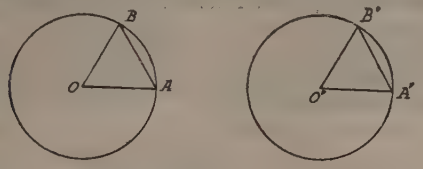


Given. Equal ⓢ O and O′ with Arc AB = Arc A′B′.

To be proved. ∠ AOB = ∠ A′O′B′.

Proof. Place ⊙ O on ⊙ O′ so that the centers coincide and rotate them till the equal arcs coincide. Then the central angles will also coincide.

146. *Theorem 30. In the same circle or in equal circles, equal arcs are subtended by equal chords.*



Given. Equal ⓢ O and O′ with Chord AB = Chord A′B′.

To be proved. Arc AB = Arc A′B′.

Proof. The proof follows by superposition; or the theorem may be proved as follows. Draw radii to the ends of the equal chords. The triangles so formed are congruent by theorem 6. The central angles are therefore equal and the theorem follows by Par. 144.

147. *Theorem 31. In the same circle or in equal circles, equal chords subtend equal arcs.*

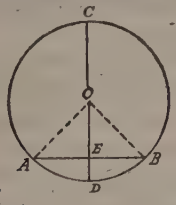
This is the converse of Theorem 30 and the proof follows in a similar manner. Prove △ congruent by Theorem 2.

EXERCISE. Using the exercises under Par. 134, prove the following statements about unequal angles, arcs and chords.

1. In the same circle or in equal circles, unequal central angles intercept unequal arcs, the greater angle intercepting the greater arc, and conversely.

2. In the same circles or in equal circles, unequal chords subtend unequal arcs, the greater chord subtending the greater arc, and conversely.

148. *Theorem 32. A line through the center of a circle, perpendicular to a chord, bisects the chord and its subtended arcs.*



Given. Line CD ⊥ to chord AB of ⊙ O at E.

To be proved. AE = EB, arc AD = arc DB, and arc AC = arc BC.

Proof. Draw radii OA and OB forming rt. △ OAE and OBE.

Show these triangles congruent. Par. 86.

∴ AE = EB q. e. d.

and ∠ AOD = ∠ BOD. ?

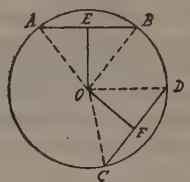
∴ arc AD = arc BD. q. e. d. Par. 144.

Also arc AC = arc BC. q. e. d. ?

149. *Corol. 1. A diameter bisects the circumference.*

150. *Corol. 2. The perpendicular bisector of a chord passes through the center of the circle and bisects the arcs subtended by the chord.*

151. *Theorem 33. In the same circle or in equal circles, equal chords are equi-distant from the center; and, conversely, chords equi-distant from the center are equal.*



Given. Chord AB = chord CD in ⊙ O.

To be proved. OE = OF.

Proof. OE and OF are drawn ⊥ to AB and CD respectively. Draw radii OA and OC. Show the rt. △ OEA and OFC congruent. Then AE = CF. Also, OE and OF bisect AB and CD by the preceding theorem.

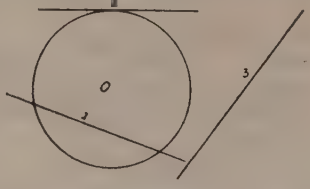
To prove the converse part of the theorem a separate statement of the "Given" data must be made. Use the same figure.

152. *Corol. 1. In the same circle or in equal circles, unequal chords are unequally distant from the center, the more remote being the smaller; and conversely.*

EXERCISE. State and prove the converse of Par. 152.

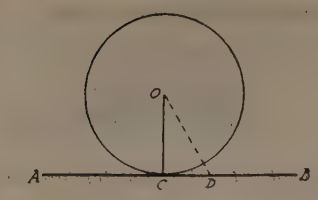
153. *Corol. 2. The greatest chord that can be drawn in a circle is a diameter.*

154. When we consider a line and a circle, we find three conditions possible. The line may



cut the circle in two points, in which case it is called a *secant*. It may touch it at a single point, in which case it is called a *tangent*. The point where it touches the circle is called *the point of tangency*. Finally, the line and circle may not meet. A line can not meet a circle in three points for this would give us a point from which three equal lines would be drawn to a line which is impossible.

155. *Theorem 34. A line perpendicular to a radius at its extremity on the circumference is tangent to the circle.*



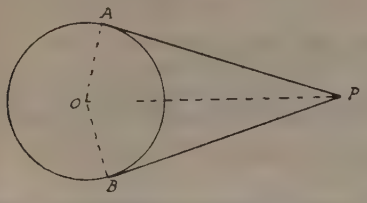
Given. AB ⊥ OC, a radius of ⊙ O, at C.
To be proved. AB is tangent to ⊙ O.
Proof. Draw OD from O to any point of AB except C.
Then OD > OC. Par. 81.
∴ D does not lie on the ⊙.
∴ Only one point of AB is on the ⊙. Hence, by definition, AB is tangent to ⊙. q. e. d.

156. *Corol. 1. A tangent to a circle is perpendicular to the radius drawn to the point of contact.*

157. *Corol. 2. Only one tangent can be drawn to a circle at a given point.*

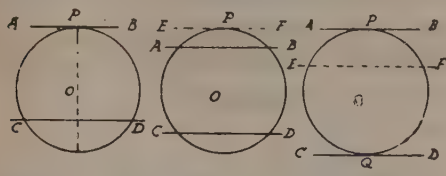
158. *Corol. 3. A line perpendicular to a tangent to a circle at its point of contact, passes through the center of the circle.*

159. *Theorem 35. The tangents to a circle drawn from an external point are equal.*



Given. Lines AP and BP tangent to ⊙ O from point P outside the ⊙.
To be proved. AP = BP.
Proof. Draw the line OP and the radii OA and OB.
Triangles AOP and BOP are rt. △ which have their hypothenuse a common line and corresponding legs equal. Therefore, they are congruent and the other legs are equal.

160. *Theorem 36. Two parallel lines intercept equal arcs on a circumference.*



Case 1. One line a secant and the other a tangent.
Given. AB tangent to ⊙ O at P and secant CD ∥ AB.
To be proved. Arc CP = Arc DP.
Proof. Draw radius OP.
OP ⊥ to AB and therefore to CD. ?
∴ OP bisects the arc CPD. Par. 148.
∴ Arc CP = Arc DP.
Case 2. The lines both secants.
Given. ∥s AB and CD, secants of ⊙ O.
To be proved. Arc AC = Arc BD.
Proof. Draw EF ∥ to AB and CD, tangent to ⊙ O at P.
(Note. The point P is found by drawing the ⊥ from O to AB cutting the ⊙ at P. At P erect a ⊥ to OP. This is the required tangent.)
Then by case 1,
Arc CP = Arc DP,
and Arc AP = Arc BP.
∴ Arc AC = Arc BD. Ax. 3.
Case 3. The lines both tangents.
Suggestion. Draw a secant parallel to the tangents and use case 1.

161. Def. The line joining the centers of two circles is called the *line of centers.*

162. Def. A line tangent to each of two circles is called a *common tangent.* Common tangents that do not cross the line of centers are called *external tangents.* Those which cross the line of centers are called *internal tangents.* By drawing circles, the following cases will be noted.

1. No points in common. One circle may lie entirely inside the other in which case there are no common tangents. One circle may lie entirely outside the other, in which case there are four common tangents, two internal and two external.

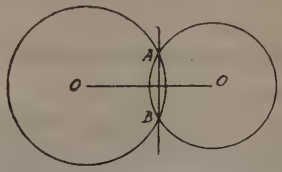
2. One point in common. They are both tangent to the same line at this point and also tangent to each other. If they lie on the same side of the tangent, they are said to be tangent internally, in which case they have no other common tangents. If they lie on opposite sides of this tangent, they are said to be tangent externally, in which case they have two common external tangents and the one internal tangent.

3. Two points in common. These points are called *the points of intersection.* The segment connecting them is the *common chord* of the two circles. In this case, the circles have two common external tangents but no common internal ones.

Two circles cannot intersect in more than two points or they would coincide by Par. 143.

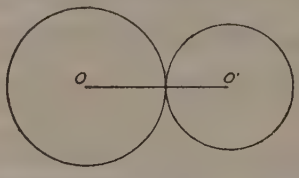
EXERCISE. Draw all cases discussed in Par. 161.

163. *Theorem 37. The line of centers is the perpendicular-bisector of the common chord of two intersecting circles.*



Suggestion. The centers are each equally distant from the end points of the common chord. Use Par. 74.

164. *Theorem 38. The line of centers passes through the point of tangency of two tangent circles.*



Suggestion. The line of centers is the shortest distance between the centers and is equal to the sum of the distances from the centers to the point of contact.

MEASUREMENT OF ANGLES.

165. Def. The *measure* of a magnitude is the number of times it contains another magnitude of the same kind which has been agreed upon as the unit of measure.

This unit is arbitrary and may be taken at pleasure. To avoid confusion and to insure fair measure most countries have passed laws making certain magnitudes the unit of measure for all other magnitudes of the same kind; as the foot, the pound, the gallon, etc. The official units for the United States are kept in Washington, D. C.,

but very accurate copies of each are to be found in the various states and cities.

166. **Def.** The *ratio* between two magnitudes is the quotient of their numerical measures. If the quotient is an integer or a rational fraction, the magnitudes are said to be *commensurable*. If not, the magnitudes are said to be *incommensurable*. Incommensurable magnitudes exist but for all practical purposes they can be replaced by commensurable magnitudes. It is only with the latter that we will concern ourselves at present.

It should be noted that the measure of a magnitude is the ratio it bears to the unit of measure.

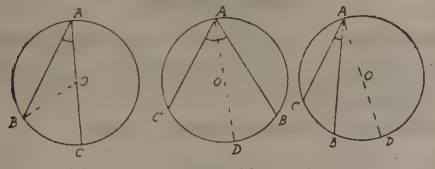
167. **Def.** In order to establish a connection between central angles and their intercepted arcs, the unit of measure for the arc is chosen as follows. A circumference equals 360 *degrees of arc*. Symbol °. A semi-circumference equals 180°, a quadrant or fourth part of a circumference equals 90°. Each degree of arc is divided into sixty equal parts called *minutes of arc*. Symbol ′. Each minute is divided into sixty equal parts called *seconds of arc*. Symbol ″.

By comparing the above with Par. 50, we are led to accept the following theorem without additional proof.

168. *Theorem 39. In the same circle or in equal circles, central angles have the same ratio to each other as their intercepted arcs.*

169. *Corol. A central angle is measured by its intercepted arc,* i. e., the number of degrees, minutes and seconds in a central angle equals the number of degrees, minutes and seconds of arc in the intercepted arc.

170. *Theorem 40. An inscribed angle is measured by one half its intercepted arc.*



Case 1. The center on one side of the angle.
Given. ∠ BAC inscribed in ⊙ O, side AC passing through O.
To be proved. ∠ BAC is measured by ½ arc BC.
Proof. Draw OB. △ AOB is isosceles.
∴ ∠ A = ∠ B
Also ∠ BOC = ∠ A + ∠ B Par. 103, Cor. 1.
= 2 × ∠ BAC
Or ∠ BAC = ½ ∠ BOC.
But BOC is measured by arc BC.
∴ BAC is measured by ½ arc BC. q. e. d.
Case 2. The center within the angle.
Draw the diameter AD. Apply case 1 to both of the inscribed angles so formed. Then add.
Case 3. The center outside the angle.
The proof is similar to that suggested in case 2.

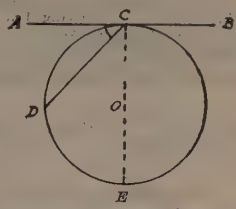
171. **Def.** A *segment* of a circle is the portion of the plane bounded by a chord and its subtended arc. When the chord is a diameter, the segment is a *semi-circle*.

172. **Def.** A *sector* of a circle is the portion of the plane bounded by two radii and their intercepted arc. When the radii are perpendicular, the sector is a *quadrant* or the fourth part of a circle.

173. **Def.** An angle is said to be *inscribed in* a segment when its vertex lies on the arc and the sides of the angle pass through the end points of the arc of the segment.

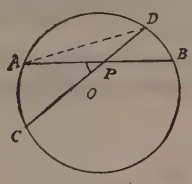
174. *Corol. An angle inscribed in a semi-circle is a right angle.*

175. *Theorem 40. The angle formed by a tangent to a circle and a chord drawn from the point of contact is measured by one half the intercepted arc.*



Given. AB tangent to ⊙ O at C and chord CD.
To be proved. ∠ACD is measured by ½ arc CD.
Proof. Draw diameter COE. This will be ⊥ to AB. ?
∴ ∠ ACE = 90° and is measured by ½ arc CDE. ?
Also ∠ DCE is measured by ½ arc DE. ?
∴ ∠ ACD is measured by ½ arc CD. q. e. d. Ax. 3.

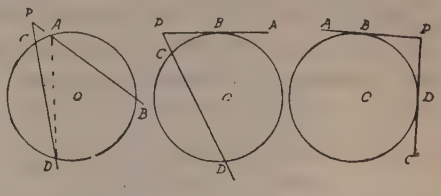
176. *Theorem 41. The angle formed by two chords intersecting within a circle, is measured by half the sum of the intercepted arcs.*



Given. Chords AB and CD of ⊙ intersecting at P.
To be proved. ∠ APC is measured by ½ (arc AC + arc BD).

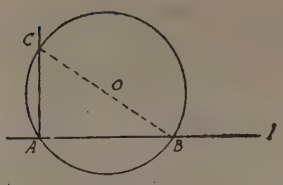
Proof. Draw the line AD. The required angle is the sum of the two inscribed angles formed at A and D and is therefore measured by one half the sum of their intercepted arcs.

177. *Theorem 42. If two secants, a secant and a tangent, or two tangents to a circle meet outside the circle, the angle so formed is measured by one half the difference of the intercepted arcs.*



Case 1. Two secants.
Given. Secants AB and CD meeting at P.
To be proved. ∠ P is measured by ½ (arc BD — arc AC).
Proof. Draw AD.
∠ BAD = ∠ D + ∠ P. Par. 103, Cor. 1.
∴ ∠ P = ∠ BAD − ∠ D.
But ∠ BAD is measured by ½ arc BD
and ∠ D is measured by ½ arc AC. Par. 170.
∴ P is measured by ½ (arc BD — arc AC). q. e. d.
The proof of other two cases is left to reader.

178. *Problem 9. To erect a perpendicular to a line at a given point.*



Given. Point A on line l.

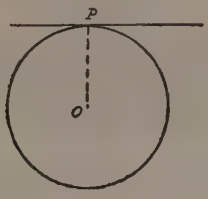
Required. To erect a ⊥ at A.

Construction. With any convenient point O as center and OA as radius draw a ⊙ cutting l at B. Draw the diameter BOC. Draw the line AC.

AC is the required line.

Proof. ∠ CAB is a rt. ∠ being inscribed in a semi-circle. Par. 174.

179. *Problem 10. To draw a tangent to a circle at a given point.*

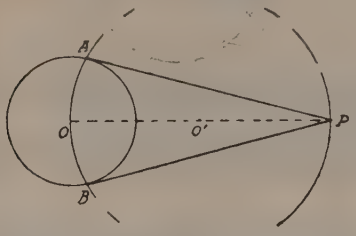


Given. Point P on ⊙ O.

Required. To draw the tangent at P.

Construction. The solution is suggested in the proof of Theorem 34, Par. 155.

180. *Problem 11. To draw a tangent to a circle from a given external point.*



Given. Point P outside ⊙ O.

Required. To draw a tangent to the ⊙ through P.

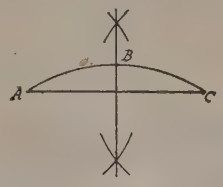
Construction. With OP as diameter, draw a circle intersecting the given circle at A and B. Draw PA and PB. Either is the required tangent.

Proof. ∠ PAO = ∠ PBO = a rt. ∠. Par. 174.

∴ PA and PB are ⊥ to the radii OA and OB respectively.

∴ PA and PB are tangent to ⊙ O. q. e. d. Par. 155.

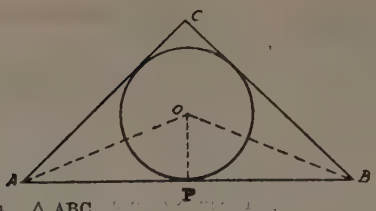
181. *Problem 12. To bisect a given arc.*



Suggestion. Bisect its subtending chord, or its central angle.

182. Def. A circle is said to be *inscribed in* a polygon when it is tangent to all the sides of the polygon.

183. *Problem 13. To inscribe a circle in a triangle.*



Given. △ ABC.

Required. To inscribe a ⊙ in △ ABC.

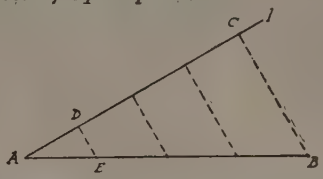
Construction. Draw the bisectors of ∠ A and B, meeting in the point O.

Draw the ⊥ OP from O to the side AB.

With OP as radius draw the required circle.

Proof. Show O equally distant from all three sides of the triangle.

184. *Problem 14. To divide a segment into any number of equal parts.*



Given. Segment AB.

Required. To divide it into any number of equal parts.

Construction. On any convenient line l through A and with any convenient length, measure off as many equal parts as are required, as four, letting the end of the last equal segment fall at C.

Draw BC and through the ends of each equal segment on l draw parallels to BC.

These parallels will divide AB into the required number of equal parts. Prove.

EXERCISES.

1. Given two adjacent sides and the included angle, construct the parallelogram.
2. Given a side, construct the square.
3. Given the diagonals, construct the rhombus.
4. Given the hypothenuse, and an acute angle, construct the triangle.

PROPORTION.

185. Def. A statement of equality between two ratios is called a *proportion.* The four numbers forming the two ratios are said to be *in proportion.*

Notation. A proportion is written

$$\frac{a}{b} = \frac{c}{d}, \text{ or } a : b = c : d.$$

which is read a is to b as c is to d.

The first and third terms in a proportion are called *antecedents.* The second and fourth terms are called *consequents.*

The first and fourth terms in a proportion are called *extremes.* The second and third are called *means.*

186. Def. The *fourth proportional* to three numbers is the number which completes the proportion; $a : b = c : x$.

187. If four numbers are in proportion, they can be grouped together in many ways. Starting with the fractional form, we will use the principles of algebra to derive some of these relations.

188. *Theorem 43. If four numbers are in proportion, either pair may be taken as the means and the other as the extremes.*

Given. $\frac{a}{b}=\frac{c}{d}$. Fundamental relation.

To be proved. $\frac{b}{a}=\frac{d}{c}$.

Proof. Clearing of fractions we get

$$bc = ad. \quad (1)$$

Dividing both sides by ac gives

$$\frac{bc}{ac}=\frac{ad}{ac},$$

or, $$\frac{b}{a}=\frac{d}{c}.$$ q. e. d. (2).

189. In a brief form, the more important laws of proportion are stated below with proofs indicated in all cases.

If four numbers are in proportion, they are in proportion

1. By Alternation; ie., $$\frac{a}{c}=\frac{b}{d}. \quad (3)$$

In relation 1 above divide by cd.

2. By Inversion; ie., $$\frac{b}{a}=\frac{d}{c}. \quad (4)$$

In relation 1 divide by ac.

3. By Composition; ie., $$\frac{a+b}{b}=\frac{c+d}{d}. \quad (5)$$

For $\frac{a}{b}+1=\frac{c}{d}+1$, and clearing of fractions gives the required equation.

4. By Division; ie., $$\frac{a-b}{b}=\frac{c-d}{d}. \quad (6)$$

Subtract 1 from each side of the Fund. Rel. and clear of fractions on each side of the equality.

5. By Composition and Division; ie.,

$$\frac{a+b}{a-b}=\frac{c+d}{c-d}. \quad (7)$$

Divide (5) by (6).

190. Def. In a series of equal ratios, if the consequent of each ratio is the antecedent of the one following, the numbers are said to be in *continued proportion.*

If three numbers are in continued proportion, the common term is called the *mean proportional* between the other two. The last term is called the *third proportional.*

191. *Theorem 44. The mean proportional between two numbers is the square root of their product.*

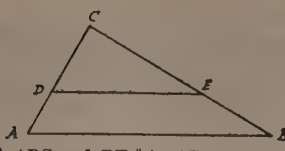
Given. $\frac{a}{b}=\frac{b}{c}$

Then, $ac = bb = b^2$ Par. 188, (1).

$\therefore \quad b = \sqrt{ac}.$ q. e. d.

192. In proportion, it is customary to speak of the ratio between the magnitudes, when the ratio between the numbers which measure these magnitudes is meant.

193. *Theorem 45. A line parallel to one side of a triangle intersecting the other two sides, divides those sides proportionally.*



Given. $\triangle$ ABC and DE $\parallel$ to AB.

To be proved. AD : DC = BE : EC.

Proof. Consider only the commensurable case where AD and DC have a common unit of measure.

Let this common unit of measure be contained 3 times in AD and 4 times in DC.

Then $\frac{AD}{DC}=\frac{3}{4}$.

Through the points of division of AC draw $\parallel$s to AB. These lines do not appear in the figure.

These lines will divide BE into 3 and EC into 4 equal parts. Par. 123.

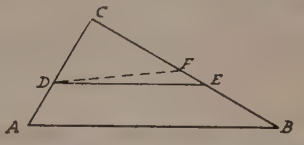
$\therefore \quad \frac{BE}{EC}=\frac{3}{4}$.

$\therefore \quad \frac{AD}{DC}=\frac{BE}{EC}$, q. e. d. ?

194. *Corol. A line parallel to one side of a triangle, intersecting the other two sides, divides these sides in such a way that one side is to either of its segments as the other side is to its corresponding segment.*

This may be proved directly or by using the law of composition on the above proportion. The corollary states $\frac{AC}{AD}=\frac{BC}{BE}$ and $\frac{AC}{DC}=\frac{BC}{EC}$.

195. *Theorem 46. (Converse of Theorem 45) A line which divides two sides of a triangle proportionally is parallel to the third side.*



Given. $\triangle$ ABC and line DE cutting AC and BC so that $\frac{AD}{AC}=\frac{BE}{BC}$.

To be proved. DE $\parallel$ AB.

Proof. Draw a line through D parallel to AB, cutting BC at F. It is sufficient to show that F must coincide with E.

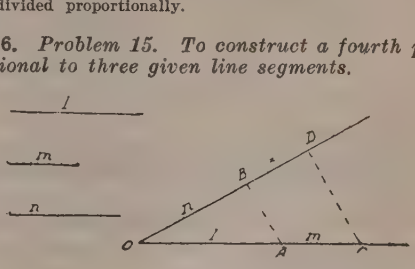
Since $\frac{AD}{AC}=\frac{BE}{BC}$.

and by const. $\frac{AD}{AC}=\frac{BF}{BC}$, Par. 194.

$\therefore$ F and E must coincide. q. e. d. Why?

NOTE.—Any proportion in pars. 193 and 194 may be taken when it is given that the two sides of a triangle are divided proportionally.

196. *Problem 15. To construct a fourth proportional to three given line segments.*

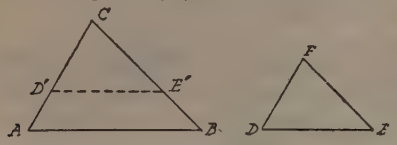


Given. Segments l, m and n.
Required. To construct their fourth proportional.
Construction. Take any two intersecting lines and on one line measure l and m and on the other measure n as in the figure. Draw AB through the end points of l and n. Draw CD through the end point, C, of m parallel to AB, cutting the other line at D. Then BD is the required line, for $\frac{l}{m} = \frac{n}{x}$. Par. 193.

SIMILAR POLYGONS.

197. Two polygons are said to be *similar* if their corresponding angles are equal and their corresponding sides are proportional. By corresponding sides of similar figures is meant the sides between pairs of corresponding equal angles. The ratio between any two corresponding sides or segments is called the *ratio of similitude.*

198. *Theorem 47. Two triangles are similar if their corresponding angles are equal.*



Given. △ ABC and DEF with ∠ A = ∠ D, ∠ B = ∠ E, ∠ C = ∠ F.
To be proved. △ ABC is similar to △ DEF.
Proof. Place △ DEF on △ ABC so that ∠ F will fall on its equal ∠ C, D falling at D′ on AC and E at E′ on BC.
D′E′ is parallel to AB, since ∠ A = ∠ D = CD′E′. Par. 98.

$\therefore \frac{AC}{D'C} = \frac{BC}{E'C}$. Par. 193.

$\therefore \frac{AC}{DF} = \frac{BC}{EF}$.

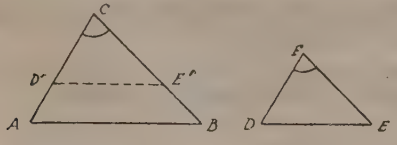
Similarly,
$\frac{AC}{DF} = \frac{AB}{DE}$. and the sides are proportional. q. e. d.

199. *Corol. 1. Two triangles are similar if two angles of one equal respectively two angles of the other.*

Their third angles are also equal.

200. *Corol. 2. Two right triangles are similar if an acute angle of one equals an acute angle of the other.*

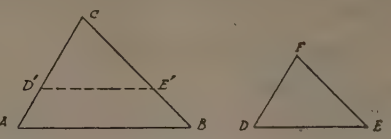
201. *Theorem 48. Two triangles are similar if an angle of one is equal to an angle of the other and the including sides are proportional.*



Write out the proof.
Suggestion. The proof is by superposition, the third side of the superposed triangle being parallel to the corresponding side of the other by Par. 195.

202. *Corol. Two right triangles are similar if the legs of one triangle are proportional to the legs of the other.*

203. *Theorem 49. Two triangles are similar if the sides of one are proportional to the corresponding sides of the other.*



Given. In △ ABC and DEF. $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$.
To be proved. △ ABC and DEF are similar.
Proof. On CA take CD′ = FD and on CB take CE′ = FE.
Then △ ABC and CD′E′ are similar. Par. 201.

$\therefore \frac{AC}{D'C} = \frac{AB}{D'E'} = \frac{AC}{DF}$.

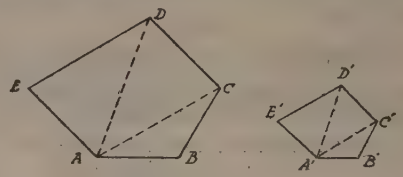
But $\frac{AB}{DE} = \frac{AC}{DF}$. Given.

$\therefore$ DE = D′E′,
and △DEF and CD′E′ are congruent.
∴ △ ABC and DEF are similar. q. e. d.

204. *Theorem 50. The perimeters of two similar polygons are in the same ratio as any two corresponding sides.*

Apply the law of Composition as many times as the polygon has sides.

205. *Theorem 51. Two polygons are similar if they are composed of the same number of triangles, similar each to each and similarly placed.*



Given. Polygons ABCDE and A′B′C′D′E′ with △ ABC similar to △ A′B′C′, △ ACD similar to △ A′C′D′, and △ ADE similar to △ A′D′E′.
To be proved. ABCDE is similar to A′B′C′D′E′.
Proof. 1. The angles are equal. ∡ B and B′ and ∡ E and E′ are corresponding angles of similar triangles. ∡ C and C′, and ∡ D and D′ are equal being the sum of two corresponding angles in similar triangles. ∡ A and A′ are equal being the sum of three corresponding angles of similar triangles.

2. The sides are proportional. The polygons are composed of triangles which have at least one side in common. Therefore, the ratio of similitude for one triangle is the same for all the rest and is the ratio of similitude for the polygon. A series of equations which are connected by the ratios of the common sides proves that all sides have a common ratio.

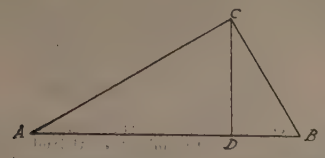
206. *Theorem 52. Two similar polygons can be divided into the same number of similar triangles, similar each to each and similarly placed.*

Suggestion. Take any two similar polygons and draw the diagonals from one vertex. This will divide the polygons into triangles. Starting with the outside triangles, we show them similar by Par. 203. Then take the next triangle. In each case, two sides will be proportional and the included angle can be shown equal.

207. *Theorem 53. If a perpendicular is dropped from the vertex of the right angle to the hypothenuse of a right triangle,*

1. The triangles so formed are similar to the given triangle and to each other,

2. The perpendicular is a mean proportional between the segments of the hypothenuse.



Given. Rt. △ ABC and CD ⊥ to hypothenuse, AB, from C.

To be proved. 1. ▲ ABC, ADC and BDC similar.

2. $DC^2 = AD \times DB$.

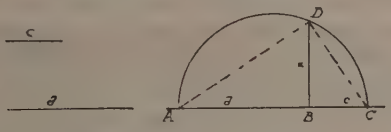
Proof. Part 1 follows directly from Par. 200.

To prove Part 2, consider similar ▲ ADC and BDC.

$$AD : DC = DC : DB \qquad \text{Part 1.}$$
$$\therefore DC^2 = AD \times DB. \quad \text{q. e. d.}$$

208. *Corol. The perpendicular from any point on the circumference to a diameter is a mean proportional between the segments of the diameter.*

209. *Problem 16. To construct a mean proportional to two given segments.*



Given. Segments a and c.

Required. To construct b, a mean proportional between a and c.

Construction. Measure off a and c on a straight line forming ABC. With AC as diameter draw a semi-circumference. At B erect the perpendicular to AC cutting the circumference at D.

BD is the mean proportional.

Why?

210. Many important relations between the sides of triangles can be established by the use of similar triangles. The methods used are those of algebra and geometry combined. Among these theorems is found a formula for the altitude of any triangle in terms of the three sides. As this will be used later, it is stated here for reference.

Let the sides be a, b, and c,

$$s = \tfrac{1}{2}(a + b + c),$$

and h = the altitude drawn to the side c.

Then

$$h = \frac{2}{c}\sqrt{s(s-a)\ (s-b)\ (s-c)}$$

A similar form holds for the altitudes of the other two sides.

EXERCISES.

1. Two triangles are similar if their sides are parallel each to each or perpendicular each to each.

2. In an oblique triangle, the square of a side opposite an acute (obtuse) angle is equal to the sum of the squares of the other two sides less (plus) twice the product of one of these sides by the projection of the other side upon it.

AREA.

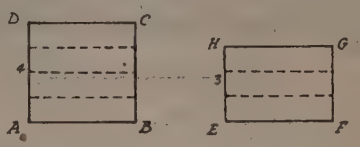
211. Def. The measure of the part of a plane included in a geometrical figure is called the *area of the figure.* It is the ratio the whole figure has to a square, a certain length on each side, which has been agreed upon as the unit of area. The side of the unit of area is usually taken equal to a unit of linear measure as the foot, the inch or the centimeter.

212. Def. Two geometrical figures are said to be *equal* when the measures of the areas included by them are equal in terms of the same unit.

213. *Congruent figures are equal,* but the converse is not necessarily true. See Par. 30.

214. For convenience, the terms triangle, rectangle, parallelogram, circle etc., are often used when the areas of these figures are being considered.

215. *Theorem 54. Two rectangles having equal bases are to each other as their altitudes.*



Consider only the case where the altitudes are commensurable to each other.

Given. Rectangles ABCD and EFGH, bases AB and EF equal.

To be proved. $\dfrac{ABCD}{EFGH} = \dfrac{AD}{EH}$.

Proof. Since the altitudes are commensurable, let the common unit divide AD and EH into m and n equal parts respectively.

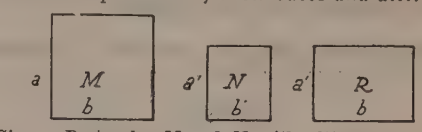
Then $\dfrac{AD}{EH} = \dfrac{m}{n}$. Figure.

Draw parallels through the points of division dividing the rectangles into m and n equal parts so that

$$\frac{ABCD}{EFGH} = \frac{m}{n}.$$
$$\therefore \frac{ABCD}{EGFH} = \frac{AD}{EH}. \quad \text{q. e. d.}$$

216. *Corol. Two rectangles having equal altitudes are to each other as their bases.*

217. *Theorem 55. Two rectangles are to each other as the products of their bases and altitudes.*



Given. Rectangles M and N with altitudes a and a′ and bases b and b′ respectively.

To be proved. $\dfrac{M}{N} = \dfrac{ab}{a'b'}$.

Proof. Construct a rectangle R with altitude a′ and base b.

Then $\dfrac{M}{R} = \dfrac{a}{a'}$ and $\dfrac{R}{N} = \dfrac{b}{b'}$.

Multiplying the corresponding sides of these two equations gives the required result. q. e. d.

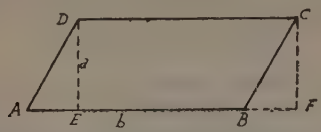
218. *Corol. The area of a rectangle is equal to the product of its base and altitude.*

Suggestion. Take the unit of area as the second rectangle and apply the theorem.

219. This important theorem is used in the upper grades of arithmetic. It is proved there informally by dividing the given rectangle into

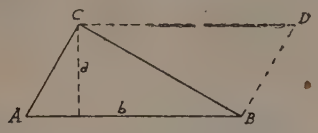
squares equal to the unit of area being used, and then counting the squares.

220. *Theorem 56. The area of a parallelogram is equal to the product of its base and altitude.*



Given. □ ABCD, with altitude a and base b.
To be proved. Area ABCD = ab.
Proof. Drop ⊥s CF and DE to the base AB extended. Then rt. △ AED and BFC are equal. Prove this.
∴ Rect. EFCD = □ ABCD
= ab Par. 218.
∴ □ ABCD = ab. q. e. d.

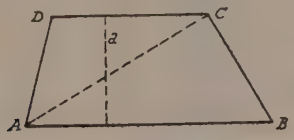
221. *Theorem 57. The area of a triangle is equal to one half the product of its base and altitude.*



Suggestion. The triangle ABC is one half the parallelogram formed by drawing BD and CD parallel to AC and AB respectively. This parallelogram has the same base and altitude as the given triangle.

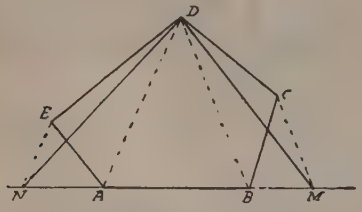
222. *Corol. Two triangles which have the same or equal bases and equal altitudes are equal.*

223. *Theorem 58. The area of a trapezoid is equal to the product of one half the sum of the bases times the altitude.*



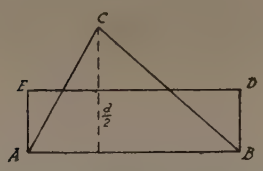
Suggestion. A diagonal will divide the figure into two triangles having equal altitudes and the two bases of the trapezoid as their respective bases.

224. *Problem 16. To construct a triangle equal to a given polygon.*



Given. Polygon ABCDE.
Required. To construct a △ = ABCDE.
Construction. Draw BD and through C draw a line ∥ to BD meeting AB produced at M. Draw DM. Then △ BCD = △ BMD and ABCDE = AMDE. Par. 222.
In the same way, draw △ AND = △ ADE making △ NMD = ABCDE. If the polygon has more than five sides as in the figure continue as indicated.

225. *Problem 17. To construct a rectangle equal to a given triangle.*



Suggestion. On the base of the triangle as the base of the rectangle and with half the altitude of the triangle as the altitude of the rectangle, construct the rectangle.

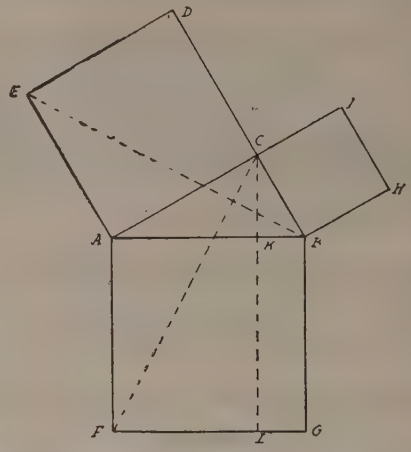
226. *Problem 18. To construct a square equal to a given rectangle.*

Suggestion. For a side of the square use the mean proportional between the base and altitude.

227. Problems 16 to 18 show how to replace any polygon by a square equal to it. One of the famous problems of geometry is known as squaring the circle, where an attempt is made to construct a square equal to a given circle. This is now known to be impossible as it involves the ratio of incommensurable magnitudes; namely, the diameter and circumference of a circle.

228. Among the most used of the theorems of geometry is the one proved in the next section. It is attributed to Pythagoras, a famous philosopher of the 6th century B. C. Many beautiful and interesting proofs of this theorem have been given since his time but none is more used than the one attributed to Euclid. The theorem follows.

229. *Theorem 59. The square on the hypothenuse of a right triangle is equal to the sum of the squares on the two legs.*



Given. Rt. △ ABC, with squares erected on each side.
To be proved. Sq. ABGF = Sq. ACDE + Sq. CBHI.
Proof. Draw CK ⊥ to AB, meeting FG at L.
Draw EB and CF.
Consider △ ACF and ABE. AC = EA, AF = AB and ∠ EAB = ∠ CAF. ∴ the △ are congruent. ?
Now △ EAB = ½ sq. ACDE ?
and △ ACF = ½ Rect. AKLF ?
∴ Sq. ACDE = Rect. AKLF. ?
In a similar manner, drawing AH and CG prove
Sq. CBHI = Rect. LGBK.
Adding these results,
Sq. ABGF = Sq. ACDE + Sq. CBHI.
q. e. d.

230. Other proofs of this important theorem are given in the various treatises on geometry. If the sides opposite the angles are represented by the corresponding small letters, a, b, and c respectively the theorem states

$$a^2 + b^2 = c^2.$$

Also, $$a^2 = c^2 - b^2.$$

The square on the leg of a right triangle is equal to the square on the hypothenuse minus the square on the other leg.

231. *Area of a triangle in terms of its sides.* In Par. 210 the altitude of a triangle was stated in terms of its sides. Theorem 57 gives the following formula for the area in terms of the sides.

$$\text{Area} = \sqrt{s(s-a)\ (s-b)\ (s-c)}$$

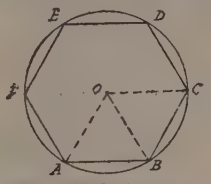
EXERCISES

1. If two triangles have an angle of one equal to an angle of the other, their areas are to each other as the product of the sides including the equal angles.
2. The areas of two similar triangles are to each other as the square of any two homologous sides.
3. The areas of two similar polygons are to each other as the squares of any two homologous sides.

REGULAR POLYGONS AND CIRCLES.

232. Def. A *regular polygon* is a polygon whose sides and angles are equal each to each. We have had examples of regular polygons in the equilateral triangle and the square.

233. *Theorem 60. A circle may be inscribed in or circumscribed about any regular polygon.*



Case 1. The circumscribed circle.
Given. Regular polygon ABCDEF.
To be proved. A circle can be circumscribed about ABCDEF.

Suggestion. Pass a circle through any three consecutive points, as A, B and C, with center at O. See Par. 141. This point O is equally distant from all the other vertices of the polygon. This is shown by proving each triangle formed as in the figure congruent to ABO, remembering that ABO and BCO are isosceles triangles with two sides and two angles equal. Both the angles at B are equal and equal to OCB. Both angles at C are equal. Use Theorem 2.

Case 2. The inscribed circle.
Consider the circumscribed polygon already drawn. The sides of the polygon are equal chords of this circle and, therefore, equally distant from the center O. With this distance as radius, the required circle can be drawn. Write out formal proof.

234. Def. The *center* of a regular polygon is the common center of the inscribed and circumscribed circles.

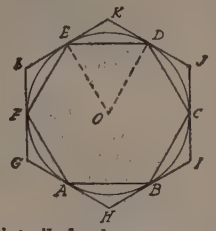
235. Def. The *radius* of a regular polygon is the radius of the circumscribed circle.

236. Def. The *apothem* of a regular polygon is the radius of the inscribed circle.

237. Def. The *central angle* of a regular polygon is the angle at the center between radii drawn to two adjacent vertices.

238. *Corol. In a regular polygon, the central angles are equal.*

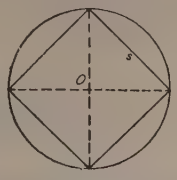
239. *Theorem 61. If a circle is divided into any number of equal arcs, (1), the chords subtending them form a regular inscribed polygon, and (2), the tangents drawn of the ends of the arcs form a regular circumscribed polygon.*



Case 1. The inscribed polygon.
Suggestion. The chords are all equal, since they are subtended by equal arcs. The central angles are all equal being measured by equal arcs. The triangles are congruent isosceles triangles and the angles at the vertices of the polygon are made up of pairs of equal angles and so are equal.

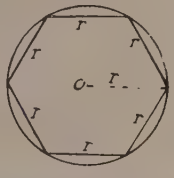
Case 2. The circumscribed polygon.
Suggestion. The triangles formed by the tangents at the end of each arc and the chord of that arc are congruent isosceles triangles. This proves the angles equal and the sides are each double one of the equal sides of the triangles.

240. *Problem 19. To inscribe a square in a circle.*



Suggestion. Draw perpendicular diameters dividing the circle into four equal arcs and connect the end points.

241. *Problem 20. To inscribe a regular hexagon in a circle.*



Suggestion. On the given circle lay off arcs subtended by chords equal to the radius. There will be exactly six such arcs. To prove this, notice that there will be six central angles to the hexagon each equal to 60°. By this construction, equilateral triangles are formed, each angle of which is 60°. There can be six such triangles. Prove.

242. *Problem 20. To inscribe an equilateral triangle in a circle.*

Suggestion. Connect alternate points of the inscribed hexagon.

243. It is obvious that when a polygon of a certain number of sides has been constructed, the number of sides can be doubled by bisecting the subtended arcs of the circumscribed circle.

Methods can be given for constructing polygons of 3, 4, 5, 15, and 17 sides, and hence for polygons of any number of sides which is the product of a power of two and any of these numbers. Many polygons can not be constructed by rule and compasses, as eg., those of 7 and 9 sides. The latter problem calls for the trisec-

tion of an angle, a problem which has claimed the attention of mathematicians for many centuries. These constructions are considered in advanced courses in mathematics.

244. *Theorem 62. Two regular polygons of the same number of sides are similar*

Suggestion. The radii divide them into the same number of triangles similar each to each and similarly placed.

245. The importance of the study of regular polygons lies in the relations which exist between the perimeters and areas of regular polygons and the circumferences and areas of the inscribed and circumscribed circles. If the number of the sides of a polygon is allowed to increase indefinitely, the difference between the perimeter of the polygon and the circumference of the circumscribed circle becomes very small. In the limiting case, they can be shown to be equal. In a similar manner, the area of the polygon approaches the area of the circle, and in the limiting case they are equal to each other.

For this reason, theorems proved for regular polygons, can be stated for circles with only a slight change in wording.

It is also shown that the apothem of the inscribed polygon and the radius of the circumscribed polygon become more and more nearly equal to the radius of the circle and to each other. In the limiting case, they are all equal to each other.

246. *Theorem 63. The perimeters of two regular polygons of the same number of sides are to each other as their radii, or as their apothems.*

How does Par. 204 apply? What about the triangles formed by the radius, apothem and half the side in each polygon?

247. *Corol. The circumference of two circles are to each other as their radii or as their diameters.*

i. e., $\frac{C}{C'} = \frac{r}{r'} = \frac{2r}{2r'} = \frac{d}{d'}$.

248. *Theorem 64. The ratio between the circumference and the diameter is the same for every circle.*

Given. Any two circles O and O'.

To be proved. $\frac{C}{d} = \frac{C'}{d'}$.

Apply the law of alternation to the equation of ratios in Par. 247.

249. The ratio considered in Par. 248 is one of the most important values in mathematics. It can not be found exactly but its value has been determined to any desired degree of accuracy. The value is called *pi*, the Greek letter for p, and is written π. The number commonly used is 3.1416, which is more accurate than most measurements with which it is combined.

250. **The circumference of a circle.** From Theorem 64 and the value of π, we get at once,

$$C = \pi d = 2\pi r.$$

251. *Theorem 65. The area of a regular polygon is equal to one half the product of its perimeter by its apothem.*

Suggestion. Divide the polygon into triangles as in the figure and notice that the area of one triangle is equal to one half the product of one side by the apothem of the polygon. There will be as many triangles as the polygon has sides.

252. *Corol. The area of a circle is equal to one half the product of its circumference by its radius, i. e.,* Area = ½ Cr.

From this it follows directly that the area of a circle equals the product of π by the square of the radius, i.e., Area = πr^2.

253. This does not by any means exhaust the field of plane geometry. Many theorems and problems grow out of those already proved. The examination of loci of points furnishes an interesting study for the earnest student. The idea of symmetry may be developed.

The introduction of a third dimension leads to the study of Solid Geometry where the formulas for the area and volume of solids are derived. The prism, pyramid, cone, cylinder and sphere are considered.

The subject which usually follows geometry is called Trigonometry where, by means of similar right triangles, an accurate method for the measurement of angles in practical problems is developed.

DICTIONARY OF WEIGHTS AND MEASURES.

FOREIGN AND DOMESTIC.

ACRE. A measure of land (Latin, *ager*, a field). Originally as much land as could be plowed in one day. The English statute acre consists of—

6,272,640 square inches.
43,560 square feet.
4,840 square yards.
160 square rods.
10 square chains.

Value of foreign measures compared with the acre—

	English acres.
Scotch acre	equals 1.27
Irish acre	equals 1.62
Austrian joch	equals 1.42
Baden, morgen	equals 0.89
Belgian hectare	equals 2.47
Danish töndeland	equals 1.86
French hectare	equals 2.47
French arpent	equals 0.91
Dutch arpent	equals 2.10
Neapolitan moggia	equals 0.83
Portuguese geira	equals 1.43
Prussian little morgen	equals 0.63
Prussian great morgen	equals 1.40
Russian dessiatine	equals 2.70
Saxon morgen	equals 1.36
Spanish fanegada	equals 1.06
Swedish tunnland	equals 1.22
Swiss faux	equals 1.62
Swiss arpent	equals 1.27
Tuscan saccata	equals 1.22
United States, English acre	equals 1.00
Württemberg, morgen	equals 2.40
Roman jugerum	equals 0.62
Greek plethron	equals 0.23

An acre is contained in a rectangular field which measures—

10	rods	× 16	rods
8	rods	× 20	rods
5	rods	× 32	rods
4	rods	× 40	rods
5	yards	× 968	yards
10	yards	× 484	yards
20	yards	× 242	yards
40	yards	× 121	yards
80	yards	× 60½	yards
70	yards	× 69½	yards
220	feet	× 198	feet
440	feet	× 99	feet
60	feet	× 726	feet
208.71	feet on a side		
110	feet	× 396	feet
120	feet	× 363	feet
240	feet	× 181½	feet

A field which measures			contains
200	feet × 108.9	feet	½ acre
100	feet × 145.2	feet	⅓ acre
100	feet × 108.9	feet	¼ acre
25	feet × 100	feet	.0574 acre
25	feet × 110	feet	.0631 acre
25	feet × 120	feet	.0688 acre
25	feet × 125	feet	.0717 acre
25	feet × 150	feet	.086 acre
2,178	square feet		.05 acre
4,356	square feet		.10 acre
6,534	square feet		.15 acre
8,712	square feet		.20 acre
10,890	square feet		.25 acre
13,068	square feet		.30 acre
15,246	square feet		.35 acre
17,424	square feet		.40 acre
19,602	square feet		.45 acre
21,780	square feet		.50 acre
32,670	square feet		.75 acre
34,848	square feet		.80 acre

A circular acre has a diameter of 235.504 feet
A circular half acre has a diameter of 166.527 feet
A circular quarter acre has a diameter of 117.752 feet
An acre contains 10 square Gunter's chains.

ALMUDE. A Portuguese measure equal to 4.422 American gallons.

ANGULAR MEASURE.

60 seconds .. = 1 minute
60 minutes .. = 1 degree
30 degrees .. = 1 sign
90 degrees .. = 1 quadrant
4 quadrants, or 360° .... = 1 circumference or circle

APOTHECARIES' WEIGHTS.

20 grains	=1 scruple	℈	= 20 grains
3 scruple	=1 dram	ʒ	= 60 grains
8 drams	=1 ounce	℥	= 480 grains
12 ounces	=1 pound	lb	=5760 grains

Drugs are purchased by Avoirdupois Weight.

ARE. One hundred square meters, equal to 119.6 square yards.

ARRATEL or LIBRA. A Portuguese weight equal to 1.011 American pounds.

ARROBA (Dry). A weight used in Spain and Spanish countries. It is equal in

Argentine Republic	to 25.3175	American pounds
Brazil	to 32.38	American pounds
Cuba	to 25.3664	American pounds
Portugal	to 32.38	American pounds
Spain	to 25.36	American pounds
Venezuela	to 25.4024	American pounds

ARROBA (Liquid). A measure used in Cuba, Spain, and Venezuela. It is equal to 4.263 American gallons.

ARSHINE. A Russian measure equal to 28 American inches.

ARSHINE, SQUARE. A Russian measure equal to 5.44 American square feet.

AVOIRDUPOIS WEIGHT. This measure of weight is used in weighing all goods excepting the precious metals, precious stones, and apothecaries' prescription quantities.

27⅓ grains	= 1 dram	=	27⅓ grains
16 drams	= 1 ounce	=	437½ grains
16 ounces	= 1 pound	=	7000 grains
8 pounds	= 1 stone of butcher's meat		
14 pounds	= 1 ordinary stone		
25 or 28 pounds*	= 1 quarter (qr.)		
4 quarters	= 1 hundredweight (cwt.)		
20 cwt	= 1 ton		

*In nearly all of the United States by law and by practice the hundredweight is 100 pounds and the quarter 25 pounds. In England the legal hundredweight is 112 pounds and the quarter 28 pounds.

BALE. A package most commonly of cotton, wool, or hay. A bale of cotton weighs between 400 and 500 pounds according to the season of the year; a bale of cochineal weighs 1½ hundredweight; a bale of wool, about 2½ hundredweight; a bale of caraway seeds, 3½ hundredweight; a bale of Mocha coffee, 303 pounds; a bale of thread contains 100 bolts; a bale of Rio coffee, 162 pounds.

BARIL. A measure in use in Argentine Republic and Mexico. It is equal to 20.0787 American gallons.

BARREL. A barrel of flour weighs 196 pounds; a barrel of pork or beef weighs 200 pounds; a barrel in liquid measure contains 31½ gallons; a barrel of fish in Maine is by law 200 pounds; a barrel, dry measure, in Louisiana is 3¼ bushels; a barrel of apples contains usually 2¼ bushels; a barrel of potatoes, 2½ bushels or 165 pounds.

BATMAN OF TABRIZ. A Persian weight equal to 6.49 American pounds.

BERKOVETS. A Russian weight equal to 361.12 American pounds.

BONGKAL. An East Indian weight equal to 832 American grains.

BU. A Japanese measure equal to 0.1193 American inch.

BUSHEL. A dry measure containing 8 gallons or 4 pecks. The bushel of the United States is founded on the old Winchester bushel of 2,150.42 cubic inches. But the majority of states have varying bushels by weight for different commodities. The imperial bushel of Great Britain contains 2,218.192 cubic inches and holds 80 pounds of distilled water. It was legally established in 1826. The dimensions of a bushel are: 18.5 inches inside diameter; 19.5 inches outside diameter; 8 inches deep. When heaped, the cone at the top above the rim of the measure must be not less than 6 inches high. A struck bushel is level or even with the top, as in measuring grain. It is equal to 1.24445 cubic feet. A cubic foot is .80356 of a struck bushel. A heaped bushel contains 2747.715 cubic inches; 1 bushel is equal to 9.30918 gallons; 3.5756 bushels make a barrel; 36 bushels make a chaldron.

BUTT. A wine measure equal to 126 United States

gallons. The English butt contains 110 imperial gallons. It is the same as a pipe.

BUTT, SPANISH. A wine measure used in Spain equal to 140 American gallons.

CABLE'S-LENGTH. Ships' cables of chain come in 15-fathom or 90-foot lengths. Eight of these lengths are fastened together with swivels to form a cable of 120 fathoms or 720 feet in length. This 720 feet is the ordinary use. But in navy manoeuvers a cable's-length means 100 fathoms or 600 feet, which is about one tenth of a nautical mile.

CANDY. A weight used in Bombay, India, equal to 529 American pounds. The candy of Madras is equal to 500 American pounds.

CARAT. (1) A jeweler's weight for precious stones. In the United States it is 3.2 grains; in London, 3.17; in Paris, 3.18. It is divided into 4 jeweler's grains or diamond grains. (2) A jeweler's measure of the fineness of gold. Pure gold is considered to be 24 carats fine; if an alloy of 2, 4, or 6 parts be added the gold is then called 22, 20, or 18 carats fine.

CARGA or KIN. A weight used in Mexico and Salvador equal to 300 American pounds.

CATTY. A Chinese weight equal to 1⅓ American pounds. The catty of Japan is slightly less, equal to 1.31 American pounds.

CENTARE. One square meter, equal to 1,550 square inches.

CENTARO. A measure used in Central America and equal to 4.2631 American gallons.

CENTIGRAM. One hundredth part of a gram, equal to 0.1543 grain.

CENTILITER. One hundredth of a liter or 10 cubic centimeters, equal to 0.6102 cubic inch or to 0.338 of a fluid ounce.

CENTIMETER. One one hundredth of a meter, equal to 0.3937 inch, rather more than one third of an inch.

CENTNER. A weight used in

Bremen and Brunswick	equal to 117.5 American pounds
Denmark and Norway	equal to 110.11 American pounds
Prussia	equal to 113.44 American pounds
Sweden	equal to 99.7 American pounds
Vienna	equal to 123.5 American pounds

CHAIN. (1) Gunter's chain is 66 feet long and is made up of 100 links of 7.92 inches each. It contains 22 yards or 4 rods of 5½ yards each. An acre is composed of 100,000 square links. (2) The engineer's chain now most commonly used in the United States is 100 feet long and its links are each one foot.

CHALDRON. An English measure for coals, etc., consisting of 36 bushels or 25½ hundredweight; or, commonly, 32 heaped bushels. The weight varies in United States ports, but is usually 26¼ hundredweight.

CHETVERT. A Russian measure equal to 5.7748 American bushels.

CHIH. A Chinese measure equal to 14 American inches.

CORD. A cord of wood contains 128 cubic feet and is usually piled 4 feet wide, 4 feet high, and 8 feet long.

CUADRA. A measure used in Argentine Republic and equal to 4.2 American acres.

CUBIC OR SOLID MEASURE.

1728 cubic inches	= 1 cubic foot.
27 cubic feet	= 1 cubic yard.
40 do. of rough, or 50 do. of hewn timber	= 1 ton or load.
42 cubic feet of timber	= 1 shipping ton.
108 cubic feet	= 1 stack of wood.
128 cubic feet	= 1 cord of wood.
40 cubic feet	= 1 ton shipping.

CUBIT. A measure originally derived from the length of the forearm. The royal Egyptian cubit used in building the pyramids measured 20.64 English inches; the Roman cubit contained 1½ Roman feet or 17.4 English inches; high authorities place the length of the cubit of the Bible at from 19 to 26 inches. The ordinary cubit is spoken of as 18 inches, and the sacred cubit as 22 inches.

CWT. (HUNDREDWEIGHT). An English weight equal to 112 American pounds. The United States hundredweight and that of Canada are each of 100 pounds.

DAY. The natural, solar, or astronomical day is the measure of the time elapsing between two consecutive returns of the same terrestrial meridian to the sun. The civil day recognized in the United States extends from midnight to midnight. The astronomical or nautical day extends from noon to noon. The civil day contains 24 hours. A sidereal day is 23 hours, 56 minutes, 4.099 seconds, or 3 minutes, 55.901 seconds less than a mean solar day.

DECIGRAM. One tenth gram, equal to 1.5432 grains.

DECILITER. One tenth of a liter or one tenth of a cubic decimeter, equal to 6.1022 cubic inches or to 0.845 gill.

DECIMETER. One tenth of a meter, equal to 3.937 inches.

DEGREE. In angular measure a degree is the 360th part of a circumference. A degree of longtitude measured on the equator is 69.16 statute miles; a degree of latitude at the equator is 68.702 statute miles; and at the poles, 69.396 statute miles. A degree contains 60 minutes or 3,600 seconds.

DEKAGRAM. Ten grams, equal to 0.3527 ounce.

DEKALITER. Ten liters or 10 cubic decimeters, equal to 9.08 dry quarts or to 2.6417 gallons.

DEKAMETER. Ten meters, equal to 393.7 inches, or 32.8 feet, or 10.9 yards.

DESSIATINE. A Russian measure equal to 2.6997 American acres. The Spanish dessiatine is equal to 1.599 American bushels.

DOZEN. A collection of 12 units or similar things. **BAKER'S DOZEN** consists of 13. Brewer says it was good measure given by bakers to secure themselves against severe penalties for light weight. This is sometimes called **LONG DOZEN** or **DEVIL'S DOZEN.**

DRAM or DRACHM. An apothecaries' dram is one eighth of a pound or 60 grains. The avoirdupois dram is one sixteenth of an ounce or 27 11/32 grains.

DRAM, FLUID. One eighth of a fluid ounce; about a teaspoonful. In England it contains 54.8 grains of water and equals 3.55 cubic centimeters; in the United States it contains 57.1 grains and measures 3.70 cubic centimeters.

DRY OR CORN MEASURE.

4 quarts	= 1 gallon
2 gallons	= 1 peck
4 pecks	= 1 bushel
3 bushels (four of corn)	= 1 sack
12 sacks	= 1 chaldron
8 bushels, or two sacks	= 1 quarter
15 quarters	= 1 load

ELL. A cloth measure still used in England. An English ell is 1¼ yards or 45 inches; a Scotch ell was 37 inches; the Flemish ell varied, but was about 27.4 inches; a French ell was 47.245 inches. The English ell is made up of 5 quarters.

FANEGA (Dry). A measure used in

Central America	equal to 1.5745 American bushels
Chile	equal to 2.575 American bushels
Cuba	equal to 1.599 American bushels
Mexico	equal to 1.54728 American bushels

FANEGA (Liquid). A measure of Spain equal to 16 American gallons.

FIRKIN. A measure, usually of butter, which weighs 56 pounds by English law. The measure is really the fourth part of a barrel and varies greatly. A firkin of ale measures 9 gallons.

FLUID MEASURE.

		Marked.
60 minims ℥	=1 fluid dram	ƒ3
8 drams	=1 ounce	ƒ3
16 ounces	=1 pint	O
8 pints	=1 gallon	*gal.*

FODDER or FOTHER. An old unit of weight of lime, lead, and some other substances. A fother of lead varies from 19½ to 22½ hundredweight of 120 pounds. In American lead mines the word fother is often used for a short ton (2,000 pounds).

FOOT. Originally the length of a man's foot. Contains 12 inches and equals 30.48 centimeters.

3	feet	equals 1 yard
3	feet, 3⅜ in.	equals 1 meter (nearly)
6	feet	equals 1 fathom
16½	feet	equals 1 rod
66	feet	equals 1 Gunter's surveying chain
5,280	feet	equals 1 mile
6,080	feet	equals 1 nautical mile

FRAIL. A Spanish measure of raisins containing 32, 50, or 75 American pounds.

FRASCO. In Argentine Republic a measure equal to 2.5096 American quarts; and in Mexico equal to 2.5 American quarts.

FUNT. A Russian weight equal to 0.9028 American pounds.

FURLONG. Originally the length of a furrow. A measure of length equal to one eighth of a mile, or 40 rods, or 220 yards, or 660 feet, or 7,920 inches. Also equal to 201.17 meters.

GALLON. A measure of capacity for both liquid and dry measures, containing 4 quarts. **LEGAL GALLON OF THE UNITED STATES.** The old wine gallon, containing 231 cubic inches, and equal to a cylinder 7 inches in diameter and 6 inches high. It contains 8.3388822 avoirdupois pounds of distilled water. **IMPERIAL GALLON OF GREAT BRITAIN.** Contains 277.274 cubic inches. The United States gallon is equal to 3.7853 liters.

GARNICE. A measure of Russian Poland equal to 0.88 American gallon.

GILL. A liquid measure equal to ¼ of a pint. The United States gill contains 7.217 cubic inches or 118.35 cubic centimeters. The English imperial gill contains 8.665 cubic inches, or 142 cubic centimeters, or 5 ounces avoirdupois of distilled water, and is one fifth larger than the United States gill.

GRAIN. Originally the weight of a plump grain of wheat.

5,760	grains equals	1 pound troy
7,000	grains equals	1 pound avoirdupois
480	grains equals	1 ounce troy
437½	grains equals	1 ounce avoirdupois
24	grains equals	1 pennyweight
20	grains equals	1 scruple

GRAM. The weight of a cubic centimeter of water at greatest density. Equal to 15.432 grains. A nickel weighs about 5 grams.

GROSS. A measure of 12 dozen or 144 units. Never used in the plural. It is sometimes called a **GREAT GROSS.** A **SMALL GROSS** is 120.

HAIR'S-BREADTH. Estimated at .02083 of an inch (a 48th part).

HAND. A measure of length equal to four inches. Used chiefly in indicating the height of horses. A horse which stands 14 hands high is measured at the fore shoulder and stands about 56 inches or nearly 5 feet high.

HECTARE. Ten thousand square meters, equal to 2.471 acres.

HECTOGRAM. One hundred grams, or 3.5274 ounces avoirdupois.

HECTOLITER. One hundred liters or one tenth of a cubic meter, equal to 2 bushels, 3.35 pecks, or to 26.417 wine gallons.

HECTOMETER. One hundred meters, equal to 328 feet 1 inch.

HOGSHEAD. A liquid measure containing 63 United States gallons or 52½ imperial gallons. A hogshead is one half of a butt, a pipe, or puncheon.

HOUR. The twenty-fourth part of a civil day, or the twelfth part of a natural day or night. Equal to 60 minutes or 3,600 seconds.

HUNDREDWEIGHT. A measure of weight equal, in the United States, to 100 pounds; in England, to 112 pounds. English weight is called long weight. A hundredweight of the United States standard is legal in England for many articles. Written **CWT.** It is one twentieth of a ton and contains 4 quarters.

INCH. The twelfth part of a foot. Formerly divided into 12 lines, and by an old statute into 3 barleycorns. In rough work it is divided into halves, quarters, sixteenths, and thirty-seconds. Gunnery and other processes require division into thousandths, and gauge makers into ten thousandths. The English inch is equal to 2.54 centimeters. The Scotch inch was a little longer than the English. A miner's inch is the quantity of water which passes through an inch square opening in 24 hours under pressure of 6 inches.

JOCH. A measure of Austria-Hungary equal to 1.422 American acres.

KEG. A small cask varying in capacity from 5 to 10 gallons. A keg of powder weighs 25 pounds. A keg of nails weighs 100 pounds.

KEN. A Japanese measure nearly equal to 6 American feet.

KILDERKIN. An old English measure, originally the eighth part of a tun or vat. It contained 2 firkins or one half a barrel. A kilderkin of soap or of ale was 18 United States gallons; of butter, one hundredweight net.

KILOGRAM or **KILO.** One thousand grams, equal to 2.2046 pounds. For rough estimates a kilo is about two and one fifth pounds.

KILOLITER or **STERE.** One thousand liters or one cubic meter, equal to 1.308 cubic yards or to 264.18 gallons in wine measure.

KILOMETER. One thousand meters, equal to 0.62137 mile or 3,280 feet 10 inches. Roughly speaking a kilometer is about three fifths of a mile. To convert kilometers to miles, multiply the number of kilometers by 0.62137. To convert miles to kilometers, divide the miles by 0.62137.

KLAFTER. A Russian measure equal to 216 American cubic feet.

KNOT. A knot is a measure of speed and not of distance. When a vessel travels one knot, it travels one nautical mile in one hour; 20 knots, 20 nautical miles in one hour.

KOKU. A Japanese measure equal to 4.9629 American bushels.

KORREE. A Russian measure equal to 3.5 American bushels.

KWAN. A Japanese weight equal to 8.267 American pounds.

LAST. A measure equal in

Belgium and Holland	to	85.134 American bushels
England (for dry malt)	to	82.52 American bushels
Germany (2 metric tons)	to	4,480 American pounds
Prussia	to	112.29 American bushels
Northern Europe	to	95 American bushels
Spain (for salt)	to	4,760 American pounds

LI. A Chinese measure equal to 2,115 American feet.

LIBRA or **POUND.** A weight equal in

Argentine Republic	to	1.0127 American pounds
Central America	to	1.043 American pounds
Chile	to	1.014 American pounds
Cuba	to	1.0161 American pounds
Mexico	to	1.01465 American pounds
Peru	to	1.0143 American pounds
Portugal	to	1.011 American pounds
Spain	to	1.0144 American pounds
Venezuela	to	1.0161 American pounds

LINE. A unit of length, the twelfth part of an inch; now almost obsolete.

LINK. The one hundredth part of a Gunter's surveyor's chain and equal to 7.92 inches. Engineers use a 100-foot chain wherein the link is one foot.

LITER. One cubic decimeter, the measure of one kilogram of water at greatest density, equal to 0.908 quart dry measure or to 1.0567 quarts wine measure. For rough estimates, a liter is about a quart.

LIVRE or **POUND.** A weight used in Greece equal to 1.1 American pounds.

LIQUID MEASURE.

	Pts.	Qts.	Gals.
Four gills	1	...	...
Quart	2	1	...
Gallon	8	4	1
Firkin or quarter barrel	72	36	9
Kilderkin or half barrel	144	72	18
Barrel	288	144	36
Hogshead of ale (1½ barrel)	432	216	54
Puncheon	800	400	100-136
Butt of ale (3 barrels	864	432	108

Pipe of Port or Masdeu	= 115	Gallons.
" Teneriffe	= 109	"
" Marsala	= 93	"
" Madeira and Cape	= 92	"
Butt of Lisbon and Bucellas	= 117	"
" Sherry and Tent	= 108	"
Aum of Hock and Rhenish	= 30	"
Hogshead of Claret	= 46	"

LOAD. A measure used in England for timber, equal to 50 cubic feet of square timber, or 40 cubic feet of unhewn timber, or 600 superficial feet of 1-inch planks (boards).

LONG MEASURE.

	In.	Ft.	Yd.	Rd.	Ch.	Fur.
Palm	3					
Hand	4					
Foot	12					
Yard	36	3				
Rod, pole, or perch	198	16½	5½			
Chain	792	66	22	4	1	
Furlong	7,920	660	220	40	10	
Mile	63,360	5,280	1,760	320	80	8

PARTICULAR MEASURES OF LENGTH.

12 lines = 1 inch.
3 inches = 1 palm.
4 inches = 1 hand.
2 feet 6 inches = 1 military pace.
5 feet = 1 geometrical pace.
6 feet = 1 fathom.
240 yards = 1 cable's length.
69⅛ miles (one degree) = 60 nautical knots or geographical miles.
3 miles = 1 league.

Inches.	Feet.	Yards.	Rods.	Miles.
12 equals	1			
36 equals	3 equals	1		
198 equals	16½ equals	5½ equals	1	
63,360 equals	5,280 equals	1,760 equals	320 equals	1

MARC. A weight of Bolivia equal to 0.507 American pounds.

MAUND. An East Indian weight equal to 82⅔ American pounds.

METER. Equal to 39.37 inches, or 1 yard 3.37 inches, or 3.281 feet. To convert meters to feet, multiply the meters by 3.281; to convert feet to meters, divide the feet by 3.281. The meter is nearly the ten millionth part of the estimated distance on a meridian between the equator and the pole.

MIL. A measure of Denmark equal to 4.68 American miles.

MILE. The Roman mile (*mille passuum*) consisted of 1,000 paces of 5 feet each. The Roman foot consisted of only 11.62 or 11.65 English inches; so the Roman mile was less than the present mile by 142 or 144 yards. The present English statute mile was defined by an act passed in the thirty-fifth year of the reign of Elizabeth as "8 furlongs of 40 perches, or 16½ feet each," which is equal to 1,760 yards of 3 feet each.

A geographical or nautical mile or a sea mile is

(*a*) the length of a minute of latitude at any point, or

(*b*) the average length of a minute of latitude, equal to 6,082.66 feet, or

(*c*) the length of a minute of longitude on the equator, equal to 6,087.15 feet. The length of a standard geographic mile, according to the United States Coast Survey, is the length of a minute of latitude of a sphere having the same surface as that of the earth, equal to 6,080.27 feet.

The geographical mile of the British admiralty is 6,080 feet.

In the United States a geographical or nautical mile is regarded as equal to 1.15155 statute mile or 1,853.24 meters.

	English miles.
English geographical mile	equals 1.153
German geographical mile	equals 4.611
Tuscan mile	equals 1.027
Scotch mile	equals 1.127
Irish mile	equals 1.273
German short mile	equals 3.897
Prussian mile	equals 4.680
Danish mile	equals 4.684
Hungarian mile	equals 5.178
Swiss mile	equals 5.201
German long mile	equals 5,753
Hanoverian mile	equals 6.568
Swedish mile	equals 6.648
Kilometer	equals 0.621
29 kilometers	(nearly) equals 18.

MILLIER, or TONNEAU, *or* METRIC TON. One million grams, equal to 2,204.6 pounds.

MILLIGRAM. One thousandth part of a gram, equal to 0.0154 grain.

MILLILITER. One thousandth part of a liter or one cubic centimeter, equal to 0.061 cubic inch or to 0.27 fluid dram.

MILLIMETER. One thousandth part of a meter, equal to 0.0394 inch.

MINIM. The lowest unit of measurement in apothecaries' liquid measure. A minim bears the same relation to the fluid units that a grain does to the solid units. There are 60 minims in a fluid dram, 480 minims in a fluid ounce. A minim is generally regarded as being equal to a drop.

MINUTE. (1) In angular measure, the sixtieth part of a degree—60 seconds. (2) The sixtieth part of an hour—60 seconds.

MONTH. A solar month is one twelfth part of a solar year, and contains 30 days, 10 hours, 29 minutes, 4 seconds. The interval from new moon to new moon is called a lunar, synodical, or illuminative month and has a mean value of 29.530589 days or 29 days, 12 hours, 44 minutes, and 2.7 seconds. The calendar months are January, 31; February, 28 or 29; March, 31; April, 30; May, 31; June, 30; July, 31; August, 31; September, 30; October, 31; November, 30; and December, 31.

MORGEN. A measure of Prussia equal to 0.63 American acre.

MYRIAGRAM. Ten thousand grams, equal to 22.046 pounds.

MYRIAMETER. Ten thousand meters, equal to 6.2137 statute miles.

NAIL. In cloth measure a nail is 2¼ inches or ⅛ of a yard.

OKE. A weight equal in

Egypt	to	2.7225	American pounds
Greece	to	2.84	American pounds
Hungary	to	3.0817	American pounds
Turkey	to	2.82838	American pounds
Hungary and Wallachia	to	2.5	American pints
China, Japan, and Sumatra	to	133⅓	American pounds
Philippine Islands	to	137.9	American pounds

OUNCE. A weight; one twelfth of a pound troy; one sixteenth of a pound avoirdupois. The troy ounce contains 480 grains; the avoirdupois ounce, 437½ grains.

OUNCE, FLUID. The British fluid ounce is equal to the bulk of 437.5 grains (an avoirdupois ounce) of distilled water at 62° Fahr.; the United States fluid ounce is 1/128 of a gallon and contains 456.033 grains of distilled water at 62° Fahr. The British fluid ounce is equal to 28.4 cubic centimeters; the United States fluid ounce, to 29.57 cubic centimeters. A fluid ounce is ⅛ of a pint.

PALM. A measure of length equal to either the width of the hand or to 3 and, sometimes, 4 inches. The same as hand.

PAPER, SIZES OF.

FOLDED.

Billet Note	6 x 8	Letter	10 x 16
Octavo Note	7 x 9	Commercial Letter	11 x 17
Commercial Note	8 x 10	Packet Post	11½ x 18
Packet Note	9 x 11	Foolscap	12½ x 16
Bath Note	8½ x 14		

COMMON SIZES OF FLAT PAPER.

Name.	Size.	Name.	Size.
Flat Letter	10 x 16	Medium	18 x 23
Small Cap	13 x 16	Double Small Cap	16 x 26
Flat Cap	14 x 17	Royal	19 x 24
Demy	16 x 21	Double Cap	17 x 28
Folio	17 x 22		

SIZES OF NEWSPAPERS.

Term.		Size.
Five-column	Folio	20 x 26 inches
Six-column	Folio	22 x 31 inches
Six-column	Folio, extra margin	22 x 32 inches
Seven-column	Folio	24 x 35 inches
Seven-column	Folio, extra margin	24 x 36 inches
Eight-column	Folio	26 x 40 inches
Nine-column	Folio	28 x 44 inches
Four-column	Quarto	22 x 31 inches
Five-column	Quarto	26 x 40 inches
Six-column	Quarto	30 x 44 inches
Seven-column	Quarto	35 x 48 inches

PECK. The fourth part of a bushel, or 8 quarts, used in dry measure. The United States peck contains 537.6 cubic inches and is the fourth part of a Winchester bushel. The British imperial peck contains 2 gallons or 554.548 cubic inches.

PENNYWEIGHT. Originally the weight of the old Anglo-Norman silver penny—22½ grains. It is now reckoned in apothecaries' weight and in jeweler's weight at 24 grains or one twentieth of a troy ounce. Written dwt.

WEIGHTS AND MEASURES OF THE PHILIPPINES.

1 pulgada (12 linea) equals .927 inch.
1 pie equals 11.125 inches.
1 vara equals 33.375 inches.
1 gantah equals .8796 gallon.
1 caban equals 21.991 gallons.
1 libra (16 onzo) equals 1.0144 lb. av.
1 arroba equals 25.360 lb. av.
1 catty (16 tael) equals 1.394 lb. av.
1 pecul (100 catty) equals 139.482 lb. av.

PIE. A measure equal in Argentine Republic to 0.9478 American foot, and in Spain to 0.91407 American foot.

PIG. A unit of weight for lead, equal to 301 pounds.

PIK. A measure in Turkey equal to 27.9 American inches.

PINT. A measure equal to one half quart. The United States, or old wine pint, contains 28.875 cubic inches; the English imperial pint, 34.65925 cubic inches; the old customary ale pint, 35.25 cubic inches; and the old Scotch pint, about 3 old ale pints or 105 cubic inches.

PIPE. A measure of wine varying according to the sort of wine. Ordinarily a pipe is 105 imperial or 126 United States gallons. Two pipes of 105 imperial gallons or 210 imperial gallons make a tun.

POINT. A measure or unit in navigation equal to one eighth of a right angle or 11¼°. It is the angle between adjacent points of the compass. This is the term used when saying "to bring the ship up half a point."

POINT. A measure in typography used to regulate and define the bodies of type. A point is about one seventy-second of an inch. This method of measuring the height of type was originated in 1737 by Fournier the younger, a type founder of Paris. The French measure is larger than that which the United States Type Founders' Association adopted in 1883. The latter felt that the French standard would cause too great a disturbance in the thoroughly established system of the United States. The following table, showing the face of the type up to 12 point, will give the old name and the new point size of type commonly used:—

Thus 8-point type means that the body of the type stands eight seventy-seconds of an inch or one ninth of an inch high. The face of a type is not always the same height as the body. Twelve points, or twelve seventy-seconds of an inch, equal one em pica. Hence, 6 pica ems make about one inch.

Points.	Name of Type.	
3	Excelsior.	
3½	Brilliant.	
4	Semibrevier.	
4½	Diamond.	abcdefghijklmnopqrstuvwxyz
5	Pearl.	abcdefghijklmnopqrstuvwxyz
5½	Agate.	abcdefghijklmnopqrstuvwxyz
6	Nonpareil.	abcdefghijklmnopqrstuvw
7	Minion.	abcdefghijklmnopqrstuvwxyz
8	Brevier.	abcdefghijklmnopqrstuvwxyz
9	Bourgeois.	abcdefghijklmnopqrstuvwxyz
10	Long primer.	abcdefghijklmnopqrstuvwx
11	Small pica.	abcdefghijklmnopqrstuv
12	Pica.	abcdefghijklmnopqrst
14	English.	abcdefghijklmnopq
16	Two-line brevier	
18	Great primer.	
20	Paragon.	
22	Two-line small pica.	
24	Two-line pica.	
28	Two-line English.	
32	Four-line brevier.	
36	Three-line pica.	
40	Double paragon.	
44	Four-line small pica.	
48	Four-line pica.	

POOD. A weight in Russia equal to 36.112 American pounds.

POUND, AVOIRDUPOIS. Composed of 7,000 grains. A cubic inch of water weighs 252.458 grains and this weight determines the grain. An avoirdupois pound is 1.21528 of a troy pound.

POUND, TROY. Composed of 5,760 grains. A troy pound is .82286 of an avoirdupois pound.

PUNCHEON. A cask, containing from 72 to 126 gallons.

PUND. A weight in Denmark and Sweden equal to 1.102 American pounds.

QUART. The fourth part of a gallon.

The United States liquid quart	equals 0.9468 liter
The United States dry quart	equals 1.1017 liters
The English imperial quart	equals 1.1359 liters
The Scotch quart	equals 3.398 liters

QUARTER. In cloth measure is a quarter of a yard, or 4 nails. Five quarters make an English ell.

QUARTER. A measure in Great Britain equal to 8.252 bushels. For measuring coal the use in London is 36 bushels.

QUARTER. A measure of weight in the United States equal to 25 pounds; in England, to 28 pounds. It is one quarter of a hundredweight. Used chiefly in weighing grain.

QUINTAL. A weight equal in

Argentine Republic	to 101.42 American pounds
Brazil	to 130.06 American pounds
Castile, Mexico, Chile, and Peru	to 101.41 American pounds
Greece	to 123.3 American pounds

In ordinary commercial use in the United States and Canada a quintal of fish (usually cod) weighs 100 pounds.

QUINTAL. One hundred thousand grams, equal to 220.46 pounds.

QUIRE. A measure of paper consisting of 24 sheets; the twentieth part of a ream.

REAM. A quantity of paper consisting of 20 quires of 24 sheets each for writing paper—480 sheets in all. Some drawing paper reams are from 472 to 500 sheets; and a printer's ream contains 516 sheets or 1½ quires above the ordinary to allow for waste in printing.

ROD. A measure of length composed of 5½ yards, or 16½ feet, or 198 inches. It is also called a perch or pole.

40 rods	equals 1 furlong
320 rods	equals 1 mile

ROD, CUBIC. The usual standard for measuring brick work; sometimes spoken of as a "perch of masonry." It is generally taken at 25 cubic feet, but sometimes at 22; though a cubic rod or perch contains 24¾ cubic feet. This is calculated as being 16½ feet long by 1½ feet by 1 foot. It is being replaced by the cubic yard.

SAGENE. A Russian measure equal to 7 American feet.

SCORE. A measure of 20 units; used as an exact measure only in the singular, though the general expression "scores of writers" is used. Score is derived from an Anglo-Saxon word to cut; and when tally was kept by cutting notches on a stick, the twentieth was scored or cut in deeper than the others. It was *the* score.

SCRUPLE. Used now only in apothecaries' weight. It is one third of a dram and is made up of 20 grains, equal to 1.296 grams.

SE. A Japanese measure equal to 0.02451 American acre.

SECOND. (1) In angular measure the sixtieth part of a minute. (2) The sixtieth part of a minute.

SEER. An East Indian weight equal to 1 pound and 13 ounces (American).

SHAKU. A Japanese measure equal to 11.9305 American inches.

SHO. A Japanese measure equal to 1.6 American quarts.

SHOEMAKER'S SIZES. Number 1 is 4.125 inches and every succeeding number is one third of an inch. There are 28 numbers in all, arranged in two series: from 1 to 13 and from 1 to 15.

SPAN. A measure of length equal to 9 inches or half a cubit. It was originally the distance between the tip of the thumb and of the little finger when outstretched.

SQUARE. An architect's measure of 100 square feet.

SQUARE OR SURFACE MEASURE.

	In.	Ft.	Yds.	Pls.	Ch.	R.
Square foot	144	1				
Square yard	1,296	9	1			
Rod, pole, or perch	39,204	272¼	30¼	1		
Square chain	627,264	4,356	484	16	1	
Rood	1,568,160	10,890	1,210	40	2½	1
Acre	6,272,640	43,560	4,840	160	10	4

A square mile contains 640 acres, 2,560 roods, 6,400 chains, 102,400 rods, poles, or perches, or 3,097,600 square yards.

STANDARD. In St. Petersburg this is used as a lumber measure equal to 165 American cubic feet.

STERE. See KILOLITER.

STONE. A British weight equal to 14 pounds avoirdupois.

SUN. A Japanese measure equal to 1.193 American inches.

TAN. A Japanese measure equal to 0.25 American acre.

MEASURE OF TIME.

60 seconds	= 1 minute.
60 minutes	= 1 hour.
24 hours	= 1 day.
7 days	= 1 week.
28 days	= 1 lunar month.
28, 29, 30, or 31 days	= 1 calendar month.
12 calendar months	= 1 year.
365 days	= 1 common year.
366 days	= 1 leap year.

STANDARD TIME. Standard time was introduced, first by railroads, in 1883. The United States extends between 65° and 125° west longitude. This space of 60° is divided into 4 time sections of 15° each, exactly equivalent to one hour.

Eastern Standard time includes all of the territory between the Atlantic coast and an irregular line drawn from Detroit to Charleston, S. C.

Central Standard time extends from the last named line to an irregular line drawn from Bismarck, N. D., to the mouth of the Rio Grande.

Mountain Standard time extends from the last named line to (nearly) the western borders of Idaho, Utah, and Arizona.

Pacific Standard time is used in the rest of the country to the Pacific coast.

The difference of time in these sections as one passes from east to west through them is exactly one hour. If a passenger on a train starts from New York City at 12 o'clock noon (Eastern time), his watch, when he arrives at Chicago (Central time), will be one hour fast, for it will be only 11 a.m. there; at Denver his watch will be two hours fast and will show 12 noon when it is only 10 a.m. there. This difference of time was noted markedly in the east during the Democratic Convention at Denver in July, 1908, when it was 10 o'clock at night in New York and Boston when the convention meeting assembled at Denver at 8 o'clock (Mountain time). At San Francisco our traveler's watch would show 12 noon when it is only 9 a.m. (Pacific time).

Standard time at Boston is 16 minutes slower than true Boston time; it is 4 minutes slower at New York, 8 minutes faster at Washington, 19 minutes faster at Charleston, S. C., 28 minutes slower at Detroit, 18 minutes faster at Kansas City, 10 minutes slower at Chicago, 1 minute faster at St. Louis, 28 minutes faster at Salt Lake City, and 10 minutes faster at San Francisco.

BELL TIME ON SHIPBOARD.

Time, A. M.		Time, A. M.		Time, A. M.	
1 Bell,	12.30	1 Bell,	4.30	1 Bell,	8.30
2 Bells,	1.00	2 Bells,	5.00	2 Bells,	9.00
3 "	1.30	3 "	5.30	3 "	9.30
4 "	2.00	4 "	6.00	4 "	10.00
5 "	2.30	5 "	6.30	5 "	10.30
6 "	3.00	6 "	7.00	6 "	11.00
7 "	3.30	7 "	7.30	7 "	11.30
8 "	4.00	8 "	8.00	8 "	Noon
Time, P. M.		**Time, P. M.**		**Time, P. M.**	
1 Bell,	12.30	1 Bell,	4.30	1 Bell,	8.30
2 Bells,	1.00	2 Bells,	5.00	2 Bells,	9.00
3 "	1.30	3 "	5.30	3 "	9.30
4 "	2.00	4 "	6.00	4 "	10.00
5 "	2.30	1 Bell,	6.30	5 "	10.30
6 "	3.00	2 Bells,	7.00	6 "	11.00
7 "	3.30	3 "	7.30	7 "	11.30
8 "	4.00	4 "	8.00	8 "	Midnight

On shipboard, for purpose of discipline and to divide the watch fairly, the crew is mustered in two divisions: the Starboard (right side, looking toward the head) and the Port (left). The day commences at noon, and is thus divided: Afternoon Watch, noon to 4 P. M.; First Dog Watch, 4 P. M. to 6 P. M.; Second Dog Watch, 6 P. M. to 8 P. M.; First Watch, 8 P. M. to Midnight; Middle Watch, Midnight to 4 A. M.; Morning Watch, 4 A. M. to 8 A. M.; Forenoon Watch, 8 A. M. to noon. This makes seven Watches, which enables the crew to keep them alternately, as the Watch which comes on duty at noon one day has the afternoon next day, and the men who have only four hours' rest one night have eight hours the next. This is the reason for having Dog Watches, which are made by dividing the hours between 4 P. M. and 8 P. M. into Watches. Time is kept by means of "Bells," although sometimes there is but one Bell on the ship.

Time Difference.

PLACES.	WHEN IT IS 12 O'CLOCK NOON ACCORDING TO				AT	
	Eastern (*a*)	Central (*b*)	Mountain (*c*)	Pacific (*d*)	London.	Paris.
	STANDARD TIME IN THE UNITED STATES					
IT IS AT						
Aden.....Arabia	8.00 P. M.	9.00 P. M.	10.00 P. M.	11.00 P. M.	3.00 P. M.	2.51 P. M.
Amsterdam.....Holland	5.20 P. M.	6.20 P. M.	7.20 P. M.	8.20 P. M.	12.20 P. M.	12.10 P. M.
Athens.....Greece	6.35 P. M.	7.35 P. M.	8.35 P. M.	9.35 P. M.	1.35 P. M.	1.26 P. M.
Berlin.....Germany	5.54 P. M.	6.54 P. M.	7.54 P. M.	8.54 P. M.	12.54 P. M.	12.45 P. M.
Bombay.....India	9.51 P. M.	10.51 P. M.	11.51 P. M.	12.51 A. M.*	4.51 P. M.	4.42 P. M.
Bremen.....Germany	5.33 P. M.	6.33 P. M.	7.33 P. M.	8.33 P. M.	12.33 P. M.	12.24 P. M.
Central Time (*b*).....United States	11.00 A. M.	....	1.00 P. M.	2.00 P. M.	6.00 A. M.	5.51 A. M.
Constantinople.....Turkey	6.56 P. M.	7.56 P. M.	8.56 P. M.	9.56 P. M.	1.56 P. M.	1.47 P. M.
Copenhagen.....Denmark	5.50 P. M.	6.50 P. M.	7.50 P. M.	8.50 P. M.	12.50 P. M.	12.41 P. M.
Dublin.....Ireland	4.35 P. M.	5.35 P. M.	6.35 P. M.	7.35 P. M.	11.35 A. M.	11.26 A. M.
Eastern Time (*a*).....United States	.....	1.00 P. M.	2.00 P. M.	3.00 P. M.	7.00 A. M.	6.51 A. M.
Hamburg.....Germany	5.40 P. M.	6.40 P. M.	7.40 P. M.	8.40 P. M.	12.40 P. M.	12.31 P. M.
Havre.....France	5.00 P. M.	6.00 P. M.	7.00 P. M.	8.00 P. M.	12 NOON	11.51 A. M.
Hongkong.....China	12.37 A. M.*	1.37 A. M.*	2.37 A. M.*	3.37 A. M.*	7.37 P. M.	7.27 P. M.
Honolulu.....Hawaii	6.29 A. M.	7.29 A. M.	8.29 A. M.	9.29 A. M.	1.29 A. M.	1.19 A. M.
Liverpool.....England	4.48 P. M.	5.48 P. M.	6.48 P. M.	7.48 P. M.	11.48 A. M.	11.39 A. M.
London.....England	5.00 P. M.	6.00 P. M.	7.00 P. M.	8.00 P. M.	....	11.51 A. M.
Madrid.....Spain	4.45 P. M.	5.45 P. M.	6.45 P. M.	7.45 P. M.	11.45 A. M.	11.36 A. M.
Manila.....Philippine Islands	1.04 A. M.*	2.04 A. M.*	3.04 A. M.*	4.04 A. M.*	8.04 P. M.	7.54 P. M.
Melbourne.....Australia	2.40 A. M.*	3.40 A. M.*	4.40 A. M.*	5.40 A. M.*	9.40 P. M.	9.31 P. M.
Mountain Time (*c*).....United States	10.00 A. M.	11.00 A. M.	....	1.00 P. M.	5.00 A. M.	4.51 A. M.
Pacific Time (*d*).....United States	9.00 A. M.	10.00 A. M.	11.00 A. M.	....	4.00 A. M.	3.51 A. M.
Paris.....France	5.09 P. M.	6.09 P. M.	7.09 P. M.	8.09 P. M.	12.09 P. M.	....
Rome.....Italy	5.50 P. M.	6.50 P. M.	7.50 P. M.	8.50 P. M.	12.50 P. M.	12.41 P. M.
Stockholm.....Sweden	6.12 P. M.	7.12 P. M.	8.12 P. M.	9.12 P. M.	1.12 P. M.	1.03 P. M.
Petrograd.....Russia	7.01 P. M.	8.01 P. M.	9.01 P. M.	10.01 P. M.	2.01 P. M.	1.52 P. M.
Vienna.....Austria	6.06 P. M.	7.06 P. M.	8.06 P. M.	9.06 P. M.	1.06 P. M.	12.57 P. M.
Yokohama.....Japan	2.19 A. M.*	3.19 A. M.*	4.19 A. M.*	5.19 A. M.*	9.19 P. M.	9.09 P. M.

*At places marked * the time noted is in the morning of the FOLLOWING day.

(*a*) "EASTERN" includes: New York, Boston, Philadelphia, Baltimore, Washington, Richmond, Norfolk, Charleston, Buffalo, Pittsburg, Montreal, Quebec, Ottawa, Toronto, etc.

(*b*) "CENTRAL" includes: Chicago, St. Louis, Minneapolis, St. Paul, Milwaukee, Kansas City, Omaha, Indianapolis, Cincinnati, Cleveland, Detroit, New Orleans, Memphis, Savannah, Pensacola, Winnipeg, etc.

(*c*) "MOUNTAIN" includes: Denver, Leadville, Colorado Springs, Helena, Regina (N. W. T.), etc.

(*d*) "PACIFIC" includes: San Francisco, Portland (Oregon), Victoria Vancouver, Tacoma, Seattle, etc.

EASTER SUNDAY. A table showing the date of Easter Sunday in each year of the twentieth century:—

1900—April 15	1934—April 1	1968—April 14
1901—April 7	1935—April 21	1969—April 6
1902—Mar. 30	1936—April 12	1970—Mar. 29
1903—April 12	1937—Mar. 28	1971—April 11
1904—April 3	1938—April 17	1972—April 2
1905—April 23	1939—April 9	1973—April 22
1906—April 15	1940—Mar. 24	1974—April 14
1907—Mar. 31	1941—April 13	1975—Mar. 30
1908—April 19	1942—April 5	1976—April 18
1909—April 11	1943—April 25	1977—April 10
1910—Mar. 27	1944—April 9	1978—Mar. 26
1911—April 16	1945—April 1	1979—April 15
1912—April 7	1946—April 21	1980—April 6
1913—Mar. 23	1947—April 6	1981—April 19
1914—April 12	1948—Mar. 28	1982—April 11
1915—April 4	1949—April 17	1983—April 3
1916—April 23	1950—April 9	1984—April 22
1917—April 8	1951—Mar. 25	1985—April 7
1918—Mar. 31	1952—April 13	1986—Mar. 30
1919—April 20	1953—April 5	1987—April 19
1920—April 4	1954—April 18	1988—April 3
1921—Mar. 27	1955—April 10	1989—Mar. 26
1922—April 16	1956—April 1	1990—April 15
1923—April 1	1957—April 21	1991—Mar. 31
1924—April 20	1958—April 6	1992—April 19
1925—April 12	1959—Mar. 29	1993—April 11
1926—April 4	1960—April 17	1994—April 3
1927—April 17	1961—April 2	1995—April 16
1928—April 8	1962—April 22	1996—April 7
1929—Mar. 31	1963—April 14	1997—Mar. 30
1930—April 20	1964—Mar. 29	1998—April 12
1931—April 5	1965—April 18	1999—April 4
1932—Mar. 27	1966—April 10	2000—April 23
1933—April 16	1967—Mar. 26	

HOLIDAYS.

There are no National holidays; but Congress may appoint them. It made Labor Day a holiday in District of Columbia. The President designates Thanksgiving, which makes it a holiday in District of Columbia and the Territories.

The legal holidays in all states including Alaska and District of Columbia are: Feb. 22, Washington's Birthday; July 4, Independence Day; the last Thursday in November, Thanksgiving Day; and December 25, Christmas Day. January 1, New Year's Day, is legal in all but Massachusetts; the first Monday in September, Labor Day, in all but New Mexico, Wisconsin, and Wyoming. February 12, Lincoln's Birthday is celebrated in most of the northern states, while January 19, Robert E. Lee's Birthday, is legal in Alabama, Florida, Mississippi, North Carolina, and South Carolina; June 3, Jefferson Davis's Birthday, is a holiday in South Carolina, Texas, Tennessee, Alabama, Florida, Georgia, and Mississippi.

Arbor Day is a regular holiday in Maryland, Nebraska, Rhode Island, Utah, and Wyoming, though on different dates in April or May; Good Friday, in Connecticut, Delaware, Louisiana, Maryland, Minnesota, New Jersey, and Tennessee. Memorial or Decoration Day is observed on April 26 in Alabama, Florida, Georgia, and Mississippi; May 10, in North and South Carolina; June 3, in Louisiana; May 30, in all the others but New Mexico, Tennessee, and Texas, which have none. October 12, Columbus Day, is legal in 25 of the states, and Election Day, usually in November, in 27 states. All holidays, days of fasting or thanksgiving, appointed by the Governors of the states or the President, are legal.

Several of the states have special holidays as follows: Alabama, April 13, Thomas Jefferson's Birthday, Tuesday before Ash Wednesday, and Mardi Gras Day; California, September 9, Admission Day; Colorado, August 1, Colorado Day; District of Columbia, Inauguration Day, every fourth year; Delaware, Election Day, third Tuesday in February and again in November; Florida, Shrove Tuesday; Georgia, February 12, Georgia Day; Idaho, June 15, Idaho Pioneer Day; Louisiana, January 8, Battle of New Orleans, Mardi Gras Day (in parish of Orleans); Maine and Massachusetts, April 19, Patriots' Day; Maryland, September 12, Defenders' Day, and November 23, Repudiation Day; Nevada, October 31, Admission Day; New Hampshire, Fast Day (appointed by the Governor in April); North Carolina, April 12, Halifax Independence Resolutions; May 20, Anniversary of signing of Mecklenburg Resolutions; South Carolina, first Monday in September and Thursday of Fair Week, wherever the State Agricultural Mechanical Society holds fair; Tennessee, second Friday in May, Confederate Day; Texas, March 2, Texas Independence, and April 21, Battle of San Jacinto; Utah, July 24, Pioneer Day; Vermont, August 16, Battle of Bennington.

Table of Days Between Two Dates.

A TABLE OF THE NUMBER OF DAYS BETWEEN ANY TWO DAYS WITHIN TWO YEARS.

Day Mo	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59	87	118	148	179	209	240	271	301	332	362
29	29	..	88	119	149	180	210	241	272	302	333	363
30	30	..	89	120	150	181	211	242	273	303	334	364
31	31	..	90	....	151	....	212	243	....	304	....	365

Day Mo.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	366	397	425	456	486	517	547	578	609	639	670	700
2	367	398	426	457	487	518	548	579	610	640	671	701
3	368	399	427	458	488	519	549	580	611	641	672	702
4	369	400	428	459	489	520	550	581	612	642	673	703
5	370	401	429	460	490	521	551	582	613	643	674	704
6	371	402	430	461	491	522	552	583	614	644	675	705
7	372	403	431	462	492	523	553	584	615	645	676	706
8	373	404	432	463	493	524	554	585	616	646	677	707
9	374	405	433	464	494	525	555	586	617	647	678	708
10	375	406	434	465	495	526	556	587	618	648	679	709
11	376	407	435	466	496	527	557	588	619	649	680	710
12	377	408	436	467	497	528	558	589	620	650	681	711
13	378	409	437	468	498	529	559	590	621	651	682	712
14	379	410	438	469	499	530	560	591	622	652	683	713
15	380	411	439	470	500	531	561	592	623	653	684	714
16	381	412	440	471	501	532	562	593	624	654	685	715
17	382	413	441	472	502	533	563	594	625	655	686	716
18	383	414	442	473	503	534	564	595	626	656	687	717
19	384	415	443	474	504	535	565	596	627	657	688	718
20	385	416	444	475	505	536	566	597	628	658	689	719
21	386	417	445	476	506	537	567	598	629	659	690	720
22	387	418	446	477	507	538	568	599	630	660	691	721
23	388	419	447	478	508	539	569	600	631	661	692	722
24	389	420	448	479	509	540	570	601	632	662	693	723
25	390	421	449	480	510	541	571	602	633	663	694	724
26	391	422	450	481	511	542	572	603	634	664	695	725
27	392	423	451	482	512	543	573	604	635	665	696	726
28	393	424	452	483	513	544	574	605	636	666	697	727
29	394	....	453	484	514	545	575	606	637	667	698	728
30	395	....	454	485	515	546	576	607	638	668	699	729
31	396	....	455	...	516	....	577	608	....	669	....	730

The above table applies to ordinary years only. For leap year, one day must be added to each number of days after February 28.

EXAMPLE.—To find the number of days between June 3, 1900, and February 16, 1901: The figures opposite the third day in the first June column are 154; those opposite the sixteenth day in the second February column are 412. Subtract the first from the second product—*i. e.*, 154 from 412, and the result is 258, the number of days between the two dates.

REFORMING THE CALENDAR. The first attempt to reform the calendar was made by Julius Caesar in 45 B. C. He ordered that every year exactly divisible by 4 should have 366 days and all the others 365 days. As the sixth day before the kalends of March was counted twice in leap years, they were called *bissextile* years. He ordered also that the beginning of the year be changed from March 1st to January 1st. The fifth month, formerly called Quintilis, was named July after himself. By Caesar's arrangement the average length of the year was 365¼ days, which was too great by 11 minutes and 14 seconds. This excess amounted to about 3 days in 400 years.

GREGORIAN CALENDAR. The Gregorian calendar is named after Pope Gregory XIII., by whom it was introduced. It consists of a year of 365 days, excepting those years which are exactly divisible by 4. The centurial years, such as 2100, 2200, etc., are not considered as leap years unless they are exactly divisible by 400. This arrangement corrects the error of Caesar's or the Julian calendar. The length of the average year of the Gregorian calendar is, therefore, 365 days, 5 hours, 49 minutes, 12 seconds. England and her colonies introduced the use of the Gregorian calendar in 1752, when it was necessary to drop 11 days from the calendar, as there had been that difference since the Council of Nice in 325. September 3, 1752, was called September 14, 1752. At the same time the beginning of the legal year was changed in England from March 25 to January 1. The difference between the Julian and the Gregorian calendars is now 13 days. Russia and the Greek Church yet use the Julian calendar.

TIME, VARIATIONS IN.

Washington, D. C.,	12.00 m.	London, Eng.,	5.07 p. m.
Athens, Greece,	6.43 p. m.	Madrid, Spain,	4.53 p. m.
Auckland, New Zealand,	4.51 a. m.	Mecca, Arabia,	7.49 p. m.
Augusta, Me.,	12.29 p. m.	Mexico, Mexico,	10.27 a. m.
Austin, Texas,	10.37 a. m.	New Orleans, La.,	11.08 a. m.
Batavia, Java,	12.15 a. m.	New York, N. Y.,	12.12 p. m.
Bombay, India,	10.00 p. m.	Olympia, Washington,	8.57 a. m.
Boston, Mass.,	12.24 p. m.	Omaha, Neb.,	10.44 a. m.
Berlin, Germany,	6.01 p. m.	Paris, France,	5.42 p. m.
Calcutta, India,	11.01 p. m.	Peking, China,	12.54 a. m.
Canton, China,	12.41 a. m.	Petrograd, Russia,	7.09 p. m.
Charleston, S. C.,	11.49 a. m.	Philadelphia, Pa.,	12.13 p. m.
Chicago, Ill.,	11.18 a. m.	Pittsburg, Pa.,	11.48 a. m.
Constantinople, Turkey,	7.04 p. m.	Rio Janeiro, Brazil,	2.16 p. m.
Copenhagen, Denmark,	5.58 p. m.	Rome, Italy,	5.58 p. m.
Denver, Col.,	10.07 a. m.	St. Louis, Mo.,	11.07 a. m.
Dublin, Ireland,	4.43 p. m.	Salt Lake City, Utah,	9.40 a. m.
Gibraltar, Spain,	4.51 p. m.	San Francisco, Cal.,	8.58 a. m.
Glasgow, Scot.,	4.51 p. m.	Tallahassee, Fla.,	11.30 a. m.
Halifax, N. S.,	12.54 p. m.	Tokyo, Japan,	2.27 a. m.
Harrisburg, Pa.,	12.01 p. m.	Toronto, Can.,	11.51 a. m.
Lima, Peru,	12.00 m.	Valparaiso, Chile,	12.21 p. m.

DISTANCES AND MAIL TIME TO FOREIGN CITIES FROM THE CITY OF NEW YORK:—

By Postal Route to—	Miles.	Days.
Adelaide, *via* San Francisco	12,845	34
Alexandria, *via* London	6,150	13
Amsterdam, *via* London	3,985	9
Antwerp, *via* London	4,000	9
Athens, *via* London	5,655	12
Bahia, Brazil	5,870	21
Bangkok, Siam, *via* San Francisco	12,990	43
Bangkok, Siam, *via* London	13,125	41
Batavia, Java, *via* London	12,800	34
Berlin	4,385	9
Bombay, *via* London	9,765	24
Bremen	4,235	8
Buenos Aires	8,045	29
Calcutta, *via* London	11,120	26
Cape Town, *via* London	11,245	27
Constantinople, *via* London	5,810	11
Florence, *via* London	4,800	10
Glasgow	3,370	10
Grey Town, *via* New Orleans	2,815	7
Halifax, N. S.	645	2
Hamburg	4,820	9
Havana	1,366	3
Hong-kong, *via* San Francisco	10,590	25
Honolulu, *via* San Francisco	5,645	13
Liverpool	3,540	8
London	3,740	8
Madrid, *via* London	4,925	9
Manila, *via* San Francisco	10,193	33
Melbourne, *via* San Francisco	12,265	26
Mexico City (railroad)	3,750	5
Panama	2,355	6
Paris	4,020	8
Petrograd, *via* London	5,370	10
Rio de Janeiro	6,204	23
Rome, *via* London	5,030	9
Rotterdam, *via* London	3,935	9
San Juan, Porto Rico	1,360	5
Shanghai, *via* San Francisco	9,920	25
Shanghai, *via* London	14,745	45
Stockholm, *via* London	4,975	10
Sydney, *via* San Francisco	11,570	21
Valparaiso, *via* Panama	5,915	37
Vienna	4,740	10
Yokohama, *via* San Francisco	7,348	20

TO. A Japanese measure equal to 2 American pecks.

TON. A measure of weight equal to 20 hundredweight. In England it is 2,240 pounds, a long ton; in the United States, 2,000 pounds, a short ton.

A ton of round timber equals 40 cubic feet.
A ton of hewn timber equals 50 cubic feet.
A ton of flour equals 8 sacks or 10 barrels.
A ton of potatoes equals from 10 to 36 bushels.
A ton of wheat equals 20 bushels.
A ton of earth or ground equals 1 cubic yard or 28 cubic feet.
A ton of grindstones equals 15 cubic feet.
A ton of Portland stone equals 16 cubic feet.
A ton of salt equals 42 bushels.
A ton of lime equals 40 bushels.
A ton of coke equals 28 bushels.
A ton carrying capacity of a freight ship equals 40 cubic feet.

TON, METRIC. The weight of 1,000 kilograms, equal to 2,204.6 pounds.

TONDELAND. A Danish measure equal to 1.36 acres.

TONNAGE. Tonnage may refer to either the vessel ton or to the cargo ton.

Vessel tonnage is either displacement, gross register, or net register.

Displacement tonnage is the weight of the vessel and is equal to the weight of water displaced by the floating vessel.

Gross register tonnage is found by dividing the number of cubic feet in the capacity of the ship by 100. A vessel has one "gross" ton for each 100 cubic feet of capacity.

Net register tonnage is found by dividing by 100 the capacity in cubic feet of the space in which cargo and passengers may be carried.

Cargo ton is estimated by both weight and measurement. In the weight estimate, the short ton of 2,000 pounds, the long ton of 2,240 pounds, or the metric ton of 2,204.62 pounds may be used.

When cargo is shipped, not by weight but by measurement, 40 cubic feet of space is estimated to hold a ton. This is said to be the space occupied by a long ton of wheat and is used as the standard.

TSUN. A Chinese measure equal to 1.41 inches.

TUN. A measure of liquid equal by statute to 252 old wine or United States gallons. Equal to two butts or pipes of 126 gallons each.

TUNNLAND. A Swedish measure equal to 1.22 acres.

VARA. An old Spanish measure of about 33 inches.

VEDRO. A Russian measure equal to 2.707 gallons.

VERST. A Russian measure equal to 0.663 (or nearly two thirds) American mile.

VLOCKA. A measure of Russian Poland equal to 41.98 American acres.

WEEK. A period of 7 consecutive days, of which Sunday is the first day (usually so reckoned). There are 52 weeks in a year. A period of 2 weeks is a fortnight, an abbreviation for 14 nights.

YARD. The standard unit of long measure, composed of 3 feet or 36 inches. It is equal to 91.44 centimeters.

5½ yards	equal 1 rod
240 yards	equal 1 cable's-length
1760 yards	equal 1 mile
2026.6 yards	equal 1 nautical mile

YEAR. The period of the earth's revolution around the sun, about 365 days, 5 hours, 48 minutes, and 47 seconds. The sidereal year is 365 days, 6 hours, 9 minutes, and 9.3 seconds. A period of 12 calendar months. As we reckon 365 days to the year, that is (as seen above) 5 hours, 48 minutes, and 47 seconds too short. Accordingly once every four years a day is added to the year, making it 366 days. But by so doing we add the equivalent of 6 hours to each year, which is too much. To correct this error we do not make a leap year of any year which can be divided by 400.

GEOGRAPHY

IMPORTANCE OF GEOGRAPHY
HISTORY OF GEOGRAPHY
DIVISIONS OF GEOGRAPHY
ASTRONOMY
PHYSIOGRAPHY
AUTOMOBILE TRAILS
OCEAN ROUTES
PHYSICAL TERMS AND DEFINITIONS
COMMERCIAL GEOGRAPHY OF THE WORLD
COMMERCIAL STATISTICS OF THE WORLD
OUTLINE OF BRITISH EMPIRE
CITIES OF UNITED STATES
TABLE OF NATIVE WOODS
ECONOMIC GEOGRAPHY
DICTIONARY OF TECHNICAL TERMS
PICTORIAL GEOGRAPHY OF UNITED STATES
NATIONAL PARKS

Photos 1, 2 and 7 from Keystone View Company; 3 and 6 Underwood & Underwood; 4 and 5 from Brown Brothers; 8 from Ewing Galloway.

FAMOUS AMERICAN BUILDINGS

1 Federal Building and Postoffice, Indianapolis, Indiana. **2** New Union Station, Kansas City, Missouri. **3** Wrigley Building, Chicago, Illinois. **4** Bush Building, New York City. **5** Municipal Building, New York City. **6** Woolworth Building, New York City. **7** New State Capitol Building, Lincoln, Nebraska. **8** New addition to University of Pittsburg buildings, Pittsburg, Pennsylvania.

BOOK V.

GEOGRAPHY.

LABOR.

Mural Painting in the Congressional Library, Washington.
By C. S. PEARCE.

IMPORTANCE OF GEOGRAPHY. HISTORY OF GEOGRAPHY. DIVISIONS OF GEOGRAPHY. BIOLOGICAL GEOGRAPHY. COMMERCIAL OR ECONOMIC GEOGRAPHY. PHYSICAL GEOGRAPHY. POLITICAL GEOGRAPHY. LARGEST ISLANDS OF THE WORLD. IMPORTANT TORNADOES. AUTOMOBILE TRAILS. CANALS. PHYSICAL TERMS AND DEFINITIONS. COMMERCIAL GEOGRAPHY. COMMERCIAL STATISTICS. BRITISH EMPIRE. FIFTEEN LARGEST CITIES OF UNITED STATES. TABLE OF FOREIGN CITIES. CENTERS OF POPULATION. STATISTICS OF UNITED STATES. CITIES OF UNITED STATES. LARGEST CITIES OF THE WORLD. MANUFACTURED PRODUCTS. ECONOMIC GEOGRAPHY. IMPORTANT BRIDGES. NATIONAL PARKS AND MONUMENTS. COMMERCIAL GEOGRAPHY OF THE WORLD. PICTORIAL GEOGRAPHY OF UNITED STATES.

IMPORTANCE OF GEOGRAPHY.

No one subject has a more universal appeal than that of Geography. We live in a world of Geography. Our food is a constant reminder of the parts of the globe in which it is produced. Our daily newspapers are a fund of geographical facts. Our amusements have many references to the subject. We get new conceptions of the city, the state or the world every time we take an automobile trip. Even our business success may depend to a great extent upon our geographical knowledge. Is there need to ask further, why we should study Geography?

Our world is growing smaller. By this we mean that it is easier to get from one part to another and the details and existence of the once unknown parts are being opened up to us very rapidly. For example, it is not so far back that the daily newspaper was a luxury, only afforded in the homes of few. Today the average family buys not only one but usually two, the morning and evening editions. Information is thus being scattered, but with the attempt to read a newspaper intelligently a certain amount of geographical knowledge is necessary. The morning headline, **An Uprising in the Ruhr District,** means what? To what country does it belong, or what are its resources and people, are questions that rise at once? The newspaper not only gives a lot of geographical information but demands a knowledge of conditions as well.

The telephone, the telegraph and the radio were all epoch-making discoveries and have revolutionized our manner of living and thinking. World facts are brought to our attention in an almost unbelievably short time and thus gives us a truer picture of what is happening. The radio nightly is disseminating information. When out of the air comes "K. D. K. A." Pittsburgh, the question immediately arises, where is the city or how large is it, or what are the main factors in its location?

The motion pictures is one of the great forces in the world today and must be reckoned with as such. Millions sit every night to see their favorite actress, the film version of their favorite book or some stupendous spectacle, and is this not all linked up with Geography? What about the news reels, the travelogues that are purely

Geography, or the scenes laid in Alaska, in the streets of Rome, the mob scenes in old Paris during the French Revolution, the sets in Merrie Old England under Robin Hood.

One out of every seven persons in the United States owns an automobile. With it they have been able to see and visualize that world around them that they had never seen before. In their vacation period longer trips are taken, so that the dream of every man or woman of seeing Niagara Falls or Washington, D. C. is usually realized. All this is Geography, the seeing of mountains, rivers, valleys, peoples and strange places.

We are entering into a stage of expansion in our foreign trade and foreign service. The future of many a man and many a business house may be absolutely dependent upon a knowledge of simple geographical facts. Our schools and colleges are realizing this need and are adding new courses on world geography. In one of our largest Eastern Universities they already have six such listed courses on their curriculum.

Politically we are fast becoming entangled in European politics, in resources, boundary lines, peoples, debts and changing governments. To vote intelligently a knowledge of these facts must be before the public and these facts are geographical ones. To decide such public questions, greater knowledge must be had on all points.

These are the reasons for the great and growing importance of the field of Geography. No intelligent citizen, no intelligent business man, and most of all no intelligent parent dare to be without certain of these facts. Upon us, upon you, depends how the children of today—your children, are trained for this new and everchanging world of tomorrow. Dare we fall down in this task?

HISTORY OF GEOGRAPHY.

The ideas which people in all ages have had concerning the shape and size of the world seem ludicrous to us today. One of the earliest conceptions was that the earth was a flat circular surface, entirely surrounded by water and the sky was an inverted bowl-shaped dome of blue placed over this surface. Again it was taught that if a ship sailed far enough out, it would drop off the edge of the world into a great abyss, lost forever. Some philosophers taught that the earth was a solid body hung freely in the center of a hollow sphere of starry heavens. Another conception was that of the idea of symmetry, that is for example, the Egyptians figured that the Nile River must flow west to east before turning north in order to balance the Danube River which flows west to east before turning south. Then from a circular shape the pictures of the world began to take more of the shape of an eliptical band as more territory come to be known and included. Thus our geography started out with weird and fantastic notions which were gradually dispelled and cleared up as explorers and travelers brought us more exact knowledge of the world.

One of the first steps in this direction was when Erosthenes, librarian at Alexandria about 225 B. C., calculated the circumference of the earth by means of the shadows cast by the sun. He found it to be approximately 25,000 miles, which is astonishingly accurate considering the means he had at his disposal. Gradually the seafaring men and travelers brought back information that changed our ideas of shape and size of the world.

Men like Marco Polo, in his journeys to the East, Munster who for the first time added a list of products, industries and peoples to Geography, the Phoenicians, the first great commercial traders and explorers, and Ibn Batula, who in the fourteenth century traversed northern Africa, Asia Minor, China and Central Asia, covering an area approximately 70,000 miles square, all these added to our stock of knowledge and brought the conception of the world to a point nearer the truth. Then came the moderns; Columbus, who in 1492 crossed the Atlantic to America; Magellan, who first circumnavigated the globe; LaSalle, who first saw the Mississippi River; Balboa, the first man from the West to see the Pacific Ocean; Humboldt, the great traveler and writer; Cartier, who journeyed up the St. Lawrence River, and into Canadian territory before his contemporaries; De Soto, Drake, Terres and many others, all helped to swell our stock of geographical knowledge. Our world ideas are still being revised and changed by such men as Peary, the discoverer of the North Pole; Stefansen, who gave us much information concerning the Antarctic regions; the small band of Englishmen, who have attempted to climb Mt. Everest in the Himalaya Mountains; or William Beebe and his explorations in the Galapagos Island or the Sargasso Sea. Gradually then by discovery after discovery, and with each succeeding exploration, our stock of knowledge has increased to where we have a fairly truthful picture of the world we live in.

DIVISIONS OF GEOGRAPHY.

For purposes of classification and clearness, Geography may be sub-divided into bio-geography (biological geography), commercial or economic geography, physical geography, and political geography.

Bio-geography (biological geography). As one travels from one part of the world to another, the change in plant and animal life is very noticeable. From the great extremes of the desert area, where sage brush and cactus reign supreme, to the very edge of the glaciers, in the small valleys thousands of feet high in the mountains, where wild flowers grow and bloom in great luxuriousness, we can only find the answer to this lack of similarity in the great difference in climate and elevation. In the Arctic zone the musk-ox and the polar bear survive; in the Temperate, the red fox, the grizzly bear, the bison and the buffalo; while in the Torrid zone we find the elephant, hippopotamus and the rhinoceros. Illustration after illustration could be given to show how the difference in elevation, rainfall, nearness to water bodies, general climate and physical location are some of the important causes of the variety of plant and animal life. The study of the effect of these physical factors on the flora (plant) and fauna (animal) life of the country or world is called bio-geography.

Commercial or Economic Geography. Commercial geography deals with the industrial life of

a nation as its industry is affected and influenced by physical factors. Trade routes, trade movements, the location of raw materials and natural resources, are factors in the location of an industry. New York's commercial supremacy was laid through the building of the Erie Canal in 1825 through the low Mohawk Valley, enabling her to have an easy outlet to the West and western products, whereas both Philadelphia and Baltimore failed to keep up with New York because of the Appalachian Barrier. The rapid industrial growth of the city of Chicago is another illustration of the importance of geographical location. If the new plans for the Welland Canal are carried through, enabling ocean-going vessels by means of the St. Lawrence, Canal, Lake, route to enter the Harbor of Chicago, there is every reason why Chicago will become the metropolis of the United States, and possibly of the world. It is in the centre of probably the most fertile agricultural region in the world. Again Illinois has become the second leading state in the Union, in the production of bituminous coal. To the north of Chicago lies the Missabe Range, the greatest body of iron ore in the United States. Hence it is apparent that Chicago being midway between the sources of supply, the coal and iron ore fields, is in better position to compete with other cities, especially in that most important commodity, steel manufacturing, because of the material reduction in the cost of transportation.

Nor should we overlook the fact that with the gradually shifting westward of the Centre of Population, will come another distinct advantage to Chicago. It can be readily seen why Chicago should become the steel manufacturing centre of United States. Already it is making great strides in this respect to the corresponding loss of the City of Pittsburgh. The abolishment of the Pittsburgh Plus Plan has also added impetus to the development of its steel business.

In addition, more railroads enter Chicago than any other city in the Union, making it the natural hub for the incoming of raw materials, and again, equally facilitating the distribution of manufactured products. The backwardness of the peoples in the Kentucky Mountains and the Ozark Plateau is due in large part to the mountains which have prevented good roads and thus cut them off from the outside world. The great strides that Pittsburgh has made in iron and steel is due to nearness to good coking coal, plenty of limestone, river transportation and the ease and cheapness of bringing the iron ore down the Great Lakes. The supremacy of the United States in her three great crops, corn, cotton and wheat is due to climate and natural fertility of the land. One cannot over-estimate the importance of knowing fundamental geographical facts, either in the planning of business, or in that individual question of definite location in the earning of one's livelihood. Innumerable illustrations could be used to show how our entire industrial, agricultural and commercial life has been more or less influenced and shaped by these physical and geographical factors.

Physical Geography. This section has been divided into two parts to make analysis easier. The first deals with relative position and measurement of space, form and size, often called mathematical geography and the other, the description of the physical features of the earth. The first division deals with the distances of the earth from the planets, stars and the sun.

In order to designate distances on the earth we have devised parallels of latitude and meridians of longitude. The representation of the earth on a flat surface is called cartography. Here the relative positions on land elevations, water masses, coastal indentations, seas, rivers, valleys, hills, plains and mountains are given and must be on a mathematical scale and correct. All this calls for exact measurements. The other division of physical geography may be subdivided into three parts, lithosphere, hydrosphere, and atmosphere.

Lithosphere is a study of the land forms of the earth. It includes their distribution, mode of origin and formation, as well as the forces that built or are building the earth, and the tearing down or destructive forces. Explanations of such phenomena as faulting, uplifts, volcanoes, and earthquakes are given. Rivers, lakes, glaciers, monadnocks, gorges, waterfalls, etc., are all discussed as well as the eroding forces of water, glaciers, winds, acids, heat and cold.

Hydrosphere concerns itself with the large salt water areas, seas, oceans, bays, and gulfs. This water area comprises 72% of the surface of the globe. Ocean depths; temperatures of the waters; causes of waves and wave actions; tides, their causes and effects; currents or drifts, their causes and effects, together with the direction of their movement and resulting effect on land areas; all are touched.

Atmosphere. The third division treats of the air; its composition, density at sea level and rarity at heights, its barometric pressure; winds, cause and effect of their movements; clouds; cyclonic and anti-cyclonic areas with their resulting effect upon the weather; and the explanation of the phenomena of rain, frost, dew, hail, ice, snow, haze, and fog.

Political Geography. Natural barriers, mountains, seas, rivers, natural resources, people, and their customs, all have an effect upon political situations and natural aspirations of a people. The weakness in the new state of Poland lies, in the first place in that she has no natural boundaries for protection and in the second place that her rich natural resources are desired by Germany, Russia, and Austria, thus causing conflict and strife because of the geographical location of these natural resources.

The new Austria is but a fragment of its former self, the old Austria-Hungary empire. Her minerals, forests, water-power all were divided among the bordering nations, leaving only the great plain area surrounding the City of Vienna. A country with so few natural resources could not be self-supporting and as a result, we again have the recurring agitation of Austria uniting with Germany as an economic necessity. Political Geography deals with the resulting political effects of Natural Geographical causes. In order to understand therefore the various phases of political affairs, a knowledge of the geographical background and their influences are necessary.

ASTRONOMY.

Stars.—Stars are suns. They are so far away that they appear very small and their motions make only very slight changes in their apparent positions. The nearest star known to us is 275,000 times as far from us as we are distant from the sun, *i. e.*, 275,000 times 94,000,000 miles. The light from the stars travels at the rate of 186,330 miles per second. There are probably over 100,000,000 stars either visible or capable of affecting delicate photographic apparatus. Only 5,000 are visible to the naked eye. The stars are divided into magnitudes based upon the amount of light they send to us. There are 20 of the first magnitude, 65 of the second, 190 of the third, 425 of the fourth, 1,100 of the fifth, and 3,200 of the sixth. There are in all about 200,000 stars in the first nine magnitudes. The light received from a first magnitude star is 100 times that received from a sixth magnitude star. The motion of the stars, while considerable, is apparently very slight, because they are so far away. The greatest motion apparent to us is that of an eighth magnitude star in the southern heavens, which passes through an arc of 8.7 seconds in a year. At this rate it would take 220 years to traverse a space equal to the apparent diameter of the moon. The earliest known catalogue showing the positions of the stars is that of Hipparchus (100-170), who listed 1,080 stars; Tycho Brahe (1546-1601) listed 1,005 stars in 1580; Lalande (1732-1807) noted 47,390 stars; Argelander (1799-1875), 324,198 stars all in the northern hemisphere; Schönfeld (1828-1891) added 133,659 stars from the southern hemisphere; Gould (1824-1896) added 32,468 stars in Argentina; and a movement is now on foot to photograph the entire area of the heavens, requiring 22,000 plates, though for the present only about a million and a quarter of the brightest stars will be measured and catalogued. The Milky Way is a band of light about 20° wide extending entirely around the sky and composed of myriads of small stars visible by instruments. The Pole Star, or Polaris, is a second magnitude star in the constellation Ursa Minor, or the Little Bear. Its height above the horizon is the latitude of the place. In the Big Dipper, or Ursa Major, there are two stars which form the side of the dipper farthest from the handle. The line of these two, when produced about five times their distance apart, will strike the Pole Star. For this reason the two stars are called pointers. Polaris is a double star, one part is a star a little fainter than the second magnitude, the other a little fainter than the ninth. The parts are 18.5 seconds distant from one another. It takes the light from the North or Pole Star over 40 years to reach us. If from any cause Polaris ceased to emit light, it would be more than 40 years before we should find that fact out. A convenient sort of celestial yardstick is the distance from the first pointer of the Dipper to the Pole Star, which is about 28°. The distance between the two "pointers" is about 5° 20′. The diameter of the moon is about half a degree.

Constellations.—These are groups of stars classified by the religion of the ancients and preserved by astronomers for convenience in locating individual stars. *Ursa Major*, or the Greater Bear, contains the familiar Big Dipper. It is estimated that it takes the light from this system over 100 years to reach us. Mizar, a star at the bend of the handle, is a notable double star. Near it is a little star, Alcor, of the fifth magnitude. *Cassiopeia* is in a line from the middle of the handle of the dipper, through the North Star, and about 30° on the other side of the North Star. Polaris is about midway between these two constellations. Cassiopeia takes the form of a W composed of seven stars. Light from this system reaches us in a little more than nine years. *Lyra* is noted for its bright, conspicuous star, Vega. If the sun were as far from us as Vega now is, the sun would be only $\frac{1}{100}$ as bright as Vega is. *Hercules* lies between Lyra and Corona Borealis. It contains one star of the second magnitude, nine of the third, and twelve of the fourth. There is in it one of the most remarkable star clusters in the whole sky, visible to the naked eye on a clear, dark night. *Scorpio*, one of the constellations of the Zodiac and the finest of the southern constellations visible in the north, lies in the Milky Way. Antares, a fiery-red star of the first magnitude, gives a light equal to 900 of our suns. *Corona Borealis*, or the Northern Crown, lies to the west of Hercules, and consists of a semicircle of six small stars. *Boötes*, or the Hunter, is a large constellation near the Northern Crown and extending north from the equator. Arcturus, a brilliant star of the first magnitude, is the most notable star in this group. Its light reaches us in 100 years and it is equal in brilliancy to 1,300 of our suns. *Leo*, the Lion, contains a sickle of seven stars, of which Regulus is the most conspicuous. It is at the end of the handle of the sickle and the ecliptic passes very close to it. *Andromeda* is just south of Cassiopeia. It contains the Great Nebula, which is often visible to the naked eye. *Perseus* is in the Milky Way, near Andromeda. It is noted for the star Algol, or the Demon, of varying brightness. *Auriga*, the Charioteer, lies east of Perseus. Its brightest star is Capella, whose light reaches us in 32 years and is equal to 220 of our suns. *Taurus* is noted for the groups, the Hyades, containing the red star Aldebaran, and the Pleiades, forming a small dipper-like group of seven stars, one of which is so faint that it is often spoken of as "lost," though fairly good eyesight may detect it unaided. The brightest star of the Pleiades is Alcyone, whose light reaches us in 267 years and is 250 times brighter than the sun. *Orion* lies across the equator, near Taurus and Auriga. Betelgeuse and Rigel are famous stars in this group; the Belt of Orion is a row of stars; and the Sword of Orion contains the Great Nebula. *Canis Major*, or the Greater Dog, lies southeast of Orion. It contains Sirius, or the Dog Star, one of the stars nearest to us, yet its light takes 8.4 years to reach us, which means that it is 47,000,000,000,000 miles away. *Canis Minor*, or the Lesser Dog, is east of Orion and contains Procyon, a star of the first magnitude. *Gemini*, or the Twins, is just north of Canis Minor. It contains the two stars, Castor and Pollux; both are just a little below the first magnitude.

The Earth.—The earth is in shape an oblate spheroid, *i. e.*, a spherical body bulging at the equator and flattened at the poles. The longest arc actually measured on the earth's surface is that extending from Hammerfest in Norway to the mouth of the Danube River; another, almost as long, from the Himalayas to the southern extremity of India. From these measurements it is concluded that the radius from the center to the surface at the equator is 3,963.296 miles; and the radius at the poles, 3,949.790 miles. The equatorial diameter is nearly 27 miles greater than the polar. The total area of the earth's surface is about 200,000,000 square miles. At latitude 0°, or at the equator, one degree of latitude is 68.704 miles; at 30°, 68.881 miles; at 60°, 69.23 miles; and at 90°, or at the poles, 69.407 miles. At latitude 0°, or at the equator, one degree of longitude measures 69.652 miles; at 30°, 59.955 miles; at 45°, 53.431 miles; at 60°, 34.914 miles; and at 90°, or at the poles, all the meridians intersect and there is no longitude. The average density of the earth is about 5.5. The interior of the earth is very hot; but the theory that there is only a thin crust surrounding a molten mass is no longer believed by astronomers and physicists. It is now held that the earth is a solid mass; that the temperature within is above the melting point of most bodies at the surface, but, as the melting point increases with the pressure, it is believed that the pressure within the earth is great enough to maintain a solid state. The atmosphere surrounding the earth consists of about 79 per cent. of nitrogen, 21 per cent. of oxygen, about .0003 per cent of carbon dioxide, and very minute quantities of argon, neon, and helium, besides impurities. The atmosphere extends with rapidly decreasing degrees of density to probably a distance of 100 miles from the surface of the earth; but by far the greater part of the atmosphere is within a few miles of the surface. The earth rotates upon its axis and causes the alternation of day and night. As the circumference of the earth at the equator approximates 25,000 miles, and since the earth revolves completely upon its axis in about 24 hours, it follows that any given point on the earth's surface rushes forward from west to east at a rate of about 1,000 miles an hour. The earth revolves around the sun, which revolution defines the year and fixes the seasons. The orbit of the earth, or its path around the sun, is in the shape of an ellipse, but varying very slightly from a perfect circle. As the orbit of the earth measures over 560,000,000 miles, and since the earth moves over this space in one year, it follows that the earth travels around the sun at the rate of about 19 miles a second. This is in addition to the 1,000 miles an hour in its revolution on its axis. Half the length of the major axis of this ellipse is 93,000,000 miles, and this is the mean or average distance of the earth from the sun. When the earth is nearest to the sun, it is said to be in perihelion; when farthest away, in aphelion. In perihelion the earth is 3,000,000 miles nearer to the sun than when in aphelion. The ecliptic is the apparent path of the sun around the earth, and this ecliptic is inclined to the equator at an angle of about 23½ degrees.

The Moon.—The distance of the moon from the earth varies between 221,600 miles and 252,970 miles. The sun is 400 times farther away from the earth than the moon is. The moon rotates upon its axis once in a month. It always keeps the same side towards the earth. We have never seen the other side of the moon. The moon revolves around the earth. Its orbit is an ellipse very closely resembling a circle. When the moon is nearest to the earth, it is in perigee; when farthest away, in apogee. The real diameter of the moon is 2,163 miles, or about 27 per cent. (little more than one quarter) that of the earth. The volume of the moon is about $\frac{1}{50}$ that of the earth. A body weighed by a spring balance on the moon's surface would weigh one sixth of its weight on the earth's surface. The moon has no atmosphere; there is no water on the moon's surface, nor vegetation, nor snow. The surface is rocky, much cracked by extremes of heat and cold, and, maybe, covered in places by volcanic ashes. There are ten mountain ranges; some of the peaks rise over 20,000 feet, as shown by the shadows which the peaks cast. Over 30,000 craters have been mapped, some of which are from 50 to 60 miles in diameter. The surface is further marked by cracks, fissures, or rills, extending in some cases as much as 150 miles long.

Solar System.—The solar system is made up of the sun, the planets and their satellites, the planetoids, the comets, and the meteors. The sun is the center and the entire system is held together by the force of gravitation. The planets in order of their distance from the sun, beginning with the nearest, are Mercury, Venus, the Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. The planetoids are small planets and all but one lie between Mars and Jupiter. The comets and the meteors are wandering or perhaps only visiting bodies without regularly defined orbits. In measuring distances between planets, the distance from the earth to the sun—92,897,000 miles—is taken as the unit of measurement. In round numbers the distances of the planets from the sun are:—

Mercury,	36,000,000 miles.
Venus,	67,200,000 miles.
Earth,	92,900,000 miles.
Mars,	141,500,000 miles.
Jupiter,	483,300,000 miles.
Saturn,	886,000,000 miles.
Uranus,	1,781,900,000 miles.
Neptune,	2,791,600,000 miles.

The size of the planets is indicated by the diameters as follows:—

Mercury,	2,765 miles.
Venus,	7,826 miles.
Earth,	7,918 miles.
Mars,	4,352 miles.
Jupiter,	90,190 miles.
Saturn,	76,470 miles.
Uranus,	34,900 miles.
Neptune,	32,900 miles.

All of the planets, except Mercury and Venus, have satellites revolving around them. The Earth has the moon; Mars has two moons, each only a few miles in diameter; Jupiter has four large satellites and three very small ones; Saturn has ten satellites, one larger than Mercury and two very small; Uranus has four satellites; and Neptune, one.

Planetoids.—The planetoids known to science number about 500 and are found in the area between Jupiter and Mars. A few of them have diameters of from 100 to 500 miles, but the very great majority are much smaller, even down to 10 miles. Eros is the only planetoid which lies out of the area mentioned; it lies between the Earth and Mars at a mean distance of 135,500,000 miles. It does not exceed 20 miles in diameter.

Comets.—A comet consists of a *head*, a bright *nucleus* within the head, and the *tail* streaming out away from the sun. They are usually very far away from the earth. They vary in size from a head of 10,000 miles in diameter up to 1,000,000 miles; and a tail from a few millions of miles in length up to more than a hundred millions of miles.

Meteors.—Meteors, or "shooting stars," appear at altitudes of from 60 to 100 miles; move over paths of 40 or 50 miles at a rate of from 10 to 40 miles a second. The light is caused by friction with the earth's atmosphere. It is estimated that from 10,000,000 to 20,000,000 touch our atmosphere every day, but only the merest fraction of them are seen. When a number are seen at one time, a "meteoric shower" is said to occur. The greatest showers of meteors occur on November 15, when they seem to emanate from the sickle of Leo, and are thus called Leonides; and on November 24, when they emanate from a point in Andromeda, and are called Andromedes. So long as a meteor is 160,000 miles or over from the earth, it is most attracted by the sun; but within this distance the earth's attraction predominates. The course which the meteors will take under these influences is along the resultant of these two attractions.

Meteorites are bodies weighing from a few pounds up to 1,000 pounds, which fall upon the earth. Only a few are noted each year, but as so much of the earth's surface is covered by water, the meteorites which reach the earth annually may number 100. They are of stone, with iron, either pure or compounded, nickel, and other common chemical elements, totaling about 30.

The Sun.—The sun is one of the millions of stars. It is the source of our light and heat. It gives 600,000 times as much light as the full moon; and over 60,000 times as much as a candle at one yard distance. It is a 60,000 candle power light. If we could harness and utilize all of the energy which the sun gives us in the form of heat, we should have three horse power for every yard of surface exposed to the sun's rays. The temperature of the sun is about 10,000° Fahrenheit. The heat radiated from it would melt a layer of ice 4,000 feet thick over its entire surface every hour. The surface of the sun which we see is called the *photosphere.* Above the photosphere and extending out from 500 to 1,000 miles is the *reversing layer.* Another outside layer from 5,000 to 10,000 miles thick is the *chromosphere,* or the color sphere; it forms a brilliant scarlet fringe seen during an eclipse. The outermost portion is called the *corona,* or crown, of a pearly light visible only during an eclipse and extending outward from 200,000 to 300,000 miles, with some streamers stretching out over 5,000,000 miles. *Sun spots* are darker bodies, or spots on the photosphere, and may endure for a few days or for several months. The shadow, or *umbra,* of a sun spot may be anywhere from 500 to 50,000 miles across; the *penumbra,* or less dark belt, may be 200,000 miles across. One one-hundredth of the sun's entire surface may be involved at one time. The larger sun spots are easily visible through smoked glass or even by the naked eye when the sun is setting or rising. Galileo discovered sun spots in 1610. They have been the object of superstitious fear, and even in the present day attempts have been made to associate climatic disturbances with the occurrence of large sun spots. The sun rotates on its axis once in about 25 days.

Eclipses.—An eclipse of the moon is caused by the moon entering the shadow of the earth, or, in other words, by the earth passing between the sun and the moon. An eclipse of the sun is caused by the moon passing between us and the sun. And these eclipses may be total or partial. When the planet Venus, which is the next one between us and the sun, passes between us and the sun, we speak of that passage of the shadow across the sun's disc as a *transit,* not as an eclipse. Eclipses may be predicted, because of a law of recurrence known from ancient times. The sun and moon return to the same positions after a period of 6,585 days and 8 hours, or 18 years, 12 days, 8 hours. This period is called the *saros;* and eclipses of every sort repeat themselves at the end of every saros. The eclipses in 1900 were a repetition of those of 1882, 1864, 1846, 1828, and so on. On account of the eight hours during which the sun goes one third around the earth, the same portion of the earth is not exposed to the eclipse, and so every eclipse is not visible at the same places as in its previous occurrence. There will not be another transit of Venus until the year 2004 and again in 2012.

Seasons.—The causes of the regular changes of conditions known as the seasons are the passage of the earth around the sun and the inclination of the earth's axis to the plane of its orbit. As the orbit of the earth is elliptical, one axis is longer than the other, so that the earth is not always at the same distance from the sun. As the axis of the earth is inclined to the plane of its orbit at an angle of 23½ degrees, the same part of the earth is not always inclined to the sun, and the sun's rays are not always perpendicular over the same place on the earth In the season known to us as spring the sun's rays fall perpendicularly upon the equator; day and night are equal all over the earth; and the event is known as the vernal equinox, March 21. In midsummer, June 21, the sun's rays fall perpendicularly upon the tropic of Cancer; the northern hemisphere experiences its longest day, and the event is called the summer solstice because the sun appears to remain stationary on the ecliptic for a day or two before going south again. In autumn, September 21, the sun's rays fall perpendicularly at the equator; days and nights are equal all over the earth, and the event is called the autumnal equinox. In winter, December 21, the sun's rays fall perpendicularly upon the earth at the tropic of Capricorn; the day is shortest in the northern hemisphere and longest in the southern; the event is known as the winter solstice.

PHYSIOGRAPHY.

The Earth's Surface.—The division of the earth into land and water surface is slightly more than one fourth land, and slightly less than three fourths water, estimated as follows:—

Land Surface.

	Sq. Miles.		Sq. Miles.
Africa	11,317,277	Australasia	3,459,561
North America	15,418,662	Europe	3,875,670
South America		Polar regions	4,190,323
Asia	16,878,507		
		Total	55,640,000

Largest Islands in the World.

	Area Sq. Miles	Population
Greenland	825,000	14,355
New Guinea	321,232	822,348
Borneo	237,916	2,072,100
Madagascar	228,000	3,613,341
Japan	148,756	55,961,140
Sumatra	163,138	5,852,135
Great Britain	89,045	42,767,530
Celebes	72,679	3,108,337
New Zealand (South Island)	58,120	477,658
Java and Madura	52,327	36,860,805
New Zealand (North Island)	44,130	741,255
Cuba	44,164	2,889,004
Newfoundland	42,734	259,358
Philippines	114,400	10,350,330
Iceland	39,709	94,679
Ireland	32,586	4,390,219
Jesso (Yezo)	30,340	843,000
Saghalin	24,560	140,000
Haiti	29,536	3,500,000
Tasmania	26,215	213,877
Ceylon	25,331	4,504,549
Tierra del Fuego	19,299	2,500

Water Surface.

	Sq. Miles.		Sq. Miles.
Atlantic Ocean	34,700,000	Arctic Ocean	4,470,000
Pacific Ocean	67,570,000	Southern Ocean	5,610,000
Indian Ocean	28,900,000	Estimated area	141,250,000

Including inland seas and other waters, it is estimated that the total water surface of the globe exceeds 143,000,000 square miles.

Areas, Depths, and Heights of Great Lakes.

Lakes.	Length Miles.	Width Miles.	Max. Depth Feet.	Height above Sea (feet).	Area Square Miles.
Erie	240	30-58	200	573	9,960
Huron	250	190	700	581	22,320
Michigan	325	75	870	581	22,500
Ontario	190	55	738	247	7,240
Superior	412	167	1,008	602	31,200

The Longest Rivers in the World.

Name.	Miles.
Africa.	
Nile	3,670
Niger	2,600
Congo	2,500
Zambesi	1,650
Orange	1,270
America (North)	
Mississippi and Missouri	4,200
St. Lawrence	2,200
Mackenzie	2,490
Saskatchewan	1,090
Rio Grande	1,740
Arkansas	2,000
Columbia	1,400
Ohio and Alleghany	1,300
Red River	1,550
Colorado	1,080
America (South).	
Amazon	3,300
Rio Madeira	2,200
Parana	2,720
Rio de la Plata	2,300
San Francisco	1,550
America (So.)—Cont	
Rio Negro	1,400
Orinoco	1,490
Asia.	
Yenisei	3,250
Hoang-ho	2,580
Lena	2,860
Obi	2,500
Amur	2,780
Euphrates	1,730
Ganges	1,557
Indus	1,800
Australasia.	
Murray	1,500
Europe.	
Volga	2,293
Danube	1,777
Ural	1,400
Don	1,156
Dneiper	1,336
Rhine	760

Depths of the Oceans, Greatest.—The depths of the oceans as given by the *Challenger* Expedition are:—

	Feet.		Feet.
Atlantic Ocean	27,366	Southern Ocean	18,000
Pacific Ocean	31,614	Arctic Ocean	12,000
Indian Ocean	20,000		

Inland Seas and Other Waters.

	Area in Sq. Miles.		Area in Sq. Miles.
Azof, Sea of	15,000	Gulf of Mexico	600,000
Baltic Sea	160,000	Gulf of St. Lawrence	101,075
Bering Sea	864,555	Japan Sea	383,205
Black Sea	165,000	Mediterranean Sea	977,000
Caspian Sea	170,000	North Sea	197,500
China Sea	472,210	Persian Gulf	88,600
Dead Sea	360	Red Sea	170,820
English Channel	30,000	Aral Sea	26,160

Temperature and Rainfall of Foreign Cities.

Cities.	Mean Annual Temperature.	Annual Average Rainfall, Inches.	Cities.	Mean Annual Temperature.	Annual Average Rainfall, Inches.
Alexandria	69.0	10	London	50.8	25
Algiers	64.3	27	Lyons	53.0	28
Amsterdam	49.9	30	Madeira	66.0	25
Archangel	33.0	14.52	Madrid	58.2	9
Astrakhan	50.1	6	Malta	66.0	20
Athens	63.0	20	Manila	78.4	50
Bagdad	74.0	19	Maranhao	...	277
Barcelona	63.0	18	Marseilles	58.3	23
Berlin	48.2	24	Melbourne	57 0	29
Bermuda	72.0	55	Mexico	60.9	29
Berne	46.0	46	Milan	55.1	38
Bombay	81.3	75	Montevideo	62.0	44
Bordeaux	57.0	30	Montreal	44.6	30
Brussels	50.0	29	Moscow	40.0	27
Budapest	51.9	17	Munich	48.4	19
Buenos Aires	62.8	12	Naples	60.3	30
Cairo	72.2	12	Nice	58.0	29
Calcutta	82.4	76	Odessa	48.0	26
Canton	71.0	39	Para	81.0	71
Cape Town	62.0	23	Paris	51.3	22
Cherra Punji*	...	610	Peking	53.0	27
Christiania	41.5	26	Petrograd	39.6	17
Constantinople	56.5	21	Port Said	...	2
Copenhagen	46.6	19	Prague	50.2	14
Delhi	77.0	24	Quebec	40.3	30
Dublin	50.1	29	Quito	60.9	2.5
Edinburgh	47.1	38	Rio de Janeiro	77.2	29
Florence	59.2	41	Rome	60.5	31
Frankfort	50.0	16.4	Santo Domingo	81.3	108
Geneva	52.7	32	Shanghai	59.0	37
Genoa	61.1	47	Stockholm	42.3	20
Hamburg	47.0	36	Sydney	65.8	49
Havana	79.1	91	Tobolsk	32.0	18
Hongkong	73.0	101	Trieste	55.0	43
Honolulu	75.0	33	Valdivia	52.0	106
Iceland	39.0	30	Valparaiso	64.0	10
Jerusalem	62.6	16	Venice	55.4	34.1
Lima	73.3	0	Vienna	51.0	19
Lisbon	61.4	27	Warsaw	56.2	21

*In southwestern Assam. It is the wettest place in the world. In 1861 the rainfall there reached 905 inches.

NOTE.—The mean annual temperature of the globe is 50 degrees Fahrenheit. The average rainfall is 36 inches.

Average Annual Temperature in United States.

Place of Observation.	Average Temperature.	Place of Observation.	Average Temperature.
Tucson, Arizona	69	Ft. Gibson, Oklahoma	60
Jacksonville, Florida	69	Raleigh, N. Carolina	59
New Orleans, La	69	Atlanta, Georgia	58
Austin, Texas	67	Nashville, Tennessee	58
Mobile, Alabama	66	Richmond, Virginia	57
Jackson, Mississippi	64	Louisville, Kentucky	56
Little Rock, Arkansas	63	San Francisco, Cal	55
Columbia, S. Carolina	62	Washington, D. C.	56

Average Annual Temperature in United States—*Continued.*

Place of Observation.	Average Temperature.	Place of Observation.	Average Temperature.
St. Louis, Missouri	55	Camp Scott, Nevada	50
Baltimore, Maryland	54	Des Moines, Iowa	49
Harrisburg, Pa	54	Omaha, Nebraska	49
Wilmington, Delaware	53	Denver, Colorado	48
Trenton, New Jersey	53	Boston, Massachusetts	48
Columbus, Ohio	53	Albany, New York	48
Portland, Oregon	53	Providence, R. I.	48
Ft. Boise, Idaho	52	Detroit, Michigan	47
Salt Lake City, Utah	52	Ft. Randall, S. Dakota	47
Romney, West Virginia	52	Sitka, Alaska	46
Indianapolis, Indiana	51	Concord, N. H.	46
Leavenworth, Kansas	51	Augusta, Maine	45
Santa Fe, New Mex. Ter.	51	Madison, Wisconsin	45
Steilacoom, Wash.	51	Helena, Montana	43
Hartford, Conn.	50	Montpelier, Vermont	43
Springfield, Illinois	50	St. Paul, Minnesota	42

Average Annual Rainfall in United States.

Place.	Inches.	Place.	Inches.
Neahbay, Wash.	123	Ft. Vancouver, Wash.	38
Sitka, Alaska	83	Cleveland, Ohio	37
Ft. Haskins, Oregon	66	Pittsburg, Pa.	37
Mt. Vernon, Alabama	66	Washington, D. C.	37
Baton Rouge, Louisiana	60	W. Sulphur Springs, Va.	37
Meadow Valley, Cal.	57	Ft. Gibson, Oklahoma	36
Ft. Tonson, Oklahoma	57	Key West, Florida	36
Ft. Myers, Florida	56	Peoria, Illinois	35
Washington, Arkansas	54	Burlington, Vermont	34
Huntsville, Alabama	54	Buffalo, New York	33
Natchez, Mississippi	53	Ft. Brown, Texas	33
New Orleans, Louisiana	51	Ft. Leavenworth, Kan.	31
Savannah, Georgia	48	Detroit, Mich.	30
Springdale, Kentucky	48	Milwaukee, Wisconsin	30
Fortress Monroe, Va.	47	Penn Yan, New York	28
Memphis, Tennessee	45	Ft. Kearney, Neb.	25
Newark, New Jersey	44	Ft. Snelling, Minnesota	25
Boston, Massachusetts	44	Salt Lake City, Utah	23
Brunswick, Maine	44	Mackinac, Michigan	23
Cincinnati, Ohio	44	San Francisco, Cal.	21
New Haven, Conn.	44	Dallas, Oregon	21
Philadelphia, Pa.	44	Sacramento, California	21
Charleston, S. Carolina	43	Ft. Massachusetts, Colo.	17
New York City, N. Y.	43	Ft. Marcy, New Mex. Ter.	16
Gaston, S. Carolina	43	Ft. Randall, S. Dakota	16
Richmond, Indiana	43	Ft. Defiance, Arizona	14
Marietta, Ohio	43	Ft. Craig, New Mex. Ter.	11
St. Louis, Missouri	43	San Diego, California	9
Muscatine, Iowa	42	Ft. Colville, Wash.	9
Baltimore, Maryland	41	Ft. Bliss, Texas	9
New Bedford, Mass.	41	Ft. Bridger, Wyoming	6
Providence, R. I.	41	Ft. Garland, Colorado	6
Ft. Smith, Arkansas	40	Yuma, Arizona	2.81

Velocity and Force of Winds.

Description.	Miles per Hour.	Feet per Minute.	Feet per Second.	Force in lbs. per Square Foot.
Just perceptible	1	88	1.47	.005
	2	176	2.93	.020
Perceptible	3	264	4.4	.044
Gentle breeze	4	352	5.87	.079
	5	440	7.33	.128
Pleasant breeze	10	880	14.67	.492
	15	1,320	22.0	1.107
Brisk wind	20	1,760	29.3	1.968
	25	2,200	36.6	3.075
High wind	30	2,640	44.0	4.428
	35	3,080	51.3	6.027
Very high wind	40	3,520	58.6	7.872
	45	3,960	66.0	9.963
Storm	50	4,400	73.3	12.300
Great storm	60	5,280	88.0	17.712
	70	6,160	102.7	24.108
Hurricane	80	7,040	117.3	31.488
	100	8,800	146.6	49.200

Relief Features of the Land.—Continents are made up of plains, plateaus, and mountains. *Plains* are coastal and interior. A good example of coastal plains are those on the Atlantic coast south of New York, and upon the Gulf coast. Interior plains are such as the Upper Mississippi plains and the Great Plains west of the Mississippi. Examples of *plateaus* are to be found just west of the Appalachian Mountains, where the Alleghany Plateau is formed; just north of the Wachita Mountains, where the Ozark Plateau is seen; the Great Plateau east of the Rocky Mountains, and the Lava Plateau, Basin Range Plateau, and Colorado Plateau, west of the Rocky Mountains. Plains are the most habitable parts of a country. In the United States three fifths of the population live at an altitude of 100 to 1,000 feet; one fiftieth, about 2,000 feet. The loftiest plateau in the world is the Plateau of Tibet, 15,000 to 16,000 feet high; one of the most picturesque is in northern Arizona, 7,000 feet high, containing the Grand Cañon of the Colorado, a mile deep.

The Loftiest Volcanoes.

Name and Location.	Feet.	Name and Location.	Feet.
Chimborazo, Ecuador	20,498	Mauna Loa, Hawaii	13,671
Misti, Peru	20,320	Alaghez, Russia	13,500
Cotopaxi, Ecuador	19,613	Colima, Mexico	12,750
Antisana, Ecuador	19,335	Rinjani, Malay	12,460
Cayambé, Ecuador	19,186	Fujiyama, Japan	12,440
Demavend, Persia	19,000	Erebus, Antarctic Land	12,362
Tutupaca, Peru	18,960	Tenerife, Canary Is.	12,192
Tolima, Colombia	18,316	Iliamna, Alaska	12,066
Orizaba, Mexico	18,310	Lamongan, Java	12,040
Huila, Colombia	18,000	Irazu, Costa Rica	11,198
Popocatapetl, Mexico	17,833	Etna, Sicily	10,740
Maipu, Chile	17,700	Agong, Sunda Is.	10,500
Sangai, Ecuador	17,459	Haleakala, Hawaii	10,032
Ixtaccihautl, Mexico	17,337	Bandai-san, Japan	6,000
Klyuchev, Kamchatka	16,990	Asosan, Japan	5,620
Tunguragua, Ecuador	16,690	Kirishima-yama, J'p'n.	5,530
Punchincha, Ecuador	15,700	Pelée, Martinique	5,200
Purace, Colombia	15,416	Hekla, Iceland	5,110
Toluca, Mexico	15,000	Vesuvius, Italy	4,000
Mauna Kea, Hawaii	13,805	Stromboli, Italy	3,040

The Highest Mountains.

	Feet.
Everest, India	29,141
Godwin-Austen, India	28,278
Dapsang, Tibet	28,273
Kankanjanga, India	28,156
Dhaulagiri, India	26,826
Nanga Parbat, India	26,614
Mustagh Ata, E. Turkestan	25,800
Tagharma, E. Turkestan	25,800
Masherbrum, India	25,653
Nanda Devi, India	25,560
Rakaposhi, India	25,550
Tirach Mir, India	25,420
Khan Tengri, E. Turkestan	24,010
Chamalhari, Tibet	23,929
Gaurisankar, Nepal	23,447
Aconcagua, Chile	23,088
Kaufmann, Russian Turkestan	22,993
Illimani, Bolivia	22,500
Huascan, Peru	22,045
Tupungato, Chile	22,000
Sorata, Bolivia	21,484
Parinacota, Chile	20,984
Famatina, Argentina	20,680
McKinley, Alaska	20,464
Nenda, China	20,000
Kilima-Njaro, E. Africa	19,780
Tacora, Chile	19,736
Logan, Canada	19,540
Kenia, E. Africa	18,620
Elbruz, Russia	18,526
St. Elias, Alaska	18,024
Wrangell, Alaska	17,500
Iliniza, Ecuador	17,380
Dykhtau, Russia	17,049
Ararat, Turkey	17,000
Koshtantau, Russia	16,876
Stanley, E. Africa	16,815
Kazbek, Russia	16,546
Thok Jalung, Tibet	16,325
Haramak, Nepal	16,000
Crillon, Alaska	15,900
Savalan, Persia	15,787
Mont Blanc, France	15,780
Monte Rosa, Italy	15,213
Abba Yared, Abyssinia	15,015
Gulku, Abyssinia	14,860
Weisshorn, Switzerland	14,799
Matterhorn, Switzerland	14,705
Whitney, California	14,502
Massive, Colorado	14,424
Tyndall, California	14,386
Shasta, California	14,380
Rainier, Washington	14,363
Gray, Colorado	14,341
Rosalie, Colorado	14,340
Castle, Colorado	14,259
Princeton, California	14,196
Holy Cross, Colorado	14,176

PRINCIPAL RIVERS OF THE UNITED STATES.

(Most of these rivers are navigable for a part of their length.)

Alabama, junc. of Coosa and Tallapoosa rivers, Ala., to Mobile river, 350 m.
Alleghany, near Raymond, Pa., to Ohio river, 350 m.
Androscoggin, Umbagog lake, Me., to Kennebec river, 160 m.
Apalachicola, junc. of Chattahoochee and Flint rivers, Ga., to Gulf of Mexico, 90 m.
Arkansas, Rocky mtns., Colo., to Mississippi river, 2,000 m.
Big Horn, Rocky mtns, Wyo., to Yellowstone river, 500 m.
Black Warrior, formed by Locust and Mulberry forks, Ala., to Tombigbee river, 300 m.
Brazos, in the Staked Plain, Tex., to Gulf of Mexico, 850 m.
Canadian, northeastern New Mexico to Arkansas river, 900 m.
Cape Fear, junc. of Haw and Deep rivers, N. C., to the Atlantic, 250 m.
Chattahoochee, in Habersham county, Ga., to Apalachicola river, 500 m.
Cheyenne, eastern Wyoming to Missouri river, 500 m.
Cimarron, Raton mtns., N. Mex., to Arkansas river, 650 m.
Colorado, in the Staked Plain, Tex., to Matagorda bay, 650 m.
Colorado, junc. of Green and Grand rivers, Utah, to Gulf of California, 1,360 m.
Columbia, upper Columbia lake, B. C., to the Pacific, 1,400 m.
Connecticut, Connecticut lake, N. H., to L. I. sound, 410 m.
Coosa, junc. of Oostenaula and Etowah rivers, Ga., to Alabama river, 350 m.
Cumberland, junc. of Poor and Straight forks, Ky., to Ohio river, 650 m.
Delaware, Catskill mtns., N. Y., to Delaware bay, 375 m.
Des Moines, Lake Shetek, Minn., to Mississippi river, 450 m.
Dolores, San Juan mtns, Colo., to Grand river, 250 m.
Flint, near Atlanta, Ga., to Apalachicola river, 350 m.
Fox, Green Lake county, Wis., to Green bay, 250 m.
Genesee, near Raymond, Pa., to Lake Ontario, 145 m.
Gila, Tuscan mtns., N. Mex., to Colorado river, 550 m.
Grand, Hillsdale county, Mich., to Lake Michigan, 280 m.
Grand, Grand lake, Colo., to Green river, 350 m.
Great Kanawha, Blue Ridge mtns., N. C., to Ohio river, 450 m.
Green, Lincoln county, Ky., to Ohio river, 350 m.
Gunnison, Saguache range, Colo., to Grand river, 200 m.
Hudson, Lake Sanford, Adirondacks, to New York bay, 350 m.
Housatonic, Taghanic mts., Mass., to Long Island sound, 150 m.
Humboldt, Elko county, Nev., to Humboldt lake, 375 m.
Illinois, Des Plaines river, Wis., to Mississippi river, 435 m.
James, formed by Jackson's and Cowpasture rivers, Va., to Chesapeake bay, 450 m.
Kalamazoo, Hillsdale co., Mich., to Lake Michigan, 200 m.
Kansas, junc. of Smoky Hill fork and Solomon river, Kan., to Missouri river, 300 m.
Kaskaskia, Champaign co., Ill., to Mississippi river, 320 m.
Kennebec, Moosehead lake, Me., to the Atlantic, 175 m.
Kentucky, Cumberland mtns., Ky., to Ohio river, 250 m.
Menominee, junc. Brule and Michigamie rivers, Mich., to Green bay, 125 m.
Merrimac, White mtns., N. H., to the Atlantic, 150 m.
Minnesota, Big Stone lake, S. Dak., to Mississippi river, 475 m.
Missouri-Mississippi, Rocky mtns., Mont., and Itasca lake, Minn., to Gulf of Mexico, 4,200 m.
Mobile, junc. of Tombigbee and Alabama rivers, Ala., to Mobile bay, 50 m.
Mohawk, Lewis county, N. Y., to Hudson river, 160 m.
Monongahela, formed by West Fork and Tygart's Valley rivers, W. Va., to Alleghany river, 300 m.
Neosho, Morris county, Kan., to Arkansas river, 400 m.
Neuse, Person county, N. C., to Pamlico sound, 300 m.
Ohio, junc. of Alleghany and Monongahela rivers, Pa., to Mississippi river, 950 m.
Osage, Lyon county, Kan., to Missouri river, 460 m.
Passaic, Morris county, N. J., to Newark bay, 100 m.
Pearl, Winston county, Miss., to Gulf of Mexico, 350 m.
Pecos, Rocky mtns., N. Mex., to Rio Grande river, 800 m.
Pedee, Blue Ridge mtns., N. C., to Winyaw bay, S. C., 300 m.
Penobscot, Somerset county, Me., to Penobscot bay, 350 m.
Platte, Sweetwater river, Wyo., to Missouri river, 1,260 m.
Powder, Big Horn mtns., Wyo., to Yellowstone river, 400 m.
Potomac, Alleghanies, W. Va., to Chesapeake bay, 450 m.
Red, in the Staked Plain, Tex., to Mississippi river, 1,200 m.
Red (of North), Lake Traverse, Minn., to Lake Winnipeg, 700 m.
Rio Grande, San Juan mtns., Colo., to Gulf of Mexico, 1,800 m.
Roanoke, formed by Dan and Staunton rivers, Va., to Albemarle sound, 240 m.
Rock, Koshkonong lake, Wis., to Mississippi river, 330 m.
Sabine, northern Texas to Gulf of Mexico, 460 m.
Sacramento, Goose lake, Cal., to Suisun bay, 600 m.
St. Croix, Douglas and Bayfield counties, Wis., to Mississippi river, 200 m.
St. Francis, St. Francois co., Mo., to Mississippi river, 460 m.
St. John's, e. Florida, flows n. to the Atlantic, 400 m.
St. Joseph, Hillsdale county, Mich., to Lake Michigan, 260 m.
San Joaquin, Sierra Nevada mtns., Cal., to Sacramento river, 350 m.
Santee, junc. of Wateree and Congaree rivers, S. C., to the Atlantic, 150 m.
Savannah, formed by Tugaloo and Kiowee rivers, S. C., to the Atlantic, 450 m.
Schuylkill, near Pottsville, Pa., to Delaware river, 130 m.
Scioto, Auglaize county, Ohio, to Ohio river, 225 m.
Shenandoah, Northern Virginia to Potomac river, 200 m.
Snake, Yellowstone Nat. Park, Wyo., to Columbia river, 950 m.
Susquehanna, north or east branch, Lake Schuyler and Otsego lake, N. Y., to Chesapeake bay, 256 m.
Susquehanna, west branch, near Raymond, Pa., to Susquehanna river, 250 m.
Suwanee, Okefinokee swamp, Ga., to Gulf of Mexico, 200 m.
Tallahatchee, northern Mississippi to Yazoo river, 240 m.
Tallapoosa, Paulding county, Ga., to Coosa river, 250 m.
Tennessee, formed by French Broad and Holston rivers, Tenn., to Ohio river 1,200 m.
Tombigbee, Prentiss county, Miss., to Mobile river, 475 m.
Trinity, northern Texas to Galveston bay, 530 m.
Wabash, Mercer county, Ohio, to Ohio river, 550 m.
Washita, western Arkansas, to Red river, 550 m.
White, northwestern Arkansas to Mississippi river, 800 m.
Willamette, Cascade range, Ore., to Columbia river, 275 m.
Wisconsin, northern Wisconsin to Mississippi river, 400 m.
Yazoo, junc. of Tallahatchee and Yalobusha rivers, Miss., to Mississippi river, 300 m.
Yellowstone, Rocky mtns., Wyo., to Missouri river, 1,100 m.

PRINCIPAL FOREIGN RIVERS.

(Most of these rivers are navigable for a part of their length.)

Amazon, S. America, Peruvian Andes to Atlantic, 3,800 m.
Amu-Darya, Turkestan, Pamir plateau to Aral sea, 1,500 m.
Amur, Siberia, w. of Kingans to Gulf of Tartary, 2,600 m.
Brahmaputra, India, Tibet to Bay of Bengal, 1,680 m.
Danube, c. and s. e. Europe, junc. headwaters near Black Forest to Black sea, 1,725 m.
Darling, Australia, Vic. and N.S. Wales to Murray river, 1,160 m.
Dnieper, Russia, Smolensk to Black sea, 1,400 m.
Dniester, Austria and Russia, Carpathians to Black sea, 800 m.
Elbe, Germany, Riesengebirge to North sea, 700 m.
Euphrates, Asiatic Turkey, flows into Persian gulf, 1,700 m.
Gambia, w. Africa, Futa-Jallon w. to the Atlantic, 500 m.
Ganges, India, Hurdwar to Bay of Bengal, 1,500 m.
Garonne, France, Pyrenees n. w. to Bay of Biscay, 385 m.
Hoang-ho, n. China, Kokonor to Gulf of Pechili, 2,600 m.
Indus, Asia, Himalaya mtns., Tibet, to Arabian sea, 2,000 m.
Irawadi, Burma, n. e. of Assam to Bay of Bengal, 1,250 m.
Kongo, c. and w. Africa, 3,000 m.
La Plata, S. America, junc. of Paraná and Uruguay rivers, with Paraná to the Atlantic, 2,300 m.
Lena, Siberia, Baikul mtns. to Arctic ocean, 2,800 m.
Loire, France, Gerbier-des-Joncs to Bay of Biscay, 650 m.
Mackenzie, Canada, Gt. Slave lake to Beaufort sea, 2,300 m.
Madeira, S. America, including the Mamoré, 2,000 m.
Magdalena, Colombia, Ecuador to Caribbean sea, 950 m.
Marne, France, enters the Seine near Paris, 310 m.
Maros, Hungary, Carpathian mtns. to the Theiss, 500 m.
Mekong, s. e. Asia, Tibet to China sea, 2,600 m.
Meuse, France, dept. Haute-Marne to North sea, 575 m.
Murray, Australia, junc. headwaters to Indian ocean, 1,450 m.
Niger, w. Africa, Sudan n. w. of Sierra Leone to Gulf of Guinea, 2,900 m.
Nile, Africa, Victoria Nyanza to Mediterranean, 3,766 m.
Ob, Siberia, Little Altai mtns. to Ob gulf, 2,300 m.
Oder, Germany, Carpathians to Baltic sea, 550 m.
Orange, s. Africa, Drakenberg to the Atlantic, 1,100 m.
Orinoco, S. America, s. Venezuela to the Atlantic, 1,600 m.
Paraguay, Brazil, Matto Grosso state to Paraná river, 1,500 m.
Paraná, Brazil, Minas Geraes state to the Atlantic, 2,450 m.
Po, n. Italy, Monte Viso to Adriatic sea, 420 m.
Rhine, Europe, Switzerland to North sea, 700 m.
Rhone, France and Switzerland to Gulf of Lyons, 500 m.
Rio Negro, Colombia, joins Amazon in Brazil, 1,400 m.
Rio Teodoro, Brazil, to Madeira river, 950 m.
St. John, Maine and New Brunswick, Bay of Fundy, 550 m.
St. Lawrence, Lake Ontario to Gulf of St. Lawrence, 2,150 m.
Salwin, Burma, Tibet to Martaban gulf, 1,750 m.
São Francisco, Brazil, Minas Geraes state to Atlantic, 1,200 m.
Saskatchewan, Canadian Rockies to Lake Winnipeg, 1,100 m.
Seine, France, Côte d'Or to English channel, 475 m.
Shannon, Ireland, Cuilcagh mtns. to the Atlantic, 250 m.
Tagus, Spain and Portugal, flows into the Atlantic, 550 m.
Thames, England, junc. of headwaters to North sea, 215 m.
Theiss, Hungary, Carpathian mtns. to the Danube, 800 m.
Tigris, Asiatic Turkey, unites with Euphrates, 1,150 m.
Ural, between Europe and Asia, to Caspian sea, 1,400 m.
Vistula, Europe, Carpathians to Baltic sea.
Volga, European Russia Tver govt. to Caspian sea, 2,300 m.
Weser, Germany, Münden to North sea, 300 m.
Yangtze, China, northern Tibet to Yellow sea, 3,400 m.
Yenesei, Mongolia and Siberia to Arctic ocean, 3,300 m.
Yukon, Lake Lindeman, Canada, to Bering sea, 2,200 m.
Zambezi, e. Africa to Indian ocean, 1,600 m.

Atmospheric Forces.—The forces exerted by the atmosphere are those of the wind and chemical forces. The atmosphere is everywhere laden with *dust*—on mountain tops, over the ocean, and over the ice fields of the polar regions. The microscope shows that atmospheric dust is composed of grains of pollen from plants, bits of vegetable fiber, hairs, mineral and rock fragments, metallic iron, fungi, bacteria, and disease germs. Dust particles in the air reflect sunlight into shady places; without them all shady places would be black. They soften direct sunlight; for without them the sun would be of dazzling brightness, shining out of a black sky in which the stars would be visible in daytime. They cause or affect the blueness of the sky and the glorious tints of the sky at sunrise and sunset. Water vapor in the air coats the particles of dust, and condensation, causing clouds and rain, follows. Dust, then, is an important, though not a necessary, factor in rain-making. Volcanic dust is thrown into the atmosphere and widely distributed over the world during volcanic eruptions. After the eruption of Soufrière, in the island of Martinique, in 1902, a layer of volcanic dust from five to six feet deep was deposited five miles distant; and it is estimated that some of this dust was in the air for three years and went several times around the earth before settling.

Loess is a dust-like earthy material, the grains of which are smaller than those of sand, but larger than those of clay. These are carried by the wind, and are capable of compacting and forming bluff-like mounds of great solidity. They are to be found in China, Europe, and in many parts of the Mississippi basin. The two most marked *chemical effects* of the air are oxidation and carbonation. *Oxidation* is the effect of the oxygen of the air upon many substances in rocks, most notably upon iron. This rusts or hydrates, and the rocks crumble away. *Carbonation* is caused by the action of the carbon dioxide or carbonic acid gas in the air which unites with some constituents of rocks and causes them to crumble. These are potent forces in the weathering of rocks which make large and valuable contributions to soils. *Freezing* and *thawing*, due to changes in the temperature of the air, are important atmospheric forces. The expansion of frozen water in cracks of rocks acts as a powerful wedge which in time drives the parts asunder and breaks the rocks in pieces. Even the contraction and expansion of rocks under the great ranges of temperature of the air, heated by day and cooled at night, has a similar effect. Masses of rocks on slopes, slightly covered by layers of loose material, gradually peel off under this effect, and, though the process is slow, the cumulative effect of slight changes upon large areas is very great. Roots of plants penetrating crevices in rocks accomplish the same results; and the genus of plants known as the Saxifrage (rock-breakers) exerts a wonderful effect for such slight and delicate agents. Trees growing in crevices of rocks are not of infrequent occurrence. In time their roots bring about important changes in the rocks into which their roots penetrate. The mass of rocks and loosened soil torn up by the roots of trees blown down by heavy winds are also contributory to the same results.

Water Forces.—The effects of water upon the land are seen after heavy falls of rain, rapid melting of snow, and the consequent filling of streams, and in the force of waves from lakes and seas. The average rainfall the world over is about 40 inches a year. In computing the rainfall, from 10 to 12 inches of snow are regarded as equivalent to one inch of rain. If this quantity of water fell at one time it would be sufficient to cover the surface of the land with more than three feet of water. The rainfall varies in different parts of the world.

Ground Water.—Forty inches of rainfall over the whole land equals about 35,000 cubic miles of water in a year. Only about 6,500 cubic miles of this is emptied into the sea by rivers. Part of the remainder sinks into the soil, depending upon the porosity of the earth upon which it falls; part lodges in lakes and pools upon the surface; part runs off the soil: and part is evaporated. That part which soaks into the soil is ground water. It is thought that the water which soaks into the earth does not penetrate deeper than five or six miles. Ground water is not evenly distributed throughout the soil; for in some localities water in well-digging is found in sufficiently large quantities at only a few feet, while in other places it is necessary to bore down hundreds or even thousands of feet before a supply of water can be procured. St. Louis has an artesian well over 4,000 feet deep; Berlin has one the same depth; one in Cincinnati is about 2,500 feet; Chicago has one about 2,700 feet; and there are many over 1,000 feet deep. Ground water is constantly moving, upon the theory that water seeks its own level, but ground water never attains it, because of the added supply which rain constantly brings. Part of the ground water flows into wells or springs; part flows underground into lakes and ponds; part is drawn up by the capillarity of cultivated soil and feeds the roots of plants and trees; and part escapes from the soil by invisible evaporation. When ground water forms a spring, it often passes through soil and rocks which contain substances which are capable of being dissolved by it. In this way salt, mineral, and medicinal springs are formed. When the water has reached considerable depths and has come in contact with hot rocks, a hot spring may be formed, such as the Hot Springs of Arkansas, South Dakota, and Carlsbad in Bohemia. When the hot water is forced out of the spring at intervals a geyser is formed. The most celebrated is the Great Geyser of Iceland. It consists of an immense well, or funnel, 10 feet wide at its mouth, and about 70 feet deep, surmounted at the surface with a basin 65 feet in diameter and 7 feet deep, formed by the deposit of mineral matter from the water. At intervals it sends up a column of water and steam to the height of 100 feet. More remarkable even than the geysers of Iceland are some that are found in the "National Park." One, the Giantess, throws water to the height of 200 feet. Another is known as "Old Faithful," because it discharges its waters regularly once an hour. Grasshoppers and other insects, and pieces of wood which fall into the waters, soon become incrusted with quartz, which is held in solution by the water, thus permanently petrifying them.

Ground water in its passage through the soil dissolves out of the rocks and soil many mineral substances and disintegrates the structure, forming caves after long periods.

The Mammoth Cave is situated in Edmondson County, near Green River, Kentucky, and extends some nine miles. It contains a succession of wonderful avenues, chambers, domes, abysses, grottoes, lakes, rivers, and cataracts. One chamber, the Star, is about 500 feet long, 70 feet wide, and 70 feet high; the ceiling is composed of black gypsum, and is studded with innumerable white points, that by a dim light resemble stars; hence the name. There are avenues one and a half and even two miles in length, some of which are incrusted with beautiful formations, and present a most dazzling appearance. There is a natural tunnel about three quarters of a mile long, 100 feet wide, covered with a ceiling of smooth rock, 45 feet high. Echo River is some three fourths of a mile in length, 200 feet in width at some points, and from 10 to 30 feet in depth, and runs beneath an arched ceiling of smooth rock about 15 feet high; while the Styx, another river, is 450 feet long, from 15 to 40 feet wide, and from 30 to 40 feet deep, and is spanned by a natural bridge. Lake Lethe has about the same length and width as the river Styx, varies in depth from 3 to 40 feet, lies beneath a ceiling some 90 feet above its surface, and sometimes rises to a height of 60 feet. There is also a Dead Sea. The entrance to the cave is reached by passing down a wild, rocky ravine through a dense forest. To visit the portions of this wonderful cave already traversed requires, it is said, 150 to 200 miles of travel.

Wyandotte Cave and others in southern Indiana, and Luray Cave and others in Virginia, are of similar origin. Some of the solid matter forms bodies, like icicles, called stalactites when they hang from the ceilings, and stalagmites when they rise up from the ground. In the same way crystals form upon the walls. When water carrying mineral matter held in suspension flows into cracks of rocks, these cracks become filled in time with the mineral matter, and veins are formed which often carry gold, silver, and other ores. When ground water charged with solutions of mineral matter falls upon trunks of trees and other vegetable matter, the mineral matter is deposited and takes the place of the vegetable matter as it decays, and in this way petrifaction takes place. The mechanical burrowing under the soil by ground water often results in landslides where great masses of land slide down from sloping positions, burying other regions under the mass and often destroying life and property. History records many such catastrophes.

Running Water.—In the ordinary gentle flow of streams and rivers a great deal of sediment or alluvial matter is borne along and deposited in their courses. But the most marked and violent results follow from floods, to which streams and rivulets so often contribute.

Great Floods and Inundations.—An inundation in Cheshire, England, 353.—3,000 persons perished.

Glasgow, 758.—More than 400 families drowned.

Flanders, 1108.—Inundated by the sea, and the town and harbor of Ostend completely submerged.

Dort, April 17, 1421.—72 villages submerged; 100,000 people drowned.

Overflow of the Severn, 1483, lasting ten days. —Men, women, and children carried away in their beds, and the waters covered the tops of many mountains.

General inundation in Holland, 1530.—By failure of dikes; 400,000 said to have been drowned.

At Catalonia, 1617.—50,000 drowned.

Johnstown, Pa., May 31, 1889.—A bursting mountain reservoir destroyed the town by flood, drowning about 6,000 people.

Galveston, Tex., Sept. 8, 1900.—Sea waves, driven by wind, flooded the city, 6,000 killed, $30,000,000 worth of property destroyed.

Paris, France., Jan. 26-30, 1910. The Seine rose 30 feet above low water level, covering nine square miles, or about one quarter of the entire area of the city. The streets near the river had a depth of 12 feet of water. There was 250,000 to be fed and clothed, with over 100,000 unemployed. Over $200,000,000 worth of property destroyed. Americans subscribed $700,000 of the relief fund.

In the making of streams and rivers the tiny streamlets flow through gullies or ravines into the larger streams which flow through valleys. On their way all of these carry more or less mud suspended in the waters, while swift flowing currents carry along pebbles, gravel, and even larger stones in their channels. It is estimated that a river like the Mississippi carries every year a mass of earthy material equal to 400,000,000 tons which it deposits in the Gulf in that peculiar delta or farther out. This equals more than a million tons a day. It is thought that all of the rivers of the earth carry forty times as much as the Mississippi or sixteen thousand millions of tons. This does not consider the dissolved matter which is carried in solution in the water, and is estimated at about one third more, or 5,000,000,000 tons. Where a river flows swiftly it does not deposit its sediment. James B. Eads took advantage of this fact in 1875, and by contracting or narrowing the outlets of the Mississippi by jetties, he compelled it to force the sediment out into the Gulf and to keep the channels clear to permit ocean navigation from New Orleans. There is a tendency for every stream to wear its valleys both deeper and wider. The deepest valleys are found in plateaus and mountainous regions. The Grand Cañon of the Colorado in Arizona is one mile deep and at its widest part from 8 to 10 miles in width at the top. In Yellowstone Park there is a cañon below the falls about 1,000 feet deep. Inequalities in the hardness of the rocks in a river bed give rise to rapids and falls. The distinction between rapids and falls is only a question of grade or steepness of descent.

The Great Waterfalls. — Waterfalls are formed by a current of water passing rapidly from a higher to a lower level. They are found most frequently in mountainous regions where many streams from the mountain sides unite in the valley. They change their appearance from year to year owing to erosion or the wearing

away of the rocks. Among the highest waterfalls are the following:—

Yosemite (3 plunges)	2660 feet.
Oroco Falls of Monte Rosa	2400
Roraima Fall, Guiana (2 plunges)	2000
Grand Falls of Labrador	2000
Sutherland Falls, New Zealand (3 plunges)	1904
Kukenam Fall, Guiana (sheer plunge)	1500
Gavarnie Fall, Pyrenees	1400
Krimmler Falls, Austria	1300
Staubbach, Switzerland	1000
Vermafos, Norway	984
Maanelvan, Norway	940
Bridal Veil, California (with cascades)	900
Vettisfos, Norway	853
Rjukanfos, Norway	804
Kaieteur Falls, Guiana	740
Skykjefos, Norway	700
Nevada Fall, California	600
Velino Falls, Italy (3 plunges)	591
Tessa Falls, Austria (3 plunges)	541
Vöringsfos, Norway	520
Rukaufos, Norway	513
Great Falls, Montana	500
Tequendama, Colombia	475
Gastein Falls, Austria	469
Victoria Falls, Zambesi	400
Shoshone, Idaho	210
Foyers, highest in Britain (2 plunges)	205
Hay River, Alaska	200
Niagara	165

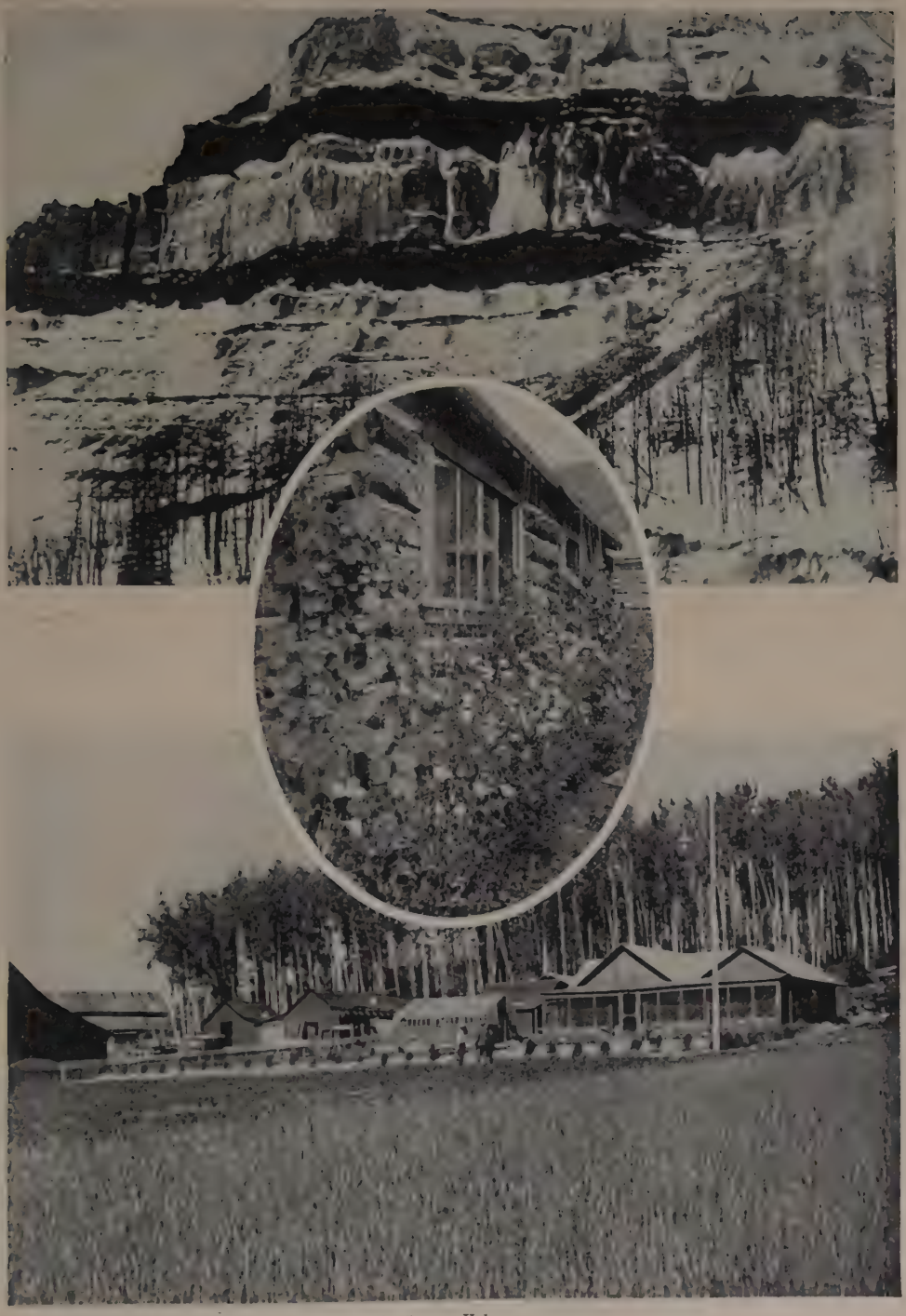
It is estimated that Niagara Falls has a force of about 4,000,000 horse power. In the wearing away it is estimated that Niagara Falls has receded about 7 miles. Estimates have been made of the rate at which it is now receding, and of the time when there will be no falls. But that is what every waterfall is tending to, for all rivers will one day reach a base level. In the work of erosion there are many instances where a mass of rock harder than its fellows has withstood the ravages to which they have yielded. Such masses of rock standing alone as hills or even mountains, are called "monadnocks." When it takes the form of a long, narrow ridge it is called by some a "hog back." In the West these are called "buttes." When flat-topped and table-like, it is a "mesa."

Snow and Ice.—The snow-line on mountains varies with the latitude of the place, being higher at the equator and lower as the poles are approached. Near the equator the snow-line is about 18,000 feet above the sea-level. On the north side of the Himalayas, facing the plateau of Tibet, it is at 19,500 feet. In the Caucasus and in the Rocky Mountains it is about 11,000 feet. In the Alps it is between 7,500 and 9,000 feet. In Iceland, on the Arctic Circle, it is about 3,000 feet. In Spitzenberg it is almost at the sea-level. Snow is seldom known to fall between north and south latitudes of 33°. It is estimated that the total amount of snow and ice on the land amounts to 1,000,000 cubic miles, which, if melted, would raise the sea-level over 30 feet. Glaciers are heavy and compacted snow-fields which creep out of their positions, move down slopes, or spread in all directions if the surface upon which they rest is level. When a glacier cracks open, a crevasse is formed. Great masses of stone and earth are carried by glaciers. This transported matter is called glacier débris. Flat rocks prevent the sun's rays from melting the ice directly under them, and a column of ice remains supporting the stones, giving the whole the appearance of a huge toadstool. As the glacier creeps along and is melted or wasted by the sun's rays at one end, it is being constantly fed or replenished by the snow-fields at the other. The creeping motion of the glacier has been measured by planting rows of stakes along its lower margin. It has been found that the rate of descent of most glaciers is about a foot or two a day, though one huge glacier in Iceland moved over 100 feet a day. Glaciers are numerous in the Alps, where more than 2,000 are known, the longest being 10 miles long and the greater number less than a mile long. In the Caucasus Mountains, the Himalayas, Greenland, and especially in Alaska and Canada, glaciers abound. South of Canada the glaciers are of much less size. Greenland, with its area of from 400,000 to 600,000 miles, is one vast ice field, except on its borders. From these and similar ice formations, great masses break off and float away as icebergs. The great force of glaciers is seen in the polishing, grinding, and powdering effect upon rocks, as well as the transportation of bowlders, stones, and gravel.

Volcanoes.—A volcano is a vent in the earth's crust through which liquid rock or lava and solid rock are emitted. As the material gathers, a cone is formed around the opening or crater. Among active volcanoes the best known are Stromboli, on a small island north of Sicily, about one mile high, and in constant activity; Vesuvius, 4,000 feet high, on the Bay of Naples, disastrously active in the spring of 1906; Krakatoa, in the Strait of Sunda between Java and Sumatra, whose eruption in 1883 caused the death of 36,000 persons and the destruction of 295 villages; Mont Pelée, in Martinique, which in the eruption of 1902 destroyed 30,000 persons; Soufrière, on the island of St. Vincent, in a sympathetic eruption on May 7 of 1902, caused the death of 1,350 persons; Mauna Loa and Kilauea, in Hawaii. Many of the lofty mountains of the globe are of volcanic origin. Among these are Mt. Shasta, in northern California; Mt. Rainier, in Washington; and Mt. Hood, in the Cascade Range. Hardened lava assumes many forms, such as the basaltic columnar structure of the Giant's Causeway.

The name Giant's Causeway is often applied to the entire range of cliffs in the County Antrim, on the northeast coast of Ireland, but it properly belongs to only a small portion of them, which is a platform of basalt in closely arranged columns, from 15 to 36 feet high, which extends from a steep cliff down into the sea till it is lost below low water mark. This platform is divided across its breadth into three portions, the Little, Middle, and Grand Causeway, these being separated from each other by dikes of basalt. The columns are generally hexagonal prisms, but they are also found of five, seven, eight, and nine sides, in almost every instance being fitted together with the utmost precision, even so that water cannot penetrate between adjoining columns. The name "causeway" was given to the platform because it appeared to primitive imagination to be a road to the water, prepared for giants.

Earthquakes.—The general opinion of investigators is that these agitations proceed from within outward, and are not of atmospheric or other external origin. True, Professor Alexis Perry, of Dijon, France, thought he discovered relations between the ages of the moon and these occurrences which seemed to sustain the theory of Zantedeschi that the liquid nucleus of the earth responds to the moon's attraction in tides,



Photos 1, 2 and 3 from Ewing Galloway; 2 and 3 by Burton Holmes.

ALASKAN CONTRASTS—I

1 Coal region, Nenana River section. 2 Flowers amid snow-capped peaks of Skagway. 3 Grain field, U. S. Agricultural Experimental Station, Fairbanks.

Photos 1, 2 and 3 by Burton Holmes, from Ewing Galloway; 4 copyright by Ewing Galloway.

ALASKAN CONTRASTS—II

1 Gold prospectors' camp, Chilkoot Pass. 2 Strawberries growing in summer in Haines, Chilkoot District. 3 Flowers backed by snowy hills, Skagway. 4 Winter transportation by dog teams, Nome.

but the theory that the earth has a liquid nucleus covered with only a thin, solid crust is losing adherents continually. Mr. Robert Mallet, one of the foremost investigators of seismic phenomena, in an elaborate report on the subject presented to the British Association, proposed an ingenious theory. He assumes that volcanoes and the centers of earthquake disturbances are near the sea or other large supplies of water; and he says that when an eruption of igneous matter takes place beneath the sea-bottom the first action must be to open up large fissures in its rocky material, or to lift and remove its incoherent portions, such as sand, mud, gravel, etc. The water, on meeting the heated surface, assumes the spheroidal state. While in this condition the intestine motion may be great, but little steam is generated; but no sooner have the surfaces cooled than the water comes into close contact with them, and a vast volume of steam is evolved explosively and blown off into the deep and cold water of the sea, where it is condensed, and thus a blow of the most tremendous sort is given at the volcanic focus, and, being transferred outwardly in all directions, is transmitted as the earthquake shock. Whatever their origin, whether of one cause or various causes, the prevailing opinion still is that the vibrations of every earthquake can be traced to a focus within the earth, and that this lies directly beneath the point of greatest disturbance on the earth's surface. This center of impulse, or, as it is termed, the "seismic focus," is not an exact mathematical point, but may measure many miles in diameter.

It is only within the last 60 years that the phenomena of earthquakes have been subjected to exact investigation, and a new science has been created, known as *seismology* (σεισμός, an earthquake). Special instruments called seismometers and seismographs have been designed for the purpose of recording the direction and intensity of the disturbances.

We now learn that earthquakes are much more frequent than was formerly supposed. There are, for instance, official records of 8,331 earthquakes in Japan between the years 1885 and 1892; that is, an average of over 1,000 shocks a year. Seismologists have further discovered that, although volcanic and seismic disturbances may take place side by side, the direct relationship between them is extremely rare. Speaking generally, it is found that earthquakes are more frequent along the steeper flexures in the earth's surface, and in those localities where geological conditions show that the secular movements of the earth's crust are still in progress. These conclusions would indicate that the origin of many earthquakes is connected with rock folding. Such movements, including upheavals, subsidences, and horizontal displacements, are termed bradyseismical (βραδύς, slow) movements.

Great Earthquakes.

425 B. C.—One which made Euboea an island.
345 B. C.—Duras in Greece and 12 cities in Campania buried.
17.—Ephesus and other cities demolished.
79.—One accompanying the eruption of Vesuvius and destruction of Herculaneum and Pompeii.
115.—Antioch destroyed.
157.—One hundred and fifty towns wrecked in Asia Minor and Macedonia.
557.—Thousands perished at Constantinople.
742.—In Syria, Palestine, and Asia Minor. Immense loss of life.
936.—Constantinople desolated; all Greece shaken.
1137.—In Catania, Sicily; 15,000 perished.
1158.—In Syria, etc.; 20,000 perished.
1268.—In Cilicia; 60,000 perished.
1318.—Greatest earthquake known in England.
1456.—At Naples; 40,000 perished.
1531.—At Lisbon; 30,000 buried.
1626.—In Naples; 70,000 perished.
1693.—In Sicily; 354 cities, towns, and villages destroyed. More than 100,000 perished.
1703.—In Jeddo (now Tokyo), Japan; 200,000 killed.
1716.—At Algiers; 20,000 perished.
1731.—In China; 100,000 perished.
1746.—Lima and Callao demolished; 18.000 buried.
1755, November 1.—Great Lisbon earthquake. In about eight minutes most of the city and 50,000 people were destroyed. Other cities in Portugal, a large part of Malaga in Spain, one half of Fez in Morocco, and half the island of Madeira were ruined.
1759.—In Syria; 20,000 perished.
1783.—In Calabria; shocks continued to end of 1786, towns and villages destroyed.
1797.—Country between Santa Fé and Panama destroyed, including Cuzco and Quito; 40,000 buried.
1805.—At Frosolone, Italy, 6,000 perished.
1812—In Caracas; whole city ruined; 10,000 inhabitants buried.
1815. In island of Sumbawa, East Indies; one of the most violent eruptions recorded in history.
1819.—At Cutch, India; many towns over a wide area converted into ruins.
1822.—Aleppo destroyed; over 20,000 perished.
1822.—Coast of Chile permanently raised.
1835.—In Chile; Concepción, Talcahuano and other towns were destroyed.
1839.—At Martinique; nearly half of Port Royal destroyed.
1842.—At Cape Haytien, Santo Domingo; 4,000 killed.
1851.—Melfi, Italy, wrecked; 14,000 perished.
1857.—Montemuro and other towns in the kingdom of Naples destroyed; 10,000 perished. (Lacaita says that in 75 years, from 1783 to 1857, the kingdom of Naples lost at least 111,000 inhabitants by earthquakes, or more than 1,500 a year, out of an average population of 6,000,000.)
1860.—At Mendoza, Argentina; about two thirds of the city destroyed, and 7,000 lives lost.
1863.—Manila, P. I., great destruction of property.
1868.—Cities of Arequipa, Iquique, Tacna, and Chincha, and many small towns in Peru and Ecuador destroyed; about 25,000 perished.
1874.—Cities in Guatemala destroyed; great loss of life.
1880.—Shock at Brieg, Switzerland; several killed.
1883.—Java and neighboring isles desolated.
1884.—Severe shocks in eastern counties of England.
1884.—Several Spanish towns destroyed.
1885.—In province of Granada, Spain; 690 perished.
1886, August 31.—Shocks throughout eastern United States; at Charleston, S. C., 41 lives and $5,000,000 worth of property lost.
1886, September-December.—Slight shocks at and around Charleston, causing panic.
1887.—Severe shock in southern Europe, especially in the Riviera; estimated that 2,000 perished.
1891.—In Japan; officially estimated that 4,000 perished and that 50,000 houses were destroyed.
1893.—Islands of Zante and Stromboli, the former west of Greece, the latter one of the Lipari group, west of Calabria, Italy, severely shaken. Great loss of lives and property at Zante.
1897—In Assam, India; much damage; many killed.
1906, April 18.—Violent shocks in California wrecked San Francisco and adjacent towns. Bursting of water mains in San Francisco gave the city over to what was the greatest fire in all history, lasting two days. Area burned was over three times greater than that of the Chicago fire, and ten times that of either the Boston or the Baltimore fire. Great loss of life, and $300,000,000 of property destroyed; over 300,000 homeless. The business section of San José was destroyed, 19 lives lost, and property valued at over $8,000,000 destroyed. Santa Rosa was swept by fire; 50 lives were lost. At Agnews Insane Asylum 117 patients and 9 attendants were crushed to death. Stanford University buildings were damaged to the extent of $2,800,000, including the fine Memorial Church. Much damage in the Santa Clara, Napa, and Sonoma valleys.
1906, August 16, 17.—At Valparaiso, Chile, causing great destruction of life and property.
1907.—Large part of Kingston, Jamaica, destroyed.
1909.—In Sicily and southern Italy, Messina and many towns and villages desolated. Appalling loss of life; thousands buried alive; the survivors homeless.

1908.—On December 28 in northwestern Sicily and southwestern Calabria there occurred one of the worst earthquakes recorded, and while lasting only a matter of about thirty-five seconds, the loss of life amounted to 76,000 people, the injured 95,470 and the homeless population over 1,000,000. Among the cities destroyed were Messina, Faro and Scolleta in Sicily and Reggio, Gallicia and Palmi in Calabria.

1910.—On May 5th in the Island of Costa Rico, town of Cartago, 1,500 people were killed by an earthquake.

1912.—In this year, Turkey was the scene of another earthquake, with the loss of 3,000 lives, injuring 6,000 and making 40,000 homeless.

1914.—On January 12th occurred both an eruption and an earthquake in Sakura, Japan, with the loss of forty-three lives, 850 homes destroyed and 20,000 people made desolate.

1914.—Later the same year on May 8th and 9th, 1,000 people were injured and 200 lives were lost in Sicily by earth tremors.

1915.—Devastating large areas in Central Italy, one of the worst earthquakes recorded there came on January 13th, effecting 372 provinces, wiping out practically one entire town, Avezzano, and killing 29,978 people.

1917.—This earthquake started on December 24th and with its shocks felt intermittently for one week it caused the death of 2,500 lives in Guatamala City.

1919.—The eruption of the volcano Kalut on May 20th, in the Brengatand district, Java, destroyed thirty-one villages and population numbering over 5,000.

1919.—On June 29th the villages up and down the valley of the Mugello in Italy were seriously effected by an earthquake killing 100 people, with partial destruction of the towns of Vicchio, Durgo, Trili and San Piedro.

1919.—Again in the same year, another earthquake in Porto Rico on October 11th, destroyed property to the extent of $3,500,000, injured 240 people and took the lives of 120. Among the towns destroyed were Aquadilla, Anasco, Aguada and Mayagnez.

1920.—In Mexico the combination of an eruption and an earthquake caused the death of 3,000 people, the loss of thousands of dollars in property and the destruction of entire towns.

1920.—With a loss of life more appalling than any we have record of, the earthquake in the Kausu provinces of China on December 16th, was the cause of 200,000 of the population losing their lives, 300 square miles of territory badly damaged and the practical destruction of ten cities.

1923.—On May 29th in Persia, the entire Kharasoau province was shaken, causing the death of 4,000 people and dstroying six towns and villages.

1923.—The Japanese Earthquake, first shock being recorded September 1st, and followed by others of varying intensity. Yokohoma was almost completely destroyed. 68,000 out of 93,000 homes were destroyed either by the earthquake or fire that followed it. Tokyo, the capital of Japan suffered heavily. The dead exceeded 100,000 people, with 146,000 wounded and missing.

1925.—In May, 400 Japanese killed and 500 wounded in another earthquake with property loss of 50 millions.

Important Tornadoes in the United States.

1882.—April.—Kansas—40 killed.

1892.—July 14.—Minnesota—50 killed.

1893.—June 20.—Kansas river valley—16 killed.

1893.—July 6.—Pomeroy, Iowa—68 killed.

1896.—May 27.—St. Louis and East St. Louis—500 killed.

1897.—Mar. 30.—The town of Chandlen, Oklahoma, was three-quarters wiped out.

1905.—May 9.—Marquette, Kansas—30 killed.

1905.—May 11.—Snyder, Oklahoma—130 killed.

1908.—Apr. 24.—Mississippi, Louisiana & Alabama—500 killed.

1913.—Mar. 13.—Illinois, Indiana, Tennessee, Louisiana and Texas—heavy property damage and great loss of life.

1923.—Apr. 25.—Oklahoma—100 killed.

1925.—Mar. 18.—This tornado arose in the Ozark Hills, Missouri, zigzagged into southern Illinois crossed over into Indiana and spent its real force in Kentucky and Tennessee. For more than five hours, this whirling wind swept over 300 miles of territory, covering parts of five states, taking the lives of 823 people, injuring 2,990 and making over 15,000 people homeless, entailing a loss of millions.

1926.—Oct.—Florida visited with hurricane. Principally in regions between Palm Beach and Key West. Hurricane hit the hardest in regions north of Miami, Fort Lauderdale and Moore Haven.—315 lost lives, 150 missing, 1100 injured, 20,000 homeless. Property damage $165,000,000.

1927.—Oct.—St. Louis and environs visited by tornado which killed nearly a hundred and destroyed 25 millions in property.

RECENT FLOODS

1912.—A typhoon in Japan with the loss of over 400 lives.

1912.—Two hundred lives lost in Balwar County, Miss., during the flooding of the river with a property loss in the neighborhood of $400,000,000.

1912.—The coast of China inundated with the loss of 800 lives.

1913.—The great Dayton (Ohio) flood when the Miami river overflowed its banks, doing property damage to the extent of $128,000,000 and with the loss of 84 lives.

1913.—It was in this same year that the tidal wave swept over the coastline, Texas, damaging property into the millions and it is estimated that 500 people lost their lives.

1914.—One of the worst deluges in history occurred in the West River Valley, China, in which 3,300 lives were lost, over 43,000 were made homeless and the property destroyed totalled in the neighborhood of $3,000,000.

1915.—The inundation at Galveston, Texas, in which 300 lives were lost and property was destroyed to the extent of $5,000,000, as a tidal wave swept over the city.

1917.—In Tiensin, China, thousands of square miles were inundated and millions were made homeless with huge damage totaling some $50,000,000.

1921.—Jan. 18—Pachuca, Mexico, the city was flooded through the breaking of a dam and scores of people were drowned, with the inevitable result of the great loss of property.

June 22—Port Arkansas, Texas—a Gulf hurricane wrecks 13 ships.

June 3—Pueblo, Col.—A sudden rise in the Arkansas river causes the loss of more than 100 people and the property loss of $15,000,000 dollars.

Sept. 10—San Antonio, Texas—250 lives lost and $10,000,000 dollars in property damage as a result of a flood in the city.

Oct. 25—Tampa, Florida—A severe gulf storm does a great deal of damage to the city of Tampa and that section of West Florida coast.

1923.—Feb. 3—Tidal wave causes a very heavy loss among the Hawaiian group of islands.

Mar. 11—More than 18 people killed and a host injured in the vicinity of Jackson, Tenn.

Mar. 24-28—Over $200,000 damage done to property at the island of Guam by a severe typhoon.

Apr. 12—A huge tidal wave killed and injured 1000 people in Korea.

May 14—A combination of flood and fire at Hot Springs, Arkansas caused the property loss of $200,000,000.

May 28—In Oklahoma City, 1000 people were made homeless by flood.

June 12—Somar P. I. Typhoon wrecks towns with apalling loss of life.

July 27—In the Anhui Province, China, devastating floods make over 100,000,000 homeless with a great loss of life.

Aug. 18—A typhoon in Hong Kong wrecks the vessels in the harbor and results in the death of 200 people.

Distance Between the Chief Ports of the World by Sea in Nautical Miles.

UNITED STATES PORTS.

	Miles.
BOSTON to Liverpool, northern route	2,790
southern route	2,932
HONOLULU to Auckland, N. Z.	3,915
San Francisco	2,089
Yokohama	3,445
NEW ORLEANS to Havana	570
Liverpool	4,767
Southampton, England, *via* Havana	4,744
NEW YORK to Colon	1,989
Genoa	4,061
Glasgow	3,000
Havre	3,160
Liverpool	3,025
Southampton	3,110
SAN FRANCISCO to Acapulco	1,850
Honolulu	2,089
Victoria	760
Yokohama	5,280

CANADIAN PORTS.

HALIFAX, N. S., to Bermuda	740
London	2,723
PORT CHURCHILL, Hudson Bay, to Liverpool	2,966
QUEBEC to Glasgow	2,563
ST. JOHN, N. B., to Glasgow	2,605
London	2,972
VANCOUVER, B. C., to Vladivostok	4,401
Sydney, N. S. W.	6,780
VICTORIA, B. C., to San Francisco	760
Yokohama	4,320

WEST INDIAN PORTS.

BERMUDA to Halifax, N. S.	740
HAVANA to New Orleans	570
San Juan, Porto Rico	1,030
Vera Cruz	810
KINGSTON, JAMAICA, to Belize, Honduras	660
MARTINIQUE to Colon	1,357
Havre	3.560
ST. THOMAS to Southampton	3,630
Colon	1,023
Para	1,700
Liverpool	3,627
SAN JUAN, PORTO RICO, to Havana	1,030

CENTRAL AMERICAN PORTS.

ACAPULCO to Panama	1,410
San Francisco	1,850
BELIZE, HONDURAS, to Kingston, Jamaica	660
COLON to St. Thomas	1,023
Martinique	1,357
New York	1,989
PANAMA to Acapulco	1,410
Auckland, N. Z.	6,160
VERA CRUZ to Havana	810

SOUTH AMERICAN PORTS.

BUENOS AIRES to Liverpool	6,258
CAPE HORN to Rio de Janeiro	2,350
Wellington, N. Z.	4,400
GEORGETOWN or **DEMERARA** to London	4,266
MONTEVIDEO to Punta Arenas	1,070
Valparaiso	2,743
Rio de Janeiro	1,000
PARA to Liverpool	4,000
St. Thomas	1,700
PERNAMBUCO to St. Vincent, Cape Verde	1,608
PUNTA ARENAS to Montevideo	1,070
RIO DE JANEIRO to Cape Horn	2,350
Montevideo	1,000
VALPARAISO to Montevideo	2,743

EUROPEAN PORTS.

BRINDISI to Malta	360
CADIZ to Teneriffe	698
CONSTANTINOPLE to Malta	894
Odessa	345
CORK to St. John's, Newfoundland	1,730
EDINBURGH (LEITH) to Hamburg	480
Iceland	1,050
Shetland Islands	270
FAROE ISLANDS to Shetland Islands	250
Iceland	250
GENOA to Gibraltar	858
Naples	336
New York	4,061
GIBRALTAR to Genoa	858
London	1,299
Marseilles	694
Naples	973
Southampton	1,054
GLASGOW to New York	3,000
Quebec	2,563
St. John, N. B.	2,605
HAVRE to Martinique	3,560
New York	3,160
ICELAND, REYKJAVIK, to Edinburgh	1,050
LISBON to Dakar	1,547
Liverpool	983
San Miguel, Azores	780
LIVERPOOL to Boston (northern)	2,790
(southern)	2,932
Buenos Aires	6,258
Lisbon	983
Madeira	1,430
Mauritius, *via* Cape Town	9,950
New Orleans	4,767
New York	3,025
Para	4,000
Port Churchill, Hudson Bay	2,966
Quebec	2,634
St. Thomas	3,627
LONDON to Georgetown (Demerara)	4,260
Gibraltar	1,299
Halifax	2,723
Melbourne, *via* Suez Canal	11,055
St. John, N. B.	2,972
Wellington, *via* Cape Horn	11,970
MALTA to Constantinople	894
Brindisi	360
MARSEILLES to Algiers	417
Gibraltar	694
Sydney, *via* Suez Canal	9,831
NAPLES to Genoa	336
Gibraltar	973
Port Said	1,110
ODESSA to Constantinople	345
PORT SAID to Naples	1,110
SAN MIGUEL, AZORES, to Lisbon	780
SHETLAND ISLANDS to Edinburgh	270
Faroe Islands	250
SOUTHAMPTON to Cape Town	6,016
Gibraltar	1,054
New Orleans	4,744
New York	3,110
St. Thomas	3,630
Teneriffe	1,501
TRIESTE to Bombay	4,317

AUSTRALASIAN PORTS.

ADELAIDE to King George's Sound	1,015
APIA, SAMOA, to Sydney	2,354
AUCKLAND to Panama	6,160
Honolulu	3,915
Sydney	1,284
HOBART to Cape Town	5,838
KING GEORGE'S SOUND to Melbourne	1,840
Adelaide	1,015
Aden	5,114
MELBOURNE to King George's Sound	1,340
Mauritius	4,594
London, *via* Suez Canal.	11,055
NOUMEA, NEW CALEDONIA, to Sydney	1,077
SAMOA to Sydney	2,354
SUVA, FIJI ISLANDS, to Sydney	1,753
SYDNEY to Apia, Samoa	2,354
Auckland	1,284
Suva, Fiji Islands	1,753
Marseilles, *via* Suez Canal.	9,831
Noumea, New Caledonia	1,077
Vancouver	6,780
Wellington	1,280
WELLINGTON to Cape Horn	4,400
London, *via* Cape Horn	11,970
Sydney	1,280

ASIATIC PORTS.

ADEN to Bombay	1,650
Colombo, Ceylon	2,100
Karachi	1,480
King George's Sound	5,114
Port Said	1,308
Zanzibar	1,120
BOMBAY to Aden	1,650
Mauritius	2,530
Trieste, *via* Suez	4,317
CALCUTTA to Rangoon	680

	Miles.
COLOMBO to Aden	2,100
King George's Sound	3,347
Penang	1,278
HONGKONG to Manila	650
Shanghai	800
Singapore	1,440
Tokyo	1,620
Yokohama	1,620
KARACHI to Aden	1,480
MANILA to Hongkong	650
Singapore	1,343
NAGASAKI to Shanghai	454
PENANG to Colombo	1,278
PORT SAID to Aden	1,308

	Miles.
RANGOON to Calcutta	680
SHANGHAI to Hongkong	800
Nagasaki	454
Tien-tsin	735
SINGAPORE to Hongkong	1,440
Manila	1,343
TIEN-TSIN to Shanghai	735
TOKYO to Hongkong	1,620
VLADIVOSTOK to Vancouver	4,401
YOKOHAMA to Hongkong	1,620
Honolulu	3,445
San Francisco	5,280
Victoria, Canada	4,320

Distances Between European Cities.

TRAVELING DISTANCES BETWEEN THE PRINCIPAL CITIES IN EUROPE. IN MILES.

	Copenhagen	Stockholm	Petrograd	Moscow	Odessa	Constantinople	Warsaw	Trieste	Rome	Munich	Vienna	Turin	Berne	Berlin	Hamburg	Antwerp	Lisbon	Madrid	Paris	Liverpool	London
Copenhagen		430	406	950	863	1205	806	510	647	266	720	297	611	178	412	1530	415	908	489	202	
Stockholm	416		836	1339	842	1725	1276	487	840	470	535	837	678	497	1804	1119	1323	1397	287		
Petrograd	846	836		1510	1330	2138	702	870	414	295	427	839	460	1889	1495	211	1812	1195			
Moscow	1252	1510	1510		1800	1564	436	891	639	401	605	719	1602	1582	587	472	1610				
Odessa	1510	1408	1510	1800		1298	1156	533	1048	579	727	1506	1183	674	859	270					
Constantinople	1067	1318	668	1226	960	2018	1021	888	1180	522	2157	1073	859	948	646						
Warsaw	671	1084	697	1047	885	1699	398	1066	1033	1897	1608	500	989	787							
Trieste	1067	1110	1337	1176	685	1903	576	1009	1746	1477	849	1182	980								
Rome	1318	1337	1176	685	580	2025	895	1828	1223	582	970	768									
Munich	671	1084	697	1047	885	1699	398	1066	1033	1897	1608	500	989	787							
Vienna	697	1110	1337	1176	685	1903	576	1009	1746	1477	849	1182	980								
Turin	1047	1337	1176	685	580	2025	895	1828	1223	582	970	768									
Berne	885	1176	685	580	2025	895	1828	1223	582	970	768										
Berlin	270	685	580	2025	895	1828	1223	582	970	768											
Hamburg	208	580	993	2384	1972	1219	1491	1289													
Antwerp	620	993	2384	1972	1219	1491	1289														
Lisbon	2012	1600	812	1181	979																
Madrid	1600	812	1181	979																	
Paris	812	1181	979																		
Liverpool	1181	979																			
London	979																				

Number of Miles from New York to

Adrian, Mich.	775
Akron, Ohio	610
Albany, N. Y.	143
Alexandria, Va.	238
Algiers, La.	1,551
Allegheny, Pa.	434
Allentown, Pa.	92
Alton, Ill.	1,060
Annapolis, Md.	222
Ann Arbor, Mich.	716
Atchison, Kan.	1,368
Atlanta, Ga.	1,018
Auburn, N. Y.	328
Augusta, Me.	407
Augusta, Ga.	887
Aurora, Ill.	951
Baltimore, Md.	188
Bangor, Me.	482
Bath, Me.	382
Baton Rouge, La.	1,320
Belfast, Me.	424
Bellefontaine, Ohio	658
Binghamton, N. Y.	215
Blackstone, Mass.	272
Bloomington, Ill.	1,037
Boston, Mass.	236
Bristol, R. I.	215
Bucyrus, Ohio	632
Buffalo, N. Y.	433
Burlington, N. J.	74
Burlington, Iowa	1,122
Burlington, Vt.	280
Cambridge, Mass.	239
Camden, N. J.	91
Canandaigua, N. Y.	377
Carson City, Nevada	2,800
Chambersburg, Pa.	246
Charleston, S. C.	874
Charlestown, Mass.	235
Chattanooga, Tenn.	980
Chicago, Ill.	911
Chillicothe, Ohio	645
Cincinnati, Ohio	744
Circleville, Ohio	640
Cleveland, Ohio	581
Columbia, S. C.	744
Columbus, Ohio	624
Concord, N. H.	308
Covington, Ky.	745
Cumberland, Md.	364
Davenport, Iowa	1,098
Dayton, Ohio	804
Denver, Col.	1,980
Des Moines, Iowa	1,251
Detroit, Mich.	679
Dover, N. H.	304
Dubuque, Iowa	1,100
Dunkirk, N. Y.	460
Elmira, N. Y.	274
Erie, Pa.	508
Evansville, Ind.	1,021
Fall River, Mass.	180
Fitchburg, Mass.	218
Fort Kearney, Neb.	1,598
Fort Wayne, Ind.	763
Fredericksburg, Va.	296
Galena, Ill.	1,083
Galesburg, Ill.	1,076
Galveston, Tex.	1,900
Georgetown, D. C.	228
Hamilton, Ohio	766
Harrisburg, Pa.	182
Hartford, Conn.	112
Hudson, N. Y.	115
Indianapolis, Ind.	838
Jackson, Miss.	1,498
Jefferson City, Mo.	1,210
Kalamazoo, Mich.	822
Kansas City, Mo.	1,361
Kingston, N. Y.	88
Lafayette, Ind.	903
Lansing, Mich.	785
Lawrence, Mass.	262
Leavenworth, Kan.	1,385
Lexington, Ky.	840
Lexington, Mo.	1,354
Little Rock, Ark.	1,430
Lockport, N. Y.	507
Louisville, Ky.	900
Lowell, Mass.	261
Lynchburg, Va.	404
Macon, Ga.	1,121
Madison, Wis.	1,049
Memphis, Tenn.	1,289
Milledgeville, Ga.	1,100
Milwaukee, Wis.	996
Mobile, Ala.	1,370
Montgomery, Ala.	1,193
Montpelier, Vt.	454
Nashua, N. H.	275
Nashville, Tenn.	1,085
New Albany, Ind.	903
New Bedford, Mass.	181
New Brunswick, N. J.	32
Newburgh, N. Y.	53
New Haven, Conn.	73
New Orleans, La.	1,550
Newport, Ky.	744
Newport, R. I.	162
Norwalk, Conn.	45
Omaha, Neb.	1,455
Oswego, N. Y.	237
Paterson, N. J.	17
Peoria, Ill.	1,072
Petersburg, Va.	378
Philadelphia, Pa.	88
Pittsburg, Pa.	431
Portland, Me.	344
Providence, R. I.	193
Quincy, Ill.	1,176
Racine, Wis.	976
Raleigh, N. C.	669
Reading, Pa.	128
Richmond, Va.	356
Rochester, N. Y.	386
Rock Island, Ill.	1,093
Rome, N. Y.	264
Roxbury, Mass.	238
Sacramento, Cal.	2,900
St. Joseph, Mo.	1,384
St. Louis, Mo.	1,084
St. Paul, Minn.	1,441
Salem, Mass.	252
Salt Lake City, Utah	2,410
San Francisco, Cal.	3,038
Sandusky, Ohio	642
Saratoga, N. Y.	182
Savannah, Ga.	974
Scranton, Pa.	142
Springfield, Ill.	1,068
Springfield, Mass.	138
Springfield, Ohio	826
Staunton, Va.	482
Stonington, Conn.	143
Syracuse, N. Y.	302
Taunton, Mass.	210
Tallahassee, Fla.	1,190
Terre Haute, Ind.	912
Toledo, Ohio	742
Tonawanda, N. Y.	463
Trenton, N. J.	58
Troy, N. Y.	148
Utica, N. Y.	237
Vicksburg, Miss.	1,542
Washington, D. C.	230
Wheeling, W. Va.	522
Wilmington, Del.	116
Wilmington, N. C.	604
Worcester, Mass.	192

Number of Miles by Water from New York to

Amsterdam	3,510
Bermuda	660
Bombay	11,574
Boston	310
Buenos Aires	7,110
Calcutta	12,425
Canton	13,900
Cape Horn	8,115
Cape of Good Hope	6,830
Charleston	750
Columbia River	15,965
Constantinople	5,140
Dublin	3,225
Gibraltar	3,300
Halifax	612
Hamburg	3,775
Havana	1,420
Havre	3,210
Hawaii	15,300
Kingston	1,640
Lima	11,310
Liverpool	3,210
London	3,375
Madras	11,850
Naples	4,330
New Orleans	2,045
Panama	2,358
Pekin	15,325
Petrograd	4,420
Philadelphia	240
Quebec	1,400
Rio Janeiro	3,840
Round the Globe	25,000
San Francisco	15,858
Valparaiso	9,750
Washington	400

LARGEST SHIP CANALS IN THE WORLD.

Opened.	Name.	Value to Commerce.	Location.
1876	**Amsterdam Ship:** 16½ miles long; 197 feet wide; 23 feet minimum depth.	Reduces distance to North Sea 50½ to 16½ miles.	Connects Ymuiden, on the North Sea, with Amsterdam. Annual net tonnage, 4,662,229 tons.
1902	**Bruges:** 6¼ miles long; 26¼ feet deep; 72 feet wide. Cost over $7,500,000.	Brings ocean trade from the North Sea to Bruges.	Connects Bruges with Heyst on the North Sea.
1822	**Caledonian:** length 60½ miles; depth 17 feet; width 100 feet; 25 locks. Cost up to 1849, $6,381,294.	Fishing fleets and small tourist steamers for access to the heart of Scotland.	Connects Atlantic with Moray Firth on the North Sea. Twenty-three of the 60½ miles are cutting, the rest small lochs; controlled by a government commission.
1914	**Cape Cod:** 13 miles long; 25 feet deep at low tide; 100 to 400 feet wide at bottom; sea level. Begun in 1909.	Shortens route from Boston to New York 70 miles and time of passage 4 hours, besides greatly lessening sea hazards.	Between Massachusetts and Buzzards Bay. Cost, $12,000,000.
1893	**Corinth:** 4 miles long; 26 feet deep; 72 feet wide. Cost $13,750,000. Tolls are 18 cents a ton and 20 cents a passenger.	Shortens voyage from the Adriatic to harbor of Athens by 202 miles. Saves 185 miles between Adriatic and Black seas.	Connects the Gulf of Corinth with the Saronic Gulf. Difficulties of navigation in the gulfs at the terminals cause larger vessels to avoid it.
1885	**Cronstadt or Pontileff:** 17½ miles long; 22 feet deep; 200 feet wide. Cost $10,000,000.	Carries vessels direct to St. Petersburg without unloading as formerly.	Connects Cronstadt with St. Petersburg.
1681	**Du Midi or Languedoc:** 148 miles long; 600 feet above sea level; 100 locks; 6½ feet deep; 60 feet wide; Cost $3,500,000.	Floats vessels of about 100 tons; shortens the route between French ports, and develops inland trade.	Connects the Bay of Biscay through the Garonne River with the Mediterranean Sea and the two terminals, Toulouse and Narbonne.
1900	**Elbe and Trave.** Cost nearly $6,000,000.	Opens up the trade of the interior with the Baltic Sea.	Connects the Elbe with the Baltic through the Trave.
1791	**Forth and Clyde:** 38 miles long; 160 feet above sea level; 8 to 10 feet deep; 39 locks.	Transports merchandise across Scotland and benefits small fishing boats.	Connects the River Forth with the Clyde.
486 B.C. to 18th C. A. D.	**Grand:** 1000 miles long; barges are drawn up inclined planes by capstans.	Connects the cities of Hangchow and Peking. Still used to carry rice and passengers.	Extends from Hangchow to Tientsin, China. Connects the waters of the Yang-tse-kiang with the Peiho.
1895	**Harlem Ship Canal.**	Cuts across Manhattan Island and obviates the passage around by the Battery.	Connects the Hudson and Harlem rivers.
1895 to 1914	**Kaiser Wilhelm or Kiel.** Length, 61¼ m.; width, 144½ ft. at bottom, 234 ft. at top; depth, 36½ ft.; locks, 1062⅝ × 147 × 45½ ft. Original cost, $40,000,000.	Saves over 200 miles in going from the Baltic to the North Sea. Passage occupies 8 to 10 hours. A sea level canal.	Connects the Baltic and North seas. Extends from Holtenau on the Baltic to Brunsbüttel on the Elbe. Enlarged to its present dimensions to serve larger war vessels, at the cost of $55,000,000. Reopened, June, 1914. Tonnage, 10,292,153.
1894	**Manchester:** 35½ miles long; 28 feet deep; 300 feet wide; 4 locks. Cost $75,000,000.	Seagoing vessels can ascend to Manchester. One of the greatest feats of hydraulic engineering.	Runs from the Mersey at Eastham just above Liverpool, to Manchester. A swing aqueduct carries the Bridgewater Canal over the Manchester Canal and lifts like a drawbridge to let vessels with masts pass through.
1855	**Sault Ste. Marie, St. Mary's or "Soo:"** 2 miles long; 25 feet deep; 160 feet wide at bottom; has one lock, the largest in the world. Cost $6,100,000.	Overcomes the obstruction of St. Mary's Falls in Michigan.	Connects the waters of Lake Superior with St. Mary's River and Lake Huron. Though open only 8 months in the year the traffic is the largest in the world, greater than that through the Suez, amounting to about 40,000,000 tons a year.
1896	**Sault Ste. Marie** (Canadian); ⅔ mile long; 150 feet wide; 22 feet deep; one lock. Cost $3,770,621.	Overcomes obstructions in St. Mary's River. Gives a waterway from the head of Lake Superior to the St. Lawrence.	Connects Lake Superior and Lake Huron; has a traffic of about 5,500,000 tons annually.
1869	**Suez:** length nearly 100 miles; uniform depth, 29 feet. Cost originally $80,000,000; improvements (1884-1889) cost $20,000,000.	Shortens sea route to India by saving passage around the south of Africa. Built by the French under De Lesseps.	Connects Port Said on the Mediterranean with Port Thewfik on the Red Sea. Annual value of traffic exceeds $700,000,000; time of transit, 16 hours 8 minutes. Accommodates a ship of 10,000 tons. Toll receipts exceed $22,000,000 from over 4,000 ships a year. England bought nearly half the stock from the Khedive (1875) for $19,855,320. Toll is 8½ francs per ton for loaded ships; 7 francs for empty ships; and 10 francs for passengers.
1829	**Welland (Canadian):** 26¾ miles long; 14 feet deep; 45 feet wide at bottom; 27 locks; Cost $28,000,000.	Passes around Niagara Falls. Completes the waterway from the head of Lake Superior to the sea.	Connects Lakes Erie and Ontario. Begun in 1824 and completed in 1833. Locks give a rise of 365 feet.

Ship Canals in Construction and Projected—*Continued.*

Opened.	Name.	Value to Commerce.	Location.
1914	**Panama Canal**: 50 miles long; depth — minimum, 41 feet, maximum 85 feet, average, 45 feet; summit level, 85 feet; width of channel at base, 300 to 1,000 feet; 6 pairs locks; time of passage (without delays), 10 to 12 hours. Total excavation, about 242,000,000 cubic yards. Cost, $375,000,000.	Will shorten the voyage from Liverpool to San Francisco 43 per cent. and to Iquique 30 per cent. From New York to Australia, 28 per cent. shorter than by Suez. From New Zealand to England 15 per cent. shorter than by Suez.	Connecting the Atlantic and Pacific Oceans across the isthmus of Panama, between Panama and Colon. The dam at Gatum is to catch the overflow from the Chagres River. The reservoir has a surface area of 164 square miles; the dam at its crest is 115 feet above sea level, is nearly 8,000 feet long, and about 2,100 feet wide at its base. The hardest part of the work was about five miles of the Culebra cut between the Cascades and Paraiso. From 35,000 to 50,000 men were employed in the construction.
	Riga: 1000 miles long, 27 feet deep, 213 feet wide; to cost $500,000,000; five years to construct.	To connect the Baltic with the Black Sea and give an outlet for trade of the interior of Russia.	From Riga on the Baltic to Kherson on the Black Sea.
	Berlin: 25 feet deep, 190 feet wide; to cost $50,000,000.	To develop Berlin's trade and to make it accessible by ships of large size.	From the Baltic Sea to Berlin.
1914	**Cape Cod**: 8 miles long, 25 feet deep, 150 feet wide. Cost, $375,000,000.	Shortened distance between Boston and New York. Not necessary now to go out around Cape Cod.	Connecting Cape Cod Bay with Buzzards Bay and into Long Island Sound.
1921	**New Orleans Industrial**: 6 miles long, 30 feet deep and 150 feet in width, costing $20,000,000.	Allows New Orleans two outlets to the sea.	Connecting Lake Pontchartrain with the Gulf of Mexico.
1926	**Marseilles-Rhone**: 4½ miles long, 79 feet wide, cut 50 feet through hills; water depth, 10 feet.	Twenty-five miles travel in Mediterranean.	Allows boats to go direct from Lyons to Marseilles, without entering the Mediterranean.

PHYSICAL TERMS AND DEFINITIONS.

Adobe—Clay formations or soil which cover large portions of the states of Colorado, Utah, Western Kansas, Nevada, Texas, Arizona and California. This soil is workable when sufficiently moistened, but tillage is practically impossible when dry.

Aeolian Deposits—Dust, fine particles of soil and sand grains blown to sheltered places where they accumulate. In certain regions of China and the Mississippi Valley they have accumulated in deposits of great thickness, sometimes forming sandstones.

Air—The gaseous substance which fills the atmosphere surrounding the earth, although invisible it can be weighed, liquified or frozen to a solid. It provides oxygen for breathing, conveys sound and light, absorbs heat during sunshine. It is comprised of 23.10 parts oxygen and 76.90 parts nitrogen. Its exact height is unknown. At two and seven-tenths miles above the surface of the Earth its density decreases. Calculation seems to indicate that at a height of fifty miles it becomes too light to affect the barometer.

Alluvial Fan—Areas of sand or soil ranging from very small to large areas, often including many square miles, caused by erosion of hills or mountains, the material being brought down and deposited in fan shape mounds.

Altitude—Meaning height, used in reference to the physical relief, as the altitude of a mountain.

Anti-cyclone—High barometric pressure with out blowing winds, opposite of cyclone.

Aridity—Dryness of atmosphere, prevailing in regions of low rainfall, mostly in desert sections.

Aurora Borealis—A luminous display in the northern hemisphere, usually in moving bands or rays, ranging from silvery whiteness to yellow or red. The cause of this display is thought to be electrical disturbances in the atmosphere.

Avalanche—Ice and snow mixed with earth moistened from mountain slopes or glaciers dashing downward into the valley, causing great destruction, usually termed slides.

Barrier Reef—Coral reef bordering the shore, separated from the mainland by a narrow body of water or lagoon.

Bay—An arm of the sea partly enclosed by land, very often a sunken river valley.

Bayou—A body of water or a small lake, caused by the meandering of a stream and the meander finally being cut off from the main stream.

Beach—The fringe of land skirting the water's edge, which has been worn and torn by the waves. In some cases we have smooth sandy beaches, as at Atlantic City or Datona or rocky ones as in Maine. *Barrier beaches* are bars of sand which have been piled up some distance from the shores by wave action, and the intervening strip of water is called a lagoon, if small and shallow, or a sound, if large and deep.

Blizzard—A driving snow storm, combined with a cold wind of great velocity.

Bluff—A high point of land with steep escarpments or a bold headland.

Bog—Wet spongy ground covered with decayed moss and other vegetable matter.

Boulder—A block of rock, which has usually been transported and which has no connection with the surrounding rock bed.

Breakers—When waves from the open sea reach water so shallow that perceptible wave motion reaches to the bottom, the increase friction retards the bottom of the advancing wave, and the waves following, gradually overtake it. The waves thus become shorter and higher and the front slope becomes steeper as the water becomes more shallow so that the water in its crest falls forward in a graceful curve dashing upon the beach in foam and spray, as a breaker.

Butte—A round topped hill of fairly steep sides.

Campos—Open plains are called prairie, llanos, pampas and campos in different sections of the world.

Canal—An artificial ditch, ranging anywhere from a few inches deep and a few feet wide to 100 feet deep and a number of thousand feet wide, the latter being used for transportation purposes, the Panama or Suez canals for example.

Canyon—A deep gorge, usually caused by erosion, the softer material being worn away, or rock faulting plus erosion.

Cape—A point of land extending into the water.

Cascade—A fall of water over a series of small precipices.

Cave—Formed by the prolonged solution and abstraction of mineral matter by percolating water. In some limestone districts, owing to the solubility of different rocks such caves or caverns are often miles in extent, as the Mammoth Cave in Kentucky, or the Luray Cavern in Virginia. By falling in of the roof of the caverns or the solution of the rock along the vertical joints that serves as channels for descending rain-water, sink holes are formed.

Chinook—A name given to a warm wind that descends on the eastern slope of the Rockies, melting the snow in the winter, and burning up the vegetation in the summer time.

Cliff—A steep, precipitous, vertical face of rock caused by water erosion as when hard and soft strata of rock alternate. The rapid erosion of the softer strata undermines the hard strata which falls from its own unsupported weight. If such fragments collect faster than erosion can remove them, they gradually form a *talus* which may cover and protect the softer strata from erosion.

Climate—The condition of warmth, coolness, dryness, dampness, clearness, etc., caused by various factors, such as nearness to the water, the altitude, the topography, type of winds, and general location. There are two general types of climate:

Marine Climate: effected by large bodies of water, resulting in a very moderate climate with no great extremes of temperature.

Continental Climate: A climate of great extremes, very warm summers, and cold winters found in areas where we have great open spaces with no water or other barriers to break it up.

Climatology—The study, or science of weather conditions.

Clouds—Mass of mist or fog floating in the air. Clouds screen the earth from excessive heat in summer, while serving as a mantel, they keep it warm in winter, by checking radiation. They present a variety of appearances and are divided into seven classes. The three simple ones are cirrus, cumulus, and stratus.

Cirrus: Consisting of white wavey lines or curled bands. It is the lightest of cloud forms, attains the highest elevation, supposed to consist of minute crystals of ice as in the snow flake and may be defined as frozen fog. They frequently herald cyclones.

Cumulus: Derived their names from being heaped up like touring mountains, often of glistening whiteness, appearing frequently in the summer when evaporation is rapid, forecasting generally thunder storms.

Stratus: Appear in long layers or ribbons seem most frequently in the evening.

Compound Clouds—Cirro-cumulus, cirro-stratus, cumulo-stratus and cumulo-cirro-stratus or nimbus.

Cirro-cumulus is made up of fleecy masses of cirrus which roll themselves up into rounded shapes, frequently known as "mackeral sky."

Cirro-stratus consists of layers of Cirrus clouds. They resemble shoals of fishes swimming parallel to one another, like the Cirrus, often the forewarner of a storm.

Cumulo-stratus, formed of heaps of clouds resting on layer clouds. General mass is often quite dark and threatening, although the edges are bright with sunshine behind the clouds.

Nimbus, simply a cloud of any kind from which rain falls.

Continent—The land elevations above the ocean are called continents, and then rather arbitrarily subdivided again for the purpose of classification on almost a political basis as South America, North America, Europe, etc.

Continental Shelf—The slightly submerged section of the ocean's bottom, in close proximity to the shore, before it drops off to a depth of a mile or more.

Coral Island and Reefs—Composed of rock, and nearly pure carbonate lime, formed by myriads of sea animals called polyps, living in vast colonies on the bottom of clear shallow tropical seas; growing upward in varied forms, they form islands and reefs. These islands seldom rise above ten to twelve feet from sea level, generally take the form of a narrow strip or ring of rocky land, wholly or partially surrounding a shallow lake or a lagoon of sea water. These islands are called atolls and are common in the warm part of the Pacific and Indian Oceans.

Cordillera—A combination of mountain chains, or the main mountain axis of a country.

Crater—The principal mouth or vent of a volcano, usually occurring in the hollow or summit of a cone.

Crevasse—Glaciers passing through narrow gorges and gliding over steep irregularities, crack and splinter, the lower parts break away from the upper forming fissures of great depth called Crevasses.

Currents.

Aleutian Current—When the Japanese Current, (also called Kuro Shiwo), passes the Aleutian Islands, it receives that name, taking a southeastwardly course. It gives to Western North America its enormous rainfall and abundant timber growth. It waters Washington and

Oregon, turns westward and again becomes part of the Equatorial Current.

Equatorial Current (Of the Atlantic)—Crosses this ocean between the shores of Africa and South America, striking the latter continent at Cape Saint Roque. Here it divides. One portion going southward, being named the **Brazil Current.** The other going northwestwardly, is divided by the West Indies. The main section enters the Caribbean Sea, becoming the well known Gulf Stream.

Gulf Stream—On leaving the Strait of Florida parallels the Atlantic seaboard, as far as Newfoundland, turns eastward striking the Azores, where it divides, one branch passing north toward the British Isles, the other to the western shores of Europe and Africa, finding its way back into the Equatorial Current. In length it is about 3000 miles. Its breadth at the Strait of Florida is about 40 miles. In the Middle Atlantic its breadth is about 120 miles. In volume it exceeds the Mississippi more than 1,000 times. The climate of Western Europe is tempered by the winds blowing over the stored up heat of the Gulf Stream.

Japanese Current—Is the Gulf Stream of the Pacific, having a two-fold office, watercarrier and heatbearer. Its principal effect is on the northwestern coast of the United States, Canada and Alaska.

Labrador Current—The Labrador Current flowing out of the Arctic Ocean enters Baffin Bay, striking the coast of East Canada or Labrador, from whence it gets its name to the Island of Newfoundland, reaching as far south as Cape Cod. This current teems with fish and gives rise to the great fishing industry of Grand Banks. The Newfoundland fogs are caused by the cold Labrador Current meeting the warmer Gulf Stream.

From the Antarctic a broad drift flows toward the equator, divides off Cape Horn, one branch passing into the Atlantic and the other, the *Humboldt or Peruvian Current* enters the Pacific, carrying its cool waters along the west coast of South America. When these waters touch the equator it is still too cool for the growth of the coral polyp.

Cyclone—Bodies of air of high pressure, displacing areas of low pressure or vice versa give us cyclonic areas or cyclonic storms. These pressure areas aid us in forecasting the weather. The popular meaning of this term seems to be rapidly changing areas of pressure, giving us very heavy winds and much rain.

Delta—A sand or mud bar caused by the deposition of sediment at the mouth of a stream.

Desert—A very arid region with only a very small amount of rainfall.

Dew—Moisture formed on cold surfaces, due to condensation of the water vapor, in the air.

Divide—The name given to the escarpment that separates two or more river systems.

Doldrums—Occurring within 15° north and south of the Equator. An area of low barometric pressure, being free from movements of the atmosphere. It is the most difficult part of the ocean for the sailors to cross, hence by the sailors called Doldrums.

Drumlin—In Central New York, Eastern Massachusetts, and southern Wisconsin, ridges of glacial *debris* or *till* having an oval or elongated oval form and smooth rounded surfaces are called drumline, usually occurring in the flat lowlands, elliptical in form and the larger axis always parallel to the direction of ice movement. Height rarely exceeds 100 to 200 feet.

Dunes—The surface of the desert consisting in some places of sharp stones and in others of gravel and of sand, the latter when driven before the wind are arranged in huge billows, called dunes. Found in the Sahara and along the Atlantic coast and some of the western states.

Dust—Finely divided organic and inorganic matter in the atmosphere.

Earth—The name given to the planet on which we live.

Earthquake—Movements or tremblings of the earth's surface due to some faultings or fissures formed under the earth's surface.

Equator—An imaginary circle around the earth, 90 degrees from each pole.

Erosion—The wearing away of the earth's surface. *Mechanical erosion*—the physical washing or tearing away of the soil by rain, snow, wind or glacial action. *Leaching* is the dissolving out of certain elements in the soil as the leaching of the phosphorous or the nitrogen.

Escarpment—A steep slope.

Estuary—Very deep indentations in land, affected by the tides, usually caused by a sunken river mouth.

Fault—A fissure or a series of fissures in the rock structure oftentimes in retaining and horizontal positions.

Fiord—A narrow inlet of the sea with steep sides.

Fog—The condensation of water vapor in very fine particles near the earth as contrasted with the condensation at higher altitudes or clouds.

Frost—Condensation and freezing of water vapor on a cold surface.

Geyser—A hot spring which spouts steam and hot water, intermittently.

Glacier—A large mass of accumulated ice in motion. The residues or deposits left by the glacier were numerous, such as *eskers, long ridges* of sand or gravel, *moraines*, and *kame.*

Gorge—A very narrow valley with steep sides.

Gulf—A large body of salt water, partially landlocked.

Hail—Precipitated water vapor that has frozen at a high altitude.

Harbor—An indentation in land sufficiently protected for ships to anchor, and deep enough for ships, shipping and dock facilities.

Hardpan—A hard layer below the subsoil usually of impenetrable clay.

Heaths—Tracks of open level land covered with shrubs of the Heath family, occurring largely in Northern Europe.

Hemisphere—Half of the terrestrial sphere divided either, by the equator into Northern or Southern hemispheres, by a meridian into Eastern and Western (so that North and South America are contained in the Western) or into divisions known as *Land* and *Water* hemispheres.

Hill—A land elevation.

Horizon—The apparent visual juncture where earth and sky seem to meet.

Humidity—The amount of water vapor in the air. *Relative humidity* is the ratio between the actual amount of vapor in the air and the amount it could hold at saturation. *Absolute*

humidity is the amount of water vapor actually in the air.

Hurricane—Cyclonic storms on a violent scale, with high winds, thunder and lightning, usually in tropical regions.

Ice—Water frozen in a solid state or water in a crystalline form.

Iceberg—A great floating mass of ice, usually broken off from a glacier.

Island—A body of land completely surrounded by water. They can be divided into two main classes.

Continental—Meaning islands which rise from the submerged continental borders, and not from deeper parts of the ocean floor.

Oceanic—Arise from deeper portion of the ocean's floor. In structure either volcanic or coralline.

Isobar—A line on a map connecting all areas or places having the same barometric pressure at a definite time or period of time.

Isotherm—Lines connecting areas having the same temperatures at a definite time or over periods of time.

Isthmus—A narrow neck of land, connecting two larger bodies of land.

Kames—Closely related to drumlin, are mounds or knolls of sand and gravel or glacial debris, which have been more or less stratified through water action.

Lagoon—A stretch of shallow salt water between a barrier beach and the shore, if quite deep is called a sound.

Lake—A body of water surrounded by land. Formation of lake basins can be generally classified as follows: (1) Great (diastrophic) movements of earth's crust. (2) Drainage obstruction by mountain elevations. (3) Land subsidence caused by earth movement or earthquakes. (4) Moraines left by melting of ice. (5) Glacial erosion. (6) Volcanic action.

Latitude—Imaginary circles around the earth in an east-west direction parallel to the equator. Since it is 90 degrees from the equator to either pole, each degree represents about sixty-nine miles. North of the equator it is north latitude, south, it is south latitude.

Lava—Molten rock underneath the surface of the earth or rock that has been poured out of the earth in a molten state.

Levee—(Natural) Alluvial plain built up along the channel of a river.

Lightning—Electrical discharges in the atmosphere from one cloud to another, noticeable because of the brilliant flashes.

Llanos—West of the Buina Highland, the Amazon River Valley becomes a treeless or prairie plain; during wet seasons flooded, and in the dry weather covered with a luxuriant growth of grass resembling a great meadow, called **llanos.**

Longitude—Imaginary circles around the globe in a north-south direction, passing through both poles, the lines of the circles being called meridians. The greatest distance between the meridians is about 69 miles. The English speaking people have designated Greenwich Observatory, England, as the starting point and running 180 degrees to the East, called east longitude and 180 degrees to the west being west longitude.

Magnetic Poles—There are two magnetic poles, one in the northern and one in the southern part of the globe. Both shift slightly from time to time. The last position of the northern pole was latitude 70 degrees north, and longitude 97 degrees west. The southern, latitude 72 degrees south, and longitude 153 degrees east. The magnetic needle of the compass is directed towards the northern pole in the northern hemisphere, and towards the southern pole, the other side of the equator.

Marsh—An area of low, watery land.

Meander—A gently flowing stream, having soft banks which are easily turned by obstacles and forms many curves, almost meeting itself in places. Such windings are called meanders.

Mesas—Isolated table lands or plateaus.

Mineral—An inorganic chemical substance found in nature.

Mineral Waters—Springs or wells that have in solution, chemicals, that are thought to have a beneficial effect on the human body.

Mirage—Adjacent layers of the air near the earth surface, owing to differences in temperature or humidity have widely different densities. The refraction and total reflection of light rays in traversing such layers give rise to distorted, displaced or inverted images. They often occur in the desert. Distant objects seem near, or suspended in the air. Sometimes the traveler thinks he sees sparkling water, only to find he has been pursuing a mirage.

Monadnock—Knobs of hill or hard rock left standing due to the glacier wearing away the softer rock.

Monsoon—Land heats and cools much more quickly than water masses and thus this difference in temperature causes winds, blowing either from the water to the land or vice versa. These winds are called monsoons.

Moraines—Rocks and debris brought down from mountain slopes, from ravines by frost and avalanches, accumulating on the surface of the glaciers forming bands of earth and stone, are called moraines. When occurring on the side of the glacier are called *lateral moraines.* At the confluence of two glaciers and two lateral moraines coming together, they form a *medial moraine.* At the lower end of the glacier, where the ice melts and leaves them, the immense deposits are called *terminal moraines.*

Ocean—A large body of salt water in the great hollows and low places of the earth, covering about three-fourths of the globe.

Pampas—Level plains of the Plata River Valley lying south of Amazon Basin. The larger part of the basin is in the form of level plains, with occasional hills and low mountains, called Pampas. The northern portion is wooded and is famous as hunting ground, known as The Chaco.

Pass—A narrow opening of low elevation through mountains or high hills where the heading together of transverse valleys making it possible to cross lofty mountain ranges. Mankind has improved these natural courses of travel, and some of them have been made marvels of engineering skill. The Simplon, St. Bernard, and St. Gothard in the Alps are the most noted.

Peninsula—A body of land nearly surrounded by water, connected to the mainland only by a small neck of land.

Plain—An area of land whose surface is rela-

tively flat and level. *Flood plains* are areas which are so low that they are constantly in danger of being flooded and in fact the top soil is usually a result of these deposits. This silt covered plain is called usually an *alluvial plain.* Plain areas that have been caused by erosion are called *plains of denudation.*

Plateau—A plain at a goodly elevation above sea level.

Prairie—A treeless plain or plateau.

Precipice—An almost perpendicular cliff.

Quick Sand—A sandy area so loose that heavy bodies easily sink in it.

Rain—Condensed water vapor, falling to the earth in fairly large drops.

Rainbow—After or during a rainstorm, with the sun shining, the refraction and reflection of the sun's rays on the drops of water gives us an arch of the spectrum colors in the sky.

Rapids—Cascades—denote more or less a violent descent of streams from a higher to a lower level.

Relief—Elevations or inequalities in land surface.

Reservoir—A storage basin either natural or artificial for water.

River—A body of water flowing in a depression which may be either slight or very great. The tributaries of a river are the smaller streams flowing into it. A river system is composed of the streams and all its tributaries, whereas a river basin is the area drained by the entire system. The source is its starting point, the mouth is where it empties itself into the sea.

Rock—The consolidated material comprising the hard shell of the earth's crust. *Igneous rock*—rocks that have been solidified from molten state such as quartz, feldspar or granite. *Sedimentary rock*—rock which has decomposed, been re-deposited, then through pressure cemented together forming for example, limestone, shale, sandstone, etc. When either igneous or sedimentary rock or both have been buried, and then due to heat and pressure, a change of form and structure, called metamorphosis, has resulted, the rocks are called *metamorphic rocks.* To this group belong gneisses, schists, marbles, etc.

Saint Elmo's Fire—In storms at sea, the masts and yards of the ship are sometimes tipped with balls of electric light due to electricity, passing without noise when the clouds are low, between the clouds and tips of the spars of the ship.

Sargasso Sea—The Spanish name—sea weed—Vast collections of sea weed gathered at those places in the different oceans most free from influence of currents.

Silt—Deposits carried along by sluggish streams and dropped.

Silvas—Lying within the tropical rain belt of the Amazon River Valley, together with the warm climate and rich alluvial soil has been the cause of a remarkable dense forest growth known as *Silvas.* During the rainy season it is flooded with water.

Simoon—Desert whirlwind, intensely hot and air so rarefied as to be suffocating.

Slough—Wet and marshy place. This term is generally associated with a reedy pond commonly caused by inlets or small channels from river or creek.

Snow—The condensation and subsequent freezing of water vapor in particles too large to be supported in the air.

Soil—The covering of the earth's surface, composed of decomposed rock and humus or organic matter. Soils are usually classified as of two kinds—*residual,* meaning that it has remained in the place of decomposition and bears a relation to the underlying rock and transported soil which has been formed and carried by water which is called *alluvial,* by a glacier called *glacial,* and *loess* that is carried by the wind.

Sound—A body of salt water connecting two larger bodies of water, much larger than a strait.

Stalactites—As water with limestone in solution drips down from the roof of a cave, the water is slowly evaporated, leaving the limestone forming a kind of stone icicle. Where it doesn't evaporate on the roof, it drops and evaporates on the floor and forms there, a chrystaline column called *stalagmites.*

Steppe—A grassy plain or plateau with no forest covering, as the Russia Steppes.

Strait—A narrow neck of water connecting two larger bodies of water, as Bering Strait.

Swamp—A low damp watery area, often densely overgrown with underbrush and trees, as the Mangrove Swamps of Florida.

Temperature—Degree of heat or cold.

Thunderstorm—A storm in an area of high pressure and humidity, accompanied by thunder and lightning.

Tide—A great wave or uplift, caused by the attraction of the moon and to some extent the sun. There are two tides a day. In midocean the height is only one or two feet, but when it hits the coast line with indentations, the height of the tide changes with the slope and the size of the indentation. In the Bay of Funday which is funnel shaped, the tides rise as high as 60 feet, whereas the average is from 3 to 6 feet.

Topography—A description of the relief of the earth's surface—mountains, plains, deltas, lakes, etc.

Tornado—A violent wind with dark clouds, in the form of a spout in the center. This center, the heart of the violence of the wind, is accompanied also by heavy rain, hail and often thunder and lightning.

Tundras—The Russian name for level treeless and marshy plains.

Typhoon—A name given to cyclonic storms in the West Pacific and Indian Oceans, attaining a speed often of from 60 to 70 miles an hour. These often continue for a week or more.

Undertow—The receding waves flowing near the ocean bottom cause a back current, often of great strength, which in a high sea or on an open coast is dangerous.

Universe—The entire aggregation of physical things, constituting some kind of a system.

Valley—A depression in the earth's surface with elevation on either side.

Volcano—An opening in the earth's surface through which molten lava and partially molten materials find their way out. After several eruptions a cone shaped mound is often built up but sometimes it remains a fairly level surface.

Watergap—Water flowing through a gorge in the mountains.

Water Spout—As a heavy storm passes over water bodies similar to a tornado on land, a funnel shape spout of water is formed, the narrow end on the water surface, caused by the condensation of the water vapor and the whirling motion of the wind.

Waves—Undulating motion of the surface of the ocean caused by friction of the wind on the water surface.

Weather—The atmospheric condition of warmth, dryness, windiness or cloudiness at any one time.

Wind—Air in motion, caused by a difference in temperature and pressure. The air is warmest in the torrid zone and coldest in the frigid zone, thus causing a circulation of warm air upwards and toward the poles, and as it becomes cooler, drifts are pulled back to the equator. *Doldrums* are belts of calm at the equator where the warm air rises. The *horse latitudes* are areas where the air is falling, at 30 degrees north and 30 degrees south of the equator. The *trade winds* are winds blowing near the surface, from both horse latitudes toward the equator. In the northern hemisphere they are northeast winds and in the southern, southeast. *Prevailing westerlies* are the winds blowing northeast in the northern hemisphere, and northwest in the southern hemisphere.

Zones—The world has been divided into five temperature belts or zones. The most northern zone, the *North Frigid*, extends from the North Pole to the *Arctic Circle*, an imaginary circle twenty-three and one-half degrees below the Pole. The most southern, the *South Frigid*, extends north to the Antarctic Circle, a circle twenty-three and one-half degrees north of the South Pole. The Torrid Zone is a belt 47 degrees wide, twenty-three and one-half degrees north and twenty-three and one-half degrees south of the equator, paralleling the equator. The *North Temperate Zone* lies between the Arctic Circle and the *Tropic of Cancer* which is the northern extremity of the Torrid Zone and the *South Temperate Zone* lies between the Antarctic Circle and the *Tropic of Capricorn* which is the southern extremity of the torrid zone.

THE GOVERNMENT WEATHER BUREAU.

The weather is probably our most common subject of conversation. We all speculate upon it and predict the day's wetness or dryness, yet very few of us know anything about it. But there are certain classes of the population to whom the weather is a very vital subject and one that gives them much concern at times. The fishermen as a class, watch very closely the various changes in the atmosphere. The fruit grower, the wheat grower, the transportation companies doing a business in the perishable line—all are very much bound up in the question of general conditions of the thermometer or the barometer.

This then is the job of the weather bureau, to disseminate all the possible information about the elements that can be fairly accurately given. The weather bureau was put under the Dept. of Agriculture in the month of July, 1891. Twice a day at eight o'clock the records of the past twelve hours are brought together—the wind, the weather, air pressure, temperature, clouds, humidity, rainfall, etc. and five minutes after the material has been collated, it is on its way to Washington. From there it is relayed to the 180 Branch Weather Bureaus.

Trained men chart these figures as fast as they come in, so that a complete picture of the weather conditions of the country is produced in a short space of time. Along with all the reports from the various parts of the U. S., there is also much daily information from other various parts of the world, such as the northern part of South America, Central America, the West Indies, Canada, Alaska, and Bermuda. The storms coming in that affect the U. S. very often start in these regions that we have just mentioned and so it is necessary to follow their movements.

Twice daily, forecasts are made from the Weather Bureau districts at Washington, Chicago, Denver, New Orleans, and San Francisco. At nine every morning a bulletin is sent out covering the probable conditions for the next 36 hours. These reports are telegraphed to 1,600 distant points, mailed to 100,000 people, and available to 6,000,000 telephone subscribers.

Now the question arises, who are some of the specific classes that are benefiting from this information? The class of shippers that are dealing in perishable commodities are very careful to scan every bit of weather news in order to protect the merchandise that they are shipping from changes in the temperature or the barometric pressure. A change, however slight, may wipe out the salability of the goods.

The great increase in flying has called to the foreground the need of properly charted lanes and a daily knowledge of the air conditions and pockets. The Bureau has undertaken such a task and gives out information on what they call, "flying weather." These tests are made daily by the means of balloons filled with light gases. The farmer, especially in the semi-tropical regions find sudden frosts one of their great problems and they were at loss as to how to solve it until the Government came along and gave them the assistance of the Bureau and the advance of the cold spell so that smudge fires or oil heaters could be put in.

On the stock ranges where the terrific blizzards come down quite suddenly, the Bureau has been of great help. In the prediction of floods and the probable amount of the rise of the rivers. The raisin growers are most grateful for the Bureau's timely help in giving them enough time to get their crop under cover. The work of the Bureau cost in 1919, $1,880,210 and it has been estimated that the farmers are better off to the extent of $17,580,000 and the commercial interests to the amount of $56,000,000.

COMMERCIAL GEOGRAPHY OF THE WORLD,

ABYSSINIA. A monarchy in east Africa. The country is a high table-land, with high mountains, many flat-topped. The people are dark-skinned, and are Hamites, Semites, and negroes, with Amharic the principal language. Agriculture is poorly handled, and inferior grades of cattle, sheep, goats, small horses, mules, and donkeys are raised. The native products comprise cotton, sugar cane, dates, vines, hides, barley, millet, wheat, and tobacco. There are valuable forests containing rubber trees, etc., and the minerals are iron, some gold and coal, silver, copper, and sulphur. Imports: cotton goods and yarns, textiles, hardware, arms, and ammunition; exports: coffee, hides, wax, ivory, civet, and gums. The capital is Adis Ababa, and the chief port, Jibuti, in French Somaliland, serves as the port for the country.

ADEN. A peninsula and town near the southwestern end of Arabia. A name frequently applied to the whole British territory in that part of Africa. The peninsula proper is of volcanic origin. The rainfall is light, cultivation of the soil is almost impossible, and all the necessaries of life have to be imported. The chief exports are coffee, gums, hides, skins, piece goods, and tobacco. Water is obtained, partly from wells and partly from the hills, where it is collected and conducted into cisterns. The town of Aden is strongly fortified, and the two most populous settlements are Steamer Point and Shaikh Othman, on the mainland. Of the two harbors only Aden Back Bay is of any commercial importance.

ADMIRALTY INLET. The main passage to Puget Sound, in the state of Washington. It is from one to ten miles wide. Seattle, Port Townsend, and Tacoma are the chief towns on it. The channel is several hundred feet deep.

AFGHANISTAN. A monarchy in central Asia between Persia and India. Surface is mostly a desert, relieved by irrigation, there being no navigable rivers, but a few very good roads. There are two harvests, one in the summer of wheat, barley, peas, and beans, and one in the fall of rice, millet, maize, with enormous yield of pears, apples, peaches, cherries, grapes, figs, mulberries, almonds, etc., grown in the irrigated mountain valleys. The minerals are copper, lead, and iron, with some gold and precious stones, notably lapis lazuli. Imports: cotton goods, dyes, sugar, and Chinese teas; exports: valuable quantities of camel and goat hair fabrics, preserved and natural fruits, some drugs, grain, cattle, and hides. The capital is Kabul, a very cold place.

AFRICA. The third largest continent, counting the two Americas as one. In the north from the Atlas Mountains stretches southward the land of deserts, the great Sahara and the Libyan; at the equator is the land of dense forests, savannas, and great rains; in the south spread the prairies or veldts, broad grass lands, with desert patches, the eastern section of which is dominated by the rain of the "trades," forming an agricultural district. The great rivers are the Nile, the Zambesi, and the Kongo, with the great lakes as possibilities for future irrigation. England, France, Italy, and Portugal hold the future development of this continent in their hands.

ALABAMA. An important Southern state. From the northern mountains the land gradually slopes through the plateaus of agriculture, the levels of coal and iron, to the lower valley lands, which run to sea level. There are heavy forests of pine in the south. The leading industry is agriculture, with products of cotton (the fifth largest cotton producing state), maize, oats, fruit, peanuts, sweet potatoes, and sugar cane. It is well watered by the navigable Alabama, Tombigbee, and Chattahoochee rivers. The minerals include large quantities of high-grade coal and iron, aluminium, copper, corundum, various clays (fire, porcelain, etc.), lithographic stone, marble, phosphates, slate, and some tin and natural gas. Leading manufactures are coke, iron, cotton goods, lumber, and cottonseed oil. The principal cities are Montgomery, the capital, Birmingham, and Mobile.

ALASKA. It was bought from Russia for $7,200,000 in 1867. Its area is about double that of Texas. Only the great water courses have been explored to any extent, the interior being practically unknown by reason of a severe climate and difficulties of travel. There is little agriculture, except in the small interior plains and lowlands. The neighboring Pribilof Islands are the richest fur sealing grounds in the world; the great industry of salmon catching and canning is valued at many millions annually. There are immense forests of conifers, birch, poplar, and aspen yet untouched. The minerals are the famous gold deposits in the Yukon valley, and at Cape Nome, etc., rich copper and much coal. The seat of government is now Juneau instead of Sitka; Nome is the largest city. Several thousand miles of waterway are navigable in summer, and many harbors are open through the winter. Southern Alaska consists of many islands, the Aleutian, Sasignan, Rat, and Fox being the principal ones.

ALBANIA. A small principality on the mountainous east coast of the Adriatic Sea, just south of Jugo-Slavia, that declared its independence in 1912 and was agreed to shortly after by the London Ambassadorial Conference. It is a primitive country, wild, rugged and mountainous, few roads and no railroads to mention, barren with the exception of a few fertile valleys and very difficult to rule because of this land contour. The area is about 17,300 square miles. The products are wool, grains, corn, sheep, goats, tobacco, olive oil and fruits near the Adriatic. The mountain land has good forest areas of walnuts, oaks, chestnuts, beeches and firs. Manufacturing consists of simple processes such as flour milling and the making of olive oil. Durazzo is the capital.

ALBERTA. A northwest province of Canada, between Saskatchewan and British Columbia, rapidly developing. Principally prairie, with light woodlands at the foot of the mountains. Well watered, having the Athabasca emptying into the Mackenzie, the Saskatchewan into Hudson Bay, and numerous tributaries into the Missouri. A splendid agricultural section, producing wheat, oats, barley, potatoes, hay, clover, sugar beets, some flax, and great quantities of butter annually. Horses, cattle, sheep, and swine are raised in great numbers. Vast coal deposits and some gold are found. Principal cities: Calgary and Edmonton.

ALGERIA. A French colony in north Africa on the coast of the Mediterranean. Largely agricultural; grapes, cereals, tobacco, cattle, sheep, and goats are raised; extensive deposits of phosphates and fine marble quarries are found. Imports: cottons and woolens, clothing, hides, machinery, metal work, and woodwork other than lumber and furniture; exports: large quantities of wine, cereals, sheep, zinc ore, cork, oil, fresh and dried fruits, canned sardines, anchovies, etc. The capital is Algiers, with Oran the chief port.

ALLEGHANIES. The mountain range traversing Pennsylvania, Maryland, West Virginia, and Virginia, parallel to the Blue and Blue Ridge ranges. The general direction is northeast to southwest. Rich in coal and iron. The name is sometimes loosely applied to the whole Appalachian range.

ALPS. A mountain system of southern Europe, including Switzerland, and extending into Italy, Austria, France, and Germany, covering an area of about 80,000 square miles. There are hundreds of peaks over 10,000 feet; Mont Blanc, the highest, is 15,780 feet. There are a number of passes over the range, famous for historical reasons and as roads, Stelvio Pass being the most elevated carriage road in Europe, 9,055 feet above the level. Four railroads cross the Alps: Mont Cenis, between France and Italy; St. Gothard, connecting Lake Lucerne and Lago Maggiore; Simplon, from the upper valley of the Rhone to Lago Maggiore; Brenner, from Munich and Innsbruck to Verona and Venice. Arlberg is the great highway between Austria and Switzerland. The Gornegrat railway reaches an elevation of 9,908 feet near the Matterhorn, highest railway in Europe.

AMAZON. The largest river system in the world, located mainly in Brazil. It is not so long as the Mississippi, or the Nile, being only 3,300 miles long, but it is wider, deeper, and, with its multitudinous tributaries, has more navigable surface. Its name means "boat destroyer," from the tidal bores battling at the mouth, dangerous to navigation, and felt 400 miles up the river. It is two miles wide entering Brazil, but widens to 50 miles at its main mouth, and 150 miles at the sea. Its waters are yellow with washed-out soil, and stain the ocean for 600 miles beyond the river mouth. Its importance in developing Brazil can scarcely be overestimated. It drains the central or coffee and rubber section, called Selvas.

AMERICA. The great land masses occupying the western hemisphere. It was first discovered by Christopher Columbus (1492). The greatest length is over 9,000 miles, exclusive of islands, and its mainland width is 3,300 miles. It is divided into two nearly equal parts by the Isthmus of Panama. North America has a very irregular coast line; is broken by two moun-

tain ranges, the Rockies in the west and the Appalachians in the east, inclosing the great Mississippi valley. The highest mountain is Mount McKinley, 20,464 feet. The principal Arctic river is the Mackenzie; in the west are the Yukon, Columbia, and Colorado. The largest rivers flowing into the Gulf of Mexico are the Mississippi and the Rio Grande. The most important eastern rivers are the St. Lawrence, Hudson, and Susquehanna. British North America extends from the Arctic Ocean on the north, and from the Pacific on the west to the Atlantic on the east, and is known as the Dominion of Canada. Below that frontier line, across the middle of the continent, the United States extends to the Gulf of Mexico in the south and from the Pacific to the Atlantic. Mexico lies southwest of the United States. Central America lies between Mexico and Panama; its Cordilleras connect the Andes and the Rockies. South America has an even coast line. The Andes extend along the west coast from Central America to Cape Horn, and the highest peak is Aconcagua, 23,088 feet. In the east are the Brazilian Alps. The great rivers are in the east, including the Amazon, Orinoco, and La Plata, whose basins form three groups of plains: selvas, llanos, and pampas. South America is divided into eleven republics.

ANDAMAN ISLANDS. A group or chain of islands politically attached to British India as a province with the Nicobar Islands, under a chief commissioner. The surface is densely covered with valuable forests, except where clearings have been made. The agricultural products are maize, rice, manioc, tea, potatoes, and artichokes, there being introductory stations growing indigo, cacao, and coffee. Port Blair and Port Cornwallis are two natural fine harbors. Since 1858 the islands have been a penal settlement of India. The Andamanese have inhabited their territory since prehistoric times.

ANDES. The great mountain chain of South America extending from Cape Horn, along the Pacific coast, a distance of 4,500 miles. The average breadth is 150 miles, and the average height 12,000 feet. All countries touched by this great range are rich in minerals: gold, silver, copper, iron, lead, coal, salt, sulphur, asphalt (Venezuela), emeralds (Columbia), platinum, zinc, nickel, and a variety of valuable earths. The Oroya railway crosses the range at a height of 15,665 feet, connecting Lima and Callao with Oroya and Concepcion, and Mollendo with Puno on Lake Titicaca.

ANDORRA. A republic in the eastern Pyrenees, inclosed by mountains, and almost inaccessible. It is semi-independent, under the protection of France and the Bishop of Urgel, Spain. There is much good pasture land; vines and fruit trees flourish on the lower lands, and the mountains are rich in minerals, especially iron. The principal industry is the production of coarse cloth. Exports: wood, metals, ores, cloth, and dairy products.

APENNINES. A spur of the Alps running through Italy with a length of about 800 miles, 25 to 85 miles wide. The highest point is Monte Corno, 9,583 feet; the average height is about 4,000 feet. Some very rich and apparently inexhaustible marble quarries are the principal mineral deposits.

APPALACHIANS. An extensive mountain system in the United States extending from the Gulf of St. Lawrence to northern Alabama. The principal divisions are the Laurentian Plateau in Canada, the White, Green, Catskill, Alleghany and Blue Ridge mountains, which include the Shenandoah, Cumberland, Clinch, Highlands of New Jersey, and the Black Mountains. The highest peak is Mount Mitchell in the Black Mountains (6,711 feet). The system is very rich in coal, petroleum, natural gas, aluminium, iron, zinc, lead, copper, manganese, cement, slate, building stone, and some gold, silver, nickel, and cobalt.

ARABIA. The southwestern peninsula of Asia. Principally desert area without rivers; the limited fertile areas produce coffee, dates, bananas, figs, spices, and drugs; other agricultural products are wheat, millet, barley, tobacco, indigo, cotton, tamarinds, sugar. Irrigation is likely to make a marvelous change in the coming years. Minerals: iron, copper, lead, coal, basalt, and asphaltum, with emeralds, agate, carnelian, onyx, and pearls from the Persian Gulf. Imports: chiefly cotton piece goods; exports: sheep and goat skins, mother-of-pearl, gums, fruits, drugs, and a few very valuable horses. Leading cities: Mecca, Hail, El Riadh, Jiddah, Hodeida, Medina, and Aden.

ARABIAN SEA. The part of the Indian Ocean between India and Arabia, a very busy waterway. The Persian Gulf and the Red Sea are two of its arms. The Indus river flows into it on the east; its chief ports are Bombay, Maskat, and Aden.

ARAL SEA or LAKE. The largest salt water lake in Asia and the fourth largest in the world. It is remarkable for quantities of fish. Navigation is difficult, owing to its shallowness.

ARCTIC OCEAN. The water area lying north of Europe, Asia, and North America, surrounding the North Pole, connected with the Atlantic Ocean through Davis Strait and the open sea between Greenland and Norway, and with the Pacific Ocean through Bering Strait. Its coasts along Europe and Asia are low, having two deep indentations, the White Sea and Gulf of Obi. Along North America it has a most irregular collection of islands called the Arctic Highland, containing many gulfs, bays, and channels. Several large rivers flow into it; from Asia, the Obi, Yenesei, and Lena; from Europe, the Dwina, Onega, and Petchora; from North America, the Mackenzie. Enormous fields of ice and snow cover the land, which break up in the summer and huge pieces pass down every year between Greenland and Iceland. The Arctic current passes out of the ocean southward at the west along the coast of Greenland to Labrador. A few birches, dwarf willows, and juniper trees grow in places; whales, seals, walruses, bears, Arctic foxes, and wolves are plentiful, as well as birds. The people in the Highland are Eskimos. In 1909 the North Pole was reached by R. E. Peary and only "chalky white ice" discovered.

ARGENTINA or ARGENTINE REPUBLIC. The second largest state in South America, on the extreme south of the continent. About one third is under cultivation, the remainder being mountain, water, or arid districts; one fifth is irrigated. The magnificent river system of the La Plata waters the eastern section, but otherwise water is lacking. The principal industry is agriculture, producing wheat, maize, flax, cotton, sugar, varied fruits, creamery products, and there are enormous herds of cattle, sheep, goats, swine, etc., with a heavy percentage of pedigree stock. Minerals: gold, silver, copper, iron, bismuth, lead, galena, lime, salt, some coal and petroleum. Chief imports: machinery, tools, lubricating and illuminating oils, lumber, linens, hemp, jute; chief exports: wool, hides and skins, wheat, frozen mutton, dried beef, and fruits. The principal port, and the capital, is Buenos Aires, with Rosario, La Plata, Cordoba, Tucuman, Mendoza, Santa Fe, and Parana leading cities.

ARIZONA. A Western state in the arid region of the southwest, with only one per cent. of its area water, although the Colorado river divides it diagonally. The upper section is an elevated plateau, and the other is a low elevation. The Colorado runs mainly between steep-sided gorges. Irrigation is accomplishing much, and, while agriculture is limited, stock raising is steadily increasing on the northern plateau. The principal crops are wheat, cotton, alfalfa, barley, and in the south, fruits are also grown, while successful experiments have been made with Egyptian cotton and the date palm. The mineral product is important, rich copper and silver deposits, gold, coal, lead, platinum, quicksilver, tin, nickel, iron, salt, gypsum, with opals, garnets, turquoise, onyx, and sapphires in limited quantities. The capital is Phoenix.

ARKANSAS. A Southern state in the flood plain devoted to agriculture, with nearly one half improved lands. A rich, deep soil, growing maize, wheat, oats, potatoes, forage, cotton, some tobacco, and a wide variety of fruits. The live stock industry is extensive. Forests cover many parts of the state. Its minerals include coal, manganese, lead, novaculite (for whetstones), phosphate rock, bauxite, limestone, sandstone, granite, slate, asphalt, mineral waters, and natural gas. It is famed for its sulphur springs. Its manufactures are lumber and cottonseed oil and cake. The capital is Little Rock.

ASCENSION ISLAND. An isolated island in the Atlantic Ocean. It is of volcanic origin, and has an area of about 35 square miles, one half of which is under cultivation. It is a British coaling and victualing station for the navy.

ASIA. The largest of the great divisions of the globe, comprising about one third of the land surface, and extending from the Arctic Ocean on the north to the Indian Ocean on the south, and from the Pacific Ocean on the east to Europe on the west. It is a territory of extremes, with vast lowlands, immense table-lands, high mountain ranges, fertile valleys, and noxious jungles, ranging from tropical fertility to perennial snow or arid regions. The plateau called the "Roof of the World" is found in the Pamir

Mountains, tying together the mightiest of mountain ranges. Three huge ranges rise above the plateau of Tibet: Kuenlun on the north, Karokoram crosses Tibet, and the Himalayas are on the south. Towards the northeast extends a long range of mountains, under several names, to Bering Sea. The Suliman range extends to the coast and cuts off India from southwestern Asia. The high Hindu Kush chain stretches westward along a border of the plateau of Iran. There are seven great river systems, in order of length, the Obi, Yenesei, Yangtze, Lena, Amur, Hoang-ho, Indus, and Ganges-Brahmaputra. Other streams of magnitude are the famed Euphrates and Tigris.

ATLANTIC OCEAN. This body of water lies between the Arctic Ocean on the north, the Antarctic on the south, between Europe and Africa on the east, and the two Americas on the west. Without its arms and inlets it covers about 34,700,000 square miles, being about 9,000 miles from north to south. The minimum width is between Cape Palmas and Cape San Roque, 1,900 miles, the average width being about 3,000 miles. The average depth between 50° N. and 50° S. is 13,000 feet, with shallows north and south of these limits; greatest depth found by the *Challenger* 27,366 feet, north of Porto Rico. The floor of the ocean temperature varies from 32° F. to 37° F. The average surface water temperature varies from 82° F. in the tropics to 32° F. in polar regions. The speed of ocean currents varies from 20 to 75 miles a day.

ATLAS MOUNTAINS. The great northern system of Africa, stretching northeastward 1,400 miles from Morocco to Tunis, is an irregular mass of land, highest in Morocco. The slopes on the north, west, and south are covered with vast forests of pine, oak, cork, white poplar, and wild olive. The valleys are well watered and capable of high cultivation; rich but unworked mineral deposits are here.

AUSTRALIA. An English commonwealth. The island continent to the southeast of Asia. It is bordered east, north, and west by a belt of fertile land from 30 to 300 miles wide, or about one third of the total area. Beyond this belt lie mountain ranges and divides, and beyond the mountains a vast table-land, sadly lacking in waterways and rainfall, slopes to the cliffs of the shore line. The Murray-Darling is the only large river system. There are many short rivers too shallow for navigation, and on the south are 1,000 miles of coast with no river flowing to the sea. The Murray-Darling is navigable for 1,700 miles, and the Murrumbidgee for 500 miles. The short rivers and inland lakes will be used later for irrigation. There is a large area under cultivation, of which half is wheat. Ranching and agriculture are the two great industries, and there are millions of farm animals, of which over 80 per cent. are sheep. Principal imports are agricultural implements, cars, machinery, cotton, drugs, timber, and oils; chief exports: wheat, wool, gold, copper, silver, frozen meats, butter, hides, tin; minerals: gold, silver, lead, iron, coal, and tin. Pearl fishing is valuable on the north coast. The country is divided into six original states: New South Wales, its capital Sydney, the chief port and a fine naval station; Victoria, Melbourne as capital, the grandest Australian city; Queensland, Brisbane as capital, strong in industrial enterprise; South Australia, its capital Adelaide, the "suburban home" city, and Port Adelaide close by; West Australia, capital Perth; and the island of Tasmania, capital Hobart, the "English" city of the continent, with Launceston its chief port. The new federal capital is in Yass-Canberra.

AUSTRIA. The republic of Austria was proclaimed in 1918, with Vienna as its capital. It was a part of the Austria-Hungarian Empire that was divided up after the late war. The area was reduced from some 115,000 square miles to 32,000 with a corresponding decrease in population. The territory taken away from the Empire includes: Transylvania and part of Bukovina which went to Rumania, Galicia which Poland got, Dalmatia, Bosnia, and Herzegovina now belonging to Jugo-Slavia and Bohemia and Moravia which was absorbed by Czecho-Slovakia. Klagenfurt, to the south, was left to a plebiscite and voted to remain with Austria. Trieste went to Italy. The area remaining is very mountainous to the west, where it runs into the Alps, but the east is mostly in the Central plain, called there the Vienna basin, and quite fertile.

In the west we find grazing an important industry, together with much forest land, especially the chestnut timber. Mineral products in the mountains include iron, lignite, lead, zinc, and mercury. In the Vienna basin we find diversified farming, the crops consisting of potatoes, barley, turnips, rye, oats, and wheat. Textile manufacturing still remains the most important with some tobacco and piano manufacturing. The exports are ores, timber, sugar, fruit, furniture and chemicals. Vienna is the capital and the chief city commercially and industrially.

AZERBAIJAN. A Soviet republic bordering on the Caspian Sea, south of the Caucasus Mountains and east of Georgia, composed of two former Russian provinces, Baku and Yelisavetpal, with an area of approximately 34,000 square miles. The country is primarily agricultural, raising cereal crops, cotton and cattle. There is much fishing in the Caspian Sea. Baku, the chief city, is one of the world's greatest oil producing regions, much of the product being pumped to Batum on the Black Sea and thence distributed to Europe and Egypt by boat.

AZORES. A group of nine Atlantic Ocean islands belonging to Portugal. The largest are St. Michael's, Pico, and Terceira. Angra and Fayal are the two principal harbors, but neither can be called good. The climate is very temperate, the soil fertile, and the principal products maize, pineapples, olives, oranges, grapes, wine, and bananas, all heavily exported. St. Michael's and Fayal are coaling stations. The capital is Ponta Delgada.

AZOF, SEA OF. An inland lake formed by the Crimean peninsula projecting into the Black Sea, and nearly cut off from it. The water is almost fresh and very shallow, but fish are abundant. The Don river flows into it, and Taganrog is its port.

BAHREIN ISLANDS. A small group of islands in the Persian Gulf, under a British protectorate. The capital and commercial center is Manameh. The islands are famous for their pearl fisheries. Quantities of tropical fruits are produced, figs and dates, also grain, cattle, a remarkably fine breed of donkeys, and reed mats.

BALKAN MOUNTAINS. A series of mountain ridges in southeastern Europe extending east and west throughout the country, highest in the west and crossed by more than 30 passes, Shipka Pass being the most noted. The valleys to the south are very fertile, grapes, rice, cotton, tobacco, silk, and roses are grown; at the north wheat, rice, and other grains, and cattle are raised and good timber found.

BALTIC SEA. The great gulf or inland sea bordered by Denmark, Germany, Russia, and Sweden, 850 to 900 miles long, 100 to 200 miles wide, including the gulfs of Bothnia and Finland. Ice hinders navigation three to five months yearly; more than 250 rivers enter it, which, with the lakes, drain about one fifth of all Europe. Several large canals connect with the North Sea, the Kaiser Wilhelm being the largest, and of great value to the commerce of northern Europe. The waters are not very salt. Storms are frequent, causing great losses in shipping, while easterly winds are dangerous, producing huge tidal waves. The greatest ports are Copenhagen, Kiel, Lubeck, Riga, and Stockholm.

BARBARY STATES. These comprise Morocco, Algeria, Tunis, Tripoli, Fezzan, and Barca in northern Africa.

BAVARIA. A state in the new German Republic. It is a mountainous country, almost all its boundary lines being mountain ranges. The surface of the interior is an elevated plateau sloping northward, intersected by low hills and valleys. It is drained by the Danube, the Main, and their tributaries. An important canal connects the tributaries of the Danube and the Rhine, thereby uniting the North and the Black seas. Agriculture is carried to a degree of perfection very rarely surpassed. In almost every department of the industry associations coöperatively buy seeds and machinery, store grain, market products, insure buildings and crops, superintend the improved breeding of domestic animals, etc. Crops: grapes, hay, rye, oats, barley, wheat, potatoes, hops, tobacco, beets, and rape seed. Stock raising is practically the staple industry, Bavaria being the largest cattle-raising country in the German Republic. About 33 per cent. of the total area is forest land, mostly pine and fir, about one half of which is owned by private individuals. Manufactures: malted liquors (it is the largest beer-producing country in the world), coarse linens, woolens, tobacco products, chemicals, earthenware, glass, agricultural implements, leather goods, and wooden ware. Minerals: salt, a government monopoly; coal and iron almost universally mined; some graphite, the famous lithographic stone of Solnhofen, and useful earths. The capital is Munich.

BELGIUM. A small independent European state, having much low-lying level land, of which 60 per cent. is under cultivation. Is well watered, and has good navigable waters on the Meuse and Scheldt, both

of which pass through the country. Mining, extensive manufacturing, and agriculture are the leading industries. Crops: rye, oats, wheat, potatoes, sugar beets, etc. There are large numbers of cattle and hogs, and some good draft horses are produced. Imports: grain, timber, wool, and flax; exports: machinery, firearms, iron, steel, linen, textiles, lace, marble, hops, fruit, and coal. Brussels is the capital, famed as one of the loveliest cities of Europe. Antwerp is the principal seaport. Liege is famous for its ordnance factories; Ghent for its gold and silver goods and its shipping trade; Hainaut, Brabant, Namur, and Val Saint Lambert for their unrivaled glassware; and Charleroi for nails. In 1908 Belgium annexed the Congo Independent State in Africa. Exports: rubber, ivory, white copal, palm nuts, palm oil, cocoa, and crude gold. It has access by water to the river Nile.

BERING SEA. In the extreme northern part of the Pacific Ocean connected by Bering Strait with the Arctic Ocean and extending from Alaska to Asia. The northern half is very shallow, less than 200 feet deep. It contains a few islands famous for seal fisheries. Bering Strait, the narrowest part, about 40 miles wide, lies between East Cape in Asia and Cape Prince of Wales in America. Three uninhabited islands are found about midway. The water is more shallow towards America.

BERMUDA ISLANDS. A group of about 360 islands, 15 or 16 of which are inhabited. Of coralline formation and surrounded by reefs, east southeast of Cape Hatteras, in the Atlantic Ocean. An English possession of great strategic importance and strongly fortified. Imports are mainly food supplies, cotton goods, and apparel: exports: onions, potatoes, early vegetables, lily bulbs, and arrowroot. The principal towns are Hamilton and St. George.

BHUTAN. An independent state of India in the eastern Himalayas. The surface is mountainous, but some parts of the territory are fertile, producing millet, rice, wheat, etc., but not sufficient for the home demand; forests cover the central part. Cattle raising is profitable, and a highly esteemed breed of ponies is exported. The manufactures comprise coarse cloths, silks, arms and musk, highly-tempered swords, lac, chowries, and wax. The capital is Punakha, a strong natural fortress where court is held during the winter; the summer capital is Tasichozong, where is the chief monastry.

BLACK SEA. An inland sea lying between eastern Europe and Asia, connected with the Mediterranean by the Bosphorus, Sea of Marmora, and the Dardanelles; it drains nearly one fourth of Europe, is very deep, has one island; its coasts are high, with good harbors except between the mouths of the Danube and the Crimea. Many large rivers make the water so fresh that it freezes easily. It has no tide, but very strong currents. It is of great importance commercially to Russia and all bordering territory. Odessa is the chief port.

BLUE RIDGE MOUNTAINS. The most easterly range of the Appalachian system in Virginia, North Carolina, South Carolina, Georgia, and Alabama.

BOLIVIA. A South American republic of many provinces united. One of the highest regions in America. The surface ranges from high plateaus, cool, healthful, and rich in minerals, to deep valleys semi-tropical or temperate in character. The north and east are largely unexplored and are respectively rich in rubber and grazing lands. Agriculture only supplies the home demand, and the produce is mainly oats, rice, barley, maize, cotton, indigo, cacao, and rubber. The country is watered by rivers belonging to the basins of the Paraguay and the Madeira, and many of these are navigable. There are practically no manufactures. Imports: apparel, machinery, hardware, and provisions. There being no seacoast, exports go through foreign countries, mainly transported by mule trains; the exports comprise large quantities of tin, rubber, silver, copper, gold, bismuth, wolfram, lead, and antimony, wool, hides, and cattle. There are large forests of ebony, mahogany, rosewood, and cork. The capital is Sucre, but the most important town is La Paz.

BOOTHIA FELIX. A peninsula forming the most northern point of the American continent. It is about 150 miles long by 50 miles wide. Discovered by Sir John Ross (1829–1833), and named after Sir Felix Booth, the greatest contributor to the expedition. Sir James Clark Ross discovered the magnetic pole near Cape Adelaide, on the west coast (June 1, 1831).

BORNEO. The fifth largest island in the world, situated in the East Indian Archipelago. It has been little explored. Its highest peak is Kinabalu, about 13,700 feet. It is rich in forest products, ebony, sandalwood, and teak, and has important industries in gold, antimony, mineral oil, and coal. It exports timber, sago, cocoanuts, rice, gums, rubber, coffee, tobacco, fruits, gutta-percha, nutmegs, spices, rattans, seed pearls, beche de mer, the edible nests of the swallow, and palm products in variety. British North Borneo is in the north, with a chief port of Sandakan, the adjacent districts of Brunei and Sarawak being under British protection. The southern and east part is Dutch Borneo, with Pontianak, Sambas, and Sintang the principal cities.

BOSPOROUS. The narrow channel connecting the Black Sea with the Sea of Marmora and separating Europe from Asia. It is about 18 miles long and is under the control of Turkey which keeps Russia from having a port on the Mediterranean.

BRAZIL. The largest country in South America; an important republic. North and west the surface is plains, and south and east are the Brazilian highlands, supporting three mountain ranges. The great river system of the Amazon, with its magnificent navigation facilities, drains the plains. The climate is almost entirely tropical or subtropical. The highlands are dry and steppe-like; the lowlands on the equator are deluged with trade-wind rains; neither district is much populated. The coastal zone is fairly well populated, and here agriculture is the leading industry, although Brazil has a lower percentage of ground under cultivaton than elsewhere in the world. There are vast mineral resources, but the product is small,—iron, gold, diamonds, silver, petroleum, manganese, monazite (important in Welsbach mantles), mica, etc. Chief imports: foodstuffs, machinery, and provisions; chief exports: coffee, rubber, cotton, hides, sugar, tobacco, brazil nuts, yams, fruits, maize, bananas, black beans, rice, and arrowroot. There are immense forests of mahogany, logwood, and rosewood. It is the largest exporter of coffee and rubber in the world. Many of the railways were built to convey the coffee, and much of the rubber is transhipped from Bolivia. The capital is Rio de Janeiro, with its marvelous harbor about 30 miles in length, and principal cities are Pernambuco, shipping sugar and cotton; Bahia, tobacco; Para, rubber; Sao Paulo, and others.

BRITISH AFRICA. A widespread series of British possessions and protectorates. Basutoland is an elevated but rugged plateau northeast of Cape Colony, well watered, and probably the best grain-producing and grazing area in South Africa; also producing wool, wheat, maize, and having favorable indications of iron, copper, and coal. Has good roads and a great future. The capital is Maseru. Bechuanaland, lying north of the Transvaal, has growing industries of cattle raising and agriculture, and is traversed by the railway from Kimberley to Mafeking. Four provinces joined together, Cape Colony, Orange Free State, Natal and Transvaal form The Union of South Africa. The government is similar to that of Canada. Cape Colony has a considerable fertile area devoted to agriculture, producing wheat, oats, barley, maize, rye, grapes, wine, wool, and mohair, besides farm animals. Imports: apparel and provisions; exports: gold, diamonds, wool, hair (Angora), ostrich feathers, hides, and copper. The Orange River Colony (Orange Free State) is a magnificent grazing country, especially for sheep. It is developing rapidly along scientific lines of farming, dairying, forestry, and stock raising. Has great future in irrigation schemes of immense magnitude. Produces wheat, oats, maize, and tobacco. Has rich minerals and exports diamonds, coal, and some salt. Natal is an important agricultural section, producing and exporting sugar, wattle bark (varied acacia barks used in tanning), maize, oats, citrus fruits, while sugar beets and vegetables are largely grown. It has a steadily increasing wool product. There are large and valuable forests in Zululand. Rich mineral resources in coal, gold, asbestos, copper, fire clay, graphite, gypsum, iron, lead, silver, phosphate deposits, marble, nickel, and others. The Transvaal is a fine agricultural and stock raising territory as yet undeveloped. An interior plateau extends from the northern Drakensberg and Lebombo, across which stretches the famous gold-bearing Witwaterstrand. It is well watered, and drained by the Limpopo, the Vaal, the Olifant, and Komati, but none of the rivers are navigable. The large herds of farm animals are constantly improved by imported stock. Minerals: gold, coal, diamonds, lime, lead, tin, copper, and chrome iron. Imports: apparel, machinery, chemicals, and dynamite; exports: gold, diamonds, wool, horses, and skins. The capital is Pretoria. Nyasaland Protectorate (British

Central Africa). An important native division producing much coffee, tobacco, beeswax, rubber, peanuts, tea, some cotton, and farm animals for export. Has trade ports of Port Herald, Chiromo, and Kotakota connecting with the Lower Shiré and Lake Nyasa. The capital is Zomba, and Blantyre is the largest town. Rhodesia, a territory named for Cecil Rhodes, divided into Southern Rhodesia, and Northwestern and Northeastern Rhodesia. An agricultural and mineral section. Fine grazing land for cattle. Crops of wheat, oats, European fruits, fiber, coffee, and cotton. Chief exports: gold, gold concentrates, hides and skins, chrome iron, and copper ore, tungsten, and zinc ore. Other minerals are silver, lead, coal, diamonds, and some asbestos and antimony. Somaliland Protectorate. On the Gulf of Aden, and is rapidly developing. Chief exports: skins and hides, ostrich feathers, gums, cattle, and sheep. Transport is by camels. Capital is Berbera. Uganda Protectorate has a large area of extremely fertile land, producing sugar, chillies, ghee, maize, peanuts, bananas, sugar cane, and tobacco. Well watered by the great equatorial lake systems, with steamship route to Khartum and a railway to Mombasa. Exports: goat skins, hides, rubber, ivory, chillies, cattle, and fibers. The capital is Uganda. Zanzibar Protectorate exports large quantities of cloves, native textiles, copra, and ivory, with some rubber and gums. There is wireless telegraphy between the islands of Zanzibar and Pemba. West African Colonies and Protectorate comprise Northern and Southern Nigeria, the Gold Coast Colony, with Ashanti and Northern Territories, Sierra Leone and Gambia Colonies and Protectorates, all rapidly developing. Roads are being made, bridges built, and navigation fostered on the Niger and its tributaries. Products of this division are palm oil, palm kernels, rubber, peanuts, hides, ostrich feathers, capsicum, kola nuts, drugs, cotton, tobacco, tanned goat and sheep skins, cacao, gums, cassava, plantains, and ginger. There are rich deposits of tin, and considerable iron, silver, salt, manganese, balena, lignite, and monazite. Kenya Colony and protectorate, south of Abyssinia and bordering on the Indian Ocean, is hot and wet near the coast. None but natives can live there who produce sugar, rice, sweet potatoes, cotton and cocoanuts. In the interior, which is the highland region, grain, cotton and coffee are produced. Mombasa, the seaport, exports grains, coffee, oils and hides and skins. Nairobi is the capital, taken from the Germans and mandated by the League of Nations to the British Government. Tanganyiki Territory on the east coast south of Kenya has great forest areas of ebony and bamboo, and produces sisal hemp, coffee, cotton, rubber and cattle. The mineral products are gold, iron, copper, lead, coal and mica. The capital and chief port is Dar es Salaam, exporting hides, ivory, cotton, copra, wax, sisal and rubber. South West Africa, on the west coast, south of Angola, is principally a stock raising area with big deposits of diamonds and copper. Cammeroon on the west coast north of the French Congo produces much cocoa and palm oil. It has valuable timber lands of ebony and in its mines has gold and iron. Buea is the chief port. Togoland, between the gold coast colony on the west and French Dahomey on the east, is relatively poor, the products being only oils, cocoa and cotton.

BRITISH COLUMBIA. A Canadian province nearly twice the size of France, divided by parallel ranges of mountains stretching from Alberta to the Pacific, leaving long strips of exceedingly fertile land, well sheltered, and is watered by the Saskatchewan, Athabasca, and Peace rivers, and tributaries of the Frazier and Columbia. The province has a great agricultural future, and is rapidly developing. There are fine grazing lands and large areas of forests. Products: wheat, barley, hops, butter and cheese, apples and small fruits, vegetables, poultry, and stock. Has important salmon fishing, and an ocean front of about 7,000 miles. Mining is at present the great industry, and the mineral deposits include gold, coal, copper, and lead. The capital is Victoria, and Vancouver is the largest city.

BRITISH EMPIRE. Includes the British Isles and all the British colonies, representing one fifth of the whole land surface of the globe, and forming the greatest nation in the world, rivaled only by Russia in its extent of territory.

BRITISH GUIANA. A British colony in the western part of Guiana, a territory in the northeastern part of South America. It includes the settlements of Demerara, Essequibo, and Berbice; only the alluvial stretch along the coast has been really developed. Only a small part is under cultivation, of which about one half produces sugar cane. There are rich deposits of gold, and many diamonds are mined. Imports: flour, tissues, tobacco manufactures, machinery, fertilizer, fish, coal, hardware, provisions; exports: sugar, gold, rum, molasses, molasquit, balata, rice, wood, diamonds. The capital is Georgetown.

BRITISH HONDURAS. A crown colony of Great Britain in Central America, on the Caribbean Sea. There is good cattle land but agriculture is primitive, and much of the trade is transit. Exports: mahogany, logwood, cedar, bananas, cocoanuts, coffee, and plantains. The capital is Belize.

BULGARIA. A kingdom of the Balkan peninsula. Agriculture is the prevailing industry, nearly half the land area being in the hands of small proprietors, the remainder being forest. Crops: wheat, tobacco, grapes, cotton, rice. Minerals: extensive coal and iron deposits, gold, silver, lead, manganese, copper, and stone. Imports: textiles, machinery, oils, hides, provisions, and groceries; exports: wheat, wine, tobacco, silk cocoons, attar of roses, cotton, and rice. Manufactures include woolen goods, cottons, cords, and cigarettes. The capital is Sofia.

CALIFORNIA. An important Western state, the second largest in the Union. Magnificently fertile soil in the valley between the Sierras and the Coastal Range, forming one of the finest agricultural and fruit districts in the world. Vast irrigation development is in process. Products: apples, pears, plums, grapes, olives, citrus fruits, figs, roses, sugar beets, wheat, barley, hay, potatoes, and other vegetables. The grain, hay, and potato products are worth annually four times the gold product. There is an enormous area of commercial timber. It has much grazing territory for sheep. Minerals: gold, copper, coal, quicksilver (one half the world's supply), tin, borax, and salt. Manufacturing: mining machinery and sugar refining, flour and grist milling, shipbuilding, etc. The capital is Sacramento. Los Angeles is the largest city and has constructed an artificial harbor whereas San Francisco, the next city in size has one of the best natural harbors on the coast.

CANADA. The Dominion comprising the northern part of North America. An English commonwealth, vast in extent, of greater area than the United States, possessing illimitable natural resources, and developing phenomenally. A broken surface of low elevation is in the east; wide interior plains and mountains in the west; a fertile, well-watered, well-timbered land. Products: wheat, barley, flax, oats, pulse, roots, tobacco, apples, grapes, butter and cheese, lumber, and fish. The finest agricultural area is Manitoba westward from Winnipeg to beyond Regina. Minerals: gold, coal, copper, nickel, silver, cement, lead, asbestos, petroleum, and iron. Imports: iron and steel, manufactures of wool, iron ore, cotton, and drugs; exports: manufactures of wood, wheat, cheese, bacon, silver, flour, cattle, and fruits. Divided as follows: Provinces, Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Quebec, and Saskatchewan; Yukon and Northwest territories. Franklin, Keewatin, Mackenzie, and Ungava are districts. Principal cities: Montreal, Quebec, Toronto, Winnipeg, Ottawa (capital and seat of government), and Vancouver.

CANARY ISLANDS. A group in the Atlantic Ocean, off the northwest coast of Africa, constituting a province of Spain. Products: tomatoes, onions, bananas, potatoes, and the cochineal insect, now almost displaced by anilin. Imports: coal, cottons, woolens, fertilizer, and machinery. The capital is Santa Cruz de Tenerife, and Ciudad de las Palmas is an important fortified city.

CAPES. The important capes of the world are: Cape Breton, on the east coast of Cape Breton Island, Nova Scotia; Cape Clear, the most southern point of Ireland, generally the first land seen by transatlantic travelers; Cape Chelyuskin, the most northern cape of Asia; Cape Cod, the southeastern point of Massachusetts; Cape Farewell, the southern extremity of Greenland; Cape Finisterre, the northwest extremity of Spain; Cape Hatteras, a dangerous point, famed for bad weather, off North Carolina; Cape Horn, the most southerly point of South America; Cape Mendocino, the extreme western point of California; Cape Nome, on the west of Alaska; Cape of Good Hope in South Africa, but Cape Agulhas is the most southern point; Cape Prince of Wales, the point of Alaska nearest Siberia; Cape Race, the southeast extremity of Newfoundland; Cape Sable, the south point of Florida; Cape Verde, the most westerly point of Africa; East Cape, the most eastern point of Siberia; and North Cape, the most northern point of Norway.

CAPE VERDE ISLANDS. A Portugese group west of Africa, Santiago being the largest and most important. Products: coffee, medicinal products, indigo, and fruits, with turtle and whale fishing along the coasts. Imports: manufactures of cotton, wool, and machinery; exports: hides, coffee, and salt. The capital is Praia.

CARIBBEAN SEA. A partly inclosed sea lying between the West Indies and Central and South America, connected with the Gulf of Mexico by Yucatan Channel.

It is very deep, and its waters are affected by ocean currents. Few rivers of importance drain into it, and there are few islands.

CAROLINE ISLANDS. Coral group in North Pacific, belonging to Japan, except Guam, which belongs to the United States. Imports: cotton, machinery, hardware, and provisions; exports: copra, sugar, and fruit. It has valuable but undeveloped mineral resources.

CARPATHIANS. A circular system of mountains separating Hungary from Moravia, Silesia, Galicia, Bukowina, and Roumania, that are noted for deposits of gold, silver, lead, copper, and other ores, which have been worked for centuries. Containing more mineral wealth than any other range in Europe. Rich in forests.

CASCADE MOUNTAINS. A chain of mountains continuous with the Sierra Nevadas, running through Oregon, Washington, and British Columbia, with highest point Mt. Shasta, 14,380 feet. It takes its name from the cascades of the Columbia. Throughout it is heavily wooded.

CASPIAN SEA. The largest inland sea or great salt lake in the world, lying on the boundary between Europe and Asia. It is very shallow in the north, where the water is less salt than the ocean because of the rivers draining into it. It is of immense value to the Russian Empire, as it forms a waterway with the Volga river between the Asiatic and European provinces. Canals connect it with the Baltic Sea, and it has immense salmon and sturgeon fisheries. Astrakhan is the chief port.

CAUCASUS. A great mountain chain extending through the isthmus between the Black and Caspian seas, sometimes treated as the boundary line between Europe and Asia. Parallel chains connected by elevated plateaus containing narrow but deep fissures form the range. The highest peaks are in the center, Mt. Elbruz being the highest. It is densely wooded in parts with great forests of oak, beech, ash, maple, and walnut. Grain is cultivated to a great height, and the lower valleys produce rice, tobacco, cotton.

CEYLON. A large island south of India; an English crown colony. About one fifth of its area is devoted to agriculture and fine grazing pastures. Products: rice and other grains, tea, cocoanuts, rubber, cinnamon, cinchona, cacao, coffee, tobacco, nuts, spices, breadfruit, camphor, fruits, and vegetables. There are large numbers of farm animals. Minerals: large deposits of plumbago, gold, monazite, mica, moonstones, rubies, cat's-eyes, sapphires, etc., there being over 3,000 gem mines in operation; also pearl fisheries, which are a state monopoly. Imports: cotton goods, salt fish, coal, rice, kerosene, hardware, and wines; exports: tea, cocoanuts, rubber, nuts, coffee, spices, plumbago, and cinchona. The capital is Colombo.

CHILE or CHILI. A South American republic between the Andes and the Pacific. It is about 2,600 miles long, but only 40 to 200 wide. The northern division is a desert, but the great valley immediately below is noted for some of the richest land in the world. Products: wheat, maize, barley, oats, beans, hemp, potatoes, fruits, dairy products, and vegetables. Minerals are the most valuable product: nitrate of soda, coal, gold, copper, cobalt, manganese, borax, salt, sulphur, and quicksilver; also guano. Imports: textiles, machinery, lumber, and illuminating oils; exports: mainly nitrate of soda. The capital is Santiago and the chief port Valparaiso, Iquique being the great nitrate port, and Concepcion having the finest harbor at Talcahuano, eight miles distant.

CHINA. An enormous territory in eastern and central Asia, occupying about one fourth of the continent. It is second of the great republics in size. China proper is about one half the size of the United States without Alaska, yet it contains five times as many people. It is the most populous country, containing one quarter of the world's people. It has a coast line of nearly 5,000 miles, with many inlets and seas favorable to commerce. The surface resembles that of the United States, having a dry interior plateau with lofty mountain ranges to the west and east. It also has a vast plain through which flow the long rivers, Hoang-ho and Yangtze. The staple industry is agriculture, small freehold farms worked with primitive implements and with much irrigation. Products: wheat, barley, maize, millet, peas, and beans in the north, and rice, sugar, cotton, indigo, fruits, and tea in the west and south. There are few forests but much bamboo. The silkworm culture produces nearly one third of the raw silk of the world, being second to Japan. Opium culture is restricted, and is expected to die out. The native manufactures are silk, cotton, linen, bamboo, clay (porcelain), wood, metal work, ivory and wood carving, embroidery, lacquer ware, bronze casting, and, of late years, bricks, matches, guns, cannon, munitions of war, iron, etc., the country being rapidly modernized in several sections. Minerals: gold, copper, coal, silver, quicksilver, tin, salt, and natural gas. Imports: cotton goods, rice, sugar, oils, metals, machinery, and opium; exports: raw silk, tea, raw cotton, hides, and beans. Its dependencies include Manchuria, Mongolia, Tibet, and Chinese Turkestan. Tibet is the highest and largest plateau in the world, cold and mostly sterile. It is the source of five great Asiatic rivers. Agriculture and stock raising are carried on under great hardships, the crops being barley, that most hardy of cereals, wheat, buckwheat, potatoes, turnips, radishes, apples, and, in the south, apricots, peaches, pomegranates, etc. Noted for its swords, guns, saddles, teapots, and bells. Believed to be extremely rich in minerals,—gold, silver, iron, coal, lapis lazuli, and gems,—but is "shut in" from the rest of the world. Chinese Turkestan. A dependency of China, isolated and forbidding. An elevated desert plateau surrounded by lofty ranges and watered by the Tarim. At foot of the frontier ranges are fertile oases where are conducted agriculture, stock raising, manufactures of copper, carpets, felt, leather, cotton, silk, and animal products, mainly to supply and trade with the caravans of the great route. Rich in minerals, but almost totally unexplored. The capital of China is Peking, and the principal ports are Canton, Tientsin, Chungking, Shanghai, and Hankau.

COLOMBIA. A South American republic adjoining Panama. It has lofty mountains in the west and vast plains in the east, having fertile soil. Products: coffee, tobacco, cacao, cotton, sugar, wheat, maize, bananas, plantains, dyewoods, rich lumber. Wild rubber trees are now being cultivated. Minerals: very rich gold and silver deposits, copper, platinum, lead, cinnabar (14 mines), manganese, emeralds (32 mines), coal, iron, limestone, sand, fire clay, salt. There are rich pearl fisheries. Imports: cotton goods, machinery and metal goods, drugs, and provisions; exports: coffee, minerals, cattle, tobacco, and ivory. Bogota is the capital, connected by boat and mule with the coast, and it has two grand cathedrals. Principal cities are Barranquilla, Cartagena, Medellin.

COLORADO. A Western state, traversed from north to south by the Rocky Mountains, containing every variety of surface from level plains to gigantic peaks, of which within the state are more than 100 peaks exceeding 13,000 feet, Mt. Massive being the highest. The central region with its parks, cañons, hot springs, dryness of air, and rich mineral deposits have made Colorado famous. Many important rivers rise in this state—the Colorado, Mississippi, and Rio Grande basins occupying the slopes. Irrigation is extensively employed so that agriculture is remunerative; cereals, hay, vegetables, and fruits are widely raised. Stock raising is more important than farming; mining is the chief industry. The discovery of gold near Pike's Peak led to the first settlement; Cripple Creek is now the principal gold region. Other minerals: silver, lead, coal, copper, zinc, petroleum, cement, fire clay, and manganese. Manufactures: steel, beet sugar, machinery, cars, liquors, butter, cheese, canned meats. Denver is the capital and center of the live stock trade; Pueblo is the second city, noted for its steel works.

CONGO or KONGO. An African free state in the Congo Basin founded by King Leopold II. of Belgium and placed under his jurisdiction. Its surface is a depressed plateau, half covered with forests, the remainder being low-lying savannas and arable lands; well watered by the Congo river; forests contain many rubber and other gum yielding trees. Agricultural possibilities are great, but the climate is unhealthful to whites. Products: coffee, cotton, yams, papaws, pineapples, cassava, rice, maize, peanuts, sweet potatoes, bananas, beans, rubber, tobacco, sorghum, and ivory. Trade is hampered by rapids, rendering river communication to the coast impracticable. A railway connects with Stanley Pool and its steamboat traffic. The capital is Boma.

CONGO RIVER. The largest river in Africa, with a volume of water far exceeding that of the Mississippi. Flows north (as Luapula) from Lake Bangweolo to Lake Moero, then north and northwest as the Livingstone, and then southwest to the Atlantic as the Congo. With its tributaries it forms a navigable waterway, obstructed by falls and rapids. Above Leopoldville it is navigable for 1,000 miles.

CONNECTICUT. A well-watered, important New England state. The highland region, which commences in Vermont, descends into this state at a considerable height, slowly loses its mountainous character, and ends with low hills as Long Island Sound is approached. While the river valleys are fertile, producing much valuable tobacco and other crops, the leading industry is manufacturing, due to abundant water power, good harbors, navigable rivers, and nearness to large cities.

The manufactures are firearms, ammunition, rubber goods, watches, clocks, sewing machines, textiles, hardware, silks, silver-plated ware, brass goods. The oldest iron mines in the country are here, and other minerals are granite, marble, trap rock, limestone, clay products (bricks, tiles, etc.), quartz, infusorial earth, and tungsten ore. The principal cities are **New Haven** (the home of Yale University); **Hartford**, the capital; **Bridgeport**, **Waterbury** and **New Britain**.

COSTA RICA. A Central American state between Nicaragua and Panama. A good agricultural country, but hampered by lack of population and transportation facilities. Products: bananas (the main crop), coffee, cacao, maize, sugar, rice, potatoes, valuable woods. Live stock raising is important. Imports: mainly textiles, machinery, steel, and provisions; exports: bananas, coffee, and gold. The capital is **San Jose**, and the Caribbean port is **Port Limon**; the Pacific port is **Puntarenas**.

CRETE. An autonomous state, returned to Greece in 1913. An island in the Mediterranean. Products: olive oil, grapes, oranges, lemons, and other fruits, chestnuts, and silks. The capital is **Canea**, and the ports are **Candia**, **Cenea**, and **Retimo**.

CUBA. Largest of the West Indies; an independent republic under the protection of the United States; with a surface of plains, rolling uplands, and forest regions, the latter being estimated to cover nearly one half the island. An agricultural country, with exceedingly rich and fertile soil, in many small holdings. Products: sugar, tobacco (the maximum crop is very large), coffee, oranges, cacao, cereals, vegetables, bananas, pineapples, lemons, limes, cocoanuts, with valuable fish. Over half the cultivated area is in sugar. There are large forests of mahogany, cedar, ebony, dyewoods, and gum producing trees. Minerals: copper, manganese, iron, some gold, silver, lead, and asphalt, but all are little worked. Imports: textiles, provisions, machinery, manufactures, coal, live stock; exports: large quantities of sugar, alcohol, tobacco, cigars, molasses, wines, fruits, iron ore, mahogany and other cabinet woods, gums, resins, and oils. The capital is **Havana**, and the principal towns **Santiago de Cuba**, **Cienfuegos**, **Camaguey**.

CYPRUS. Third largest island in the Mediterranean, progressing steadily under the administration of Great Britain. Has a large area of irrigation works. Essentially agricultural, with one third of the land under cultivation. Products: wheat, barley, oats, olives, cotton, large quantities of grapes, carobs, fruits, flaxseed, silk, cheese, wool, hides, and some oil of thyme and sponges. Minerals: abundant gypsum and terra umbra, marble, copper, asbestos. Imports: cotton and woolen manufactures, provisions, iron, leather, petroleum, lumber; exports: wheat, barley, carobs, raisins, silk cocoons, hides, wine, wool, flour. The capital is **Nicosia**, the principal ports **Larnaca** and **Limasol**.

CZECHO-SLOVAKIA. The Czecho-Slovakian state came into existence on Oct. 28, 1918. It is a long narrow state just east of Austria and Germany, 500 miles in length and 50 to 100 miles in width with an area of approximately 55,000 square miles, bordered by five countries. The country was organized mostly from what was the old Austrian-Hungarian Empire, the states of Bohemia, Silesia, Moravia, Slovakia and Ruthenia breaking off. The fundamental difficulty of the new state will be that of holding together such a polyglot people in a state unprotected by natural barriers. Practically the entire country is a dissected upland. The agricultural industries are many, one half the land being suited for those purposes. The crops are potatoes, sugar beets, wheat, rye, barley and oats, and the live stock industry, cattle, horses, pigs and sheep, occupying a prominent place. The country around the border has much forested land, estimated at 32% of the area. The state is very rich in mineral products, much coal and iron,—the coal of Teschen being of excellent coking qualities,—nickel, cobalt, copper, silver and garnets. Bohemia is the heart of the industrial and manufacturing region producing, because of her excellent resources, iron and steel, glass, paper, cotton, and woolens, sugar refineries, furniture, etc. The Bohemian glassware is justly famous the world over for its quality and color. Moravia is chiefly agricultural. The exports are glassware, textiles, iron products, wood products and sugar. Prague is the capital and leading industrial center, Brume, noted for wool manufacturing, and Pilsen and Budweis are also manufacturing centers.

DANZIG, FREE CITY OF. Created by the Versailles Treaty in 1920 and governed by a High Commissioner appointed by the League of Nations. The city is located on the Baltic Sea where the Vistula empties into it. Though surrounded by Poland on one side and Germany (East Prussia) on the other, the port is free to all and was made free to take care of the conflicting demands for an outlet to the sea. The city has an area of 754 square miles and is within the Polish Custom's Union. Its chief business is commercial and shipping, grain, sugar, lumber, salt and some manufactured products coming down the river from the hinterland.

DELAWARE. A Middle Atlantic state. The surface is mainly a level coastal plain, well watered, and devoted to agriculture, nearly all on small farms. Products: maize, wheat, hay, oats, with heavy crops of tomatoes, peaches, small fruits, oysters, and fish. The proximity of large coast cities renders vegetable farming profitable. Manufactures: iron and steel, canned goods, railway cars, leather, powder, ships, brewed and distilled liquors, and knitted goods. Minerals: bog-iron ore, clays (brick, terra-cotta, and kaolin), granite, feldspar, glass sand, and marls. The capital is **Dover**, and the largest city **Wilmington** on the Delaware river.

DENMARK. One of the smallest countries of Europe. The surface is generally low, penetrated by large lagoons and inlets or fjords far into the interior. Agriculture is the leading industry, over half the population being so engaged. Products: oats, barley, rye, sugar beets, potatoes, live stock, dairy produce, and fish. Imports: provisions, textiles, oil cake, machinery, coal, cotton, metals, hardware, wood and its manufactures; exports: bacon, butter, eggs, hardware, and animals. Manufacturing is increasing, and now gives employment to one quarter of the population. It includes the making of furniture and foodstuffs, distilling, sugar refining, and brewing. There are no metallic ores, but much peat, kaolin, and some poor coal are found. **Copenhagen** is the capital and chief commercial center. **Jutland** is a peninsula without hills, lakes, rivers, or minerals, except chalk. Its products are grains, cattle, and dairy products. **Greenland** is under the control of Denmark, and is the second largest island in the world; only inhabited near the coast lowlands. Industries are principally fishing and hunting, with very little agriculture. There are 12 chief stations for trading, the northernmost being Upernavik.

DISTRICT OF COLUMBIA. A territory of the American Union, lying between Maryland and Virginia. The surface is flat, or gently rolling and hilly. A small part of the total area is in farms, and the crops are principally vegetables. The largest acreage is pasture, and dairying is a prominent industry. The commerce of the District is principally local, excluding the government works and products. It is the seat of government of the United States, and was ceded by the state of Maryland as a site for the National capital, **Washington**.

EAST INDIES. A group comprising Borneo, Celebes, Java, New Guinea, Sumatra, and the Spice Islands, with a number of smaller ones. The Philippines (belonging to the United States) are an extension of this group. **Borneo** is the largest island of the group, North Borneo and Sarawak being under British protection. It is rich in jungle produce and mangrove bark, gutta-percha, coal, oil, iron, antimony, and gold. There is little agriculture, but this is being steadily fostered, as the soil is fertile. The south and east of the island are governed by the Dutch through native rulers, and the chief exports are copra, bamboo, gutta-percha, and cocoanut oil. **Celebes** is governed by the Dutch, and has a main export of coffee, rice, sugar cane, bird skins, cotton, and sago. **Java** is governed by the Dutch, and is the most important commercial island of the group. It is very fertile and prosperous. There are more volcanoes than on any other equal area in the world. Exports: coffee, sugar, rice, copra, indigo, pepper, spices, tea, teakwood, and cinchona (quinine). The capital is **Batavia**, also the principal city of the group. **New Guinea** or **Papua** is one of the largest islands in the world, administered by Australia and Holland. Products: cocoanuts, rubber, sisal hemp, coffee, fibers, cotton, sago, vanilla, kapok, cacao, tapioca, cinnamon, tea, tobacco, trepang, copra, pearl shell, and pearls. The forests have valuable woods of sandal, ebony, bamboo, with gum-producing varieties. Minerals: copper and gold. **Spice Islands**, or **Moluccas**, are a Dutch possession, not so well watered as the westerly islands, but producing large quantities of spices, nutmegs, cloves, betelnuts, etc., with coffee, cacao, tobacco, indigo, rice, and sago. Minerals: sulphur and petroleum, porcelain clays, tin, and coal. **Sumatra** is a Dutch possession, noted for its large animals, elephant, rhinoceros, tapir, orang-utan, etc. Its principal product is an immense quantity annually of a very thin-leaved, silky, brilliant tobacco, used exclusively for covering cigars. There are many camphor and gutta-percha trees. Exports: tobacco, coffee, spices, bamboo, gutta-percha, copra, and gums. The natives produce exceedingly clever gold and silver filagree work, also native fabrics and household utensils. Minerals: coal, tin, petroleum. Prin-

cipal cities, Padang, Achin, Deli, Benkulen, and Palembang.

ECUADOR. A South American republic on the Pacific coast. Elevated basins form the centers for ideal agriculture, under a spring-like climate. The staple is cacao, besides coffee, rubber, vegetable ivory, brazil nuts, tobacco, sugar, medicinal barks, and fiber. There are known to be rich deposits of silver, copper, iron, lead, quicksilver, and coal, but these are not worked to any extent; some gold, platinum, and zinc exist. Imports: textiles, foodstuffs, ironwork, gold, and silver; exports: cacao, coffee, vegetable ivory, rubber, and Panama hats. The capital is **Quito**; chief ports **Guayaquil** and **Esmeraldas.**

EGYPT. An extensive country bordering on the Mediterranean and Red seas. It is a part of the great African desert zone. Agriculture engages most of the population. Under the extensive irrigation systems it is possible to obtain three harvests a year: cereals in the spring; rice, maize, millet, and vegetables in September and October; cotton, sugar, and rice in October and November. In Lower Egypt crops of cotton, rice, wheat, maize, barley, clover, and vegetables are grown; Upper Egypt produces crops of cereals and vegetables. There are many old and valuable quarries intermittently worked, some salt, soda, alum, and saltpeter, and the ancient gold workings are proving profitable. Imports: textiles, cereals, wood, coal, metals and manufactures, and leaf tobacco; exports: cotton, cereals, and tobacco products, mainly cigarettes. No tobacco is permitted to be grown, the leaf pays a duty in and the manufactured cigarettes a duty out of the country. The capital is **Cairo**, with chief ports **Alexandria** and **Port Said.**

ELBURZ MOUNTAINS. A range in Persia, extending 450 miles along the southern border of the Caspian Sea; its highest peak is Mount Demavend. The northern slopes are very fertile, and have rich tropical vegetation, poppies, tobacco, cotton, grapes, and dates being produced.

ENGLAND. The most important division of the United Kingdom of Great Britain and Ireland. The commercial situation is improved by numerous navigable rivers, such as the Thames, Humber, Tyne, Severn, and Wye. The surface is mainly a low plain broken by gentle slopes and downs, with mountains in the northwest. Agriculture is an important business, but England differs from other countries in the fact that the land is owned by a comparatively small number, and is leased to others. The average farm is not larger than in the agricultural states of America. For many years the competition of foreign grown crops, and foreign reared cattle, has decreased the gross cultivated acreage, but to-day there is a strong trend towards producing finer qualities of vegetables, cereals, and meat for consumption, obtaining the higher prices without difficulty. About one half the agricultural area is in pastures and grazing lands. Products: wheat, hay, clover, barley, oats, beans, peas, potatoes, turnips, and small quantities of high class fruits. Stock raising is important, and about two thirds of the farm animals are sheep, with the remainder cattle. Minerals: iron in large quantities, coal (of which much is exported), tin, gold, silver, zinc, lead, some copper, manganese, uranium, wolfram, and others. The fisheries are extensive. Other industries: manufacturing of textile fabrics, cotton, wool, and lace, metal working, coal handling, etc. Exports: textile fabrics, coal, coke, iron and steel manufactures, chemicals, machinery, ships, etc. Imports: foodstuffs, grain, meat, and tea in immense quantities, cotton, wool, oil seeds, metals, yarns, wood and timber, chemicals, fruits, tobacco, hides, etc. The United States contributes nearly four times the French and six times the German imports into England. The capital is **London**, the most important port for imports, and the greatest city in the world in population and commercially, setting the prices for wool, tea, hides, and colonial produce, especially those of India. It has absorbed the city of Westminster and numerous manufacturing villages. The Thames, the most important short river in the world, is spanned by 20 bridges, of which London Bridge is the principal, and the port for deep water vessels extends from London Bridge, 50 miles, to the sea. The river is about 800 feet wide at the bridge, and about six miles wide at the sea. The great docks are 20 miles down the stream. **Liverpool** is the second largest port, and is the principal export center, being about the size of Boston, Mass. Other important cities are **Manchester**, noted for cotton working; **Birmingham**, for metal working; **Leeds**, for cloth; **Newcastle**, for coal handling; and **Southampton** and **Fishguard**, as ports for ocean travel.

ESTHONIA. On the eastern coast of the Baltic Sea, south of the Finnish Gulf, is the new state of Esthonia, composed of the old province of Esthonia and Livonia. The country is one half the size of Pennsylvania and has one-fifth as many people. Her independence was declared in 1918. The country had for centuries been dominated by other countries, usually Russia or Germany. The industry is primarily agricultural, and the crops are rye, barley, potatoes, hay, and flour, with some cattle and sheep raising. The roads are very poor and there are almost no railroads. Flax, dairy products, and timber are exported from **Reval**, the chief seaport.

ERITREA. An Italian colony in northeast Africa, under autonomous administration, and having the management of its own finances. The surface is a narrow coast territory of chalk formation which merges into a subalpine region, rising to a moderately high plateau, broken by arid valleys. There is little cultivation except in the highlands, and irrigation is general. There is abundant pasture, but the pastoral population is nomadic. Many camels, oxen, sheep, and goats are raised for local trade. Imports: cotton goods, durra, cattle, wood, wine, and flour; exports: precious metals, animal products, mother-of-pearl, pearls, and hides. There is a considerable transit trade with Abyssinia and the Sudan. The only railway is 15 miles long, connecting Saati with Massaua. The seat of government is at **Asmara.**

EURASIA. A name frequently given to Europe and Asia combined to form the largest land mass on the earth's surface. It is a triangle in shape, with its base on the east extending from Bering Strait southward to the Malay Peninsula, and having its apex in the west in Portugal. It has every variety of surface, all kinds of fresh and salt water forms, the highest mountains, the most extensive plains, fertile soil, mineral deposits; possesses the heart of commerce and advancement, and a people who have reached the highest form of human development. It is the birthplace of great religions, literature, and art.

EUROPE. The smallest continent except Australia. Including its polar and other islands, it comprises a little more than one twentieth of the land surface of the world. It is bounded on three sides by the sea, and a broken coast line gives it a greater coastal development than any other country, and to this it owes its commercial supremacy. The coast line proper is lengthened by multitudinous islands, channels, and the penetration of deep sea water far into the interior. The surface is as varied as the coast line. The mountains are the Alps, Ural, Pyrenees, Carpathians, Apennines, Jura, Balkans, and Caucasus. The warm Atlantic Ocean, and the heat radiated from the great Sahara desert, give the west, south, and center of Europe a temperate climate; the soil is fertile and well watered; numerous important "mixed" forests, with vast cone bearing growths, are in the north, and there are great mineral deposits. The largest fresh water lakes are the Ladoga and Onega, in Russia. The principal rivers are the Volga, Danube, Ural, Don, Dneiper, Rhine, Rhone, Elbe, Seine, and Tagus.

FALKLAND ISLANDS. A crown colony of Great Britain in the south Atlantic, consisting of two fairly large islands, and about 100 small ones, besides South Georgia. Many of the islands, are practically unoccupied except by penguins. The soil yields little more than grass, and sheep farming is the staple industry. Imports: provisions, apparel, building materials, machinery, and hardware; exports: wool, hides, skins, tallow, and whale oil. Principal town is **Port Stanley.**

FAROE ISLANDS. A group of about 21 islands, of which only 17 are inhabited, lying midway between the Shetlands and Iceland. The islands are mostly volcanic rock, with basaltic formations, covered with thin vegetable soil yielding pasturage for the numerous cattle and sheep reared. Fierce and very frequent hurricanes prevent the growth of trees and hinder the cultivation of cereals and the ordinary vegetables. The chief products are those of the sheep, and of the multitudes of sea birds whose eggs, feathers, etc., are gathered as a harvest. There are good fisheries and the natives are expert in this industry. Exports: tallow, train oil, feathers, skins, wool, fish, and butter. Minerals: coal and peat are found, and there are traces of iron, copper, and chalcedony. The group is represented in the Danish Parliament by two delegates selected by the people.

FIJI ISLANDS. A group of more than 200 islands in the south Pacific Ocean, a British crown colony. The soil is very fertile, and agriculture is the principal pursuit. The chief crops are bananas, cocoanuts, maize, sugar cane, yams, tobacco, tea, rice, peanuts, and pineapples. There are dense forests containing many valuable woods. Imports: dry goods, machinery, hardware, live stock, breadstuffs, lumber, oils, and iron; exports: sugar, copra, green fruits, turtle shell, pearl

shell, and beche de mer. The capital is Suva. There is good commercial communication with New Zealand, Australia, and Canada.

FINLAND. Most northerly of civilized countries, a bit larger than the United Kingdom, situated between Sweden and Russia, north of the Baltic Sea and the Gulf of Finland. The country, formerly a grand Duchy of Russia, declared itself a republic in 1919. The country is hilly with a great many lakes and swamps and the soil is very stony and poor due to glacial action. The northern part is covered with Finland's most valuable resource, forests, of pine and spruce. There are no minerals in the country with the exception of a little copper and quarry products. About 10% of the land is cultivated, this almost entirely in the south, and the products are wheat, rye, barley, oats, potatoes, and flax. The dairying industry is getting to be very important. The manufacturing concerns itself chiefly with pulp wood, paper, leather goods, textiles and iron and steel. 75% of the exports are dependent upon the forests, lumber, pulp wood, and paper. Then also we have raw materials, hides, meats and dairy products shipped out. Helsingfors is the capital and chief seaport.

FLORIDA. The most southern of the United States. Consists of level coastal lands, often marshy, rising to an interior hilly, well-wooded area. The Florida Keys, stretching 200 miles, are a remarkable example of coral organism. There is an extensive water system of navigable rivers. There is some fertile soil, and irrigation is steadily developing larger areas. Valuable forests cover three fourths of the state; cultivated lands occupy only a small part. There are more pineapples produced than elsewhere in the United States, and the tobacco crop is mainly of the valuable "wrapper" type, amounting to millions of pounds annually, other products being rice, maize, oats, peanuts, peas, cotton, oranges, oak, pitch pine, tar, turpentine, and resin. There is an extensive fishing industry. Minerals: phosphate rock, fuller's earth, lime, besides mineral waters. Large quantities of cigars are manufactured from imported Cuban tobacco at Tampa and Key West. The capital is Tallahassee, and the other cities, Jacksonville, Pensacola, Tampa, and Key West.

FRANCE. A European republic. The surface is an extensive lowland, almost cut off from other countries by mountains and water barriers. It is well watered, there being over 200 rivers officially reported navigable, including the Loire, Rhone, Garonne, and Seine. The soil is fertile and the climate subtropical. The highlands at the east rise to Mount Blanc, the highest peak of the Alps, which is on French territory. The area is two thirds under cultivation, with one seventh rich forest lands. Fifty per cent of the population are engaged in agriculture on small farms. Products: sugar beets, grapes (in which France leads the world), barley, wheat, rye, maize, oats, fruits, such as apples, pears, plums in the north, and oranges, lemons, etc., in the south. Stock raising is important, and the fisheries, especially sardine and oyster, are extensive. Imports: wool, cotton, silk, coal, oil seeds, lumber, hides, foodstuffs, and machinery; exports: textiles, wines, silk and wool yarns, skins, furs, linens, clothes, and leather goods; the exports are small compared with other leading European countries. The industrial aim has been for quality, rather than quantity, in silks, velvets, cut glass, textiles, fine woolens, fine linens, fine laces, porcelains, tapestry, gloves, and leather ware. France is relatively poor in minerals and metals. Paris is the capital, with chief ports of Bordeaux, Cherbourg, Dunkirk, Havre, and Marseilles. Its colonies and dependencies are many and very widely scattered. In French India are five towns, Chandernagar, Karikal, Mahe, Pondicherry, and Yanaon, the chief export being oil seeds. French Indo-China consists of five states; Annam exporting maize, rice, manioc, areca nut, mulberries, spices, sugar, bamboo, rubber, coffee, medicinal plants, raw silk, and some cattle; Cambodia exporting salt fish, cotton, tobacco, rice, indigo, and boats; Cochin-China exporting rice, fish and fish oil, pepper, shrimps, cotton, copra, silk, isinglass, hides, and spices; Tonking exporting rice and animal products, and Laos territory producing rice, cotton, lumber, some gold, lead, and precious stones, being worked by French companies. In Africa, the French colony of Algeria, bordering on the Mediterranean, is the largest of all French dependencies; the French Congo exports rubber, ivory, woods, palm oil, palm kernels, coffee, cacao, kola nuts, piassava, and other products. Madagascar, a large island in the Indian Ocean, has great cattle breeding and agricultural industries; sericulture is advancing. The principal article produced is rubber; exports: rubber, gold, and other minerals, hides, rafia, wax, vanilla, some manufactures, and valuable woods; Mayotte and the Comoro Islands have small exports; Reunion exports sugar; the Somali Coast Protectorate exports coffee, ivory, and hides; French West Africa includes Senegal, Upper Senegal and Niger, French Guinea, the Ivory Coast, and Dahomey, the exports being chiefly maize, rubber, wool, copra, skins, fruits, oil, and oil seeds. The French Sahara includes practically the whole of the great desert. Tunis is a French protectorate exporting large quantities of wheat, barley, oats, olive oil, wine, cork, tropical fruits, copper, lead, and zinc ores, phosphates, sardines, anchovies, and other fish. Guadaloupe is in the West Indies, and is a French colony exporting sugar, bananas, tobacco, rum, coffee, vegetables, and cacao. French Guiana, in South America, exports cacao, phosphates, woods, gold, rosewood essence, and hides. Martinique, in the West Indies, exports rum, coffee, cotton, sugar, and cacao. St. Pierre and Miquelon are the largest islands in a group off Newfoundland exporting dried and fresh codfish and cod liver oil. New Caledonia and dependencies, near Australia, export nickel, cobalt, chrome, and copper ores, coffee, beans, and copra; the New Hebrides, jointly administered by France and England, export maize, coffee, and vanilla; the French establishments in Oceania consist of the Society Islands, the Marquesas, the Tuamotu group, the Gambier, Tubuai, and Rapa islands, the most important being Tahiti, with general exports of sugar, molasses, copra, pearls, mother-of-pearl, vanilla, cocoanuts, and oranges.

FRANKLIN. A Canadian district consisting of numerous large and small islands off the mainland, including Baffin's Land and Prince Albert Land not fully explored, but believed to be almost wholly destitute of animal and vegetable life. There are a few Eskimos on Baffin's Land.

GALAPAGOS ISLANDS. A group of small islands in the Pacific, about 600 miles west of Equador, officially renamed Celon Archipelago in 1892, the largest being Albemarle, Indefatigable, Chatham, James, and Charles. They are of volcanic origin. Turtles are chief product, although there is some sugar growing and cattle raising. The group is of extreme interest to scientists and zoölogists, and it was the observation of the peculiarities of the fauna, and the influence of the facts upon the evolutionary history of animals made during the voyage of the Beagle, which is believed to have been responsible for the later speculations of Darwin, Wallace, and other evolutionists. The archipelago is accepted as a most fruitful illustration of insular influences on animal life, and of the effects of isolation.

GANGES. An important river of north India, and one of the 12 great rivers of the world. It rises in the Himalayas, draining the southern ranges, and, after a southern and eastern course, flows into the Bay of Bengal through a multiplicity of channels extending through a delta nearly 300 miles long. The basin of the Ganges is one of the most fertile spots on the earth. Each spring the snow melts and the river overflows, as does the Amazon and Nile, flooding and carrying valuable alluvial mud over an enormous area, rendering fertilization unnecessary—an important feature in Lower Bengal. It is continually changing old channels for new, and the influence of the tides is estimated to extend 240 miles from the sea. It is navigable in sections. The Hindus hold it in high veneration as the holiest of rivers, and as a cleanser from sin.

GEORGIA, (U. S. A.). An important Southern state with surface, soil, and climate so varied that it has been said that "if cut off from the remainder of the world Georgia could supply all the needs of her people." Agriculture is the leading industry, nearly three fourths of the area being under cultivation. It is the second largest cotton state, and is the largest producer of sea island cotton. In the north large quantities of maize are grown, also wheat, and oats; rice in the coast counties; sugar cane, tobacco, peanuts, sweet potatoes, watermelons, and immense crops of fruits, especially peaches, are produced. Forest lands are extensive, mainly pine, cypress, juniper, and some hard woods, and turpentine and resin represent about one half of the total produced in the United States. Stock raising is unimportant. Oyster and shad fisheries are large. Minerals: gold, silver, coal, iron, and manganese ores, iron pyrites, bauxite, graphite, lime, ocher, infusorial earths, natural cement, talc, soapstone, clays, valuable marble quarries, besides mineral springs. There is much water power in the state, and prominent manufactures are textiles, cotton goods, lumber products, fertilizers, cottonseed and oil. The capital is Atlanta, the chief ports Savannah and Brunswick.

GEORGIA, (Europe). A Soviet republic bordering on the Black Sea, south of the Caucasus Mts. and north of Armenia, which is composed of the provinces of Tiflis, Kutain and Batum, together with the provinces of Zakataly and Sakhum, having an area of approximately 3500 square miles, and while nominally a republic, is

virtually under the constant influence of the Russian Soviets. The principal crops are grapes for wine, cereals, cotton, and corn. Large quantities of fruit are grown on the hillsides and a good sized animal industry abounds, including cattle, sheep, goats, bee keeping and silk worm production. In this state is found the largest manganese deposits in the world and also some oil, copper, zinc, lead and antimony. The capital is Tifiis, an inland city and the port, Batum, on the Black Sea, is a great oil distributing center.

GERMANY. A republic in central Europe formed in 1918 after the abdication of Kaiser Wilhelm. Due to the treaty of Versailles the territory of the old Empire was cut down from 209,000 square miles to 177,000 square miles and the following are among the sections affected: Alsace-Loraine—area of 5600 square miles, taken from France in 1871 and now returned, on the boundary line between France and Germany and because of rich natural resources a source of constant friction. Loraine has richest beds of ore in Europe, 75% of all Germany mined in 1914 coming from there. Alsace has great deposits of potash, salt, oil and land of great agricultural value. While not an actual loss, the separation of East Prussia from the main body of Germany by the so-called Polish Corridor may lead to serious political and economic difficulties. This corridor is a strip 30 miles wide along the Vistula allowing Poland an outlet to Danzig and the sea. Eupen, Malmedy and Moresnet—on the Belgium frontier and ceded to Belgium; only an area of 382 square miles but strategically rather than economically important. Memel—to the north of East Prussia, ceded by the League of Nations over to Lithuania. Posen—and neighboring areas to the east have been given to Poland which are very rich mineral lands and fertile agriculturally, particularly grain and potato land. The Saar Basin, between Germany and France, is an area of great coal resources, estimated at 17,000,000,000 tons. France being poor in coal desired this area and as a compensation for damages done by the Germans to French mines at Lens and Valenciennes, the coal of the Saar was turned over to them for 15 years. The area is to be governed by the League, the final ownership to be decided by plebiscite. East Silesia, ceded to Poland under a plebiscite charge, an area of great mineral resources, one-fifth of all Germany's coal coming from here, together with her lead and zinc in large amounts. Slesvig, between Germany and Denmark, 1,540 square miles, ceded to Denmark. No great loss economically. Germany also lost all of her colonies in Africa, Togoland, Cameroons, German South West Africa, and German East Africa and in the Pacific, Nauru Island, Kaiser Wilhelm's Land, Marshall, Mariaine, Caroline Island, and Samoa. After suffering these losses mentioned, particularly the loss of natural resources, Germany has found it difficult to get back to her pre-war industrial life. The physical divisions of the country from north to south include: the Central Plains to the north, a great agricultural region; the Central Highlands, the area of Germany's mineral deposits and manufacturing establishments; the Middle Rhine Plain, rich, fertile, 20 to 25 miles wide, agricultural region; the North Slope of the Alps, heavily forested. The rivers, very important as commercial arteries, are the Rhine, probably the most important river artery in Europe, 800 miles long, has 20 important cities on it or tributary to it, the Elbe with the great port of Hamburg, the Oder and the Vistula. The canal systems of Germany are remarkable. The agricultural crops are, potatoes (leads the world in production), rye, sugar beets, corn, oats, barley, tobacco, apples, grapes and hops. The live stock industry is very important with horses, cattle, pigs, goats, and sheep showing up well in European comparisons. Her forestry industry is on a scientific basis, trained workers, and a great many state reserves. Ash, birch, oak, and beech are the principle types. The mineral resources have been sadly depleted by the loss of territory, particularly in iron (Alsace-Loraine) and potash (Alsace). In the latter resource she had enough to supply the world for 2,000 years. But now her resources are coal, zinc, lead, copper, silver, and graphite. Germany was and still is a great manufacturing country, but she has lost much of her former prestige. The general products are iron and steel, ships, woolens, cotton, silks, dyes, chemicals, instruments, sugar refining, toys, scientific intruments, copper and brass goods, leather goods, and rubber products. Her foreign trade, once huge, is slowly returning. Exports are, steel products, woolens, silks, cottons, beet sugar, chemicals and dyes, leather goods, toys and glassware. The capital is Berlin, the seaports are Hamburg, Bremen, Stettin and Danzig, and the great industrial cities are Essen, Dussildorf, Dresden, Brelau, and Cologne.

GIBRALTAR. The Rock of Gibraltar is a crown colony of Great Britain, of great strategic importance, commanding the entrance to the Mediterranean. It is a naval base and coaling station, with a good harbor, exporting wine, fruit, and cork.

GILBERT ISLANDS. A British archipelago in Oceania. The group consists of 16 small islands, the largest being Taputeuca, Aroral, Nonuti, Apamama, Maiana, and Maraki. The chief product is copra.

GREECE. The most eastern of the three peninsulas of Europe projecting into the Mediterranean, and once the most highly civilized country. It has a mile of coast line to every ten miles of area, but has few good harbors. A mountainous land with successive narrow valleys; the only great plains are those of Thessaly. The rivers are small and unnavigable. Agricultural cultivation depends on irrigation, which is unequally distributed; one half of the area is pasture land or waste. The farms are small, producing wheat, barley, rye, and maize, but the best crops are currents, grapes, acorns (for tanning), cigarette tobacco, silk, olives, honey, citrus fruits, and figs. Minerals: iron, copper, zinc, lead, with many others in small quantities. Manufactures: cloth, carpets, metal and leather goods, silk, wool, flour, alimentary pastes, etc., mainly for home consumption, but of high quality. Imports: agricultural products, textile raw materials, and machinery. Exports: currents, wines, grapes, raisins, tobacco, olive oil, sponges, and forest and animal products. The capital is Athens, with its port, Piraeus, six miles distant. Other towns are Patras, Corfu, and Volo.

GUATEMALA. The largest of the Central American republics. The greater part of the surface is mountainous, but the upland valleys are very fertile. Coffee is grown extensively, the largest plantations owned by Germans; also wheat, maize, sweet potatoes, beans, indigo, cacao, and some cotton. Gold and silver are worked, salt and other minerals exist. Imports: cotton goods, machinery, ironware, and provisions; exports: coffee, mahogany, cedar, dyewoods, hides, rubber, bananas, sugar, and chicle. The capital is Guatemala la Nueva, the chief port Puerto Barrios, and important towns Quezaltenango, Coban, and Totonicapan.

HAWAII. A group of 12 Pacific islands belonging to the United States. Seven are inhabited, the largest being Hawaii, the most important Oahu, which has the only good harbor, and the capital, Honolulu. The surface is largely mountainous and volcanic, but the soil is very rich. Products: sugar, tropical fruits, rice, coffee, and cattle. Imports: clothes, textiles, lumber, and machinery; exports: coffee, sugar, molasses, rice, bananas, oranges, pineapples, honey, wool, tallow, and hides, in large quantities. Honolulu is a mid-ocean post office, and several lines of steamers on both sides of the Pacific engage in trade with the mainland.

HEBRIDES. A name applied to the islands of the west coast of Scotland, classified as the Outer and Inner Hebrides. The islands of Bute, Arran, and the Cumbraes, lying in the Firth of Clyde, are usually classed with the Hebrides. The total number of islands is about 521, and about 120 are inhabited. Owing to the Gulf Stream they have a mild though humid climate. Much of the area has been converted into sheep walks, and extensive tracts are rented to sportsmen. There is considerable arable land, the remainder is pasture, morasses, peat-mosses, lakes, barren sands, and rocks. The scenery is grand, especially in Mull, Jura, and Arran, with their lofty mountains, peaks, and rugged hills. Staffa is remarkable for its basaltic columns and great cave, and Iona is rich in ruins and historical associations. Industries: sheep, cattle and pony raising, herring fishing, and the manufacture of kelp. Exports: live stock, fish, kelp, wool, and stone. The principal towns are Stornoway in Lewis, Portree in Skye, Tobermory in Mull, and Rothesay in Bute, the latter being a great tourist resort.

HEDJAZ. An independent kingdom on the west side of the peninsula of Arabia, bordering on the Red Sea, with an area of about 170,000 square miles. The chief occupation is taking care of the thousands of pilgrims that come to Mecca. Dates are the chief crop and the exports, wool, grain, and hides. Mecca and Medina are the two chief cities and Jidda the chief port.

HIMALAYA MOUNTAINS. The southern ranges bordering the great Asiatic plateau for a distance of 1,500 miles, the grandest in the world. They radiate from the Pamir plateau, "the Roof of the World," and contain more than 40 peaks over four miles high, Mount Everest being the highest. The southern or snowy region is plentifully studded with glaciers and contains lofty peaks; the northern, forms a watershed in Tibet, which has been little explored, as but one pass is known. Metallic ores exist in almost every part, but gold, copper, iron, and lead are the only ones extracted.

HINDU KUSH MOUNTAINS. They extend westward from Pamir between Afghanistan and Turkestan; are the source of several rivers; their highest point is Tirach Mir. Minerals, especially iron, are very abundant.

HONDURAS. A Central American republic. It is a table-land except along the coast. It is rich in resources, but, lacking capital and population, half its area is rich virgin waste. There is considerable agriculture, some cattle raising, and mining; silver, gold, copper, lead, and other ores are found; the principal manufacturing industry is the plaiting of straw hats. Bananas are the chief product. There are valuable forests of mahogany, cedar, and lignum-vitæ. Imports: cotton, breadstuffs, hardware, and machinery; exports: bananas, ores, bar silver, hides, cattle, cocoanuts, lemons, oranges, indigo, sarsaparilla, maize, cacao, tobacco, and timber. More than half the entire trade is with the United States. The capital is **Tegucigalpa**; the chief ports are **Amapala, Puerto Cortes,** and **Trujillo.**

HONGKONG. A British crown colony, consisting of a number of islands off the southeastern coast of China at the mouth of the Canton River. **Hongkong,** the largest, lies close to the mainland and contains the capital, Victoria, having one of the finest harbors in the world, with seven dry docks, the largest 700 feet long. It is a free port and is the center of China's foreign trade, handling about 40 per cent. Both exports and imports are resold and reshipped by Hongkong merchants, and include sugar, opium, cotton and yarns, woolens, flour, oil, amber, tea, iron, machinery, copper, coal, flour, ginseng, rice, silks, ivory, betel, and sandalwood.

HUDSON RIVER. The principal river of New York state, and one of the most beautiful and valuable waterways in the eastern states. It rises in the Adirondacks, drawing its waters on both sides of the range, from many attractive lakes, and from springs on the sides of many forested mountains. Its important tributaries are the Sacondaga, the Mohawk, and the Walkill, which unite with the parent stream above Troy, from which point it is navigable to the sea. Connection with the Atlantic and Central states is completed by means of the Erie Canal. The varied beauty of the river scenery has given to the Hudson the name of the "American Rhine."

HUNGARY. An independent republic first, formed in 1918 out of part of the old Austrian-Hungarian Empire, ruled now by a regent, until such time as the people can decide the type of government they want. The country is in eastern Europe, just east of Austria and south of Czecho-Slovakia and is physically two plains, called the big and little Alföld. This Hungary has only one-third of its former area and population and lost territory to Rumania, Czecho-Slovakia and Yugoslavia. The plain area gives the country no military protection and no water power. Agriculture is the only important industry, three-fourths of the people earning their livelihood that way. The crops are wheat, maize, sugar beets, grapes, tobacco, cattle, flax, oats, and potatoes. Practically no mineral deposits exist with the exception of coal at **Pecs.** The Danube River is the great commercial artery and the only outlet for goods, the country having no seaport. The manufacturing industries are flour, breweries, tobacco, sugar and agricultural implements. **Budapest** is the capital and the chief industrial city.

ICELAND. Iceland, granted its independence from Denmark in 1919 but under the Danish Custom's Union, is a large volcanic island in the Atlantic Ocean. The only habitable land is along the coasts and in the river valleys; hay and vegetables are the only crops, and some sheep and the small tricolored Icelandic ponies (miscalled "Shetland") are the farm stock. The chief imports are grain and meal, sugar, coffee, salt, cotton goods, tobacco, liquors, hardware, and timber. The chief exports: ponies, Iceland moss, stockfish, wool, eider-down, sea birds' eggs, sulphur, whale and seal oil. The chief port is **Reykjavik,** the capital.

IDAHO. A Western state. An elevated and mountainous district lying between the Rocky Mountains on the east, the Cascades on the west, with ranges to the north. Much of the land is arid, but great work is being done by irrigation. The climate is severe in the north, with heavy winter snows. Agriculture is limited to the mountain valleys and the basins of the great rivers, where irrigation is rapidly developing the rich alluvial soil. The principal farm products are wheat, oats, barley, hay, fruits, and vegetables. It is good grazing land for sheep, which constitute the leading farm stock. There is considerable lumber acreage. Beet sugar is an increasing product, also butter. The state is rich in minerals—gold, silver, copper, lead, zinc, some coal, iron, nickel, cobalt, mica, phosphate rock, antimony, tungsten, granite, limestone, sandstone, lime, pumice, and salt. The manufacture of lumber and timber, and flour and grist is becoming an important industry. The capital is **Boise.**

ILLINOIS. One of the great Central states showing rapid improvement during the past fifty years. Illinois lies within the vast prairie area, and has a level surface sloping in an immense plain from the low lying north and northwestern hills. The state is largely agricultural, and it should be noted that over seven eighths of the farm area is classed as "improved." The farm products include maize, wheat, oats, barley, rye, and buckwheat; large quantities of potatoes and hay are produced; some tobacco is grown, and there is a very active live stock industry. It is estimated there are within the state millions of farm animals, such as horses, cattle, sheep, hogs and mules. Very important industries are slaughtering and packing, manufactures of iron and steel, clothing, liquors, flour, agricultural implements, steam railroad cars, electrical machinery, lumber, furniture, and printing. The chief mineral product is coal, this being principally bituminous, giving employment to a large number of people. There are also found petroleum, natural gas, zinc, fluorspar, sandstone, limestone, Portland cement, natural rock cement, and clay products (bricks, tiles, and pottery). Illinois is one the most important manufacturing states west of the Alleghanies and ranks well with New York and Pennsylvania. Important cities are **Chicago, Peoria, East St. Louis, Quincy,** and **Springfield,** the capital.

INDIA. The most important commercial country of Asia, governed by England under the title of Empire of India. A vast peninsula of southern Asia, fifteen times the size of England, almost a world in itself, and isolated by the gigantic Himalaya Mountains at the north. The staple industry is agriculture, the native manufactures being mainly handicrafts such as carpets, shawls, rugs, and exquisite metal and ivory work. The chief imports are cotton manufactures, metals, silks, woolens, sugar, liquors, railway plant and rolling stock, apparel, and chemicals; the chief exports are cotton, rice, wheat, seed, cereals, opium, tea, tobacco, hides, jute, wool, lac, and indigo. The country is divided into presidencies and provinces, with the production as follows: **Agra** is the great sugar producing district; **Assam** grows the most tea, nearly one third the total crop, and is famed as the "wettest spot on earth," the annual rainfall being 610 inches at Cherra Punji, or practically 61,610 tons of water to the acre; **Bengal** grows one third of the great rice crop, which ranks next to that of China, also one half the tobacco crop, and nearly one third of the oil seed crop. **Berar** stands second in cotton production. **Burma** (Upper and Lower) is second in rice production. **Bombay** and **Sindh** grow large quantities of cereals and cotton. The **Central Provinces** produce large crops of wheat, cotton, rice, oil seeds, and cereals. **Madras** is a great producer of cotton, rice, tobacco, oil seeds, cereals, and stands at the head of the indigo crop. **Oudh** has important sugar, rice, wheat, and cereal crops. **Punjab** grows the most wheat, and is a large seed and cereal grower. The **Northwest Provinces, Ajmere-Merwara, Pargana-Manpur,** and **Coorg** are unimportant, except that Coorg contributes to the thousands of acres of coffee grown in Madras, Bengal, and Coorg; there are also many thousand acres devoted to jute. There are abundant mineral resources not developed—coal, iron, gold, copper, saltpeter, rubies, petroleum, and rock salt. Forests produce teak, bamboo, palm, conifers, and oak. Rainfall is heavy but irregularly dispersed, and irrigation is the only channel of ultimate development. **Baluchistan** is a semi-independent division. There is not much land under cultivation. The crops are cotton, fruits, indigo, and tobacco, and mineral deposits are numerous. Exports: wool, hides, fruits, and tobacco. The capital is **Delhi.** The six principal ports are **Calcutta,** metropolis of India, through which passes one third of India's trade; **Bombay,** capital of Bombay, on the west coast, one of the perfect harbors of the world; **Rangoon,** in Burma; **Madras,** the third city of India, has no harbor, only a roadstead, dangerous in cyclones; **Karachi,** on the northwest coast, and the much less important **Tuticorin.**

INDIANA. A Central state whose surface is mainly plains and rolling prairies sloping to the north and south, well watered by the Ohio, Wabash, Kankakee, and Illinois rivers, and Lake Michigan. It is largely agricultural, almost the whole area being farms, with over three quarters improved land. The soil is very rich in certain sections, growing wheat, maize, hay, oats, barley, rye, buckwheat, vegetables, tobacco, and fruits. There is a clip of scoured wool estimated at several million pounds annually. Large quantities of coal and petroleum, sand-

stone, limestone, Portland cement, natural rock cement, clays (for bricks, tiles, pipes, pottery, etc.), and mineral springs are found. Industries: meat packing and slaughtering, flour and grist milling, lumbering, and manufacturing of wagons, machinery, glass works, and agricultural implements. The capital is Indianapolis, a great railway center, important also in live stock traffic.

INDIAN OCEAN. One of the five great oceans. Bounded on the west by Africa, the north by Asia, the east by the East Indian Archipelago, and south by the Southern Ocean. It covers over 28,900,000 square miles, and contains many islands. Arabian Sea and Bay of Bengal are two of its arms. The greatest depth is southeast of Java, over 20,000 feet, the average depth being estimated at about 12,000 feet. The mean temperature of the northern portion is estimated at considerably over 80 degrees, the bottom temperature falling to 40 degrees near the equator, indicating cold Antarctic currents. It was traversed as a commercial channel for 2,000 years, while only coasting voyages were known in the Atlantic Ocean.

INDUS. One of the great rivers of the world, separating India from Afghanistan and Baluchistan, rising in Tibet. It is over 1,800 miles long with a source 15,000 feet above sea level. Through the once arid plains of Sindh it splits into numerous channels. It is navigable for about half its length, but the traffic is mainly by native boats, owing to the competition of adjacent railways. Its value in irrigation under British inauguration has marvelously developed the rainless alluvial land of Sindh. It is the "King River" in Vedic poetry.

IOWA. A Central state, noted for its climate, within the great prairie belt, having no mountains, hills, or bluffs. Well watered by the Des Moines and affluents of the Mississippi and Missouri. The greater part of the soil is of almost inexhaustible richness, nearly all of the surface being improved land. Maize and wheat are very important crops, also oats, barley, rye, buckwheat, potatoes, hay, and flaxseed. The state stands second to Texas in cattle. Slaughtering and meat packing, dairying, flour and grist milling, poultry keeping, and lumbering are extensive. Minerals: large coal deposits, iron, lead, gypsum, ocher, sandstone, limestone, and clays, besides mineral waters. Des Moines is the capital, Dubuque an important railway center.

IRELAND. The smaller of the two islands forming the British Isles, divided politically into two parts, to the south the Irish Free State, self-governing yet part of the Empire and to the north, Ulster, called Northern Ireland, an integral part of the United Kingdom. The surface is a central depressed plain almost surrounded by coast ranges, which largely drain inland, forming many bogs and lakes, there being no defined water system. The principal river is the Shannon, which is navigable over a considerable area, connecting with a good canal system. The soil is fertile, having about three times as much pasture as cultivated land. Agriculture is the main industry; large quantities of oats, potatoes, turnips, some wheat, beans, and peas are raised; butter, eggs, and bacon are largely produced. Minerals: iron ore, some anthracite coal, and less copper. Deep sea and inland water fisheries, especially salmon, are pursued. Manufacturing has been greatly hampered by want of sufficient coal and water power. Fine linens, poplins, shirts, porter and beer, ships (the White Star liners, including the Oceanic, Celtic, Cedric, being built at Belfast), and the home products of knitting, embroidery, and lace making are important. Dublin is the capital, and Belfast and Cork are leading ports.

IRISH SEA. Lying between the north of Ireland and the north of England, it is connected with the Atlantic by the North Channel at the north and St. George's Channel at the south. It contains the Isles of Man and Anglesey, both of which are rich in minerals. Liverpool, Dublin, and Belfast are ports.

ISLE OF MAN. An island in the center of the Irish Sea, equidistant from England and Ireland. It is about 32 miles long by 12 miles broad. The scenery is varied and picturesque, consisting of mountains, wooded glens, and undulating plains. Agriculture is followed in the level northern and southern districts, and many cattle and sheep are pastured. There is also a famous breed of tailless cats. Great quantities of lead are extracted annually containing more silver than any other ore in the United Kingdom; considerable copper, iron, and zinc are mined. The manufactures are unimportant, and the principal revenue is derived from large numbers of tourists. It has a constitution and a government of its own, to a certain extent independent of the Imperial British Parliament.

ITALY. A kingdom occupying the "boot-shaped" peninsula of southern Europe, with Sicily, Sardinia, and other islands. The surface of Italy is a mountainous plateau sloping to the east and west; about one third is a plain, watered by the Po, the only large river, with its tributaries navigable about 600 miles. The historic Tiber and the Arno are short rivers connected by a canal system, and contribute to the irrigation system of the great plain. Agriculture is the chief industry, nearly three fourths of the area being under cultivation, employing about one third of the population; a small part is covered with forests, including chestnut plantations, the nuts being used largely as food. Grapes and semi-tropical fruits are the leading crops, the wine production being the second largest in the world; other crops are wheat, maize, olives, rice, and about 11 per cent. of the raw silk of the world, (third in order to Japan and China). Italy is not rich in minerals, producing silver, iron, mineral fuels, copper and zinc in small quantities, asphalt, marble, granite, and alabaster. Sulphur is the great product. The fisheries include tunny, anchovy, and sardine. Its manufactures include silk thread cotton tissues, woolens, glass, and ceramic wares, tobacco, paper, and hats. Imports: wheat, raw cotton, coal, machinery, timber, wrought iron and steel, raw silk, and wool; exports: raw silk, cotton and silk tissues, olive oil, eggs, wines, hemp, dried fruits, sulphur, and cheese. Rome, called the "Eternal City," is the capital, and is one of the oldest cities in Europe, once the capital of the great Roman Empire; the chief port is Genoa, where Columbus was born; other important cities are Naples, Milan, Florence, Venice, and Palermo. Italy includes the independent Republic of San Marino. The Italian possessions in Africa include the colony of Eritrea on the Red Sea, of which Massuau and the Dahlak Archipelago are a part; gold and pearls are products. Italian Somaliland is a protectorate on the eastern coast, exporting timber, hides, butter, and durra. Tripoli was annexed in 1912. Italian Libia on the coast of Africa between Tunis and Egypt was secured in 1919 from France, and Rhodes, an island of the Aegean group in the Mediterranean was annexed from Turkey.

JAPAN. An island empire consisting of about 4,000 islands, 500 inhabited, lying on the east coast of Asia. Honshiu (mainland), Kiushiu, Shikoku, and Yezo constitute "Japan proper," the others being regarded as colonies. It is a land of high mountains and deep valleys, well watered but with no river system. The principal occupation is agriculture; more than half of the population are employed on a multitude of small farms not averaging much over two acres, every inch being cultivated. About one third of the total area is under cultivation, and one half is forest. The crops are rice, barley, tea, sugar, wheat, rye, silk (nearly 56 per cent. of the world product, largest producer in the world), and bamboo. Important trees are camphor, mulberry, and the vegetable wax tree. Manufactures are developing rapidly in textiles, paper, lacquer, embroideries, ships, machinery, tools, painted crepes, porcelains, and bronze. Minerals: copper, sulphur, silver, manganese, iron pyrites, coal, gold, antimony, petroleum and lead. Imports: raw cotton, rice, woolens, ironwork, beans, wheat, flour, sugar, oil cake, and petroleum; exports: cotton yarns, raw silk, tea, silk manufactures, matches, camphor, silk waste, rice, matting, and porcelain. The capital is Tokyo, with principal ports and cities of Nagasaki, Kobe, Yokohama, Osaka, and Kioto. Formosa is a large and important island, rich in agricultural products, importing gold, tea, and camphor, the bulk of the trade being with Japan. The Pescadores represent an area of about 50 square miles. Japanese Sakhalin, in the southern part of that island, has important herring fisheries, forests, and minerals. The leased territory of Kwangtung, the southern part of the Liaotung Peninsula, is an agricultural area producing maize, millet, wheat, buckwheat, rice, hemp, tobacco, and vegetables. Salt producing and fishing are important industries. Dairen has a fine, ice-free harbor, protected by a breakwater.

JUAN FERNANDEZ. A small group of islands in the Pacific Ocean belonging to the province of Valparaiso, Chile, also known as Mas-a-Tierra. The islands are of volcanic origin, fertile, well wooded, and differ remarkably from the mainland in flora and fauna. There is little agriculture, but the land is suited to the production of grain, and especially of small fruits. Cattle raising is the staple industry. Alexander Selkirk lived there in solitude for four years, and his experiences are supposed to have suggested the story of "Robinson Crusoe" to Daniel Defoe.

YUGO-SLAVIA. A country of 96,000 square miles in area, one-half the size of Germany, on the east coast of the Adriatic Sea, that set up a union and declared its independence in 1918. The new state is composed of Serbia, Montenegro, Bosnia, Herzegovina, Dalmatia,

Croatia, Slovania, a part of West Bulgaria, and a small section of the Banat of the Temesvar. Physically the country is very mountainous and rough. Montenegro being considered quite the roughest and wildest section of Europe. There is little transportation. The climate is very severe in winter and quite warm in the summer. On the hills we find a good bit of timber, containing beech, oak and fir. Farming methods are crude, the yield per acre is small and very little machinery is used. The crops are corn, oats, rye, wheat, olives, lemons, and grapes, cattle, sheep, and goats are raised to some extent. The mineral resources are a minor factor: a little coal, mostly lignite, iron, copper, gold, chrome, lead and antimony, these in small quantities. What manufacturing is done is of the simplest, such as flour milling, weaving and tanning. Belgrade is the capital and industrial city. Fiume, the port, was given to Italy by treaty in 1924.

KANSAS. A Central state. The surface is rolling prairie, with low hills. The drainage is perfect from the Kansas river in the north and the Arkansas in the south, with their tributaries, leaving no marshy tracts within the state. The Missouri, forming part of the eastern boundary, is here navigable. The bulk of the soil is very rich, with three fifths of the cultivated area improved land; there is irrigation in the Arkansas valley. It is first in wheat growing. The leading crops are maize, fruit, wheat, hay, flax, and alfalfa. Other industries are raising live stock, slaughtering and meat packing, flour and grist milling, car building, and zinc smelting. Minerals: coal, oil, natural gas, zinc, gypsum, Portland cement, limestone salt, and rock salt. The capital is **Topeka**, and the principal city **Kansas City.**

KEEWATIN. A district of Manitoba extending from Manitoba and Ontario on the south to the Arctic Ocean. The surface in the interior is rugged, but has no great elevations. It is well watered by the Severn, Nelson, Churchill, Great Fish or Back rivers. There is much good arable and wheat land; the southern half contains dense and valuable forests of spruce, Banksian pine, and aspen poplar. Gold and copper have been found and there is a valuable trade in fur-bearing animals.

KENTUCKY. A Central state, consisting of a plateau sloping gently west and northwest to the Mississippi and Ohio rivers. The Cumberland, Tennessee, Licking, and Kentucky rivers cross it, forming an extensive drainage system to the Ohio, all of which are navigable. The soil is wonderfully rich, two thirds of the agricultural area being improved land. The chief crops are tobacco, in which Kentucky leads, maize, wheat, hemp, hay, potatoes, watermelons, fruits, and some cotton. Stock raising is an important industry, and the state has long been famed for its fine horses, due to its limestone laden earth, which produces the "blue grass" in the finest pasture region in the world. There are important forests of oak, maple, ash, beech, walnut, and pine. Other industries are flour and grist milling, lumbering, mining, distilling, and manufacturing men's clothing. Mineral products: coal, fluorspar, sandstone, limestone, clays, iron, lead, barytes, lime, cement, asphalt, natural gas, besides mineral waters. The capital is **Frankfort**, and principal cities **Louisville**, the great tobacco market of the Union, **Covington**, and **Lexington.**

KOREA (CHOSEN). A country embracing the peninsula between the Sea of Japan and the Yellow Sea, now a province of the Japanese Empire. The northern half is mountainous and heavily wooded; the southern half is in ridges and spurs, deeply indented. There are no great rivers but the land is well watered. Most of the area is under cultivation. The north grows barley, millet, oats; the south; rice, wheat, other grains, tobacco, and many millions of pound of cotton annually. The fisheries are important; gold, copper, iron, and coal are abundant but undeveloped. Imports: cotton goods and yarns, iron, railway materials, silk goods, timber, tobacco, and petroleum; exports: rice, beans, hides, ginseng, gold, live stock, and fish products. There is poor communication, transport being by porters, pack horses and oxen, or by boats, although railroads are now being built to connect with the Siberian and Chinese lines. The capital is **Seoul**, with important ports **Port Hamilton**, **Ping-Yang**, and **Chemulpo.**

KUENLUN MOUNTAINS. They extend eastward into China in a curved line from Pamir and form the northern boundary of Tibet, having the higest average elevation in the world.

LATVIA. One of the small Baltic states, just south of Esthonia on the Baltic Sea, composed of part of Livonia and all of Courland, that gained its independence from Russia in 1918. The country is physically a part of the Russian plain and agriculture is the predominant industry. The crops are rye, cereals, flax and barley. There is a good bit of timber land to the north. 80% of the exports are flax and timber. Riga is the capital and one of the chief seaports on the Baltic Sea, a port that Russia desires greatly, causing constant friction.

LIBERIA. A negro republic on the west coast of Africa, founded as a permanent provision for freed American slaves. Only the coast line to a depth of about seven miles is developed to any extent. There are no railways. The country has rich agricultural, mining, and industrial possibilities. It would make a splendid coffee country, and some little is grown, also cacao, cotton, kola, peppers, and seed for home consumption. There are immensely valuable forest lands. There are gold, copper, zinc, corundum, and other minerals, but unworked. Imports: cottons, provisions, hardware, clothing, boots, and shoes; exports: rubber, piassava fiber, cacao, ivory, palm oil, palm kernels, coffee, ginger, camwood, and arnotto. The capital is **Monrovia**, the only port.

LIECHTENSTEIN. A principality of 65 square miles lying between Austria and Switzerland, governing itself since 1921 but belonging to the Swiss Custom's Union. It uses the Swiss post office, and the telegraph service, the diplomatic and consular service are taken care of by Switzerland. The country is primarily agricultural, raising cattle, grapes, fruit, corn and timber.

LITHUANIA. To the north of Poland on the Baltic Sea. The country declared her independence from Russia and Prussia in 1918. The country has approximately 154,000 square miles and is about the size of the state of Wisconsin. There are no mineral resources, agriculture and lumbering being the chief industries. The timber areas are mostly of pine. The agricultural products are cereals, flax, potatoes, wheat and rye with some animal husbandry. The means of transportation within the country are very poor and have retarded the development. The exports are mainly flax, rye, butter, eggs, hides and timber. Vilna is the capital.

LOUISIANA. A Southern state, noted for its immense flood plains and deltas. The rich soil is protected from the river overflow by great levees extending over 1,500 miles. The climate is semi-tropical, and the crops include large quantities of maize, rice, cane sugar, cotton, cottonseed, oats, potatoes, hay, and tobacco. There is a large forest area with important lumbering industries. The oyster fisheries are very valuable. Minerals: sulphur, rock salt, petroleum, clays, and marls. Refining of sugar and molasses, and manufacture of cottonseed oil preparations are important. It is the central point of commerce of the whole Mississippi system, and has an immense foreign trade. Exports: cotton, cottonseed products, sugar, cereals, beeves, mules, and horses. The capital is **Baton Rouge**, and the chief city **New Orleans**, the metropolis of the South.

LUXEMBURG. An independent grand duchy of Europe, linked to Belgium for economic unity and using their currency. The surface is a plateau with many valleys which are well wooded. Agriculture is the staple industry, and about one half of the total area is arable land. Large quantities of cereals, grapes, and fruits are grown, and stock raising is important. Other leading industries are connected with the mineral production, and the manufacture of woolens, gloves, pottery, paper, beer, and leather. The imports are principally coke, coal, and grain; the exports, minerals and manufactures. The capital is **Luxemburg.**

MACKENZIE. A Canadian district extending from Saskatchewan, Alberta, and British Columbia on the south to the Arctic Ocean, and from Keewatin on the east to Yukon. It is the largest division of Canada, but has not been fully explored. It contains the great Mackenzie river system in the west, whose deltas of great fertility are suitable to potatoes and vegetables grown during the short, warm summers. The forests are valuable in pine, spruce, tamarack, birch, and aspen poplar, the Douglas fir growing on elevations. Coal, salt, and iron are known to exist. The region is sparsely settled.

MACKENZIE RIVER. One of the longest streams of North America. It rises in the Rockies as the Athabasca river, falls into Lake Athabasca, emerges as Slave river, emptying into Great Slave Lake, from which it continues as the Mackenzie, navigable from that point to the Arctic Ocean during the summer. Its upper course is through a fertile and well wooded land.

MAINE. A New England state in the extreme northeast. The surface is generally hilly, becoming mountainous in the west and north. Its serrated coast line gives it the name of "the hundred harbored Maine." There are over 600 lakes and ponds, mostly in the plateau region, the south being well watered by the Saco, Androscoggin, Kennebec, and Penobscot rivers. They are of

little use in navigation, but invaluable for water power. Agriculture is limited, owing to forest lands on more than three fourths of the area, but the soil is exceedingly fertile in the Aroostook valley. The principal crops are oats, potatoes, sweet corn, buckwheat, hay, and apples. The lumber is mainly spruce, white birch, poplar, and cedar. Fisheries are valuable. The manufacturing industries are cotton and woolen textiles, paper and pulp, lumbering, varieties of canning, ice cutting, and shipbuilding. Minerals: feldspar, silica, granite, limestone, slate, tourmaline, some gold, copper, silver, iron, tin, and manganese, besides 26 mineral springs of importance. The railways connect with the Canadian systems. The capital is Augusta, with Portland the chief port, a great distributing center for meat products, cattle, cereals, and lumber.

MALAY ARCHIPELAGO. The largest system of island groups in the world, separating the Pacific from the Indian Ocean (exclusive of New Guinea). The principal groups are the Sunda Islands, including Sumatra, Java, Bali, Lombok, Sumbawa, Flores, Timor, and neighboring islands; Borneo, Celebes, the Philippines, Moluccas, and the western division of New Guinea. The archipelago practically belongs to the Dutch, with the exception of the Philippines, belonging to the United States, the British northern part of Borneo, the British island of Singapore, and the Portugese part of Timor.

MALAY STATES, THE FEDERATED. A large portion of the Malay Peninsula, consisting of Perak, Selangor, Negri Sembilan, Pahang, and Trengganu, a British protectorate. The staple products are cocoanuts, rice, rubber, sugar, tapioca, coffee, pepper, gambier, and nipa palm. There are valuable forests with good lumber, besides gutta-percha, oils, resins, canes, and fruits. Minerals: tin, some gold, lead, iron, bismuth, copper, mercury, arsenic, manganese, plumbago, silver, and zinc. Imports: rice, petroleum, opium, bran, flour, and sugar; exports: tin, padi (unhusked rice), rubber, copra, tapioca, gambier, and coffee.

MALTA. An island in the Mediterranean belonging to Great Britain, one of the most important ports of call in the world, and the repair and refitment base for the British fleet in the Mediterranean. The grand harbor is at Valetta, the capital. The staple industries are agriculture and cattle raising; oranges, figs, grapes, mandarins, onions, honey, and maize being grown. Cotton goods, silver filagree, and matches are manufactured. Minerals: marble, alabaster, and building stone.

MANCHURIA. The northeastern part of the Chinese republic. It was formerly of much greater extent, but the encroachments of Russia have reduced it. The eastern part consists of huge mountainous masses with many fertile valleys. To the south is the great plain of the country, the surface of which is varied by hills and valleys, and some swampy districts, but is of great agricultural value, having only about one fifth of its area under cultivation. There are large crops of pulse, barley, wheat, millet, maize, rice, cotton, indigo, tobacco, sesame, opium, ginseng, and rhubarb. The immense grazing lands would support tremendous herds of cattle, but stock raising is totally undeveloped. The mountains are still covered with forests. Manufacture of oil, oil cake, and the manipulation of wild silk are pursued. Gold is found in all the provinces, and is mined by the government in several places. Silver, copper, and lead exist, and coal, iron, and soda are worked to a limited extent. Mukden is the capital; the commercial ports are Niuchang, Port Arthur, and Dalny.

MANITOBA. A Canadian province, north of the American states of Minnesota and North Dakota; a part of the Great Prairie region, broken into hills in the northeast, gradually wooded to the north; terminating in dense pine forests in the northwestern parts, and watered by the Red river and its tributaries. There is poor soil in the east and in the hills to the west, but the Red river valley, and a great portion of the western plain are extremely fertile, and famous for their enormous production of fine wheat. The leading crops are wheat, oats, barley, flax, hay, and clover (the area of the grain crops increasing phenomenally); poultry and dairy products are important. It is the smallest in area but most advanced in development of the western divisions of the Dominion. Winnipeg is the chief city.

MARAJO ISLAND. A large island formed by the estuaries of the Amazon and the Para, and the network of river arms connecting them. It is about 165 miles long and about 120 miles wide. There are excellent grazing lands and large forests of rubber trees. There is little cultivation of any kind, the inhabitants being mainly hunters.

MARYLAND. A Middle Atlantic state. The surface consists of a coastal plain, the Piedmont plateau, and a part of the Blue Ridge Mountains in the west. It is drained by the Potomac, Patapsco, and several other rivers. It is an agricultural state, having four fifths of its area under cultivation, mostly farmed by the owners. The soil is light and loamy, unsuited to grass, but ideal for vegetables and small fruits. The staple crops are maize, wheat, hay, potatoes, fruit; about half of the tomatoes canned in the United States; also great dairy and poultry produce. The fisheries are valuable, producing more oysters than any other state. Other industries: canning (fruit, vegetables, oysters, etc.), copper smelting, meat packing, shipbuilding, petroleum refining, flour and grist milling, manufacturing iron, tobacco, textiles, cotton duck, lumber products, and fertilizers. Minerals: coal, building stone, iron ore, sand, talc, slate, lime, and natural rock cement. Baltimore is one of the best ports on the Atlantic coast, exporting wheat, flour, meat, provisions, cattle, cotton, and dried fruits, mainly from the Central and Western states. Annapolis is the seat of the United States Naval Academy and the capital of the state.

MASSACHUSETTS. A New England state, having an irregular coast line of about 300 miles. The surface of the western half of the state is mountainous, sloping eastward to the Connecticut river and undulating to the ocean. Rivers are numerous, unimportant to navigation, but valuable for water power. The soil is the débris of granitic hills, and yet too new for general cultivation, although extremely fertile areas exist in the Connecticut valley, and alluvial sections—therefore agriculture is limited. Nearly one quarter of the total crop is vegetables, with small fruits; tobacco is extensively grown in the Connecticut valley, and floriculture is yearly more important. This state leads in fishing, and the manufacture of boots and shoes, cotton and woolen goods. Other manufacturing products are foundry and machine shop products, paper, wood pulp, leather, bricks, pottery, and clay products. Few minerals are worked, including some coal, asbestos, talc, soapstone, infusorial earth, emery, granite, sandstone, trap rock, marble, and limestone. The capital is Boston, and it is one of the largest ports for valuable foreign trade, exporting provisions, cattle, oats, cotton, breadstuffs, leather, iron and steel manufactures, paper goods, and apples. Worcester, Fall River, Cambridge, Lowell, Lynn, are also important.

MAURITIUS. An island in the Indian Ocean which, with its dependencies, is a crown colony of Great Britain. The surface is mountainous, but has a fertile, if somewhat stony soil. Cane sugar is the agricultural staple, with minor products of cereals, spices, indigo, drugs, and tea. Imports: cotton goods, coal, machinery, fertilizers, ironwork, and soap; exports: unrefined sugar, rum, vanilla, aloe fiber, molasses, cocoanut oil, and hemp. The capital and chief port is Port Louis.

MEDITERRANEAN SEA. The largest inclosed sea in the world. It is 2,300 miles long by 100 to 600 miles wide; is connected with the Red Sea by the Suez Canal, and by the Strait of Gibraltar with the Atlantic. Gulfs, bays, and seas indent its coasts, of which the Adriatic Sea is the largest. Shallow banks below Italy, with the peninsula divide the sea into two basins, the various parts of which have special names. There are many islands, including Sardinia, Corsica, Balearic, Lipari, Sicily, Malta, Cyprus, Crete, the Ionian and Grecian archipelagoes. It is frequently visited by earthquakes, and Vesuvius, Stromboli, and Etna are active volcanoes. Few great rivers enter it. Its African coast is regular, the European extremely broken. It is usually called a tideless sea. Extensive red coral and sardine, tunny, and sponge fisheries exist. This inland sea is commercially the most important waterway of the world. The Adriatic Sea between Italy and the Balkan peninsula has an even, low western coast, a marshy northern coast, and a steep, rocky, barren eastern coast with many inlets and rocky islands. Its navigation is safe, and rich fisheries are worked. Venice and Trieste are the chief ports.

MESOPOTAMIA. The territory lying between Persia and Arabia on the Persian Gulf, an independent state under the mandate of Great Britain. The country depends upon irrigation for its moisture and if money could be spent on projects, the area between the Euphrates and the Tigris rivers would again "blossom like the rose." As it is now, parts of the country are very barren. The crops are wheat, cereals, clover, dates, rice and cotton. The area is one of the great oil regions of the world. Carpets and grain are the chief exports. Bagdad is the chief city on the Tigris river and its capital.

MEXICO. A federative republic immediately south of the United States, between the Pacific Ocean and the Gulf of Mexico. The surface is mainly an immense table-

land rising steeply from the coast lands, but gradually from the lower Rio Grande, to an interior plateau dominated by mountains at each coast. The rivers are unimportant to commerce, the longest being the Rio Grande, forming part of the boundary with the United States. The climate varies according to location; one may start from Puebla with green wheat shoots showing in March, farther along the railway finding ripened wheat, and farther still, threshing. Agriculture is important, but very primitive. Crops: wheat, maize, henequen (fiber), sugar, oranges, coffee, beans, cotton (dependent on irrigation), dyewoods, and rice. Farm animals are raised widely. Metallurgical works and cotton and tobacco manufacturies are important. It is one of the largest mining countries in the world. Silver is found in 24 out of 31 divisions, either alone or in combination, and other minerals are gold, copper, lead, zinc, quicksilver, tin, and antimony. Imports: iron, steel, coal, carriages, wood manufactures, locomotives, and foodstuffs; exports: silver, gold, henequen, hides, and manufactures. The capital is **Mexico**, and the chief ports **Vera Cruz, Acapulco, Tampico, Progreso, Mazatlan, and Tehuantepec.**

MICHIGAN. One of the Central states, divided by Lake Michigan into two peninsulas. It has a long coast line and many good harbors. The surface is level, except in the north, and well watered by small rivers. The soil is very fertile, except in the northern portions, and about two thirds of the cultivated area is improved land. Crops: maize, wheat, oats, sugar beets, hay, rye, with large quantities of vegetables and fruits, peaches, plums, apples, etc. Stock raising is still important. There are large forests of white pine, hemlock, maple, elm, basswood, ash, and white oak in the north. Lumbering is the second great industry. Metal working, machine making, slaughtering and packing, milling, and dairying are important. Minerals: immense deposits of iron ore, copper, and asbestos, salt, gypsum, clays, Portland cement, graphite, sandstone, and limestone occur, besides mineral waters and some petroleum. The capital is **Lansing**, with important cities of **Detroit, Grand Rapids, and Saginaw.**

MINNESOTA. A Central state lying on the border line of Canada. The surface is rolling in the north, covered with dense forests of pine; northeast lie swamps and lakes, and to the south, prairie. The drainage system includes the Mississippi, Red, Minnesota, and St. Louis rivers. The soil is a rich, black loam, except in the northeast and north central counties. About one half of the total area is farms. Crops: maize, wheat, oats, barley, and flax. Stock raising is considerable. Manufacturing boots and shoes, clothing, metal goods, and machinery; milling and dairying are valuable. Minerals: iron ore, rich in red hematite, good granite, sandstone, limestone, and clays. The capital is **St. Paul**, and leading cities are **Minneapolis**, important as a grain center, **Duluth, Winona, and Stillwater.**

MISSISSIPPI. A Southern state. The surface is mountain ridges in the north, grading to rich alluvial river bottoms, which constitute some of the finest cotton land in the world. It is well drained by the Mississippi and its tributaries. The climate is semi-tropical, with agriculture the staple industry. Crops: cotton, maize, rice, wheat, oats, tobacco, and vegetables. It is the third cotton state. The fisheries are mainly oyster and shrimp. There are considerable forest areas not yet exploited. Manufacturing is not well developed, and mainly lumber, cottonseed oil and cake, canned oysters, and fertilizers are the products. There are practically no mining enterprises, but there exist hydraulic limestone, coal, gypsum, and clays. The capital is **Jackson**, with leading cities of **Vicksburg, Meridian, and Natchez.**

MISSISSIPPI RIVER. The principal river of North America, including the Missouri, is the longest river in the world. It rises in the Minnesota highlands in Lake Itasca and empties into the Gulf of Mexico, over 1,400 feet below its source. It drains the entire western slope of the Appalachians, and nearly all the eastern slope of the Rockies. Its drainage basin covers about one third of the total area of the United States. It is navigable to the Falls of St. Anthony at Minneapolis, about 2,100 miles. Its navigable tributaries are the Missouri, for about 2,300 miles in the flood period, the Arkansas, the Red, and the Ohio rivers. The total navigable length of the river and its tributaries is about 20,000 miles. The **Missouri River** is formed in southwest Montana by the confluence of the Jefferson, Madison, and Gallatin rivers. It flows across Montana, North Dakota, South Dakota, and Missouri, joining the Mississippi 20 miles above St. Louis. It is a swift, muddy stream, navigable only by flat-bottomed steamboats.

MISSOURI. A Central state whose surface is mainly rolling plains, rising gradually south of the Missouri river, which divides it. The southeastern part of the state is marshy bottom lands, protected by levees. The entire state is well drained; the climate is mild, but subject to long droughts. Agriculture is the chief business. Crops: maize, wheat, hay, oats, rye, sorghum, cotton, flax, tobacco, vegetables, and small fruits, peaches, and apples are increasing in product phenomenally. There is considerable stock raising, especially hogs and sheep. Dairying interests are important in milk, butter, and cheese, and much honey is gathered. The forests are cypress and white oak. Slaughtering and packing, tobacco manufacturing, milling, brewing, printing, lumbering, and machine making are valuable industries. Minerals: coal, red and brown hematite iron ore in quantity, zinc, lead, Portland cement, cobalt, nickel, barytes, limestone, granite, etc. There is important water and railway traffic all through the state. The capital is **Jefferson City**, and the chief cities **St. Louis, Kansas City, and St. Joseph.**

MONACO. An independent principality, and the smallest state in Europe. Its area is about eight and one half square miles, and practically consists of the capital, **Monaco**, of **Monte Carlo**, and of the village of **Condamine**, which lies between the two towns.

MONGOLIA. A colony of the Chinese republic in central Asia, extending over a large area. It is mainly a vast gravelly plain, intersected by low hills. In the west and in the northeast sections are wide, grassy plains, which merge into the rich pasture lands and wooded country. In the south it is fertile, rolling, and well forested. With the exception of the sterile Gobi plateau the country is well watered and drained, some of the lakes being brackish, from which thousands of tons of salt are obtained. In southeast Mongolia are grown crops of indigo, rice, cotton, opium, and cereals, but in central Mongolia only small quantities of wheat, oats, buckwheat, and millet are produced, and in the northwest there is little agriculture, except in the vicinity of the lakes and along the lower courses of the rivers. There are many fur bearing animals, and also droves of wild camels, ponies, asses, and mules. The chief industry is the breeding of horses and the rearing of cattle and sheep. Felt and certain woolen goods are produced, and there is some silk weaving. Chief exports: wool, skins, hides, furs, etc. **Urga** is the chief town.

MONTANA. A Western state, bounded on the north by Canada. It is the third largest in size. The eastern three fifths is rolling plain, sloping to the mountain ranges, which are intersected by broad valleys. The state is drained by the Missouri and Columbia rivers, but in many sections irrigation is necessary, and the government is equipping nearly 500,000 acres with irrigation facilities nearing completion. The rainfall is only 12 inches per annum, and agriculture is somewhat undeveloped. Crops: wheat, barley, oats, potatoes, and much small fruit. Cattle raising and ranching are important in the valleys, and the wool clip is the greatest in the country. Other industries are copper smelting and refining, lumbering, flour and grist milling, brewing, and slaughtering. Minerals: copper, coal, silver, gold, stone, and iron ore, zinc, tungsten, corundum; mineral waters and sapphires are valuable products. The capital is **Helena**, with chief cities of **Butte, Great Falls, and Anaconda.**

MOROCCO. A Mohamedan Empire, acknowledging protection of France except in Tangier which is internationalized. The surface is generally mountainous, with depressions. The agriculture is primitive with some stock raising. Crops: maize, barley, wheat, olives, dates, oranges, figs, and numerous vegetables. Minerals: rich in copper and iron ore, some antimony and rock salt, but all unworked, owing to prejudice against foreigners. Manufactures: textiles, carpets, metal goods of copper, brass, and silver filagree. Imports: cotton, sugar, tea, flour, hardware, wines, and candles; exports: barley, hides, beans, fruits, olive oil, wool, eggs, slippers, canary seed, flaxseed. The capital is **Marakesh**; chief port **Tangier.**

NEBRASKA. One of the Central states. It is a part of the great plateau east of the Rockies, with much soil of a rich, black mold, drained by the Missouri and tributaries. Irrigation is necessary in many sections, and large Federal plants are nearly completed. The eastern part of the state produces most of the crops, which are maize, wheat, oats, sugar beets, chicory and fruits. Large herds of cattle, sheep, swine, and horses are nourished on the bunch grass, which withstands the drought. Slaughtering and meat packing, brewing, flour and grist milling, and dairying form nearly seven eighths of the total manufacturing, the lack of cheap fuel being a handicap, besides the fact that there are no minerals except clays and some building stone. **Lincoln** is the capital, and **Omaha** the chief town.

Photos 1 from Brown Brothers; 2 by Burton Holmes, from Ewing Galloway; 3, 4 and 5 from Ewing Galloway; 6 by Elmendorf from Ewing Galloway.

IRRIGATION—I

1 Concrete aqueduct, 333 miles long. 2 Irrigation ditches, orange groves, California. 3 Irrigation ditches, Australia. 4 Gravitation irrigation on hill slopes in China. 5 Flume and canal paralleling each other, Boise, Idaho. 6 Large irrigation feed ditch, Riverside, California.

Photos 1 and 2 by Burton Holmes, from Ewing Galloway; 3 and 4 from Ewing Galloway; 5 by De Cou, from Ewing Galloway.

IRRIGATION—II

1 "Shadufs" or bucket lifts, Nile, Egypt. 2 Horse-pump, Budapest, Hungary. 3 Bamboo water-wheel, China. 4 Treadmill cup belt, Soochow, China. 5 "Sakieh" or chain bucket pump, Karnak, Egypt.

NEPAL. An independent state on the southern slope of the Himalayas. The southern portion, called the "terai," a strip of level land, is partly covered with forests and well cultivated. The remainder of the country merges into the Himalayas, and contains some of the highest mountains in the world, such as Mounts Everest and Dhaulagiri. It belongs to the basin of the Ganges. Agriculture is the staple industry, but is carried on under the most primitive methods, owing to the scarcity of agricultural land. Hill slopes, ledges, even when difficult of access, are utilized, and the irrigational methods are exceedingly ingenious. Crops: rice, wheat, pulse, maize, sugar cane, and vegetables in the central valleys, and in the "terai" region tea, cotton, tobacco, etc. Many European fruits have been successfully introduced. Imports: cotton and woolen piece goods, raw silk and cotton, leather, silver, brass, copper, iron, spices, salt, sugar, petroleum, cattle, sheep, and goats, many of which are re-exported to Tibet; exports: rice, oil seeds, cattle, hides, opium, resins, jute, dyes, saltpeter, drugs, tobacco, timber, and glue. Manufactures: coarse cloth, paper, brass bells, and utensils. The capital is **Katmandu.**

NETHERLANDS or **HOLLAND.** A European country bordering on the North Sea. It is the flattest part of the continent, a region of plains broken only by dunes and low hills. One fifth of the area is unproductive, the most fertile tracts being reclaimed from the sea. There are many small streams, but the important rivers are all in the south,—the Rhine, the Meuse, and the Scheldt; many canals connect the rivers, so it is possible to travel throughout Holland by water. There is little forest land. Crops: rye, potatoes, oats, wheat, beets, large quantities of bulbs, and shrubs. Cattle raising and dairy farming are almost without an equal. Fisheries are important, especially for oysters. There are a few coal mines. Imports: cereals and flour, iron and steel, textiles and copper; exports: textiles, iron and steel, copper, vegetables, dairy produce, distilled spirits, cereals and flour, paper, honey, eggs, and horses. Manufacturing industries: distilling, sugar refining, salt refining, brewing, and diamond cutting. The capital is **Amsterdam,** built on 90 islands, connected by many bridges, with chief ports of **Rotterdam** and **Flushing.** The colonial possessions in the East and West Indies are extensive. The **Dutch East Indies** represent the southern and eastern part of **Borneo,** the **Celebes, Java,** the western part of **New Guinea, Sumatra, Timor,** and other islands in Malaysia. Exports: sugar, coffee, tea, rice, indigo, tobacco, tin, cacao, trepang, copra, pearl shell, sandalwood, gold, and pearls. The **Dutch West Indies** include **Curacao** with neighboring islands, **Bonaire, Aruba, St. Martin, St. Eustache,** and **Saba,** exporting orange peel, salt, phosphate of lime, and hides; **Dutch Guiana,** or **Surinam,** exporting coffee, rum, molasses, and gold, is on the north coast of South America. **Paramaribo** is the capital

NEVADA. A Western state, mainly in the Great Basin between the Sierras on the west and the Wasatch on the east. The Humboldt is the principal river, but much of the south central and southwestern portions are without rivers. The soil is fertile under irrigation, and Federal plants supplying over 160,000 acres are to be at work soon. The rainy season covers the level plains, for hundreds of square miles, with water up to two feet deep, producing hardened mud flats. Agricultural development has been retarded by lack of transportation facilities, and of local markets, but there are good stock raising ranches. Manufacturing: flour and grist milling, car making and repairing, dairying, and brewing. Minerals: immensely rich deposits of silver and gold, including the Comstock lode; copper, lead, zinc, coal, and iron ore are mined. The capital is **Carson City.**

NEW BRUNSWICK. An eastern province of the Dominion of Canada on the Gulf of St. Lawrence. The surface of the eastern half is a low triangular plain inclosed by ridges, much of the western and southern areas being plateau. The river **St. John,** and numerous small lakes and streams connect with the Gulf of St. Lawrence. The soil, especially in the valleys, is generally fertile, but agriculture is not fully developed. Crops: oats, buckwheat, wheat, potatoes, turnips, and other roots; there is considerable stock raising, dairying, poultry raising, fruit growing, bee culture, lumbering, manufacturing of wood pulp, and shipbuilding. Large forest areas include spruce, pine, tamarack, maple, beech, ash, birch, and elm. Excellent salmon fishing is found in several of the rivers. Minerals: iron, nickel, antimony, manganese, gypsum, plumbago, grindstone, limestone, and valuable freestone, with some coal. The capital is **Fredericton,** and the chief port **St. John.**

NEWFOUNDLAND and **LABRADOR.** A British colony in North America, distinct from Canada, comprising the island of Newfoundland and its dependency, Labrador. The surface is an undulating plateau of moderate elevation, traversed by ridges. It is well watered, but the rivers are not navigable except by canoes. There is a very large area of good agricultural land, but only a small part under cultivation. Crops: potatoes, turnips, hay, barley, oats. There are good pine forests at the north. Industries: fishing and making paper and pulp products. The country is rich in minerals: iron ore, copper, coal, gold, silver, and lead. Imports: flour, textiles, coal, salt pork, and molasses; exports: dried fish, fish oils, iron ore, canned fish, sealskins. The capital is **St. John's.**

NEW GUINEA or **PAPUA.** A large island north of Australia, the southeast portion being British, the northeast, formerly German, (Kaiser Wilhelm Land) is now administered by Australia and the larger portion in the west, Dutch. **British New Guinea** has many thousand acres leased to planters. Crops: cocoanuts, rubber, sisal hemp, coffee, Murva fiber, cotton, vanilla, kapok, tapioca, cinnamon, tea, and tobacco. There is much valuable forest land producing sago palm, sandalwood, cypress, ebony, gums, and rattan. Minerals: gold and copper are worked. Imports: foodstuffs, cloth, and hardware; exports: copra, pearl shells, gold, copper, pearls, and woods. **Port Moresby** is the chief port. **Dutch New Guinea** has no towns or centers.

NEW HAMPSHIRE. One of the New England states. The surface is rough and mountainous, culminating in the romantic White Mountains. The state is well watered and drained, supplying tremendous water power to cities. About three fifths of the area is forest. The valleys are very fertile. Agriculture, quarrying, and manufacturing are leading industries. Crops: hay, corn, potatoes, oats, great quantities of apples, and some tobacco. Manufactures: boots and shoes, cotton and woolen goods, carriages, and paper. Minerals: granite, mica, scythe stones, copper, ores of lead, zinc, tin, arsenic, iron, and some gold and silver. The capital is **Concord,** with leading cities of **Manchester, Nashua,** and **Dover. Portsmouth** is the only seaport.

NEW JERSEY. An important Middle Atlantic state. The surface slopes from the northwest corner to the coastal plain of the Atlantic. The principal rivers are the Passaic, Hackensack, and Raritan. The valley soil is fertile but only about three fifths of the area is under cultivation. Agriculture, market gardening, fruit growing, horticulture, and forestry are pursued. Products: maize, wheat, oats, vegetables, fruits (especially peaches), small fruits, particularly strawberries, and flowers. There are valuable fisheries of trout, perch, black bass, shad, sturgeon, menhaden, and oysters. Minerals: magnetic ore, granite, trap rock, sandstone, limestone, Portland cement, clays (fine porcelain, tile, and brick), talc, soapstone, also mineral waters. Manufactures: textiles, silks, worsteds, cottons, woolens, canned goods, felt hats, porcelains, machinery, jewelry. The capital is **Trenton,** with chief ports of **Hoboken, Jersey City** and **Newark. Jersey City** is the terminus of several great railroad and steamship lines.

NEW MEXICO. One of the new Western states. The entire surface lies very high, only a small section in the south lying below 4,000 feet. Through the western part stretches the great plateau of the Continental Divide; the eastern part belongs to the Great Plains, the land rising westward of the Pecos valley into the front range of the Rockies. The soil is fertile, but needs irrigation, which is extending; the total area will finally cover about one million acres. Crops: alfalfa, cereals, vegetables, fruit, cotton. It is a great sheep grazing country, and also has many cattle. The national forest area includes an enormous tract of sycamore, cottonwood, oak, pignon, dwarf cedar, while extensive forests of pine, spruce, and cedar cover the higher lands. Other industries: car construction and railroad repair work, lumbering, flour milling, manufacturing woolens, cement preparing, and wool scouring. Minerals: copper, coal, silver, gold, lead, zinc, kaolin, turquoise, etc., but all comparatively undeveloped. The capital is **Santa Fe.**

NEW YORK. A Middle Atlantic state. The wealthiest and most populous state. The greater part of the surface is plateau and rolling plains, with the Adirondack Mountains in the east; south of these are the Catskills cut by the Hudson river, the vast plain covering more than one third of the state. There are many small rivers supplying the main systems of the St. Lawrence and Hudson. The state has large agricultural interests, including large truck farms, important fruit growing, and extensive floral culture. Crops:

maize, wheat, oats, potatoes, hay, tobacco, some sugar beets, fruit, hops. The value of the fisheries is decreasing, but is still large, and oysters constitute about one half the total. Other industries: clothing and textile manufacturing, sugar refining, foundry and machine shop work, slaughtering, printing and publishing, mining and quarrying. Minerals: iron, talc, petroleum, natural gas, clays, granite, trap rock, sandstone, marble, limestone, slate, Portland cement, salt, infusorial earths, emery, and garnet. The capital is **Albany.** The chief city is **New York,** the largest shipping port in the world, and the metropolis of the United States with one of the finest harbors in the world; the upper and lower bays covering about 100 square miles. There is a water front of 22 miles on Manhattan Island, but the total water front of the port is several times larger. There are five bridges connecting with Long Island, two tunnels to Jersey City, and the ferry system is the best in the world. Exports are largely grain, flour, cotton, tobacco, apples, fruits, preserved provisions, meats, and cattle. Other important cities are **Buffalo** and **Rochester.**

NEW ZEALAND. A British dominion in the South Pacific Ocean, consisting of two large islands, one small island, and a group of outlying islets attached to the colony. The surface of North Island is gently undulating, with a number of volcanic peaks. South Island has no volcanoes, but has a rugged range of the Southern Alps along the western coast, with magnificent scenery. The rivers are small and unimportant. Agriculture and grazing are the staple industries, sheep being a great factor. Crops: oats, wheat, barley, hay. Dairying is by the factory method, through the co-operation of small farmers. Imports: clothing and materials, iron and steel goods, sugar and fruit; exports: wool, frozen meat, kaurigum (resin), dairy products, gold, hides, horns, bones, and a native grass fiber. Other industries: meat freezing, wool scouring, tanning, saw and grist milling, dairying, manufacturing of clothing, boots and shoes, iron and steel. Minerals: gold, coal, some silver and silver lead. The capital is **Wellington,** which, with **Auckland,** is one of the two chief ports. Attached to New Zealand are the uninhabited **Auckland Islands, Chatham Islands,** the **Cook,** and other islets, producing copra, pearl shell, fruit, hats, and lime juice.

NICARAGUA. The second largest Central American republic. The surface is divided into distinct zones by two mountain ranges, between which lies the great interior basin where population and industries are centered. It is well drained. The soil is fertile, but agricultural development is hampered by the scarcity of labor. Crops: coffee, bananas, cacao, sugar, tobacco, cotton, cocoanuts, black beans, rubber, maize, indigo, rice. The forests are valuable, containing cedar, mahogany, dyewoods, gum trees, and medicinal growths. Minerals: gold, coal, and oil are worked to some extent, and a number of other minerals have been located. Imports: cottons, food products, ironwork; exports: coffee, timber, gold, rubber, bananas, cattle, and hides. Manufacturing industries are unimportant. The capital is **Managua,** with other important cities of **Bluefields, Corinto,** and **Greytown.**

NILE. The longest river of Africa, and the second longest in the world, being about 3,670 miles long, with a source estimated at 6,114 feet above sea level. The area of the Nile basin is estimated at about 1,780,000 square miles. Little of its enormous volume of water reaches the sea, but is spread over the low lands of Egypt, fertilizing them with sediment and supplying moisture. It is divided into four sections: the Upper, Middle, Lower, and the Delta, receiving the Blue and the White Niles at Khartum. It is dammed just below Cairo, and at Assuan, to regulate the distribution of the water in the dry seasons. It has turned Egypt from an arid desert into a rich agricultural land, supporting about 600 inhabitants to the square mile, thus acquiring the name of "the gift of the Nile." **Cairo** is the chief city.

NORTH CAROLINA. A Southern state. The surface consists of the Appalachian Mountain region in the west, well-forested, which slopes from the foot of the Blue Ridge to the coastal plain, sandy and flat. It is intersected by rivers of valuable water power. There is abundant rainfall and good drainage. Agriculture is the staple industry. Crops: cotton, tobacco, maize, wheat, peanuts, potatoes, oats, and rye. There is some stock raising, with dairying industries on the increase. The shad and oyster fisheries are valuable. Manufactures: cotton goods, tobacco products, lumber, and flour. More cotton is manufactured than raised. The minerals are not important, mainly corundum, mica, bismuth, clays, granite and talc. The capital is **Raleigh,** and the chief port **Wilmington.**

NORTH DAKOTA. A Central state. The surface of the eastern part is level, watered by the Red river and its tributaries; it merges westward into rolling prairies, rising to a small forest-covered plateau. The soil is fertile and easily worked, but needs irrigation. Agriculture is the chief pursuit, and immense fields of wheat are cultivated, also oats, barley, flaxseed, potatoes, and hay; large numbers of horses, cattle, and sheep are raised. Flour and grist milling and dairying are limited in extent. Minerals: coal, clays, and cement, with some lime, salt, and iron. The capital is **Bismarck.**

NORTH SEA. A southern extension of the Arctic Ocean lying between Great Britain and the continent. It is connected with the Baltic Sea through a series of narrow channels, and with the Atlantic Ocean through a wide opening at the north, and southward through the Strait of Dover and the English Channel. It is 600 miles long and 400 miles wide, the greater proportion being less than 600 feet deep. At the south and east, the coasts are low and flat; at the north and west, the water is deeper and faced by high, bold cliffs. It has a very irregular bed containing many shoals and sand banks, made by the many rivers it receives, among which are the Thames, Humber, Forth, Rhine, Weser, and Elbe. From earliest times it has been one of the most important highways of the world, surrounded by some of the greatest nations. The fisheries, which provide employment for thousands of fishermen, are among the foremost in existence. The chief ports are **Hamburg, Bremen, The Hague, Rotterdam, Antwerp, London, Hull, Newcastle.**

NORWAY. A long, narrow coast country of Europe, which, with Sweden, makes the Scandinavian Peninsula. The deeply serrated coast presents about 12,000 miles of coast line. The surface is a rugged plateau. In the southeast and middle north are great forests of pine. Only a very small part of the area is under cultivation. Crops: oats, rye, barley, and potatoes, but not nearly sufficient for home demands. There are good grazing lands for sheep, cattle, horses, goats, swine, and reindeer. Lumbering is the great industry, and fisheries produce cod, herring, mackerel, salmon, sea trout, lobsters, oysters, walrus, seal, and shark. There is much valuable water power, but the country lacks industrial development. Minerals: silver, copper, and pyrites in small quantities. Imports: animals, breadstuffs, minerals, textiles, ropes and yarn, tallow, oils, exports: timber and wooden goods, animal products, fish, wood pulp, tar, paper and pulp, ice. The capital is Oslo, chief ports Bergen, Christiansand, Drontheim, and Hammerfest, the most northern town of Europe.

NOVA SCOTIA. A province of the Dominion of Canada. The surface is undulating, traversed by broken ranges of hills. It is adequately drained by a number of short rivers running southward. The valley lands are extremely fertile. Crops: oats, potatoes, hay, barley, wheat, buckwheat, rye, turnips, with large fruit areas. There are important progressive dairying, and increasing poultry products. One half the population is engaged in the valuable fisheries, deep sea, inshore, and inland. There is much rich timber, which is being extensively cut. Coal mining, manufacturing of coke, iron and steel, textiles, dairying, tanning, and canning are important. There is valuable water power. Minerals: rich coal, iron, gold, gypsum, limestone, and lead deposits. Cape Breton Island is part of the province, and Sable Island is a dependency. The capital and chief port of Nova Scotia is **Halifax,** exporting coal, lumber, fish, cattle, flour, potatoes, apples, butter, furs, and oils.

OHIO. A Central state. The surface is a low plateau, with a series of hills extending to the southwest. It is well drained and watered, and has a very fertile soil. Agriculture is one of the principal industries. Crops: maize, wheat, hay, potatoes, sugar beets, tobacco. There are extensive orchards, vineyards, and truck gardens. Horses, cattle, and sheep of a high quality are raised, and dairying is important. Other industries: manufacturing iron and steel goods, machinery, furniture, carriages, chemicals, flour and grist milling, and slaughtering. Minerals: coal, petroleum, iron ore, valuable clays, limestone, sandstone, Portland cement, salt. The capital is **Columbus,** and the chief cities **Cleveland, Cincinnati,** and **Toledo** with its good harbor facilities.

OKLAHOMA. A Western state which is rapidly developing. The surface is a rolling plain rising to an elevation on the western boundary; a range of hills runs through the central portion. It is well watered and drained by the Red river, the Arkansas river, and their tributaries. The soil is good, especially in the valleys. It is preëminently an agricultural and stock raising state. Crops: maize, wheat, cotton, potatoes, hay, flax, sorghum, barley, rye, broom corn, castor

beans, and fruits. The extensive cattle ranches are in the west. There is little manufacturing, mainly flour and grist milling, cotton ginning, making cottonseed oil and cake. Minerals: coal, petroleum, asphalt, gypsum, salt, limestone, sandstone, and granite. The capital is Oklahoma City.

OMAN. An independent sultanate at the southeast end of Arabia. It has a mountainous coast with rich central valleys extending to the desert. Dates are the chief crop. Imports: rice, coffee, sugar, piece goods, silk and silk goods, twist and yarn, cereals, arms, and ammunition; exports: dates, fruits, fish, mother-of-pearl, and pearls. The capital is Maskat, which has a large caravan traffic with the interior.

ONTARIO. The most populous province of the Dominion of Canada, containing about two fifths of the total population. The surface in the north is a plateau which divides the Hudson Bay system from that of the Great Lakes; in the south it is lowlands broken by a spur from the north uplands which forms the Thousand Islands and the high northern bluffs of Lakes Huron and Superior. It is well watered, has abundant water power, and an exceedingly fertile soil. It is an agriculutral state, with extensive fruit orchards and vineyards, besides important stock raising and dairying interests. Crops: oats, hay, wheat, peas, maize, barley, rye, buckwheat, roots. Valuable fur producing areas are in the north. The fisheries of the Great Lakes produce cod, herring, trout, whitefish, pickerel, etc. Minerals: immense nickel deposits, iron, copper, gold, silver, petroleum, natural gas, clays, limestone, sandstone, and building stone and marble. It is largely engaged in manufacturing farm implements, machinery, wagons, cottons, woolens, leather goods, etc. The capital is Toronto, with chief cities of Ottawa (the seat of government), and Hamilton.

OREGON. A Western state lying on the Pacific slope. It is a semi-arid area, there being good rainfall west of the Cascade Mountains, producing much highly fertile land, but east of the range irrigation, private and Federal, is being largely used, and further planned. It is traversed by the Columbia river and its tributaries, the Willamette, the Snake, and several small streams; the Columbia is navigable for ocean ships to Portland. It is largely given up to agriculture and lumbering. Crops: wheat, hay, oats, barley, flax, hops, sugar beets, potatoes. There are extensive orchards. There is active stock raising and also valuable fisheries of salmon (in the Columbia), sturgeon, halibut, and oysters. Manufactures: lumber and timber products, flour and grist, canned meat and fish, machinery, and wood pulp. Minerals: gold, copper, silver, coal, granite, and some quicksilver, gypsum, nickel, cobalt, lead, garnet, and opal. The capital is Salem, with Portland as the chief city and port.

ORINOCO. The smallest of the three great South American rivers, with a source about 1,000 feet above sea level. The total navigable length of the system is about 4,300 miles, but is little used, and the great natural wealth along its course is practically untouched. The main stream is almost wholly within Venezuelan territory, and periodically floods the country adjacent to the lower reaches. The plains through which it flows are called llanos, on which great herds of cattle are raised. This is also the cacao section.

ORKNEY ISLANDS. An archipelago lying to the north of Scotland. The island of Hoy is mountainous, but the surface of the remaining islands is low with irregular, rocky coast lines. There is an adequate rainfall, the climate is fairly mild, owing to the Gulf Stream, and the soil is fertile, producing barley, oats, potatoes, and turnips. Considerable cattle, sheep, and poultry are raised, and fishing is an important local industry. Exports: live stock, sea food, eggs, and poultry. The only towns are Kirkwall, the capital, and Stromness, which has a fine harbor for large vessels.

PACIFIC OCEAN. The largest of the five great oceans; lies between America and Asia, connecting with the Arctic by Bering Strait and to the south merging into the Southern Ocean. It is the deepest and the largest ocean, and has an area of about 67,570,000 square miles, about one half of the water surface of the globe. It has less land than the Atlantic draining into it. The largest American rivers are Yukon, Columbia, and Colorado; the Asiatic are Amur, Hoang-ho, and Yangtze. The greatest depth, 31,614 feet, is off the Island of Guam, reported by U. S. ship Nero. The currents are much less marked than in the Atlantic. The American and Australian coasts are mountainous and regular, the Asiatic low and fertile with numerous gulfs, bays, and seas, including Bering, Okhotsk, Japan, Yellow, South, and East China, with many volcanic islands. To-day many steamship lines and cables connect the two great continents and commerce is developing most rapidly.

PALESTINE. The coast land east of the Mediterranean, a part of Syria, occupied by the Philistines and later called the Land of Israel. A territory about 150 miles from north to south, 35 miles broad at the north and 110 miles at the south. Within this are the Sea of Galilee about 682 feet below sea level, the Dead Sea about 1,292 feet below, the bottom of which is estimated at 2,592 feet below the Mediterranean. The surface consists of hills and mountains to the west of the Jordan with its depressed valley and a plateau region lying east. It is poorly supplied with rivers. There is little settled population. Irrigation is necessary to produce fertility in most regions, and the herding of goats and sheep is the principal industry. Cotton, hemp, indigo, grapes and other fruits are raised in very rude fashion. Roads are being made, wagons replacing camels and mules, the railroad is appearing, and changes seem imminent. Jerusalem is the chief city; Jaffa the port.

PANAMA. A republic of seven provinces on the narrow strip of land between North and South America. The surface is mainly low mountains, divided by valleys, with some level, treeless plains, and lofty mountains to the west. The ranges are covered with dense forests. The soil is fertile and produces caoutchouc, bananas (the chief product), fruits, coffee, cacao, cocoanuts, copaiba, sarsaparilla, ipecac, sugar cane, indigo, rice, cotton, and vanilla. Industries: cattle raising, agriculture, and working on the Canal. It is claimed that every mineral but coal is found. Imports: woolens, cottons, coal; exports: cattle, hides, bananas, pearls, turtleshell, valuable woods, rubber, ivory nuts. The capital is Panama, an important Pacific port, Colon being the Atlantic port. The Canal Zone is a tract of land ceded by the republic to the United States, extending five miles on either side of the central Canal line, together with several islands in the Bay of Panama.

PARAGUAY. An inland, central republic of South America. The surface is a low, undulating plateau, crossed by chains of low ridges covered with dense vegetation. Between the ranges flow innumerable streams, the Parana, one of the largest rivers of the world, but of minor commercial importance, and the Paraguay river, navigable from Asuncion, the capital, to Buenos Aires. Agriculture is primitive, with important cattle raising. Crops: maize, wheat, rice, tobacco, oranges, manioc, beans, sugar cane, with some coffee, cotton, and ramie. Manufactures: brick and clay products, leather, furniture, and cigars. There are abundant but unworked deposits of iron ore, marble, copper, and other minerals. Imports: textiles and ironware; exports: hides, yerba maté or Paraguay tea, tobacco, animal products, lumber, and quebracho extract.

PENNSYLVANIA. A Middle Atlantic state. The surface to the southeast is a rolling upland adapted to agriculture, and north and west is a mountain system with many parallel ridges and valleys. It is well watered by the Delaware, Susquehanna, and Ohio rivers. Agriculture (market gardening), fruit growing, horticulture, stock raising, and forestry are pursued. Crops: maize, wheat, tobacco, oats, vegetables, and fruits. There is a considerable and varied forest area consisting of white oak, hickory, chestnut, walnut, cherry, sugar maple, white pine, hemlock, pitch pine, maple, beech, birch, spruce, balsam fir, and larch. It has immense iron, steel and rolling mill plants, is the largest leather center, the second largest woolen and silk center in the Union, and the largest carpet making center in the world; there are important locomotive works, textiles, coke, glass and publishing establishments, sugar refineries, and breweries. It is the most important mining state in the Union. Minerals: coal, iron, limestone, petroleum, slate, stone quarries, sandstone, clays, Portland cement, metallic paint, salt, also mineral waters. The capital is Harrisburg, with chief cities of Philadelphia, Pittsburg, Allegheny, and Scranton.

PERSIA. The most important native kingdom of southwestern Asia, between the Caspian Sea, Persian Gulf, and Arabian Sea, called Iran by the natives. The surface is mainly a desolate arid plateau with exceedingly fertile mountain and coast valleys in addition to the plain of the Caspian. The Karum is the only navigable river, and then only for 150 miles. Agriculture depends on irrigation. Crops: wheat, barley, rice, fruits, silk, opium, gums, cotton, and tobacco. Domestic animals include good horses, the Persian lamb, goats, and camels. The country is rich in lead, copper, tin, iron, coal, salt, etc., but undeveloped by reason of poor transportation and the scarcity of fuel and water.

Manufactures are mainly carpets, rugs, and shawls, made by private individuals. The ancient ceramics were magnificent, but the art is almost obsolete. There is some good copper, glass, filagree work, and carving. Imports: cottons, woolens, sugar, iron and steel, cotton yarns, tea, gold, and petroleum; exports: wool, opium, fish, fruits, rice, rugs, carpets, shawls, woolens, silk cocoons, hides, and skins. The capital is **Teheran**, with chief commercial centers, **Ispahan** and **Tabriz**.

PERU. A progressive republic of South America crossed by the Andes, the Cordilleras, and the Sierras; the Montaña plain being extremely fertile and highly developed. It is well drained, but agriculture is largely dependent upon a good and steadily increasing system of irrigation. Crops: sugar, cotton, coffee, rice, sugar cane, tobacco, maize, ramie, and olives. It is the "home of the potato." The forests are large, and have important growths, rubber, valuable medicinal trees and plants, such as the cinchona, cacao, and coca. Manufactures are still unimportant. Imports: minerals, metals, cotton, woolens, wheat, coal, machinery, timber, and drugs; exports: wools of the alpaca sheep, llama, and vicuña, ores, sugar, coffee, hides, cocaine, and borax. The capital is **Lima**, with its port of **Callao**.

PHILIPPINE ISLANDS. The northern group of 1,725 islands in the Malayan Archipelago, ceded by Spain to the United States (1898). The interior is mountainous, with valleys and narrow plains, which broaden toward the coast, enriched by alluvial deposits. The drainage is a maze of rivers. It is a splendid agricultural area, but at present crudely developed by the use of poor tools. Farm animals and labor are scarce. Products: Manila hemp, sugar, coffee, rice, fruits, copra, tobacco, cacao, cocoanuts, indigo. There are wide areas of important forests containing valuable cabinet and other woods, timber, gums, dyewoods, spice growths, palm, and bamboo, these being under the supervision of the United States Forestry Bureau. Manufactures: cigars and cigarettes, fabrics of wool, hemp, cotton, silk, and piña fiber worked on hand looms. Imports: cotton, rice, meats, dairy products, cattle, flour, coal, iron, and steel; exports: hemp, copra, tobacco, cigars, gums, and resins. The capital is **Manila**, with a very good harbor, and the chief ports are **Cebu** and **Iloilo**.

POLAND. An independent state formed in 1918, just east of Germany and composed of three areas, Upper Silesia ceded by Germany, Galicia turned over by the Austrians and Congress Poland from Russia. With such a division the great difficulty will be in keeping unity within and protection without, because of no natural barriers. The country physically lies in the Great Central Plain of North Europe and is therefore a farming country. It lies in the heart of the rye-potato-sugar-beet belt. It raises also wheat, oats, flax and barley. The raising of swine and cattle is very important. About 25% of the land is forest covered and adds much to the national wealth. The country is rich in natural resources, large salt mines, one of the largest oil fields of Europe, potash, lead, zinc, and iron ore. Poland is a great textile manufacturing area, particularly at Lodz and Warsaw, wool, linen and jute comprise the major types with woodworking, metal working industries, oil refineries, in Galicia, and the refining of the beet sugar. Danzig, while an internationalized city is the only port that Poland has. The chief cities are **Warsaw**, the capital, **Lodz**, **Posen** and **Cracow**.

PORTO RICO. The smallest of the West Indies, ceded by Spain to the United States (1898). A low range of mountains runs through the center of the island, from which the land slopes north and south to the broad, level, fertile, alluvial coastal plains. The country is well drained, and there is abundant water for power and irrigation. Agriculture occupies more than half of the population on small farms crudely worked. There is poor transportation, but a steady improvement in every direction. Crops: coffee, sugar, tobacco, fruits, and vegetables. There are forests containing cedar, ebony, sandalwood, laurel, willow, dyewoods, and resins. There are large and unworked deposits of gold, silver, iron, copper, bismuth, limestone, tin, building sand, quicksilver, clays, guano, phosphates, etc. Imports: cotton, rice, provisions, flour, and wooden ware; exports: cigars and cigarettes, coffee, molasses, straw hats, hides, and fruit. Manufactures are mainly tobacco, cigars, and hats. The principal cities are **San Juan**, **Ponce**, **Mayaguez**, and **Arecibo**. **Culebra** has been made a naval base.

PORTUGAL. A small republic on the southwestern part of the Iberian Peninsula between Spain and the Atlantic Ocean. The surface in the north and northwestern part is mountainous and elevated, but south of the river Tagus (which divides the country from northeast to southwest) it is a succession of plains, hills, thinly-wooded lands, and coastal tracts suitable for agriculture. The country is well watered and drained by Minho, Douro, Tagus, and Guadiana rivers, most of these being navigable to the Spanish frontier. About half of the land is unproductive. Crops: wheat, barley, oats, maize, flax, rice, fruits, and vegetables. Manufactures: cotton, wool, and silk goods, wine, and olive oil. Minerals: important copper deposits, with arsenic, gold, lead, iron, manganese, wolframite, zinc (not greatly worked), gypsum, lime, and marble. Imports: wheat, codfish, iron, coal, raw cotton, sugar, machinery, hides, and rice; exports: wine, cork, copper, ore, fish (salmon, lampreys, sardines, and cod), olive oil, hides, fruits, tobacco, skins, salt, and vegetables. **Lisbon** is the capital, also a leading port; other ports are **Oporto** and **Setubal**. The possessions of Portugal in Africa are: **Angola**, exporting coffee, rubber, and dried fish. Large quantities of malachite, copper, iron, petroleum, and salt are obtained. Railroads are now being built to develop transportation; **Cape Verde Islands**, exporting coffee, hides, medicinal produce, and salt; **East Africa**, exporting rubber, various ores, wax, and ivory; **Guinea**, exporting rubber, wax, oil seeds, ivory, and hides; **Prince's** and **St. Thomas Islands**, exporting cacao, coffee, rubber, and cinchona. Possessions in Asia are **Damao**, **Diu**, and **Goa**, exporting grain, pulse and salt; **Macao**, an island on the southern coast of China, exporting tea, oils, silk, and rice; **Madeira Islands**, near Morocco, exporting Madeira wine; and the eastern part of **Timor**, in the Malay Archipelago, exporting coffee, wax, sandalwood, and sandalwood root.

PRINCE EDWARD ISLAND. The smallest province of the Dominion of Canada. It is situated in the Gulf of St. Lawrence, and has an undulating surface, a variable coast line of lowland and bluff, several good harbors, and only short tidal rivers. Two thirds of the land is cleared, and there is little unproductive soil. Crops: wheat, oats, turnips, hay, potatoes, barley, and buckwheat. There is considerable stock raising, dairying, poultry farming, and fishing. The manufactures are unimportant, and there are few minerals. The capital is **Charlottetown**.

PYRENEES. The mountain chain dividing France from Spain, 270 miles long, 15 to 70 miles wide, highest in the central part. It sinks on both sides to plains in a series of terraces, the steeper are on the Spanish side and contain many beautiful waterfalls. In the valleys are forests, grasses, vineyards, and olive groves. Minerals are not abundant, but there are many mineral springs.

QUEBEC. An eastern province of the Dominion of Canada. It has a good coast line on the Gulf of St. Lawrence, a strip of Labrador shielding it from the open sea. North of the St. Lawrence river the surface is rocky and broken; on either side the river run narrow lowlands, and to the eastward broken, hilly country. The land is well drained by the St. Lawrence system. Agriculture and dairying are the chief industries in the fertile valleys. Crops: oats, hay, wheat, buckwheat, potatoes, peas, turnips, and tobacco. Stock raising is being developed, and also fruit orchards producing high-class apples, etc. There are valuable forest lands of maple, oak, beech, elm, pine, cedar, spruce, and birch. There is a great fur industry, and the fisheries consist of cod, herring, lobster, and salmon in large quantities. Quebec unfortunately has no coal, but iron ore and copper are found, also plumbago, lead, platinum, limestone, granite, peat, some gold, pyrites, and graphite. There is an extensive tanning industry, besides a production of boots and shoes, wood pulp, cottons, matches, etc. The capital is **Quebec**. The chief port is **Montreal**, receiving over one third of the Dominion shipping, now center of the dairy product export trade, and reaching out to develop the future wheat supply of the world.

RED SEA. An arm of the Indian Ocean separating the Arabian peninsula from northeastern Africa, 1,300 miles long, 100 to 200 miles wide. The Suez Canal unites it with the Mediterranean and the Straits of Bab-el-Mandeb with the Indian Ocean. The Arabian coasts are sandy deserts with barren mountains behind; the Egyptian coasts are flat, sandy plains to the north and high table-lands to the south. Each shore is marked by high coral reefs, which have produced numerous islands. No rivers flow into it, little rain falls, so its waters are extremely salt. The Red Sea has been a highway of commerce between India and the Mediterranean countries since ancient times, lessening its trade when the direct route to India was discovered, but regaining it when the Suez Canal opened, so that it is the main route between Europe and the East.

RHODE ISLAND. A New England state, the smallest in the Union. The greater part of the surface is rough and hilly, and the state limits include a number of beautiful islands, on one of which is Newport. Agriculture claims more than half of the total area, with crops of maize, oats, hay, forage, fruits, and vegetables. It is a manufacturing state, with manufactures of worsteds, cotton, woolen, rubber, and elastic goods, silverware, jewelry, foundry and machine shop products, and dyes. Oysters are a valuable fish product, and minerals are graphite, talc, limestone, and building stone. The capital is Providence.

RIO DE LA PLATA. One of the twelve great rivers of the world, in the southeastern part of South America, where it drains the pampas, the vast grass and grain region. It is the outlet for an enormous body of water during the heavy floods of the section. It is 143 miles wide at the mouth, and decreases in width for 200 miles inland, extending about 2,300 miles to its source. The quantity of alluvial matter brought down by the floods is slowly choking the estuary through which the waters of the Parana and Paraguay rivers sweep to the sea. Its best natural harbor is at Montevideo, with artificial harbors at La Plata and Buenos Aires.

ROCKY MOUNTAINS. The eastern ranges of the great western plateau and mountain system in North America, stretching continuously from the southern border of the United States through Canada to the Arctic Ocean. In the United States these ranges are divided by cañons and flexures into many plateaus. In Wyoming they are divided into a northern and a southern group; in this divide are the sources of the Colorado, Columbia, and Mississippi rivers. The ranges of the southern group are the higher, and contain several elevated valleys in Colorado, called "parks," which furnish excellent pasturage. Near here are more than 40 peaks 14,000 feet high, which give rise to the Platte, Arkansas, Grand, and Rio Grande rivers. The mountains of the northern group are wider and less accessible, but not so high. Yellowstone Park is located there. Mount Hooker and Mount Brown are the highest peaks beyond the Canadian line. The highland gradually descends to 800 feet near the Arctic Ocean. Gold, silver, lead, and copper abound, while petroleum and natural gas are obtained.

ROUMANIA or (RUMANIA). A kingdom of Europe. The northeastern Balkan state. The surface consists of rugged mountains and highly fertile plains of black loamy soil, well drained and watered by the Danube. Three quarters of the population are engaged in agriculture. Crops: maize, wheat, oats, barley, grapes, plums and small fruits, some colza, flax, hemp, and sugar beets. Stock raising is extensive. Forests cover one fourth of the country, with oak, beech, and pine predominating. Minerals are mainly rich deposits of coal, petroleum, and salt, with many unworked and valuable varieties. Imports: textiles, metal manufactures, colonial produce, hides, wax, oil, cereals, and animal products; exports: cereals, woods, petroleum, vegetables, and chemicals. The capital is Bucharest, with chief ports of Braila, Constantza, and Galatz.

RUSSIA. Once the great eastern empire of Europe, still the largest state, Russia became a Soviet republic in 1917, governed by the All Russian Congress of Soviets. The country before the war had an area of approximately 8,420,000 square miles but is about 15% less now through the loss of Finland, Esthonia, Latvia, Lithuania, Bessarabia and part of Poland. Besides these above, Georgia, Ukraine and Azerbaijan have declared themselves republics but are really still under the Soviet influence and jurisdiction. From a physical point of view the country can be divided into four provinces, the tundra, the northern area, frozen, uninhabitable, and economically unimportant, the forest area, from the southern edge of the tundra to Moscow, dairying, agriculture and timber area, the steppe region, from Moscow to the Black Sea, the famous black earth region, great wheat and farming area and the region around the Caspian Sea, arid or semi-arid, part of it below sea level. Practically the entire area of Russia is a plain, about 1000 ft. above sea level. The climate is continental, that is great extremes, the rainfall decreasing as we go toward the east. There are a great many lakes and swamps due to glacial action. The Volga, in the east, the longest river in Europe, flowing into the Caspian Sea, the Don, the Dneiper and the Dneister in the south all flowing into the Black Sea and the Dvina in the northeast, flowing into the White Sea—all these and many smaller ones help to make the river transportation very good and to help the country commercially. One great drawback that Russia has, is the lack of ice free ports on the open sea. The north is closed in winter, Vladivostok to the east is kept open with difficulty only and to the south, the Black Sea outlet is controlled by Turkey through the Bosphorous. Russia is probably more thoroughly an agricultural nation than any other European nation, three-fourths of its people earning their livelihood by the soil. The crops are wheat (the second largest producing country in the world), rye, oats, potatoes, sugar beets, hay, barley, hemp, and tobacco. Russia produces a great many horses, sheep, goats, cattle and hogs. If Russia would once wake up and really cultivate her land intensively on a modern scale, she would soon outstrip all her competitors in a great many lines. About forty-five per cent. of the entire area of Russia is forested, mostly conifers and is one of the great resources that up to the present is undeveloped. There are two important mineral areas in the country, the Caucasus Mountains to the south and the Ural Mountains region to the east. In the south is located the great Baku oil field, one of the greatest in the world, also copper, zinc, managanese and iron, and to the east the Ural Mountains, with their gold, copper, a little coal, and platinum (95% of the world's supply). Manufacturing is very backward due to type of people and lack of technical education. The list of products includes iron, machinery, textiles, clothing, coal, oil, food products, glass, pottery and leather goods. The exports are almost wholly raw materials and natural resources, timber, food products, flax, ores, hides, and skins. The chief cities are Petrograd, the former capital, on the Neva River, Gulf of Finland, Archangel, oldest port in Russia, mouth of the Dwina on the White Sea, Moscow, the capital on a tributary of the Volga, the central inland city and an industrial center manufacturing cottons, linens, and woolens, Tula, south of Moscow in the coal fields, and Nizhnii Novgarod, in the eastern part of Russia, famous for its yearly fairs.

SAHARA. The great African desert, which extends east and west between the Atlantic Ocean and the Nile, is equal in area to about two thirds of Europe. The west and central parts are mountainous and rocky, while the Libyan desert in the east is composed largely of sandstone. There are many deep valleys, some short streams, and a number of wells in the oases, which constitute about one fortieth of the total area. It is almost devoid of vegetation. Large quantities of dates are raised in the oases, with some wheat, barley, and vegetables. The esparto fiber, dates, and large quantities of salt are exported. It is crossed in all directions, but principally from north to south, by caravan routes, which follow the line of oases, where there are occasionally towns of considerable size. The leading routes center at Timbuktu. A very active trade, by which ivory, ostrich feathers, gums, spices, gold dust, indigo, cotton, and palm oil of the interior lands are exchanged for manufactured goods from European countries, is transacted.

ST. LAWRENCE. One of the great rivers of North America, issuing from Lake Ontario, flows northeast—part of the way forming the boundary between Canada and the United States—and falls into the Gulf of St. Lawrence through a broad mouth. The name is applied to the whole system of the Great Lakes and their connecting streams. It rises as the St. Louis, empties into Lake Superior, whence it finds its way to Lake Huron through St. Mary's river. Lake Michigan enters from the south, and from Lake Huron through St. Clair river, St. Clair lake, and Detroit river, the descent into Lake Erie is slight. Niagara river and falls descend into Lake Ontario, thence to the St. Lawrence proper, with its lake-like expansion, such as Thousand Islands lake, proceeding as a river, then as an estuary into the gulf. The rapids throughout the course have been overcome by a system of canals. The Ottawa and Richelieu are its chief branches. Steamers now convey their cargoes from Liverpool to Duluth without breaking bulk. Duluth, Chicago, Detroit, Buffalo, Hamilton, Toronto, Montreal, and Quebec are great ports along its course.

SAKHALIN or SAGHALIN. An island off the eastern coast of Siberia, covering an area of about 29,000 square miles. The surface is largely mountainous and densely wooded. The climate and the soil are not favorable for agriculture; herring fishery is the chief industry. The principal use of the northern part of the island is for a Russian prison settlement and naval base. The southern part of the island, with adjacent islands, was ceded to Japan in 1905.

SALVADOR. The smallest republic of Central America, and the most densely populated. The surface is an elevated table-land between mountain ranges and lofty valleys. The soil is extremely fertile and is well watered. Agriculture is the staple industry. Crops: coffee, sugar, indigo, rice, tobacco, cotton, and some wheat. Minerals: gold, silver, copper, iron, quicksilver, lead, etc. Imports: cotton, drugs, hardware, flour, silk goods, and yarns; exports: coffee, sugar, indigo, balsam, gold, and other minerals. The capital is San Salvador, with ports of Acajutla, La Libertad, and La Union.

SAMOAN ISLANDS. A group of islands in the Pacific Ocean, between Hawaii and New Zealand, formerly known as the Navigator Islands. The Island of Tutuila, and other islands east of longitude 171 degrees west, came into the possession of the United States in 1900. They are all volcanic and mountainous, with luxuriantly fertile coast lands and many mountains well wooded. The soil is well watered and drained. The staple product is copra; fruit is extensively cultivated, the production of cacao is increasing, and other products are taro, breadfruit, yams, cocoanuts, and bananas. The principal export is copra. **Pago Pago** is a valuable naval and coaling station of the United States. **Upolu, Savaii,** and the adjacent islands, once German possessions, have been turned over to New Zealand under a mandate of the League of Nations.

SAMOS. An island under the sovereignty of Greece off the west coast of Asia Minor. It is about 30 miles long by 8 miles in width. The surface is well wooded, with a fertile soil to the east and south, rising into mountains on the north. It exports quantities of wine, raisins, leather, oil, cigarettes, carob beans, distilled spirits, grapes, beans, and hides. It is very rich in minerals: marble, zinc, lead, iron ore, emery, lodestone, manganese, antimony, copper, and ocher, but there is little mining. It was here that archæological excavations discovered the celebrated Temple of Hera, one of the largest Greek temples, known to Herodotus.

SAN MARINO. A republic in Italy, having a very small area. It is the oldest state in Europe and one of the smallest states in the world. The surface is hilly, with fertile valleys and slopes on which are multitudinous vineyards. The staple products are cattle, wine, and raisins. Stone is also exported.

SASKATCHEWAN. A province of the Dominion of Canada. The surface is a rolling prairie sloping to the east, broken at intervals by groups of hills. A grand agricultural district, with a very fertile, well-watered soil. Crops: wheat, oats, barley, flax, and hay, all showing phenomenal increases each year. The raising of live stock is extensive. Lakes Winnipeg and Winnipegosis have valuable fisheries. There are good forests of aspen, poplar, pine, and spruce. The enormous beds of coal, with copper, gold, iron, and natural gas are as yet undeveloped. The capital is **Regina.**

SAXONY. A state in the German republic. The surface is a series of moderate elevations, the highlands in the southeast merging into the plains of the north, and about one half the total area is under cultivation. Along the Bohemian frontier are the Erzgebirge, with the Elster Mountains at the south, and the Lusatian group at the extreme east. The river Elbe enters in the east, where is found the famous "Saxon Switzerland," a region of mountains with wonderfully castellated rock formations, forests of pine, and a narrow, curving river valley of great beauty. The Elbe is the great commercial waterway of the country. About one fifth of the population is engaged in stock raising and agriculture, although about one fourth of the total area is forest land, with almost all of the trees conifers. Crops: rye, oats, potatoes, and hay; small fruit raising is steadily increasing in importance, but sheep raising and the quality of the wool are reported to have declined. For many years Saxony has been a famous manufacturing country, highly developed in the production of textiles, linens, cottons, woolens, silks, worsteds, muslins, hosiery, laces, embroideries, paper of all kinds, damask ticking, clothing, tobacco pipes, watches, cutlery, glass, machinery, pianos, and the celebrated Saxon or Meissen porcelain. Saxony is said to have originated tin plating. Sugar industries are increasing, and also the production of chocolate. Milling and smelting are important industries. It is the center of the transit trade of mid-Germany, and the book trade of Leipzig leads the world. Minerals: silver has been mined since the twelfth century, there is coal (mainly lignite), and iron, lead, tin, marble, and precious stones are all being mined. There are many famous mineral springs. The principal cities are **Dresden,** the capital, noted for its museums and china; **Leipzig** and **Chemnitz.**

SCOTLAND. The northern part of Great Britain. The surface is divided into the north and the central highlands, the lowland central plain, and the hills. There is much magnificent scenery, and the finest grazing lands in the British Isles. Agriculture is confined to the lowlands, the oat crop constituting three fourths of the cereal production, with large crops of hay, turnips, potatoes, and other roots. Scotland has long been famed for its Cheviot sheep, its Ayrshire, Galloway, and Polled Angus cattle, its Clydesdale horses, and Shetland ponies. Over one fourth of the population is engaged in manufacturing cotton, linen, hemp, jute, lace and silk products, liquors, and iron and steel. Scotch woolens and threads are famed all over the world. The Clyde is the largest shipbuilding center in the world. There are valuable fishing interests. Minerals: coal, shale oil, iron ore, granite, fire clay, limestone, slate, and lead ore. The capital is **Edinburgh,** but the principal city and chief port is **Glasgow,** an important manufacturing center, with a good harbor.

SEYCHELLES. A group of small islands in the Indian Ocean belonging to Great Britain. They are the summits of a submarine mountain range. The soil is fertile and well cultivated. Exports: cocoanut oil, vanilla, soap, guano, salt fish, tortoise shell, coffee, cloves, pepper, cacao, drugs, and some rubber. The capital is **Port Victoria,** on Mahe, the largest island.

SHETLAND ISLANDS. A group of about 100 islands off the north of Scotland. The largest is Mainland, the total area being about 550 square miles. The surface is rugged and wild, and the climate moist and variable. There is some little agriculture, but the cultivation is mainly by the spade. Small crops of oats and barley are grown, potatoes, and turnips. Fishing for cod, ling, and herring is the principal industry, and seals and bottle-nosed whales are frequently caught. Great attention is given to the raising of the typical small cattle, sheep, and the world-famous Shetland ponies—a solid colored, shaggy, good-natured, small pony, totally distinct from the smooth, piebald and skewbald Scandinavian ponies which so frequently are miscalled "Shetlands," owing to their being registered with the Shetland blood stock. Imports: oatmeal, flour, tea, tobacco, spirits, sugar, cottons, woolens, timber, tar, and salt; exports: hosiery and shawls (comprising the principal manufactures), cattle, fish, and eggs. The chief town is **Lerwick,** on Mainland.

SIAM. An independent kingdom of southeastern Asia, in the central part of Indo-China. The surface is mountainous in the north, sloping south and southeast to the gulf, descending in great terraces to Bangkok. The lowlands are fertile, but there is only about one twentieth of the area under cultivation, owing to the extremely high price of labor following the abolition of slavery. Great quantities of rice are grown on the flood plains of the Menam river; pepper, hemp, cotton, tobacco, coffee, fruits, dried fish, cattle, and sesame are other products. Minerals: gold, salt, rubies, sapphires, copper, tin, coal, iron, zinc, manganese, and antimony. Imports: kerosene, machinery, hardware, silk, and apparel; exports: teak and other woods, pepper, salt, hides, soap, and rubber. The capital and chief port is **Bangkok.**

SIBERIA. An Asiatic possession of Russia embracing more than one-half of the area of the republic. It is divided into Western and Eastern Siberia, and the Amur and Maritime provinces. Western and Eastern Siberia have been in possession of Russia for centuries; the Amur lands, and the southern part of the littoral, were Chinese until 1858, and are still sparsely populated by Russians. Most of the surface slopes gently from south to north, draining to the Arctic Ocean. The coast lands of the Pacific frontage are fringed by mountain ranges covered with forests, producing long stretches of comparatively straight coast line, free from indentation. It has few islands, chief of which are **Sakhalin** and **New Siberia.** The Yenisei river divides Siberia into two halves south of the Arctic, the western part is level plains covered in the northwest with the greatest swamp region of the world, embracing the government of Toboisk and the northern part of Tomsk; the eastern part to the Pacific, and especially in the south, is a land of low plateaus, surmounted by many moderate mountain ranges, which give the country a rugged appearance. In the far north the ranges are absorbed, and the great plains stretch without interruption to Bering Sea. The southern part of the western plains is the agricultural region, and the center of population, although the eastern mountain valleys are well under cultivation; the mountains are rich in minerals. The four great rivers are the Obi, Yenisei, Lena and Amur, which, with their tributaries, give about 30,000 miles of interior navigation. Nine tenths of the population of Western Siberia are employed in agriculture, while mining and hunting are the industries in Eastern Siberia. In the south crops of grains, potatoes, onions, melons, etc., are produced; the southern belt, extending to Lake Baikal, has an extensive area of good farming land with alluvial soil, well adapted for wheat, oats, rye, and barley. The summers in the east are too moist for cereal crops, but fruits and vines flourish. Horse, cattle, and sheep raising is steadily being developed, butter factories have been opened, and it is interesting to note that milk supplied to the factories costs 25 cents for 18 quarts. Manufacturing: leather and tallow, distilling, brick making, ore smelting, and sugar refining, flour milling, carpet weaving, making clothing, porcelain, furniture and utensils. The magnificent river systems

are the principal transportation routes, but the Trans-Siberian railroad is developing agriculture and creating a business of its own. Minerals: gold, silver, coal, iron, lead, copper, tin, graphite, the best graphite mines being controlled by German lead pencil manufacturers. Vladivostok has a magnificent harbor, and is the terminal of the Trans-Siberian railway, which connects it with Petrograd.

SIERRA NEVADA MOUNTAINS. These form, with the Cascade and Coast ranges, the western border of the western highlands in the United States. They are in California, extending 450 miles from northeast to southwest, and contain Mounts Whitney, Shasta, and Tyndall; their sides are covered with forests, and both gold and silver are found.

SOUTH CAROLINA. A South Atlantic state. The surface is a continuous plain rising towards the northwest and merging into the Blue Ridge. It is well watered by the Great Pedee, the Santee, the Savannah rivers and their branches, which furnish considerable water power. More than half the total area is woodland, but agriculture is the chief occupation. Crops: sea island and other staple cotton, tobacco, wheat, maize, oats, and rice. There are active fisheries contributing oysters, whiting, shad, and sea bass. Manufactures: cotton goods, cottonseed oil and cake, lumber products (turpentine, resin, and timber), distilled spirits, carriages, and tobacco products. Minerals: phosphate rock, clays, granite, some gold, silver, manganese, iron ore, lime, and monazite. The capital is **Columbia**, and the chief port **Charleston**.

SOUTH DAKOTA. A Central state. The surface is a rolling upland plain, in the southwest the "Bad Lands," the west a region of buttes and ridges, and the prominent feature of the state is the famed Black Hills, "the richest hundred square miles on earth," by reason of its minerals. It is watered by the Missouri and numerous tributaries, but irrigation is necessary for the land now under cultivation. Crops: maize, wheat, oats, barley, rye, flax, hay, fruits, and vegetables. There is much live stock raising and poultry farming. Other industries: flour and grist milling, dairying and lumbering. Minerals: gold, silver, copper, lead, stone of various sorts, and clays. The capital is **Pierre**.

SOUTHERN or ANTARCTIC OCEAN. The great belt of water extending round the world, broken only by the southern end of South America, situated about and within the Antarctic circle. The winds sweeping over this area produce the gigantic waves of the "roaring forties." It is also regarded as a "clearing house" of the hydrosphere, where all inequalities and irregularities in the waters of the separate oceans are corrected. Its greatest known depth is 18,000 feet. Table-like icebergs are characteristic of this region. The land is of volcanic origin, and no vegetation or land animals have been observed.

SPAIN. A kingdom occupying about six sevenths of the Iberian Peninsula. The surface is full of contrasts, plateau ranges, extensive river valleys, small rivers, and low plains, which contain some of the most fertile soil in Europe. Most of the rivers are deficient in water, of little value for navigation, and too low for irrigation purposes. The principal rivers are the Tagus, Minho, Douro, Guadiana, Ebro, and Guadalquivir. Agriculture is the main business, nearly the total area being under cultivation by primitive methods. Crops: wheat, barley, rye, grapes, maize, flax, hemp, esparto, oranges, olives, pulse, nuts. There is extensive stock raising in sections, principally merino sheep. The sardine and other fisheries are valuable. Silk is produced. Manufacturing is insignificant, and does not nearly supply the demand, the leading production being iron, cotton goods, tobacco, paper, wines, leather, glass, and olive oil. Spain is exceedingly rich in minerals, and has much iron, coal, zinc, copper, cobalt, lead, quicksilver, salt, sulphur, phosphorus, etc. Imports: provisions, cotton and manufactures, chemicals, drugs, animals and animal products, machinery, stone, minerals, and pottery; exports: provisions, stone, minerals, glassware, pottery, metals, animal products, timber, and cotton manufactures. Wine is frequently one third of the total export. The capital is **Madrid**, and the chief ports are **Barcelona**, **Bilboa**, **Cadiz**, **Santander**, **Alicante**, **Malaga**, and **Valencia**. Included in the kingdom are the **Balearic Isles** off the coast, exporting vine products, olives and fruits, and the **Canary Islands**, near Africa, exporting tomatoes, bananas, cochineal insects (used in dyeing), and potatoes. The colonies are confined to the north and west of Africa: **Rio de Oro Colony and Adrar**, the **Rio Muni** and **Cape San Juan**, and **Fernando Po**, **Annobon**, **Corisco**, **Elobey Chico**, and **Elobey Grande**. They have a low coast but contain vast forests. They have no harbors.

STRAITS SETTLEMENTS. A crown colony of Great Britain, consisting of some British possessions on the Malayan Peninsula, and the adjacent islands of **Singapore**, including **Labuan**, the **Malaccas**, **Dindings**, **Penang**, the **Province of Wellesley**, the **Cocos or Keeling Islands**, and **Christmas Island**—the "key to the Chinese Sea." The products are cocoanuts, rice, sugar, coffee, tapioca, sago, pepper, gambier, and nipa palms. Valuable forests produce much fine timber, oils, resins, and rattans. Minerals: tin, gold, lead, iron, bismuth, quicksilver, arsenic, manganese, plumbago, silver, and zinc. Imports: rice, cotton goods, coal, machinery, petroleum, opium, and sugar; exports: padi, nearly half the tin used in the world, sugar, tapioca, gambier, coffee, rubber, copra, spices, gums, and gutta-percha.

SUDAN. The great region between the Atlantic and the Red Sea in northern Africa, and between the Sahara on the north, and the Gulf of Guinea, the Nile, and the Congo rivers on the south. It has been known as "the Black Zone," most of the territory being under the control of Great Britain, Egypt, and France. Agriculture and cattle raising are the chief occupations. Imports: clothing, coal, machinery, and railway materials; exports: gum, ivory, ostrich feathers, cereals, cotton, dates. One of the great trade centers is **Timbuktu**, on the southern edge of the Sahara, whence radiate five important caravan routes.

SWEDEN. The eastern and larger part of the Scandinavian peninsula. The surface is mountainous along the western frontier, with a plateau sloping to the Baltic Sea in three terraces. The northern end of the first terrace has forests which cover nearly one half of the total area of the land; in the second is the rich mineral belt; and the lower terrace is the fertile farm section. The country is well watered, and rich in lakes. The largest river is the **Klar Elf**. Although only a very small part of the total area is under cultivation, nearly three fourths of the population are agriculturists. Crops: oats, rye, barley, wheat, pulse, great quantities of potatoes, some sugar beets, flax, and tobacco. There is considerable cattle and sheep raising; timber and wood working is of great importance, also the manufacture of wood pulp, iron products, flour, and sugar. Minerals: large and famous "Swedish" iron deposits, silver, lead, copper, zinc, manganese, sulphur pyrites, and some coal. Imports: minerals, metal goods, machinery, textiles, colonial wares, maize, and flour; exports: timber products, live animals, dairy products, metal works, machinery, and paper products. The capital and one of the chief ports is **Stockholm**, and other ports are **Goteberg**, **Malmo**, and **Helsingborg**.

SWITZERLAND. A republic known as "the playground of Europe." About two thirds of the surface is lofty mountains forming the watershed of Europe. The deep valleys are extremely fertile. It contains the headwaters of the Rhine, Rhone, Po, and Danube, which are almost useless for navigation, but have great water power value. Agriculture is pursued. Crops: hay, rye, barley, fruits, and vegetables. Manufactures: furniture, watches, metal and textile products, lace, ribbons, cheese, condensed milk, and wine. Minerals are of little importance except salt and cement. Imports: textiles, cereals, minerals, iron products, colonial produce, and machinery; exports: silk, cotton, woolen goods, dairy products, machinery, watches, chemicals, food products, and hides. The capital is **Berne**, and chief cities are **Zurich**, the railroad center, **Basel**, noted for ribbons, and **Geneva**, for watches.

SYRIA. A tableland bordering on the Mediterranean Sea and sloping eastward to the Arabian desert. The country is governed by two mandates, the north under the French and the south under the English. The soil along the coast is very fertile but as we go toward the interior the fertility declines, due to less moisture and lack of irrigation. Not more than 10% of the land is used. The crops are, near the coast, olives, lemons, grapes, and oranges, further inland, cereal crops, wheat, tobacco, hemp, sugar cane and silk. The mineral products are iron, lead, phosphate, copper, antimony, and building stones. Manufacturing is simple rather than complex, flour, oil, soap and silk thread. The cities are **Damascus**, the capital, **Aleppo**, and the ports of **Tyre**, **Sidon** and **Beirut**.

TAHITI. The largest of the Society Islands. It consists of two unequal, nearly circular portions of land connected by an isthmus of volcanic origin, the surface rising in concentric terraces to a final height of 7,668 feet. The rainfall is abundant, and the island is very fertile, but agriculture is conducted under the most primitive methods. The chief town is **Papeiti**, the capital of the French establishments in the eastern Pacific, with a cathedral, arsenal, hospital, etc.

TENNESSEE. A Southern state. The surface falls into marked regions of plateaus, slopes, valleys, and plains. It is well watered by the Mississippi, Tennessee, and Cumberland rivers, all navigable. The soil is much diversified, and is of great fertility. Crops: maize, wheat, oats, cotton, hay, tobacco, potatoes, peas, sorghum, peanuts, and small fruits. There is considerable stock raising; lumbering is extensive in the large forest areas of pine, hemlock, maple, ash, red and swamp cedar, cypress, larch and papaw. Manufactures: flour and grist, iron and steel products, cottonseed oil and cake, leather, textiles, and tobacco products. Minerals: coal, iron (one half being brown hematite), copper, zinc, barytes, phosphate rock, sandstone, limestone, marble, and clays. The capital is Nashville, with leading cities of Memphis and Chattanooga.

TEXAS. A Southern state and the largest of the American Union. From the coast the surface rises gradually by terraced slopes to the Plateau Region, a rugged mountainous region with arid valleys lying southwest of the Pecos river, which are perfectly adapted for grazing. Agriculture is confined mainly to the eastern and central parts. Crops: cotton, oats, wheat, maize, rice, tobacco, cane sugar, sorghum, vegetables, and fruit. It has the largest live stock interests in the United States. There are valuable forest areas of yellow pine and oak, cottonwood, ash, gum, etc. Manufactures: flour and grist, cottonseed oil and cake, lumber and meat products, railroad cars, and petroleum. Minerals: petroleum, coal, clays, iron ore, natural gas, salt, gypsum, cement, granite, sandstone, limestone, some gold, silver, asphalt, etc. The capital is Austin, with chief cities of San Antonio, Houston, Dallas, and the great seaport of Galveston.

TIAN-SHAN MOUNTAINS. These "Celestial Mountains" of several parallel ranges extending from Pamir into Turkestan form the boundary between Russian and Chinese territory in Asia. They are very high and noted for the abundance of snow and glaciers. The southern slopes are treeless, the northern are covered with pines.

TIERRA DEL FUEGO. An archipelago off the extreme end of South America, consisting of the large main island of King Charles South Land and the islands adjacent. The total area is about 27,000 square miles, of which the main island occupies more than four fifths. The Andean Mountain system extends through them. In the east is good soil and pasture land, with extensive forests of beech and pine along the mountain base. There is considerable sheep farming.

TONGA or FRIENDLY ISLANDS. A Polynesian group in the Pacific Ocean, a native kingdom controlled by Great Britain. The area is small, and only about one fifth of the islands are of any importance. The most fertile island is Tonga-tabu, which has about one half of the total population of the group. The rainfall is heavy, and the land area covered with luxuriant vegetation. The land is leased not sold, and, as its tenure is not assured for any length of time, few improvements are made. Imports: foodstuffs, cotton goods, and draperies; exports: copra, fungi, and native mats and tapa.

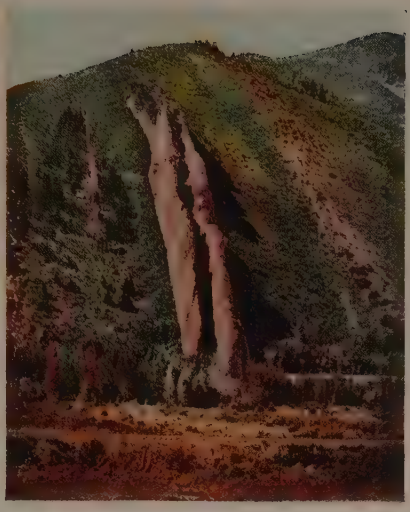
TURKEY. Once a great European power, driven practically out of Europe by the treaty of Versailles and then back again under the treaty of Lausaune, the country now comprises eastern Thrace and Adrianople, Constantinople, all of Asia Minor and the islands of Imbros, Tenedos and Rablut. The entire country is poor and very backward, both agriculturally and industrially, especially in Anatolia, the seat of the government. The major portions of this area is a plateau region surrounded on three sides by mountains and the fourth slopes down to the Mediterranean coast. Nuts and almonds, olives, dried fruits, silk, tobacco, cereals, figs, opium, wheat, skins, and hides, linseed and licorice form the main bulk of the agriculture products. The minerals are many but have been little worked and in many cases not even the amounts are known or estimated. They include chrome ore, silver, antimony, copper, lead, zinc, lignite and asphalt. Woolens, cottons and carpets, are the main manufactured products. The exports are nuts, carpets, opium, woolens and tobacco. Constantinople is the chief city and historically famous as the meeting place of the East and the West. It is the key city to the Near East. Angoria in Anatolia is the capital.

UKRAINE. A republic, east of Poland and north of the Black Sea with an estimated area of 20,000 square miles. It was recognized as a republic in 1921 but in reality the state is under the influence of the Soviet government. It is a part of the great Central Plain of Europe having continental climate, moderate rainfall, and very fertile soil. 65% of the land is arable and was the agricultural and economic heart of Russia. The crops are wheat (the second largest producing area in the world), barley, rye, sugar beets, and tobacco. The mineral products are coal and iron, iron particularly in the Don and the Donetz basins. The cities are, Kiev on the Dnieper river, an industrial and commercial center, particularly in the refining of sugar, and Odessa, the chief seaport on the Black Sea, one of the greatest grain shipping ports in the world.

UNGAVA. A district of the Dominion of Canada, lying north of Quebec and west of Labrador. It is the fourth largest in area, but is undeveloped, and was unexplored until 1892–4. There are large forests of spruce and birch in the south, extending in the valleys to the fifty-seventh parallel, north of which are no trees, although there is a scrub area producing gooseberries, cranberries, currants, and huckleberries. It is known there is a large area of iron ore, and there are also indications of gold, copper, and nickel.

UNITED STATES. The vast area in the central part of North America lying between Canada on the north, the Gulf of Mexico on the south, and stretching from the Atlantic to the Pacific Ocean, the richest and most populous section. It is composed of 48 states united in one great federal nation, with territories and island dependencies, besides the District of Columbia. Compared with Europe the coast of the United States has very few projections or indentations, but, though few in number, they are of special commercial importance. Long Island is the largest island. Two great mountain systems, one on each border, form the framework of the physical structure, which may be divided into four distinct sections. Beginning at the east are the coastal plains and plateaus between the Atlantic Ocean and the Appalachian Mountains. Narrow in Maine they grow gradually wider towards the south. In New England they form a rough lowland; in the middle higher, but very productive; from New York to Florida they slope gently to the sea with a sandy soil and many large swamps. The next section includes the Atlantic Highlands or Appalachian Mountain system. Between this and the western mountain system and extending from the Gulf of Mexico to Canada is the Great Central Valley or Plain. It rises gradually from the gulf towards the north, east, and west, its evenness broken only by the Ozark Mountains. This great valley occupies about one half the entire area of the United States, and its fertility makes it the most important agricultural basin in the world. The western system of mountains is a great plateau with the Rocky Mountains on the eastern border, Cascade, Sierra Nevada, and Coast Ranges on the western, between which is a series of broad valleys, inclosing the Great Basin, much of which is occupied by the American desert. Besides the Great Lakes on the border there are thousands of smaller ones in New England, Minnesota, and the Western states. The drainage areas are classified as the St. Lawrence, Atlantic, Mississippi or Gulf, and the Pacific. With its great extent and varied topography the United States has every variety of climate characteristic of the temperate zone. Its rainfall varies greatly. The eastern part is well wooded and great forests occur along the western and northern borders, following closely the distribution of rain. Industries: manufacturing, agriculture, including stock raising and dairying, mining, lumbering, fishing and shipbuilding. The principal products are cereals, cotton, minerals, textiles, tobacco, cattle, timber, oil, and fish. Imports: silk and its manufactures, sugar, hides and skins, chemicals and drugs, coffee, cotton goods, fiber, rubber and guttapercha, wool and its manufactures, iron and steel and their manufactures; exports: raw cotton, meat and dairy products, breadstuffs, iron and steel and their manufactures, mineral oils, copper and its manufactures, wood and its manufactures, animals, leather, and tobacco with its manufactures. The United States ranks first in the value of domestic commerce, but second in foreign commerce. Washington is the capital, New York, Boston, Philadelphia, Detroit, Cleveland, Baltimore, Chicago, Pittsburgh, New Orleans, Galveston, and San Francisco are the great commercial centers. Island dependencies: Guam, the largest of the Ladrones, a naval station, the Hawaiian group, Philippine Islands, and Tutuila with others of the Samoan group are in the Pacific Ocean; Porto Rico in the West Indies. Alaska in the extreme northwest, is the largest territory.

URAL MOUNTAINS. They separate the lowlands of European Russian from those of Siberia, and consist of several parallel ranges 2,000 miles long, running southwest to northeast, the highest summits reaching 5,000 feet. They are extremely rich in all kinds of minerals, especially gold, platinum (90 per cent. of the world's supply), iridium, osmium, and other rare metals; also iron, cobalt, copper, quicksilver, nickel, and zinc; much the greater part of the iron ore of Russia is obtained in the Ural mountains. The coal beds are little mined.



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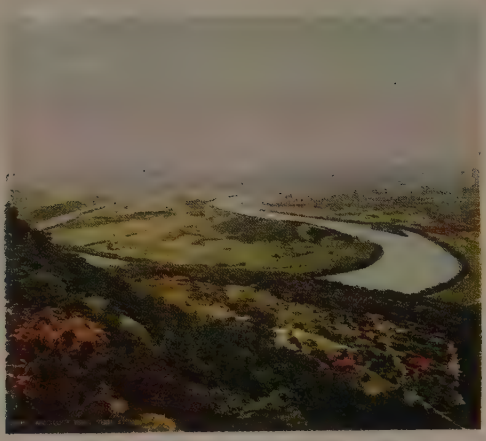
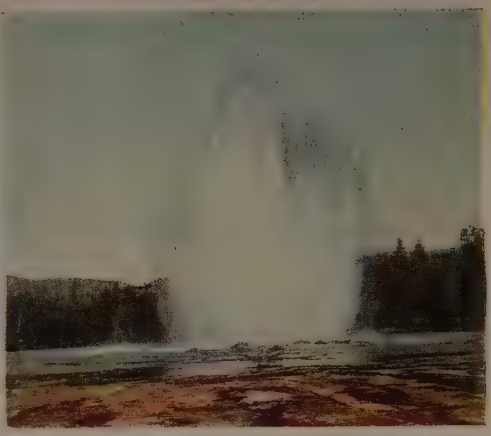
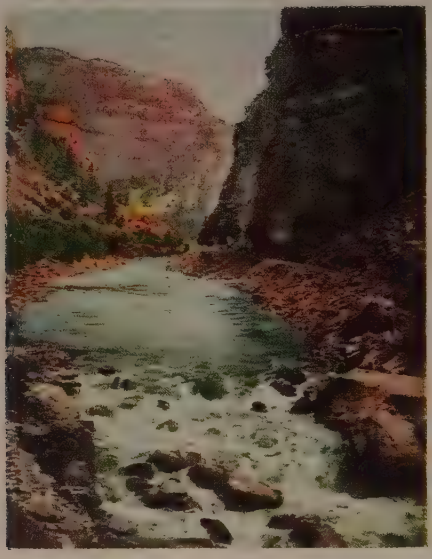
SCENIC AMERICA—I

Lower Falls of the Yellowstone, Colo.
Horseshoe Falls, Niagara
Royal Gorge, Colo.
The Devil's Slide
Echo Cliffs, Grand River Canyon, Colo.
Inspiration Point, Canyon of Yellowstone







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SCENIC AMERICA—II

Moccasin Bend from Lookout Mountain, Tenn.
Shoshone Falls and Grand River Canyon, Colo.
Bright Angel Canyon, Grand Canyon of Arizona

Great Fountain Geyser, Yellowstone National Park
Yosemite Falls, Yosemite Valley, California
Pulpit Terrace, Yellowstone National Park

Precious stones are abundant, those for which this region is famous being the emerald and topaz from the mines of Murzinsk, the diamond, malachite, azurite, and jaspar. Many towns have sprung up in consequence of the mineral wealth. These mountains form a watershed for the rivers of Russia; immense forests of conifers, birch, and beech grow in the center and south. Telpös-is (5,526 ft.) is the highest summit.

URUGUAY. The smallest South American republic. Much of the surface is rolling, grass-covered plains, well watered by the Rio Negro, the Uruguay, the Rio de la Plata, and a plentiful rainfall. Agriculture and stock raising are leading occupations. Crops: wheat, flaxseed, oats, barley, birdseed, and tobacco. There are immense numbers of sheep, and a heavy wool clip is obtained; many horses, cattle, swine, mules, and goats are raised. Other industries: flour and grist milling, slaughtering, packing, and extracting of beef. Gold is worked, and there are also silver, copper, lead, magnesium, and lignite. Imports: raw and manufactured materials, soft goods, foodstuffs, and beverages; exports: animal products, live stock, wool, minerals, and agricultural produce. The capital is **Montevideo**, with ports of **Colonia, Maldonado,** and **Minas.**

UTAH. A Western state whose surface in the west is a vast, dry basin; in the east, irrigation has made the plateau of corresponding altitude a garden of fertility. Eastern Utah is drained by the Colorado and Green rivers. Agriculture is the staple industry, but it is only possible under irrigation. Crops: wheat, oats, hay, maize, barley, rye, sugar beets, vegetables, and fruits. There are large numbers of sheep and other farm animals, and dairying is being rapidly developed. Manufacturing industries: smelting and refining copper, flour and grist milling, making and repairing cars, butter and cheese making, salt evaporating, and fruit canning. There are valuable deposits of gold, silver, copper, coal, manganese ores, gypsum, petroleum, sulphur, quicksilver, and salt. The capital is **Salt Lake City. Ogden,** is the second largest city in the agricultural district. Meat packing, fruit and vegetable canning are the chief industries.

VENEZUELA. A republic in the northern part of South America. Its surface is divided into three sections: the north and northwestern are mountainous districts, where agriculture is chiefly pursued; the valuable grazing lands between the mountains and the Orinoco, and the section of forest lands containing many important woods, medicinal plants, gums, etc. Crops: sugar cane, coffee, cereals, caoutchouc, tonga beans, copaiba, cacao, and vanilla. The farming methods are primitive and wasteful, but stock raising of oxen, goats, asses, horses, swine, sheep, and mules is very extensive. There are no important manufactures. There is abundant gold, silver, copper, salt, and iron, with some sulphur, coal, asphalt, lead, kaolin, and tin. Imports: cotton goods, wheat flour, lard, rice, and butter; exports: coffee, cacao, cattle, hides, dividivi, fustic, rubber, and gold. The capital is **Caracas,** chief ports **La Guaira** and **Maracaibo.**

VERMONT. A New England state. The Green Mountains practically cover the surface of the state. The land suitable for cultivation is in the valleys and western lowlands. The hills, slopes, and summits of the mountains are covered with rich herbage. Crops: hay, oats, maize, potatoes, wheat, barley, tobacco, and fruits, especially fine apples. The live stock interests are large in milch cows and other cattle, sheep, swine, and horses. There are valuable forests. Manufactures: lumber and timber products (including pulp), flour and grist, foundry and machine shop products, cheese, butter, maple syrup and sugar, and woolens. More marble is quarried than in any other state; granite, slate, and talc, with other minerals, and found in small quantities. The capital is **Montpelier,** with leading cities of **Burlington** and **Rutland.**

VIRGINIA. A middle Atlantic state. The surface is divided into the coastal plain, the Piedmont plain, and the Appalachian Mountain region. The state is well watered by the James, Potomac, Rappahannock, and other rivers. Agriculture is an important industry. Crops: maize, wheat, oats, potatoes, hay, cotton, tobacco, peanuts, and small fruits. There are important stock raising interests in cattle, swine, sheep, horses, and mules. The oyster and other fisheries are important. There is much good forest area. Manufactures: tobacco, cigars, cottons, iron products, paper, railway cars, leather, etc. Minerals: coal, granite, limestone, iron, manganese, talc, soapstone, titanium, etc. The capital is **Richmond,** with **Norfolk, Petersburg,** and **Newport News** as leading cities.

VOLGA RIVER. Largest river of Russia as well as of Europe, being 2,293 miles from its source in Valdi Hills to its 70 mouths in Caspian Sea. It has two large tributaries, one each from the east and west. The whole system waters 22 Russian provinces with a total navigable length of 9,000 miles. Traffic ceases for three months in the winter, but it is enormous. Timber, grain, salt, and naphtha are the principal articles carried. The fisheries (sturgeon, carp, and pike) are of great importance. Chief ports are **Astrakhan** and **Nizhni Novgorod,** the latter noted for its great annual fairs. Canals connect this river with the White, Black, and Baltic seas.

WALES. A historic division of the United Kingdom projecting westward from Great Britain. It is a mountainous country of wonderful beauty. Its highlands are unavailable for agriculture, and are not good grazing land. It is well watered by tributaries of the Severn, and by the Dee, Wye, Usk, and many other small streams. Crops: barley, oats, rye, vegetables and hay. There are great flocks of the famed Welsh sheep, and other farm animals. About one fifth of the coal of the United Kingdom is mined in Wales. **Cardiff** is a great coal shipping port of the world. Other minerals are iron, tin, lead, zinc, copper, and some gold.

WASHINGTON. A Western state, divided by the Cascade Mountains into a smaller western and a larger eastern section. About one fifth of the total area is under cultivation, and the irrigated area is constantly being increased. The Columbia river drains the eastern part of the state, and the west is drained by small streams. Crops: wheat, oats, barley, hay, and fruits. It is a great sheep grazing country. There are valuable forests of fir, cedar, spruce, and hard woods. Fisheries are important, salmon and marine fish being taken in large quantities. Other industries: lumbering, flour and grist milling, canning fruits, slaughtering and packing. The coal and clay deposits are valuable; gold, copper, granite, sandstone, limestone, iron ore, lead, zinc, antimony, arsenic, are mined in small quantities. The capital is **Olympia; Seattle** and **Tacoma** are the largest cities.

WEST INDIES. A large archipelago in the Atlantic Ocean between the North and South American continents. The British possessions are by far the most important, and comprise the **Bahamas,** capital **Nassau,** exporting fresh and canned fruits, lumber, pearl, and shell; **Barbados,** capital **Bridgetown,** exporting sugar and cotton; **Jamaica** (including **Turks, Caicas,** and **Cayman Islands**), capital **Kingston,** exporting sugar, coffee, bananas, rum, turtles, cocoanuts, maize, and cacao; the **Leeward Islands** (including **Antigua, St. Kitts, Dominica, Montserrat,** and the **Virgin Islands**), exporting sugar, cotton, cattle, pineapples, coffee, lime juice, and arrowroot; **Trinidad,** capital **Port of Spain** (including **Tobago**), exporting sugar, cacao, coffee, cocoanuts, asphalt, and rubber; the **Windward Islands** (including **Grenada, St. Vincent, Grenadines,** and **St. Lucia**), exporting sugar, cacao, rum, cotton, coffee, fruit, nutmegs, and spices. The islands are purely agricultural. **Haiti** is a republic, exporting logwood, coffee, cacao, cottonseed, cotton, hides, hemp, various woods, shell, and some minerals. **Cuba** is a republic. **Porto Rico** is owned by the United States. The French, Danish, and Netherlands possessions are included under those countries.

WEST VIRGINIA. A Middle Atlantic state. The surface is uneven, and in the east and south is mountainous. West of the mountains is a belt of flat hills, grading into a rolling country that slopes to the Ohio river. It is well drained by tributaries of the Ohio, and by the Potomac, Monongahela, and the Kanawhas. There are extensive forests of chestnut, oak, hickory, locust, maple, tulip, birch, spruce, pine, and hemlock. Crops: maize, wheat, oats, tobacco, hay, buckwheat, potatoes, and fruits. It is a great sheep and milch cow grazing country. Manufactures: lumber, iron, steel, foundry and machine shop, leather and clay products, coke, glass, flour and grist. Minerals: coal, petroleum, natural gas, iron, sandstone, limestone, salt, and clays. The capital is **Charleston,** the largest city is **Wheeling.**

WHITE SEA. A branch of the Arctic Ocean penetrating 350 miles into northern Russia. It consists of an inner and an outer portion joined by a narrow strait. It receives the Dwina and Onega rivers, besides many lakes. It is icebound from September to June, nevertheless with the canals direct communication is made through the Dneiper and Volga rivers with the Caspian and Black seas, so that the volume of trade is considerable. **Archangel** is the chief port.

WISCONSIN. A Central state, a part of the lake plain of the northwest. It is well drained, and most of the land is fertile. Agriculture and dairying are very extensive. Crops: maize, oats, barley, wheat, hay, potatoes, sugar beets, and tobacco. The orchard area is steadily

increasing. There are large herds of milch cows and other cattle, horses, sheep, and swine. The forests are valuable, and great quantities of white pine, hemlock, and spruce are marketed. Manufactures: lumber products, cheese, butter, condensed milk, foundry and machinery products, flour and grist. Minerals: iron ore, lead, granite, limestone, sandstone, natural rock cement, graphite, petroleum, also mineral waters. The capital is Madison, and the principal city is Milwaukee.

WYOMING. A Western state. The surface is a lofty plateau. The soil is arid and irrigation is used wherever agriculture is practiced. There are great grazing areas suitable for stock raising, and the state is second to Montana in the production of wool. Crops: hay and forage, with some wheat, oats, and small quantities of other cereals, and roots. Manufacturing industries are limited mainly to products for local consumption. Transportation facilities are very poor. The rich iron ore and petroleum resources constitute a good basis for development. Minerals: coal, iron, copper, limestone, gypsum, some gold and silver. The capital is Cheyenne.

YANGTZE RIVER. The longest and most important river of China. Its source is a number of tiny streams far above sea level. It is known by different names in varying sections, drains whole provinces, and receives the waters of many important streams. It pours into the yellow sea an immense volume of water, depositing annually an enormous amount of sediment. It is navigable for ocean steamers 600 miles, and 500 miles farther for light-draught steamboats. Its importance to China's commerce is vast.

YENISEI RIVER. Longest river in Asia and fourth longest in the world. It rises in the mountains of northern Mongolia and flows 3,250 miles across the center of Siberia into the Arctic Ocean. With the Obi and Lena rivers it flows in parallel courses and through its tributaries is so closely connected with them that a continuous waterway through Siberia is formed; goods are sent from the Caspian Sea by the Ural river into a branch of the Obi, then up the Obi to the Yenisei and the Lena, a distance of 6,000 miles, the journey being broken by only two short portages. The middle course of the river runs through forests of pine, birch, and larch. Three months of the year it is frozen in the south, but in the north it is icebound all but six weeks.

YUKON. A northwestern territory of the Dominion of Canada, bounded on the extreme north by the Arctic Ocean. Very little was known of the surface until the close of the nineteenth century, when it was found to be a succession of rolling hills and mountain ranges penetrated by large rivers, the navigable head streams and branches extending in every direction. It is one of the coldest districts in the world. The agricultural possibilities are limited, although rye, barley, potatoes, cabbage, peas, lettuce, and roots have been raised during the brief summer. It contains some of the richest gold deposits; beds of lignite coal are known to exist, but have not been thoroughly surveyed.

YUKON RIVER. One of the largest rivers of North America, and in the extreme northwestern part extending through Alaska. It is formed at Fort Selkirk by the junction of the Lewes and Pelly rivers, emptying into Bering Sea through a large delta. Throughout its total length, including the Lewes, it is navigable at least for small boats. The delta is very broad, and the discharge of water is estimated at two thirds the volume of the Mississippi. During three months its waters swarm with salmon.

ACREAGE, PRODUCTION, AND VALUE OF THE CROPS OF THE UNITED STATES—1923.

Crop	1000 Acres	1000 Bushels Production		$1000 Value
Corn	104,158	3,054,395		2,222,013
Winter Wheat	39,522	572,340		543,825
Spring Wheat	18,786	213,410		181,676
All Wheat	58,308	785,741		725,501
Oats	40,833	1,299,823		539,253
Barley	7,905	198,185		106,955
Rye	5,157	63,023		40,804
Buckwheat	737	13,920		12,984
Flaxseed	2,061	17,429		36,733
Rice	892	33,256		26,686
Potatoes	3,816	4,112,392		339,322
Sweet Potatoes	993	97,177		95,091
Hay—Tame	60,162	89,098	Tons	1,253,364
Hay—Wild	15,722	17,528		137,603
All Hay	75,884	106,626		1,390,967
Tobacco	1,820	1,474,786	Lbs.	298,930
Cotton	37,420	10,081	Bales	1,563,347
Cotton Seed	.....	4,476	Tons	205,538
Clover Seed	800	81,233		15,027
Sugar Beets	651	6,893		48,890
Beet Sugar	651	884		.....
Cane Sugar (La.)	228	169		.....
Maple Sugar—Syrup	15,291	33,533	Lbs.	7,780
Sorghum Syrup	380	32,000	Gals.	27,595
Peanuts	884	366,462	Lbs.	43,078
Beans	1,297	15,740	Lbs.	57,480
Cabbage	98,200	740	Tons	17,183
Hops	15,800	17,770	Lbs.	3,329
Cranberries	25	610		4,423
Apples	.....	196,770		201,110
Peaches	.....	45,702		64,043
Pears	.....	17,390		21,053
Oranges (Fla.-Cal.)	.....	34,800	Boxes	64,081

Table I. VALUE OF ALL THE CROPS BY STATES—1923.

State.	Value.	Rank	State.	Value.	Rank.
Maine	54,507,000	38	North Dakota	153,604,000	27
New Hampshire	19,938,000	45	South Dakota	192,466,000	24
Vermont	42,416,000	40	Nebraska	285,823,000	10
Massachusetts	55,866,000	37	Kansas	284,978,000	11
Rhode Island	4,491,000	48	Kentucky	226,090,000	20
Connecticut	49,995,000	39	Tennessee	207,864,000	21
New York	316,016,000	8	Alabama	227,447,000	19
New Jersey	56,461,000	36	Mississippi	193,712,000	23
Pennsylvania	258,099,000	16	Louisiana	161,141,000	26
Delaware	17,079,000	46	Texas	1,064,775,000	1
Maryland	67,560,000	35	Oklahoma	264,975,000	13
Virginia	186,082,000	25	Arkansas	207,735,000	22
West Virginia	76,523,000	33	Montana	103,226,000	30
North Carolina	415,737,000	5	Wyoming	30,636,000	43
South Carolina	261,713,000	14	Colorado	132,143,000	29
Georgia	236,390,000	18	New Mexico	26,100,000	44
Florida	69,785,000	34	Arizona	36,339,000	42
Ohio	326,013,000	6	Utah	36,777,000	41
Indiana	261,420,000	15	Nevada	9,326,000	47
Illinois	459,599,000	3	Idaho	81,308,000	32
Michigan	242,474,000	17	Washington	149,861,000	28
Wisconsin	274,570,000	12	Oregon	94,507,000	31
Minnesota	302,491,000	9	California	447,993,000	4
Iowa	475,920,000	2			
Missouri	321,097,000	7	Total	$9,470,976,000	

Table II. CORN—1923.

State.	1000 Acres.	1000 Bushels.	$1000 Value Dec. 1st Price.	State.	1000 Acres.	1000 Bushels.	$1000 Value Dec. 1st Price.
New York	758	24,559	24,559	Iowa	10,571	430,240	266,749
Pennsylvania	1,541	61,640	56,092	Missouri	6,562	196,860	145,676
Maryland	642	25,231	20,689	Nebraska	8,244	272,052	144,188
Virginia	1,847	53,563	50,349	Kansas	5,629	122,149	78,175
West Virginia	592	20,128	19,927	Kentucky	3,083	87,866	74,686
North Carolina	2,603	58,568	59,739	Tennessee	3,018	73,941	69,595
South Carolina	1,980	32,670	34,304	Alabama	3,310	48,988	52,907
Georgia	4,034	49,215	52,660	Mississippi	2,327	33,742	36,104
Ohio	3,809	159,859	118,296	Louisiana	1,604	24,702	25,937
Indiana	5,003	192,616	119,422	Texas	5,213	96,440	96,440
Illinois	8,995	337,312	219,253	Oklahoma	3,264	37,536	32,656
Michigan	1,636	58,167	45,370	Arkansas	2,002	39,039	39,429
Wisconsin	2,253	83,361	66,689	California	1,490	37,250	24,212
Minnesota	4,297	154,692	94,362				

Table III. WHEAT—1923.

State.	1000 Acres.	1000 Bushels.	$1000 Value Dec. 1st Price.	State.	1000 Acres.	1000 Bushels.	$1000 Value Dec. 1st Price.
New York	403	8,159	8,974	Nebraska	3,174	31,388	26,052
Pennsylvania	1,283	24,338	24,338	Kansas	8,299	83,804	76,262
Virginia	838	11,145	12,260	Texas	1,559	16,370	16,861
Ohio	2,350	42,783	42,355	Oklahoma	3,300	36,300	33,759
Indiana	2,076	34,248	33,563	Montana	3,531	52,486	43,039
Illinois	3,479	62,506	58,756	Colorado	1,390	18,000	14,940
Michigan	976	16,576	15,913	Idaho	1,052	30,115	24,092
Minnesota	1,728	20,785	19,746	Washington	2,470	61,743	52,482
Missouri	2,919	37,947	36,809	Oregon	1,111	26,807	23,590
North Dakota	8,262	58,660	50,448	California	748	16,157	17,450
South Dakota	2,812	26,906	21,793	Total for U. S.	58,308	785,741	725,501

Table IV. COTTON—1919.

State.	Acreage.	Bales (Lint) Amount.	Value Lint Cotton.	State.	Acreage.	Bales (Lint) Amount.	Value Lint Cotton.
North Carolina	1,373,701	858,406	$149,362,644	Louisiana	1,343,334	306,791	51,234,097
South Carolina	2 631,719	1,476,645	259,889,520	Oklahoma	2,732,962	1,006,242	163,011,204
Georgia	4,720,498	1,681,907	299,379,446	Texas	11,522,537	2,971,757	514,113,931
Tennessee	807,770	306,974	48,808,866	Arizona	106,283	59,351	20,119,989
Alabama	2,628,154	718,163	128,551,177	U. S. Total (All States)	33,740,106	11,376,130	2,007,430,242
Mississippi	2,948,387	957,527	183,845,184				
Arkansas	2,553,811	869,350	159,960,400				

Table V. TOBACCO—1923.

State.	1000 Acres.	1000 Pounds.	$1000 Value Dec. 1st Price.	State.	1000 Acres.	1000 Pounds.	$1000 Value Dec. 1st Price.
Connecticut	29	40,252	18,717	Wisconsin	44	48,092	11,157
Pennsylvania	45	58,950	10,700	Kentucky	578	494,190	82,036
Virginia	182	134,680	26,936	Tennessee	146	109,500	19,710
North Carolina	552	386,400	81,144	Total for U. S.	1,820	1,474,786	298,936
South Carolina	102	74,460	17,870				

COMMERCIAL STATISTICS

Countries	Area Sq. Miles	Population	Population per Sq. Mile	Owning or Ruling Power	Capital or Chief City	Agricultural Products
Abyssinia	350,000	7,000,000	28.06	Kingdom	Addis Ababa	Cattle, sheep, cotton, coffee, sugar, tobacco
Albania	14,000	831,877	127.27	Republic	Durazzo	Wool, corn, sheep, goats, tobacco, olive oil.
Algeria	222,180	5,801,000	.....	France	Algiers	Cotton, cattle, sheep, vineyards, cereals, potatoes, flax, silk, tobacco, fruit.
Argentina	1,153,119	8,698,516	7.54	Republic	Buenos Aires	Sheep, cattle, pigs, oats, wheat, maize, flax, linseed, sugar, tobacco.
Armenia	15,240	1,214,000	80.5	Republic	Mandate—England	Maize, cotton, tobacco, sheep, goats.
Australia	2,974,581	5,436,794	1.84	Britain	Melbourne	Wheat, hay, oats, sugar, potatoes, barley, maize, cattle, sheep, butter, cheese.
Austria	32,352	6,428,336	199.31	Republic	Vienna	Rye, barley, wheat, oats, potatoes, cattle, horses.
Belgium	11,744	7,462,455	636.0	Kingdom	Brussels	Maize, rye, cattle, tobacco, potatoes, wheat, barley, sugar.
Bolivia	597,460	2,820,074	4.85	Republic	La Paz	Cocoa, rubber, rice, coffee, barley.
Brazil	3,275,510	30,635,605	9.35	Republic	Rio de Janeiro	Coffee, maize, tobacco, rubber, sugar, rice, cattle, sheep.
British Columbia	355,855	524,528	1.32	Britain	Victoria	Wheat, oats, cattle, sheep, lumber.
Canada	3,729,665	8,788,500	2.35	Britain	Ottawa	Wheat, oats, barley, rye, flax, potatoes, fruits, wool, dairying, forestry.
Chile	289,829	3,774,485	12.9	Republic	Santiago	Wheat, sheep, cattle, barley, oats.
China	1,532,420	302,100,000	97.13	Republic	Peking	Soy beans, rice, sorghum, cotton, tea, silk, timber.
Colombia	461,606	5,855,000	13.27	Republic	Bogota	Cotton, coffee, cocoa, sugar, tobacco, rubber, bananas.
Cuba	44,164	3,123,046	65.58	Republic	Havana	Tobacco, sugar, coffee, fruits.
Czecho-Slovakia	54,264	13,604,807	250.62	Republic	Prague	Rye, wheat, sugar, hops, potatoes, livestock, fruit.
Denmark	17,120	3,318,000	190.48	Kingdom	Copenhagen	Wheat, oats, rye, barley, livestock, butter.
Ecuador	276,000	1,500,000	5.8	Republic	Quito	Hay, grain, coffee, sugar, cocoa, rubber.
Egypt	360,000	13,387,000	38.28	Britain	Cairo	Cotton, wheat, sugar, beans, rice, millet, barley.
England	50,874	35,678,530	701.31	Kingdom	London	Corn, hops, wheat, barley, rye, sheep, cattle.
Esthonia	18,000	1,250,000	75.56	Republic	Reval	Rye, barley, potatoes, wheat, cattle.
Finland	132,510	3,366,507	22.72	Republic	Helsingfors	Dairying, lumber, pine and spruce, rye, barley, oats, flax, potatoes.
France	212,659	39,402,800	185.29	Republic	Paris	Cereals, (wheat, oats, corn, rye), grapes, sugar beets, sheep, cattle, dairy products.
Georgia (Europe)	25,760	2,372,403	97.65	Soviet Republic	Tiflis	Fruit, silk, corn, grapes, cereal, cotton.
Germany	185,889	59,858,284	239.54	Republic	Berlin	Potatoes, rye, sugar beets, corn, oats, barley, tobacco, cattle, sheep, pigs, forestry.
Greece	41,933	4,777,380	92.65	Kingdom	Athens	Dairy products, tobacco, barley, rice, figs, wheat, maize, oats, almes.
Honduras	44,275	662,432	14.39	Republic	Tegucigalpa	Bananas, cocoanuts, rubber, coffee, tobacco, cattle.
Hungary	35,654	7,945,878	219.63	Republic	Budapest	Wheat, maize, sugar beets, grapes, tobacco, cattle, flax, potatoes.
India	1,093,074	247,140,000	226.09	Gr. Britain	Delhi	Rice, wheat, cotton, cane sugar, jute, castor beans, flax, tea, millet, livestock.
Ireland	32,586	4,396,000	137.94	Gr. Britain	Dublin	Grain, wheat, oats, barley, flax, cattle, pigs.
Italy	117,982	38,835,184	340.72	Kingdom	Rome	Wheat, barley, corn, vineyards, olives, lemons, silk, forests, cattle raising.
Japan	148,756	55,961,140		Kingdom	Tokio	Rice, wheat, silk (56%) barley, tea, horses, sheep.
Jugo-Slavia	86,878	11,600,000	118.16	Kingdom	Belgrade	Timber, corn, oats, rye, wheat, olives, lemons, cattle.
Korea	85,229	17,285,000	202.79	Japan	Seoul	Tobacco, cotton, rice, barley, wheat, beans, fruit, silk.
Latvia	25,000	1,850,622	261.97	Republic	Rigo	Rye, cereals, flax, barley, timber.
Lithuania	33,000	4,500,000	82.0	Republic	Kovno	Pine, cereals, flax, potatoes, wheat, rye, dairying.

OF THE WORLD, 1907–1925.

Mineral Products	Manufactured Products	Exports	Total Imports in Dollars	Total Exports in Dollars
Iron, gold, coal	.....	Hides, coffee, ivory, wax	.....	.....
.....	Flour, olive oil	Wool, olive oil, hides	.....	.....
Petroleum, zinc, copper, lead, antimony	.....	Wine, wheat, sheep, tobacco	.....	.....
Gold, silver, copper, tin	Food products, flour, furniture	Wheat, maize, livestock, linseed, wool	649,333,000	1,020,841,000
Marble, iron, copper, lead, gold	Rugs, tobacco			
Gold, copper, silver, coal, tin	Iron, boots, shoes, food products	Meat, fruit, wool, hides, lead, timber, wheat, flour	390,711,000	545,084,000
Salt, zinc, iron ore, lignite, anthracite coal, copper	Textiles, tobacco, motorcars	Timber, furniture, chemicals, sugar	340,063	182,176
Coal, zinc, lead	Iron, steel, glass, lace, linen, gloves	Iron, steel, glassware, wool, cotton yarn	748,440,000	531,639,000
Zinc, copper, tin, silver, lead	Iron, cotton cloth, refined sugar	Silver, tin, rubber	19,544,000	45,307,000
Coal, monazite, iron, gold, diamonds	Cotton, silk, wool, sugar, flour, tobacco	Coffee, rubber, sugar, tea, leather, meat	470,664,000	394,520,000
Coal, lead, copper, zinc	Timber products	Lumber, furs, fish products, minerals	.....	.....
Lead, nickel, copper, zinc, silver	Paper, timber, chemicals, food products, iron and steel, textiles	Wood and wood products, beef, hides	1,102,675,000	1,057,333,000
Nitrate, copper, coal, iron	Textiles, fertilizers, iron, steel	Nitrate, iodine, wool, copper	160,807,000	282,675,000
Coal, tin, antimony, gold	Textiles, silk, iron products, milling of rice	Raw silk, beans, cotton, tea, tin, vegetables	937,568,000	666,207,000
Gold, emeralds, salt, copper, lead, manganese	Panama hats, sugar refining, iron and steel	Gold, coffee, hides, bananas	34,225,000	70,273,000
Manganese, iron, copper, asphalt, oil	Liquors, sugar refining, cigars, cigarettes	Sugar, tobacco	438,189,000	855,138,000
Coal, iron, gold, copper, lead	Iron and steel, glass, paper, cottons, woolens, sugar, furniture	Coal, iron, steel, woolens, glass, sugar	363,400,000	428,900,000
.....	Distilleries, beet sugar, oleomargarine, textiles	Butter, cheese, eggs, dairy products, textiles	511,706,000	250,990,000
Petroleum, copper, lead, coal, sulphur	Panama hats, flour, breweries, sugar refinining	Cocoa hats, coffee, hides, rubber	11,284,000	20,314,000
Phosphate, manganese, gold, talc, salt, gypsum, petroleum	Textiles, chemicals	Cereals, vegetables, textiles and yarns	388,540,000	329,650,000
Iron ore, salt, limestone, sandstone, coal, chalk	Textiles, iron, steel	Livestock, coal, iron, steel, textiles, cutlery	3,207,801,000	2,556,106,000
.....	Lumber products and paper	Timber, flax, paper, potatoes, dairy products	120,078,000	196,126,000
Copper, quarry products	Pulpwood, paper, leather goods, textiles, iron and steel	Lumber, pulpwood, paper, hides, meats	1,867,823,000	1,628,000,000
Alumine, antimony, clays, potash, iron ore	Textiles, silk, cotton, lace, jewelry, cut glass iron steel	Textiles, silk, cotton, clothing, wine, leather, automobiles	1,755,633 000 (19	21) 1,606,870,000
Manganese, oil, copper, zinc, lead	.....	.....	.....	.....
Coal, zinc, lead, copper, silver	Iron, steel, textiles, chemicals, dyes, toys, copper and brass goods, beet sugar	Steel products, textiles, beet sugar, chemicals, toys, leather goods	1,708,722,000	1,206,902,000
Iron, magnesite, salt, emery, zinc, lignite, chromite	Textiles, olive oil, wines, soap	Silk, cotton, liquors, cereal, agricultural products	235,650,000	309,088,000
Gold, silver, zinc, coal, lead	Cigars, straw hats, iron	Food stuffs, gold, livestock	16,723,000	5,429 000
Coal	Flour, breweries, agricultural implements, sugar, tobacco	Flour, hardware, livestock, wine, electrical machinery, wool	12,604,800	4,457,800
Coal, petroleum, gold, manganese	Cotton, jute mills	Jute, cotton, tea, hides, textiles	1,109,569,000	787,879,000
Chalk, iron, sandstone, gypsum	Linen, shipbuilding, twine, tobacco, spirits	.....	.....	.....
Coal, zinc, lead, mercury, iron, sulphur	Iron, steel, textiles, chemicals food products	Cotton, silk, fruit, wines, automobiles, hides, hats	1,803,366,000	887,213,000
Copper, coal, lead, zinc	Silks, woolens, paper, matches leather, porcelain articles, toys	Cotton, raw silks, coal, matches, copper, iron	1,176,685,000	981,367,000
Coal, iron, copper, gold, chrome	Weaving, tanning, flour milling	Maize, cattle, timber, wheat, swine	No Export or	Import Figures.
Gold, copper, iron, coal	None	Rice, beans, hides, gold ore	49,069,000	10,143,000
Brown coal (lignite)	.....	Flax, timber	18,550,000	9,679,000
.....	Textiles, turpentine, bricks	Foodstuffs, rye, butter, eggs, hides, timber	219,218,730	150,000,000

Countries	Area Sq. Miles	Population	Population per Sq. Mile	Owning or Ruling Power	Capital or Chief City	Agricultural Products
Luxemburg	999	263,824	82.00	Grand Duchy	Luxemburg	Oats, potatoes.
Madagascar	228,000	3,546,000	15.15	France	Tananarivo	Sugar, rice, vanilla bean, rubber, clove woods, gums, rosin, cattle breeding.
Mesopotamia	143,250	2,849,282	20.24	Kingdom	Bagdad	Wheat, barley, dates, rice, cotton.
Mexico	767,198	15,800,000	20.58	Republic	Mexico City	Corn, beans, wheat, tobacco, vanilla, cattle, sheep.
Morocco	220,400	5,400,000	23.75	France	Rabat	Barley, maize, linseed, cattle, vineyards, olives, dates, wheat.
Netherlands	12,582	6,865,314	545.60	Kingdom	The Hague	Rye, oats, wheat, potatoes, beets, bulbs, etc.
New Foundland	42,734	263,700	6.17	Gr. Britain	St. Johns	Hay, potatoes, oats, turnips, horses, sheep, forests.
New Zealand	103,568	1,274,001	11.79	Gr. Britain	Wellington	Cattle, sheep, horses, pigs, wool.
Nicaragua	51,700	639,000	12.98	Republic	Managua	Bananas, cocoanuts, fruit, rice, coffee, sugar cane, corn, beans, forests (mahogany, cedar).
Norway	124,964	2,646,775	21.6	Kingdom	Oslo	Wheat, barley, oats, corn, potatoes, horses, cattle, goats, forests.
Palestine	9,000	755,858	85.55	Brit. Mandate	Jerusalem	Wheat, barley, olives, sheep, camels, goats.
Paraguay	75,673	800,000	9.60	Republic	Asuncion	Cattle, sheep, tea, oranges, oil, sugar, cotton.
Persia	628,000	10,000,000	14.33	Kingdom	Teheran	Fruit, rice, wool, cotton, barley, wheat, opium.
Peru	722,461	4,700,000	6.91	Republic	Lima	Wool, coffee, cotton, skins, hides, sugar, cocoa, rice.
Poland	124,097	26,376,103	181.00	Republic	Warsaw	Wheat, oats, flax, barley, swine, cattle, forests.
Portugal	35,490	5,960,056	169.06	Republic	Lisbon	Fruit, maize, wheat, olives, wines, tobacco, figs, swine.
Rhodesia So.	149,000	803,000	5.06	Gr. Britain	Salisbury	Corn, tobacco, cotton, wheat, fruits.
Rhodesia No.	291,000	932,000	3.22	Gr. Britain	Livingstone	
Rumania	122,282	17,393,149	142.21	Kingdom	Bucharest	Wheat, oats, barley, tobacco, rye, horses, goats, forests.
Russia (Europe)						Wheat, rye, oats, potatoes, hemp, hay, sugar beets, tobacco, horses, sheep, hogs.
Scotland	30,405	4,882,288	127.68	Gr. Britain	Glasgow	Wheat, hops, oats, corn, forage crops.
Siam	194,580	9,022,000	46.25	Kingdom	Bangkok	Rice, livestock, lumber (teak wood).
Spain	194,783	21,347,335	107.81	Kingdom	Madrid	Grapes, olives, citrus fruit, silk, flax, hemp, cane sugar, livestock.
Sweden	173,035	5,904,489	34.12	Kingdom	Stockholm	Lumber products, hay, oats, corn, wheat, rye, barley, dairy products.
Switzerland	15,976	3,881,000	242.86	Republic	Berne	Dairying, sheep, cheese, condensed milk, grapes, forests.
Syria	60,000	3,000,000	50.00	Fr. Mandate	Damascus	Tobacco, cereals, cotton, wheat, fruit-vines, silk.
Tunis	50,000	2,100,000	42.00	France	Tunis	Olives, lemons, dates, wheat, rye, barley, almonds, livestock.
Turkey	495,000	14,549,000	29.00	Republic	Constantinople	Tobacco, mohair, figs, silks, olives, opium, timber, wools.
United States	3,026,789	105,710,620	35.20	Republic	Washington	Corn, cotton, wheat, barley, flax seed, potatoes, forests, rice, hay, cane sugar, cattle, sheep, horses, tobacco, dairy products.
Uruguay	72,153	1,494,953	20.78	Republic	Montevideo	Grapes, tobacco, wheat, oats, corn, linseed.
Venezuela	363,728	2,412,000	6.05	Republic	Caracas	Rubber, coffee, cocoa, vanilla bean, maize, sugar, livestock, cotton.
Yucatan	15,939	347,781	23.00	Mexico	Merida	

Mineral Products	Manufactured Products	Exports	Total Imports in Dollars	Total Exports in Dollars
Iron ore				
Gold, lead, copper, zinc, graphite, nickel, sulphur	Silk and cotton weaving, Panama hats	Hides, rice, gold dust, raffia fibre		
Petroleum, asphalt	Carpet manufacturing	Carpets, grain		
Petroleum, copper, silver, lead, zinc, gold	Textiles, cotton	Petroleum gasoline, fuel oil	178,239,000	202,664,000
Copper, iron, lead, antimony, sulphur, phosphate	Leather, rugs	Eggs, barley, beans, linseed, wheat, almonds	£31,107,028	£9,498,656
Coal	Sugar refining, brewing, distilling, diamond cutting	Sugar, coffee, copra, diamonds, pearl shell, tin		
Iron ore, copper, silver, lead	Pulp mills, lumber products	Dried cod, pulp, paper, iron ore, oils, seal skins	£3,971,708	£4,307,800
Gold, silver, tungsten	Meat packing, butter, cheese, condensed milk, lumber products, breweries, woolen mills	Meats, tallow, butter, cheese, gold, timber	£42,726,249	£35,021,561
Gold, silver, copper		Coffee, rice, sugar, fruits	£1,626,223 (1922)	£1,054,219
Iron, copper, silver, nickel	Pulp and paper, nitrates and carbide, electrical products.	Animal products, yarn, hair, skins, tallow oils, lumber products, wood products	249,780,000	838,260,000
Limestone, sandstone, gypsum, petroleum	Wines, olive oils, soap making, brick	Soap, fruit, wine, wheat, barley	£5,428,146	£1,376,649
Iron, copper, manganese	Meat packing, textiles, lumber products	Hides, tobacco, yerba, grain, meat products, cattle	5,908,000	6,839,000
Oil, lead, coal, iron, nickel, cobalt	Carpets, textiles	Carpets, opium, cotton, fruits, gums, petroleum	98,300,000	158,791,000
Petroleum, copper, silver, coal, guano	Tobacco products, Panama hats	Cotton, sugar, copper, petroleum, silver	88,670,000	170,519,000
Salt, oil, potash, zinc, lead	Textiles, metal products, oil refining, jute, wood working	Cotton, woolens, oil, wheat timber products		
Coal, oil, manganese, antimony, lead, tin	Textiles, paper making	Corks, resin, raw wool, sardines, chemicals	89,313,000	35,873,000
Gold, zinc, copper, coal, lead		Lead, gold, copper	27,000,000	29,000,000
Lignite, salt, iron, copper, petroleum	Flour milling, liquors	Livestock, cereals, rubber, vegetables, fibre, petroleum chemicals	286,636,000	8,311,000
Oil, copper, zinc, manganese, iron, gold, platinum	Iron, textiles, oil, glass, forged products	Raw material, timber products, flax, ores, hides	432,654,000	152,696,000
Iron, coal	Iron, steel, textiles, food products			
Coal, zinc, manganese, antimony, iron, tin		Rice, teak, tin	55,677,000	25,042,000
Iron, copper, quick silver, zinc, lead, manganese	Cotton, wools, paper, corks, glass, wines, olive oil	Wines, wool, glassware and pottery, animal products	141,256,000	239,414,000
Iron ore, silver, lead, manganese, copper	Woodpulp and paper products, iron and steel, cotton, wool, flour, tobacco, shoes.	Wood products, pulp, iron and steel	647,228,000	402,404,000
Little coal and iron	Watches, clocks, musical instruments, optical goods, silks, embroidery, milk chocolate	Cotton, silks, watches, clocks, condensed milk	398,498,000	371,399,000
Iron ore, lead, copper, marble	Soap, silk, cotton goods, flour, oil	Ores, tobacco, wines, fruit		
Lead, iron, phosphate, zinc	Carpets, leather, embroidery, silk, pottery	Grain, marble, textiles, fruit, wine	£34,251,080	£17,787,160
Salt, emery, chrome, silver, zinc, copper, manganese, antimony	Cotton, tobacco, carpets, wools	Tobacco, carpets, wool, mohair, hides		
Iron, coal, gold, silver, copper, lead, zinc, alumin, quarry products	Food products, textiles, iron, steel, leather, motor vehicles	Tobacco, machinery, food products, leather, textiles, iron and steel, copper, petroleum	2,509,148,000	4,378,928,000
Gold, lead, copper, lignite		Live animals, meat products, wool, hides	65,281,000	48,061,000
Gold, salt, coal, asphalt	Textiles, glass, matches	Coffee, rubber, cocoa, sugar, vanilla	24,464,000	13,652,000

Name of State. Date of Admission. Area and Population.	First Settlement. By Whom. Date.	How Acquired.	Origin and Meaning of Name.	Motto and Meaning Emblem. State Flower.
Alabama (1819). 51,998 sq. miles. 2,348,174 pop.	Fort St. Louis by French in 1702.	Part of Mississippi territory.	Indian, meaning here we rest.	Here we rest. Golden-rod.
Alaska (ter.) (1868). 590,884 sq. miles. 55,036 pop.	Three Saints by Russians in 1784.	Purchased from Russia in 1867.	*Al-ay-es-ka,* meaning the great country.	Forget-me-not.
Arizona (1912). 113,956 sq. miles. 334,162 pop.	Tucson by Spaniards about 1580.	Part of Mexican Cession and Gadsden Purchase.	Indian, meaning sand hills.	*Sitat deus:* Founded by God. Sequoia Cactus.
Arkansas (1836). 53,335 sq. miles. 1,752,204 pop.	Arkansas Post by French in 1865.	Part of Louisiana territory.	From a tribe of Indians. French and Indian word, meaning bow of smoky waters.	Mercy, justice, *Regnab populi:* The people rule. Apple Blossom.
California (1850). 158,297 sq. miles. 3,426,861 pop.	San Diego by Spanish in 1769.	Part of Mexican Cession.	Spanish, meaning hot furnace.	*Eureka:* I have found it. California Poppy.
Colorado (1876). 103,948 sq. miles. 939,629 pop.	Near Denver by Americans in 1858.	Part of Louisiana Purchase and Mexican Cession.	Spanish, meaning colored red.	*Nil sine numine:* Nothing without Providence. Columbine.
Connecticut (1788). 4,956 sq. miles. 1,380,631 pop.	Windsor by the English in 1635.	Part of New England; one of the 13 original States.	Indian, meaning long river.	*Qui transtulit sustinet:* He who transplanted still sustains. Mountain Laurel.
Delaware (1787). 2,370 sq. miles. 223,003 pop.	Near Wilmington by the Swedes in 1638.	One of the 13 original States.	Named in honor of Lord Delaware.	Liberty and Independence. Peach Blossom.
District of Col. (1791). 70 sq. miles. 437,571 pop.	Rome by English in 1663.	Territory ceded to government by Maryland and Virginia.		*Justitia omnibus:* Justice to all. Nasturtium.
Florida (1845). 58,666 sq. miles. 968,470 pop.	St. Augustine by Spanish in 1565.	Purchased from Spain in 1821.	Spanish, meaning blooming.	In God we trust. Orange Blossom.
Georgia (1788). 59,256 sq. miles. 2,895,832 pop.	Savannah by English in 1733.	One of the 13 original States.	Named in honor of George II.	Obverse: Wisdom, Justice, Moderation. Reverse: Agriculture and commerce. Cherokee Rose.
Hawaii (ter.) (1900). 6,499 sq. miles. 255,912 pop.	Spanish sailors, 1527.	By annexation.		
Idaho (1890). 84,313 sq. miles. 431,866 pop.	Cœur d'Alene by Americans in 1842.	Part of Oregon territory.	Indian, meaning gem of the mountains.	*Salve:* Hail. Syringa.
Illinois (1818). 56,665 sq. miles. 6,485,280 pop.	Kaskaskia by French about 1720.	Part of Northwest territory.	Indian, meaning the men.	National Union, State Sovereignty. Violet.
Indiana (1816). 36,354 sq. miles. 2,930,390 pop.	Fort Vincennes by French about 1730.	Part of Northwest territory.	Means Indians' ground.	No motto. Carnation.
Iowa (1846). 56,147 sq. miles. 2,404,021 pop.	Fort Madison by Americans in 1832.	Part of Louisiana Purchase.	Indian, meaning beautiful land.	Our liberties we prize and our rights we will maintain. Wild Rose.
Kansas (1861). 82,158 sq. miles. 1,769,257 pop.	Fort Leavenworth by Americans about 1827.	Part of Louisiana Purchase.	Indian, meaning smoky water.	*Ad astra per aspera:* To the stars through difficulties. Sunflower.
Kentucky (1792). 40,598 sq. miles. 2,416,630 pop.	Harrodsburg by Americans in 1774.	Part of Virginia.	Indian, meaning dark and bloody ground.	United we stand, divided we fall. Golden-rod.
Louisiana (1812). 48,506 sq. miles. 1,798,509 pop.	Iberville by French in 1699.	Part of Louisiana Purchase.	Named in honor of Louis XIV.	Union, Justice, and confidence.
Maine (1820). 33,040 sq. miles. 768,014 pop.	Pemaquid by English in 1625.	Part of Massachusetts; one of the 13 original States.	Called the Mayne land in a charter from Charles I., 1639.	Magnolia. *Dirigo,* I direct. Pine Cone.
Maryland (1788). 12,327 sq. miles. 1,449,661 pop.	St. Mary's by the English in 1634.	One of the original States.	Named in honor of Queen Henrietta Maria.	*Fatti maschii, parole femine:* Manly deeds, womanly words. Blackeyed Susan.
Massachusetts (1788). 8,266 sq. miles. 3,852,356 pop.	Plymouth by English in 1620.	Massachusetts Bay Colony; one of the 13 original States.	Indian, meaning the land of great hills.	*Ensepetit placidam sub libertate quietem:* With the sword she seeks quiet peace under liberty. No State flower.
Michigan (1837). 59,980 sq. miles. 3,668,412 pop.	Sault Sainte Marie by French in 1668.	Part of Northwest territory.	Indian, meaning great lake.	*Si quaeris peninsulam amaenam, circumspice:* If you seek a beautiful peninsula, behold it here. Apple Blossom.
Minnesota (1858). 84,682 sq. miles. 2,387,152 pop.	At mouth of St. Croix and Minnesota rivers by Americans in 1805.	Part of Louisiana Purchase and Northwest territory.	Indian, meaning sky-tinted water.	*L'etoile du nord:* The Star of the North. Moccasin.
Mississippi (1817). 46,856 sq. miles. 1,790,618 pop.	Biloxi by French in 1699.	Part of Louisiana and Georgia.	Indian, meaning great river, or father of waters.	None. Magnolia.
Missouri (1821). 69,420 sq. miles. 3,404,055 pop.	Sainte Genevieve by French about 1735.	Part of Louisiana Purchase.	Indian, meaning muddy.	*Salus populi suprema lex esto* [The welfare of the people is the supreme law]. United we stand, divided we fall. Golden-rod.

Popular Name of State and People.	Altitudes: Highest—Lowest—Mean. Where.	Height.	Capital and Population.	Persons to Sq. Mile.	Products.
Cotton State.	Cheaha Mt. Venetia.	2,407 ft. 7 ft. 500 ft.	Montgomery, 43,464	45.8	Maize, oats, wheat, cotton, sugar, iron, lumber, manufactures.
	Mt. McKinley. Umga Islet.	20,464 ft. 0 ft.	Juneau, 3,058	.09	Seals, salmon, gold, copper, silver, lumber, tin.
	San Francisco Mt. Yuma.	12,794 ft. 100 ft. 4,100 ft.	Phœnix, 29,053	2.9	Copper, gold, silver, alfalfa, fruits, live stock.
Bear State. Toothpicks.	Magazine Mt. Camden.	2,800 ft. 71 ft. 650 ft.	Little Rock, 65,142	33.4	Cotton, lumber, maize, wheat, fruits, wool, coal, tobacco.
Golden State. Gold hunters.	Mt. Whitney. Death Valley.	14,502 ft. — 276 ft. 2,900 ft.	Sacramento, 65,908	22.0	Gold, silver, copper, lead, petroleum, borax, lumber, fruits, wine, olives.
Centennial State. Rovers.	Mt. Massive. Holmesville.	14,424 ft. 3,291 ft. 6,800 ft.	Denver, 256,491	9.1	Gold, silver, coal, copper, vegetables, fruits, live stock, wheat, beet sugar.
Land of steady habits. Nutmeg State. Wooden Nutmegs.	Bear Mt., Salisbury. New Haven.	2,355 ft. 6 ft. 500 ft.	Hartford, 138,036	286.4	Manufactures: woolen, cotton, notions; tobacco, iron, granite.
Blue Hen State. Blue Hen's Chickens.	Brandywine. Delaware City.	440 ft. 4 ft. 60 ft.	Dover, 4,042	113.5	Maize, wheat, tomatoes, fruits; manufactures: leather, iron, steel, machinery.
	Tenley. Navy Yard.	421 ft. 4 ft. 150 ft.	Washington, 437,571	7,292.7	Locally flour.
Peninsula State. Flower State. Fly-up-the-Creeks.	Mt. Pleasant. Cleveland.	301 ft. 3 ft. 100 ft.	Tallahassee, 5,637	17.7	Pineapples, oranges, tobacco, rice, cotton, lumber, turpentine, resin, fish.
Cracker State. Empire State of the South. Buzzards.	Brasstown Bald. Brunswick.	4,768 ft. 14 ft. 600 ft.	Atlanta, 200,616	49.3	Cotton, maize, rice, tobacco, oysters, marble, clay; manufactures: cotton, lumber, fertilizers.
	Mt. Mauna Kea.	13,805 ft.	Honolulu, 83,327	39.9	Sugar, fruits, rice, coffee, hides.
Gem of the Mountains.	Hyndman Peak. Lewiston.	12,078 ft. 738 ft. 5,000 ft.	Boise City, 21,393	5.2	Gold, silver, copper, lead, lumber, flour, wheat, live stock.
Sucker State. Prairie State. Suckers.	Mt. Charles. Brooklyn.	1,257 ft. 279 ft. 600 ft.	Springfield, 59,183	150.7	Maize, wheat, oats, potatoes, hay, live stock, wool, meat, machinery, tools.
Hoosier State. Hoosiers.	Carlos. Evansville.	1,208 ft. 316 ft. 700 ft.	Indianapolis, 314,194	81.3	Maize, wheat, tobacco, vegetables, fruits, wool, coal, clay, flour, machinery, cement.
Hawkeye. Hawkeyes.	Waneta. Burlington.	1,800 ft. 477 ft. 1,100 ft.	Des Moines, 126,468	43.1	Maize, wheat, potatoes, hay, live stock, butter, coal, lumber.
Sunflower State. Jayhawkers.	West Boundary. Kings.	4,135 ft. 727 ft. 2,000 ft.	Topeka, 50,022	21.6	Maize, wheat, hay, live stock, fruits, coal, salt.
Blue Grass. Dark and Bloody Ground. Corncrackers.	Big Black Mt. Columbus.	4,100 ft. 257 ft. 750 ft.	Frankfort, 9,805	60.1	Tobacco, hemp, wheat, cotton, live stock, lumber, coal.
Creole State. Pelican State.	Claiborne. Port Hickory.	400 ft. — 8 ft. 100 ft.	Baton Rouge, 21,782	39.6	Cotton, maize, rice, sugar, lumber, oysters, salt.
Pine Tree State. Foxes.	Mt. Katahdin. Eastport.	5,200 ft. 5 ft. 600 ft.	Augusta, 14,114	25.7	Hay, grains, dairying, potatoes, wool, granite, ice, lumber, manufactures, apples.
Old Line State. Crawthumpers.	Great Backbone Mt. Annapolis.	3,400 ft. 2 ft. 350 ft.	Annapolis, 11,214	145.8	Wheat, hay, maize, vegetables, fruits, fish, coal, wool, canned fruits, and vegetables.
Bay State. Beaneaters.	Greylock. Boston.	3,535 ft. — 5 ft. 500 ft.	Boston, 148,060	479.2	Manufactures: woolen, cotton, boots, shoes; fish, tobacco.
Wolverine State. Wolverines.	Porcupine Mt. Rockwood.	2,023 ft. 573 ft. 900 ft.	Lansing, 57,327	63.8	Maize, wheat, oats, fruits, vegetables, iron, copper, clay, lumber, machinery.
North Star. Gopher. Gophers.	Mesabi Range. Winona.	2,400 ft. 606 ft. 1,200 ft. 602 ft.	St. Paul, 234,698	29.5	Maize, wheat, oats, barley, flaxseed, wool, live stock, flour, iron, lumber.
Bayou State.	Holly Springs. Claiborne.	4 ft. 300 ft.	Jackson, 22,817	38.6	Cotton, maize, rice, tobacco, oysters, shrimps.
"Empire State of the West." "The Show Me State." None.	Cedar Gap. Maywood.	1,800 ft. 229 ft. 800 ft.	Jefferson City, 14,490	49.5	Maize, wheat, oats, cotton, swine, honey, zinc, lead, tobacco.

Name of State. Date of Admission. Area and Population.	First Settlement. By whom. Date.	How Acquired.	Origin and Meaning of Name.	Motto and Meaning. Emblem. State Flower.
Montana (1889). 146,572 sq. miles. 548,899 pop.	Yellowstone River by Americans in 1809.	Part of Louisiana Purchase.	Named from the Spanish, meaning mountain land.	*Oro y plata:* Gold and silver. Bitter-root.
Nebraska (1867). 77,520 sq. miles. 1,296,372 pop.	Bellevue by Manuel Lisa in 1805.	Part of Louisiana Purchase.	Indian, meaning shallow water.	Equality before the law. Golden-rod.
Nevada (1864). 110,690 sq. miles. 77,407 pop.	Genoa by Americans in 1849.	Part of Mexican Cession.	Spanish, meaning snow-clad.	All for our country. Sage-brush.
New Hampshire 9,341 sq. miles. (1788). 443,083 pop.	Little Harbor by English in 1623.	Part of Massachusetts; one of the 13 original States.	Named from Hampshire, England.	No motto. No State flower.
New Jersey (1787). 8,224 sq. miles. 3,155,900 pop.	Elizabethtown by English in 1664.	Part of New Netherlands; one of the 13 original States.	Named in honor of the governor of Jersey Island.	Liberty and independence. Sugar Maple (tree).
New Mexico (1912). 122,634 sq. miles. 360,350 pop.	Santa Fe by the Spanish about 1537.	Part of Mexican Cession.	Spanish, from Mexico, the place of Aztec, God of War.	*Crescit eundo:* It increases by going. Cactus.
New York (1788). 49,204 sq. miles. 10,385,227 pop.	New York by the Dutch about 1613.	One of the 13 original States.	Named in honor of the duke of York.	*Excelsior:* Higher, more elevated. Rose.
North Carolina (1789). 52,426 sq. miles. 2,559,123 pop.	On the Albemarle Sound by English in 1653.	One of the 13 original States.	Named in honor of Charles II.	*Esse quam videri:* To be rather than to seem. Daisy.
North Dakota (1889). 70,837 sq. miles. 646,872 pop.	Pembina by English in 1810.	Part of Louisiana Purchase.	Indian, meaning allied.	Liberty and union, one and inseparable, now and forever. Wild Rose.
Ohio (1803). 41,040 sq. miles. 5,759,394 pop.	Marietta by Americans in 1788.	Part of Northwest territory.	Indian, meaning beautiful river.	*Imperium in imperio:* An empire within an empire. Scarlet Carnation.
Oklahoma (1907). 70,057 sq. miles. 2,028,283 pop.	Guthrie by Americans in 1890.	Part of Louisiana Purchase.	Indian, Choctaw, meaning red people.	No motto. Crimson Rambler. (Mistletoe.)
Oregon (1859). 96,699 sq. miles. 783,389 pop.	Astoria by Americans in 1810.	Part of Oregon territory.	Indian, river of the west. Spanish, wild marjoram.	*Alis volat propriis:* She flies with her own wings. Golden-rod.
Pennsylvania (1787). 45,126 sq. miles. 8,720,017 pop.	New Gottenburg by the Swedes in 1643.	Granted to Penn by Charles II.; one of the 13 original States.	Latin, meaning Penn's woods, in honor of Wm. Penn.	Reverse: Both can't survive. Violet.
Philippines (1899). 115,026 sq. miles. 10,350,640 pop.	Discovered by Magellan, 1521. Annexed to Spain, 1569.	By cession from Spain,	Spanish for Philip II. of Spain.	
Porto Rico (1899). 3,435 sq. miles. 1,346,623 pop.	Discovered by Columbus, 1493. Ponce de Leon first settled, 1510.	By cession from Spain.	Spanish, meaning rich port.	
Rhode Island (1790). 1,248 sq. miles. 604,397 pop.	Providence Plantations by English in 1636.	Providence and Rhode Island Plantations.	Rhodes, an island in the Ægean sea.	Hope. Violet.
South Carolina (1788). 30,989 sq. miles. 1,683,724 pop.	On the Ashley River by English in 1670.	One of the 13 original States.	Named in honor of Charles II.	*Animis opibusque parati:* Prepared in mind and resources.
South Dakota (1889). 77,615 sq. miles. 636,547 pop.	Southeast part by Americans in 1859.	Part of Dakota territory.	Indian, meaning allied.	Under God the people rule. Anemone.
Tennessee (1796). 42,022 sq. miles. 2,337,885 pop.	Fort Loudon by English in 1756.	Part of North Carolina.	Indian, meaning river with the great bend.	Agriculture, commerce. No State flower.
Texas (1845). 265,896 sq. miles. 4,663,228 pop.	Taleta by Spanish in 1682.	By annexation.	Named from tribe of Indians.	No motto. Blue Bonnet.
Utah (1896). 84,990 sq. miles. 449,396 pop.	Salt Lake City by Americans in 1847.	Part of Mexican Cession.	Named from a tribe of Indians.	Sego Lily.
Vermont (1791). 9,564 sq. miles. 352,428 pop.	Fort Saint Anne by French in 1665.	New Hampshire Grants.	French, meaning green mountain.	Freedom and Unity. Red Clover.
Virginia (1788). 42,627 sq. miles. 2,309,187 pop.	Jamestown by the English in 1607.	One of the 13 original States.	Named in honor of Elizabeth, the Virgin Queen.	Obverse: *Sic semper tyrannis.* Reverse: *Perseverando.* Ever so to tyrants. Perseverence.
Washington (1889). 69,127 sq. miles. 1,356,621 pop.	Columbia River by English in 1811.	Part of Oregon territory.	Named in honor of George Washington.	*Al-ki:* Bye-bye.
W. Virginia (1863). 24,170 sq. miles. 1,463,701 pop.	Upshur Co. by Americans in 1764.	Part of Virginia.	Named from Virginia.	Obverse: *Montani semper liberi:* Mountaineers are always free. Rhodedendron.
Wisconsin (1848). 56,066 sq. miles. 2,632,067 pop.	Green Bay by French in 1745.	Part of Northwest territory.	Indian, meaning wild rushing channel.	Forward. Violet.
Wyoming (1890). 97,914 sq. miles. 194,402 pop. *Census of 1920.	Fort Laramie by Americans in 1834.	Part of Louisiana Purchase and Mexican Cession.	Indian, meaning large plain.	*Cedant arma togae:* Let arms yield to the gown. Gentian.

Popular Name of State and People.	Altitudes: Highest—Lowest—Mean. Where.	Height.	Capital and Population.	Persons to Sq. Mile.	Products.
Mountain. Stub Toe State.	Granite Peak. Yakt.	12,600 ft. 1,845 ft. 3,400 ft.	Helena, 12,037	3.8	Wheat, wool, live stock, fruit, oats, lumber, copper, lead, silver.
Blackwater State. Antelopes.	Lawton. Brownville.	5,945 ft. 875 ft. 2,600 ft.	Lincoln, 54,948	16.9	Maize, wheat, oats, live stock, chicory, sugar beets, fruits.
Sage-brush State. Silver State. Sage Hens.	Wheeler Peak. Saratoga Springs.	13,058 ft. 264 ft. 5,500 ft.	Carson City, 1,685	.7	Gold, silver, copper, zinc, wool, live stock.
Granite State. Granite Boys.	Mt. Washington. Hampton Falls.	6,279 ft. 9 ft. 1,000 ft.	Concord, 22,167	49.1	Hay, maize, potatoes, oats, apples, granite, manufactures.
Jersey Blue State. Jersey Blues.	High Point. Crystal Lake.	1,800 ft. 2 ft. 250 ft.	Trenton, 119,289	420.0	Market gardening, fruits, fisheries; manufactures: textiles, machinery, iron, steel.
	Truchas Peak. S. Fe Baldy Peak.	13,275 ft. 2,661 ft. 5,700 ft.	Santa Fe, 7,236	2.9	Cereals, fruits, vegetables, live stock, lumber, copper, coal, turquoises.
Empire State. Knickerbockers.	Mt. Marcy. Albany.	5,344 ft. 5 ft. 900 ft.	Albany, 113,344	217.9	Market gardening, fruits, maize, wheat, dairying; manufactures: clothing, textiles.
Old North. Turpentine. Tar Heels.	Mt. Mitchell. Edenton Bay.	6,711 ft. 0 ft. 700 ft.	Raleigh, 24,418	52.5	Cotton, maize, tobacco, wheat, shad, oysters, lumber.
Sioux. Tuckoes.	Summit. Bowesmont.	3,500 ft. 798 ft. 1,900 ft.	Bismarck, 7,122	9.2	Wheat, oats, barley, flaxseed. Live stock.
	Bellefontaine. Palestine.	1,540 ft. 437 ft. 850 ft.	Columbus, 237,031	141.4	Maize, wheat, oats, tobacco, live stock, wool, coal, iron, petroleum, salt; manufactures.
	West end Beaver Co. Appalachia.	5,000 ft 411 ft. 1,300 ft.	Oklahoma City, 91,295	29.2	Maize, wheat, oats, cotton, flax, live stock, petroleum.
Beaver State. Sunset State. Web Feet.	Mt. Hood North Sands.	11,225 ft. 5 ft. 3,300 ft.	Salem, 17,679	8.2	Lumber, live stock, wheat, hay, fruits, hops, wool, salman, gold, silver.
Keystone State. Pennanites.	Blue Knob. Philadelphia.	3,136 ft. 9 ft. 1,100 ft.	Harrisburg, 75,917	194.5	Manufactures: steel, machinery, textiles; coal, petroleum, natural gas, iron, grains, wool.
	Apo.	10,312 ft.	Manila, 285,306	89.9	Hemp, sugar, coffee, rice, fruits, tobacco, valuable woods.
	El Yunque.	3,609 ft.	San Juan, 71,443	392.14	Coffee, sugar, tobacco, fruits, vegetables, valuable woods.
Little Rhody. Gunflints.	Durfee Hill. Newport Depot.	805 ft. 6 ft. 200 ft.	Providence, 237,595	566.4	Manufactures: worsted, cotton, jewelry, machinery, rubber.
Palmetto. Weasels.	Rich Mountain. Port Royal.	3,569 ft. 5 ft. 350 ft.	Columbia, 37,524	55.2	Cotton, tobacco, rice, oysters, turpentine, maize, lumber.
Coyote State. Swinge Cat State.	Harney Peak. Big Stone Lake.	7,216 ft. 962 ft. 2,200 ft.	Pierre, 3,209	8.3	Maize, wheat, oats, flax, potatoes, live stock, wool, gold, silver, tin.
Volunteer State. Big Bend State. Butternuts. Lone Star State.	Mt. Guyot. Memphis.	6,636 ft. 182 ft. 900 ft.	Nashville, 118,342	56.1	Maize, wheat, cotton, tobacco, live stock, coal, iron, marble.
	El Capitan. Galveston.	8,690 ft. 4 ft. 1,700 ft.	Austin, 34,876	7.8	Cotton, maize, oats, wheat, rice, sugar, live stock, wool, fruits, lumber, oysters, coal.
	Gilbert Peak. Washington.	13,687 ft. 2,800 ft. 6,100 ft.	Salt Lake City, 118,110	5.5	Gold, silver, copper, lead, coal, vegetables, fruits, wheat, oats, live stock, wool.
Green Mountain State. Green Mountain Boys.	Mt. Mansfield. Lake Champlain.	4,364 ft. 95 ft. 1,000 ft.	Montpelier, 7,125	38.6	Hay, cereals, potatoes, lumber, marble, dairying, maple sugar, syrup, manufactures.
Old Dominion. Beagles.	Rogers Mountain. Hampton.	5,719 ft. 3 ft. 950 ft.	Richmond, 171,667	57.4	Maize, wheat, oats, tobacco, cotton, oysters, coal, iron.
Evergreen State. Chinook State.	Mt. Rainier. Tulalip.	14,363 ft. — 4 ft. 1,700 ft.	Olympia, 7,795	20.3	Lumber, coal, wheat, oats, fruits, salmon, live stock.
The Panhandle. Panhandlers.	Spruce Knob. Harper's Ferry.	4,860 ft. 277 ft. 1,500 ft.	Charleston, 39,608	60.9	Maize, wheat, fruits, cattle, sheep, lumber, coal, petroleum, natural gas.
Badger State. Badgers.	Rib Hill. Lake Michigan.	1,940 ft. 581 ft. 1,050 ft.	Madison, 38,378	47.6	Maize, oats, barley, wheat, hay, potatoes, fruits, dairying, iron, lumber.
	Fremont Peak. Old Riverdale.	13,747 ft. 3,196 ft. 6,700 ft.	Cheyenne, 13,829	2.0	Wool, timber, coal, copper, petroleum.

State	Area Sq. Miles	Population	Total Imports	Total Exports	Imports from United Kin dom	Exports United to Kingdom
United Kingdom	121,633	47,307,601	£945,000,000	£760,000,000	.....	.....
Asia:						
India	1,093,074	247,138,396	300,000,000	270,000,000	47,681,000	92,939,000
Ceylon	25,481	4,504,283	26,000,000	25,000,000	10,322,000	3,673,000
Cyprus	3,584	310,808	1,500,000	1,000,000	169,000	384,000
Bahrein Is.	10,387	176,923	.....	.....	.....	.....
Straits Settlement	1,600	881,939	70,000,000	600,000,000	11,961,000	6,725,000
Federated Malay States	27,506	1,315,700	12,000,000	16,000,000	2,323,000	893,000
No. Borneo	31,106	208,183	2,500,000	3,000,000	218,000	61,000
Hong Kong	391	625,166	82,000,000	86,000,000	666,000	6,358,000
Weihaiwei	285	147,177	.....	.....	.....	.....
Africa:						
Transvaal	110,400				53,000	6,728,000
Cape Province	277,000				11,309,000	12,125,000
Natal	35,400	5,100,000			4,785,000	6,361,000
Orange Free State	50,400		58,000,000	66,000,000	.....	565,000
S. West Province	322,350	120 000			5,000	21,000
Basutoland	10,300	500,000			.....	16,000
Bechuanaland	275,000	153,000			40,000	4,000
Rhodesia	450,000	1,750,800	6,000,000	5,000,000	493,000	959,000
Gambia	4,000	210,000	1,000,000	1,000,000	534,000	306,000
Gold Coast	92,000	2,030,000	8,000,000	7,000,000	1,921,000	4,322,000
Sierra Leone	34,000	1,541,000	2,000,000	2,000,000	795,000	917,000
Nigeria	363,700	17,400,000	11,000,000	8,000,000	6,510,000	7,015,000
Somal land	68,000	300,000	300,000	350,000	.....	5,000
Kenya	566,000	12,000,000	7,000,000	5,000,000	1,295,000	1,567,000
Tanganyiki	365,000	4,122,000	1,730,000	1,300,000	365,000	371,000
Uganda	233,500	3,072	1,300,000	2,000,000	184,000	116,000
Zanzibar	1,020	200,000	3,000,000	3,000,000	400,000	319,000
Nyasaland	300,000	1,200,000	600,000	500,000	586,000	294,000
Sudan	1,015,000	4,000,000	6,000,000	2,000,000	1,149,000	812,000
Maur-tius	720	384,000	9,000,000	11,000,000	3,908,000	1,015,000
Seychelles	150	25,000	100,000	120,000	68,000	33,000
St. Helena	47	3,800	50,000	15,000	19,000	34,000
Ascension	40	150				
America:						
Ontario	407,250	2,934,000				
Quebec	706,850	2,361,000				
Nova Scotia	21,500	524,000				
New Brunswick	28,000	388,000				
Prince Edward Island	2,200	89,000	160,000,000	159,000,000	54,895,000	27,935,000
British Columbia	355,900	525,000				
Manitoba	251,900	610 000				
Alberta	255,300	588,000				
Saskatchewan	251,700	758,000				
N. W. Territory	1,250,000	12,000				
Newfoundland	40,000	263,000	4,000,000	5,000,000	1,938,000	598,000
Jamaica	42,000	863,000	6,000,000	4,000 000	.....	.....
Bahamas	4,400	53,000	1,000,000	400,000	22,000	937,000
Leeward Islands	750	140,000	1,600,000	2,000,000	.....	.....
Windward Islands	510	162,000	700,000	650,000		
Barbados	170	156,000	3,000,000	1,500,000		
Trinidad	1,860	363,000	7,000,000	5,000,000	.....	.....
British Guiana	90,300	298,000	4,000,000	4,000,000	851,000	1,910,000
British Honduras	8,600	40,500	700,000	650,000	119,000	192,000
Bermuda	20	20,000	1,400,000	250,000	3,000	397,000
Faulkland Islands	6,500	3,000	1,000,000	3,500,000	374,000	152,000
So. Georgia	1,000	.....				
Oceania:						
New So. Wales	310,400	2,100,000				
Victoria	88,000	1,532,000				
So. Australia	904,000	495,000	101,000,000	130,000,000	64,863,000	65,732,000
Queen land	670,500	758,000				
Tasmania	26,220	214,000				
West Australia	976,000	332,000				
New Zealand	105,000	1,285,000	43,000,000	45,000,000	43,522,000	16,701,000
Fiji	7,500	157,000	1,700,000	2,500,000	203,000	209,000
Papua	90,540	360,000	500,000	180,000	9,000	13,000
Pacific Islands	12,500	200,000	1,000,000	1,000,000	60,000	16,000

EMPIRE.

Agricultural Products	Mineral Products	Manufactured Products
Corn, horses, sheep, wool, wheat, barley, oats, hay, turnips	Manganese, sandstone, iron, coal, chalk, gravel, sand.	Pottery, cotton, woolens, iron, steel, machinery, cutlery.
Sugar cane, wheat, rice, linseed, tea, cotton, rubber, livestock.	Salt, coal, mica, silver, petroleum.	Shawls, carpets, woodcarving, cotton, silk.
Cocoanuts, dairy products, cocoa, tea, rubber, grains.	Gold, plumbago, monazite.	Weaving, jewelry, pottery, lacquer work
Flax, hides, timber, animals, grapes, raisins, fruit, silk.	Copper, marble, gypsum, asbestos	Wine, cotton cloth, linseed oil.
Rice, coffee, sugar	Pearl fishing	Sailcloth.
Pineapples, gutta percha, gum, spices, sago	Tin.	
Tapioca, sugar, pepper, cocoanuts, rubber, rice	Tin, gold, iron, copper, lead.	
Fruit, rubber, camphor, timber, rice, sago, gum-opium.	Coal, petroleum, iron, gold.	
Cotton, sugar, oils, eggs.		Rope, tin, sugar refining, shipbuilding, knit goods.
Tobacco, livestock, cattle, sheep, maize	Gold, diamonds, coal, tin, copper	Pottery, tobacco, iron, brass, breweries, bricks, tile, soap.
Sheep, cattle, wool, mohair, hides, maize	Diamonds, gold, copper.	
Sugar, fruits, tea, vegetables	Silver, manganese, limestone, coal, asbestos, copper, gold, lead.	Sugar, woolens.
Oats, rye, cattle, sheep, grains, wheat	Coal, diamonds.	
Horses, sheep, Kaffir corn, wool, wheat, cattle	Copper, iron.	
Cattle, sheep, goats	Gold, silver.	
Maize, fruit, lemons, livestock, cattle, sheep, wheat	Antimony, asbestos, gold, silver, coal, copper, chrome.	Dairy products, oil pressing, meat products.
Palm oils, nuts.		
Timber, vegetable oils, cocoa, palm oil, rubber	Gold, manganese.	
Ginger, kola nuts, palm oils.		
Hides, livestock, cotton, palm oils, rubber, nuts, mahogany.	Tin, coal, silver, manganese	Tanning, iron and lead works.
Skins, hides, sheep, cattle, gum.		
Coffee, sugar, cotton, cattle, goats, timber, gum-copal, rubber, bamboo.	Copper, gold, coal, lead, salt, mica, iron.	
Ivory, para rubber, cotton, coffee, cocoa, vegetable oils.		
Cloves, cocoanuts, copra	Petroleum	Pottery, rope, soap, oil.
Tobacco, tea, cotton, sheep, pigs.		
Sorghum, senna leaves, ivory, gum arabic, cotton, dates, sheep.	Gold.	
Sugar, cocoanut oil, hemp.		
Vegetables, fruit.		
{Fruit, flax		Lace making.
{Fruit, vegetables, sea turtles.		
Alfalfa, dairying, swine, sheep, wheat, oats, rye, barley, roots.	Gold, nickel, copper, iron, silver	Iron, portland cement, sashes, doors, oil refining.
Oats, barley, timber, wheat, potatoes, hay, live stock	Building stones, feldspar, asbestos, mica, limestone	Clothing, creameries, tanning, chemicals, boots, shoes, grist products.
Forage crops, apples, fodder, timber, oats, wheat, barley, potatoes.	Coal, gypsum, gold, limestone	Canning fish, coal tar products, iron and steel, coke, oil refining.
Animals, timber, oats, potatoes, roots, hay	Antimony, gypsum, nat. gas, iron, building stone, coal	Food products, timber products, clay, glass, stone products.
Silver fox farms, potatoes, dairy products, oats, barley.		
Wheat, oats, barley, timber	Gold, bituminous coal, iron, copper	Wood pulp, dairy products, lumber (laths), shingles.
Livestock, dairying, timber, barley, oats, wheat, rye, flax.	Gypsum, copper, quarry products.	Lumber products, glass, stone products, food.
Timber, grain, livestock, dairying, wool	Natural gas, coal, petroleum	Linseed oil, glass, brass, meat packing, gasoline, flour, cement.
Livestock, potatoes, wheat, oats, barley, rye	Gold, petroleum, coal.	
Horses, swine, timber, hay, potatoes, cabbages, turnips.	Coal, copper, iron ore	Canning, sawmills, pulpwood, paper.
Coffee, cocoa, cattle, sheep, bananas, cocoanuts, logwood, sugar.		Rum, dairy and food products.
Sisal, sponges, pineapples, lumber, tomatoes	Salt	Pineapple canning, sisal factories.
Pineapples, sugar, cotton, cocoa, onions	Salt	Lime juice, sugar refining, molasses.
Arrowroot, nutmeg, cocoa, mace, sea island cotton.		Rum, sugar refining, molasses.
Cotton, sugar		Refining of sugar, rum, molasses.
Cotton, rubber, cocoa, tobacco, cocoanuts	Asphalt, petroleum	Gasoline, kerosene, asphalt.
Cattle, horses, sheep, cocoanuts, rice, sugar, rubber, coffee.	Mica, gold, diamonds, manganese	Breweries, liquors.
Chicle, cedar, mahogany, bananas, oranges, grapefruit.		Tortoise shell, lumber products, food products.
Onions, potatoes, bulbs, vegetables		Food products, whisky.
{Sheep, wool		{Wool products.
{Seals, whales		{Whale oil and products, skins.
{Wheat, hay, corn, sugar cane, vineyards, dairy products, coffee, bananas, citrus fruit, sheep wool, cattle, swine, horses.	{Gold, coal, iron, copper, silver, antimony.	{Meat packing and products, hides, tallow, leather products, chemicals, boots, shoes iron, steel, dairy products.
Timber, cattle, sheep, pigs, wheat, oats, barley, live stock.	Coal, silver, gold, tungsten	Lumber, printing, breweries, meat packing, dairy products, shoes.
Rice, rubber, sisal, animals, bananas, cocoanuts, tea tobacco.		Sugar, lumber, sisal fibre.
Dairying, mules, hemp, rubber, horses, cattle, wheat.	Petroleum, gold, copper, asmiridum.	
Pineapples, live stock, copra, sugar, bananas, rubber.		Food products.

FIFTEEN LARGEST CITIES OF THE UNITED STATES

NEW YORK CITY.

New York City, located on the banks of the Hudson river on New York bay is probably the mecca of more people in the United States than any one other place on the globe. Here, we find the largest population—5,620,048—of any city in the country; a great polyglot people, 40% foreign born from sixty different nations; the greatest skyscrapers of iron, brick and cement in the world; the richest financial center in the United States, ranking with London; a great commercial city controlling roughly 40% of the imports and exports of the country; a workshop that produces goods equal to one-third of all goods of our land; and a great social, civic and art center.

The city is located at the mouth of the Hudson river. This being a sunken river, gives it one of the best harbors in the world. The city, which was once concentrated on the small tip of Manhattan Island, the point of land between the Hudson river and the East river has now spread up the mainland to West Chester and Yonkers, the Bronx and especially over to Brooklyn which has been one of the areas for taking care of New York's fast growing population. In 1898, the city was reorganized and the following five boroughs were created:

Manhattan Island, lying between the Hudson, Harlem and East rivers, which includes the heart of the business, financial and social section of the city, together with Blackwells, Randalls, Wards, Governors, Beddoes and Ellis islands.

Bronx on the mainland of Manhattan, extending to Mt. Vernon and New Rochelle, including the islands of Brothers, North and South Rickers, Hunters City and Harts.

Brooklyn, the third city in population in the U. S., is on the southwest extremity of Long Island.

Queens running from Brooklyn north and northeast, embraces the smaller municipalities of Long Island City, Newton, College Point, Corona, Whitestone, Flushing, Jamaica, and Far Rockway.

Richmond is composed of Staten Island, Shouter Island, Poalls Island and Meadow Island.

The first white man ever known to have touched this area was Giovanni da Verrazano, an Italian, in 1524. In 1609, Henry Hudson, an Englishman in the service of the Dutch East India Company, sailed to this country in the search for a shorter passage to India and because of icebergs to the north, he pressed South, and in September of that year his ship, the Half Moon, sailed up the river that now bears his name. Because of the possibilities for fur trading, companies were formed and sent over to this country, one of the first under the leadership of Adrian Block. In 1623, thirty families settled on the island of Manhattan, which they had bought from the Indians for $24 in beads, cloth and trinkets. In the meantime, the English were claiming this area because of the explorations of John Cabot, and in 1664 in the reign of Charles II, a force was sent over that took the town and fort, ran up the English flag and called it New York, after the king's brother, James the Duke of York, to whom the land had been granted.

In 1665, the city government was organized and by 1746 the population numbered 12,000. The early growth of New York City was slow, in contrast to such cities as Philadelphia and Baltimore, which were surrounded by land better adapted to agriculture. In 1825, however, the Erie Canal was completed, connecting the Great Lakes with the Atlantic Ocean by the way of the Mohawk and Hudson rivers. The raw products of the West came East to be exchanged for manufactured products and food. New York City became the trading counter and re-shipping port, thus laying the foundation for the present commercial supremacy of the city.

The city is the banking center of the United States and ranks with London as a money market. It is the central stock and bond exchange of our country. In the city are the great banking houses of Morgan, the National City Bank, Guaranty Trust, and a host of others—the figures being 44 national, 48 state, 54 savings and 35 trust banks, these numbers not including branches.

The harbor facilities include 578 miles of water frontage and excellent dock facilities. Figures show a yearly total of 74,182 ships entering the harbor with 99 ocean steamship lines having headquarters in the metropolis. In 1924 the foreign trade figures of the city were $1,657,685,331 for exports and imports to the value of $1,689,998,112, which compares favorably with the figures for the entire country, exports $4,590,981,958 and imports $3,610,552,566. The principal products shipped are: iron and steel products, copper, meat, bread stuffs and mineral oils.

As well as being a commercial city, New York is a great manufacturing city, for it fabricates more goods than any other city in the United States. The goods produced are not so much for world consumption as to feed the needs of the great metropolis. The clothing industry is one of the exceptions to this rule, one-half of the clothing worn by the people of the United States is made on the island of Manhattan and neighboring boroughs. In 1921, the figures were $326,837,298, for men's cloth, and the value on women's was $759,627,929. There are in the city 26,801 establishments turning out products valued at $4,328,187,499. Other important industries with their values are: printing and publishing—$252,475,386; bread and bakery products—$166,147,715; millinery—$163,481,725; tobacco and cigarettes—$147,498,906; slaughtery and meat packing—$132,264,732; fur goods—$100,217,230; and boots and shoes—$68,283,896. Other industries are sugar refining, preparation of coffee and spices, oil refining, drugs and chemicals, etc.—all the industries that make for the well being of a large city.

The problem of transportation is a very serious one due to the congestion on Manhattan island, where the business district is, and due also to the fact that it is a narrow island. Four bridges connect Long Island with the city proper,

as well as three pairs of tunnels. The bridges are Brooklyn Bridge, 6,016 feet long, Manhattan Bridge, 6,855 feet, Williamsburgh Bridge, 7,308 feet and Queensborough Bridge, 7,499 feet. The other bridge is the Hell Gate Bridge from Long Island back to the mainland at the northern edge of the city, which enables trains from New England to proceed directly west. Tubes connect New York with the Jersey side, a vehicle tunnel is in process of construction and plans are now proposed for a traffic bridge over the Hudson which will be an outstanding engineering feat. To take care of the thousands of commuters pouring in and out of the city, subways have been built honeycombing the entire island, greatly relieving surface traffic.

With the growth of the city commercially, centres of education, art and amusement have been created, bringing in its train, beautiful parks and public buildings, such as the Zoological Gardens, the Art Museum, the Custom's House, the Morgan Library, the New York Public Library, the Library at Columbia, the American Museum of Natural History; schools, such as the College of the City of New York, New York University, Columbia University, Hunter College, Fordham College, Manhattan College, College of St. Francis Xavier, Union Theological Seminary, College of Physicians and Surgeons and the Rockefeller Institute; churches of the type of St. Patrick's or the Cathedral of St. John the Divine; monuments on the order of Grant's Tomb, the Soldiers and Sailors Monument, statue of Jeanne D'Arc, and the Washington Arch; amusement places of such fame as the Hippodrome, Madison Square Garden, or any of the many newer theatres; holsteries such as the Waldorf-Astoria, the Ritz-Carlton, or the Plaza; restaurants of such fame as the Delmonico's or Sherry's; and parks of which the city has many, Central Park on Manhattan, Riverside Park along the Hudson, Prospect Park in Brooklyn and Pelham Bay Park to the north of the city.

New York is a city of huge finances, many industries with large total value, the tallest office buildings in the world, large and well known educational institutions, the art, literary, and dramatic centers on this side of the Atlantic, the amusement center of the States—it is a city of great heights and depths—a city of great contrasts.

New York will continue to grow, to expand out in the suburbs and up into the air and her foreign trade will lessen in percentage of expansion but the city for a long time, will be the most important in this United States and probably in the world.

CHICAGO.

Chicago bids fair to become not only the largest city in the United States, but also the world. This city is situated in the heart of our great agricultural, forestry and mineral resources, and on the greatest body of fresh water in the world, the Great Lakes. The Welland Canal around Niagara Falls now has a depth of fourteen feet, but plans and appropriations have been made by Canada, awaiting now similar action by the United States, to deepen it to thirty-five feet, which will make Chicago a seaport, open to ocean going vessels. Then, with an ocean harbor, proximity of natural resources and manufacturing industries, and the railroad center of the United States, it must necessarily mean rapidity of growth.

In order to get from the Great Lakes to the Mississippi river, it was necessary to portage over the area now Chicago and thus it became a fairly well traveled route. Joliet and Pere Marquette went over this route in 1673 and again in 1674. In 1830, Chicago was a hamlet of log houses, with a population of about one hundred persons, engaged in fur trade with the Indians and outfitting the trappers. In 1837 came the Illinois and Michigan canal which gave the city its first big boom and in 1833 came the Congressional appropriation for harbor improvements. Shortly after this came the first railroads, short lines at first which stimulated lake traffic, and then the through lines which enabled the western producer to get his product to market quickly. In 1871 came the big Chicago fire, starting Sunday evening and extinguished by a rain on Monday evening, burning over 2,024 acres of buildings, destroying property valued at $187,000,000 and taking the lives of 300 or more people. A new and much finer Chicago rose from the ashes in a little over two years, a tribute to the spirit of the West. The city grew naturally on the west bank of Lake Michigan until in less than 100 years, it has expanded from a small town of 100 persons to the second largest city in the United States with a population of 2,701,705.

The city is both a great commercial and industrial center. The great mass of raw materials which are produced within a radius of a few hundred miles are concentrated on Chicago as a distributing point. It is the greatest live stock center in the world and the city from which our great slaughtering and meat packing houses carry on their business. The wheat elevators here, cannot be equaled in size and number anywhere else in the world. The Chicago Board of Trade is the great buying and selling organization for wheat and other grains of the country. Other products distributed from here are corn, oats, barley, rye, hay and forage crops, lumber and lumber products, iron and copper ore from northern Minnesota and Michigan and the smaller fruits and vegetables. Then, it also serves as a wholesale and jobbing center for the middle west, as witnessed by the large number of mail-order houses that do a tremendous business.

Chicago is probably the greatest rail center in the world; no east to west line in the northern area of the country but what has a terminal in this city. There are twenty-seven companies and thirty-two main lines and terminals located in the town and it is estimated that 1,500 trains go in and out of the city daily. The harbor facilities are excellent and the yearly tonnage ranks well with many seaport cities.

Industrially the city is very active, has 8,860 establishments and a total yearly product value of $2,485,918,374. Some of the chief products with their values follow; slaughtering and meat packing—$452,571,889; men's clothing—$165,429,346; women's clothing—$42,896,568; printing of books—$126,517,808; of periodicals—$90,702,894; foundry and machine shop products—$91,-

981,082; bread and bakery products—$75,694,250; electrical machinery—$74,114,877; car and steam railroad supplies—$60,013,700; iron and steel (products not rolled)—$50,514,337; and furniture $42,309,167.

One of the reasons for the great growth of Chicago from a civic as well as from an industrial point of view is due to the energy, the push and the aggressiveness of the people who have gone after and accomplished those things which they desired for their city and state. The great park system of 39,154 acres with its 74.25 miles of connecting boulevards, attests to this spirit. There are twenty-four parks with city play grounds, and the city has acquired land outside the corporate limits to provide for future breathing spaces for its fast increasing population. A municipal pier costing $3,000,000 with a huge auditorium was built by the people to house big conventions that come to the city.

The public buildings include the great Chicago Public Library with 650,000 volumes, which cost around $2,000,000, the Newberry Library, that exceeds the Public Library in cost and beauty and the Historical Society building. Among the educational institutions are the Chicago Art Institute, the Chicago Law Institute, the University of Chicago, Northwestern University, Lewis Polytechnic Institute, Armour Institute and Loyola University.

This great city is bound to progress, so thoroughly is it based on the natural factors of raw material, transportation and nearness to market combined with the indominable energy and push of the middle-westerners.

PHILADELPHIA.

The "Quaker City" is one of the World's Greatest Workshops, producing manufactured goods that are sold in both hemispheres. The city is located on the Delaware River and the "fall line," that territory where the harder rock of the Piedmont merges into the softer soil of the Coastal Plain and rivers flowing from one to the other have worn away the softer material and a water fall is the result. These small falls have laid the basis for much of the manufacturing in the area. Philadelphia is a great overgrown town, spread out in three directions with an area of 132.7 sq. miles.

Originally the home of the Delaware Indians, the area was settled by the Swedes and the English (mostly Quakers) about 1680. In the next year William Penn obtained his charter as a proprietor and under his guidance and jurisdiction the town grew rapidly as a grain and lumber market. With the good agricultural background the city prospered and was even with New York City until the opening of the Erie Canal in 1825 but Philadelphia being shut off from the West by the Alleghanies suffered in comparison. The original settlers were artisans of the first class and the textile industry soon started and Germantown, a suburb of the city, was the home of the knitting industry in the U. S. With the discovery of iron ore and the discovery of anthracite coal as a fuel the iron industry developed, which is one of the important manufactured products of the city. The first and second Banks of the United States were both located in Philadelphia in 1782 and 1816 respectively. This city with its old traditions, both in industry as well as the social life, has grown into a great workshop but all the while maintaining these same traditions. There probably is no city where the son follows the footsteps of his father and where industry is carefully protected and handed down from one generation to the next, as in Philadelphia. This has been bad oftentimes in a business way because it has meant stagnation.

The factors that have made Philadelphia a city of 1,823,779 people and a great manufacturing city, are, the Delaware River with its 90 foot channel, skilled labor, especially the Scotch and English artisans and their descendants, and power consisting of water power, anthracite and bituminous coal. The number of industries are listed at 6,788 and the total value of products $1,537,327,972. Among the leading industries is the textile industry; this city producing more than any other city with 1/9 of the hosiery, 1/3 of the carpets, 1/5 of the hats and ⅛ of the woolens and worsteds of the United States; with values of $77,605,380 for knit goods; $64,453,298 for worsteds and woolens, and $33,785,499 for cotton goods. Iron and steel products comprise the second group of products particularly the fabrication of products, such as Baldwin Locomotives, Diston's saws and tools and Brill's street cars, the largest factory of its kind in the world. Foundry and machine shop products have a value of $51,564,593 and electrical machinery at $31,919,081.

Ship-building is a third important industry, some of the firms being New York Ship Co., Cramp's, League Island and Hog Island. Among the other yearly values are: printing and publishing $75,953,877; men's clothing $57,415,069 and women's $49,807,335; sugar refining $91,759,263 and slaughtering and meat packing $43,886,788. Other industries are oil refining, leather goods, automobile bodies and paper.

The city is not primarily a commercial nor a distributing center but it does have plenty of banking and transportation facilities to take care of the needs of business. The Delaware River furnished an ocean port up to 1910 but the growth in size of our large boats and the sandbar which forms constantly down the river, impedes shipping. At low tide this bar gives a channel of only 29.6 ft. The government is constantly dredging, yet the river fills up. It was in 1912 that the Government switched a number of coaling contracts for its battle ships from Philadelphia to Newport News and Norfolk. In spite of this handicap in 1924 the city had imports to the value of $202,604,289 and exported $106,439,234 worth of products.

Philadelphia has clung to its old, so long, that new buildings come slowly and the show places are the historic rather than the great structures which cost millions, so prominent in other cities. Independence Hall, where the first Congress met and where the Liberty Bell now hangs, is an example of this, situated in the downtown district on Independence Square along with many other buildings of the same period. Two new buildings of importance are going up, a new Art Museum at the entrance to Fairmount Park and a new central Library. Fairmount Park, with an area of 3,546 acres and 37 acres of water surface besides 1,200 acres to be added soon, is probably

one of the most beautiful city parks in the United States. The park borders on either side of the Schuykill River and then includes the beautiful Wissahickon Valley which has been kept almost intact in its original natural state with no attempt at making it the least artificial. Other parks are League Island, Pennypack, Tacony and Cobbs Creek.

Philadelphia is a great educational center itself together with the fact that the outlying suburbs are filled with schools of both secondary and college rank. The institutions of higher learning in the city are Girard College, Drexel Institute, The University of Pennsylvania with 13,000 students, Temple College, Jefferson Medical College, The College of Pharmacy and the Pennsylvania Academy of Fine Arts.

DETROIT.

Detroit is indelibly fixed in the mind as the home of the automobile industry and the great growth of this city is due to this one cause. From a city, that a few decades ago was just a hamlet, the town has increased to a position of fourth city in the United States with a population of 993,739. The city is located on the Northwest bank of the Detroit River, one end fronting on Lake St. Clair and the other end 18 miles from Lake Erie, giving Detroit one of the finest harbors on the lakes with an 11 mile river front.

Detroit was started, as so many of the western cities were, as a fur trading and outfitting post. The first settlement here was started in 1704 by De la Mothe Cadillac for a permanent post, in order to carry on the trade and to keep up the military prestige of the French Government. As a result he built Fort Pontchartrain, manned it with 50 soldiers and settled 50 colonists around it. During the French and Indian Wars, Major Robert Rogers captured the fort and held it for the British Crown. In 1778 the hamlet had a population of 300 inhabitants, in 1802 it was incorporated as a town, captured by the British in 1812, evacuated in 1813 and incorporated as a city in 1824. The automobile industry has been responsible for the great growth of this city from 1890 up to the present day.

The factors which threw the motor industry to Detroit were in part, the fact that they were already manufacturing marine engines, were making carriages and wagons, had foundaries and machine shops and made a specialty of bronze, brass and copper castings. With these forces, an early start and a host of inventions and promoters in this area, one of our great industries was localized. After 1900, the automobile ceased being in a purely experimental stage and its manufacture became a nation wide industry. In 1921 the industry ranked sixth in value of products as compared with total value of all others. From an industry of 57 establishments in 1899, employing 2,241 wage-earners with products valued at $5,000,000, it had expanded in 1921 to 3,590 establishments, 281,350 wage-earners and a product value of $2,508,665,000. Detroit is the city, producing the largest number of automobiles, having a value in 1921 of $102,896,470 for motor vehicle parts, and $236,758,047 for motor vehicles.

The values of other manufactured goods produced in the city are: foundry and machine shop products, $30,780,669; slaughtering and meat packing $30,176,867; brass, bronze and copper castings, $22,410,124; and engraving and plate printing, $10,565,495.

Civically, the city is quite active and new public buildings and park projects are constantly being undertaken, particularly within the last few years. Public buildings and monuments now include the Soldiers and Sailors Monument, costing $75,000; the City Hall in Italian Style, some magnificent office buildings, a new auditorium, a Public Library and an Art Museum. There are 31 parks in the city, the largest one Belle Isle in the Detroit River, with an area of 707 acres and the other large ones, Palmer Park, Clark Park and Voigt Park. The schools of higher education in the city are Detroit University, Detroit College of Medicine and only 25 miles away is the University of Michigan.

CLEVELAND.

No other city in the United States stands out, in civic pride, better and cleaner systems of politics, good living conditions and greater activities of its public men than does Cleveland. The city is located on the south shore of Lake Erie, with easy access by rail and water to the sources of mineral and agricultural wealth which have made the town a great manufacturing center.

This area was a part of the western territory of Connecticut, which was conveyed to the Connecticut State Land Company in 1796. Moses Cleveland was sent out to survey and to establish a new Connecticut in the then western wilderness. Cleveland was fixed as the Capital and the town and streets laid out. For some time there was no increase in population because of the poor agricultural background and no chance for commerce. In 1810 the town had 600 people. However, in 1827 the Ohio Canal was opened up to Akron and then extended to Portsmouth at the mouth of the Scioto River in 1832. By 1830 the population was 1,000 and 6,000 in 1840. Then came the railroads and the lake traffic in iron ore and coal. During the Civil War the great demand for steel products boomed the town and it has kept on growing ever since. The city lies at the break where iron ore from Lake Superior and coal from Pennsylvania must be loaded and unloaded and thus the wheels of industry hum. These natural factors of raw materials and natural resources have made Cleveland the fifth city in the United States in population (796,841) and in the value of its manufactured products.

Cleveland has some 2,256 industries with a yearly production value of $682,948,388. Of the various products and their values some of the following stand out: foundry and machine shops, $46,253,574; bolts, nuts, washers, iron and steel products not of the rolling mill, $39,972,725; electrical machinery, $43,542,579; motor vehicles, $63,359,204; slaughtering and meat packing, $38,764,509; men's clothing, $16,848,289; women's clothing, $25,438,242. 45% of the city's industry is iron and steel and the town also produces 4.6% of the motor vehicles of the United States, ranking after Detroit. Among the other industries are printing and publishing, bread

and bakery products, copper, tin and sheet iron products, hosiery and knit goods.

This city on the Lake is quite active commercially with a good harbor, including a breakwater 5¾ miles long protecting a harbor frontage of 14.2 miles. Seven trunk line railroads pass through or have their terminals in the city and give it ample rail shipping facilities. The roads included are the New York Central; the Pennsylvania; the Chicago, Cleveland, Cincinnati and St. Louis; the Erie; the Wheeling and Lake Erie. Ores, both copper and iron, lumber and grain all comes east and part of it is unloaded at this port, which in turn sends back bituminous and anthracite to the ports at the western end of the lake. Other products dealt in are oats, barley, rye, wheat, flour, cattle and sheep.

The city has 2,428 acres in parks with 44 miles of well paved road, the parks including Wade Park, Garden Park, Edgewater Park,—6,000 feet along the lake front containing 125 acres of playgrounds—and Shaker Lake Park just outside the city limits. The city has twenty playgrounds, four public baths, two municipal dance halls, forty-five baseball diamonds, six football grounds, seventy tennis courts and fifteen skating rinks.

The few notable buildings in Cleveland are the Cleveland Athletic Association, the Young Men's Christian Association, the Cleveland Public Library and the new Auditorium. There are three schools of higher education in the city, Western Reserve, Case School of Applied Science and the John Carrol University.

ST. LOUIS.

The great growth of this city has been due, in large part, to its being central in the United States, where at a point on the Mississippi River, it gets the benefit of the confluence of the Missouri River above the city and the Ohio River below. Again, its location is in the heart of our agricultural belt, the center of many of our natural resources and it benefits by the through lines of traffic both east and west, as well as north and south, most of which pass through the city.

In 1764 Laclede Linquest, a French trader, established a trading post here on a bluff overlooking the Mississippi River which had made the city safe from the danger of the wearing away of part of its territory and the ever constant flood danger. The town's growth was started by the early fur trade with the Indians, this city doing business exclusively at one time with twenty-eight Indian tribes, in open competition. The industry has grown until today St. Louis is the greatest raw fur center in the United States. With the Louisiana Purchase in 1804, the territory came under our jurisdiction. The discovery of iron ore nearby in close proximity to coal, boomed the iron and steel industry until it was thought that it would become the steel center of the United States, but that illusion was shattered with the opening up of the Lake Superior iron mines, taking the city out of line with the major ore and fuel traffic. The city was incorporated in 1823 and today it has a population of 772,897.

The city's industries can be divided into two parts, those relating to manufacturing and those having to do with its commercial and distribution activities. Industrially, the city has 2,470 industries, with a total yearly value of $665,518,816. The products and values include, slaughtering and meat packing $64,221,640; boots and shoes $44,984,050; foundry and machine shop products $27,084,543; steam cars $23,972,324; electrical machinery $16,852,932; motor vehicles $37,890,340; men's clothing $16,811,603; women's clothing $11,847,097; bread and bakery products, $19,716,110; bags (not paper) $12,503,345; coffee grinding and roasting $13,414,646; chemicals $11,296,770.

Located in this central position in the United States, the city soon came to be a receiving and distributing point for raw materials and a jobbing center for the retail trade in the district and the great Southwest. In live stock collection and shipments this city stands third with 1,000,000 head of cattle; 3,000,000 hogs; 268,000,000 pounds of dressed beef and 300,000,000 pounds of dressed pork. One hundred and forty thousand head of horses and the same of mules were shipped from this city with a value of $25,000,000. 26,200,000 bushels of wheat (the fifth city in the production of flour), 25,000,000 bushels of corn and one-tenth of the cotton crop were marketed from this city. At the fur auctions, skins to the value of $60,000,000 were sold and 120,000,000 feet of board lumber was shipped in from the Ozarks and shipped out again. In 1920 manufactured goods to the value of $1,600,000,000 were distributed to the central, southern and southwest areas, including dry goods, boots and shoes, food products, drugs, chemicals and hardware. Lead and zinc in great amounts are taken care of through the distributing channels.

From a civic point of view the city is well laid out and has some very beautiful and costly buildings; the new Post Office costing $1,250,000, the Public Library of white marble, the City and Art Museum and the Missouri Botanical Gardens of 120 acres, including 15,000 varities from all parts of the world are examples. Forest Park, the largest of the fifty-three parks, has an area of 266 acres and the Fairground Park of 128 acres has one of the largest open air swimming pools in the country.

The educational establishments include St. Louis University, Washington University, College of Christian Brothers and Forest Park College.

BOSTON.

Boston, the "hub" of the universe, has the appeal of the historic as well as the commercial. It was one of the centers of early colonial activity and the men from that region had much to do in forming our earlier national policies. The city was settled in 1630 by the Massachusetts Bay Company, who settled on the west shore of the bay and then crossed to the other side where it was higher, for better water and timber. The city got its name from an old Lincolnshire town in England. It was here in 1636 the General Court provided for Harvard College, the first college in the United States. A feeling that the town was getting too independent and that there was too much religious intolerance,

prompted Charles II to revoke the colony's charter in 1686, which was instituted again in 1692 after a bloodless revolution.

The fishing industry with Europe was the main source of trade in the earlier days, supplying the Catholic countries. Then in succession came the acts which caused the Revolution, the Stamp Act in 1765, the Boston Massacre in 1770 and the Boston Port Bill which closed the port to all outside trade. The Revolutionary events followed in rapid succession, Paul Revere's ride in April 1775, the skirmishes at Lexington and Concord, the Battle of Bunker Hill, June 17, 1775, the seizure of Dorchester Heights and the final signing of the Declaration of Independence.

Trade was badly crippled by the Revolutionary War and again by the War of 1812 and the New Englanders turned to something else for their livelihood. In 1814 F. C. Lowell established the first power loom at Waltham and shortly after that the city of Lowell was founded on textiles, a foundation which has lasted even to the present day. Before and during the Civil War New England played an important hand with her anti-slavery agitation, led by William Lloyd Garrison. On November 9–10, 1872, a great fire wiped out 776 buildings, 2,000,000 square feet of area with a loss of $75,000,000 and when the fires subsided a newer and a better Boston was built in its place.

Boston is the center of this great manufacturing area within a radius of fifty miles, where 25% of the cotton industry of the United States is concentrated, in such cities as Fall River, New Bedford, Lowell and Manchester. They manufacture 45% of the boots and shoes of the U. S. in Lynn, Haverhill, Brocton, Boston and Manchester. Clothing, organs, and pianos are made in this district also. Boston is the wholesale wool center of the United States, besides being the center of these other jobbing activities. Boston's port is excellent and ranks next to New York. Boston imported in 1924, goods to the value of $253,851,533, a good part of which was raw material, and exported goods worth $57,355,646.

Boston's points of interest are as in Philadelphia, historical rather than the ornate type. Christ's Church (1723), Fanuel Hall (1742), Old State House (1748), Kings Chapel 1749), Old South Meeting House (1792) and the Bunker Hill Monument all attest to this point. The more modern buildings are the Museum of Fine Arts, the Copley Square Hotel, the famous Boston Public Library and the Widener Library at Harvard.

Boston has 3,574 acres devoted to parks. Included in this area are the far-famed Boston Commons and the Public Gardens, situated in the heart of the city. In the lines of higher education there is the New England Conservatory of Music, Boston University, Massachusetts Institute of Technology, Lowell Institute and Harvard University.

The downtown district of Boston is badly congested, the streets narrow and crooked which are said to have followed the cowpaths of earlier years which makes traffic very bad during rush hours. Boston's future is at least uncertain. Her only factor in industry left now is skilled labor and it is a question how long she can keep that as the cotton trade is fast moving south, the woolen industry is scattering and the boot and shoe industry is going west—all nearer the source of raw material and the market.

BALTIMORE.

Baltimore is a great city located at the commercial head of the Atlantic seaboard on Patapsco Bay, an arm of the Chesapeake, 174 miles from the Atlantic Ocean. The city has a natural harbor of twenty-four foot depth which now has been dredged to thirty-five feet. The water power from the "fall line" has helped decidedly in getting industries started.

The first settlement was made on the present site in 1662. The province of Maryland was founded in 1534. Charles Calvert was made governor of the province and small settlements grew up all along the bay. Looking for a central site that would allow growth, the present location of the city was picked and the Colonial Assembly in 1729 passed an Act to lay out the town. The Revolutionary War brought much prosperity to Baltimore due to the crippling of trade in other ports farther north. It was during this period that the famous Baltimore clipper sailed the seas and dominated trade. The British attempted to capture the city in 1814 but were repulsed and it was during that night of the repulse that Francis Scott Key wrote the Star Spangled Banner. During a good part of the Civil War the city was filled with regiments passing through and the town was constantly under martial law. The city has grown from the small number of 5,934 in 1775 until today when it has 733,826, the eighth city in the United States.

Baltimore's industrial and commercial growth have depended upon some of the following factors, the water power from the "fall line," a good harbor at the head of a large and branching bay, the agricultural products from the fertile Piedmont and the sandy Coastal Plain, and its location and nearness to Pennsylvania and West Virginia coal.

The industries are many and diversified, 2,033 establishments with a total yearly product value of $469,508,296. Among the leading industries with their values are: men's clothing $47,729,947; women's clothing, $12,675,419; slaughtering and meat packing, $32,056,367; bread and bakery products, $16,933,790; fertilizer $18,810,570; foundry and machine shop products, $17,031,784; tinware, $15,258,660; printing and publishing, $22,329,387; straw hats, $6,441,771; (the greatest straw hat manufacturing city in the United States) and men's furnishings, $17,324,958. Besides these major industries there are many others, canning (first city in the United States), sugar refining, paper manufacturing, flour milling and cotton duck (ranking first in the United States).

Commercially the city is very active due to its seaport position, its central location on the Atlantic Coast and its good transportation facilities. The city is a great center for the flour and wheat trade, second to New York in the receipt of flour and surpassed in bushels of wheat only by New York and Montreal. In the export of flour and grains the city is only exceeded by New York. Other food products that Baltimore acts as a clearing house for, are corn, potatoes, tomatoes and truck products. The exports in-

clude copper, cotton, iron and steel, oats and tobacco and the imports include manganese, nitrate of soda, copper ore, tin, oil, molasses, licorice root and wood pulp. The total value of imports in 1924 was $100,494,922 and exports $100,171,916.

As a distributing center Baltimore looms up, including in its business 1,000 wholesale and jobbing houses; 350,000 accounts in the South alone and the annual jobbing trade averaging $400,000,000 with commission business at least $175,000,000. The products distributed are dry goods, notions, clothing, millinery, boots and shoes, drugs, groceries, food products, hardware and confectionery.

Among the more important of the public buildings and parks are the City Hall of white marble costing $2,400,000, the Post Office in Italian Renaissance, the Wallen Art Gallery, Druid Hill Park, Clifton Park, Patterson Park and Caroll Park. The educational institutions include Peabody Institute, Morgan College, Goucher College, Baltimore City College and Johns Hopkins University.

PITTSBURGH.

This city is better known as the "Smoky City," the "Steel City," or the "City of Hills," titles which it well deserves. Pittsburgh is an industrial town, created through nearness to coal, coke, limestone, iron ore and good transportation, and due to the confluence of the Monongahela and Allegheny rivers to form the Ohio, the city was located at the point of juncture. The surrounding area is of horizontal sandstone structure and the eroding forces have caused these great number of hills and valleys which make building and local transportation difficult.

The territory around Pittsburgh was originally claimed by the French through virtue of the explorations of La Salle but at the same time Virginia insisted that it was a part of the territory granted to her. In 1749 the French army occupied the area and stayed that winter at Venango, Pa. The Virginians sent George Washington to warn the French and also to build a fort. The fort was started the next year but the English were badly defeated and Fort Duquesne rose in its place but that, in turn, was captured by the English in 1758 and burned. A new fort was raised, Fort Pitt, by General Forbes, who had defeated the French and the town of Pittsburgh was laid out around it in 1764. In 1794 the village was incorporated as a town and in 1816 a city. With the discovery of oil, coal and the Lake Superior iron ore, Pittsburgh developed rapidly until now it leads the world in the production of steel.

This district produces 48% of the coke of the world, 10% of the bituminous coal of the world, and a great deal of natural gas and petroleum. The city has 1,694 industries and a total yearly value of $393,430,540. The industries with values are: iron and steel (rolled products), $71,886,789; foundry and machine shop products, $29,111,178; iron and steel blast furnace products, $110,886,789; iron and steel bolts, nuts, washers, not made in rolling mill, $13,429,783; pickles, preserves and sauces, $20,527,635 (Heinz's plant, the largest establishment of its kind); and slaughtering and meat packing, $30,352,649. Beside these, Pittsburgh stands out as the greatest glass city in the world, producing plate, window and all kinds of glass lighting fixtures due to the sand in the Juanita Valley and the eastern section of Ohio and the natural gas from Pennsylvania and West Virginia. 90% of the World's radium is extracted in this city from ores shipped in. The Westinghouse Manufacturing Co., employs 35,000 men, and is one of the largest single establishments in the city, producing airbrakes and all kinds of electrical equipment. The city manufactures aluminum, brass-ware, copper, bronze, corks (the largest plant in the work), sanitary and table ware and the refining of oil and it has been estimated that 46% of the materials for the automobile industry, 44% for the agricultural implement industry, 45% for the hardware industry and 37% for the machinery industry are made in this city.

Traffic on the Allegheny, the Monongahela and the Ohio Rivers was, a couple of decades back, very large, then it took a slump but now the steel mills are shipping huge amounts down the Mississippi on barges to the various parts along the way.

The city has many educational institutions. Mellon Institute, Duquesne University, Pennsylvania College for Women, University of Pittsburgh and Carnegie Institute of Technology, are among those of first rank. Among the public buildings are the Carnegie Institute, a building covering 6 acres and housing a library, an art gallery of pictures and sculpture, a museum of National History and large auditorium with an endowment of $30,000,000 to carry on its work, The Masonic Temple, Memorial Hall, The Pittsburgh Athletic Club, St. Paul Cathedral and Calvary Episcopal Church, the latter considered to be one of the finest pieces of Gothic architecture in the country. Of the 26 parks in the city, Schenley, Highland and Riverside are the largest and the best known.

The industrial future of the city is still a matter of doubt. The city's greatness was builded upon natural resources and those resources are diminishing. The city can't expand under the present situation and it seems as if it must lose its place in the scale of cities.

LOS ANGELES.

This noted city in Southern California is far famed as a winter resort and is located in one of the two most fertile counties in the United States, Lancaster, Pennsylvania being the other one, and is not far from the great petroleum industry of that state.

The city is growing fast as a manufacturing city with a total of 2,210 establishments and a yearly product value of $313,589,985. Some of the more important products and values follow; slaughtering and meat packing, $20,569,745; motion pictures, $31,595,817; foundry and machine shops, $19,388,039; cars and general shop construction, $14,907,783; printing and publishing, $19,683,846; tobacco, cigars and cigarettes, $13,431,263; lumber mill products, $12,912,315; furniture, $11,551,095; copper, tin and sheet work, $11,055,132.

Commercially the city markets and ships citrus fruits and petroleum. The California Fruit Growers Association is famous throughout this country for the splendid advertising and excellent

methods of handling the distributive side, which has built up for them tremendous sales.

Los Angeles is fifteen miles from the Pacific and desiring a harbor, one was created at the mouth of the Los Angeles River by the government at a cost of $3,500,000, with a breakwater 2½ miles long. The harbor is municipally controlled and owned, including the 2½ miles of municipal wharfage. The fruit and trucking industry has led to much canning and drying. Sugar beets to the value of $20,000,000 were raised in this area last year, besides beans, deciduous fruits, walnuts and some grain.

The appeal of the climate, the atmosphere and the scenery have been a huge factor in the fast growth of the city. The locality covers an area of 3,511 square miles and is one of the most beautiful residential sections in this country. The city has twenty-five public parks, covering 4,000 acres and is the seat of the University of Southern California and Occidental College.

BUFFALO.

This city has developed due to the break in transportation from rail to water or vice versa. The Niagara River tumbles over a rock ledge 160 feet in height and thus closes transportation to Lake Ontario, so that all the commerce going East must be unloaded at the eastern end of Lake Erie for New York, Pennsylvania or New England. Buffalo thus started and developed as a manufacturing city.

This area, where the city is today located, was the hunting and fishing ground of the Indian tribes. In 1687 Baron La Houtan recommended it as a site for a fort and a center for the fur trade. Two of the eastern colonies claimed it, New York under a grant of Charles II and Plymouth from a charter signed by James I. As a result of the controversy the Holland Company was given rights to the area. With more trade the town increased and in 1810 the place was incorporated. In 1810 the town was burned by the British, and was rebuilt again in 1815. The Erie Canal, connecting Lake Erie at Buffalo with New York City through the Mohawk Valley and the Hudson River was finished in 1825 and the town boomed, the increase in population within five years was from 2,000 to 8,000.

The factors for manufacturing in Buffalo are power, coal from Pennsylvania and electric power from Niagara Falls, nearness to raw material, the agricultural and mineral resources of the Middle West and good transportation both by boat and rail. The city has 1,513 establishments with a yearly value of $431,383,131. The products are: flour milling, $56,036,758; foundry and machine shop products, $23,316,580; iron and steel from the blast furnace, $9,044,430; motor vehicles, $42,295,420; slaughtering and meat packing, $35,807,251; car and car repair shops, $13,422,089; chemicals, $10,818,490; lumber and beaver board products, $4,951,767; and enameled ware $3,585,032. Other products are fabricated iron and steel, such as the products of the American Radiator Company and the great aluminum, graphite and carborundum industries which have developed with plenty of cheap electricity.

Buffalo, located at this eastern end of Lake Erie, ranks as one of the great ports of the United States, shipping yearly over 25,000,000 tons of grain, flour and provisions, huge numbers of horses and sheep, large quantities of fish (between 15,000,000 and 20,000,000 lbs. yearly) and a great deal of lumber, iron ore, copper and coal.

The parks, of which there are six large ones, comprise 230 acres and have 28.46 miles of boulevards. The larger parks are Delaware Park, the area of twenty acres around the State Hospital, and Humbolt Park.

Of public buildings and monuments little can be said except to mention a few of the better ones, the huge marble shaft to William McKinley, the Buffalo Historical Society Building with an estimated cost of $2,000,000, the Federal building and the Albright Art Gallery. Three schools of importance should be mentioned, the University of Buffalo, Canisius College and the Fine Arts Academy.

SAN FRANCISCO.

San Francisco is located at the back-door of this continent, one of the key cities to our future trade with the Orient, in the center of one of the richest agricultural regions in the country, the Imperial Valley, and is the receiving place for the mineral resources of part of the Sierra Nevadas and the Cascades.

Under Spanish regime, the city was called Yerba Buena. The city was firmly established in the autumn of 1769 upon the founding of a mission and a presidio, representing both the military and religious authority. In 1846, when really only a Mexican village the place was taken over by the United States. Two years later gold was discovered by James W. Marshall and the town went through the boom stages of a gold rush with exorbitant prices and high rents, neglected business, trade waned, ships rotted at the wharfs and a general lawlessness crept in. The rush subsided within a few years and the city returned to normalcy and trade. The town was incorporated in 1850 and in 1851 was made a city.

The agricultural regions around and back of the city began to develop, the silver mines of Nevada began to pour out their treasures, the transcontinental railroads were finished and the East was connected with the West by telegraph and telephone. Couple these factors with an excellent harbor and facing the Orient, no city could help but develop. In 1906 came a great earthquake and fire, demolishing 28,188 buildings covering an area of 497 city blocks, killing 500 people and doing damage estimated at $1,000,000,000.

The city is more commercial than industrial, as is true of all west coast cities. The city is situated on San Francisco Bay, ninety miles long and five to fifteen miles wide, having a surface of 450 square miles with a shore line of 300 miles. The entrance is through the famous Golden Gate, a narrow strait separating the Bay from the Pacific Ocean. The manufactured products with values are motor vehicles, $21,594,871; coffee and spices, $21,465,506; slaughtering and meat packing, $17,417,652; bread and bakery products, $15,119,595; printing and publishing, $29,750,097; ship building, $12,114,825 and tinware, $8,330,808. Other industries are the can-

ning of fruit and vegetables, the refining of sugar and the building of ships. There are 1,986 manufacturing establishments in the city with a total yearly value of $327,499,417.

The city stands fifth in the United States in imports, most of this trade coming from the Orient,—Japan, Australia, New Zealand and the Philippines——where there exists potential markets of 400,000,000 people. The list of imports include rice, sugar, coffee, copra, tin, vegetable oils, and silk and the exports, canned goods (fruit and salmon), raw cotton, iron and steel, fuel oil, leather and lumber.

After the great fire, extensive plans were made for a civic center and a bond issue of $8,000,000 was raised, half of it was spent on a City Hall, a Public Library, and an Auditorium, all of these being grouped around a central plaza. Other buildings include the Hall of Justice, the Palace of Fine Arts, and the Mint. The city has 32 public parks covering 1,400 acres including the famous Golden Gate Park stretching from the center of the city down to the shores of the Pacific, with magnificent boulevards all the way.

MILWAUKEE.

Milwaukee, the largest city in Wisconsin, is located on the west shore of Lake Michigan, with an area of twenty-six square miles, is eighty-five miles north of Chicago, and has a population of 451,157. The city has developed as a manufacturing and shipping center for the products of the interior.

The first permanent settlement was made in September, 1818, by L. S. Juneau, who received grants from the Indians. The location was a commercial outlet for the interior and thus, as the territory opened up and trade developed, the town progressed. It was incorporated as a town in 1838, and as a city in 1846. In 1840 the city had a population of 1,717, in 1900, 285,315 and in 1920, 457,147.

The advantages of location are water transportation and nearness to raw material, consequently the manufactured products follow very closely that lead and include the following with their values; foundry and machine shops, $33,851,969; knit goods, $32,073,463; boots and shoes, $22,557,380; slaughtering and meat packing, $25,777,286; electrical machinery supplies, $13,688,286; clothing, $11,478,929; motor vehicles, $9,969,913 and lumber, $5,146,208.

The principal product received from the East is coal and the goods shipped in and out are flour, wheat, corn, oats, barley, rye, and lumber.

The park area covers ninety-four acres. The public buildings of any note are, St. Paul's Church, the Jesuit Church of the Gesu, the Post Office and the Public Library. The schools are Marquette University, Milwaukee Downer Seminary and Milwaukee Downer College

WASHINGTON, D. C.

The city of Washington is without doubt the most beautiful city in the United States and one of the finest in the world, with the great number of public buildings, its magnificent parks, the absence of slums, the exclusive residential districts and the six hundred miles of streets, lined with trees on both sides.

In 1790 Congress appointed a Commission to select a site for a capitol, the present location was chosen and the seat of the Government was moved from Philadelphia to Washington in 1800. In 1814 the Capitol, the White House and other governmental buildings were destroyed by the British. In 1871 a territorial form of government was instituted whereby Congress passes all laws and collects the taxes for the area, the people having no say in local affairs. The city has no industries except those that are necessary to take care of the immediate needs of the population, such as bread and bakery products, printing and publishing and slaughtering and meat packing.

The fact that the seat of our National Government is here in Washington has meant the natural gravitation of a large number of public buildings, not of a political character to this city. The most notable building in the city is, of course, the Capitol, which covers 153,112 square feet, is 350 feet high, cost $4,000,000 to build, and houses the two great legislative bodies, the House in the south wing and the Senate in the north wing along with the Supreme Court, and numberless private offices and committee rooms that take care of the business of the Government.

The White House, the home of the President, down Pennsylvania Avenue can best be described in the words of another as,—"That distinguished little white building." Some of the others are the Library of Congress completed in 1897 at a cost of $6,347,000; the National Library with 2,200,000 volumes; the Treasury Building of pure Greek design made out of freestone and granite at a cost of $7,000,000; the Lincoln Memorial of white marble and one of the world's purest architectural gems; the Washington Monument, a shaft of marble blocks sent from almost every country in the world, 555 feet high; the new Corcoran Art Gallery; the Red Cross Building; Continental Hall built by the Daughters of the American Revolution; the beautiful Pan-American Building; the Union Station; the Post Office and the National Cathedral, now in the process of construction by the Episcopal Church, to be a really national religious shrine. President Wilson was buried in this Cathedral.

The Mall is a great park bordering in part on the Potomac River where are planted the cherry trees, the gift of the Japanese nation and which in the springtime makes one of the most enchanting spots in the world. The other parks of note are Rock Creek Park of 1,609 acres, the Zoological Park 166 acres and Potomac Park.

The educational institutions are many and include, Georgetown University, George Washington University, Howard University (colored), Catholic University and the New American University of Research.

NEWARK.

New Jersey has practically no natural resources yet ranks sixth in the value of manufactured products in the United States, a good part of which is due to the industries in Newark. The city is located at the mouth of the Passaic River on Newark Bay, eight miles from New York.

After the capture of New York by the English, the area which is now the state of New Jersey was granted to Lord John Berkeley and Sir George Cartaret. This site at the mouth of the Passaic River attracted the attention of certain Congregationalists from Connecticut and in May 1666 an entire community was transferred to this Jersey shore. The city has grown from a hamlet of 500 people in 1685 to a city of 414,524 today.

The factors which have made for manufacturing are, a good harbor, nearness to a big market and not far from the coal of Pennsylvania. The city ranks first in its diversity of manufactured products having 252 district lines. There are 1,849 establishments with a total yearly production value of $336,809,458. Electrical machinery and apparatus heads the list with a value of $23,024,523; leather products worth $18,845,918; jewelry to the extent of $17,624,770; chemical products worth $12,041,283; foundry and machine shop products, $11,809,374; slaughtering and meat packing, $12,688,399; tobacco, cigars and cigarettes, $10,697,040; varnishes, $5,136,167 and upholsteries, $4,059,222.

The public buildings and monuments are few, the only ones of note are the Court House, the Art Museum and the Public Library.

FOREIGN CITIES OF THE EARTH.

(With 100,000 Population)

Cities and Country.	Census Year.	Population.
Aachen, County Base	1919	145,748
Aberdeen, Scotland	1921	158,969
Adelaide, S. Australia	1921	260,542
Agra, India	1921	185,532
Ahmedabad, India	1921	274,007
Ajmer	1921	113,512
Aleppo, Turkey	1920	250,000
Alexandria, Egypt	1917	444,617
Algiers, Algeria	1921	206,595
Allahabad, India	1921	157,220
Altona, Germany	1919	168,729
Amoy, China	1921	300,000
Amritsar, India	1921	160,218
Amsterdam, Holland	1920	647,427
Antwerp, Belgium	1921	304,124
Astrakhan, Russia	1913	162,428
Asuncion-Paraguay	1917	120,000
Athens, Greece	1920	292,991
Auckland, New Zealand	1921	164,450
Augsburg, Germany	1919	154,555
Bagdad, Turkey in Asia	1912	225,000
Bahia, Brazil	1920	283,422
Bangalore, India	1921	237,496
Bankok, Siam	1920	931,171
Barcelona, Spain	1920	710,335
Bareilly, India	1921	129,459
Bari, Italy	1921	131,143
Barmen, Germany	1919	156,326
Basel, Switzerland	1920	135,976
Batavia, Java	1918	234,697
Beirut, Turkey	1920	180,000
Belem, Brazil	1920	236,402
Belfast, Ireland	1919	393,000
Belgrade, Jugo-Slavia	1919	120,000
Benares, India	1921	198,447
Berlin, Germany	1919	3,803,770
Bern, Switzerland	1920	104,626
Bilbao, Spain	1920	112,819
Birmingham, England	1921	919,483
Bochum, Prussia	1919	142,760
Bogota, Colombia	1921	160,000
Bologne, Italy	1921	210,969
Bolton, England	1921	178,678
Bombay, India	1921	1,175,914
Bordeaux, France	1921	267,409
Bradford, England	1921	285,979
Bremen, Germany	1919	257,923
Breslau, Germany	1919	528,260
Brisbane, Queensland, Aus.	1921	209,699
Bristol, England	1921	377,061
Brunn, Czech-Slovakia	1921	221,422
Brunswick, Germany	1919	139,539
Brussa, Turkey	1920	110,000
Brussels, Belgium	1921	775,039
Bucharest, Rumania	1917	308,987
Budapest, Hungary	1921	1,184,616
Buenos Aires, Argentine	1922	1,720,000
Cairo, Egypt	1917	790,939
Calcutta, India	1921	1,327,547
Canton, China	1921	900,000
Cape Town, S. Africa	1921	113,302
Cardiff, Wales	1921	200,262
Carlsruhe, Germany	1919	135,952
Cassel, Germany	1919	162,391
Catania, Sicily	1921	255,394
Cawnpur, India	1921	216,436
Changsha, China	1921	538,800
Charlottenburg, Germany	1919	322,766
Chemnitz, Germany	1919	303,755
Chinkiang, China	1921	101,600
Cholon, China	1921	226,537
Christchurch, New Zealand	1921	110,201
Christiania, Norway	1920	258,483
Chungking, China	1919	1,011,597
Cologne, Germany	1919	633,904
Colombo, Ceylon	1921	244,000
Constantinople, Turkey	1920	1,000,000
Copenhagen, Denmark	1921	666,159
Cordoba, Argentine	1918	156,000
Coventry, England	1921	128,205
Cracow, Poland	1920	176,463
Crefeld, Germany	1919	124,325
Dacca, India	1921	119,450
Dairen, Manchuria	1920	238,867
Damascus, Turkey in Asia	1912	250,000
Danzig, Free City	1923	365,000
Debreczen, Hungary	1921	103,228
Delhi, India	1921	304,420
Dortmund, Prussia	1919	295,026
Dresden, Saxony	1910	529,326
Dublin, Ireland	1919	399,000
Duisburg, Germany	1919	295,026
Dundee, Scotland	1921	108,217
Durban, Natal	1921	146,310
Dusseldorf, Germany	1919	407,338
Duinsk, Russia	1910	110,912
Edinburgh, Scotland	1921	420,281
Elberfeld, Germany	1919	157,218
Erfurt, Germany	1919	129,646
Essen, Germany	1919	439,257
Ferrara, Italy	1921	107,618
Fez, Morocco	1919	109,189
Florence, Italy	1921	253,565
Frankfurt, Germany	1919	433,002
Fuchow, China	1921	320,200
Fukuoka, Japan	1916	101,100
Gelsenkirchen, Germany	1919	168,557
Geneva, Switzerland	1920	135,059
Genoa, Italy	1921	300,784
Ghent, Belgium	1920	165,910
Glasgow, Scotland	1921	1,034,069
Gomel, Russia	1913	104,582
Goteberg, Norway	1921	227,343
Granada, Spain	1920	103,368
Graz, Austria	1920	157,644
Guadalajara, Mexico	1910	119,468
Guayaquail, Equador	1915	105,000
Hakodate, Japan	1920	144,740
Halifax, England	1914	100,701
Halle, Germany	1919	182,326
Hamborn, Germany	1919	110,102
Hamburg, Germany	1919	985,779
Hamilton, Canada	1921	114,151
Hangchow, China	1921	892,100
Hankow, China	1921	1,468,000
Hanover, Germany	1919	310,431
Harbin, Manchuria	1919	365,000
Havana, Cuba	1919	363,506
Havre, France	1921	163,374
Helsingfors, Finland	1920	197,848
Hiroshima, Japan	1920	160,510
Hongkong, China	1921	625,166

Cities and Country.	Census Year.	Population.
Huddersfield, England	1921	110,120
Hull, England	1921	287,013
Hyderabad, India	1921	404,187
Ichang, China	1919	448,509
Irkutsk, Russia	1913	129,760
Ivanovo, Russia	1910	168,498
Jaipur, India	1921	120,422
Johannesburg, S. Africa	1921	288,131
Jubbulpore, India	1921	108,793
Kabul, Afghanistan	1920	150,000
Kagoshima, Japan	1920	103,180
Kanazawa, Japan	1920	129,265
Karachi, India	1921	216,883
Kazan, Russia	1913	195,300
Kharkov, Russia	1913	258,360
Kiel, Germany	1919	205,330
Kiev, Russia	1913	610,100
Kingston-Hull, England	1921	287,013
Kishnev, Russia	1913	128,700
Kiungchow, China	1919	586,870
Kobe, Japan	1920	608,644
Konigsberg, Germany	1919	260,895
Kure, Japan	1920	130,362
Kyoto, Japan	1920	591,323
Lahore, India	1921	281,781
La Paz, Bolivia	1918	107,252
La Plata, Argentine	1912	106,382
Leeds, England	1921	458,320
Leicester, England	1921	234,190
Leipzig, Germany	1919	604,380
Lemberg, Austria	1920	206,113
Lichtenburg, Germany	1919	144,643
Liege, Belgium	1920	165,136
Lille, France	1921	200,952
Lima, Peru	1920	176,467
Lisbon, Portugal	1920	489,667
Liverpool, England	1921	803,118
Livorno, Italy	1921	114,813
Lodz, Russia	1921	451,813
London, England	1919	7,476,168
Lubeck, Germany	1921	113,071
Lucknow, India	1921	249,566
Lunkchow, China	1919	200,000
Lyons, France	1921	561,592
Madras, India	1921	526,911
Madrid, Spain	1920	751,352
Madura, India	1921	138,804
Magdeburg, Germany	1919	285,856
Mainz, Germany	1919	107,930
Malaga, Spain	1920	150,584
Malmo, Norway	1922	113,602
Manchester, England	1921	730,551
Mandalay, India	1921	148,917
Manila, Philippine Is.	1918	283,613
Marakesh, Morocco	1919	104,750
Mannheim, Germany	1919	229,576
Marseilles, France	1921	586,341
Meerut, India	1921	122,609
Melbourne, Victoria	1921	705,100
Messina, Sicily	1921	176,794
Mexico City, Mexico	1910	1,080,000
Milan, Italy	1921	718,304
Minsk, Russia	1913	117,600
Montevideo, Uruguay	1922	350,956
Montreal, Canada	1921	618,506
Moscow, Russia	1920	1,028,000
Mukden, Manchuria	1919	158,132
Mulheim, Germany	1919	127,027
Munich, Germany	1919	630,711
Munster, Germany	1921	100,452
Murcia, Spain	1920	141,175
Nagasaki, Japan	1920	176,534
Nagoya, Japan	1920	429,997
Nagpur, India	1921	145,193
Nancy, France	1921	113,226
Nanking, China	1921	380,200
Nantes, France	1921	183,704
Naples, Italy	1921	780,220
Newcastle-Tyne, England	1921	274,955
Nice, France	1921	155,839
Nikolayev, Russia	1913	106,279
Ningpo, China	1921	270,800
Nizhni-Novgorod, Russia	1913	112,300
Norwich, England	1921	120,653
Nottingham, England	1921	262,658
Nurnberg, Germany	1919	352,675
Odessa, Russia	1912	631,040
Omsk, Siberia	1913	135,800
Oporto, Portugal	1920	203,981
Oran, Algeria	1921	141,156
Orenburg, Russia	1913	146,800
Osaka, Japan	1920	1,252,972
Otaru, Japan	1920	108,113
Ottawa, Canada	1921	107,843
Padua, Italy	1921	112,021
Palermo, Sicily	1920	400,348
Paris, France	1921	2,906,472
Patna, India	1921	119,976
Peking, China	1921	1,300,000
Perm, Russia	1913	105,410
Pernambuco, Brazil	1913	216,484
Perth, Australia	1921	154,866
Peshawar, India	1921	104,452
Petrograd, Russia	1920	706,000
Pingyang, Korea	1920	173,273
Piraeus, Greece	1920	131,170
Plauen, Saxony	1919	104,918
Plymouth, England	1921	209,857
Poona, India	1921	214,796
Port au Prince, Haiti	1920	120,000
Portsmouth, England	1921	247,343
Posen, Poland	1921	156,691
Prague, Austria	1921	676,476
Puebla, Mexico	1910	101,214
Puket, Siam	1910	179,600
Quebec, Canada	1917	103,000
Rangoon, India	1921	341,962
Rawalpindi, India	1921	101,142
Recife, Brazil	1920	238,843
Reims, France	1911	115,178
Reval, Russia	1922	123,496
Riga, Russia	1920	185,137
Rio de Janeiro, Brazil	1920	1,157,873
Rome, Italy	1921	691,314
Rosario, Argentine	1922	265,000
Rostov-on-Don, Russia	1913	204,725
Rotterdam, Netherlands	1920	516,271
Roubaix, France	1921	113,265
Rouen, France	1921	123,712
Saarbrucken, Prussia	1910	105,089
Saigon, French Indo-China	1915	100,000
St. Etienne, France	1921	167,967
Salford, England	1914	232,970
Saliany, Russia	1913	120,904
Saloniki, Greece	1920	170,195
Samara, Russia	1920	171,000
Samarang, Java	1920	106,852
Samshui, China	1919	188,860
Santiago, Chile	1920	507,296
San Paulo, Brazil	1920	579,033
Sapporo, Japan	1920	102,580
Saratov, Russia	1913	235,300
Sasebo, Japan	1918	123,555
Schoeneberg, Prussia	1919	175,082
Sendai, Japan	1920	118,984
Seoul, Korea	1920	250,208
Seville, Spain	1920	205,527
Shanghai, China	1921	1,500,000
Shashi, China	1919	105,000
Sheffield, England	1921	490,724
Sholapur, India	1921	119,581
Singapore, Straits Settlement	1921	423,768
Smyrna, Turkey	1912	375,000
Soerabaya, Java	1918	160,801
Soerakarta, Java	1918	137,882
Sofia, Bulgaria	1920	154,431
Southampton, England	1921	160,997
South Shields, England	1921	116,667
Srinagar, India	1921	141,735
Stettin, Germany	1919	232,726
Stockholm, Sweden	1922	422,042
Stoke-on-Trent, England	1921	240,440
Strassburg, Germany	1921	166,767
Stuttgart, Germany	1919	309,197
Suchow, China	1921	500,000
Sunderland, England	1921	159,700
Surat, India	1921	117,434
Sydney, N. S. Wales	1921	905,947
Szeged, Hungary	1921	109,896
Tabriz, Persia	1918	200,000
Taihoku, Japan	1920	162,782
Tashkent, Russia	1913	272,300
Teheran, Persia	1918	220,000
The Hague, Holland	1920	354,987
Tientsin, China	1921	800,000
Tiflis, Russia	1915	346,766
Tokyo, Japan	1923	1,173,162
Tomsk, Russia	1913	116,664
Toronto, Canada	1921	521,893
Toulon, France	1921	106,331
Toulouse, France	1921	175,434
Trichinopoly, India	1911	120,422
Trieste, Austria	1914	246,500
Tsaritsyn, Russia	1910	100,817

Cities and Country.	Census Year.	Population.	Cities and Country.	Census Year.	Population.
Tsingtou, China	1920	308,738	Warsaw, Poland	1921	931,176
Tula, Russia	1913	140,620	Wellington, New Zealand	1921	110,680
Tunis, Tunis	1911	277,083	Wenchow, China	1921	198,300
Turin, Italy	1921	502,274	West Ham, England	1921	300,905
Ufa, Russia	1913	106,200	Wilmersdorf,	1919	139,406
Utrecht, Netherlands	1920	140,309	Winnipeg, Canada	1921	179,087
Valencia, Spain	1920	243,783	Wuhu, China	1921	126,900
Valparaiso. Chile	1920	182,242	Yahata	1920	100,235
Vancouver, Canada	1921	117,217	Yaroslavl, Russia	1913	120,400
Venice, Italy	1921	171,665	Yekaterinoslav,	1912	220,446
Vienna, Austria	1920	1,841,326	Yokohama, Japan	1920	422,942
Vilna, Russia	1920	205,000	Zarogoza, Spain	1918	117,742
V'tebsk, Russia	1913	108,900	Zurich, Switzerland	1920	207,161

CENTER OF POPULATION IN THE UNITED STATES.

1790 23 miles east of Baltimore, Md.
1800 18 miles west of Baltimore, Md.
1810 40 miles northwest by west of Washington, D. C.
1820 16 miles north of Woodstock, Va.
1830 19 miles west-southwest of Moorefield, W. Va.
1840 16 miles south of Clarksburg, W. Va.
1850 23 miles southwest of Parkersburg, W. Va.
1860 20 miles south of Chillicothe, O.
1870 48 miles east by north of Cincinnati, O.
1890 20 miles east of Columbus, Ind.
1900 6 miles southeast of Columbus, Ind.
1910 in Bloomington, Ind.
1920 8.3 miles southeast of Spencer, Owen County, Ind.

COUNTRY OF BIRTH OF FOREIGN-BORN WHITES, 1920.

State.	Austria.	Canada.	Cz'cho-Slovak.	England.	Germany.	Hungary.	Ireland.	Italy.	Norway.	Poland.	Russia.	Sweden.
Ala.	583	892	232	1,942	2,427	372	809	2,732	215	394	1,582	748
Ariz.	486	1,962	148	2,882	1,516	210	1,206	1,261	337	261	816	859
Ark.	636	880	492	1,137	3,979	108	676	1,314	99	529	662	331
Cal.	13,264	59,562	3,377	58,572	67,180	5,252	45,308	88,502	11,460	7,082	27,224	31,925
Colo.	5,722	7,621	1,953	9,584	11,995	1,157	6,191	12,579	1,525	1,867	16,669	10,112
Conn.	12,999	24,631	6,558	22,708	22,614	13,222	45,464	80,322	1,414	46,623	38,719	17,697
Del.	615	446	122	1,497	1,632	226	2,895	4,136	65	3,847	2,244	316
D. of C.	525	1,688	122	2,990	3,382	219	4,320	3,764	219	716	5,181	481
Fla.	525	4,121	189	4,451	3,534	383	1,304	4,745	610	428	1,243	1,399
Ga.	401	955	123	1,593	1,936	246	1,112	700	132	917	3,452	299
Idaho	781	4,954	420	4,451	4,143	233	1,410	1,323	2,482	287	1,458	5,112
Ill.	46,457	38,375	66,709	54,247	205,491	34,437	74,274	94,407	27,785	162,405	117,899	105,577
Ind.	9,100	5,096	3,941	8,522	37,377	9,351	7,271	6,712	544	17,791	7,673	4,942
Iowa	4,334	8,929	9,150	13,036	70,642	747	10,686	4,956	17,344	2,028	7,319	22,493
Kan.	5,183	5,019	3,466	7,899	23,380	622	4,825	3,355	970	2,418	12,050	10,337
Ky.	906	885	240	1,863	11,137	1,084	3,422	1,932	75	1,037	2,736	214
La.	725	1,165	302	1,819	5,147	305	2,000	16,264	555	377	1,928	522
Me.	305	74,150	410	5,149	932	72	5,748	2,797	581	1,717	3,763	2,026
Md.	3,620	1,864	3,553	5,095	22,032	1,947	6,580	9,543	536	12,061	24,791	630
Mass.	8,098	262,021	2,238	86,895	22,113	1,387	133,171	117,007	5,491	69,157	92,034	38,012
Mich.	22,004	164,502	11,161	47,149	86,047	22,607	16,531	30,216	6,888	103,926	45,313	24,707
Minn.	11,550	33,732	12,626	10,958	74,634	4,277	10,289	7,432	90,188	18,537	16,100	112,117
Miss.	136	397	63	590	929	47	412	1,841	97	318	828	247
Mo.	8,676	6,503	4,971	10,400	55,776	8,080	15,022	14,609	610	7,636	18,769	4,741
Mont.	3,298	14,316	1,895	8,159	7,873	935	7,260	3,842	9,962	1,219	5,203	7,179
Neb.	4,551	5,758	15,818	6,000	40,969	810	5,422	3,547	2,165	4,615	15,718	18,821
Nev.	190	1,178	85	1,271	1,069	46	970	2,641	206	104	124	545
N. H.	389	52,274	75	4,367	1,714	66	7,908	2,074	427	3,997	3,467	1,886
N. J.	36,917	10,292	16,747	46,781	92,382	40,470	65,971	157,285	5,343	90,419	73,527	10,675
N. M.	423	732	113	888	1,178	130	434	1,678	128	153	254	310
N. Y.	151,172	111,974	38,247	135,305	295,650	78,374	284,747	545,173	27,573	247,519	529,240	53,025
N. C.	149	650	20	967	703	66	301	453	70	210	932	170
N. D.	2,059	15,550	2,056	2,287	11,960	2,519	1,660	170	38,190	2,236	29,617	10,543
Ohio	48,073	24,176	42,121	43,140	111,893	73,181	29,262	60,658	1,487	67,579	43,690	7,266
Okla.	1,393	2,475	1,825	2,686	7,029	311	1,321	2,122	297	1,253	5,005	931
Ore.	2,798	13,774	1,132	7,953	13,740	909	4,203	4,324	6,955	1,480	6,979	10,532
Penn.	122,755	14,828	68,869	90,666	120,194	71,380	121,601	222,764	2,446	177,770	161,124	19,847
R. I.	1,307	36,412	264	25,782	3,126	176	22,253	32,241	545	8,158	8,055	6,542
S. C.	206	268	45	491	1,079	56	442	344	85	351	1,187	133
S. D.	1,151	4,453	2,819	2,943	15,674	585	1,954	413	16,813	792	11,193	8,573
Tenn.	398	972	82	1,665	2,159	326	1,291	2,079	63	841	2,262	305
Tex.	6,441	4,175	12,819	7,685	31,062	940	4,333	8,024	1,740	5,047	7,057	4,536
Utah	987	1,466	163	14,836	3,589	179	1,207	3,225	2,109	240	684	6,073
Vt.	283	24,868	108	2,197	630	264	2,884	4,067	106	1,726	1,333	1,123
Va.	921	1,923	897	3,752	2,802	1,293	1,732	2,435	491	1,103	5,421	664
Wash.	6,494	42,988	1,792	20,806	22,315	1,056	8,927	10,818	30,304	3,906	11,124	34,793
W. Va.	5,115	957	1,549	3,433	3,798	6,260	1,459	14,147	51	5,799	3,911	326
Wis.	19,641	19,331	19,811	10,834	151,250	10,016	7,809	11,187	45,433	50,558	21,447	22,896
Wyo.	1,183	1,438	518	2,505	2,292	349	956	1,948	651	544	1,482	2,042

Population of the United States, 1910 and 1920.

STATE.	Population, 1920.	Population, 1910.	Per cent. of Gain 1920.	Total.	Land.	Water.
Alabama	2,348,174	2,138,093	9.8	51,998	51,279	719
Alaska	55,036	64,356		590,884		
Arizona	334,162	204,354	63.5	113,956	113,810	146
Arkansas	1,752,204	1,574,449	11.3	53,335	52,525	810
California	3,426,861	2,377,549	44.1	158,297	155,652	2,645
Colorado	939,629	799,024	17.6	103,948	103,658	290
Connecticut	1,380,631	1,114,756	23.9	4,965	4,820	145
Delaware	233,003	202,322	10.2	2,370	1,965	405
District of Columbia	437,571	331,069	32.2	70	60	10
Florida	968,470	752,619	28.7	58,666	54,861	3,805
Georgia	2,895,832	2,609,121	11.0	59,265	58,725	540
Hawaii	255,912	190,909		6,449	6,449	
Idaho	431,866	325,594	32.6	83,888	83,354	534
Illinois	6,485,280	5,638,591	15.0	56,665	56,043	622
Indiana	2,930,390	2,700,876	8.5	36,354	36,045	309
Iowa	2,404,021	2,224,771	8.1	56,147	55,586	561
Kansas	1,769,257	1,690,949	4.6	82,158	81,774	384
Kentucky	2,416,630	2,289,905	5.5	40,598	40,181	417
Louisiana	1,798,509	1,656,388	8.6	48,506	45,409	3,097
Maine	768,014	742,371	3.5	33,040	29,895	3,145
Maryland	1,449,661	1,295,346	11.9	12,327	9,941	2,386
Massachusetts	3,852,356	3,366,416	14.4	8,266	8,039	227
Michigan	3,668,412	2,810,173	30.5	57,980	57,480	500
Minnesota	2,387,125	2,075,708	15.	84,682	80,858	3,824
Mississippi	1,790,618	1,797,114	-0.4	46,865	46,362	503
Missouri	3,404,055	3,293,335	3.4	69,420	68,727	693
Montana	548,889	376,053	46.	146,997	146,131	866
Nebraska	1,296,372	1,192,214	8.7	77,520	76,808	712
Nevada	77,407	81,875	-5.5	110,690	109,821	869
New Hampshire	443,083	430,572	2.9	9,341	9,031	310
New Jersey	3,155,900	2,537,167	24.4	8,224	7,514	710
New Mexico	360,350	327,301	10.1	122,634	122,503	131
New York	10,385,227	9,113,614	14.	49,654	47,654	1,550
North Carolina	2,559,123	2,206,287	16.	52,426	48,740	3,686
North Dakota	646,872	577,056	12.1	70,837	70,138	654
Ohio	5,759,394	4,767,121	20.8	41,040	40,740	300
Oklahoma	2,028,283	1,657,155	22.4	70,057	69,414	643
Oregon	783,389	672,765	16.5	96,699	95,607	1,092
Pennsylvania	8,720,017	7,665,111	13.8	45,126	44,832	294
Rhode Island	604,397	542,610	11.4	1,248	1,067	181
South Carolina	1,683,724	1,515,400	11.1	30,989	30,495	494
South Dakota	636,547	583,888	9.	77,615	76,868	747
Tennessee	2,337,885	2,184,789	7.	42,022	41,687	335
Texas	4,663,228	3,896,542	19.7	265,896	262,398	3,498
Utah	449,396	373,351	20.4	84,990	82,184	2,806
Vermont	352,428	355,956	-1.0	9,564	9,124	440
Virginia	2,309,187	2,061,612	12.0	42,627	40,262	2,365
Washington	1,356,621	1,141,990	18.8	69,127	66,836	2,291
West Virginia	1,463,701	1,221,119	19.9	24,170	24,022	148
Wisconsin	2,632,067	2,333,860	12.8	56,066	55,256	810
Wyoming	194,402	145,965	33.2	97,914	97,548	366
Guam	13,275	11,806		210	210	
Panama Canal Zone	22,858	62,810 (1912)		527		
Philippines	10,314,310	8,276,802		115,026		
Porto Rico	1,299,809	1,118,012		3,435		
Samoa (Amer.)	8,056	7,251 (1912)		77		
Virgin Islands	26,051	27,086		132	77	

Cities of the United States.

NAME.	Census 1920.	Census 1910.	Land Area Acres.	NAME.	Census 1920.	Census 1910.	Land Area Acres.
Greater New York	5,620,048	4,766,883	191,360.0	Minneapolis, Minn	380,582	301,408	31,834.0
Boroughs				Kansas City, Mo	324,410	248,381	37,395.0
Manhattan	2,284,103	2,331,542	14,080.0	Seattle, Wash	315,312	237,194	37,478.4
Bronx	732,016	430,980	26,240.0	Indianapolis, Ind	314,194	233,650	28,893.9
Brooklyn	2,018,356	1,634,351	45,440.0	Jersey City, N. J	298,103	267,779	8,320.0
Queens	469,042	284,041	69,120.0	Rochester, N. Y	295,750	218,149	20,569.8
Richmond	116,531	85,969	36,480.0	Portland, Ore	258,288	207,214	40,442.0
Chicago, Ill	2,701,705	2,185,283	123,382.9	Denver, Col	256,491	213,381	37,085.0
Philadelphia, Pa	1,823,779	1,549,006	81,920.0	Toledo, O	243,164	168,497	18,010.0
Detroit, Mich	993,678	465,766	49,838.5	Providence, R. I	237,595	224,326	11,388.0
Cleveland, O	796,841	560,663	36,089.0	Columbus, O	237,031	181,511	14,472.2
St. Louis, Mo	772,897	687,029	39,040.0	Louisville, Ky	234,891	223,928	14,348.8
Boston, Mass	748,060	670,585	27,634.8	Saint Paul, Minn	234,698	214,744	33,388.0
Baltimore, Md	733,826	558,484	50,560.0	Oakland, Cal	216,261	150,174	31,591.0
Pittsburgh, Pa	588,343	533,905	25,529.5	Akron, O	208,435	69,067	16,120.0
Los Angeles, Cal	576,673	319,198	232,908.0	Atlanta, Ga	200,616	154,839	17,131.4
Buffalo, N. Y	506,775	423,715	24,894.0	Omaha, Neb	191,601	124,096	23,634.0
San Francisco, Cal	506,676	416,912	26,880.0	Worcester, Mass	179,754	145,986	23,781.8
Milwaukee, Wis	457,147	323,857	16,290.3	Birmingham, Ala	178,806	132,685	31,346.6
Washington, D. C	437,571	331,069	38,408.4	Syracuse, N. Y	171,667	137,249	11,849.0
Newark, N. J	424,524	347,469	14,912.0	Richmond, Va	171,667	127,628	15,360.7
Cincinnati, O	401,247	363,591	45,529.6	New Haven, Conn	162,537	133,605	11,460.0
New Orleans, La	387,219	339,075	113,920.0	Memphis, Tenn	162,351	131,105	14,994.0

NAME.	Census 1920.	Census 1910.	Land Area Acres.
San Antonio, Tex.	161,379	96,614	22,860.5
Dallas, Tex.	158,976	92,104	14,957.4
Dayton, O.	155,259	116,577	10,107.0
Bridgeport, Conn.	143,555	102,054	9,370.0
Houston, Tex.	138,276	78,800	23,338.0
Hartford, Conn.	138,036	98,915	10,162.9
Scranton, Pa.	137,783	129,867	12,361.7
Grand Rapids, Mich.	137,634	112,571	11,211.0
Paterson, N. J.	135,875	125,600	5,157.0
Youngstown, O.	132,358	79,066	15,902.0
Springfield, Mass.	129,614	88,926	20,286.6
Des Moines, Ia.	126,468	6,368	33,597.2
New Bedford, Mass.	121,217	96,652	12,152.9
Fall River, Mass.	120,485	119,295	21,051.5
Trenton, N. J.	119,289	96,815	4,707.0
Nashville, Tenn.	118,342	110,364	11,563.0
Salt Lake City, Utah.	118,110	92,777	32,701.3
Camden, N. J.	116,309	94,538	4,915.0
Norfolk, Va.	115,777	67,452	4,800.^
Albany, N. Y.	113,344	100,253	11,924.1
Lowell, Mass.	112,759	106,294	8,565.8
Wilmington, Del.	110,163	87,411	4,495.1
Cambridge, Mass.	109,694	104,839	4,002.4
Reading, Pa.	107,784	96,071	6,090.7
Fort Worth, Tex.	106,482	73,312	10,553.4
Spokane, Wash.	104,437	104,402	24,819.0
Kansas City, Kan.	101,177	82,331	10,600.0
Yonkers, N. Y.	100,176	79,803	12,880.0
Lynn, Mass.	99,148	89,336	6,705.3
Duluth, Minn.	98,917	78,466	39,916.8
Tacoma, Wash.	96,965	83,743	25,168.0
Elizabeth, N. J.	95,783	73,409	6,191.0
Lawrence, Mass.	94,270	85,892	4,316.9
Utica, N. Y.	94,156	74,419	10,404.0
Erie, Pa.	93,372	66,525	12,486.7
Somerville, Mass.	93,091	77,236	2,517.8
Waterbury, Conn.	91,715	73,141	17,981.0
Flint, Mich.	91,599	38,550	18,140.0
Jacksonville, Fla.	91,558	57,699	9,824.0
Oklahoma City, Okla.	91,295	64,205	10,869.8
Schenectady, N. Y.	88,723	72,826	5,018.7
Canton, O.	87,091	50,217	7,894.4
Fort Wayne, Ind.	86,549	63,933	9,953.0
Evansville, Ind.	85,264	69,647	5,577.0
Savannah, Ga.	83,252	65,064	4,473.0
Manchester, N. H.	78,384	70,063	20,520.0
St. Joseph, Mo.	77,939	77,403	8,480.0
Knoxville, Tenn.	77,818	36,346	17,094.4
El Paso, Tex.	77,560	39,279	7,742.0
Bayonne, N. J.	76,754	55,545	2,544.0
Peoria, Ill.	76,121	66,950	6,027.5
Harrisburg, Pa.	75,917	64,186	3,765.5
San Diego, Cal.	74,683	39,578	50,458.1
Wilkes-Barre, Pa.	73,833	67,105	3,325.6
Allentown, Pa.	73,502	51,903	6,280.4
Wichita, Kan.	72,217	52,450	12,526.0
Tulsa, Okla.	72,075	18,182	5,002.4
Troy, N. Y.	72,013	76,813	6,630.4
Sioux City, Ia.	71,227	47,828	28,020.0
South Bend, Ind.	70,983	53,684	9,839.7
Portland, Me.	69,272	58,157	13,808.0
Hoboken, N. J.	68,166	70,324	830.0
Charleston, S. C.	67,957	58,833	2,873.6
Johnstown, Pa.	67,327	55,482	3,488.0
Binghamton, N. Y.	66,800	48,433	5,991.0
E. St. Louis, Ill.	66,767	58,547	8,672.0
Brockton, Mass.	66,254	56,878	13,677.9
Terre Haute, Ind.	66,083	58,157	5,377.0
Sacramento, Cal.	65,908	44,696	8,774.0
Rockford, Ill.	65,651	45,401	6,839.9
Little Rock, Ark.	65,142	45,941	10,154.4
Pawtucket, R. I.	64,248	51,622	5,494.0
Passaic, N. J.	63,841	54,773	2,001.7
Saginaw, Mich.	61,903	50,510	10,368.0
Springfield, O.	60,840	46,921	7,296.0
Mobile, Ala.	60,777	51,521	8,915.2
Altoona, Pa.	60,331	52,127	2,316.9
Holyoke, Mass.	60,203	57,730	13,544.9
New Britain, Conn.	59,316	43,916	8,519.0
Springfield, Ill.	59,183	51,678	5,532.5
Racine, Wis.	58,593	38,002	3,858.0
Chester, Pa.	58,030	38,537	3,020.0
Chattanooga, Tenn.	57,895	44,604	4,531.2
Lansing, Mich.	57,327	31,229	6,810.0
Covington, Ky.	57,121	53,270	3,837.0
Davenport, Ia.	56,727	43,028	10,393.0
Wheeling, W. Va.	56,208	41,641	6,508.4
Berkely, Cal.	56,036	40,434	5,280.0
Long Beach, Cal.	55,593	17,809	9,308.7
Gary, Ind.	55,378	16,802	25,223.3
Lincoln, Neb.	54,948	43,973	7,944.0
Portsmouth, Va.	54,387	33,190	3,136.0
Haverhill, Mass.	53,884	44,115	21,192.8
Lancaster, Pa.	53,150	47,227	2,530.0
Macon, Ga.	52,995	40,665	5,966.0
Augusta, Ga.	52,548	41,040	6,012.0
Tampa, Fla.	51,608	37,782	4,633.6
Roanoke, Va.	50,842	34,874	15,360.0
Niagara Falls, N. Y.	50,760	30,445	5,900.0
East Orange, N. J.	50,710	34,371	2,516.0
Atlantic City, N. J.	50,707	44,461	7,362.0
Bethlehem, Pa.	50,358	12,837	11,172.0
Huntington, W. Va.	50,177	31,161	7,892.0
Topeka, Kan.	50,022	43,684	4,941.0
Malden, Mass.	49,103	44,404	3,252.0
Hamtramck, Mich.	48,615	3,559	
Kalamazoo, Mich.	48,487	39,437	5,285.0
Winston-Salem, N. C.	48,395	17,167	4,853.0
Jackson, Mich.	48,374	31,433	5,653.0
Quincy, Mass.	47,876	36,587	10,567.6
Bay City, Mich.	47,554	45,166	6,316.8
York, Pa.	47,512	44,750	2,220.0
McKeesport, Pa.	46,781	42,694	2,240.0
Highland Park, Mich.	46,499	4,120	1,895.0
Charlotte, N. C.	46,338	34,014	8,167.0
Newton, Mass.	46,054	39,806	11,457.0
Cedar Rapids, Ia.	45,566	32,811	7,805.6
Elmira, N. Y.	45,393	37,176	4,451.2
Pasadena, Cal.	45,354	30,291	9,670.0
Fresno, Cal.	45,086	24,892	5,434.5
Cicero, Ill.	44,995	14,557	3,678.5
New Castle, Pa.	44,938	36,280	5,000.0
Galveston, Texas.	44,255	36,981	4,985.6
Shreveport, La.	43,874	28,015	4,985.6
Decatur, Ill.	43,818	31,140	4,626.3
Woonsocket, R. I.	43,496	38,125	5,532.0
Montgomery, Ala.	43,464	38,136	4,371.0
Chelsea, Mass.	43,184	32,452	1,191.6
Pueblo, Colo.	43,050	44,395	7,213.6
Mount Vernon, N. Y.	42,726	30,919	2,644.4
Salem, Mass.	42,529	43,697	5,113.5
Pittsfield, Mass.	41,763	32,121	26,048.6
Lakewood, O.	41,732	15,181	3,474.0
Perth Amboy, N. J.	41,707	32,121	2,958.0
Butte, Mont.	41,611	39,165	3,319.0
Lexington, Ky.	41,534	35,099	3,210.0
Lima, O.	41,326	30,508	4,060.0
Fitchburg, Mass.	41,029	37,826	17,583.6
Kenosha, Wis.	40,472	21,371	3,680.0
Beaumont, Tex.	40,422	20,640	6,464.0
Stockton, Cal.	40,296	23,253	5,176.7
Everett, Mass.	40,120	33,484	2,150.7
Wichita Falls, Tex.	40,079	8,200	12,526.0
West Hoboken, N. J.	40,074	35,403	546.0
Stamford town, Conn.*			
*Including Stamford City.	40,067	25,138	4,465.0

20 Largest Cities of the World.

NAME.	Year of census or estimate.	Population.
London, England	1921	7,476,168
New York, U. S. A.	1920	5,620,048
Berlin, Germany	1910	4,000,000
Paris, France	1921	3,000,000
Chicago, U. S. A.	1920	2,701,705
Tokyo, Japan	1917	2,173,000
Vienna, Austria	1920	1,841,326
Philadelphia, U. S. A.	1920	1,823,779
Buenos Aires, Argentina	1918	1,721,000
Osaka, Japan	1917	1,633,000
Peking, China	1917	1,300,000
Calcutta, India	1921	1,263,000
Canton, China		1,250,000
Bombay, India	1921	1,172,953
Rio de Janeiro, Brazil	1920	1,157,873
Glasgow, Scotland	1921	1,034,069
Constantinople, Turkey	1920	1,000,000
Detroit, U. S. A.	1920	993,678
Hamburg, Germany	1919	985,779
Sydney, New South Wales	1921	905,947

ECONOMIC GEOGRAPHY

Summary of 14 General Groups of Industries 1919-1909

Group	Census Year.	No. of Establishments.	Wage Earners.	Capital.	Value of Product.	Value Added by Manufacturer.
All Indust.	1919	290,105	9,096,372	$44,466,593,771	$62,418,078,773	$25,041,698,490
	1909	268,491	6,615,046	18,428,269,706	20,672,051,870	8,529,260,992
Food and Kindred products	1919	61,312	684,672	4,615,149,885	12,438,890,851	2,327,344,027
	1909	55,364	411,575	1,696,754,345	3,937,617,891	749,814,811
Textiles and their products	1919	28,522	1,611,309	6,096,161,183	9,216,102,814	3,834,023,511
	1909	22,057	1,445,720	2,507,426,804	3,086,944,186	1,323,676,711
Iron, Steel and their products	1919	20,120	1,585,712	8,711,843,201	9,815,885,004	9,403,634,265
	1909	17,292	1,026,553	3,578,601,715	3,164,471,535	1,364,528,673
Lumber and its remanufacture	1919	39,955	839,008	2,580,045,756	3,070,072,813	1,710,074,246
	1909	48,539	911,593	1,570,549,441	1,588,274,035	870,441,294
Leather and finished products	1919	6,937	349,362	1,522,502,458	2,610,230,727	896,423,391
	1909	5,728	309,766	659,231,312	992,713,322	322,838,804
Paper and printing	1919	36,403	509,875	2,382,400,111	3,012,583,990	1,705,866,197
	1909	34,828	415,990	1,133,617,756	1,179,285,247	728,046,613
Liquor and beverages	1919	6,354	55,442	781,571,615	603,895,215	381,118,901
	1909	7,347	77,827	874,107,639	674,311,051	488,183,164
Chemicals and allied prod.	1919	12,224	427,008	5,617,738,265	5,610,299,073	1,862,624,190
	1909	12,060	267,261	2,167,424,898	1,526,598,576	595,554,523
Stone, Glass and clay prod.	1919	12,529	298,659	1,262,211,569	1,085,528,926	676,958,104
	1909	16,168	342,827	857,759,719	531,736,831	347,945,281
Metal and metal prod. (Not iron & steel)	1919	10,667	339,469	1,796,669,418	2,760,034,506	850,259,062
	1909	8,783	249,607	867,406,996	1,240,409,831	348,344,084
Tobacco Manufacture	1919	10,291	157,097	604,839,572	1,012,933,213	529,365,459
	1909	15,822	245,660,484	245,660,484	416,695,104	239,509,483
Vehicles for land transportation	1919	21,152	495,939	2,423,239,470	4,058,911,515	1,560,686,001
	1909	6,562	202,719	521,456,520	561,763,289	255,226,614
R. R. Repair Shops	1919	2,368	515,709	776,844,315	1,354,446,094	806,617,400
	1909	1,686	304,592	277,216,183	437,563,288	222,981,977
Miscellaneous Industries	1919	21,781	1,227,111	5,295,376,953	6,180,255,709	3,312,588,740
	1909	16,255	482,206	1,471,055,840	1,333,667,684	672,168,960

AGRICULTURE. The science and art of producing all plant and animal life that is useful to man. It dates from the earliest periods, when man first evinced a preference for certain plant or flesh foods. He cared for the plants, and confined the animals. Pointed and forked sticks were used to till the soil, the union of the two being the primitive plow; Egyptian records go back to at least 3000 B.C. According to the Bible we learn the Israelites remained in one spot until they exhausted the soil, destroyed the "tilth" or depth of soil to which roots penetrate, rendering it infertile, and then the camp moved to another spot. The Babylonians converted their once fertile land into a desert along similar lines, and in all probability only the annual overflowing of the Nile has preserved Egypt. Then the tide turned. Agriculture became a more honorable occupation than trading, or the mechanical arts; breeding animals by selection was introduced; irrigation took the place of rainfall in arid districts, sometimes by ditches, sometimes by mere handsweeps, such as are in use on the Nile to-day, but all fulfilling their limited purpose. Granaries were built for storage, the grain was dried before being deposited; bees were kept to produce honey; and little by little the Saracen, and the religious houses, laid the seed of the present wonderful growth of scientific agriculture. The Saracens introduced rice, cotton, sugar, and vines, to Spain; the religious houses were given large tracts of valueless land, and made them blossom as the rose; so that by the Middle Ages western Europe was as famed for its agriculture as for its commerce and manufactures. Green crops were plowed in; Belgium was famed for dairy work; the Flemings were regarded as

the best farmers; northern Italy was in the van of progress, but in England agriculture stood still until 1389. Then when the English armies came back from the continent of Europe they brought many ideas; harvests were doubled, meats became a common diet, serfdom disappeared, and laws against extravagance in diet were passed. Gardening, not only of flowers but of fruit, claimed a place in agriculture, and again Flanders was the tutor of Europe. The discovery of America taught little from the effectual and careful tillage of the Peruvians, but it introduced many new seeds, plants, fruits, and grasses, such as timothy and orchard grass. In 1760 Lord Townsend introduced the Norfolk system of rotatory crops, wheat, turnips,

PRIMITIVE IRRIGATION.

barley, clover, or grass. Each farm had to carry cattle and sheep according to its acreage, and the farmer was not permitted to sell his manure; neither could he use more than a specified percentage of artificial fertilizer. Under this system farms produced fivefold, and many fortunes were made. In breeding, Bakewell made a similar revolution (1750), producing a sheep for the market in two years instead of three to four years. Jethro Tull introduced drilling seed in rows, with cultivation in between (1731), inventing a drill and a horse-hoe. In the nineteenth century science was applied to agriculture; transportation methods were revolutionized; vast areas of land were opened in the United States, Canada, South America, Australia, New Zealand, and Africa, for settlement and farming; labor saving machinery appeared; government agencies spread information, etc.; and the associations of farmers disseminated knowledge and experience. Scientific fertilizing reaches wide limits, even to those of grinding the rocks and giving them back to the soil, where analysis shows such a course is warranted. Science indicates the fertilizer lacking in the soil, and science gives what is demanded. The marvelous success of scientific effort, largely under government patronage, is shown in dairying, and in sugar beet growing. To-day successful farming is done by system, whether it be grain, fruit, or stock. Machinery has given the reapers, threshers, steam plows, etc., and with the opening field of discovery in the germicidal processes of nature, comes what appears like an agricultural millennium, if the culmination equal the prospect. Along this path comes the tremendously important "intensive culture" applied to vegetable and fruit farming, by which a given surface of land, under scientific handling, more labor (well directed), and the use of more capital, may be made to produce double and treble what has been regarded as the normal crop. In this, possibly, lies the secret of supplying large cities at reasonable cost.

ANILIN. A coal tar product based upon amidobenzol discovered by Unverdorben (1826), who made it by the distillation of indigo, and named it "crystallin." Perkins, an English chemist, patented (1856) a process of making a mauve or lilac dye from this substance, and the commercial importance of these products began. The anilin of commerce is obtained from benzol, a coal tar product. Benzol and nitric acid yield nitrobenzol; and nitrobenzol when acted upon by nascent hydrogen gives anilin, which is colorless when pure; acted upon by arsenic acid, potassium bichromate, chlorid of tin, etc., the beautiful anilin colors are formed. The color industry was first introduced in England and France, but has reached its modern sensational development in Germany, which country's capitalists also control large plants in Russia, France, and other countries. A peculiar feature of the industry is the artificial drugs produced, such as antipyrin, antifebrin, acetanilid, etc.

ANTISEPTIC SURGERY. A method of combating disease germs in surgery, introduced by Sir Joseph Lister, an English surgeon (1865). Carbolic acid, mercury bichlorid, and formalin are the most effective agents employed. "Listerine" is named after Dr. Lister.

ARTIFICIAL ICE. The can system and the plate or wall system are the chief methods used in manufacturing artificial ice. In the former cans or molds filled with the water to be frozen are placed in a box or tank, and brine (or air, in a cold-air machine) circulated around them. In the latter the water to be frozen is placed in a tank through whose hollow or circular walls a continuous circulation of brine is maintained, the ice being formed on both sides of the walls, and melted off for removal by withdrawing the cold brine and circulating in its stead warm or tepid brine. In the stationary cell system, similar to the foregoing, cross walls are also provided, the ice being formed into rectangular blocks. Clear ice can most successfully be made by the de-aëration of the water to be frozen and its agitation during the freezing process.

AUTOMOBILE. A self-propelling vehicle used on highways in place of the horse-drawn carriage. First was made by Cugnot, a French surgeon (1769); fashioned from a gun carriage and a coffee boiler. Murdock, an assistant of James Watt, ran a road wagon by high-pressure, non-condensing steam (1784); Symington and Trevithick improved, until Evans, the American, drove his mud scow overland to the Delaware, taking it thence by water to the Philadelphia docks (1803). From 1820 to 1833 many steam coaches were made by W. James, J. Anderson, Walter Hancock, and Goldsworthy Gurney, all using steam, which gave way to the period of modern development about 1894. *Electric* cars have a storage battery to supply the current, a motor to convert the current into power, and a controller to regulate speed. The objection, to date, is the weight of the outfit, and the extremely small distance covered without recharging. *Gasoline* cars are the more general type, using gasoline (or petroleum spirit). Vaporized oil exploded in the cylinder gives driving power to the piston. There is a carburetor for vaporizing, and for feeding the oil to the cylinder, and a cooler which circulates water round the cylinder. Cold air is also used. The power is transmitted to a crank shaft and led off by a chain drive, or gearing, to the driving shaft, motion being communicated to the wheels by clutches and gearing. It is possible to inject the fluid directly into the cylinder without passing through the carburetor, but, being imperfectly mixed with air, it gives a slower and less complete combustion; the carburetor is the vessel in which the gasoline is vaporized and mixed with air. Engines using gasoline differ slightly from gas engines, but those using kerosene frequently vary. Great as the improvements in the gasoline engine have been, the steadily rising price of gasoline indicates that every effort will be made to find a substitute. It is probable the next important advance in the automobile engine will be one in which the use of kerosene is as practical as gasoline. This opinion is confirmed by the fact that 3 per cent. gasoline and 60 per cent. kerosene is the production per gallon of crude oil. Kerosene has 17 per cent. more heat units than gasoline, is less variable in quality, is safer to handle, and the supply exceeds the demand by millions of barrels annually. *Steam* cars are used for passengers and for freight service. The standard American boiler is a cylindrical upright shell with vertical fire tubes of copper or steel. Gasoline or mineral oil is used for fuel; water is supplied by automatic feed pumps; an automatic device cuts off the fuel supply when a certain pressure is reached. The steam is superheated, and used in double cylinder or four cylinder engines driving to the differentials on the driving axle; the trucking wagons are very heavy, up to five tons' capacity, fitted with fire tube boilers, using either coke or coal as fuel; the horizontal compound engine drives the car through gearing arranged to give two speeds. The future changes in automobiles will be mainly towards a reduction of price, without depreciating quality and class of work. The new battery of Mr. Edison, while valuable to surface car transportation, will scarcely benefit automobiles in its present form. The explosive engine, however, is open to many radical and economical innovations.

BELLS. Their connection with Oriental religion dates from antiquity. The most common, early form was four sided, of thin hammered, iron plates, riveted, and brazed or bronzed. The largest casting is the great bell of Moscow, 21 feet high, 21 feet in diameter, weighing 432,000 pounds, which was made in 1733. Bell metal is an admixture of copper and tin, with lead, zinc, steel, and of silver or gold for decorative purposes. The old idea that silver improved tone is absolutely erroneous. Bell making is "found-

ing." A brick core is covered with clay, and, by a "template," is formed to the exact shape of the interior of the bell. On this is laid a model of earth, etc., of the bell. Outside this is built a third and heavy shell, which is raised, the model taken out, the shell lowered, the space between it and the inner core being the exact shape of the bell. The molten bell metal is run in and allowed to cool. The smaller hanging bells used in dwelling houses, offices, etc., have given way to electric gongs. *Tubular bells*, 4 to 14 feet, hung on a frame and struck by hammers, have superseded carillon bells and chimes. The *electric gong* has a clapper to which is affixed a piece of soft iron. An electro-magnet is attached to the main wire so that the current attracts the piece of soft iron to the magnet, forcing the clapper to strike the bell or gong. The mair wire is connected with some form of galvanic battery. Pressing a button completes the circuit, and rings the bell.

BICYCLE. A light man-power motor vehicle of two wheels, one behind the other, connected by a frame of hollow metallic tubes and posts; fitted with a saddle. It is a development of the "Hobby Horse" of the preceding century, upon which a man sat astride and pushed at the road with his feet. Little by little the front wheel was equipped with pedals for the feet to rotate it; the wheels changed to light buggy wheels, tired with metal; wire spokes appeared; the height of the front wheel increased and the rear wheel decreased, the object being to cover greater space at each revolution of foot and wheel. Then came the sprocket gear and chain, one revolution of the foot producing several of the wheel; then the bevel gear; the high wheel vanishing, retaining the wire spokes, etc., but coming back to the original "safety" type of wheels manifested in the old "Hobby Horse," so far as size and arrangement is concerned. Those involved in its development were Baron von Draise and Dennis Johnson (1816); McMillan (1840); Galvin Dalzell; Michaux (1857); Pierre Lallement (1863); Edward Gilman (1866); and the "bicycle" of James K. Starley of England (1873). The latest innovation is the *motor* bicycle, built a trifle lower than ordinary, carrying a supply of gasoline, and having a motor placed between the wheels. A lamp heats a platinum tube to redness, producing an explosion of mixed gasoline and air, which drives a piston. A threaded nut in the handle bar controls the speed.

BOOKBINDING. The printed pages are gathered in order; the "end papers" and the "fly papers" added, and the sheets or pages sewed together. If the book is illustrated the plates are arranged prior to the sewing. Certain sections are secured by sewing to cords, tapes, or strips of vellum, the projecting ends of which are used to secure the mass of pages to the cover. After the sewing, and the arrangement of cords, etc., the head bands (which give strength to the back) are affixed, and the actual covering of the book is done by gluing or pasting the material upon the boards at the side and back. The final operation is decoration by "tooling" or "stamping." In casing, two stiff sides and a flexible back are made; the sheets are sewed and glued into the case by canvas glued fast to the back, with projecting strips for attaching to the covers. Decorations consist of ornamental textile material, or impressed patterns without color, or in one or more colors, in infinite variety.

BREWING. A process of manufacturing beer, ale, and other fermented liquors that are not distilled. It involves malting and brewing. The barley is moistened, swollen, and sprouted; then heated in a kiln to a dry, brittle condition termed "malt"; the technical terms being steeping, couching, flooring, and kiln-drying. The brewing commences with grinding or bruising the malt into "grist," to which is added water, in the malt tubs under slow heat. The infusion or "wort" is boiled with hops in the proportion of two to four bushels of malt, and two to five pounds of hops, to the barrel of beer. The cooled wort passes into vats, one part of liquid yeast to the one hundred parts of wort is added, and it is fermented six to eight days according to temperature. Carbonic gas forms freely. The liquor is run into "cleansing vats" to cool, where a second fermentation throws off the yeast remnants as scum. The liquor is drawn into casks and "matured," under varying conditions of time and temperature. *Ale* is made from pale malt and contains more alcohol through checking the fermentation. *Pale Ale* is produced from sun-dried malt at a temperature of less than 70 degrees. *Porter* is a dark, slightly bitter liquor, made from pale, dark, and black malt, mixed. *Black Beer* is a dense brewing used as medicine. *Swanky* is an obsolete, very light, almost non-intoxicating ale once widely used in England. *Lager* (stored) beer is kept cool and matured slowly for months. *Bock* is a stronger lager, made in the spring. *Mum* is an obsolete beer made from wheat, oats, malt, and, sometimes, added bran meal. Pure water is an important factor, and should contain much common salt, carbonate of lime, and sulphate of lime; organic traces being deleterious. Beer contains water, alcohol, dextrin, glycerine, glucose, several acids, oil, resin, albumen, and mineral salts.

BRICKMAKING. The clay obtained is cleared of vegetable soil, is tempered or mixed perfectly by hand, in the "pug mill," or the ring pit. Pressed bricks are tempered by hand; the clay is spaded into a pile with water thrown over it, and the next day it is worked over with a spade, cut through with a "slasher," and spaded again. The pug mill is an arrangement of knives to slice the clay, and a "pusher" to drive it again and again through certain orifices, by steam or horse power. The ring pit has a wheel moving from the outer circumference to the center, thoroughly "working" the clay. When well worked, the clay is molded, dried, and burned in a kiln for five days. Hot air and combinations of air and gas are also used. There are two brick machines,—one forcing the clay into molds; and one that sends the clay from the pug mill in a continuous oblong which is automatically cut into bricks, carried to the drying rooms, and later to the kilns. The color depends on the amount of iron in the clay; the Milwaukee brick made from clay with a small percentage of iron is of a light cream color. Buff-colored bricks are obtained by mixing ground chalk with the ferruginous clay. Ornamental bricks are colored by the use of metallic oxids, red, yellow, buff, blue, green, white, black, or brown. It is predicted that within ten years houses built of glass bricks will be plentiful in the United States.

BRUSH. An instrument, also termed broom, for sweeping or rubbing surfaces to remove dirt, or to apply paint, blacking, etc. A bunch of fibrous matter attached to a handle. Of very ancient origin and of universal use. Materials used are bristles, feathers, whalebone, rubber, hair of camel, Russian squirrel, badger, bear, goat, rattan, and also split cane, broom corn, and coir, the husk of the cocoanut, which is largely superseding hog's bristles for coarser brushes. The crude form is the paint brush with bristles bound together with twine, and a coating of glue; artist's brushes are made from Russian squirrel and camel hair, forced into a wet quill that contracts on drying and holds them fast. The cheaper scrubbing brushes simply have the bristles or fiber pushed through a hole in a piece of wood, and cemented with glue. The Woodbury process (American) trepans the back, the bristles not going quite through, rendering an extra or false back unnecessary. The well-known long-handled broom and the whisk broom are essentially American developments made from broom corn, a staple product of the Middle West. The long-handled broom of Europe was made from finely split cane, and was considered very expensive, used mainly on carpets. The American broom is within reach of all. The broom corn is run through machines which grade the fibers according to length; it is tied into bundles to bleach, or be dyed, and is secured to the handle by grouping and winding with wire by hand. Revolving brooms for street use were used in 1835, and the modern carpet sweeper is an evolution in miniature.

BUILDING. There has been a revolution in handling building material during the past few years. Labor-saving and time-saving devices have been introduced; bricks, mortar, etc., are raised by elevators instead of by hod, with derricks and hoists for the heavier bodies. About 1890 steel construction attracted attention in New York, and since then "sky-scrapers" have run riot. What is termed "mild structural steel," rolled to size specified in the form of I-beams, L's, Z's, etc., are riveted together to form a skeleton by the contractor, the cranes and hoists bringing everything to position as desired. As the building progresses the "erecting plant" goes up story by story. For the foundations and floors concrete is generally used, composed of one part cement, three parts sand, and five parts broken stone; it is used for filling in spaces between girders and pillars, and for protecting the steel construction; for which terra cotta, brick, and stone are also used. The problem of these buildings lies in the possibility of incessant vibration cutting off the rivet heads, and in the difficulty of finding by inspection the dangerous oxidation of iron when it occurs. The "Edison method" claims to build a concrete house, foundations to roof complete, in 24 hours, but practical builders believe the walls would buckle under the too rapidly imposed weight. With the decrease

in lumber and its increased cost, some substitute must be found before long, and the scientific world is looking towards bricks of glass.

BUTTON MAKING. Buttons are of three varieties; those with shanks, those with holes, and those covered with canvas and cloth, silk, etc. Introduced in the thirteenth century to replace the tags, etc., when flowing garments began to be replaced by modern types. Buttons and loops were long in use before the buttonhole appeared. Metal buttons for uniforms and trousers are of iron, brass, steel, etc., and large quantities are made in Waterbury, Conn. A fly press (a vertical iron screw having a horizontal arm with the end bent downward for a handle), or a self-acting, self-feeding machine, is used that cuts from sheet metal the disks called "blanks"; these are annealed and stamped convex; a machine cuts and bends wire for the shanks, and these are soldered. After being shaped on a lathe they are decorated and finished. Hoofs of cattle are used for horn buttons. "Composition" is made from fossil and vegetable gums mixed with feldspar, mica, carbonate of lime, and other minerals; it is run off in sheets, cooled, and then softened for cutting and stamping. Celluloid is the base of most campaign buttons. Pearl button making has increased rapidly for some years owing to the discovery of large quantities of suitable fresh water mollusks in the Mississippi river. Glass buttons are made by putting a colored glass rod into a mold holding a shank; pincers attached to the mold cutting the rod when desired. Vegetable ivory produces the "ivory" buttons, and is obtained from the corosso nut from a South American palm. It resembles ivory, and works well. The dyeing processes are complicated, and the secrets jealously guarded.

CARPETS. Woven carpets were known in the Orient while Western nations had rushes, straw, etc., to cover the floor. The first carpets of the Western nations were used as tablecloths. A carpet factory was established in France (1607), and fugitive French Protestants conveyed the industry to England (1685). In the United States carpet making began with the old rag carpet; every village had its weaver; even in 1890 there were 854 rag weavers' shops. Axminster looms were established in Philadelphia (1791); Erastus Bigelow of Boston introduced the power loom (1844) for weaving ingrain carpets, and secured a patent for a power loom with a Jacquard attachment for weaving Wilton and Brussels carpets (1850). Since 1855 Smyrna rugs and carpets have been manufactured on the power loom. Two types are produced, these being pile carpets having a surface of raised loops, cut or uncut, such as Turkish, Axminster, Wilton, moquette, tapestry-velvet, body Brussels, and tapestry Brussels; and the woven ply carpets, of which the three-ply is but little used, and the two-ply or ingrain is in general use. Indian and Persian carpets closely resemble the Turkish type. A linen or cotton chain, a linen filling, and a colored worsted yarn warp are used in making Wilton and Brussels carpets. Tapestry Brussels has a cotton chain, a linen or jute filling, a jute yarn backing, and a worsted warp of a single yarn, on which is printed the pattern in colors. Carpets are also woven in a solid color, and the pattern is printed on it afterwards. Velvet carpets contain more wool than tapestry and the face loops are cut. In moquette the back is of heavy jute and cotton with short pieces of woolen yarn continually cut and fastened to the warp thread to increase the "pile." Axminster is an imitation of Turkish and is made with a linen or hempen warp and a chenille filling. Four warp threads of wool, or three on a soft filling thread, are woven together producing the fluffy appearance. Ingrain or Kidderminster has a flat surface woven of a cotton or worsted warp and a wool filling; the pattern is the same on each side, but with colors reversed. Philadelphia has the largest ingrain factory in the world; Massachusetts and New Jersey are also important carpet centers.

CARRIAGES. It is curious to note that the history of the first wheel is absolutely lost in antiquity. At some time the rudimentary wheel appeared between the trailing poles, and has been slowly developed to its present ball bearing excellence of lightness and strength. The general use of carriages dates from the eighteenth century, but their greatest development occurred in England during the nineteenth century, when the Telford and Macadam process improved roads and made universal vehicular travel possible. Obadiah Elliott (1804) invented a vehicle swung on elliptic springs, and was awarded a gold medal by the Society of Arts; the old "C" spring was its evolution, and for absolute ease has not yet been surpassed. From that time carriages multiplied in style, the American "buggy" finding great favor in England, while the sulky is another American type of less foreign favor. In light road wagons, buckboards, surreys, and runabouts, the United States is probably superior in all vehicles except the English dog-cart and gig. In broughams and victorias the finish given to American types is admitted to be superior to any in Europe. This was proved when an Englishman, buying a carriage of Studebaker, sent to New York for varnish when his vehicle needed it. He later complained the varnish was not good; the fact being it was imported English varnish, but the English makers in London had not the hot room appliances, etc., for producing the best possible effects with their own varnish. The woods used are mainly ash, hickory, elm, poplar, cherry, Spanish cedar, and mahogany; the hubs being of elm, the spokes of hickory or white oak, with outside rims of oak or ash. The surrey is a two-seated buggy; the victoria is an open-hooded vehicle with two seats; the landau is for four passengers and may be transformed from an open to a closed carriage; the coupé is a closed vehicle for two, with a separate seat for the driver, differing from the brougham in having a round glass front instead of a flat front. The cab, omnibus, and stage coach are well-known types.

CELLULOID. Made from gun cotton, camphor, and other substances, heated and molded to shape under pressure. First made by a Mr. Parkes, of Birmingham, England, under the name of "Parksine" (1856). Independently, and without foreknowledge, invented later by J. W. Hyatt, of Newark, N. J. It has largely replaced ivory in many manufactures and is made also in imitation of tortoise shell, coral, amber, etc. It is used for making combs, piano keys, collars, handles for knives, forks, and umbrellas, and a great variety of articles. It is highly inflammable, so must not be brought in contact with great heat.

CHEESE. A milk food product made by eliminating the curd, or casein, fat, etc., from the whey, pressing, shaping, and maturing the product. Cheese is mentioned as early as 1400 B.C., and most early historians treat of it, and its manufacture, describing Roman varieties similar to Limburger and our Sage cheese varieties. There are about 150 cheeses made to-day. The *hard* cheeses are Cheddar, Cheshire, Gloucester, Wiltshire, Stilton, Dorset, Wensleydale, and Cotherston, or types made on these old time lines. The foreign hard cheeses are Gouda, Parmesan, Edam, Gorgonzola, with Roquefort a semi-soft type, the true soft cheeses being Brie, Camembert, Limburger, Neuchatel, and the cream cheeses. In the United States popular cheeses are made by grinding certain cheeses with butter, cream, etc., and selling them in jars as varied "club" cheese. There are about 3,000 cheese factories in the United States, mostly making Cheddar, and Canada has a large and growing industry, and export trade for cheese. After being made it is allowed to "ripen" in curing rooms, or in some cases in artificial caves, the "greening" of certain European cheeses being said to be due to the accident of a shepherd forgetting his piece of cheese after sheltering from a storm, and returning long after to find it much improved. Chemical action is stated to be now induced by copper wires, in the lower grades, but the pure, high class cheese is one of the most healthful products, amounting in the United States to over 300,000,000 pounds annually, mainly from New York and Wisconsin. These two states and Canada have passed laws guaranteeing the quality of cheese produced.

CLOCKS. Dating from the sundial, and the clepsydra, of the ancients, the latter being a small vase with water dropping through the lower end, somewhat as sand ran through an hourglass. In the fourteenth century Henry de Vick built the first clock recorded, for Charles V. of France; working by weights and wheels. The pendulum appeared in the seventeenth century. Clocks are run by the automatic falling of a weight, or by the uncoiling of a spring, regulated by the oscillations of a pendulum. The works consist of a "train" of wheels, each moving after the other. The axle of a wheel bears cogs on its edge. Where a weight is used, the largest wheel has the string of the weight wound around the axle, and its speed is adjusted to each of the others, the final one being connected with an escapement wheel transmitting to the pendulum the power to swing. The escapement wheel with its 30 teeth revolves once a minute; another wheel revolves once an hour and moves the minute hand; the third revolving once in twelve hours moves the hour hand. A weight governs the striking of most clocks. The minute wheel releases a catch, and the weight on the cylinder runs down a little, forcing a hammer to strike a bell. Two pieces of mechanism, a "snail" and a "rack," determine the number of strokes.

Electric clocks are impelled or governed by the current. In the first the clocks are automatically wound by an electro-magnetic attachment; in the second a primary clock is connected with a circuit of other clocks, and regulates or runs them. *Pneumatic* clocks are run by compressed air, the movement of the central clock compressing the air in tubes connected with the system, moving the hands by forcing a bellows at each dial to expand. *Astronomical* clocks are carefully and simply constructed, great care being taken to preserve them at an unvarying temperature, and to protect them from outside disturbances.

COAL. A brown or black rock, soft, brittle, or hard in variety, consisting of carbon, hydrogen, oxygen, and nitrogen. Originally vegetable matter subjected to chemical and structural changes, and great pressure; the oxygen, hydrogen, and nitrogen being gradually expelled until the carbon in increased volume remains, this making the material differences in coal, and its combustion and initial heat, according to the type of fireplace and the draught employed. Coals also contain sulphur in various forms, silica, alumina, and magnesia, the three latter tending to make it incombustible, forming the ash and the "clinkers." When it contains 90 per cent. carbon it is termed *anthracite;* when less it is termed *bituminous* or soft coal. Coals contain gases, principally carbon-dioxid, methane, and nitrogen, frequently causing great danger in the "workings." "Choke-damp" is carbon-dioxid, and "fire-damp" is methane, this being inflammable. Coal is classified into three divisions, *Lignite, Bituminous, and Anthracite. Lignite* is dark brown or black, fibrous or laminated, showing the woody tissue structure, burning poorly, with heavy smoke; *Bituminous* coal is a free burner by reason of the gases and volatile principles contained; it is black, soft, brittle, and opaque, and is used for steam raising, and household purposes, throughout the civilized world. The varieties of bituminous coal vary widely in hardness, texture, and adaptability, the extremes in most instances meeting; thus Lackawanna can be hard as Lehigh, or Lehigh can be as soft as Lackawanna, in certain divisions of either; the utility depending largely upon the type of fireplace, furnace, or grate employed, and the regulation, power, and direction of the draft. When heated it gives off the *"gas"* of commerce, and the non-volatile residue is *coke.* In good coal there is about 10 per cent. ash, and 75 to 88 per cent. carbon. The scientific subdivision of bituminous coal is widely taken as *caking* or *non-caking* varieties; the *caking* coal softens with heat, swells with the gases liberated and expanded, becoming a sticky, tarry mass, and eventually a hard coke. *Non-caking* coal burns freely without caking, air passing between the particles; an essential in stoking, or in the furnace fires, which *caking* coal clogs unless mixed with *non-caking* coal to insure perfect and speedy combustion. *Cannel* coal or *parrot* coal (from the noise it makes in burning) is compact, hard, and does not soil. It is a gas coal. *Steam* coal bridges between the true bituminous and anthracite, and in the South Wales mines is frequently found lying adjacent to the other two varieties, the same bed in one place being anthracite, in another bituminous, and in another steam coal; showing the gradual conversion into anthracite. In the United States the types are more widely separated. *Anthracite* coal contains the maximum carbon and the minimum volatile qualities. It is hard, does not soil, gives out little smoke, little flame, but great heat; North Wales and eastern Pennsylvania are the principal areas of production. The coal fields of the United States are of enormous extent, although many of them are exceedingly young geologically, and to-day the United States stands at the head of the coal producing countries, with from 350,000,000 to 400,000,000 short tons, anthracite being represented by about 75,000,000 short tons, coming from Pennsylvania. Great Britain stands second, with about 27 per cent. less product. The United States is the only country regarding its future coal supply with any confidence. It is estimated that 100 years will nearly run out the European coal fields; then will come industrial changes and also changes of population, trending to water power sites, and other sources of energy at present neglected. The coal fields of China are enormous, and will some day be a potent world factor. Coal gives off *coal tar,* which gives under fractional distillation light oil, middle oil, heavy oil, anthracene oil, and the liquid residue of the still known as *pitch.* From these distillates are made naphthalene, phenol (carbolic acid), creosote, benzine, naphtha, and a number of dyes and drugs. It is claimed that a locomotive loses 80 per cent. of the full power in coal, utilizing only 20 per cent.; that a locomotive obtains one horse power per hour from every four pounds of coal burned. Herein lies the field for improvement in utilization of combustion.

COLD STORAGE. The application of artificial ice methods to the preservation of meats, fruits, vegetables, and other perishable goods. By its use the merchant, farmer, or grower is able to hold his goods for more favorable markets, and by refrigerating cars the problem of transportation has been solved. Steamers equipped with cold storage are able to carry fresh meats and other provisions from the United States and Australia to England.

COMBS. Were originally used for adjusting the hair, and Greek and Roman types were made of boxwood; ivory came into use among the Egyptians and spread to Rome. Precious metals were used, and combs are generally found in early Anglo-Saxon graves; ritualistic directions for combing the abbot's hair had

COTTON DOCK. New Orleans.

a place in the church service, and combs are found in the tombs of the martyrs. Modern combs are made of tortoise shell, ivory, horn, wood, bone, metal, india rubber, and celluloid. The material is made into plates of a desired thickness, and then the teeth are cut. By this process the intervening substance was wasted, but, by a modern method of "parting," this wasted matter becomes teeth in another comb. Rubber combs are made by pressing the rubber into the required shape, and then vulcanizing it with sulphur. Combs with tubular teeth are also used to apply chemicals direct to the roots of the hair.

COTTON. An important vegetable fiber differing from all other fibers in a peculiar twist rendering it valuable for spinning. Its most profitable area of cultivation is between the twentieth and the thirty-fifth parallels north of the equator, or in the United States, northern Mexico, Egypt, northern Africa and Asia, southern India, and the Malay Peninsula; south of the equator it is grown satisfactorily in Brazil. It is grown mainly for the fiber surrounding its seeds, but its modern by-products of cottonseed cake for feeding cattle, cottonseed oil for commercial uses and for cooking purposes, and the fiber of the stalks, are almost as valuable, under the magic touch of modern science. The United States produces about 75 per cent. of the total world's production (as against 84 per cent. in 1898-1899); India producing nearly 13 per cent., and Egypt 10 per cent. Of the United States cotton, England takes about 50 per cent.; Germany 22 per cent.; France 11 per cent.; Italy 5 per cent., etc. The raw cotton is first cleansed from foreign substances and seeds by means of the cotton gin, which is an arrangement of saw teeth tearing the seed from the lint and carrying it away; or by the use of a roller-gin with two rollers working in different directions and not tearing the staple. It is then baled for shipment, under hydraulic pressure. At the factory the cottons are mixed to produce uniformity of yarn; the fibers are opened and picked, passing through several operations reducing it from a web, or sheet, into cotton yarn. Each step has its object: (1) to remove impurity; (2) the attenuation and strengthening of the thread; (3) correcting the errors of preceding process. The final thread is singed by passing through a gas flame to remove loose ends, and is polished by starch, beeswax, or other materials, to give a finish and to increase strength. The process of weaving into cloth does not differ from any other form of weaving.

DAMS. A dam is a barrier built across a depression to raise the level of water, or to conserve or retain water, for irrigation, hydraulic or manufacturing power, or for utility in cities, towns, etc. Dams are built of earth, stone, steel, and steel reinforced by masonry; the principle involved is that of passive strength against the maximum pressure of augmented

Photos 1, 2, 4, 5, 6 and 7 from Keystone View Company; 3 copyright by Underwood & Underwood.

GREAT INDUSTRIES—COTTON

1 Picking cotton. 2 Boll breaker. 3 Cotton bolls and blossoms. 4 Cotton "picker." 5 Card sliver. 6 Warping yarn. 7 Weaving cotton cloth.

Photos 1, 3, 5, 6, 7 from Keystone View Co.; 2, 4, 8, 9 from Ewing Galloway.

GREAT INDUSTRIES—SILK

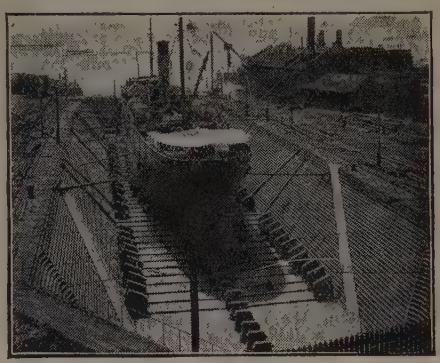
1 Silk worms feeding on mulberry leaves. 2 Mating tables for silk moths. 3 Harvesting cocoons from bamboo wattle. 4 Butterflies depositing eggs. 5 Silk cocoons. 6 Picking mulberry leaves. 7 Mulberry orchard-leaves used as food for silkworms. 8 Warping raw silk. 9 Raw silk in bales and method of skeining.

or diminishing force. This strength is directly proportioned to the height of the water behind the dam, and an important feature is the provision for passing waste or flood water, which acts in time of danger as a safety valve. This is done by flood gates, by a crest to the dam which can be dropped when desired, or by artificial waste channels leading to the spillway connected with the natural stream below. *Earth* dams generally have a heart wall, or core of clay and sand, of concrete, or of stone masonry with cement; the upper face of the dam being paved with stone, concrete, or brick, to prevent erosive action by water. *Masonry* dams are modern engineering miracles of maximum strength with minimum material and cost. The sixteenth century had the first principles, but only modern times have seen that principle brought measurably to perfection. These dams are monolithic structures, the blocks of stone not laid in regular courses, as the pressure works horizontally and also vertically towards a rupture. Portland cement binds the stones into a mass, intervening spaces being filled with concrete. *Arched* or *Curved* dams utilize the arch principle to resist a part of the thrust of water on a dam, instead of relying wholly on gravity or a section capable of resisting overturning or sliding. All other dams are simply variations of the main principle of controlling water in the most effectual, economic, and satisfactory manner, by means of *Concrete Masonry* dams; *Rock-fill* dams; *Steel; Timber; Drum;* or *Movable* dams, with variations of *needle, wicket, shutter,* or *bear-trap.*

DECORATIVE ART. The beautifying of objects primarily useful, by elements of harmony in form, surface, color, rhythm, or balance. Contrast the house interior of 50 years ago with the interior of a modern house of the corresponding type, and the lesson is learned. A chair is not less useful because it is beautiful; nor a room less habitable because it is in harmony. The era when it was a sin to be comfortable, or to smile, has passed, and the era of decorative art has dawned. To the spread of decorative art belongs the great improvement in wall papers, not only in hues but in designs; also the vastly improved woodwork, the lintels, mantels, scrolls, friezes, etc., in which effects are produced to-day by machinery at a merely nominal cost, which a hundred years ago would have been almost priceless, done by hand. Furniture has been affected in the same way; unknown woods have been introduced; old artistic styles revived; and new, common sense designs evolved. The old workers of the past were possibly crude in some things, but their coloring and their outlines have remained the standard of the world. To-day our grotesque and conventional figures blend with the one old idea of harmonizing the play of light and shade with utility, along circumstantial surroundings. It is beyond limits to even outline the tremendous scheme of color and ornament; attention can only be drawn to metal work, woodwork, ceramic art, glass work, textiles, and murals, which must cover pictures and statuary as well as merely the wall decoration. It is one of the widest fields of change and improvement the past century witnessed, and it is no exaggeration to say that only the first beam of light has yet fallen.

DENTISTRY. The science of diseases and lesions of the teeth, and the making of appliances to correct loss, deformity, injury, etc., to those organs. The first principles date back to the early Roman era, as proved by skulls recently exhumed; the first real strides being taken by Fauchard (1728) suggesting porcelain teeth, which were manufactured in France in 1774. Dr. Gardette of Philadelphia introduced the gold base (1787); gutta percha was used by Edwin Trueman, in England (1851); Goodyear discovered vulcanite and obtained a patent in England (1855) for a dental plate in which the teeth were fixed before vulcanizing. Rose pearl, a preparation of collodion, and celluloid, both fell into disuse. Porcelain, and porcelain and platinum, are used as bases for artificial dentures. A base is swaged to fit the mouth, the teeth are affixed, porcelain is molded to simulate gums, etc., and the entire piece is subjected to heat; this being the best process so far as appearance, sanitation, and durability are concerned. *Crown* or *Bridge* work is an elaboration of the prehistoric method of attaching artificial teeth by bands, springs, or artificial crowns, to the existing teeth, or their remains. Gold shell crowns for covering teeth too far gone to fill, were introduced by M. Mouton of Paris (1746). Filling with lead foil was superseded by gold, applied by the mallet process (1853). Silver alone is not used, as it is liable to oxidize, platinum is too hard, and tin in the form of foil has been used since 1783. Hence came the plastic fillings of the present day, mainly ethereal solutions of gum resins, and also the amalgams consisting of combining two or three metals with mercury as a base. Gold fillings are no longer malleted into the orifice; a cast is made, the tiny gold ingot formed, and accurately placed in the tooth, with little jarring or discomfort. Drills, burrs, scrapers worked by electricity, the use of rubber dams to exclude moisture from cavities, or to locate diseased nerves by varying degrees of heat in insulated moisture, have not only given speed to dental operations, but have increased the efficiency, and robbed the dentist's chair of half its terrors.

DIES AND DIE SINKING. The art of making and using dies to stamp coins is very ancient, coins existing at least 800 B.C. Die cutting and sinking reached its development only in the closing years of the last



DRY DOCK.

century. The punch and the press was the crude method; presses to shape and cut metal were invented by T. Griffiths of England (1841), and used in France to produce kitchen utensils. To-day dies are used in shoe factories, and in all industries where leather, paper, cloth, or metal is used. The wonderful cheapness of sheet metal products is due to dies, a single stroke accomplishing what formerly called for long and tedious detail work, and striking examples are sewing machines, bicycles, etc., whose parts are largely produced by the power press. Kitchen utensils, jewelry, boxes, pens, buttons, a thousand and one familiar things, are struck between two dies of suitable form. Dies are male and female, the male being a punch fitting accurately into the other part; the punch is a power hammer driven against a molded or a flat surface. The varying work covers: (1) cutting, in which are included punching and shearing; (2) forming, including bending, embossing, and curing; (3) drawing and redrawing, which are more than forming, the surface being tightly held while discs are changed, etc.; (4) coining and drop forging. *Blanking* dies cut flat blanks, a shear edge being given to the punch, or the die, as desired. *Compound cutting* dies are used for accurate work, as in watches, dynamos, and motors. *Needle* dies punch eyes in needles, the needle being supported while the eye is first stamped, and then slowly punched. *Bending* dies are used in armatures, switchboards, etc., where is needed metal bent at a single angle, or where a loop is desired. *Drawing* dies shape metal for thimbles, bells, metal box covers, etc. *Die Sinking* is a branch of engraving. A piece of steel forms the matrix on which a design is made in intaglio, and this is impressed on a piece of softer steel called the punch; this is hardened, and impresses the design on a third piece of steel, which is an exact reproduction of the matrix, and forms the die from which coins are stamped. The expense of engraving is heavy, the life of a die short, and so a succession of dies are made from the original, expensive matrix.

DRY DOCKS. Of two varieties, stationary and floating. A basin connected with a harbor having somewhat the shape of a ship's hull, originally made of timber, but the more modern ones are of masonry and concrete, giving greater durability, strength, and therefore safety. The ship is floated into the dock at the natural level of the high tide water, which also assists in closing the gates to the basin. In many docks the gates are controlled by hydraulic pressure. The gates being closed, the water is pumped out, leaving the hull dry, adequately supported in an upright position, and capable of being repaired, inspected,

cleansed, or painted. A floating dock is a vast structure like a box, of sectional divisions, practically consisting of a number of pontoons placed side by side. It is open at one end, and is sunk partly beneath the water to admit a floating ship, the depression being produced by the admission of water into compartments varying the center of gravity. When the ship has entered, the compartment water is pumped out by steam pumps, or the later electric motors. A floating dock with a lifting capacity of 15,000 tons consists of five pontoons or water-tight boxes; three along the bottom, and two at the side walls; the whole divided into 40 water-tight compartments, each with an inlet for water, and an outlet controlled by a steam pump. The pumping also preserves the center of gravity during the entrance of a ship, which is shored up by blocks, etc., in an upright position, so that work can be done as though on dry land. Recent dry docks are lighted, and all machinery controlled and operated, by electricity. The great dry dock "Dewey," that was towed 10,500 miles to Manila by a cable one and one half mile long, is a steel box, 500 feet long, on square tanks 18 feet deep, with side walls 64 feet high, costing $1,250,000. It was designed to give the United States equal docking facilities in Pacific waters, with those possessed by Japan, Great Britain, and other nations.

ELEVATOR. A mechanical appliance to transport passengers or freight to different levels. Usually a car, designed to run at six to eight hundred feet a second, or at any less speed desired. Safety from accident is provided for by clutches thrown into operation when the car exceeds a certain speed, and which stop the car by gripping guides at the sides of the elevator shaft; also by air cushion devices which break the shock of falling. The air cushion device works by making the lower portion of the shaft tight fitting, so that a falling car acts as a piston in a cylinder, and is brought to a slow stop by the compressed air. A car dropping 287 feet did not break eggs, or fracture the electric light bulbs, on stopping. Another device has the air cushion at the top of the shaft; the car carries two grips whose jaws loosely encircle two steel cables studded at intervals with buttons. These cables connect with a yoke carried on a piston-rod and piston working in a steel cylinder. When the car falls it closes the grips on the studded cables and liberates the piston, which, sliding down the cylinder, compresses the air and stops the car. High speed elevators are hydraulic or electric. In the former the car is operated by cables running from its top, over sheaves at the top of the shaft, and down to the machinery in the basement where the cables run round alternately fixed and revolving sheaves, the latter being attached to the piston-rod of the hydraulic cylinder. To raise the car, pressure in the cylinder forces out the piston-rod and the traveling sheaves are moved away from the fixed sheaves. The electric elevator is practically the same, substituting a motor for the engine. Modern passenger elevators range up to 26 stories. Elevators for freight simply vary in the carrying construction.

EXPLOSIVES. Gunpowder was probably the first, and its invention is credited to the Chinese; later to Roger Bacon (1249). Formed by a mechanical mixing of about 75 parts of saltpeter (potassium nitrate), 15 of charcoal, and 10 of sulphur. When exposed it absorbs the oxygen necessary for combustion from the air; when confined, from the saltpeter. Schwartz, a German monk, is said to have originated the use of large grains, increasing explosive force. Percussion caps, invented by Alex John Forsyth, a Scotch clergyman (1807). were followed by brass and copper shells of succeeding periods, Joshua Shaw being the first to patent them in the United States (1842); solid headed shells patented by Hotchkiss (1869). *Gun cotton* was discovered by Schonbein (1846); *nitroglycerin* by Sobero (1847); the former is made by dipping cotton in mixed nitric and sulphuric acids, the latter by treating glycerin with nitric and sulphuric acids. *Dynamite*, patented by Nobel (1868), is nitroglycerin absorbed by inert, infusorial earth, making it safer to handle and use. *Wood* or *white* gunpowder, invented by Schultz (1863), is granular wood treated with nitric and sulphuric acids, the grains produced being soaked in a solution of saltpeter. *Tonite* (1874-1876) is made from gun cotton and nitrate of barium. *Rackarock* (1881) is prepared from potassium chlorate and nitrobenzene. *Bellite* (1885 and 1891) is ammonium nitrate and nitrobenzene. *Melinite* (1885) is picric acid and gun cotton. *Lyddite* is believed to be substantially the same as melinite. *Cordite* (1889) is made from nitroglycerin, gun cotton, and mineral oil or jelly. *Indurite* (1893) is prepared gun cotton and nitrobenzene. *Smokeless powder* consists usually of gun cotton (nitrocellulose), or nitroglycerin, or both, made adherent by a paste of gluey compound and forced through a plate provided with small holes forming it in piths which are subdivided into grains.

FELT. Advantage is taken of the natural tendency of the fibers of hair and wool to interlace with each other, and thus felt is produced without weaving. Its introduction dates long before the Christian era. The mechanical interlacing is due to the fibers being notched or barred along the sides, all pointing from the root to the tips. The first mechanical process for its manufacture was invented by J. R. Williams, an American (1820). The wool is carded and placed in layers until the desired thickness is obtained, the outside layers being the finer in texture. The mass is placed between rollers, partly immersed in water (some rollers have steam driven through them) and is beaten, pressed, and given an oscillating movement at the same time. Dyeing and finishing complete the process. Felt hats are made from raccoon, rabbit, or beaver fur, combined with wool. Cloaks, capes, padding, carriage linings, table covers, piano hammers, etc., are made from felt; it is also used in upholstery and for floor coverings. Felted sheathing for boiler pipes is made from woolen refuse. Asphalted roofing is a coarse felt treated with pitch, coal tar, or asphalt, and a better quality is rendered inodorous for lining walls and floors. The secret of manufacturing is closely guarded, and there appear to be no hand or text books on the industry.

FILE. A steel instrument with sharp ridges or teeth, used for abrading or cutting down other bodies. One of the earliest tools. It is of hardened steel, tapering to an end inserted in a wooden handle, the rest of its length covered with teeth. A *rasp* is a file with coarse single teeth made by a punch, instead of long file teeth cut across by blows of a chisel. Files are flat, round, square, three sided, and vary from an inch to a yard long. A *taper* file has a point reduced in width; a *blunt* file keeps its sectional shape throughout. The teeth of a file are single cut, double cut, and rasp cut, and are graded as rough, coarse, bastard, second cut, smooth, and dead cut. Formerly all files were handmade from a steel bar forged to shape, ground smooth, and cut by hand tools; the teeth being cut one by one with a chisel struck by a hammer, each tooth a burr or ridge of metal, raised only on one side of the cut, the same distance apart and of uniform depth. They were tempered by heating, plunging in cold water, scoured in sand, washed with limewater, dried, oiled, and tested. Machine made files have the steel bars forged by hand, or machines, and are then ground smooth, run through the cutting machines, which are a moving table carrying the blanks progressively under the trip hammer arrangement of cutting chisels. They are then tempered and oiled.

FIRE EXTINGUISHERS. A device to smother flame, which can be placed in buildings or on ships, and moved as desired, to liberate automatically, or otherwise, water or steam charged with gases. Introduced in England (1816). Of varied types, generally a receptacle of water with two compartments, one containing some carbonate, and the other some acid. When used, the two ingredients are mixed in the water by inverting, fracturing a section, or otherwise, and carbon dioxid is formed, which smothers flame. Chemical engines have large cylinders on wheels; on ships pipes are run to desired sections; chemicals forming dioxid have steam passed over or through them in action, and the gas is carried by the steam to the flame. Automatic extinguishers released by heat are used on ceilings; hand bombs are filled with chemicals, or carbonic acid gas under great pressure, to be used at the outbreak of fire.

FIREPROOFING. A scientific attempt to obtain a building non-inflammable and not seriously affected by fire. The first fireproof buildings were of a public character, where the architect was hampered neither by cash nor space. Thick walls, vaulted floor construction, and stone stairways demanded much area and minimum height. With the introduction of iron into buildings came the first real demand for fireproofing. The floor was the first essential in 1801, when Phillips & Lee, of England, erected a cotton mill with cast-iron beams and brick arches sprung between them. With the introduction of the rolled I-beam into America (1853) it was possible to spring a single brick arch, bringing the floor weight down to 75 pounds per square foot; then came solid masonry walls inclosing a frame work of cast-iron columns carrying rolled iron floor beams, with brick arches sprung between them. The columns were left bare (1870) now regarded as poor construction. Then came the hollow tile arch used in the

New York post office (1872), and for ten years nothing advanced. A nine-inch flat tile arch, where each tile had one horizontal and one vertical web, and a special flat tile used instead of plaster filling to protect the lower flanges of the I-beams, appeared in 1883. Then the "sky-scraper" era dawned in Chicago, to spread through the United States, and to prove one of the strongest factors in developing fireproofing. The total height is supported by steel work, the outer walls being self-supporting. It is structurally independent of floors, etc. It is incombustible, but not fireproof, as a hot fire will buckle, expand, and twist the iron. Therefore the steel frame must be protected. Fireproof floors, partitions, roof, ceilings, etc., provide for the interior, and arches of hollow tile, concrete, or other material are used, these covering the steel, and also calculated to support the floor loads. The columns are also protected against destructive heat. Fireproof doors and shutters protect against the admission of fire from outside, and the final step is the essential, always at command, equipment to fight any fire occurring. Recent fires in fireproof buildings may be said to have indorsed the construction, but have also shown many weak points. In hotels where the question of safety to the individual is paramount, the danger is much more from smoke than from actual fire.

FLOUR. When the grain is not specifically named, all "flour" is the ground and bolted substance of wheat. This grain is the more valuable for making bread because in the crude gluten of the kernel is gliadin, a highly tenacious substance enabling the flour to hold carbonic acid gas, introduced in the form of yeast or baking powder, thus making the bread "light." The first successful steam flour mill was in London (1784). Where millstones are used they have sharp-edged grooves, the cleansed grain being fed, by funnel-shaped boxes termed "hoppers," through a hole in the upper millstone, gradually falling between them to be ground. Air currents keep the stones from overheating and also carry away the flour. It passes to the dressing machine, a cylinder held at 45 degrees, of extremely fine silk mesh at the upper end, gradually becoming coarser, thus separating the flour into different qualities, ready for packing. In the more modern mills iron or porcelain rollers are used instead of stones, the grain being winnowed between rollings, and the rollers must be kept cool or the flour will be dark and have a musty odor. A wheat kernel has a central core of starchy cells, surrounded by gluten cells called middlings, covered by the fibrous and indigestible husk, the middlings being the valuable bread factor. There are two machines for purifying the middlings, the "gravity," which passes it through a current of air blowing the bran away, and the "sieve," which is oscillated in an air current, also removing the bran. *Self-raising* flour is flour mixed with some leavening agent, such as baking powder. A new method of preserving flour has been successfully adopted in England. By hydraulic pressure it is squeezed into bricks, all forms of larval life destroyed, the flour preserved from the ravages of insects, and from mold. 300 pounds of compressed flour occupy the space of 100 pounds in the ordinary state.

FORESTRY. The conservation of forest products; *arboriculture* being the care of the individual tree. The uses of a forest are to supply timber, fuel, etc.; to offer protection against winds; to conserve moisture, checking its loss by seepage and evaporation. In a treeless country great swamps and deep, spongy soil act as reservoirs, delivering the water slowly, but in the thinner soiled and the mountain regions forests are absolutely necessary, if the streams and rivers are not to be mere trickles in the summer and raging, destructive torrents in the spring. The growing scarcity of forests was felt in England in the sixteenth century, and scientific cutting and re-planting began. In France, Germany, Belgium, and other parts of Europe old forests have been cared for, new ones laid out, denuded areas reforested, and government schools maintained to educate skilled foresters as an important national industry. For a long time in the United States the forest wealth appeared so vast that repressive and protective measures seemed unnecessary, until forced by the wasteful lumbering methods, and the destructive forest fires due to carelessness. Some idea of the lumber demands of the United States may be formed from the fact that, annually, the sawed lumber is estimated at 35,000,000,000 feet, not including 12,000,000,000 feet of shingles, 23,000,000 railway ties, or 1,000,000 telegraph and telephone poles, or the wood to produce 7,000,000 bushels of charcoal and 500,000 cords of hemlock bark for tanning purposes. Extensive reservations have been made about the watersheds and sources of great rivers, and in 1899 there were 36 reservations embracing more than 46,000,000 acres of forest lands. There are also a number of State reserves preventing the too rapid escape of water in floods, and avoiding the succeeding scanty water supply for irrigation and other uses. Forests are of two kinds, pure and mixed; the pure species run to pines, spruce, silver fir, Douglas fir, beech and maple, and the mixed woods do best with larch, birch, poplar, ash, oak, chestnut, and walnut. Reforestation is achieved by young trees obtained by seeding in nurseries, and raising them large enough to set out, and by hand-seeding the desired area. It has been shown that where land is not too valuable forests can be made to pay four per cent. and over, and many large owners have secured the aid of government experts to plan their management. Forestry, properly applied, is the study of the forest as a living organism, the life of the individual tree as a unit of the vast assemblage, and the best means of caring for and preserving the whole. *Arboriculture* is a term applied to the scientific cultivation and care of trees, now developing into a profession. Numbers of young men have taken up the study under the Forestry Department at Washington, D. C., along the lines already founded in Europe. Trees are inspected, diagnosed for ailments as though human individuals and treated accordingly. Elm trees suffer from a beetle burrowing under the outer bark, and by shaving off this bark during the fall, the third bark automatically replaces the second bark, forces itself to the front, and the tree is saved. Where wind or strain of branches has produced fissures into which wet has seeped, the decayed parts are cut away, the sound wood dressed with grafting oil, a shield of soft plaster imposed, and an outer shield of tin. Properly trimmed the bark will soon grow over the casing. In one case a tree was being "strangled," it was not doing well, and examination revealed an old wire circling it, buried two inches deep; when removed the tree revived. Old hammock hooks, nails, axe heads, etc., are all swallowed by the spreading bark, and all affect the trees. The modern student of arboriculture unhesitatingly makes his diagnosis, and gives treatment, saving countless thousands of handsome, valuable trees.

FUR. The principal fur-bearing animals are the sable, seal, ermine, marten, silver and red fox, sea otter, beaver, wolf, bear, mink, lynx, badger, raccoon, rabbit, squirrel, opossum, hare, muskrat, and cat, all found in North America, the sable principally in Russia and Siberia. Chinchilla and coypu (furnishing nutria fur) come from South America, monkey from Africa, and lamb from Persia. The chief source is the Hudson Bay country, which was opened in 1670 by the Hudson Bay Company for fur trading. Commercially furs are known as felted or dressed; felted furs are used for hats, fabrics, etc., for which the soft short hair next to the skin is used; the longer outer hair being cut or pulled out; a special machine being used for removing the soft fur of the beaver; dressed furs are those made into muffs, boas, hats, capes, trimmings, and carriage robes, by the furrier. The pelt is salted and dried by the hunter, and the furrier steeps it in a mixture of bran, salt, and alum, to remove grease from pelt. To prevent oiliness of the fur it is given a bath of soda and soap; the alum producing a tanned quality like kid leather. The Chinese used furs as clothing 2,500 years ago. At one time beaver skins were used in New Amsterdam in place of currency.

GAS. Murdoch of Redruth, Cornwall, England, developed gas for illuminating purposes, erecting a plant and using it in his house and factory (1792). The first gas company was the National Light and Heat Company of London (1804); the first street lighted was Pall Mall (1807); other places rapidly following. David Melville, of Newport, R. I., used gas (1805-1806); Philadelphia lighted its streets (1815); Boston (1822), and New York (1825). Coal is heated in retorts; the heavy gas driven off passes, by a pipe termed an hydraulic main, through curved pipes or condensers, in which process coal tar and ammoniacal liquor condense and fall into a well. The gas passes to purifiers, over slaked lime, which takes up sulphureted hydrogen and carbonic acid; it is then headed downward to the gas holder, a large tank whose base rests in water, and from which the gas is distributed to the consumers. The by-products, to-day, are stated to be much more valuable than the gas obtained, and include coke, ammonia, anilin, phenol, or carbolic acid, naphthalene dyes, various artificial drugs, and basic perfumes. *Acetylene* gas is a compound of two atoms of carbon and two of hydrogen; discovered by Edmond Davy (1836). Its modern method of preparation from calcium carbid was discovered by Thomas L. Willson, a Canadian, in 1893. Calcium carbid is formed by exposing a mixture of lime and carbon to the action of an

electric arc. Calcium carbid treated with water gives off acetylene gas, which burns with a dazzling white light; used in isolated places remote from electric or gas lights. *Water* gas is made by decomposing water as steam; its hydrogen is mixed with a heavier carbon gas derived from oil, and the mixture made stable by subjecting it to a high temperature. Its cheapness of production is its chief recommendation; apparently now offset by its lack of by-products. Ibbetson acted on Fontana's discovery (1824) and developed it; first United States experiment tried at Girard House, Philadelphia (1858); process revolutionized by Lowe (1875), who received the Franklin gold medal of honor (1886). *Welsbach burner* improves the quality of gas light and saves combustion. Invented by Carl Auer von Welsbach (1885); being an application of the *Drummond light;* a mantle of fabric is dipped in refractory earth salts; the flame from mixed gas and air heats the mantle, which glows with brilliant incandescence of pure white quality. *Drummond light* or *Lime light* is a piece of quicklime subjected to the heat from an oxyhydrogen blowpipe, emitting an intensely brilliant light. Discovered by Lieutenant Drummond of England (1826). *Pintsch* gas is made from oil and stored in a highly compressed state in cylinders for ease of transportation. Its chief use is for lighting railway cars. It has recently been demonstrated that the modern gas engine achieves a thermal efficiency of 30 in a possible 35, and is therefore an almost perfect machine; experiments are now directed to radical changes in method of operation rather than to improving the machine.

GLASS. A combination of silica (sand), soda ash, and lime; or silica, pearl ash, and lead, fused. In a molten condition it can be formed into any shape by casting, rolling, blowing, pressing, drawing, spinning, or welding; the principal methods being casting, blowing, and pressing. Soda, lime, and sand combine for window glass, and soda, lime, and potash for plate glass; the potash hardening and the lime toughening the product. There has been little change in the furnace, consisting of eight to twelve crucibles capable of sustaining a heat of 20,000 degrees Fahrenheit. Some few factories have installed the continuous tank, gas-heated furnace. Window and plate glass, bottles, and jars are the principal branches of product. In making window glass the molten mass flows into the refining compartment under a higher temperature until the liquid is clear; in the gathering compartment it is thickened by a lower temperature for the gatherer, who is aided by small blast furnaces known as "glory holes," each with several openings into the flames, to finish his piece of work. Protected by a mask held in his teeth he dips the long iron blower pipe again and again into the liquid until he has attached a lump weighing 20 to 40 pounds. It is revolved in the pot to even it, and in an iron mold to make it pear-shaped. The gatherer then passes it to the blower, who makes a great glass bubble, which he keeps constantly swinging and rotating, and being blown into, until a five-foot long cylinder is evolved. Much of this work is now done by machinery. The lower end is broken in the furnace and the hole enlarged. The cylinder is detached by a thread of hot glass to which is applied a cold iron, and a diamond or red hot iron is used to split it lengthwise. The flattener warms the tube in an oven, regulated heat causing it to open automatically; it is slowly cooled and then cut. Colored glass is made by adding dyes, usually metal oxids, to the fluid glass. *Watch crystals* are circles cut from the blown glass spheres, the edges being curved. *Crown* glass is almost obsolete and was made by flattening the sphere. *Flint* glass should contain lead, but the term is applied to numberless forms exclusive of windowpanes and dark bottles. *Plate* glass is molten glass poured on a casting table and rolled to a uniform thickness. *Ground* glass is made by slightly roughening the surface. *Cathedral, opalescent, art, ribbed,* and *wire* glass are largely manufactured in the United States, the latter giving protection against storm, stone, and fire risks. *Cut* glass is blown and then ground into brilliant faces or facets; grindstones moistened by wet sand cut the rough outline to be finished by emery wheels and putty powder. *Optical* glass is cut, ground, and polished from a solid lump, mostly made in France and Germany; the Alvan Clark factory at Cambridge, Mass., being world famous for fine lenses polished in this country. *Bottles* and *fruit jars* are machine-made, except the narrow necked bottles. *Pressed* glassware is often molten glass poured into a mold, the object being shaped by a lever. *Glass bricks* are being introduced in France as hygienic and easy to make; they are used in walls, pavements, floorings of bath rooms and hospitals, laboratories, etc., as they are free from chemical taint, moisture, or dust. They are attractive.

GLUCOSE. The commercial use of this term is restricted to the sugar syrup resulting from treating starch with sulphuric acid. Water acidulated with one per cent. of sulphuric acid is boiled; a hot mixture of starch and water is allowed to flow into it and is boiled for about 30 minutes. Chalk is then added to neutralize the acid and settles as sulphate of lime. The clear liquid is drawn off and is used as syrup, or evaporated to grape sugar. As such it is only one half as sweet as cane sugar. Glucose syrup is used as table syrup, in brewing, in the manufacture of cheap candy, and for bee food.

GYROSCOPE. Originally it was an instrument exhibiting various properties of rotation, first described by Bohnenberger (1817); the inventor is not known. Its principle is that if a mass be set in rotation about its principal axis of inertia of greatest or least moment, it will continue revolving about it, and, unless force is applied, the direction of the axis will be unchanged. It has made possible the monorail, which has so long puzzled inventors, the spinning gyroscope within the car preserving the equilibrium when running straight, or automatically when rounding curves; a simple illustration is a spinning top placed at an angle of 45 degrees to the floor, which will rise upright on the point of equal friction. As the car nears the curve its centrifugal action tends to throw it outward, but by a simple application of the top idea, the spinning gyroscope forces the car back to its level. There have already been used cars 40 feet long, 10 wide, 13 deep, carrying 15 tons of freight or passengers, and weighing 22 tons. The two gyroscopes were three feet six inches in diameter, weighed one and a third tons, and made 3,000 revolutions a minute. The gyroscope has been applied to steering torpedoes, stabilizing ships, in addition to supporting a train on a single rail, and has been suggested as a means of balancing an aeroplane. Its principle has also been applied to an instrument devised to displace the mariner's compass.

HEAT and **VENTILATION.** Twin necessities in sanitation and engineering in buildings. Artificial heat brings a demand for ventilation. Where natural heat exists ventilation is effected by loosely constructed buildings specially designed to admit air, reinforced by the more open life led by the average individual. In colder latitudes heating becomes necessary, but without corresponding ventilation proves an unmixed evil. Heating is to produce an even, moderate temperature; ventilation is to secure a constant supply of fresh air to displace the air swiftly polluted by man, machinery, fabrics, etc. The English standard of moderate heat is 60 Fahrenheit, in the United States 70 Fahrenheit, the difference being due to the more humid and more uniform climate of England. Fuel is generally used for heating; coal and wood, some little gas and oil, with heated air, steam or hot water circulated from main centers in which fuel has generated the initial heat. Heat is communicated by direct or indirect radiation. Direct when obtained from stoves, fireplaces, furnaces, or when hot water, air, or steam is conveyed to radiators by pipes. Indirect when air is heated, passed over some centrally heated surface, and then forced into the rooms, etc., of the buildings. Direct radiation simply heats the air already in the room; indirect radiation brings in new air, previously heated,—thus being a means of ventilation as well as a medium of heating. Fireplaces heat by the direct method, the heat passing from the center of combustion in straight lines until deflected; thus an open fire may warm one side of a man while the other is still cold, until the entire air in the room has been warmed. Much heat passes up the chimney. With stoves standing out in rooms much indirect heating also obtains by air passing over the heated surfaces. Up to 30 years ago most of the heating of the United States houses was by heated air from a furnace; fuel produced the heat, fresh air was automatically supplied from out of doors, passed into the furnace, and so through the flues to the "registers," or gratings, in the floor or walls. Then heating by hot water was introduced, and practically supplanted the old furnace in factories, apartments, and large dwellings, churches, etc. The hot water heating system was introduced into England in 1816 by the Marquis de Chabonne, and was in use in Canada long before the United States fell into line. Benjamin Franklin invented a cast-iron open heater projecting into the chamber, radiating heat from back, sides, and top, as well as the front (1744); the cast-iron box stove appeared (1752); the first base-burner (1830) marked the beginning of the steady advance to the present perfection. Franklin (1744) probably introduced the hot-air furnace to supply pure heated air to rooms, and early in the following century this was

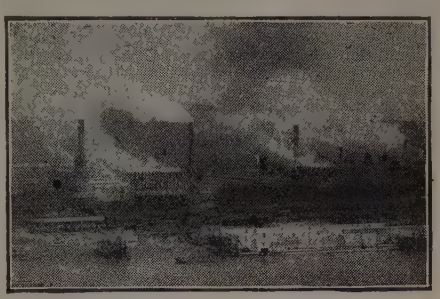
developed, the first furnace in New England being at Worcester, Mass. (1835). The method of heating by hot water was known to the Romans, but with the fall of Rome became a lost art. The open fireplaces are attractive, cozy, and cheerful, but only produce 10 to 25 per cent. of heat from a given combustion; they induce dangerous draughts by drawing air from windows, doors, etc., to the chimney; the stove radiates heat but exhausts moisture in the atmosphere, and does not change the local air; furnaces bring fresh air but it is necessarily dry, and with the shutting off the heat in a sufficiently warm room, ceases also the supplying of fresh air. Water and steam radiate heat, bringing no change of air, no moisture. Gas heating must be closely watched because of the minute unconsumed particles of gas which escape into the atmosphere to join with the escaped gases deleterious to human health. Heating by gas is less expensive than by electricity, but gas, at $1.00 per 1,000 feet, makes it cost 5 to 12 times as much as heating by coal. *Ventilation* considered apart from heat is a matter greatly misunderstood. To open a window only at the bottom, and on one side of the room is simply to pack the lighter, heated, impure air up to the ceiling by the influx of heavier, purer, colder air; windows should be opened top and bottom, and where possible on opposite sides of the room. The drawback to relying on window ventilation is that in cold weather it is frequently ineffectively done. It also has no effect on the quality of air introduced, giving no purer air than the surrounding atmosphere. Therefore ventilation should be made a vital force in modern buildings. Normal air contains 20.9 oxygen, 79 hydrogen and argon, and 0.1 per cent. of other substances including carbonic acid; after passing through the lungs there is 16 oxygen, 79.5 hydrogen, and 4.4 carbonic acid. Diminished oxygen lowers the vital principle in the air supply rendering serious disturbances possible, and the burning of gas, oil, and many other illuminants also decreases the oxygen. Each person in a room should receive at least 30 cubic feet of fresh air per minute.

CASTING PIG IRON.

For the removal of foul air there are used exhaust fans, blowers, propellers, and pumps placed in air-ducts, either forcing or creating vacuums. In several up-to-date factories the air is now automatically changed every three minutes.

INK. Any colored fluid used in writing or printing. Of great antiquity, generally of ivory black, lampblack, or sulphate of iron mixed with gall products. The liquid of the cuttlefish is reported by Pliny and Cicero, and the inks of the ancients were of red, purple, green, gold, and silver. Up to twenty years ago writing ink was made from sulphate of iron, gum, and water; to-day it is more largely an anilin product. A fountain pen ink is made from nigrosin, an anilin product. Red and other colored inks are obtained by dissolving the dye in alcohol, adding distilled water, and heating until the alcohol passes off, adding a small amount of dissolved gum arabic to give body. *Copying* ink has dextrin, or gum arabic, in quantity added to ordinary ink; and *indelible* inks contain India ink. Many fluids form *colorless* or *secret* inks which become legible under heat, or chemicals. *Ink powders* are dry ink. *Printing* ink is a pigment of lampblack mixed with linseed oil or turpentine; other pigments being used for other colors. Ink should distribute freely, dry quickly, and be proof against time or chemical reagents.

IRON. The most common ore of iron is the oxid known as hematite. The iron is reduced to a metallic state by the addition of carbon, and exposure to great heat, which drives off the oxygen in the form of carbon dioxid; the metallic iron melting, and being drawn off into troughs forming it into masses of pig iron. At first charcoal was used for carbon, and the first great advance was the use of the forced draught invented by Lord Dudley (1621). Coke was used by Darby (1750) in place of coal; puddling and rolling, which changes cast iron to wrought iron, was introduced by Henry Cort of England (1783-1784) and also the reverberatory furnace with concave bottom to receive the iron from the smelter during the process. Neilson of Glasgow devised the hot air blast (1828), reducing the cost of smelting. Pig iron cannot be rolled or hammered until it has been remelted and the impurities of carbon, silica, etc., removed; the wrought-iron res-



STEEL MILL. Pennsylvania.

idue obtained can be rolled or hammered. *Galvanized* iron has undergone no change in process since Crawfurd (1837) demonstrated how to melt zinc, previously coated with dry sal ammoniac, and then plunge the iron into the bath, guiding it by submerged rollers. *Bessemer Steel* is iron and carbon, standing midway between cast iron, which contains more carbon, and wrought iron, containing no carbon. Steel is made by abstracting only a part of the carbon from cast iron, but abstracting all impurities. The discoveries of Henry Bessemer of England (1855) rank as the most important in metallurgy. The converter is bottle shaped, 15 feet high, 9 feet in diameter, made of iron lined with protecting material; it has a slanting neck with an opening at one side, and holds 8 to 10 tons of melted metal; it is emptied by turning upon trunnions by gear wheels. Through openings at the bottom and nozzles, or air pipes, streams of air are injected into the red metal to burn out the carbon and silicon, then ferromanganese or spiegeleisen is added to remove the sulphur and iron oxid, and the fluid mass is ready for casting. The Bessemer process cheapens the cost of all manufactures of steel. *Open Hearth Steel* takes several hours to make; Bessemer only fifteen minutes, but the Open Hearth process produces a finer, more uniform quality, and is recognized as the best steel made. Cast iron is melted with wrought iron, iron sponge, iron oxid, or scrap steel, in a reverberatory furnace heated with gases, ferromanganese or spiegeleisen being added at the close of the process. The best known process is the Siemens-Martin. *Armor Plate* is made by three processes: (1) enormous rolls formed direct from huge ingots; (2) by hammering steel into plate form by steam hammers weighing 125 tons; or (3) by hydraulic press forges squeezing the iron into shape under 14,000 tons' pressure. The latter process makes the Harveyized steel armor plate for United States ships. In shaping, there are used planers and rotary saws to trim metal weighing 125 tons. Cementation and hardening by the "Harvey" process (1888-1891) consists of imbedding the face of the plate in carbon; protecting the back and sides with sand, heating nearly to the melting point of cast iron, thus hardening the surface. One of the most recent valuable additions to handling iron is the clearing away of tangled iron wreckage, and of cutting and brazing all commercial work by the *oxyhydric* process. It is based on the chemical attraction between iron and oxygen which makes iron burn freely in an oxygen atmosphere. Two nozzles, terminating in a single nozzle, deliver mixed oxygen and hydrogen to preheat the metal to any desired temperature, generally 1,300 to 1,500 degrees Fahrenheit; this being attained, without movement or delay, a stream of pure oxygen is directed, acting as a cutting tool oxidizing without melting, the oxids formed being blown away by the force of the blast. Four feet of solid metal can be cut in four per cent. of the time hitherto employed. A

circular outline was made on 9-inch chrome nickel steel, and the linear foot speed of the cut was two and a quarter seconds. The apparatus consists of two steel bottles containing oxygen and hydrogen, the pressure gauges, mixing chamber, nozzles, and armored tubing to carry the gas. Bottle pressure is 1,500 to 2,000 pounds per square inch. With all tremendous modern improvements it remains a fact that the historic Damascus steel, in the sword blades of that period, has not yet been equaled as an artistic product.

LACE. An ornamental fabric of linen, cotton, or silk threads, made by hand or machinery, with a vast distinction between the two products. The earliest mention of lace is in the fifteenth century, a gradual evolution from the much older art of embroidery. Handmade lace is of two kinds, point lace, which is made with a needle, and pillow lace, made with bobbins on a pillow. The machine lace gives a more or less close imitation of each variety. In point lace a thread is stitched along the outline of a pattern on paper, parchment, or cloth, and the intervening space is covered or connected with intervening stitches, the operation being a species of team work; the design is also pricked out on paper from a drawing. Pillow lace has the paper pattern attached to the pillow, pins are stuck at regular intervals, and the threads of the bobbins are plaited around them, forming the network arrangement always seen in pillow lace. Many patterns are made in strips, and so deftly united that detection is almost impossible. One reason advanced for the sustained high price of old laces is that they were made by "hereditary fingers," the result of several generations of exclusive lace workers; the French Revolution and several wars decimated the lace workers, diverted them from their craft to coarser work, and this, with the loss of most of the old established "patterns," makes the lace of the old régime unique, always distinguishable from the best of the modern product, and priced accordingly. The lace machine is complicated, and while adequately reproducing the patterns it curiously lacks the individuality and personality found in the older handmade lace. Irish lace has for some time had a vogue, but is too coarse in pattern and texture to be rated with Honiton, Duchess, Valenciennes, etc.

LEATHER. The skins of animals of which the texture has been made permanent. Skins are of two parts,—the outer, on which the hair grows, and the inner true skin, or corium, of gelatinous fibers, which under treatment, is the basis of leather. In tanning the gelatin is combined with tannic acid, and by a later process with chromium salts; in "tawing" it is united with mineral salts; and in "shamoying" it is combined with fatty substances. At the tanneries the condition of the hides causes the preliminary process to differ slightly, but skins are soaked and the flesh scraped from them; hung in heated rooms to loosen the hair for detaching, in making sole leather, but for dressed leather the roots are dressed with milk of lime. After the hair is removed the skins are placed in a decoction of pigeon or dog dung and water, called "bating," which makes them soft and pliant, and are then tanned by placing them in a pit between layers of oak bark, or other materials, and plenty of water. This process is hastened in various ways, many other ingredients are now used, the chrome process saving millions of trees annually; it was invented commercially by Augustus Schultz (1884), and only takes a few hours to cure a skin. Tawing is the use of antiseptic dressing to prevent decay, and shamoying is cleansing skins with lime, dressing with bran to remove the lime, and, while wet, they are oiled with fish, seal, or whale oil, to make them pliable. The most costly is piano leather, made principally from the skin of the American gray deer found near the Great Lakes, a German family holding the secret of its process. It is used exclusively for the piano hammers of the highest grade instruments. Leather made by the North American Indians has frequently been declared equal to the best modern production, and the Kaffirs of South Africa excel in curing skins so that water does not make them hard, but leaves even horsehide as soft as chamois leather. They clear the skin of flesh and fat by bundles of mimosa thorns arranged like toothpicks, and then work in a little grease and punk from the guarri-wood tree. Relays of six men keep the skin constantly kneaded over their knees and elbows for twenty-four hours; the skin is then stretched to cool, is again worked for six hours, cooled, and is ready for use. Chinese leathers 4,000 years old are soft and pliable as new. Varieties of leather are: Morocco, made from goatskins with sheepskins used as imitations, dyed on the outside grain and having a rough granulated surface given by contact with engraved boxwood balls; Russia, with its pleasant smell of the birch bark used in tanning; Japanese varieties in patent or enamel leather, prepared by coating the flesh side of skins with lampblack and linseed oil, then varnished with linseed oil, Prussian blue, and turpentine; the leather is scraped with pumice stone and dried in a moderate heat for three days, the process being completed by ten hours' exposure to the sun. Better patent leather is now made from the chrome process. Skins used in leather are those of the cow, ox, calf, buffalo, horse, sheep, lamb, goat, kid, deer, dog, seal, hog, walrus, kangaroo, and alligator. Walrus hides are used for buffing wheels; hogskin for saddles, etc.; dogskin for gloves, and cowhide

ELECTRIC LOCOMOTIVE. N. Y., N. H. & H. R. R.

for boots and shoes. Scraps are treated with fluids to form a paste that is pressed into molds for combs, buttons, etc.

LITHOGRAPHY. The art of surface printing from stone or metal. A greasy ink is used to make a reverse drawing on what is known as a "lithographic stone," a variety of porous calcium carbonate. When the design is finished the stone is transferred to the flat bed-press, and a water roller goes over the entire stone before ink rollers are applied. Otherwise it is the usual form of printing. The water is rejected by the ink, but imparts a desirable finish to the stone where there is no design. The moist surface repels the ink while the greasy design takes it readily. Smooth stones are used for patches of solid color, but if varied tones are needed, it is roughened; light and dark tints being controlled by the use of a grease pencil on the tiny, roughened points. Zinc and aluminium have been successful substitutes for the lithographic stone, which is heavy and expensive, zinc being limited to the coarser type of work. An aluminium rotary press, printing one side of the paper from a sheet of metal bent round the cylinder, is rapidly superseding the flat bed-press. *Chromolithography*, or color printing, is done by transferring to the stone a tracing of the artist's picture, giving the outline and form of all shadows and distinct patches of color. From this many proofs are pulled on a coated transfer paper; as many proofs as there are colors required are grained, and each color is drawn on a separate proof, great care being taken to represent exactly the amount of each color in the original, so that all the printings together shall reproduce the original. *Photolithography* is printing pictures from stones on which line or stipple drawings have been produced by photography.

LOCOMOTIVE. An engine and boiler mounted on wheels, capable of self-propulsion along a track, specifically a railway engine. The first one was for use on roads, the prepared iron way coming later. The gradual steps progressing to the modern engine are fairly well grasped, or may be found in detail in scientific handbooks. The developments between 1890 and 1900 were stupendous, the weight on the drivers increasing from a maximum of 65,000 pounds to 105,000 pounds in passenger engines, and as high as 135,000 pounds in the ten wheel type. The heating surface has increased from 2,200 to 3,000 square feet, and the grate area from 30 to 36 square feet. The result has been greatly increased speed, attaining 105.75 miles an hour for a space of seven miles, and the Empire State Express drew six cars, weighing 261 tons, seven miles at 103.35 miles per hour, in a total run of 80 miles averaging 67.60 miles per hour. This is, possibly, the highest horse power developed in the passenger service. In general the move has been to larger locomotives. Then electricity appeared as a power factor. The New York Central Railway followed the lead of the Baltimore & Ohio Railway, and installed electricity as a

power from High Bridge to the metropolitan terminus, to obviate smoke, etc., in the unavoidable tunnels and it has proved so satisfactory that many regard it as the beginning of the end of steam power on railways. This year a large 175-ton freight locomotive has been completed for the New York, New Haven & Hartford Railroad, to run by electricity and test thoroughly the advantages of electrically handled freight, and also heavy passenger traffic. The motors are placed above the axles, raising the center of gravity and reducing shock to roadbed and strains to track. It is mounted on two trucks, one pivoted on a center pin, the other having a lateral movement as well as a pivotal movement, permitting it to negotiate all curves. Four 350 horse power single phase motors are used, operated either by the 11,000 volt alternating current, or the 600 volt direct current. Flexible connection between the power and the wheels is established by gearing the motor to a quill on the axle, which is provided with driving arms projecting between spokes of the wheel; these arms being connected with coil springs which absorb shocks and strains of transmission, and equalize the gears. It has a guaranteed hauling capacity of 2,000 tons and a guaranteed speed of 45 miles an hour with a full load, which means from 75 to 100 loaded freight cars. The supremacy of the old style steam engine is seriously threatened by the low pressure turbine as demonstrated at the New York subway power station, where an increase of 30 per cent. of total horse power has been effected, at the same time gaining an increased economy of 25 to 35 per cent. The old high pressure exhaust was extremely wasteful, and the invention of the compound engine logical. Then followed triple and quadruple engines, the limit of expansion being reached when the low pressure cylinder became too big for practical purposes. There the turbine comes in. The reciprocating engine working on the higher ranges of pressure, and the turbine working on the lower ranges, are the complements, the one of the other, and when acting in combination form an ideally economic arrangement. The range of application is very wide, and there will be saved an enormous amount of heat and power now lost in reversing rolling engines, winding engines, and in power houses of industrial establishments, where it will be possible to run an addition to the works on the power recovered between cylinder and condenser. The largest steamships in the world, now under construction, will embody the same combination in their engine rooms.

MOUNTAIN LOGGING.

LUMBERING. Trees are felled by sawing part through, and then chopping in the direction the tree is desired to fall; it is trimmed of branches and the trunk cut into lengths by crosscut saws. Trees remote from waterways are cut into logs and drawn to the mills; rail or water, and in some remote sections flumes, are employed. These are wide wooden ditches, or troughs, through which water is directed, either a mountain stream or by pumping; the water rushing down to find its own level, carries the logs also. One California flume is 53 miles long, with 18 branches, needing only two men to transport 400,000 feet of lumber a day. In the South small locomotives are used, and in Michigan roads of smooth ice are made, and the lumber easily dragged by horses. On the waters enormous cigar-shaped rafts are built to float with the current or be drawn by steamboats to the sawmills, or the markets. One of the oldest sawmills in the United States is at Lewiston, Me. (1770); several times destroyed by fire, but now a magnificent plant. Logs are sawed into lumber by circular or rotary saws, or by a number of up and down saws known as a "gang"; the mills are run by steam or water power. There are many portable sawmills which can be located where desired; heaps of sawdust locate their visit. When cut the lumber is planed, the rough edges taken off, and the boards matched, tongued, or grooved by machinery. There are machines for window sashes, wood molding, tenoning, mortising, boring, band and swing saws, sandpapering, and carving, there being little handwork in modern finished lumber. This has revolutionized interior decoration, placing artistic carving and scroll work within reach of almost every one. Lumber is also seasoned artificially, thus avoiding its lying idle for long periods at compound interest, and

TIMBER FOR EXPORT.

this still further reduces the cost of decorative work. The principal lumber trees in the United States are the white pine (now very scarce) from New England, New York, and along the Great Lakes to Minnesota; spruce from New England, New York, and the Rocky Mountains; hemlock from white pine districts; cypress from the Gulf Coast and the South Atlantic States, only recently discovered to be of any vital commercial value; southern yellow pine from the Gulf of Mexico; western yellow pine from the Rocky Mountains and the Pacific Coast; red fir from western Oregon and Washington; redwood from California; and the hard woods of oak, poplar, maple, elm, and ash, from interior states. The world's supply of pine (white especially) seems doomed to extinction. Improvements in sawmill machinery are the direct steam-feed, the log turning device, endless chains, mechanical carriers for lumber and refuse, the shingle, lath, and slab saws, and the planing, molding, matching, and flooring machines.

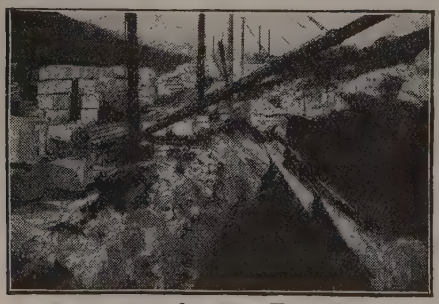
MATCHES. Splinters of soft seasoned pine wood tipped with a mixture by means of which fire is produced. It is cut into the desired shape by machinery which rotates the bark-stripped lumber, cutting even slices, which are later subdivided into cards or sticks; twenty-four are cut and set for dipping at each revolution. One end is first dipped in melted sulphur or paraffin, and then into the phosphorus mixture, which consists of varying proportions of phosphorus, manganese dioxid, glue, and a little coloring matter. These matches are the ordinary *Sulphur* or *Friction* kind. Until 1805 matches only communicated fire. A *Chemical* match was then prepared, whose tip contained sugar and potassium chlorate. The *Lucifer* match (1827), which is a friction match, combined potassium chlorate, antimony sulphid, gum, and water. The phosphorus friction match appeared in Austria and England (1833), and was manufactured in Springfield, Mass., by Alonzo Phillips (1836). *Safety* matches, first made in 1855, will strike only on a prepared surface. The head of this sort is usually a colored mixture of antimony sulphid, potassium chlorate, and glue, while the surface upon which the match must be rubbed to light is coated with a mixture of red phosphorus, glue, and powdered glass or sand. *Bird's-eye* matches, so called from the appearance of the head, can be ignited only on the extreme tip, owing to the special coating on the sides of the head. *Parlor* matches will strike by friction upon any surface. This is due to the use of phosphorus sesquisulphid in the composition of the heads. This preparation has displaced largely the use of yellow phosphorus, so dangerous to human life. *Wax* matches or *vestas* are made by dipping threads of cotton in melted wax, cut into lengths and headed.

MINING. The delving of metals from the earth, existing from the earliest times. *Prospecting* is the searching for deposits of ore by examination of the surface and surroundings; samples obtained are assayed, and the probable value of the "find" estimated. *Staking claims* is a legal step to secure protection; consisting of marking out a patch of ground, varying in area according to the individual State provisions; averaging 1,500 feet along the vein, and 300 feet along either side, in most western states, and in the east a square 1,500 feet. *Working* a claim is developing it either by surface clearing, or by digging down into the

ground forming a *shaft* and its corollary of passages, or tunnels, which follow the "lead" or direction of the vein; these passages are properly "timbered" to replace the natural support of the earth, ore, or water taken away; there must also be adequate ventilation. As the passages extend small trucks bring the produce to the cage or elevator which carries it to the surface. In *placer* mining the loose gold is washed from the gravel, sand, or mud, containing it, and in the *quartz* mining the rock is *crushed* and *stamped*, and treated

GOLD DREDGING.

by the cyanid or by the chlorin process. The cyanid process consists in the use of a weak solution of cyanid of potassium when oxygen is present, while the chlorin gas is used after the ore has been pulverized, roasted, and moistened in tanks. A great amount of electrical machinery is now used in mining operations, and has practically revolutionized the industry within a limited period. *Silver* occurs in quartz, mixed with lead in granite, in galena, or mixed with iron; the general features of silver mining resemble those of gold. The United States yields the greatest amount of silver and has the richest silver mine discovered in the world, the Comstock. *Copper* ore is smelted in a converter lined with crushed quartz mixed with clay into which air has been forced; this unites with the sulphur, and the oxygen carries it off as a gas; iron unites with the quartz, leaving pure copper. *Coal* is mined according to the level of the coal bed veins. Coal is *anthracite*, or *bituminous*, or *lignite*, of many varieties, varying in the amount of carbon contained, this governing the speed of combustion and the initial heat obtained. The anthracite coal is blasted loose and then quarried; taken to the "breaker," where slate and other impurities are removed, and the lumps graded according to size; small boys pick out the impurities, and there are machines so delicately adjusted they distinguish between the coal and slate by weight. *Bituminous* mines are entered by "drifts," or entryways parallel to each other, divided by a wall of coal, which is broken down and sent to the surface. *Quarrying* is mining for marble or stone. The first marble quarry in the United States is said to have been at Dorset, Vt., in 1785; Marbledale, Conn., opened in 1800; Stockbridge, Mass., in 1802. The largest are at Rutland, Vt. Marble produced annually in the United States exceeds $4,000,000 in value. *Marble* is a crystalline rock of lime, or lime and magnesia carbonates. There are many gradations and varieties in



MARBLE QUARRY. Vermont.

texture, capacity to "take polish," and color. The best American deposits are in Vermont at West Rutland, Proctor, Brandon, etc.; at Lee and Pittsfield, Mass.; the marble for structural work coming from St. Lawrence and Westchester counties, New York, Maryland, and Georgia; black marble was once quarried at Glens Falls. Nearly 80 per cent. of monumental marble comes from Vermont; the marble for furniture tops, and interior decoration, is largely from Knoxville, Tenn.; white and gray marble from California; the verde marbles from Pennsylvania, and the wonderful onyx from Arizona, Colorado, and California, not true onyx but travertine, found in caves, or formed by the action of calcareous springs. Ornamental marbles are largely imported; the Black and Gold from Italy, the yellow and red clouded Brocatelle from the Pyrenees, the white Carrara from Italy, the Giallo antico, a yellow type, and Griotte, a bright red, from the Pyrenees, although some of this is found in Vermont. Structural marble sells at $1.50 to $4.00 per cubic foot, statuary marble from $12.00 to $15.00. The fossil trees much used in decoration have the wood cells replaced by silica of various colors, preserving the wood to a remarkable degree, and giving beautifully colored surfaces capable of taking a high polish. This silication was probably accomplished by hot alkaline waters carrying dissolved silica; there are usually evidences of volcanic activity in the region. The fossils are found in Maryland, south of Baltimore, along the bay front; in the Bad Lands of the Little Missouri; in the valley of the Yellowstone; in California, and in Great Britain, Prussia, Egypt, and Antigua in the West Indies. There are many forsaken granite quarries in the United States and many of these are being re-utilized by crushing the granite into meal and shaping it into cement bricks, urns, bowls, and for general building purposes. This granite is the "split blocks" which had been rejected as useless.

NAILS. Until the close of the eighteenth century all nails were handmade. France has used wire nails for

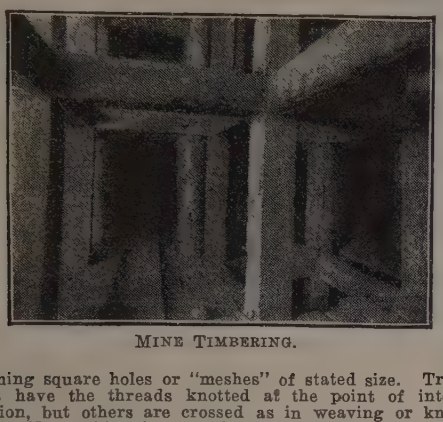
PETRIFIED FOREST.

over a century, but until 1850 they were made by hand. The metal was placed in a vise with a piece projecting, and this was hammered to form the head, a counter sunk in the vise regulating its size and shape. The metal was nail rods, obtained by rolling malleable iron into small bars, or by cutting plate iron into strips with rolling shears. In colonial days nail making was a household industry among farmers. The United States made the first nails by machinery, the only early device patented being one by Ezekiel Reed of Bridgewater, Mass. (1786), the herald of many inventions, the products of which were received with enthusiasm in England and Europe. In 1833 cut nails were first made of steel. Wire nails came into use in the United States through William Hersel of New York (1852); Father Goebel came from Germany to Covington, Ky., introduced wire nail making, and established the American Wire & Screw Nail Co. (1875). At the Centennial Exhibition the American product was placed ahead of the French and German nails, and attention was attracted to the industry. In ten years 23 firms were in business, and it has steadily increased. American wire nails are now exported to all parts of the world. The mechanism is simple. The wire is stretched tight by gripping dies, it is cut, automatically pointed, and headed, by means of spring bolt mechanism operated by a cam of the main shaft and remaining inoperative until a sufficient length of wire has been fed for the next nail. The cutting and pointing are one operation, and the head is produced by steady pressure instead of intermittent striking.

NEEDLES. Were evidently used during or before the Stone Age, but the Chinese first used metal needles, which were brought into Europe by the Moors. There was a well established industry at Nuremberg in 1370. Subsequent developments produced the needle with the "eye," and the machines for their manufacture. The first drill-eyed needles were made in 1826. Fine steel wire is cut into "blanks," as long as two needles and

slightly curved from the winding on a coil; they are bundled, heated, and pressed straight; ground sharp at each end on two small grindstones, and a flattened space made in the middle by a stamping machine, alternated with the die cutting the eye. The series of two needles are then separated, polished, tempered, and the heads ground into shape. Machine needles have special modern machinery which varies somewhat in detail, but the result is the same, the variations producing the sewing machine needle with the eye in the point, the curved surgical, and huge sailmaking needles, the multiplicity used in machine shoemaking, leather work, upholstery, and the delicate needles used in stocking work, in which the latch is held in a rivet about one hundreth of an inch in diameter, between walls that are no thicker. Hand needles are chiefly made in England and Germany, while machine needles are manufactured in the United States.

NETS. An open fabric of cotton, linen, hemp, silk, or other material, whose threads cross at right angles,



MINE TIMBERING.

forming square holes or "meshes" of stated size. True nets have the threads knotted at the point of intersection, but others are crossed as in weaving or knitting. Net making is one of the oldest arts, and barbarians knowing nothing of weaving, understand netting for the capture of fish, and animals. Nets are made by hand and by machinery. Fishing nets most used are the trawl and the seine. The latter is a long, narrow net, one side weighted with lead, and the other buoyed by corks, the net thus hanging vertically in the water, and used to inclose a school of fish. The trawl is a drag net used for fish swimming near the bottom; its opening is stretched along a boom, or spar, and the net narrows to a fine meshed "purse" at the end. Nets are used to catch birds, and also quadrupeds; also by gardeners to protect fruit, etc., or to protect blossoms on trees from frost. Hammocks are spread nets having a center pocket.

OILCLOTH. A coarse canvas coated on both sides, and half saturated with thick oil paint. The base is jute or burlap, sized by glue, rye flour, etc.; rollers squeeze out the surplus sizing, the cloth is dried, and rubbed smooth by pumice stone applied by hand or rollers. The paint and pattern are applied, and the surface again smoothed, the number of paintings and smoothings being determined by the quality of the fabric. The color is applied by a pattern carved on wood blocks, a separate block for each color. The cloth is passed over a table, and under the blocks, which have a rising and falling motion given by machinery, the paint is dried by artificial heat, and the cloth varnished, trimmed, and rolled.

OILS. A great variety of liquids which are not soluble in water; derived from animal, vegetable, or mineral foundations, and cannot be strictly classified, but must be dealt with collectively as chemical substances. Their range of utility in Useful Arts is colossal. The *liquid* fats are the animal and vegetable products which saponify, containing stearin, palmitin, and olein and are such as cottonseed, olive, corn, linseed, and hard oils. Castor oil differs in being freely soluble in alcohol, and in glacial acetic acid, by reason of its large proportion of hydroxy-fatty acids; it is non-volatile and non-drying. The *lard* oils are animal oleins, also non-volatile and non-drying; *palm* oil and *cocoanut* oils are solid at normal temperatures. *Sperm* oil is a liquid wax. *Vegetable* oils are obtained by pressure, either under cold or moderate heat; the "*blown*" oils of the rape group have air forced through them, exchanging their sulphur for oxygen, thickening slightly, and becoming more valuable lubricants. The *animal* oils are principally lard, butter, tallow, and neat's-foot. Tallow from oxen and sheep, lard from the hog, and neat's-foot from the feet of cattle. *Essential* or *volatile* oils are liquids giving odor to plants ranging from attar of roses to turpentine; these are obtained by various processes, and are also synthetically produced from chemicals. *Hydrocarbon* oils are largely used as fuel, lubricants, and illuminants, and are obtained from petroleum, shale, and coal, with many subdivisional products of petroleum, ether, gasoline, naphtha, benzine, etc. Oils are used as food, in preparations of food, in soap, to produce motive power, heating and illuminating, in painting, perfumery, lubricating, as preservatives from weather, water, rust, etc., as flavoring agents, medicines, and in an ever widening circle of utility. Some idea of the wide scope of oil production may be formed from the following erratic animal and vegetable bases: apricot, badger, belladonna, brazil nut, candle nut, chamois, chicken, cress, cucumber, dog, duck, goose, hare, hemp seed, horse chestnut, laurel, nutmeg, palm, poppy, reindeer, roebuck, Scotch fir, spruce, sunflower, sea kale, thistle, rabbit, wintergreen, the multitude of flowers and better known sources.

OLEOMARGARINE. Is an artificial substitute for butter, made from "oleo oil," tallow, and other fatty substances, mixed with coloring matter. First made by Hippolyte Mege of France (1869). The fat of animals is washed in warm water, then chilled and hardened in ice water. It is finely cut by machinery, melted in steam-jacketed caldrons, adding salt to "settle" it. The clear oil is syphoned to other caldrons, re-heated, and re-settled, and then cooled to crystallize the stearin. Under great pressure the oleo oil is separated from the stearin. The quality depends on the grade of the animal, and the parts of the body, employed. These fats are melted separately, mixed in certain proportions, piped to a churn, and melted butter, cream, or milk, and the coloring matter is added. After churning, the liquid oleomargarine is chilled and hardened by ice water, before it can crystallize, and is worked in a machine butter-worker, salted, and made up into rolls or tubs. The cheaper grades consist of low grade oils, stearin, cottonseed oils, churned with skim milk or buttermilk, and sometimes glycerin, to improve the appearance. The highest grades are made from pure oleo oil and neutral lard, obtained from the leaf and the back fat of the hog, with no cottonseed oil. Good oleomargarine is a clean, wholesome, nutritious food.

OSTEOPATHY. The treatment of disease by scientific manipulation, totally distinct from what is usually understood as massage. The theory held is that all diseases are caused by the displacement of some bone which causes obstruction of the flow of one of the human body fluids, or by the atrophy of some muscle producing pressure, with a corresponding result. Osteopathy revitalizes the part affected, by syphoning back the lacking blood, rendering the muscle flexible, and replacing any bone erring from its natural alignment.

PACKING. A term including the operations of slaughtering and marketing animals for food. Aided by the refrigeration process, the packing business has developed enormously, "fresh" meat being shipped to all parts of the world, instead of being limited to the old-fashioned, smoked, salted, and dried commodities. The "waste products" have been made exceedingly valuable; fatty portions become lard or commercial grease; bones and sinews become gelatin, glue, and fertilizer, and from the hoof and the hide to the horns, nothing is without value. The embryonic industry was founded in New England in the very earliest days; established in Cincinnati (1818); and spread to its present headquarters in Chicago. Economy of labor is the keynote. A hog is killed, passed on an endless chain through scalding vats and a scraper removing the hair; it is hoisted head downwards, disemboweled, beheaded, washed, trimmed, and sent to the "cooler." It produces four fifths meat, only a small proportion being sold as fresh pork. A profitable section is sausage, made from trimmings from all departments, said to be mixed with potato flour, water, and spices, and placed in casings made from the intestines, etc., all done by machinery. Two grades of lard appear, leaf lard taken from the fat surrounding the kidneys, and steam lard made from scraps taken from all parts. Individual killing of cattle, sheep, and hogs has almost ceased.

PAINTS. Consist of a body and a pigment, or coloring matter, mixed with an oil vehicle, and generally a drier, this being a compound of lead and manganese that takes up oxygen from the air and gives it to the

oil, causing it to harden. Pigments are made from minerals, vegetables, and animals; the principal oil used is linseed, made from flaxseed, the crude oil being settled for two or three months, and then filtered; when spread in a thin film it absorbs and combines with the oxygen in the air, forming a leathery, elastic substance termed linoxyn. Turpentine is the best solvent for oil paints, slow to evaporate, and oxidizing into a durable, elastic, resinous substance. Fireproof paints contain a pound of boric acid to the gallon, or an easily fusible glass in powder. White lead forms the basis of nearly all oil paints for buildings, etc., and gives them body or covering power. *Marine* paints either protect metal or wood, and any good anti-corrosive paint applies, or they are intended to prevent fouling. In the latter case oxid of copper, or a precipitation of a solution of common soap with some salt of copper, or an arsenical or mercurial compound suspended in tar, are all used, the object being to poison the organisms attaching themselves to the ship. *Water colors* are pigments mixed with water and a little gum or glue. *Kalsomine* is a mixture of ground chalk with water and glue and colors, and this is the base of the multitude of special compounds advocated for use in place of oil paints, or wall paper, in interior decorations. To obtain specific shades: mixing dark green and purple makes bottle green; white and medium yellow makes buff; red, black, and blue makes dark brown; bronze, blue, lemon yellow, and black makes dark green; white, medium yellow, and black makes drab; white, lake, and lemon yellow makes flesh tint; lemon yellow and bronze makes grass green; white and black makes gray; white and purple makes lavender; red, black, and medium yellow makes maroon; lake and purple makes magenta; medium yellow and purple makes olive green; medium yellow and red makes orange; white, ultramarine blue, and black makes pearl; white and lake makes pink; ultramarine blue and lake makes purple; orange, lake, and purple makes russet; medium yellow, red, and white makes sienna; white and ultramarine blue makes sky blue; blue, black, and white makes slate; vermilion and black makes turkey red; and white, yellow, red, and black makes umber.

PAPER. Its early manufacture is generally conceded to the Egyptians with the papyrus made from a reed, and Mexicans and others have used duplicates of that process, using other plants to produce a substance taking ink and color acceptably. The Chinese are credited with first making from fiber the web constituting modern paper. The Arabs learned it from the Chinese, and the Moors carried it into Spain; thence it spread to France, and much later to England, the first patent being taken out by Charles Hulyerd in 1665. It advanced rapidly after the Edict of Nantes sent many skilled French paper makers to England and America. William Rittenhouse of Roxborough, near Philadelphia, opened the first paper mill in the United States (1690); and a company was granted the sole privilege of making paper in the Province of Massachusetts in 1728. Up to the beginning of the nineteenth century, while machinery was used to reduce the rags to pulp, the formation of the sheet paper was entirely by hand, sheet by sheet. Louis Robert, a Frenchman, invented a machine to make paper in an endless web, but it was not used until developed in England by Henry and Sealy Fourdrinier, who sunk a fortune in perfecting the machine, and are justly recorded as the founders of modern paper making. Paper is made from cotton and linen rags, waste paper, straw, esparto grass, wood, cane, jute, and manila. The utility of paper pulp is infinite. It is waterproofed and pressed into rails; it is used in car and locomotive wheels in the form of calendered rye-straw board, the sheets of which are pasted, stacked, and hydraulically pressed to 500 tons or more; after other processes the final block contains 120 to 160 sheets, and paste, compressed to less than five inches; all resemblance to paper is lost, and in looks, grain, weight, density, and solidity it approximates fine grained metal. It is used because it withstands the shocks and violent vibrations to which wheels are subjected. It is made into matches, brush backs, frames, and is widely substituted for cheap leather goods. A few years ago an enterprising individual produced some very attractive leaf "tobacco" which was paper pressed into "leaves" and heavily impregnated with tobacco infusion. He wished to sell it to meet the demand for "light" leaves. *Papier-maché* is paper pulp mixed with glue, paste, oil, etc., the mass then being pressed into molds; a higher grade being made by pasting sheets of paper together and subjecting to pressure in a mold. The beautiful casket, and other productions of China, Japan, and India, show its wide range of utility. *Paper hangings* or *wall paper* were used by the Chinese at a very early period, but do not appear to have been used in England prior to the eighteenth century, when they began to supersede tapestry and other mural hangings. At first the papers were imitations of the tapestries, etc., but independent designs were introduced, in which feature the United States has been very prominent. Bouler & Charden introduced the art (1790), but there were only four firms in the United States in 1844, when the Howell factory at Philadelphia opened. About that time the endless roll machine appeared, and the business prospered and developed. In Europe the most costly papers are still those that most successfully copy some other fabric. The Japanese are now introducing some wonderful lacquers, and grass-cloth papers, at reasonable prices. It is probable that the supply of paper pulp will come from bamboo in the future, and not from the northern forests. One firm in Formosa is now producing 600 tons of paper a month from bamboo fiber, and the supply of bamboo is enormous.

PEARLS. A gem produced by a grain of sand entering the shell of the pearl oyster, and irritating the mollusk until it coats the foreign substance with the secretion of pearly matter obtained by irritation. Advantage has been taken of this fact to open shells and insert substances to be transformed into pearls. The most important fisheries are those of Ceylon, Coromandel in the Indian Sea, and northern Australia. The oysters live at a depth of 50 to 130 feet, and the divers descend from small vessels of 12 to 15 tons, attended by a larger boat as a store ship. The best divers are Japanese, Filipinos, and Malays. Pearls are found along the coasts of Java, Sumatra, Japan, South America, and in the Mississippi, but the product has not the value of the Oriental pearl.

PENCILS. The colored earth or chalk of earlier days placed in a wood or metal sheathing to protect and give it stability. Later metallic lead was introduced, the present pencils being of graphite, called black lead, but which is nearly pure carbon. The best comes from Ticonderoga, and is 99.9 fine. Graphite is mixed with water and clay, the latter grading the hardness of the pencil; the mixture is ground, hydraulic pressed, and "formed" into a long coil; cut into sticks, baked, and placed in grooved strips of pine or cedar; the second strip is glued on and the pencils dried, trimmed, shaped, varnished, and stamped. Paper is used in place of wood casing, each individual band being consecutively removed in place of sharpening. The metallic cased pencil, for pushing up the graphite, was invented by Hawkins & Mordan (1822). Colored pencils are of tallow, wax, and coloring material.

PENS. The first pens were made from reeds, improving on the stylus. After paper came into use pens were made from the quills of the goose, swan, turkey, and ostrich; generally by the writer, although there were unsatisfactory machines. The first steel pens were barrel-shaped, a piece of steel bent into a tube and filed into shape, the two edges forming the slit. Later discoveries were made as to the best steel, machinery appeared, and the present type was evolved. The steel is annealed, polished, and rolled into sheets of varying thickness. The blanks are stamped or pressed into shape, and the hole at the slit punched; annealed again, and the blanks curved, plunged into boiling oil to temper, cleaned and polished in revolving barrels of sand or sawdust, ground at an emery wheel, and tempered in a revolving iron cylinder over a charcoal fire. The slit is made by special cutters and the pens are burnished and packed for market. *Gold* pens are made along similar lines, the native alloy of iridium and osmium being used to strengthen the points. *Fountain* pens usually consist of four pieces of hard rubber and a gold pen. The barrel contains the ink, and air is admitted as the ink is used, a feed bar taking the ink to the pen proper. *Stylographic* pens have no actual pen, but a tubular needle point in which is a graduated needle, holding the ink from flowing when not in use, but, by the pressure of writing, liberating ink as it is needed.

PETROLEUM REFINING. A natural rock oil of hydrocarbons found on the surface, but generally by deep wells. Tall derricks are the prominent features, otherwise the well is of orthodox type. The hole is about a foot wide at the surface, decreasing with depth; made by heavy steam worked drills. The crude oil flows into tanks, and by powerful pumps is forced through pipes to shipping points and to refineries. The hydrocarbons are separated by fractional distillation. The crude oil is subjected to increasing temperature in cylindrical iron stills with domed top-

connected by vapor pipes; the oils pass off as volatilized but the separation is not absolute. The vapor rises to the condenser, and the distillates pass to separate tanks. After the volatile products are evolved the residue is subjected to a still greater heat, to separate the illuminating and lubricating oils. The distillates are purified by further distillation, and by treatment with caustic soda and sulphuric acid. Refined oils are tested for color, gravity, flash, burning point, etc.; too large a proportion of lighter oils renders them unsafe for illuminating, and too great a percentage of heavier oils interferes with free burning. Flash and burning points are regulated by law to minimize explosions. The cold test is used with lubricants to learn the thickening point. The many valuable preparations under *vaselin* are from petroleum.

PHONOGRAPH. A machine for recording and reproducing speech, or other sounds. Leon Scott invented an ellipsoidal barrel (1855), the sound receiver having one end open and the other closed, from which projected a small tube, across which was a membrane which supported a bristle forming a stylus, and vibrating with the membrane. A hollow cylinder covered with paper and lampblack was in position to be lightly touched by the vibrations of the bristle, and the sound vibrations entering the ellipsoid caused the agitation of the membrane and the stylus, which, as the cylinder slowly turned, registered a line on the lampblack. Thomas Edison (1877) substituted a receiving funnel for the ellipsoid, a metal stylus for the bristle, and a tin foil cylinder for the lampblack, later replacing it with a wax cylinder. The records were indented instead of traced, and could be reproduced by the passing of a blunt stylus over the indentations. In reproducing a record another diaphragm is used made of mica. The recording stylus is a sapphire with a cup-shaped front ground to a fine edge, but the reproducing stylus has a ball-shaped point. This stylus follows the track cut by the recorder, causing the diaphragm to vibrate and produce sound, which is intensified by a funnel. A record can be used several thousand times. The machine is run by a small electric motor, or a spring, at any speed, thus giving any desired pitch. The graphophone is on the same principles, but differs in mechanical details, using a wax-coated cylinder of pasteboard instead of an all-wax cylinder. It was invented by Charles S. Tainter and Chichester A. Bell. A possibly valuable innovation is the discovery of Poulsen, a Danish engineer, who uses the current in a telephone circuit to magnetize a strip of steel tape drawn continuously between the poles of an electro-magnet, which is energized by the telephone current. The record of anything spoken into the telephone is stored in the tape magnetization, and when the tape is again drawn between the poles of the electro-magnet, the telephone in the circuit will repeat, owing to currents induced by the steel tape, whatever was originally spoken to it. Thus a business man, not answering the phone, could have a message left for him to be delivered when he returned; the fact that such a message awaited him being announced by a tiny semaphore, or other suitable device.

PHOTOGRAPHY. Permanent pictures produced by focused light thrown on a sensitized film or plate. The success is dependent on the sensitiveness of certain silver salts to actinic action, and on the correct optical principles involved in the construction of the camera. The coat of sensitive salt emulsion on the film or plate receives the focused image, and is "developed" by the use of pyrogallic or other reducing agents, and then "fixed" by dissolving and taking away surplus silver salts by the use of sodium hyposulphite. From this "negative," positive prints (photographs) are made on sensitized paper and other substances. There are many varieties of photography. *Carbon* printing is an addition of lampblack, etc., to obviate fading, the process being discovered by Mungo Pouton (1838); improved by Becquerel and Poitevin of France (1855), and by Fargier, Swan, and Johnson. *Celestial* photography deals with astronomy; Prof J. W. Draper photographed the moon (1840); Prof. Bond (1851); the spectra of the stars (Draper, in 1872); the nebulae of Orion (1880-1881); the photographing of the entire heavens by the Photographic Congress of the Astronomers of the World beginning 1887. The camera shows many stars, etc., not visible by telescopes or refractors. The development of the present rapid process dates from the *Dry Collodion* process of Scott Archer (1851), outlined by M. LeGroz of Paris; collodion was sensitized and poured over glass plates to form a film; pyrogallic acid or protosulphate of iron "developed," and cyanid of potassium or hyposulphite of soda "fixed" the negative. *Dry Plate* photography was invented by Dr. J. M. Taupenot of France (1855); the alkaline developer (1862); improved by Russell, Sayce, Abney, Rev. Canon Beechey, Prof. J. W. Draper, and the Eastman-Walker Company of Rochester, N. Y. Its development made extensive amateur photography possible. Other passing phases were the *Daguerreotype*, named after the French chemist discovering the process, who (1839) sensitized a polished silver plate with silver iodid, developing the image by mercurial vapor, to be "fixed" by the discovery of Sir John Herschel (1839), of the action of hyposulphite of soda. Hunt introduced iron protosulphate for "fixing" (1844). *Ambrotype* displaced the *Daguerreotype* and was a thin negative by the collodion process, backed by black velvet or varnish. *Calotype* or *Talbotype*, devised by Talbot (1841), was sensitized paper obtained by dipping in solutions of common salt, of silver nitrate, and later washed in iodid of potassium, in silver nitrate, and in mixed silver nitrate and gallic acid. Talbot began using his papers as negatives for printing, but Sir John Herschel introduced the glass plate, and (1842) invented the blue print. The most modern development is *Color* photography in which great strides are being made. Briefly it is the taking of one photograph seen, separately, on three plates of (primarily) blue, red, and green; the intensities of these being scientifically adjusted to produce any desired color effect. The correct intensity of the silver deposit is the great stumbling block to date, and the process becomes very expensive, mainly through the spoiling of many plates, rather than by the mechanism, etc., employed. *Half Tone Engraving* consists in copying a photograph, the image of which passes through a fine screen of wire, to the lens of the camera, and to a sensitized metal plate, producing a "stipple" effect that breaks the high lights. The screen mesh runs from 80 to 250 to the square inch, about 150 being the average used. The plate is etched by acid, which acts only on the raised spots shielded by the threads of the mesh. The quality of paper on which the half tone is to be used determines the mesh. The term "half tone" comes from the fact that half the tones are left in, and half taken out by the acid. *Photo-engraving* is making plates (from photographs) from which ink impressions for newspapers, etc., can be made. Gelatin, being insoluble when exposed to light in the presence of bichromate of potassium, is the base of the process. A picture is produced on a metal plate, and the blank spaces etched out by an acid. When the *dark* spaces are etched in *intaglio*, and become filled with ink in the printing, a *photogravure* results. The vast utility of photography is being daily demonstrated, especially in *phototopography* or the survey of regions from prominent points or from balloons in the construction of topographic maps, saving great time and much expense over the old method. The "speed" of the photographic shutter has so increased that an exposure of 1-42000 second caught flying insects for the moving pictures, and produced 400 successive phases of pistol firing, occupying one tenth second.

PIANOLA, or PIANO-PLAYER. An automatic machine sounding certain notes on a piano through the medium of compressed air, or other force; the notes being registered by perforations on what are termed *music rolls*. In the manufacture of these a "master roll," consisting of a sheet of strong, flexible cardboard about 14 inches in width and of a suitable length, is laid out in "bars," and is then placed in a recording piano at which an expert pianist plays in the ordinary manner, giving full expression, and technique. His performance is recorded by dots and dashes on the "master" roll. These "notes" on the "master" roll are punched out, making the stencil, and the roll is taken to a perforating machine where an exact copy is made, and the copy tried on an automatic piano for irregularities and inaccuracies, being double tested by a second musician holding the score of the original piece to catch dropped notes, or errors in time, etc., accidentally made by the first player making the "master" roll record. When found correct it is taken to the cutting room, where 24 duplicates are cut at a time. Each of these is tested for infinitesimal errors in the size of the perforation, and in the spaces between them, which might vary the tone or the duration of a note. This is done by placing copy and proof roll in a suitable box with a glass lid, lighted by electric lights, which, shining through, show if the perforations perfectly agree. The marks are then made indicating how the piece is to be played, the time, the loud or soft tone, and, being completed, the copy is put upon a spool by an exceedingly ingenious piece of machinery specially designed for the purpose.

PINS. First introduced into France and Germany in the fifteenth century, made by hand. John I. Howe

of New York (1831) invented a machine making pins with a solid head, instead of the twisted wire head, or the antimony and lead head. By hand seven men made a pin. By machine the wire is drawn taut, two cheeks seize it, a cutter cuts it, and a hammer shapes the head. As the cheeks go forward for another, they open, the pin drops, and goes head upwards to a point grinder, and from there to the cleanser to be boiled in sour beer, cream of tartar solution, and cooled in clean water. The "yellowed" pins are placed in layers on a copper pan and covered with grain tin; water is admitted, slowly boiled for half an hour, dried, and shaken in a leather bag with bran, to polish them. An ingenious machine papers the pins. *Safety* pins go through the same process, but must be bent, and the point sheath added. Glass and enamel heads are added separately. In *black* pins the wire is coated with varnish, or is heated in a muffle until colored.

POTTERY. Its history is lost in antiquity. All varieties have been made from clay mixed with sand, flint, feldspar, chalk, alum, soda, and bone ash. The clay is ground with other ingredients in a mill. Open pieces, such as plates, are pressed; hollow pieces, such as pitchers, cups, and vases, are cast in plaster of Paris molds from the clay paste; dried and packed in great earthenware vessels called "saggars," which are piled in a kiln and baked; thus protecting from smoke and insuring an even heat. It is now "biscuit ware," without gloss and very porous, and is covered with glaze by dipping; lead glaze is most frequently used, being transparent and easily fusible. Decorations are put on either before or after glazing. Babylonian specimens show a glaze needing a heat of 3,000 degrees, but how they obtained that heat is a problem. In the finer pottery the details of manufacture become more delicate and complex, and the secrets are jealously guarded.

ROADS. Public highways between places, in the construction of which we have yet much to learn. The early roads developed with war and commerce, the Babylonians, Carthaginians, and especially the Romans, being the great road makers of the early days. The Appian Way (312 B.C.) is probably one of the earliest specimens of permanent road work. Where the Romans went they made roads. In Great Britain many of the best highways of the present were of Roman make, and the height and level is still ruled by the gauging stones of the Romans. For long years after the Romans, the later roads deteriorated, not being made of the same great depth (frequently three feet of concrete, stone, etc.), and the real permanent road making may be said to commence with the discovery of the McAdam, or macadam process, which was really responsible for the wide use of carriages in travel. Prior to 1800 there were very few United States roads which could even be termed "improved" from natural conditions, the one good turnpike being between Lancaster and Philadelphia, 68 miles long, made of bowlders rolled in, and the interstices filled with gravel and earth. Much later it was macadamized. Another toll road of that date was from the Shenandoah Valley to Kentucky, owned by the Wilderness Turnpike Company up to nearly the close of the last century. The advent of railroads dulled the call for good roads in the United States. Their care became almost local, farmers "working out taxes" by work on the road, instead of paying road tax and having the money applied by experienced road builders. Only the greatly increased population stimulated the care of roads. Then came the era of the bicycle and then the automobile. To-day, the call all over the country is for better and still better roads. The distinct feature of the macadam process was the substitution of small angular stones for the large round bowlders thereby avoiding the making of holes and "ruts" by the smaller stones and earth slipping away, the small angular stones being more given to piecing themselves together, and fitting in a stout, firm, but more or less elastic bed. State after state has taken up the question in the United States, and, although progress is slow, it is only a question of time when it will have the greatest area of good roads in the world. In Europe roads appeared along lines of march, or commerce; in the United States and Canada they were more frequently the development of Indian trails or wagon routes, having little regard for distances or grade; the modern requirements being primarily proper location, easy grade, and a smooth, durable surface. The only materials recognized in modern roads between cities, or places, is gravel, or what is termed macadam, which is broken stone; in England mainly a granite type, the pieces being about two inches in diameter. The road is built of these upon a hard, rolled surface of earth, the Telford process differing in covering the earth with large stones before applying the cut stone. The depth varies from four inches on a good state road at Bridgeport, Conn., to twelve or sixteen inches on state roads in Massachusetts. Other rock used is trap, limestone, sandstone, field stone and shale, ranging along that line of quality, iron bearing clay being esteemed as a binder to hold the layers together after the successive rolling. *Drainage* is an important factor and in building the road bed the road is slightly domed to enable surface water to run off. On the best kept roads men are constantly employed and are held responsible for individual stretches of territory; these men look all the time for depressions caused by wear, or a weak spot where water has accumulated; they "pick" the place loose with a small pickaxe, and carefully lay in new cut stone (or gravel according to the road) making it a trifle higher than the road so that traffic may work it in. After rain the water is at once let out of any standing pool by a pronged instrument scratching a leak; the "ruts" are constantly raked into the depressions and unceasing care is the price, and the only price negotiable, in obtaining good roads. This is a lesson which has yet to be learned in the United States; the engineers can build good roads, but there is rarely the money provided for their constant maintenance; rather are they permitted to slide from bad to worse, until a spasm of regeneration strikes in and then considerably more money is spent on the road than would have been called for to keep it in constant repair. Under the modern system crude oil is applied with great success, both as a road binder, and as a dust eliminator, the road gradually becoming hard and fairly impervious to water. It requires greater care in patching and repairing. *Gravel* roads are the intermediate between macadam and dirt, and the gravel should be screened from earth, a trench dug, layers of gravel inserted, four or five inches deep, well watered to "set," and then rolled; the upper surface being crowned, or domed, about 1 in 30. *Dirt* roads are most common in the United States and in new sections, and consist of removing vegetation, and rolling and raising the center to insure drainage into ditches provided at either side, this being more important in dirt roads than others. In certain districts of Florida the leaves, or spines, of the long-leaved pine are raked into the sandy road beds each October with marked improvement on roads that otherwise would be almost impassable during the wet season; salt hay is used for a similar purpose but decays more quickly. *Planked* roads were once common in the United States lumber districts, and were made of three-inch lumber resting on stringers. *Corduroy* roads were logs laid in ridges, like the ribs on corduroy cloth fabric, and were generally used in swamps, earth being laid on the top to reduce concussion. A necessary innovation in the United States is broad tires for all farm and heavy freight wagons; in England the farm wagon tires are four inches wide. Great advances have been made in road machinery. In cities *Asphalt* pavement is greatly used in place of the old Belgian blocks, macadam, or wood. The best known deposit of asphalt is on the island of Trinidad, but it is also found in California and Venezuela. Ordinary street pavement contains about 16 to 18 per cent. of asphalt, the balance being sharp sand, with a small percentage of limestone dust added to harden it. A paucity of asphalt, having sand too hot in making the mixture, and not giving the spread mixture the requisite compression before it cools, are the general causes of poor pavements. In Europe there is used a bituminous limestone rock in powder, spread over a foundation, and "tamped" back to original condition; an expensive but satisfactory process.

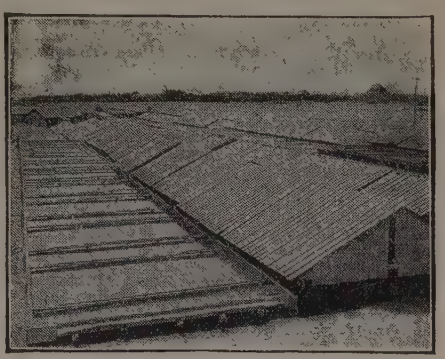
ROPES. Cordage more than an inch in circumference is rope. Hemp, flax, cotton, jute, and other vegetable fibers are used,—manila hemp for strength and flexibility, Russian, Italian, and American hemp for various varieties, and jute for the commoner grades. Until 1820 rope was made by hand. Then came a machine that twisted the handspun yarn into strands, and in 1834 it spun threads from the raw material. A steel toothed comb was first drawn through the hemp fibers to straighten them; the workman, with a girdle of hemp about him, fastened one end to one of a series of hooks on a looper, drawing out the fibers with one hand, compressing them with the other, slowly backing down the thousand feet walk, while his assistant was doing the spinning with a wheel or looper. Later the yarns were spun and twisted into strands, which were twisted into rope by horse power. At present most of the rope is made by machine; the hemp fiber is softened and made smooth by oil sprinkling; the fibers are straightened or "scutched" by steel-toothed, revolving cylinders; the breakers or large frames of endless chain having projecting steel pins draw the fibers into a continuous ribbon; passing through the spreaders and the

drawing frames completes the straightening, and it is ready for the spinning which twists the fiber into yarn. Machines called "formers" twist it into strands, and "layers" lay the strands into rope. The "former" is an iron disc having at its center a shaft ending in a die. According to the number of yarns in the final strand, bobbins of yarn are arranged round the disc. The free ends of the yarn go to the die, and are twisted together by its revolving and are wound upon a spool. In the "layer," spools of twisted strands take the place of bobbins of yarn. In a former and layer combined, a number of small discs each have a die to twist a strand; all the strands being carried to a large disc and twisted into the finished rope.

RUBBER. First known as India rubber (or caoutchouc), much used in the arts, has made great growth in its relation to commerce and manufactures of recent years. It is the hardened juice of several trees growing in Mexico, South America, Africa, and the East Indies. Incisions are made in the tree, the milky juice flows, and is caught in small cups, to be transferred to larger vessels. The water is evaporated over a slow fire, and the rubber cakes are ready for shipment. At first its only use was to obliterate pencil marks; its general utility commencing about 1820, when rubber waterproofed cloth was introduced by Charles Macintosh, a Scotch chemist, who suspended rubber in naphtha, and spread it between pieces of cloth. In that condition it cracked with cold, and became sticky with heat, until Nathaniel Hayward of Massachusetts mixed sulphur with the rubber, selling his patent to Charles Goodyear, and accidentally discovering the vulcanizing process (1839). This process is mixing rubber and sulphur, and heating them for several hours, the rubber becoming impervious to change under ordinary conditions. Silicate of magnesium, carbonate of lead, asphalt, and tar are also used. Commercial rubber is freely soluble in ether, chloroform, naphtha, petroleum, benzol, and various oils, and in the liquid state is mixed with slaked lime to form a cement; heated with tar and shellac to produce a tenacious glue, and gives body and luster to varnishes and mineral oils. Pure rubber has a few uses. The crude rubber lies in steam heated water for a day; is cut up and impurities removed; is thoroughly washed between rollers with a stream of water; is dried and stored in a dark, dry room. To vulcanize, the purified gum is mixed with the sulphur; then cut and shaped; powdered soapstone preventing adherence during the heating in a cylindrical cast-iron oven. The quantity of sulphur used, and the degree of heat, determines if the product be hard or soft rubber, or ebonite. Vulcanized rubber goods include footwear, waterproof clothing, hose, belting, tires, electrical and scientific apparatus, hard rubber goods, and liquid varnishes. Many manufactures are very interesting. For vulcanite pipe stems a suitable tube is formed, filled with water, sealed at each end, and placed in the mold. The addition of heat increases the bulk of the water, and its pressure forces the rubber to perfectly fill the mold.

SAFES. A safe or safe deposit vault is a modern convenience for keeping money and valuables intact, and safe from burglars or fire. The first fireproof safe was constructed in France (1820) along the lines of to-day, which consist of a metal box or chamber with double walls, filled between with non-conducting composition, such as clay, concrete, or plaster of Paris, with alum or other salt containing water (or vessels containing water), so that when exposed to heat steam will be given off. So long as the inner chest is surrounded by steam its contents cannot be injured by fire. Laminated construction is the protection against burglars, the walls being of alternate soft and tough steel or iron, and of hardened iron plates. Recent vaults have been constructed of armor plate similar to that used on war vessels. Round corners are used, avoiding joints as much as possible. Chilled iron is used in vaults, the metal being a peculiar grade, naturally soft and easily worked, but made very hard at the surface by sudden cooling; this is frequently used in blocks weighing several tons and is secured by an elaborate system of bolting on the inside. Doors are single castings, sliding on anti-friction rollers into deep recesses in vault walls.

SALT. A mineral known as halite, chemically known as chlorid of sodium. Obtained from beds of rock salt, bodies of salt water, and subterranean brines. In the United States deposits are in New York, Pennsylvania, Virginia, West Virginia, Ohio, Michigan, Illinois, Louisiana, and Texas; it is also procured from the Great Salt Lake of Utah, and San Francisco Bay in California. In Europe the great deposits are in England, Germany, Austria-Hungary, Russia, and Spain; France and Italy abstract considerable from sea water, and Japan, India, and the West Indies are large producers. In the coarser grades the water is evaporated by the sun's rays, as was done 2,000 years ago in England, the Roman salt pans still being in evidence. Subterranean brines are obtained by driving wells, and pumping. In the finer grades the salt water is evaporated by artificial heat applied to tanks about 20 feet wide, 100 feet long, and 12 inches deep, and the heat is applied to one end only, the brine passing slowly over, as heated, to crystallize at the other end. Careful attention is given to preserving the correct fluid-



SALT EVAPORATING TANKS. Syracuse, N. Y.

ity of the great bulk. The world's product is estimated at something over 12,000,000 short tons, of which the United States stands at the head with 2,921,708 tons.

SAWS. Tools for cutting wood and metal, usually of steel. It is a sheet of highly tempered steel, with teeth made by a punch, these being slightly bent, so as to be somewhat wider than the blade, thus preventing it being choked with sawdust. The *crosscut* or *whip* saw has a handle at either end; the *rip* saw is generally used to cut lumber in the direction of the fiber. The *circular* saw is mainly used in mills, revolving in a slit in the bench, leaving only a portion of the saw projecting, which revolves at a high rate of speed. The *band* saw is a long band of steel, with finely cut teeth, the two ends join and are passed over two revolving drums, one above and one below the bench, the saw working through two slits in the bench. The *cylinder* or *crown* saw cuts staves for barrels, button blanks, and other forms. The *toothless cold metal* saw has no teeth, and is a steel or iron disc cutting its way through a steel rim by friction. Although the *circular* and *band* saws were invented in England, the American saw is acknowledged the finest in the world to-day.

SEWING MACHINE. The device that revolutionized garment making, etc. The first machine appears to have been invented by Thomas Saint, an Englishman (1790), and had the general form of the modern machine, with a notch for the needle eye, and a hole was punched by an awl for the needle to pass through and make a single chain stitch. Archbold and Newton (1841) claimed the shortest patent in history, "a needle with an eye in the point," producing a chain stitch. Elias Howe (1846) patented a number of improvements, producing the lockstitch, and from then, Bachelder (1848), Wilson (1852) Singer, McKay, and others perfected the present machine for sewing linen, etc. Then followed the heavier machines for carpets, cloth, shoes, leather, etc., and to-day America leads the world in manufacturing sewing machines of all types.

SHOES. A century ago shoes were made by hand, it taking a day to make a shoe. By machinery a pair of shoes can be made in 20 minutes, 60 operators and 45 machines combining the 26 pieces of leather, 14 pieces of cloth, 24 buttons and buttonholes, 2 box toes, 2 steel shanks, 80 tacks, 20 nails, and 20 yards of thread. Shoe pegs were invented in 1811; the rolling, splitting, and racing machine, which cuts the leather into strips, appeared 1850-1860; pegging machines were invented, and shops began to use steam power; the McKay sewing machine with a capacity of 100 soles a day revolutionized the business (1870); and the McKay and Bigelow heeling machine appeared the same year, making the solid heel. Then came the lasting machine; the Goodyear welt machine turning out shoes

similar to hand-sewed, and many others, reducing cost in production. Shoemaking is largely team work,—uppers, liners, facing and tongues, backstays, top pieces, and the vampers attaching the top to the vamp. Then the lasting machine attaches the insole and last, and it goes to the stitching machine. The welter stitches the insole and upper to the welt; the bottom of the shoe is covered with cement; the outer sole is pressed and the edges cut to the shape of the shoe in the trimming machine, which also cuts a groove so the stitching may be hidden, and another sewing machine with curved needles stitches the soles to the welt. The new "double clinch" machine drives a wire through the inner and outer soles, clinches it, making and closing the stitch channel. This process gives great flexibility. Machinery levels the sole, the heeling machine feeds leather and just so many nails, and a single blow drives them into place. Minor smoothing and finishing complete the shoe.

SOAP. Few commodities have shown greater improvement than soap in the last quarter of a century. Five cents buys a better soap now than would a dollar twenty-five years ago. Soap is a chemical compound of animal fat or vegetable oil with alkali. Toilet, laundry, and kitchen soaps are called hard and are made with soda. The tallow, oil, or grease is poured into large kettles, heated by steam coils, and the soda lye at 18 to 20 degrees Baumé added. Emulsification is followed by saponification, lye being added as indicated. When clear it is cooled, spent lye is withdrawn, and new lye and rosin added. This operation is repeated until the soap is finally "closed" or made soluble by the addition of water. It then separates into pure soap, "nigre" soap (a lower grade), and "nigre" lye, which is thrown away. The laundry soaps are so made; the rosin is generally omitted from toilet soaps. *Silicated* soap is made from cocoanut oil and soda, half boiled, and ground quartz is added, stirred, and put into molds to harden. *Salt water* soap is similarly made, with addition of salt and carbonate of soda. *Castile* soap is made from pure olive oil and soda. *Floating* soap is white soap remelted and air beaten in. *Wool* or *silk scouring* soap is a neutral compound of olive oil and potash. *Soft* or *green* soap is a soda soap containing an excess of water.

STARCH. A white powder obtained from various sources; England chiefly using rice, the United States corn, Germany and France potatoes. Sparingly soluble in cold water; treated by heat is converted into soluble starch, dextrin, maltose, and dextrose. It is used for many purposes; as a food, in corn starches; infants' food, arrow-root, etc.; laundry purposes; for sizing or glazing paper or cloth; in preparing adhesive gums, and in the manufacture of glucose.

STEAMSHIPS. The Spaniards claim that Blasco de Garay attempted to propel a vessel by steam in the harbor of Barcelona in 1543. Denis Pupin is said to have propelled a boat by steam on the River Fulda (1707), but it does not appear that he built a steam engine, though he did invent a safety valve and a single cylinder steam pump; his boat had paddles which were operated by men, not by steam. From then on many inventions appeared which were impracticable. Rumsey in Virginia invented (1786) a jet propeller (a stream of water driven from a steam pump) which made four knots an hour. Fitch, Bramah, Lyttleton, Shorter, Stevens, Brunel, Taylor, and Symington invented and patented until Fulton brought out the "Clermont" (1807), the first real success in steam navigation. From that period rapid progress has been made, mainly due to improvements of the marine engines and advances in construction. The paddle gave way to the screw propeller, and the turbine has revolutionized the operation of the propeller. The demand for increased speed called for higher steam pressure than the single cylinder or the compound engine could produce, and the triple expansion engine was introduced. The advantages of the water-tube boiler were apparent, and the quadruple expansion engine was evolved. Size and speed have constantly increased in trans-ocean traffic since the White Star line "Britannic" and "Germanic" reduced the Queenstown to New York passage to eight days (1874), and an era of speed competition has ensued. The fastest record to the present time is that of the "Mauretania" of the Cunard line, which, September 26-30, 1909, ran from Queenstown to New York in 4 days, 10 hours, and 51 minutes, eclipsing the prior record of her ill-fated sister ship, the "Lusitania," 4 days and 15 hours, September 16-20, 1908. The "Mauretania" is 790 feet long, 88 feet beam, has 45,000 tons displacement, and quadruple screws. Her fastest day run was in June, 1909, 673 knots, or 26.55 knots per hour. Two new steamers appeared in New York harbor during 1914; the "Aquitania," another Cunarder, 900 feet long, 97 feet beam, 92 feet depth of hull, 47,000 gross tonnage, speed for two days of voyage 24.24 knots; the "Vaterland," a Hamburg-American liner, 950 feet long, 100 feet beam, 54,500 gross tonnage, average speed for voyage 23.02 knots, The "Great Eastern" (1861) had both screw and paddles, was 692 feet long, 80 feet beam, 27,000 tons displacement, and with paddle, screw, and sail had a speed of 13 to 14 knots per hour. She was mainly successful in laying trans-ocean cables.

STENOGRAPHY. The art of writing by means of brief signs which represent single sounds, whole words, or groups of words. John Willis wrote a treatise upon it in 1602, and history traces its early use to 70 B. C. The famous Gurney system appeared in 1751; Byrom, Taylor, Mavor, Harding, Odel, Richardson, Roe, Cadman, etc., paved the way for the Pitman method in 1837, for which Pitman was knighted in 1893. The Pitman system was brought to the United States by Stephen Pearl Andrews in 1844. Speed varies with surroundings; tests of public speaking show 130 to 180 words a minute to be easy, and 200 to 250 perfect transcriptions from the "take" has been accomplished in England and the United States. All other records are generally of specially arranged matter and for a very limited time, and do not call for a perfect transcription as does ordinary matter.

SUBMARINE. A craft intended for use under water all or part of the time. The first reliable and practical submarine was built in the early part of the seventeenth century, when a Dutchman, Cornelius Drebbell, successfully navigated a boat, manned by twelve rowers, in the Thames. An American named Bushnell, in 1775, invented a boat fitted with two oars on the principle of the screw, a rudder, a valve to admit water for sinking the vessel, force pumps for driving it out again, and a device for attaching explosives to the bottoms of vessels. Robert Fulton, of steamship fame, in 1800, made tests in the Seine with an egg-shaped boat using compressed air. In 1851, an American shoemaker named Phillips is said to have spent a day in a submarine at the bottom of Lake Michigan, with his wife and family. In 1863 both Federals and Confederates made use of submarines, screw-propelled and steam-driven. Since 1885 the development of submarines has been very rapid, beginning with their use in the French navy. Great Britain and Germany have followed the lines of the so-called "Hollands," the invention of J. P. Holland, an American. Submarines are now found in all navies. They are fitted with electric and gas engines, pumps for air and water, air locks, searchlights, etc. The details of their submarines are very jealously guarded by all nations and only the most common principles of their construction are allowed to be made known. The gyro-compass has added greatly to submarine efficiency, as boats equipped with gyro-compasses do not need to rise to the surface to determine their direction through the periscope as formerly. The compass will probably also act as a stabilizer when the boat is diving or rising to the surface. All the larger submarines carry 3-inch guns or larger and some carry anti-aircraft guns. Under-water armament is no longer a sufficient protection for surface vessels. Their safety must depend on speed and watchfulness. During the present European war (1916) they have been greatly used as commerce destroyers, and in the battle off Jutland (May 31, 1916) modern submarines were first successfully used in a definite naval engagement. Three types of naval submarines have been developed: the coast submarine, the cruiser submarine, and the submarine cruiser. The coast submarine has a displacement of from 250 to 500 tons; and has a fair rate of speed but a limited cruising radius—50 miles when submerged and about 500 miles on the surface. The cruiser submarine is larger, has higher speed and a larger cruising radius. The submarine cruiser is larger still, and much swifter, can spend a longer time under water, and has a cruising radius sufficient for a voyage of several thousand miles. In addition to commerce-destroying submarines the Germans are now building commerce-carrying submarines. One of these boats, the "Deutschland," left Bremerhaven with a cargo June 23, 1916, and docked at Baltimore on the morning of July 10, having successfully evaded the blockading fleet of the Entente Allies. The Deutschland is about 315 feet long and 30 feet beam, and is propelled by two powerful Deisel oil-burning engines and carried 750 tons cargo. She had traveled more than 4,000 miles, having gone 800 miles out of her course to avoid enemy ships. Though a notable occurrence, this is not the first instance of a long voyage having been made by a submarine. Other submarines have demonstrated their capacity for long voyages, some of the older type having a record of 1,500 to 4,000 miles; the German U-51 made the trip from Wilhelmshaven to the Dardanelles, a distance of about 4,000 miles; the British E boats went from Portsmouth to the Dardanelles, about 3,500 miles.

SUGAR. Found mainly in sugar cane, beets, and maple sap. The cane yields 65 per cent. juice and 18 per cent. sugar. Evaporated at a low temperature, the crystal is brown sugar, the uncrystallized residue is molasses. The brown sugar is mixed with one half or one third its bulk of water containing lime, boneblack, and serum of ox blood, and is heated by passing steam through it. The albumen of the serum coagulates, rising to the surface with the boneblack and impurities, leaving a clear syrup, which is filtered through powdered boneblack till colorless; then heated to crystallize in a pan raising the temperature and excluding air. A centrifugal filter separates

the crystals from the uncrystallized sugar; improved by Joseph Hurd of Massachusetts (1844-1858). In beet sugar the roots are rasped to a pulp, the juice expressed and refined as with cane sugar. The sugar beet is large, white, and sweet, and is grown extensively in the United States, France, Germany, Austria, Russia, Belgium, and Holland.

TELEPHONE. Essentially a United States product in its development to date. An instrument for the transmission of speech, or other sound, by means of electric vibrations. Page, of Salem, Mass. (1837), noticed an iron rod suddenly magnetized and demagnetized would emit certain sounds due to a rearrangement of molecules. Bourseul of France (1854) conceived the fundamental idea, but did not put it into practice. The credit for the practical development of the idea was given to Alex. Graham Bell (1876) after much and varied litigation. The story of his discovery, his work upon it, and the methods employed, reads like a romance. A soft iron magnet is held by its edges in front of an electro-magnet; a weak electric current passing through the coil of the magnet attracts the disc; a pulsating current vibrates it in consonance or harmony with the vibrations of the current. This disc is the diaphragm, and when used as a transmitter it vibrates under the influence of the voice forming what are termed sound waves. This produces currents by induction in the wire of the coil which are transmitted over the line wire, and into the coil of the receiving instrument, causing its magnet to become strongly magnetized; the diaphragm is attracted and moves in harmony with the diaphragm of the transmitter, the sound waves being reproduced almost simultaneously with their production. The ordinary telephone connection consists of two wires technically called a circuit, each wire being one side of the circuit. A phantom circuit is a circuit superimposed on two ordinary circuits so that each can be used as one side of the phantom circuit and three practical talking circuits thus made from four wires. Long distance telephone service is achieved by substituting heavy copper wire for the usual iron wire conductors, and extreme long distance by the use of the loading coil and telephone repeaters, and by the transposition of both metallic and phantom circuits, in addition to the copper wire conductors. (See page 426.)

TOBACCO. One of the leading industries of the United States. The origin of the name is in doubt, but probably came from the island of Tobago. The use of tobacco or other fumigatory herbs appears to have been known to the Boethians, Scythians, Chinese, etc., during the more remote periods, but the cultivation of the modern tobacco probably dates from the seed taken to Spain by Gonzalo Fernandez de Oviedo; it was cultivated as an ornamental plant until Nicolo Manardes extolled its medicinal virtues. In America its cultivation began with the earliest settlement of Virginia, and although no mention of the herb is found in Shakespeare it was well known in England prior to and during his era. In 1615 it was the currency of Virginia; the Dutch colonists cultivated it in 1646; but Maryland, the Carolinas, Georgia, and later, Kentucky, made it their leading crop for years after the first settlement. From 1744 to 1776 the exports averaged 40,000,000 pounds a year, and the production spread to Florida, Pennsylvania, Connecticut, Ohio, Wisconsin, Indiana, Missouri, and a number of other states in limited degree. The United States produces more tobacco than any other country in the world; exporting more than one third of the product, mainly to England, France, Germany, Italy, Austria, and Holland. The leaf of Pennsylvania is mainly "filler" which goes in the cigar, while Florida and Connecticut largely produce the "wrapper" or outer covering. Virginia and the Carolinas produce the golden leaf used in pipe tobaccos and cigarettes, while Kentucky has a strong, dark growth almost entirely exported, and Louisiana produces the curious Perique, used in pipe smoking mixtures, but now apparently dropping from favor. The tobacco crop of the United States in 1908 amounted to 718,061,380 pounds, grown on 875,425 acres, and valued at $74,130,185. The next largest tobacco producing country is Russia, with 232,767,000 pounds. The leaf tobacco export of the United States in 1908 was 287,900,946 pounds valued at $30,902,900; the manufactured products amounting to $4,701,617. In few industries have there been such radical modern changes during the past 20 years. Factory processes have been revolutionized. Cleanliness is the typical feature where dirty floors, tables, etc., and an atmosphere polluted with constantly burning tobacco were taken as the established orthodox surroundings. Scientific manipulation in curing and handling the raw material has worked modern miracles, and practical "team work" by departments eradicates loss of time and materially decreases cost of production.

In the growing of the leaf tobacco intended for cigars the finest seed growths of the world have been brought to the United States, and in Florida have been established tobacco farms where the leaf is grown under artificial canvas shades, protecting it from too much sun, yet giving it all that modern scientific methods demand. Electric light has rendered it possible to work at night, removing grubs and worms from the growing plants before they can do much damage, and modern spraying apparatus works along the correspondingly same direction. Under these methods the value of the tobacco is doubled and sometimes trebled in value, by reason of its more marketable color and texture. The seed is planted in large beds, the small plants at about six weeks old are transplanted to the fields, when flowers appear they are "topped" or cut off except when seed is desired, and when the leaves begin to turn yellow the plant is ready for the harvest. The stalk is cut near the ground (or when intended for the better grades of cigar tobacco the individual leaves are gathered as they ripen), the plants are dried on scaffolds in the tobacco house, and then go through various processes as required for cigars, smoking tobacco, cigarettes, chewing tobacco, or snuff. The "curing" process is one of fermentation, caused by unorganized ferments inherent in the leaf, and extends from two weeks to two years, according to handling. It is quickly done in heated rooms, slowly when stored in cases or barrels in warehouses, and in Cuba it is piled into a tapering pyramid, pulled down, and repiled, as the process matures the leaf. The Cuban tobacco ranks highest in quality, and most of the highest priced cigars are made entirely of this growth. It has many varieties, from the small Vuelta Abajo leaves to the enormous Remedios, the latter being principally used in what are termed "seed and Havana" cigars in the United States, the "seed" being the native grown wrapper, or one of imported Sumatra tobacco. The marvelous individuality and quality of the Vuelta Abajo leaf are due to the soil, which was raised from a valley by the constant influx of tidal water from the sewage laden bay of Havana, until at last the ground rose higher than the water level. Then only the high tides, and finally only the highest tides produced by the strong north winds or "northers," penetrated. The soil was made from silurian mud, sea vegetation, dead fish, and small land animals, the ordure of birds, and the constant shower of needles from the pines covering three sides of the valley. There is no soil known to be like it in the world; the seed of tobacco grown there does not reproduce the native quality when planted and grown in other countries, and even in Cuba, only the famous valley known as Vuelta Abajo produces this unique growth.

TYPEWRITER. A machine for making legible characters, or printing, without the aid of detached type. It was crudely patented in England (1714); was improved in France (1833); but it remained for America to bring it to its present perfection. Its well-known square frame holds a number of compound levers worked from a keyboard; each key bears a corresponding letter or symbol at each extremity, and as the keyboard lever is depressed the opposite end of the lever is smartly struck upon an ink ribbon, carrying it against paper held around a hard rubber roller, and making an impression of the letter or symbol carried on the lever. A device moves the roller at every stroke, thus spacing the letters correctly, as in printed type. Recent improvements place the writing in full view of the operator, instead of underneath the carriage; place two colored ribbons at the command of the operator, render the reversing of the ribbon bobbins automatic, and render the turning of the paper for a new line automatic with the pushing back of the carriage. There is also a machine for use in offices which bills, ledgers, and adds automatically, making a 75 per cent. saving in work, and giving mechanical, instead of brain, accuracy. Other types of machine have ink pads instead of ribbons, and various types of keyboards, but the standard is what was introduced as the Remington in 1874, to which formative model most of the high class machines have been brought. An electric machine is mooted in which the depression of a key is transmitted to a letter, causing it to move by electricity, and not by lever or cam. Another still visionary machine is to operate with a cylinder from a phonograph, reproducing automatically on paper what has been spoken into the phonograph. Typewriters save immense time in business, the operator producing five times the work with less fatigue, the speed ranging from 40 to 100 words per minute. Up to 15 manifolds, or reproductions of copy, can be made at one time.

WASTE PRODUCTS. The commercial ideal is the utilization of all residues in industrial processes, thus making profits still larger, producing a greater area

of production, and therefore of work, and enriching the world by adding largely to the supply of its necessities and luxuries. The utilization of the waste products of gas, petroleum, coal, the packing industry, and many others, were simply the first steps to a much wider field, and to-day chemical technology is forging strongly to the front. One of the most important industries recently affected is the immense waste product in distillation, the residue from the "mash," containing salts of potash, soda, and nitrogenous compounds; in grain distillation about one pound of nitrogen is thrown away for every ten gallons of alcohol produced; in Europe alone 100,000 tons of ammonium sulphate is thus lost instead of being used as fertilizer, representing a loss of about $4,000,000. In the beet sugar industry the juice is rich in various albuminoids, hydrocarbons, and waste sugar, and it is estimated that a production of 50,000,000 tons involves a loss of $12,000,000 worth of nutritive substances, most of which are to be recovered and used. About 80 per cent. of the heat and power of a ton of coal passes away through the chimney and the exhaust, a loss estimated by Germany alone to be worth $20,000,000 yearly. Lime-silica bricks are formed of cement obtained by the calcination of the lime precipitates of the sugar refineries; the fatty matters are extracted from wool and variously used; and, apart from the values in augmented products of established types, there are constantly being evolved immensely useful and valuable novelties of all kinds. In several of the industries the value of the one time waste products to-day is greater than the value of the original product.

WATCHES. The mainspring and balance are used instead of the weights and pendulum in a clock. Lathes produce the staffs, pinions, arbors, on which the wheels and moving parts work, and also the plates supporting the mechanism; perforations for screws, arbors, etc., are made in the plates by drills; all screws are made by machines; cutters or saws shape the teeth in the wheels and pinions; hammers or rollers are used with great care to obtain uniform density and compress the metal of the balance, which is then faced and recessed by lathes, tapped by drills, finished and glossed. Special machinery is necessary to draw, flatten, finish, and coil the springs. The moderate priced American watch has revolutionized the watch trade of the world. Automatic machinery produces most of the watch cases; gun metal, nickel, silver, gold, and alloys are used. Thick beveled glass is used on most open-faced watches.

WEAVING. The art of combining threads, yarns, or strips of various materials into a cloth or textile fabric. Weaving has existed from the earliest ages, straw, grass, and then yarns. For centuries hand weaving was an important factor, declining under the factory system. Woven material consists of two sets of threads or yarn traversing the web in different directions, passing over and under each other. The warp is a thread running the entire length of the web; the woof is the thread running across the cloth. In plain weaving these cross alternately, and variations produce "twill weaves" and "satin weaves." Whether by hand or by loom, weaving has three movements: shedding, picking, and beating up. The shed is formed by raising some threads and lowering others; picking consists in passing the woof through the shed; after which it is pressed towards the cloth roll, or beaten up. Another shed is then formed, and the movements repeated indefinitely.

WOODWORKING. A term applied to the utilizing of lumber. The machinery consists of planers, lathes, and abrasive machines, by which sandpapering, polishing, and finishing is done by machinery. Roughly sawed planks, boards, and beams are brought to standard sizes and smoothness, by surfacers or planers of revolving cutters operating on all four sides at once; tongues and grooves in the edge being cut at the same time; other machines cut curved surfaces such as moldings, and others do carving, scrolling, paneling, and dovetailing. The modern automatic attachments to the lathe make almost all things possible to a clever workman. Tenon joints and mortising are cut by machines with rotary cutters and reciprocating chisels, and the boring machine has been greatly improved. Abrasive machines include the endless sand belt and emery belt, with drum machines for use on flat surfaces. The great diversity in weight, strength, hardness, and quality of grain gives infinite variety in practical woodworking. A new process for seasoning wood is by electricity, under the Noden-Brettonneau process. The wood is immersed in a solution of ten per cent. borax, five per cent. of rosin, and a little carbonate of soda, and a current of electricity is passed through the bath—and the wood—removing all sap, filling the pores with rosin and borax. Two hours are claimed to season the wood satisfactorily. Experiments as to the durability of various woods by driving sticks of certain dimensions into the ground, show that in five years, oak, elm, ash, fir, soft mahogany, and nearly every variety of pine, were totally rotted; larch, hard pine, and teak were decayed on the outer surface; while acacia (locust) was practically sound. Hard mahogany and cedar of Lebanon were in good condition, but only Virginia cedar was actually as good as when put in the ground. In a dry state beams are known to be nearly 1,100 years old, and piles driven by the Romans, prior to the Christian era, are in good condition after an immersion of 2,000 years. Cedar, oak, yellow pine, and chestnut are the most durable in dry surroundings; posts can be secured against rot by seasoning, charring with fire, and immersion in hot coal tar. Hard wood stumps rot in five to six years; spruce in about the same period; hemlock in eight to nine years, and cedar eight to nine years; pine stumps never decay.

WOOL. The foundation of the textile industry. A process following closely to nature, although doubtless the prehistoric first worker never grasped the fact. The process depends on the fact that certain fibers combine mechanically to form a homogeneous whole. Twine a human hair with a wool fiber and they fall apart easily; two fibers of wool cling. Textile industry forms animal and vegetable fibers into threads, which are woven into various fabrics. Spinning and weaving are common to all branches, but otherwise each separate division is somewhat of a law to itself. The principal fibers are wool, cotton, silk, flax, hemp, jute, coir (cocoanut fiber), and ramie or China grass. Wool varies in quality according to the staple produced by various sheep, etc., and the staple is the basis of classification. The wool coat is naturally dependent on climate to a great extent. Lincolnshire and Leicestershire sheep produce the more lustrous wool, the staple being eight inches long, while in the softer, silkier Merinos it is two inches. The finer Merino wool felts more readily, and is used for carding and spinning, the longer stapled wools being less wavy and better suited to combing and making non-felting worsteds. Saxon wool has the best felting quality, being very short staple. Wool is divided into long, middle, and short staple, sheep also being grouped along these lines. While the spinning and weaving were known almost beyond history, it was not until comparatively late years that the great advances were made, England standing foremost, although much credit is due to France and to the United States. The wool is sorted into lengths and grades, washed, scoured, and dried, left white or dyed, carded into threads, and spun into yarn, and so into cloth, when it is "burled," filled with soap, milled, teasled, shorn, steamed, and pressed. These are the leading features of the process, which varies in individual handling. "Burling" is abstracting loose threads, burrs, etc., and "teasling" is scratching with brushes made of teasels (the spiny head of the *Dipsacus fullonum*) which produces the "nap," or rough face, ready for the more or less close clipping of another part of the finishing. If wool only were to be used it would be a simple matter, but modern conditions require the use of many varieties of wool, and a large number of other raw materials, so that nearly every textile fiber comes into the wool industry. If a cloth is enriched, silk is used; in carpets linen forms the warp; to cheapen a fabric there is used cotton, noils (the refuse of the combing), shoddy (old worsted rags, or any old, soft cloths of wool, made over into a short, brittle, and unreliable product), mungo (inferior shoddy), and extract (the lowest form of textile fiber). The three raw materials of the wool manufacturer are animal fibers, *i. e.*, wool, hair, and silk; vegetable fibers, *i. e.*, cotton, flax, jute, and hemp, and artificial fibers, *i. e.*, noils, shoddy, mungo, and extract. The raw material produces 76.9 wool, 23.9 shoddy, with practically no waste. No animal has a wider geographical distribution than the sheep,—Iceland, India, Australia, the tropics, and Patagonia in the extreme south. In the United States the industry came in with the local fulling mills, in which cloth was cleansed, thickened, etc.; this was followed by the public carding mills where the wool was made ready for the old spinning wheels, the first being at Pittsfield, Mass. (1790); the first woolen mill appeared at Newbury, Mass., in the same year. In 1810 the amount of homespun was visibly lessening by reason of several mills, and in 1820 the mill product was $4,413,068. The last census report gave a total of 1125 establishments manufacturing wool in the United States, with the product value of $507,166,710. The production of wool in 1915 was 288,777,000 pounds, valued at $64,974,825. The world production of wool for 1914 amounted to 2,872,487,987 pounds according to the latest official returns and commercial estimates.

USEFUL NATIVE WOODS.

WOOD.	Weight. Pounds per Cubic Foot.	Pounds per Square Inch.		REPRESENTATIVE USES.
		Crushing Strength.	Breaking Strength.	
Alder	28-35	5,000	10,000	Manufacture of furniture.
Arbor Vitæ	20	4,400	7,300	Posts, railway ties, etc.
Ash, White	41	7,300	14,000	Wagon building, axe handles.
Ash, Hoop (Black Ash)	35	6,100	11,500	Agricultural implements, carriages, furniture, tool handles, and interior finish for houses.
Ash, Mountain	34-37	5,500	6,300	Flooring.
Ash, Oregon	36	7,500	9,500	Furniture, carriage frames, wagons, cooperage.
Ash, Prickly	31-37	6,500	10,000	
Basswood (Linden)	25-26	5,900	8,000	Cheap furniture, wooden ware, paper pulp, inner soles of shoes.
Bay, Loblolly	29	5,500	9,400	Cabinet making.
Bay, Red (Isabella Wood)	40	8,000	12,800	Cabinet making, interior finish for houses. Formerly, shipbuilding.
Bay, Rose (Great Laurel)	39	6,300	9,300	Tool handles, engraving.
Beech, American	43	7,000	16,300	Shoe lasts, plane stocks, shipbuilding, handles, and fuel.
Birch, White	36	5,000	11,900	Spools, shoe pegs, hoops for barrels, and wood pulp.
Birch, Black	47	5,600	11,500	Furniture and occasionally shipbuilding.
Birch, Yellow	41	8,900	17,700	Furniture, boxes, and hubs for wheels.
Birch, Canoe	37	7,000	14,000	Spools, shoe lasts, turnery, wood pulp, and occasionally lumber.
Box Elder	27	6,400	11,300	Cheap furniture, interior finish for houses, paper pulp, etc.
Boxwood (Flowering Dogwood)	51	7,700	12,800	Cabinet making and turnery.
Buckeye	27-28	4,500	7,000	Artificial limbs, paper pulp, and occasionally lumber.
Buttonwood (Sycamore)	35	6,500	9,000	Tobacco boxes, butchers' blocks, manufacture of cheap furniture.
Cedar, Red	31	6,000	10,500	Interior finish for houses, linings for closets and chests, and manufacture of lead pencils.
Cherry	36	7,800	11,700	Cabinet making, and interior finish for houses.
Chestnut	28	5,500	9,800	Cheap furniture, interior finish for houses, railway ties, etc.
Chinquapin	37	6,200	10,400	Agricultural implements, railway ties, fence posts, and rails.
Coffee Tree	43	5,800	10,900	Cabinet making and fence posts.
Cypress, Bald	27	6,000	9,100	Lumber for construction, railway ties, and fence posts.
Elm, White	40	6,300	12,100	Hubs of wheels, saddle trees, flooring, cooperage, and boat and ship building.
Elm, Red (Slippery Elm)	43	7,700	12,300	Fence posts, railway ties, sills for buildings, hubs for wheels, and agricultural implements.
Elm, Cork (Rock Elm)	45	8,500	15,100	Agricultural implements, frames for chairs, hubs of wheels, sills for buildings, etc.
Elm, Winged (Wahoo)	47	6,300	10,200	Hubs for wheel and handles for tools.
Eucalyptus (Blue Gum)	61-65		13,000	Rollers, paving blocks, shipbuilding, and carriage making.
Fir, White	24	5,600	7,000	Interior finish for houses, packing cases, wooden ware.
Fir, Yellow (Oregon Pine) (Red Fir)	32	7,500	12,500	All kinds of construction, railway ties, piles, and fuel.
Gum, Cotton	29	5,200	9,300	Wooden ware, broom handles, and vegetable boxes.

WOOD.	Weight. Pounds per Cubic Foot.	Pounds per Square Inch. Crushing Strength.	Pounds per Square Inch. Breaking Strength.	REPRESENTATIVE USES.
Gum, Sour	40	6,700	12,000	Hubs of wheels, rollers in glass factories, wharf piles, and ox yokes.
Gum, Sweet (Red Gum)	37	6,700	11,100	Outside finish for houses, cabinet making, paving blocks, wooden dishes, fruit boxes.
Hackberry	46	7,000	12,200	Fencing and cheap furniture.
Hemlock	26	5,500	10,200	Outside finish for houses.
Hickory (Pig Nut)	51	8,300	15,400	Similar to those of Shell Bark Hickory.
Hickory (Shell Bark)	50-52	9,000	17,000	Agricultural implements, carriages, wagons, baskets, etc
Honey Locust	42	7,200	13,100	Fence posts and rails, hubs of wheels, and construction.
Hornbeam (Blue Beech)	45	7,200	16,300	Levers, handles for tools, etc.
Ironwood (Hop Hornbeam)	51	7,800	16,000	Fence posts, handles for tools, and other small articles.
Laurel, Cal	40		11,400	Shipbuilding, cabinet work, crosstrees, etc.
Laurel, Madroña (Madroña)	43		12,000	Gunpowder, charcoal, and furniture.
Magnolia, Mountain (Cucumber Tree)	29	6,000	9,400	Cabinet making, cheap furniture, broom handles, pump logs, etc.
Maple, Hard (Sugar Maple)	43	8,000	13,600	Furniture, cabinet making, interior finish of houses, shipbuilding, turnery, flooring, saddle trees, etc.
Maple, Oregon (Broad-leaved)	30	5,500	9,700	Furniture, broom handles, etc.
Maple, Red	38	6,600	11,500	Chairs, cabinet making, turnery, gun stocks, etc.
Maple, Soft	32	6,900	14,500	Furniture and flooring.
Mesquite	47	8,500	6,800	Flooring, turnery, and largely for wooden pulp.
Mesquite, Screw-pod	47	9,600	12,700	Furniture, fellies of wheels, paving blocks, and charcoal.
Mulberry	37	6,000	10,900	Fencing, cooperage, shipbuilding.
Oak, Burr	46	7,000	13,900	Same as White Oak.
Oak, Live (Virginia)	59	7,800	14,400	Occasionally for shipbuilding.
Oak, Live (Western)	53	7,800	18,000	Agricultural implements, wagons, etc.; most valuable oak of Pacific coast.
Oak, Post	52	7,000	12,400	Fencing, railway ties, fuel; also for cooperage, construction, etc.
Oak, Red	41	8,600	16,900	Construction, interior finish for houses, and furniture.
Oak, White	46	7,400	12,800	Shipbuilding, construction, carriages, agricultural implements, cabinet making, cooperage, etc.
Osage Orange	48	11,600	16,000	Fence posts, railway ties, wheel stocks, and paving blocks.
Pecan	45	6,200	8,200	Fuel and occasionally for wagons and agricultural implements.
Persimmon	49		12,400	Plane stocks, shoe lasts, etc.
Pine, Red (Norway Pine)	30	6,400	11,300	Used for all purposes of construction.
Pine, White	24	4,100	7,000	Construction, cabinet making, matches, etc.
Pine, Yellow or Spruce (Eastern Short-leaved)	38	6,800	14,700	One of the most valuable timbers for lumber.
Pine, Yellow or Southern (Long-leaved)	44	9,600	13,600	Masts, bridges, railway cars, etc.
Pine, Yellow (Western)	29	5,400	10,200	Largely for lumber; one of most important lumber trees of the West.

WOOD.	Weight. Pounds per Cubic Foot.	Pounds per Square Inch. Crushing Strength.	Pounds per Square Inch. Breaking Strength.	REPRESENTATIVE USES.
Plane Tree..... (Sycamore)	35	6,500	9,000	Furniture, interior finish for houses, tobacco boxes, ox yokes, and butchers' blocks.
Poplar..... (Cottonwood) (Big Cottonwood)	24	5,300	10,800	Interior finish for houses.
Poplar, Yellow..... (Tulip Tree) (Whitewood)	26	5,000	9,300	Construction, interior finish for houses, boatbuilding, shingles, brooms, and wooden ware.
Quaking Aspen.....	25	4,700	9,600	Flooring, turnery, and largely for wood pulp.
Redwood.....	26	6,000	8,500	Lumber, fence posts, railway ties, etc. Most valuable building material of Pacific coast.
Sassafras..... (Ague Tree)	31	5,500	8,500	Fence posts and rails, construction of light boats, ox yokes, and in cooperage.
Spruce, Black.....	28	5,800	10,600	Construction of houses, sounding boards, and paper pulp.
Spruce, White.....	25	4,900	12,900	Construction of buildings.
Tamarack..... (Larch)	39	7,900	12,800	Upper knees of small vessels, fence posts, telegraph poles, and railway ties.
Walnut, Black.....	38	8,300	12,100	Interior finish for houses, cabinet making, shipbuilding, etc.
Walnut, White..... (Butternut)	25	5,700	8,500	Interior finish for houses and furniture.
Willow.....	27-31	3,800	7,800	Fence posts and fuel.

USEFUL FOREIGN WOODS

WOOD.	Weight. Pounds per Cubic Foot.	Pounds per Sq. Inch. Breaking Strength.	REPRESENTATIVE USES.
Bamboo.....	19-25	27,400	Posts, poles, utensils, troughs, pipes, roofing, and paper.
Boxwood.....	64.8		Engraving and mathematical instruments.
Cedar, Spanish.....			Cigar boxes.
Ebony.....	74.2		Inlaid work, piano keys, etc.
Eucalyptus, Jarrah.. (Mahogany Gum)	65	8,900	Marine work, exposed positions, shipbuilding, bridge timbers, street paving.
Eucalyptus, Karrie.. (White Gum)	63	8,000	Construction, railway ties, piles, marine work, pavements, masts, lumber.
Greenheart.....	72	10,000	Ship keels, frames, rollers, turnery, beams, planks, piles, tops of fishing rods, veneers.
Mahogany, Spanish.. (Mexican Mahogany)	45	14,000	Cabinet work, veneers; formerly shipbuilding.
Mahogany, White... (Prima Vera)			Cabinet work, furniture, veneers.
Oak, English.....	51	10,000	Shipbuilding, beams, cabinet work; formerly carpentry.
Pine, Northern.....	34	7,000	Carpentry, construction, planks, beams, masts, heavy timbers.
Rosewood.....	64.2		Furniture, piano cases, burial caskets, piano work.
Sandalwood.....	58		Rich furniture, fine carvings for small objects, as jewel boxes and fan handles.
Satinwood.....	59.9		Cabinet work and odd sets of furniture.
Teak..... (Indian Oak)	50	15,000	Furniture, shipbuilding, timbers, backing for armor plates.
Yew.....	46.1-50.5		Chairs, canes, and whips.

DICTIONARY OF TECHNICAL TERMS.

AGRICULTURE, ENGINEERING, MINING, TEXTILE WORKING, ETC.

ABB. Woof; fleece skirtings.

ABBWOOL. Warp yarn.

ACTINOMYCOSIS, LUMPY JAW, or BIG JAW. An infectious disease found in cattle, also in horses, pigs, sheep, deer, and man. Caused by a micro-organism known as the Ray fungus. It is cured by doses of potassium iodid.

ADIT. A nearly horizontal passage from the surface, by which a mine is entered and unwatered with just enough slope to insure drainage.

AERATOR. A machine used in dairying to remove animal and barn odors from milk by causing the milk to ripple over a large exposed surface. By thus cooling the milk rapidly there is less danger of the growth of micro-organisms.

AEROPHORE. The name given to an apparatus that will enable a man to enter a mine filled with explosive or other deadly gases, with safety.

AGALACTIA. The lack of milk in animals after delivery; common among sheep and goats in a contagious form. Death occurs in about 15 per cent. of cases in 20 days.

AGRICULTURAL EXPERIMENT STATIONS. Originated in Germany in 1840. The first in the United States was established at Wesleyan University, Middletown, Ct., in 1875, under the direction of W. O. Atwater. The 60 stations now supported by the government cost about $720,000 from the federal government and $500,000 from state governments. Over 700 persons are employed and 450 annual reports and bulletins are issued to more than half a million addresses.

ALKALI SOILS. Soils abounding in regions of slight rainfall and containing an excess of soluble salts, especially of sodium. They are distinguished as the "black" and the "white" alkali. These tracts are found west of the one-hundredth meridian to the Cascades and into Canada and Mexico. Much of such land is reclaimable.

AMMONITE. A product of rendering establishments containing a large quantity of nitrogen; used as a fertilizer. It is practically the same as a high-grade "dried meat or meal," "animal matter," "tankage," or "azotin."

ANTHRACNOSE. A group of fungous diseases of plants in which the fruit, stems, and leaves are attacked with serious injury.

ANTHRAX. An infectious disease common in cattle and sheep, and also occurring in horses, mules, goats, etc. It is most prevalent in areas subject to inundation. The most effective means of preventing the spread of the disease is by burning the carcasses of animals dead from the disease. Anthrax is spread by flies, dogs, and carnivorous animals. It was the first disease upon which bacterial causation was demonstrated. The anthrax bacillus or *Bacillus anthracis* is found in the blood and tissues of animals suffering from the disease.

ANTICLINAL AXIS. The ridge of a saddle in a mineral vein, or the line along the summit of the vein, from which the vein dips in opposite directions.

ANTICLINE. A flexure or fold in which the rocks on opposite sides of the fold dip away from each other, like the two legs of the letter A.

APHIS. A small pear-shaped bug, usually brown or green in color and not more than one fourth of an inch in length, which infests the leaves, stems, and roots of all kinds of plants.

ARMY WORM. (*Lucania unipuncta*). A common grayish-black caterpillar about one inch in length, which sometimes becomes so numerous as to destroy large areas of grain and other crops.

ARRASTRA. A circular trough in which drags are pulled around by being connected with a central revolving shaft by an arm and chain. Used for grinding and amalgamating ores.

ARSENATE OF LEAD. A valuable insecticide used against the potato bug or Colorado beetle. Its chief advantage over Paris green is the fact that it does not burn foliage; is not easily washed from the leaves by rain; and being white can be seen upon the leaves. Usually applied in the strength of a teaspoonful to a gallon of water. May be combined with Bordeaux mixture.

ATRIPLEX. A genus of plants growing in alkali districts and known as saltbushes. In such localities they are the most valuable forage plants found; but elsewhere they are regarded as weeds. They are common to tropical countries and have been introduced to the arid regions of Australia and California.

BAFFLE. To brush out fire damp.

BALK. (1) A more or less thinning out of a seam of coal. (2) Irregular masses of stone intruding into a coal seam or bulging out of the stone roof into the seam. (3) A bar of timber supporting the roof of a mine or for carrying any heavy load.

BANK. Bobbin frame.

BAR DIGGINGS. (1) River placers subject to overflow. (2) Auriferous claims on shallow streams.

BASQUE. Crucible or furnace lining.

BATTER. The inclination of a face of masonry or of any inclined portion of a frame or metal.

BEAM. Wooden cylinder on which warp is wound in loom.

BEAMING. Winding warp on beam.

BEE MOTH (*Galleria mellonella*). A dull ash-colored, variously streaked moth, whose larvae feed on honeycomb occasioning great damage.

BENCH. (1) A natural terrace marking the outcrop of any stratum. (2) A stratum of coal forming a portion of the vein.

BENCH DIGGINGS. River placers not subject to overflow.

BILLY PLAYFAIR. A mechanical contrivance for weighing coal, consisting of an iron trough with a sort of hopper bottom, into which all the smaller coal passing through the screen is conducted and weighed off and emptied from time to time.

BINDER. Lever of shuttle box.

BINK. Mass of cotton ready for mixing.

BLACK FLUX. Charcoal and potassium carbonate.

BLACK HEAD. A malignant contagious disease of turkeys, due to the presence of bacteria in the intestines.

BLACK JACK. (1) Properly speaking, dark varieties of zinc blende, but many miners apply it to any black mineral. (2) Crude black oil used to oil mine cars.

BLACK LEG or **BLACK QUARTER.** An infectious disease among cattle, and, rarely, in sheep, goats, camels, pigs, and horses. It is often mistaken for anthrax. It runs its course and is fatal in nearly all cases. While medical treatment is of no avail, vaccination has been found a reliable preventive.

BLACK SAND. Dark minerals found with alluvial gold.

BLENDE. Sulphide of zinc; sphalerite.

BLIND LEAD or **BLIND LODE.** A vein having no visible outcrop.

BLIND WEAVING LOOM. Loom with wide warp.

BLOAT. A disease in cattle or sheep caused by the formation of gas in the first stomach. It is also known as hoven or tympanites. Usually brought on by eating too plentifully of green clover, alfalfa, or other legumes, and sometimes of grain. Cathartics, such as linseed oil or Epsom salts, are beneficial. When these fail puncture is necessary.

BLOCKING OUT. Working deep leads in blocks; somewhat like horizontal stoping.

BLOSSOM. The decomposed outcrop, float, surface stain, or any indicating traces of a coal bed or mineral deposit.

BLOWER. (1) A sudden emission or outburst of gas in a mine. (2) Any emission of gas from a coal seam similar to that from an ordinary gas burner. (3) A type of centrifugal fan used largely to blow air into a furnace. (4) A blowdown ventilating fan.

BLOWER. Machine for spreading textile fibers.

BLOW OUT. (1) To finish a smelting campaign. (2) A blow-out shot. (3) The decomposed mineral exposure of a vein.

BOASTING. Dressing stone with a broad chisel called a boaster, and mallet.

BODY. (1) An ore body, or pocket of mineral deposit. (2) The thickness of a lubricating oil or other liquid; also the measure of that thickness expressed in the number of seconds in which a given quantity of the

oil at a given temperature flows through a given aperture.

BOG IRON ORE. Loose earthy-brown hematite recently formed in swampy ground.

BOLL WORM (*Heliothis armigera*). A caterpillar which is very destructive to a great variety of crops.

BOLSTER. Sleeve of spindle in spinning frame.

BONE. Slaty coal or carbonaceous shale found in coal seams.

BONE FERTILIZERS. Bones supply nitrogen and phosphoric acid. Raw bone contains 4 per cent. of nitrogen and considerable phosphoric acid; steamed or gelatinized bone, from 28 to 30 per cent. of phosphoric acid and from 1.25 to 1.75 per cent. of nitrogen. Bone meal is fine ground bone and is quickly available for plant use. Dissolved bone is bone treated with strong sulphuric acid and is a dark-colored, coarse powder. Bone tankage is scraps and is stronger in nitrogen and weaker in phosphoric acid than bone. Bone ash is burned bone, valuable for phosphoric acid—from 27 to 36 per cent. Boneblack is bone carbonized by burning in closed vessels and contains from 32 to 36 per cent. of phosphoric acid. Coarse-ground bone takes longer to break up in the soil than does fine-ground, lasts longer, and is not so quickly available.

BONNET. (1) The overhead cover of a cage. (2) A cover for the gauze of a safety lamp. (3) A cap piece for an upright timber.

BORDEAUX MIXTURE. A fungicide composed of copper sulphate, quicklime, and water. The copper sulphate and the lime are dissolved separately in water and when needed for use are mixed together. There are several strengths used, the common being 4 pounds of copper sulphate, 4 pounds of quicklime, and 50 gallons of water. This is known as the 4—4—50. Other strengths are 6—6—50, and a 10—10—50 used for trees before any leaves or buds appear. To be effective it must be applied as a spray.

BORERS. The larvae of many species of insects, which penetrate trees and plants.

BORT. Amorphous dark diamond.

BOWK. An iron barrel or tub used for hoisting rock and other débris when sinking a shaft.

BOX DRAIN. A square or rectangular wooden or masonry drain, under a railroad, etc.

BRASQUE. A mixture of clay and coke or charcoal used for furnace bottoms.

BRATTICE-CLOTH. Heavy canvas for mine ventilators.

BREAKER. In anthracite mining the structure in which the coal is broken, sized, and cleaned for market.

BREAKING. (1) Forming wool fibers in long lengths. (2) Shortening flax fibers.

BREAKING-DOWN. Said of hard soils when they become mellow and crumbly.

BREAST. (1) A stall, board, or room in which coal is mined. (2) The face or wall of a quarry is sometimes called by this name.

BREAST-AND-PILLAR. A system of working coal by boards or rooms with pillars of coal between them.

BRECCIA. A rock composed of angular fragments cemented together.

BREWERS' GRAINS. The residue of grain (barley) in brewing. It is used as a food for live stock. This ranks with wheat bran and oil meals in feeding value, and contains usually 22.6 per cent. protein and 6.5 per cent. fat. Should be fed only when fresh and sweet.

BROADCASTING. Sowing seed by scattering as uniformly as possible over the land. Hand broadcasting has been largely superseded by the drill. After broadcasting the seed is covered lightly by a harrow or by drawing brush over the land.

BRUSH. (1) To mix air with the gas in a mine working by swinging a jacket, etc., which creates a current. (2) To "brush" the roof of an airway is to take down some of the rock slate, to increase the height or head room.

BUCK QUARTZ, or BULL QUARTZ. Hard non-auriferous quartz.

BUCKWHEAT. Anthracite coal that will pass through a mesh .5 inch and over a mesh .25 inch.

BUDDLING. Washing.

BUMPING TABLE. A concentrating table with a jolting motion.

BUNDLE. 60,000 yards of flax yarn.

BUNT. A parasitic fungous disease attacking wheat. The plant takes on a bluish-green color and never appears ripened. Grains show a black mass of foul-smelling spores on being broken open, giving rise to the popular name of stinking smut.

BURLAP. Wrapping canvas made of flax, hemp, or jute.

BURLING. Picking threads and knots off cloth.

BURR. Waste of raw silk.

BURRING. Removing foreign vegetable matters from textiles.

BUSH. To line a circular hole with a ring of metal, to prevent the hole from wearing out.

BUTT JOINT. One in which the ends of two pieces abut together without overlapping, and are joined together by one or more pieces called covers or welts, which reach across the joint and are fastened at both ends.

BUTTON. The globule of metal, the result of an assay.

CAM or CAMB. A piece fixed on a revolving shaft in such a manner as to produce an alternating or reciprocating motion in something in contact with the piece.

CAMBER. A slight upward curve given to truss or beam, to allow for settling.

CARBOHYDRATE. A term used to denote the starches, sugars, gums, and similar substances in feeding stuffs.

CASE-HARDEN. To convert the outer surface of wrought iron into steel by heating it while in contact with charcoal, or bone dust.

CEMENTATION. The process of converting wrought iron into steel by heating it in contact with charcoal, or of treating charcoal in a bed of hematite ore.

CHARGE. (1) The amount of flux used in assaying. (2) The material fed to a smelting furnace.

CHECKER COAL. Anthracite coal that seems to be made up of rectangular grains.

CHERT. A siliceous rock, often the gangue of lead and zinc.

CHILE BARS. Bars of impure copper, weighing about 200 pounds, imported from Chile, corresponding to the welch blister copper, containing 98 per cent. copper.

CHILL HARDENING. Giving a greater hardness to the outside of cast iron by pouring it into iron molds, which cause the skin of cast iron to cool rapidly.

CHINCH BUG or CHINTZ BUG (*Blissus leucopterus*). A small blackish bug with white wing covers, which is very destructive to grasses and cereals.

CHINE. Fabric woven with variegated and mixed yarns.

CHIP. Straw plait.

CHUCK. The arrangement attached to the revolving shaft, arbor, or mandrel of a lathe, for holding the thing to be turned.

CHURN DRILL. A long iron bar with a cutting end of steel, used in quarrying, and worked by raising and letting it fall.

CINNABAR. Red sulphid of mercury.

CLEW. Thread of warp or yarn.

CLEWING. Straightening warp threads.

COAL MEASURES. Strata of coal with the attendant rocks.

COASTER. One who picks ore from the dump.

COCK-A-BENDY. Tool for twisting ropes by hand.

COLORADO POTATO BEETLE (*Doryphora decemlineata*). A small yellowish beetle with longitudinal black stripes, which feeds, both in the larval and adult stages, upon the leaves of the potato; often doing great damage.

COMPOST. A mixture of fertilizing material which has been subjected to fermentation.

CONTACT LODE or VEIN. A vein lying between two differently constituted rocks.

CONTACT, POINT OF. Union of different formations.

COPPING RAIL. Bobbin rest on the throstle spinner.

CORDING. Setting the heddles, or healds, in the loom.

CORE. (1) A cylinder-shaped piece of rock produced by the diamond drill system of boring. (2)

Anything serving as a mold for something else to be formed around. A term much used in foundries.

COTTER BOLT. A bolt which, instead of a screw and nut at one end, has a slot cut through it near that end, for the insertion of a wedge-shaped key or cotter, for keeping it in place.

COUNTER. (1) A secondary haulage way in coal mines. (2) A cross-cut. (3) An apparatus for recording the number of strokes made by a Cornish pumping engine.

COUNTERSHAFT. A secondary shaft or axle which receives motion from the principal one.

COVER-CROP. A catch crop which is designed to cover the crop in fall, winter, and early spring.

CRAB. A short shaft axle which serves as a rope drum in raising weights; and is revolved either by cog wheels, a winch, or a capstan, of which it is a variety.

CRADLE. A box mounted on rockers, and containing a sieve for washing auriferous alluvial deposit.

CRAMP. (1) A short bar of metal having its two ends bent downward at right angles for insertion into two adjoining pieces of stone, wood, etc., to hold them together. (2) A pillar left for support in a mine.

CRIB. (1) A structure composed of horizontal timbers laid on one another, or a framework built like a log cabin. (2) A miner's luncheon.

CRIBBING. Close timbering, as the lining of a shaft, or the construction of cribs of timber, or timber and earth and rock to support a roof.

CROPPINGS. Portions of a vein as seen exposed at the surface.

CROWN. A cog wheel in which the teeth stand not upon the outer circumference as usual, but upon the plane of its circle.

CULM. Anthracite coal dirt.

CULTIVATOR. An implement used in the tillage of crops, to loosen the surface of the earth and kill the weeds.

CUPEL. A cup made of bone ash for absorbing litharge in assaying.

CUT. A length of yarn; 300 yards.

DEAD LOAD. In a bridge, the weight of the bridge itself with flooring, roof, etc., as distinguished from the live load of passing trains, vehicles, pedestrians, etc. In a train, the engine, cars, etc.; non-paying load.

DEAD ROAST. To completely drive off all volatile substances.

DIRT FAULT. A confusion in a seam of coal, the top and bottom of the seam being well defined, but the body of the vein being soft and dirty.

DOFFER. Comb or cylinder at end of carding machine.

DOG. (1) An iron bar, spiked at the ends, with which timbers are held together or steadied. (2) A short heavy iron bar, used as a drag behind a car, or trip of cars when ascending a slope to prevent their running back down the slope, in case of accident.

DOG IRON. A short bar of iron, forming a kind of cramp, with its ends bent down at right angles and pointed, so as to hold together two pieces into which they are driven.

DOUBLES. Shoestring ribbons woven from doubled warp.

DOUBLING. Spinning or twisting strands of yarn into one.

DOWNCAST. The opening through which the fresh air is drawn or forced into the mine; the intake.

DRAFTAGE. A deduction made from the gross weight of ore when transported, to allow for loss.

DRAW. (1) To "draw" the pillars; robbing the pillars after the breasts are exhausted. (2) An effect of creep upon the pillars of a mine.

DRAWING FRAME. Machine by which textile threads are attenuated.

DRAW-PLATE. A plate of very hard steel, pierced with small circular holes of different diameters, through which in succession rods of iron are drawn, and thus lengthened out into wire.

DRIVING. Excavating horizontal passages, in contradistinction to sinking or raising.

DROP BOX. Shuttle box automatically delivering shuttles as required.

DRY AMALGAMATION. Treating ores with hot, dry mercury.

DUMB DRIFT. A short tunnel or passage connecting the main return airways of a mine with the upcast shaft some distance above the furnace, in order to prevent the return air laden with mine gases from passing through or over the ventilating furnace.

DYKE or DIKE. (1) A wall of igneous rock passing through strata. (2) A fissure filled with igneous matter.

EDGING. Narrow lace.

EGG COAL. Anthracite coal that will pass through a 2.75 inch square mesh and over a 2 inch square mesh.

ENGINE PLANE. An incline up which loaded cars are drawn by a rope operated by an engine located at the top or bottom of the incline.

ENTRY. A main haulage road, gangway, or airway. An underground passage used for haulage or ventilation, or as a manway.

ENTRY STUMPS. Pillars of coal left in the mouth of abandoned rooms to support the road, entry, or gangway until the entry pillars are drawn.

ERGOT. A parasitic fungus which infests a number of wild grasses and which is poisonous to stock.

FACE. (1) The place at which the material is actually being worked. (2) The end of a drift or tunnel.

FALSE SET. A temporary set of timbers used until work is far enough advanced to put in a permanent set.

FALSE WORKS. The scaffold, center, or other temporary supports for a structure while it is being built.

FANCY. A cylinder on the carding machine.

FATIGUE. The increase of weakness produced in materials, by frequent variations in stress or by sustaining heavy loads for a long time.

FAVUS or WHITE COMB. A contagious disease of chickens, in which the comb and neck become coated with a crust sometimes one fourth of an inch thick and the feathers drop off.

FEATHER. A slightly projecting narrow rib lengthwise on a shaft, arranged to catch into a corresponding groove in anything that surrounds and slides along the shaft.

FINE DRAWING. Sewing up faults in a weave.

FINES. Very small material produced by breaking up large lumps.

FINGERING. Thick worsted yarn combed out.

FIRE BOSS. An underground official who examines the mine for gas and inspects safety lamps taken into the mine.

FLAT. (1) District or set of workings separated by faults, old workings, or barriers of solid coal. (2) The siding or station laid with two or more lines of railway, to which the full cars are brought from the working face, and from which the empty cars are taken back.

FLOAT. Broken and transported particles of vein matter, found on the surface of the ground.

FLOATS. Threads crossing without intersecting warp.

FLUMING. Lifting a river out of its bed with wooden launders or pipes, in order to get at the bed for working.

FLUX. Iron ore, limestone, and sand, which are added in various proportions to the charge in a furnace to make the gangue melt up and flow off easily.

FLYER. Double hook bent over bobbin on spinning frame.

FLYER LATHE. Horizontal beam which beats weft into warp.

FOOT-WALL. The lower boundary of a lode.

FOREBAY or PENSTOCK. The reservoir from which the water passes immediately to a water wheel.

FOREPOLING. Driving poles over the timbers so that their ends project beyond the last set of timbers and protect the miner against roof falls.

FOREWINNING. The first working of a seam, in distinction from pillar drawing.

FOUL BROOD. A destructive and highly contagious disease of bees.

FRAME SET. The four legs and cap or collar arranged so as to support the roof of a gangway.

FREE MILLING. Ores requiring no roasting or chemical treatment.

FULLING. Beating cloth to felt threads together.

FUNGICIDES. Substances which are used for the prevention or eradication of fungous diseases.

GAD. A small steel wedge used for loosening jointy ground.

GALLOON. Silk, woolen, or mixed braid.

GALLOWS FRAME. The frame supporting a pulley over which the hoisting rope passes to the engine.

GANGUE. The non-metalliferous material in an ore.

GANISTER. A hard, compact, extremely siliceous fire clay.

GAPES. A disease of chickens caused by a thread worm in the windpipe, which causes much gaping or coughing.

GASKET. A band or ring of any compressible material put between the flanges of pipes before bolting, to make them water tight or steam tight.

GASSING FRAME. Machine for burning loose fluff from yarn.

GATEWAY. (1) A road kept through a goaf in longwall working. (2) A gangway having ventilating doors.

GEODES. Large nodules of stone with a hollow place in the center, often lined with crystals.

GIG MILL. Machine which roughens up the nap of cloth.

GILL BOX. Wool combing machine.

GOAF, or GOAVE. That part of a mine from which the coal has been worked away, and the space more or less filled up with waste.

GOB. (1) Another word for goaf. (2) To leave coal and other minerals that are not marketable in the mine. (3) To stow or pack any useless underground roadway with rubbish.

GOB FIRE. Spontaneous combustion underground of fine coal and slack.

GOSSAN. A spongy ferruginous oxid left after the soluble substances have been dissolved out of a lode.

GOUGE. The layer of clay, or decomposed rock, that lies along the wall or walls of a vein.

GREEN CROPS. Crops designed to be plowed under for the purpose of improving the soil.

GREEN MANURING. The plowing under of green crops grown especially for that purpose.

GRILLAGE. A kind of network of timbers laid across each other at right angles; frequently placed on the heads of piles, for supporting piers of bridges, and other masonry.

GRIZZLY. A grating used to separate coarse ore from fine.

GRUB STAKE. The mining outfit or supplies furnished to a prospector on condition of sharing in his finds.

GUDGEONS. The metal journals of a horizontal shaft, such as that of a water wheel.

HACKLE. Steel pin used for straightening out fibers of flax or hemp.

HADE. The inclination of a vein or fault, taking the vertical as zero.

HALF GANG. Section of warp.

HAMMER-DRESS. To dress the face of a stone by slight blows of a hammer with a cutting edge.

HANGING WALL. In metalliferous mining, the stratum lying geologically directly over a bed or vein.

HANK. 560 yards of wool yarn; 840 yards cotton and silk.

HARDPAN. Hard, retentive subsoil.

HAT ROLLERS. Cast-iron or steel rollers shaped like a hat, revolving on a vertical pin, for guiding inclined haulage ropes around curves.

HEAD-HOUSE. When the head frame is housed in, the structure is known by this name.

HEADING. (1) A connecting passage between two rooms, breasts, or other working places. (2) A gangway or entry.

HEADING IN. Cutting back the tips or ends of branches.

HEAVY SOILS. Soils which are hard, dense, lumpy, or those that are very fertile.

HECK. Guide regulating spun yarns in reeling, warping, beaming.

HEDDLE. Evelets in looped cords hung vertically from transverse bars, and used to carry the warp.

HEER. A length of yarn equal to two cuts.

HESSIAN FLY. (*Cecidomyia destructor*). A small two-winged fly, one eighth inch long and of a dark color. Its larvae live on the stems of wheat, which are weakened so that they break down.

HIP ROOF, or HIPPED ROOF. One that slopes four ways; thus forming four angles called hips.

HOGBACK. A roll occurring in the floor and not in the roof, the coal being cut out or nearly so, for a distance.

HOLDING-PLATES. Strong broad plates of iron sunk into the ground, and generally surrounded by masonry; for resisting the pull of cables.

HOLE. (1) To undercut a seam of coal by hand or with a machine. (2) A bore hole.

HOOK WORM. An intestinal disease.

HORSE, or HORSEBACKS. Any irregularity cutting out a portion of the vein.

HORSE POWER. The power that will raise 33,000 pounds one foot high per minute.

HURDLE. Bowing bench of hat-felter.

HYDRAULIC CEMENT. A mixture of lime, magnesia, alumina, and silica that solidifies beneath the water.

INGRAIN. Dye in the wool.

INSTROKE. The right to take coal from a royalty to the surface by a shaft in an adjoining royalty.

INTAKE. (1) The fresh air passing into a colliery. (2) The passage through which the air is drawn or forced in a mine.

JAG-SPIKE. A spike whose sides are jagged or notched.

JARS. In rope drilling, two long links which take up the shock of impact when the falling tools strike the bottom of the hole.

JIG. (1) A self-acting incline. (2) A machine for separating ores or minerals from worthless rock by means of their difference in specific gravity.

JIGGER. Felting machine.

JIGGING. Separating heavy from light particles by agitation in water.

JOGGLE. A joint of trusses or sets of timber for receiving pressure at right angles or nearly so.

KEEKER. An official that superintends the screening and cleaning of the coal.

KEIR. Bleaching vat.

KEY. (1) An iron bar of suitable size and taper for filling the keyways of shaft and pulley so as to keep both together. (2) A kind of spanner used in deep boring by hand.

KOEPE SYSTEM. A system of hoisting without using drums, the rope being endless and passing over pulleys instead of around a drum.

LADE. Channel of water power.

LAGGING. Small round timbers, slabs, or plank, driven in and behind the legs and over the collar of a frame set to prevent pieces of the sides or the roof from falling through.

LAMINAE. Sheets not naturally separated but which can be forced apart.

LAMP STATIONS. Certain fixed stations in a mine at which safety lamps are allowed to be opened.

LANDER. The man that receives a load of ore at the mouth of the shaft.

LAP. Web of carded wool.

LAPPER. Cloth folder.

LAPPING. Blanket of calico printing machine.

LASH. Thong binding warp cords of Brussels carpet.

LATCH. Hinged hook of knitting needle.

LATTICE CARRIER. Endless belt of wooden strips carrying cotton.

LAUNDER. Water trough.

LAY. Of cotton, 120 yards; linen, 300 yards; rope, the style of laying the yarns.

LAY TOP. Conical block of wood kept close to the twining point of rope yarns.

LEACHING. To dissolve out with some liquid.

LEAD. (1) A ledge, lode, or vein. A more or less vertical deposit of ore formed after the rock in which it occurs. (2) In a steam engine, a certain amount of opening of the port valve before each stroke of the piston begins.

LEADER. A seam of coal too small to be worked profitably, but often being a guide to larger seams lying in known proximity to it.

LEUKAEMIA. An infectious and destructive disease of chickens.

LICKER-IN. Small roller working on carder between feeder rollers and main cylinder.

LIME CARTRIDGE. A charge of compressed dry caustic lime made up into a cartridge and used instead of gunpowder in breaking down coal.

LISTER. An implement for planting corn and other crops deeply to better protect them from frost and dry weather.

LISTING. The throwing up of the soil into ridges. Planting with a lister.

LOCO. A disease of sheep, horses, and occasionally cattle, caused by certain species of astragalus commonly known as loco or crazy weed.

LONG TOM. A wooden sluice about 24 feet long, 2 feet wide, and 1 foot high, for washing auriferous gravel.

LONGWALL. A system of working a seam of coal in which the whole seam is taken out and no pillars left, excepting the shaft pillars, and sometimes the main road pillars.

LOOSE END. (1) A portion of a seam worked on two sides. (2) A portion that projects in the shape of a wedge between previous workings.

MARL. A mixture of carbonate of lime and clay with more or less sand, used as a fertilizer.

MARSH GAS. CH_4, often used synonymously with fire damp.

MATTE. The unrefined product of a smelting process.

MAUNDRIL. A pick with two points and shanks, used for getting coal, etc.

MERCERIZE. Giving textile fibers a gloss.

MIDGE, WHEAT (*Diplosis tritici*). A small two-winged fly, the larvae of which are very destructive to the young kernels of wheat.

MILL CINDER. Slag from the puddling furnace of a rolling mill.

MINER'S INCH. A measure of water varying in different districts, being the quantity of water that passes through a hole 1 inch square under a given head.

MINE RUN. The entire unscreened output of a mine.

MITE. Several species of very small insects injurious to plants and animals, as the clover mite, cattle tick, etc.

MITER JOINT. A joint formed along the diagonal line where the ends of two pieces are united at an angle with each other.

MONKEY ROLLS. The smaller rolls in an anthracite breaker.

MONOCLINAL. Applied to an area in which the rocks all dip in the same direction.

MOTHER LODE. The principal lode of any district.

MOTIVE COLUMN. The length of a column of air whose weight is equal to the difference in weight of like columns of air in downcast and upcast shafts.

MOLDBOARD. The curved part of the plow which turns over the earth.

MUESELER LAMP. A type of safety lamp invented and used in the collieries of Belgium.

MUFFLE. A thin clay oven heated from the outside.

MULE. Spinning frame which draws and twists rovings.

MULLOCK. Rock and worthless minerals taken from a mine.

MUNGO. Cloth made of fibers derived from old woolen rags.

NODULES. Concretions that are frequently found in organic remains.

NOILS. Waste from combing machines.

OIL SHALE. Shale containing such a proportion of hydrocarbons as to be capable of yielding mineral oil on slow distillation.

ORE SHOOT. A large and usually rich aggregation of mineral in a vein.

OVERHAND STOPING. The ordinary method of stoping upwards.

PADDOCK. (1) An excavation made for procuring wash dirt in shallow ground. (2) A place built near the mouth of a shaft where ore is stored.

PANEL. (1) A large rectangular block or pillar of coal. (2) A group of breasts or rooms separated from the other workings by large pillars.

PICKING TABLE. (1) A flat or slightly inclined platform on which anthracite coal is run to be picked free from slate. (2) A sorting table.

PILLAR-AND-ROOM. A system of working coal by which solid blocks of coal are left on either side of the rooms, entries, etc., to support the roof until after the rooms are driven up.

PILLOW BLOCK. A kind of metal chair or support, upon which the journals of horizontal shafts are generally made to rest, and on which they revolve.

PINTLE. A vertical projecting pin like that often placed at the top of crane posts.

PLANT LICE. A large group of small bugs, usually pear shaped, green, brown, or black in color, which infest all kinds of vegetation.

PLUCKER. A kind of carding machine for combing wool.

PLY. The number of yarns in a thread.

RADDLE. Warping guide.

RATCHET-AND-PALL. The former is sometimes a straight bar, at others a wheel; in either case it is furnished with teeth between which the pall drops and prevents backward motion.

REED. Two-sided comb of brass wire, set in the loom lathe to beat the weft into the warp.

REVERTED. Said of phosphates which are in the process of becoming insoluble.

RIFFLE, or **RIPPLE.** Cross pieces placed on the bottom of a sluice to save gold; or grooves cut across inclined tables.

RIM ROCK. Bed rock forming a boundary to gravel deposits.

RIPPING. Removing stone from its natural position above the seam.

RIP-RAP. Rough stones thrown into the water to form a foundation, etc.

ROASTING. Heating ores to a temperature sufficient to cause a chemical change, but not enough to smelt them.

ROCK-SHAFT. A shaft which only rocks or makes part of a revolution each way, instead of revolving entirely around.

ROLLS. Cast-iron cylinders, either plain or fitted with steel teeth, used to break coal and other materials into various sizes.

ROUP. A contagious disease of chickens which affects the mucous lining of the mouth, larynx, nose and eyes.

RUST. Parasitic fungi especially injurious to wheat, oats, and other cereals, usually appearing as yellow, brown, or black spots on the leaves or stems.

SADDLE. (1) An anticlinal, a hogback. (2) The rollers and fixtures on top of the piers of a suspension bridge.

SAN JOSE SCALE (*Aspidiotus perniciosus*). A very small insect which attacks the limbs, leaves, and fruit of a great many species of food plants; considered the most pernicious scale insect in the United States.

SAWFLY. A four-winged fly which in the larval stage is highly injurious to vegetation.

SCAB (*Animal*). A contagious disease of sheep due to the scab mite.

SCAB (*Vegetable*). A disease producing black spots or pits on the surface of fruit and vegetables, caused by a minute fungus.

SCALY LEGS. A disease of chickens caused by a mite which burrows under the skin of the legs.

SCARF. The uniting of two pieces by a long joint, aided by bolts, etc.

SCORIA. Ashes.

SCRIMPING BAR. Regulator of the feed to a calico printing machine.

SET OF TIMBERS. The timbers of any framing, whether used in a shaft, slope, or gangway.

SHAFT PILLAR. Solid material left unworked beneath buildings and around the shaft to support them against subsidence.

SHAKING TABLE. An inclined table for concentrating fine grains of ore, which is rapidly shaken by a short motion.

SHEARING. Cutting a vertical groove, in a coal face or breast.

SHEAVE. A wheel with a grooved circumference over which a rope is turned either for the transmission of power or for winding or haulage.

SHEEP TICK (*Melophagus ovinus*). A peculiar fly without wings and with six legs. After the sheep are shorn it migrates to the lambs and causes serious loss among them.

SHEETS. Coarse cloth curtains or screens for directing the ventilating current underground.

SHROUD-LAID. Rope made of four strands.

SHUTTLE. Wooden boat carrying the weft cop across the warp.

SICKENING. A coating of impurities on quicksilver that retards amalgamation or the coalescence of the globules of mercury.

SILAGE. Green forage packed and preserved under pressure in air-tight buildings known as silos.

SINGING COAL. Coal from which gas is issuing with a hissing sound.

SIPHON-CULVERT. A culvert built in the shape of a U, for carrying a stream under an object, and allowing it to rise again afterwards to its natural level.

SKIP. (1) A car for hoisting out of a slope. (2) A thin slice taken off from a breast or pillar or rib along its entire length or part of its length.

SLICKENSIDES. The polished surfaces of vein walls.

SLIP. A smooth joint or crack where the strata have moved upon each other.

SLIVER. Soft rope or fiber formed on the carding machine.

SLUBBING. Reducing sliver to uniform size.

SLUICE BOX. A trough with ripples or false bottom for catching gold.

SMUT. An affection of cereal grains producing a swelling which is at length resolved into a powdery sooty mass.

SOILS. *Sandy.* A soil made up mostly of sand. It is dry, warm, easy to work, but has little absorptive power for water and fertilizers. *Clay.* A soil in which clay predominates. It is apt to be cold, wet, and difficult to till, but has a high absorptive power for water and fertilizing matter. *Loam.* A soil containing about equal parts of clay and sand is called a loam soil; if it contains more sand than clay it is called a sandy loam, and if it contains more clay than sand it is called a clay loam. *Muck.* A soil which contains an unusual amount of vegetable matter. It requires drainage and weathering for a year or so. *Alkali.* In arid regions soils often have accumulations of alkali through them or on the surface. The most common forms of alkali are sulphate and carbonate of soda. An excess of alkali is injurious to plants.

SOW. (1) A tool used for sharpening drills. (2) Iron deposits at the bottom of furnaces.

SPEISS. A basic arsenid or antomonid of iron, often containing nickel, cobalt, lead, bismuth, copper, etc., having a metallic luster of high specific gravity and a strong tendency toward crystallization.

SPELTER. The commercial name for zinc.

SPILES. A temporary lagging driven ahead in loose ground.

SPRAG. (1) A temporary prop used in mining. (2) A stick put through the wheels of a car to prevent their turning.

SPREADER. Flax carder.

SQUARE SET. A variety of timbering used for large excavations.

STANDING BOLT. A bolt with a screw cut upon each end.

STEMMING. Tamping a shot.

STOCKWORK. A rock run through with a number of small veins close together, the whole of which has to be worked in mining such deposits.

STOOP. A pillar of coal.

STOPE. (1) To excavate mineral in a series of steps. (2) A place in a mine worked by stoping.

STOVE UP, or STOVED. Upset. When a rod of iron heated at one end is hammered endwise the diameter of that end is enlarged, and it is said to be upset.

STRIKE (of a seam or vein). The intersection of an inclined seam or vein with a horizontal plane.

STRUT. A prop to sustain compression, whether vertical or inclined.

STUFFING BOX. A device for rendering a joint impervious where there is a hole through which a movable cylindrical body, as the piston rod of a steam engine, slides back and forth, or in which a shaft turns.

STULL. A post for supporting the wall or roof in a mine.

SUBSOIL. That part of the soil which lies below the few inches of improved and productive soil.

SWAGE. A tool, variously shaped or grooved on the face, used by blacksmiths and other workers of metals, for shaping their work.

SYNCLINE. The point or axis of a basin toward which the strata on either side dip. An inverted anticline.

TAMBOUR. Embroidery or fancy weaving apparatus.

TEASLING. Ruffling up the nap of cloth with burrs of the teasel (*dipsacus fullonum*).

TELLURIDES. Ores of precious metals (chiefly gold) containing tellurium.

TEMPLET. The outline of a molding or other article, cut out of sheet metal or thin wood, to serve as a pattern for stonecutters, carpenters, etc.

TENTER. Loom mechanic.

TENTER FRAME. Frame on which fabrics are stretched and dried.

THRIPS. Minute slender insects with four wings, which do considerable damage to various plants, especially grains.

THROW. (1) The vertical distance between the two ends of a faulted bed of coal. (2) The radius, or distance to which a crank "throws out" its arm.

THRUMS. Weft ends and broken warp.

TIPPLE. The dump trestle and tracks at the mouth of a shaft or slope, where the output of a mine is dumped, screened, and loaded.

TRAM. Silk weft.

TROMMEL. A drum, consisting of a cylinder or cone-shaped sheet-iron mantle (generally punched with holes) that revolves. Used for washing ores.

TRUNNIONS. Cylindrical projections or journals, attached to the sides of a vessel, so that it can rotate in a vertical plane.

TUBERCULOSIS (in animals). A contagious disease, similar to tuberculosis in man and due to the bacillus tuberculosis. Most common in cattle and hogs.

UNDERHAND STOPING. Mining a stope downward in such a series that it presents the appearance of a flight of steps.

UNDERPIN. To add to the height of a wall already constructed, by excavating and building under it.

UPTHROW. A fault in which the displacement has been upward.

VELURE. Smoothing and lustering the silk hat.

WALK MILL. Fulling mill.

WALL PLATES. The longest two pieces of timber in a set used in a rectangular shaft.

WARP. Threads on which the weft is woven to form cloth.

WATER TABLE. That part of the soil marked by the upper line of the free or standing water.

WEB. Fabric woven.

WEEVIL. Any one of numerous species of snout beetles in which the head is elongated. The larvae of some of the species live in fruit, nuts, and grains.

WEFT. Thread crossing the warp.

WHIM. A winding drum worked by a horse.

WHIP. A hoisting appliance consisting of a pulley supporting the hoisting rope to which the horse is directly attached.

WHITE DAMP. Carbonic oxid (CO). A product of slow combustion in a limited supply of air.

WILT. A disease of corn, cotton, flax, and garden products, caused by fungi. The plants usually wilt or are stunted and often die.

WINCEY. Cloth of cotton warp and wool weft.

WINNOWING GOLD. Air blowing. Tossing up dry, powdered, auriferous material in the air, and catching the heavier particles not blown away.

WIREWORMS. A number of hard, slender, yellow, or brown larvae which are frequently seen in the soil about the roots of cultivated crops.

WORK LEAD. Base bullion, silver lead.

YARN. Spun fiber.

ENGINEERING.

Great engineering achievements are among the most remarkable manifestations of man's power over the forces of nature and the obstacles to human progress. As a measure of a nation's civilization conquests in this direction are more tangible and real than mere intellectual advance, of which, however, they are a result. The audacity to plan, the ingenuity to overcome, and the perseverance that is baffled but not beaten

WILLIAMSBURG SUSPENSION BRIDGE. New York.

by such enterprises as the laying of the trans-Atlantic cable, the cutting of the Panama Canal, are qualities of heart and mind which evoke at once the awe and admiration of the world.

Bridges.—A bridge is a structure which spans a river, ravine, or other space, and designed for the passage of pedestrians, animals, or vehicles. A tree fallen across a stream is the most primitive conception of a bridge, and its place is taken by the modern girder or truss bridge. Another simple plan is to suspend a rope from bank to bank and attach a hammock thereto which can be drawn across at will. The

COMPRESSION OR ARCH BRIDGE. Victoria Falls, Rhodesia. 420 ft. above river.

rope is the prototype of the suspension bridge. Pontoons, or bridges of boats ranged side by side across a stream, were used by the ancient Egyptians, and are still commonly used in connection with military transport.

A bridge consists of a substructure, i. e., the abutments and piers, usually of masonry, and a superstructure, or the metal or timber framework, supported by the substructure. There are three types of bridge structures: (1) compression bridges, the arches springing from one abutment to another; (2) truss bridges, which consist of trusses or girders resting on the abutments; and (3) suspension bridges, formed of cables or chains suspended from towers. Bridges may again be classified as stone, timber, or metallic structures.

Stone Bridges were first built by the Romans, and many ruins are scattered throughout the

BROOKLYN BRIDGE. Suspension.

ancient empire. The first stone bridge in London was begun in 1176 by Peter of Colechurch, a priest, and it took 33 years to build.

Timber Bridges.—The oldest on record is the *pons sublicius*, which was built across the Tiber, 621 B. C. The longest timber span on record was built over the Limmat river, near Baden, 1760, and measured 366 feet between the supports.

Metallic Bridges.—Cast iron was first used for bridges toward the end of the eighteenth century in England. The first iron bridge in the United States was built over the Erie Canal in 1840.

Truss Bridges are by far the most numerous at the present date, and these may be either fixed independent spans or continuous over several spans, draw bridges, or cantilever bridges. The terms "truss" and "girder" are often used indiscriminately, but a girder properly is one piece or several pieces riveted together so as to virtually form a solid beam. A truss consists of an upper chord, a lower chord, and diagonal members connecting them, the whole consisting of an open framework so arranged that the main parts are subject only to tensile or compressive stresses. A cantilever bridge is formed by two trusses extending from opposite abutments over two piers, and united by another shorter simple truss.

Suspension Bridges began to receive serious attention in England in 1814. In the United States Charles Ellet built a suspension bridge across Schuylkill River in 1842. The suspension system was vastly improved by John A. Roebling, and made more suitable for railway purposes. Methods of stiffening a suspension bridge by trussing the cables have also been adopted, the Point Street bridge at Pittsburg, Pa., being a notable instance.

The science of the theory of stresses and of the properties of materials is now very exact, and the failure of bridges due to imperfect construction is becoming almost a thing of the past. Bridge disasters are usually due to inadequate inspection.

ARTESIAN WELLS. This class of wells takes its name from Artois, in France, where they have long been used. Artesian wells are driven to procure water in arid regions, and in oil and natural gas borings. These wells are driven by a chisel-shaped drill operated

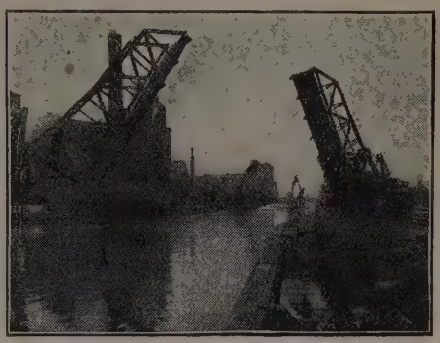
STEEL ARCH BRIDGE. Over Niagara River.

by hoisting machinery on a derrick and protected by an iron tube of about six inches in diameter, built up in sections as the drill penetrates the earth. A device, called a "drill jar," formed of two links, connects the drill with the rope and both loosens and drives the drill at the proper times by automatically administered blows. The artesian well method of boring differs from the driving method by which a metal tube is driven into the ground by hammers. This latter was devised by Colonel Green (1861) to meet his necessities during the Civil War.

BLASTING. Blasting operations have been prosecuted on a gigantic scale since the introduction of nitroglycerin (1846) and of dynamite (1847). One of the most celebrated pieces of blasting was the removal of Flood Rock (Hell Gate) between New York City and Long Island Sound on October 10, 1885. By the mere closing of an electric current over nine acres of solid rock were blown into fragments by the simultaneous explosion of 40,000 cartridges containing 75,000 pounds of dynamite and 240,000 pounds of rackarock, at a cost of $1,000,000.

CAISSON, A pneumatic contrivance of the nature of a greatly enlarged diving bell used in extensive local work. It was invented (1841) by M. Triger of France. It is a vertical cylinder divided into sections or compartments with the open end resting upon the bottom of the river or sea. Water is kept out by compressed air; entrance and exit being effected by the middle compartment. Material is taken out by a sand pump. Sometimes excavation is carried on within the caisson until the required depth is reached or until a suitable foundation is reached, then the caisson is filled with cement and forms a part of the foundation, as with the Brooklyn (East River) Suspension Bridge. A peculiar symptom, the "bends," affects the workmen who too abruptly leave the heavy pressure of the compressed air of the caisson; paralysis and other nervous derangements follow neglect to use the graduating pressure chambers.

DREDGES. Mud and silt are lifted from the bottom of rivers, harbors, and canals by means of dredging machines. The earliest of these were of the clam-shell or scoop pattern; others are provided with an endless chain to which buckets are attached; and a third style stirs and cuts up the mud and silt by a number of rotating cutters and mixes it with water so that by powerful suction the mixture is drawn up through an immense tube which discharges the semifluid mass at suitable points. The clam-shell type is largely used by reason of its great ease of management. The capacity of the bucket type is sometimes 5 cubic feet to a bucket and 20 buckets a minute. Similar machines of the clam-shell type are sometimes used for excavations on land for railways and for removal of large masses of earth for other purposes. They run upon a track as a railway car and are easily moved about.



ROLLING LIFT BRIDGE. Chicago, Ill.

EADS BRIDGE. St. Louis.

JETTIES OF THE MISSISSIPPI. In 1872 the attention of Congress was called to the obstruction to navigation on the Mississippi River by the bar and shallows at its mouth. In 1875 Captain Eads began the construction of the jetties in two parallel embankments across the bar and out into the Gulf of Mexico. Four layers of mattresses of willow branches were

STONE ARCH BRIDGE. Hartford.

sunk to the bottom and covered with a layer of loose stone and then capped with concrete blocks. The jetties contracted the channel, forced the great flow of water into such a narrow space that the onrush of water washed out the obstruction of mud and silt deposits, giving a channel 30 feet deep and 200 feet wide. The work begun in 1875 was completed in 1879 at a cost of $5,250,000. There were employed in the construction 6,000,000 cubic yards of willow mattresses, 1,000,000 cubic yards of stone, 13,000,000 superficial feet of lumber, and 8,000,000 cubic yards of concrete.

ROCK DRILLS. Several forms of rock drill have replaced the old hand method. The diamond drill is equipped with bits set with diamonds. These bits are rotated and cut through the hardest rock very rapidly. It is the invention of Hermann (1854). The compressed air drill is more frequently used. It is operated by a piston, having a drill attached directly to the piston-rod. The compressed air is admitted alternately through openings on opposite sides of the piston and controlled by valves. The Burleigh, Ingersoll, and Sergeant are the best known of this type of drill and their use dates from 1866 to 1871.

TUNNEL. An underground passage through a mountain or hill or under the bed of a river. The uncertainty of the nature of the soil or rock to be excavated adds frequently to the difficulty of construction. Faults in rock, occurrence of quicksands and springs are also obstacles. When the tunnel passes through solid rock no protection is needed; but where soft sand, quicksand, soil, or soft rock occur a lining of brickwork or of masonry is needed. The old methods of hand-drilling and blasting have been replaced by machine drills operated by compressed air, and diamond borers, which greatly reduce the cost and the time. Tunneling through soil or soft sand is now carried on by the "shield" system. Brunel first made use of the device in the Thames tunnel (1825-1843); Beach in 1869 improved the plan; and Greathead perfected it, so that it is known by his name. A cylindrical shield is driven forward by hydraulic pressure, the excavation is lined with a cast-iron shell, and silt and mud are taken out through doors in front of shield.

LARGEST TUNNELS IN THE WORLD.

Op'n	Name.	Location.	Length (miles).
1909	Andes	South America	5.
1884	Arlberg	In the Tyrolese Alps	6.75
1886	Big Bend	California	2.
1897	Blackwell	Under Thames, England.	1.5
1898	Boston Subway.	Boston, Mass.	3.1
1909	Gunnison	Southwestern Colorado.	6.
1873	Hoosac	Western Massachusetts.	4.75
1908	Hudson Riv.(No.)	Jersey City to New York.	1.07
1909	Hudson Riv.(So.)	Jersey City to New York.	1.13
1886	Mersey River	England	4.5
1871	Mont Cenis	Italy to France	8.
1888	New Croton	To New York City	33.125
1904	N. Y. Subway	In New York City	24.3
1877	Rothschonberg	Saxony	31.5
1891	St. Clair	Ontario to Michigan	2.
1881	St. Gothard	Swiss Alps	9.33
1886	Severn	England	4.5
1905	Simplon	Alps	12.5
1879	Sutro	Nevada	4.5
1910	Transandine	Through the Andes	2.
1909	Wasserfluh	Swiss Alps	2.
	Woodhead	England	3.

PRINCIPAL BRIDGES IN THE UNITED STATES.

Place or Name.	State.	Length (feet).	Details.
Albany	New York	400 (length of draw)	Iron structure.
Bismarck	North Dakota	1,200	Over the Missouri. Steel and iron.
Blackwell's Island	New York	7,636	Steel; cantilever; crosses East River. Cost, $12,500,000.
Brooklyn	New York	5,989	Built of steel and masonry (1870-1883). Designed by J. A. Roebling; completed by W. A. Roebling. Longest suspension bridge at that time. Cost, $9,000,000, exclusive of land.
Cabin John	District of Columbia	220 (span)	Aqueduct. Washington. Constructed, 1857-1864, at which time it was the longest stone arch in the world.
Cairo	Illinois	10,560	Over Ohio River. Steel, 50 spans; 21,000,000 pounds of steel and 32,000 cubic yards of masonry used in construction.
Chicago (1)	Illinois	.....	Most important lift bridge ever constructed. Crosses Chicago River at North Halsted Street. Towers of steel framework, with a suspended truss span.
Chicago (2)	Illinois	.....	Rush Street bridge; largest general traffic drawbridge in the world. Cost, $132,000. Completed in 1884.
Cincinnati	Ohio	1,600	Over Ohio River; longest span, 515 feet.
Cincinnati and Covington	Ohio	2,252	Steel; suspension. Built in 1867. Over the Ohio for highway and street railway traffic.
Cleveland	Ohio	3,211	Viaduct.
Dubuque	Iowa	1,758	Over the Mississippi. Iron.
Eads	St. Louis, Mo.	520 (central span)	Built across the Mississippi at St. Louis (1867-1874). Three arches of cast steel tubes. James B. Eads, engineer. Cost, $10,000,000.
Easton	Pennsylvania	.....	Steel; three-tower suspension bridge, over the Lehigh River. Built in 1901.
Hartford	Connecticut	1,192	Masonry arch bridge over the Connecticut River. Completed in 1907. Has nine semi-elliptical arches. Made of granite with macadam roadway. Cost, about $1,600,000. Piers founded on solid bottom by pneumatic caisson process.
Hastings	Minnesota	.....	Steel; spiral approach; completed in 1895.
Henderson	Kentucky	3,688	Over Ohio River; 16 spans, longest being 525 feet.
High Bridge	New York	1,460	Stone; semicircular arch; across Harlem River. Aqueduct.
Kentucky	....	1,125	Iron railroad bridge on line of Cincinnati Southern Railway. Completed in 1877. Cost, $404,230.
Kinzua	Pennsylvania	2,050	Trestle viaduct on Erie Railroad in McKean County. Built in 1882 of wrought iron. Rebuilt of steel in 1900.
Louisville	Kentucky	5,310	Over the Ohio. Completed 1886.
Memphis	Tennessee	720 (longest span)	Steel; cantilever.
Minneapolis	Minnesota	.....	Over the Mississippi River; steel; built in 1888.
Niagara (1)	New York	1,260 (span)	Clifton suspension, for carriage and foot passengers. First built, 1867-1869; rebuilt of iron and steel, 1889; removed, 1898.
Niagara (2)	New York	910	Niagara Falls cantilever bridge. Built in 1883. Cost, $900,000. First true metal cantilever bridge. Middle truss inserted in 1900.
Niagara (3)	New York	821 (span)	Begun in 1855. Designed by Roebling for Grand Trunk Railway. Wooden trusses replaced in 1881 by steel; and in 1887 the masonry towers by steel towers. Removed in 1897.
Niagara (4)	New York	550 (span)	Steel arch railway bridge. Two railways on upper deck; highway on lower deck. Built in 1897.

Principal Bridges in the United States—*Continued.*

Place or Name.	State.	Length (feet).	Details.
Niagara (5)	New York	840 (span)	Highway and foot bridge. Longest single steel arch span in the world. Built in 1898, replacing the Niagara and Clifton suspension.
Omaha	Nebraska	2,800	Over the Missouri.
Pecos River	Texas	2,180	Built in 1893, to carry Southern Pacific Railroad over the Pecos. Trestle viaduct.
Pittsburg	Pennsylvania	1,504	Over Monongahela River; longest span, 360 feet.
Poughkeepsie	New York	6,767	Iron; cantilever. Crosses the Hudson. Opened in 1889.
Queensborough	New York	3,724 (length of cantilever)	Over East River; largest cantilever bridge in the world, bearing traffic; cost over $17,000,000; has 4 elevated railroad tracks, 2 promenades, 4 trolley tracks. Opened, 1909.
Rockville	Pennsylvania	.....	At Harrisburg. Stone.
Schuylkill	Pennsylvania	408 (span)	Suspension. At Philadelphia. Foot bridge having wire cables. Built in 1816.
St. Charles	Missouri	6,536	Iron.
Susquehanna	Pennsylvania	3,500	Stone; semicircular arch.
Trenton	New Jersey	960	Over Delaware River. Constructed of timber; frame truss.
Washington	New York	2,375	Steel highway, across Harlem River. Built, 1886-1889. Cost, $2,850,000. Two metal and seven masonry arches; hinges at abutments.
Williamsburg	New York	7,200 (length between terminals)	Steel suspension, over East River between Brooklyn and New York. Towers of masonry, framework of steel. Built 1897-1903. Length of main span, 1,600 feet. Cost, $14,000,000.

PRINCIPAL FOREIGN BRIDGES.

Place or Name.	Country.	Length (feet).	Details.
Adabazar	Asia Minor	1,400	Built in 561 by Justinian. Eight arches of 75 feet span.
Alcantara	Spain	670 Spanish feet	Granite. Over the Tagus. Built about 100 A. D. in honor of Trajan. Has six arches.
Alexander III	France	352.6 (longest span)	Across Seine at Paris. Steel arch bridge, completed in 1899.
Allahabad	India	.....	East Indian Railway bridge.
Avignon	France	3,000	Over the Rhone. Eighteen stone arches. Built in 1188 by Bénézet.
Babylon	Turkey in Asia	.....	Over the Euphrates. Believed to have been built by Nitocris about 600 B. C. Built on stone piers with removable timber superstructure.
Berne	Switzerland	376½ (main span)	Over the Aar.
Blackfriars	England	.....	Across the Thames at London. Nine elliptical stone arches. Built in 1760; removed in 1864, and later rebuilt.
Blois	France	.....	Over the Loire. Begun in 1720. Eleven elliptical arches.
Bonn	Germany	840	Highway across the Rhine. Steel arch. Completed in 1898. Designed by Krohn & Schill. Has one span 614 feet long.
Boyne	Ireland	550	Lattice; railway bridge. Cost, $680,400.
Bridge of Sighs	Italy	.....	A picturesque bridge consisting of an elliptical arch. At Venice. Built in 1597 by Antonio Contini.
Britannia	Wales	1,511	Across Menai Strait at Bangor. Built, 1845-1850. Tubular suspension. Cost, $2,925,068.
Burton	England	1,534	Over the Trent. Thirty-four arches.
Carpentras Aqueduct	France	1,687	Semicircular arch; stone.
Chaumont Viaduct	France	1,968	Semicircular arch.
Chester	England	200 (span)	Grosvenor bridge; built, 1832-1833.
Clifton	England	702 (span)	Near Bristol; crosses the Avon; opened in 1864.
Coalbrookdale	England	102 (span)	Over the Severn. Cast-iron arch. Built, 1776-1779.
Coblenz	Germany	about 950	Iron arch. Completed in 1864. Three spans.
Congleton Viaduct	England	2,370	Arch; segment; stone.
Conway	Wales	400 (span)	Built, 1846-1848. First tubular bridge actually completed.
Croyland	England	.....	Of triangular shape, at the confluence of three rivers. Has three pointed stone arches. Original structure erected about 943; present bridge built in fourteenth century.
Crumlin Viaduct	England	1,800	Girder iron railway bridge over the Ebbw. Built, 1853-1857. Has ten spans. Cost, $189,540.
Danube	Austria-Hungary	1,262	Near Budapest. Completed in 1845. Suspension. Has a central span of 666 feet.
Dee Viaduct	Scotland	1,388	Stone; semicircular arch.
Dizful	Persia	.....	Oldest example of bridge building. Wide, pointed arches.
Douro	Portugal	1,150	Arched iron structure near Oporto. Built, 1875-1877. The longest span is 520 feet in length.
Düsseldorf	Germany	594½ (longest span)	Steel; built, 1896-1898.
Ellesmere Aqueduct	Wales	710	Carries Ellesmere canal over Ceiriog River; completed, 1801.
Elsterthal Viaduct	Germany	550 (lower story) 918 (upper story)	Two-story masonry. Lower story has two double piers, two arches, two walls; upper story has two double piers and six arches.
Forth	Scotland	8,098	Steel cantilever railway bridge over Firth of Forth. Begun in 1883; opened in 1890. Cost, $15,795,000. Designed by Fowler & Baker.
Franzdorf Viaduct	Germany	1,916	Semicircular arch; stone.
Freiburg	Switzerland	870 (span)	Built, 1833-1834, by Chaley. First suspension bridge in which iron wires were used to support the structure.
Galicia	Austria-Hungary	213¼ (length of arch)	Cost only $40,000; sandstone.
Ganges Aqueduct	Hindustan	920	Carries Ganges canal over Solani River.
Garabit	France	1,849	Designed by M. Eiffel; completed in 1884. Wrought iron.
Godavery Irrigation Aqueduct	India	2,356	Arch, segment; stone.

Principal Foreign Bridges—*Continued.*

Place or Name.	Country.	Length (feet).	Details.
Goeltzschthal Viaduct.	Holland	1,900	Stone; elliptical arch.
Grünenthal	Germany	513 (longest span)	Wrought iron; built in 1892; highway and railway bridge.
Hawkesbury	New South Wales	.....	Over the Hawkesbury River; opened for traffic in 1889.
Indre Viaduct	France	2,463	Stone; semicircular arch.
Julius Cæsar	Across the Rhine	.....	Built 55 B. C. Wooden trestle bridge.
Kuilenburg	Holland	492 (span)	Across the Leck; completed 1868; Van Diesen, architect.
Levensau	Germany	536 (longest span)	Highway and railway bridge; built, 1894, of malleable iron.
Lisbon Aqueduct	Portugal	3,805	Ogival; stone.
Loa Viaduct	Bolivia	.....	Lattice girder. Constructed in 1889.
London Bridge	England	.....	Across Thames. Date of first bridge given as 978, but uncertain. Others were built later—1014, 1176, 1831, and 1842.
Luxemburg	Germany	277 (span)	Completed in 1903. Cost, $275,000. Largest single arch stone bridge in the world.
Maintenon Aqueduct	France	16,367	Semicircular arch; stone.
Moerdyk Bridge	Holland	4,592	Across the Hollandsch Diep; completed in 1880.
Müngsten	Germany	557 (longest span)	Steel railway bridge; built, 1896-1897.
New Brunswick	Canada	813	Built in 1895. Called St. John River cantilever bridge.
Newcastle	England	281	Newcastle swing bridge; over the Tyne; completed in 1876.
Nogent sur Marne Viaduct	France	2,722	Stone; semicircular arch.
Pavia	Italy	620	Ogival; stone.
Pimlico, London	England	.....	Over the Thames; completed in 1860.
Pons Sublicius	Italy	.....	First bridge at Rome. Timber. Built by Ancus Martius in 621 B. C.
Ponte della Trinità	Italy	.....	Over the Arno at Florence. Three-arch stone. Completed in 1566.
Ponte di Nona	Italy	285	Near Gabii. Viaduct of seven arches. Built, 124-121 B. C.
Quebec	Canada	.....	Across the St. Lawrence. Begun in 1900. Main cantilever span, 1,800 feet.
Rialto	Italy	98½ (span)	Across Grand Canal at Venice. Masonry arch bridge. Built in 1588 by Antonio del Ponte.
Roquefavour Aqueduct	France	1,289	Cost, $750,000; completed in 1847.
Saltash lenticular girder	England	2,240	Wrought iron; built by I. K. Brunel; across the Tamar.
Southwark, London	England	240 (longest span)	Highway bridge of cast iron; built in 1819.
Sukkur	India	790 (span)	Sukkur cantilever bridge; crosses Rohri branch of the Indus at Sukkur.
Tay	Scotland	10,612	Over the Tay at Dundee; has continuous supports; cost, $2,000,000.
Tower, London	England	740	Opened in 1894. Steel and masonry drawbridge across the Thames. Cost, $48,610,000.
Trajan	Across the Danube	3,900	Built, 102-104 A. D., by Apollodorus. Stone foundation, wooden superstructure.
Verrugas Viaduct	Andes Mts., Peru	575	Completed in 1873. Highest bridge in the world. Constructed of iron.
Viaur Viaduct	France	721 (span)	Second longest steel arch span in the world; built, 1898-1899.
Victoria	Canada	9,144	Across the St. Lawrence at Montreal. Begun in 1854; opened in 1860. Tubular railway bridge. Cost, $8,262,000. Twenty-five spans. Replaced, 1898-1899, by a pin-connected truss bridge of 25 spans; and in 1908 by a new steel bridge.
Victoria Falls	Africa	650	Completed in 1904. Steel arch railway bridge.
Westminster, London.	England	870	Built, 1738-1750. Has 15 arches.
Xerxes	Asia Minor	2,421	Pontoon. Built across the Hellespont in 480 B. C.

RECENT BRIDGES.

Place or Name.	State.	Length (feet)	Details.
Hell Gate	New York	17,868	Main span 977½ ft. long, 135 ft. high. Approximate cost $15,000,000.
Interstate	Oregon Vancouver-Wash.	23,000	Main span 275 ft. long, 150 ft. high. Cost $2,000,000.
Cappelen Memorial	Minneapolis Minnesota	1,032	Main span 400 ft. long, 88 ft. high. Approximate cost, $900,000. Concrete.
Chicago River	Michigan Ave. Chicago, Ill.	300	Main span 256 ft. long, 16½ ft. high.
Delaware River	Philadelphia to Camden	2,880	Begun 1922, opened July 4, 1926. Total cost of bridge and land, about $37,000,000. Length, 1.81 miles; width, 125 feet; longest span, 1,750 ft., 135 ft. high above tide.
Quebec	Canada	1,917	Cantilever bridge. 3,240 ft, long. Main span 1,800 ft. long. The longest span of this type in the world. Cost, $9,000,000.
Tunkhannock Viaduct	West of Scranton, Pa.	2,230	Made of reenforced concrete. Main span 180 ft. long, 240 ft. high. Approximate cost, $12,000,000.
Sciotoville	Ohio	3,436	Main span 75 ft. long, 40 ft. high.
Bear Mountain-Hudson	Peekskill, N. Y.	2,258	Main span, 1,632 ft. long, 155 ft. high.

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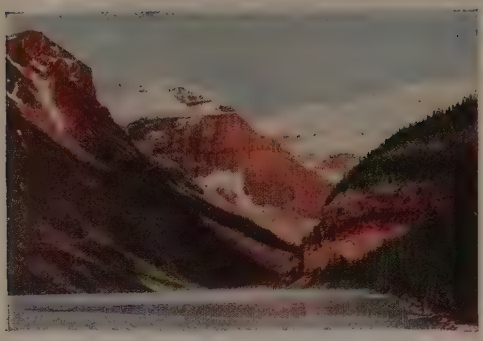
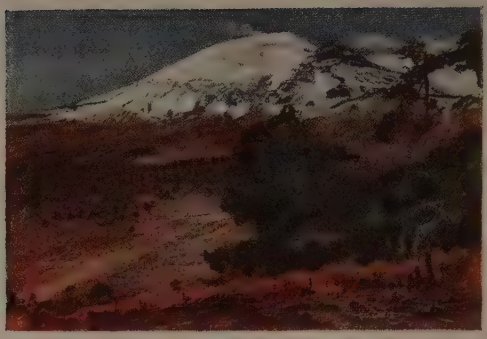
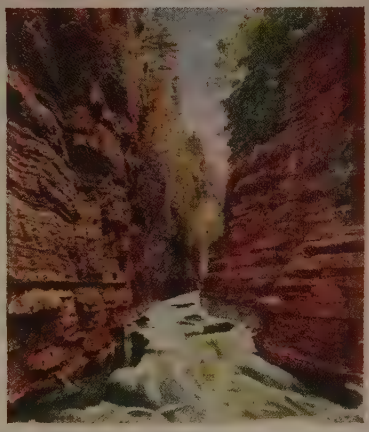
SCENIC AMERICA—III

Mt. Sir Donald, Selkirk Mts.
Three Brothers, Yosemite Valley
Mt. Shasta, California
Mt. Hood, Oregon
Mt. Assiniboine, Alberta
Pike's Peak and Gateway Garden of the Gods, Colo.



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SCENIC AMERICA—IV

Lake Louise, Banff, Canada
El Capitan, Yosemite Valley
Grand Canyon, Arizona
Delaware Water Gap, Penna.

Mt. Popocatepetl, Mexico
Ausable Chasm, New York
Mt. Rainier, Washington
Palisades, Hudson River, New York

NATIONAL PARKS AND MONUMENTS OF THE UNITED STATES.

The United States possesses more scenery of natural beauty, more diversified and more inspiring than probably any other country. We have mountains of great height and beauty, lakes of vivid color and unknown depths, glaciers pouring out their streams and covering the scarred backs of the mountains with a kind of picturesqueness, canyons of dizzy depths, forests of height, age and verdure not to be found anywhere else in the world and waterfalls of such misty softness that they are not surpassed even by the beauty of the Rhine or the valleys of the Alps. All this and more can be found in the National Parks that have been set aside for public use as the playgrounds of America.

These parks will be given in chronological order of their creation by Congress. **Hot Springs Reservation.** This is located in Middle Arkansas, near the picturesque slopes of the Ozarks and created to preserve the areas of medicinal springs for public use at a nominal cost. It is a health and recreation center of 1½ miles square, set aside by Congress in 1832, and contains some 46 hot springs. Probably the most celebrated and best known of our Parks is the **Yellowstone** in northwestern Wyoming, with an area of 3,348 square miles, created in 1872. It is best known for the geysers (there are more here than in the rest of the world put together). In addition to the geysers there is also a great wild animal reservation and an unrivalled wilderness of scenic beauty.

In 1890 **Yosemite National Park** was created in middle-eastern California with an area of 1,125 square miles and known far and wide for its incomparable waterfalls,—the Yosemite Falls, with two drops of 1,430 feet and 320 feet respectively, Vernal Falls with a drop of 320 feet, Bridal Veil of 620 feet and Nevada Falls of 594 feet—, its huge rocks cut by the glacier, Cathedral rock rising 2,600 feet, El Capitan 3,600 or Half Dome 5,000 feet, and its small glaciers, crystal lakes and everlasting snows.

Sequoia and General Grant National Parks, were both acquired in 1890 for the purpose of preserving our big trees. These parks contain the biggest living thing and the oldest living thing alive in the so-called General Sherman and General Grant trees, the first with a height of 279.9 feet and the other of about the same height, but probably older. The General Grant tree is 3,500 years old, 1,500 years old when Christ was a youth and a sapling when the pyramids of Egypt were being built. The Sequoia Park contains some odd 1,156,000 trees of this kind only on a smaller scale. Four hours from Tacoma to the southeast, we find **Mount Rainier National Park** created in 1899, with an area of 324 square miles. The Park encloses Mount Rainier, an extinct volcano, that towers three miles above the level of the sea and carries on its back 38 glaciers. The glacial flowers that grow in the small valleys, left free by the melting snow and ice, are a sight that no tourist ever fails to thrill over. **Crater Lake,** the lake of mystery, formed by the complete falling into itself of the giant volcano, Mount Mazama, forming one of the most unique phenomena of the world, has been made into a national park, **Crater Lake National Park,** to perpetuate this natural monument for future generations. It was created in 1902, has an area of 249 square miles, and is located in southwest Oregon. In order to preserve the traces of our prehistoric ancestors the **Mesa Verde National Park** was set aside in 1906 in southwestern Colorado, with an area of 77 square miles. Here among the Mesas or isolated plateaus can be found the traces of the old cliff dwellers, their homes, temples, pottery and tools. This makes it a park of special educational and scientific value.

The famous curative springs of southern Oklahoma were preserved for public use with the creation of the **Platt National Park** in 1906 with an area of 1½ square miles. Bought originally from the Indians for the copper industry and then redesignated when no copper was found, this is the history of the **Glacier National Park,** in northwestern Montana close to the Canadian boundary line and known far and wide for its rugged scenery, massive precipices, glacial lakes and many glaciers. We have in one place a triple divide, waters flowing into Hudson Bay, the Gulf of Mexico and the Pacific Ocean. Within this area of 1,534 square miles can be found 60 glaciers advancing down the sides of the mountains.

The Rocky Mountain National Park, a short four hour run north of Denver, was set aside to preserve a part of the Rockies in all their natural beauty without any possible defacement by man. The area is about 358 square miles and is one of the most rugged parts of the mountains.

Mount McKinley National Park was created in 1917 enclosing the great Mount McKinley, the loftiest mountain in America, towering 20,300 feet above the tide, the very climax of the Alaskan range. This area is in the interior of Alaska, but the government is building railroads to make it accessible. It has an area of 2,200 square miles. Two recent creations, are the **Zion National Park** in southwest Utah, an area of 120 square miles, enclosing great colored cliffs and **The Grand Canyon National Park** in northern Arizona, probably the most impressive and awe-inspiring spectacle in this country. Due to the erosion, the Colorado has cut this great gorge—, "like a gigantic statement seemingly too great for even nature to make all in one mighty word." The colors of the rocks and cliffs probably will remain forever indelibly impressed upon the visitor's mind.

Certain parks of lesser importance are the **Hawaii National Park,** containing three volcanoes, Kilauea, Mauna Loa and Mauna Kea, **Lassen Park** in northern California housing the only active volcanoes in the United States, **Wind Cave Park** in the Black Hills of South Dakota, **Casa Granda Ruin** and **Sullys Hill Park** near Devil's Lake, South Dakota.

National monuments are parks on a smaller scale with no appropriation from Congress for maintenance. Among our better known ones are **The Mukutuweap,** canyons of a brilliant hue in southwest Utah, the **Muir Woods** of 300 acres of superb red-woods outside San Francisco,

the **Devil's Tower**, a mass of igneous rock, towering 1,200 feet above the Black Hills of eastern Wyoming, **National Bridges**, five of them in San Juan County, Utah, the **Chaco Canyon** in New Mexico, noted for its Indian relics, **Colorado Monument** of highly colored monoliths, **Lewis and Clark Caverns**, huge limestone caves in Montana, **Rainbow Bridge**, a natural bridge on the Navajo Indian Reservations in southern Utah, the **Papago Saquaro**, tropical desert flora east of Phoenix, the **El Morro Monument**, and an eroded sandstone rock in the shape of a castle, the **Petrified Forests** of Arizona, the **Sitka Monument** one mile from the steamboat dock at Sitka, Alaska, held for historical shrine. **Tumocacori** in Arizona and **Gran Quivira** in New Mexico, both to preserve old Spanish Mission Churches and the **Navajo National Monument**, enclosing three prehistoric puebloes or cliff dwellings. The **Dinosaur** National Monument in Utah containing deposits of fossil animal remains, **Katmai**, in Alaska, including "Valley of Ten Thousand Smokes," **Lehman Caves** in Nevada, **Walnut Canyon** in Arizona and **Wheeler** National Monument in Colorado all have much scientific worth as well as being highly interesting to tourists.

State Parks.

In addition to the national parks and monuments there are over 200 state parks with a total of nearly 180,000 acres. The states having the largest park acreage are as follows: New York leads with 26 parks, having an acreage of 35,500; Minnesota, 12 parks, 35,068 acres; Idaho, has but two parks, is third in amount of acreage with 19,814 acres. On the other hand Pennsylvania has the largest number of parks of any state, being 36 in number, but with an acreage of only 4,381. The other leading states may be mentioned as Michigan with 26 parks, 16,882 acres; Wisconsin with 8 parks, 15,000 acres; Massachusetts with 8 parks, 13,000 acres; and California with 2 parks and 11,400 acres. They are noted either for their historical associations or their scenic beauty.

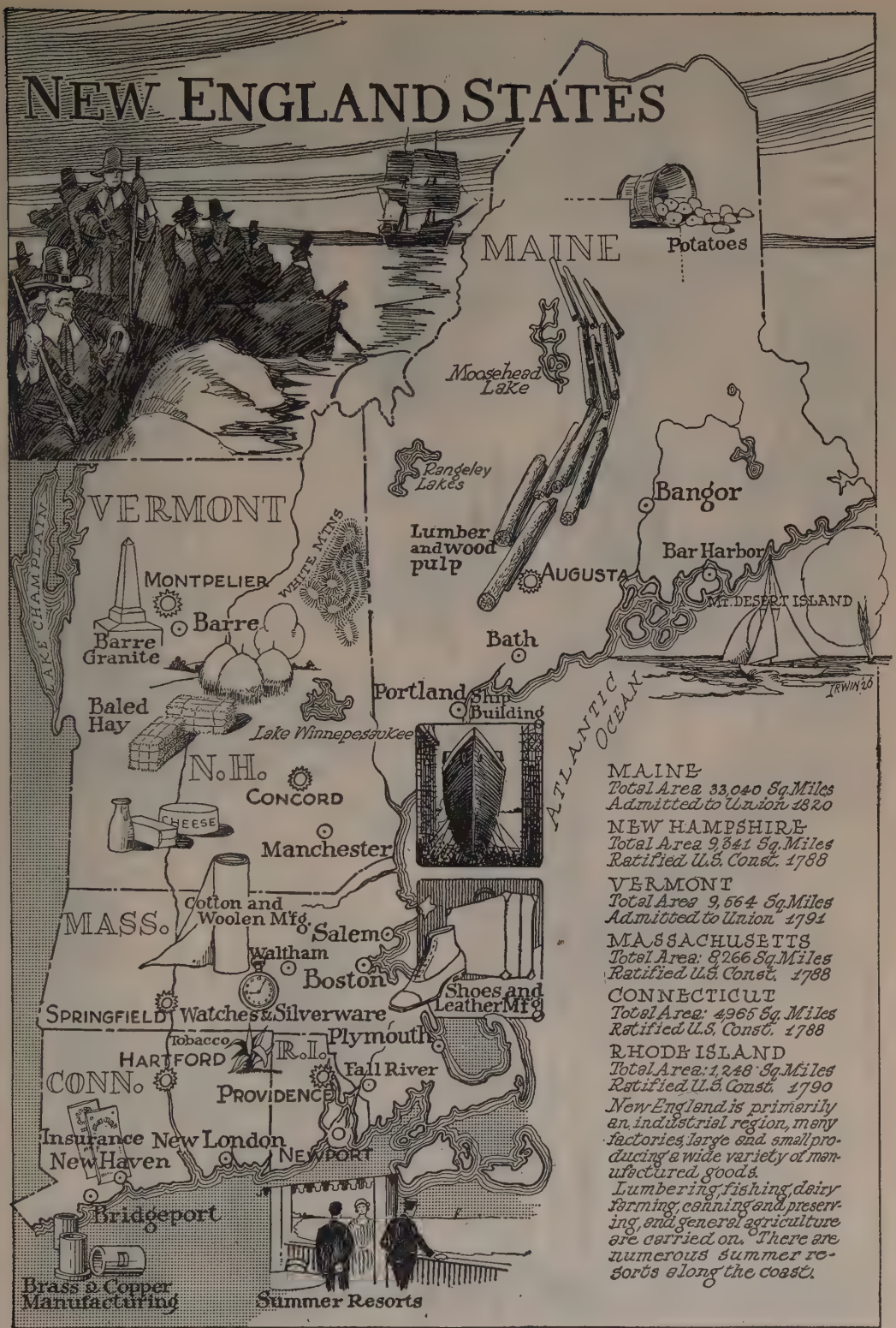
National Forests.

The ruthless destruction of the forests of the United States with its resulting consequences in floods, and with the rising importance of electro-hydro power and Western irrigation which could only be successfully carried on by conservation of our national forests thereby preserving the source of water supply, led Congress, in 1891, to empower the President to create forest preserves. In accordance with the new law, President Harrison created the Yellowstone Park reserve, the first of our national forests.

The total number is now about one hundred and fifty, with approximately 157 million acres distributed over twenty-nine states. These are equal in area to the following states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia. They are under control of the forest service of the department of agriculture. Forest conservation was given great publicity and impetus during the Ballinger-Pinchot affair of Taft's administration. The importance of retaining water for electro-hydro power and irrigation has not only stimulated the government to the importance of this question, but private individuals and corporations have taken great interest so that hundreds of thousands of seedlings are now being planted yearly by large corporations.

State Forests.

In addition to the National Forests, there are almost 6,000,000 acres set aside by the various states in forest reservation. New York State leads with a total of nearly two million acres in two reserves; Pennsylvania second, with twenty reserves and nearly one and a quarter million acres; New Hampshire with thirty-five reserves has only sixteen thousand acres; Massachusetts has nineteen reserves and forty-five thousand acres, while Michigan with the same number of reserves has an acreage of 341,611. Other states and their acreage are as follows: Arizona, 31,132; Connecticut, 6,529; Idaho, 685,000; Indiana, 2,700; Louisiana, 6,240; Maryland, 3,550; Montana, 566,000; Minnesota, 381,000; New Jersey, 16,504; New Mexico, 170,000; North Carolina, 300 acres; Ohio, 19,721; South Dakota, 61,440; Vermont, 30,000; Wisconsin, 300,000.



MAINE
Total Area 33,040 Sq. Miles
Admitted to Union 1820

NEW HAMPSHIRE
Total Area 9,341 Sq. Miles
Ratified U.S. Const. 1788

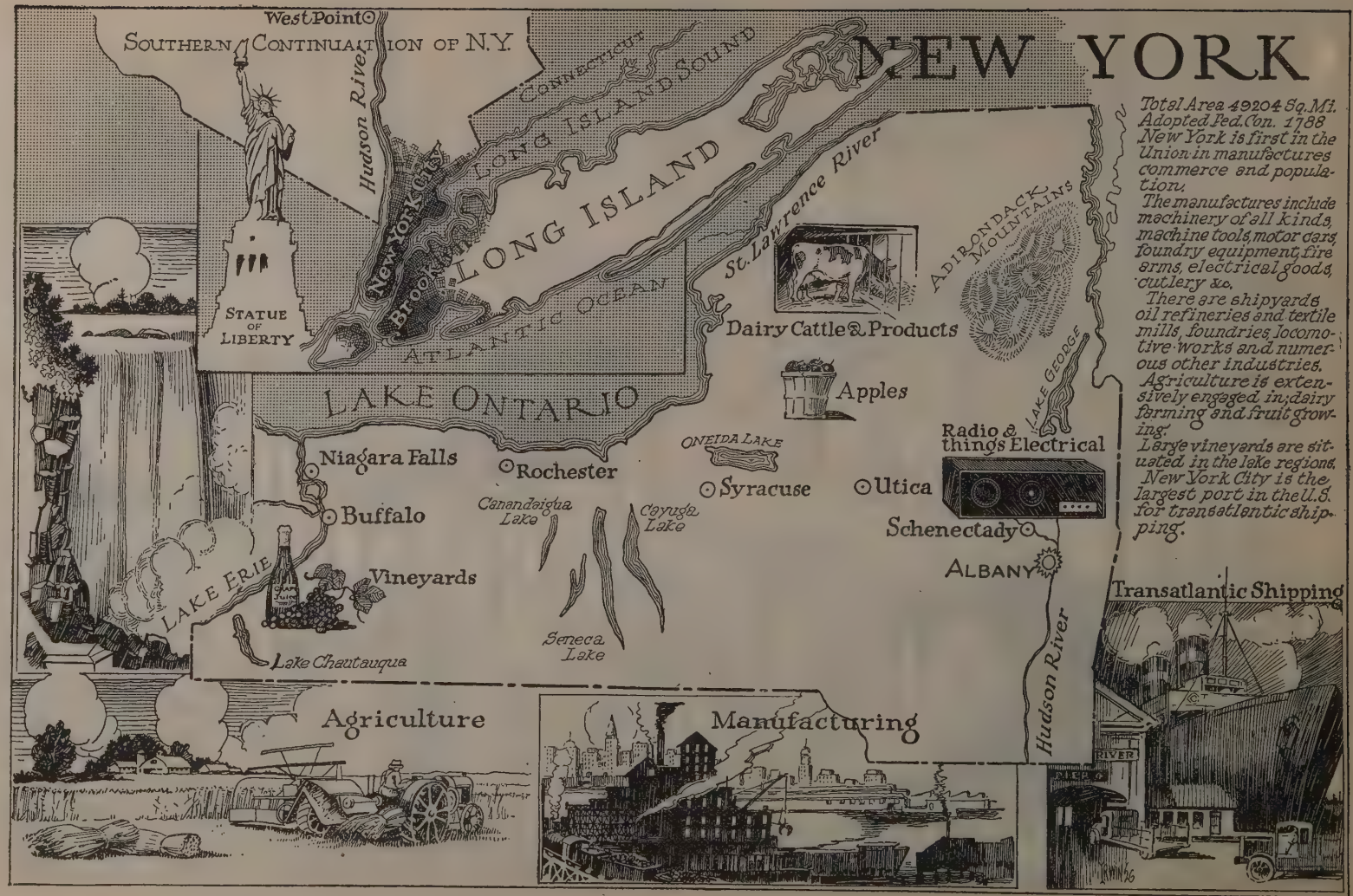
VERMONT
Total Area 9,564 Sq. Miles
Admitted to Union 1791

MASSACHUSETTS
Total Area: 8266 Sq. Miles
Ratified U.S. Const. 1788

CONNECTICUT
Total Area: 4965 Sq. Miles
Ratified U.S. Const. 1788

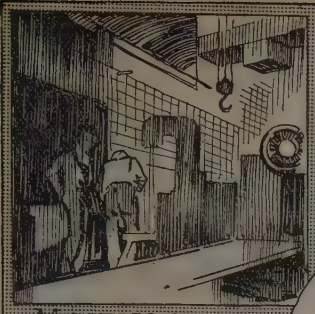
RHODE ISLAND
Total Area: 1,248 Sq. Miles
Ratified U.S. Const. 1790

New England is primarily an industrial region, many factories, large and small producing a wide variety of manufactured goods. Lumbering, fishing, dairy farming, canning and preserving, and general agriculture are carried on. There are numerous summer resorts along the coast.


NEW YORK
West Point
Southern Continuation of N.Y.
Hudson River
Connecticut
Long Island Sound
New York City
Brooklyn
Long Island
Atlantic Ocean
St. Lawrence River
Adirondack Mountains
Lake George
Statue of Liberty
Dairy Cattle & Products
Apples
Lake Ontario
Oneida Lake
Radio & things Electrical
Niagara Falls
Rochester
Syracuse
Utica
Buffalo
Canandaigua Lake
Cayuga Lake
Schenectady
Albany
Vineyards
Lake Erie
Seneca Lake
Lake Chautauqua
Transatlantic Shipping
Hudson River
Agriculture
Manufacturing
Total Area 49204 Sq. Mi.
Adopted Fed. Con. 1788
New York is first in the Union in manufactures commerce and population.
The manufactures include machinery of all kinds, machine tools, motor cars, foundry equipment, fire arms, electrical goods, cutlery &c.
There are shipyards oil refineries and textile mills, foundries, locomotive works and numerous other industries.
Agriculture is extensively engaged in; dairy farming and fruit growing.
Large vineyards are situated in the lake regions.
New York City is the largest port in the U.S. for transatlantic shipping.

NEW JERSEY

Total Area 8,224 Sq. Mi. Adopted Federal Constitution 1788.
The manufacturing interests are of great diversity and importance. Machinery of all kinds, ship-building, oil refining, silk, woolen and carpet mills. Thread mills, soap making, pottery, tile glass ware and other products. Farming, poultry and truck growing. Fish oysters and clams are abundant. The coast line resorts entertain millions of visitors annually.



MANUFACTURING

Silk Mills

Paterson

Thread

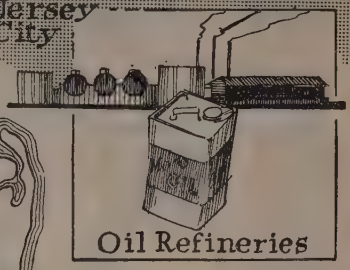
Newark

Jersey City

Elizabeth

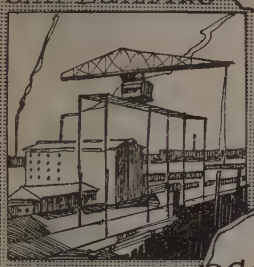
DELAWARE RIVER

Soap



Oil Refineries

SHIP BUILDING



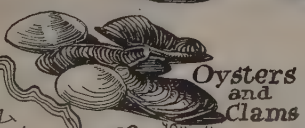
TRENTON

Potteries

Camden

GLASS MANUFACTURE

Fruit and Produce



Oysters and Clams

IRWIN '26

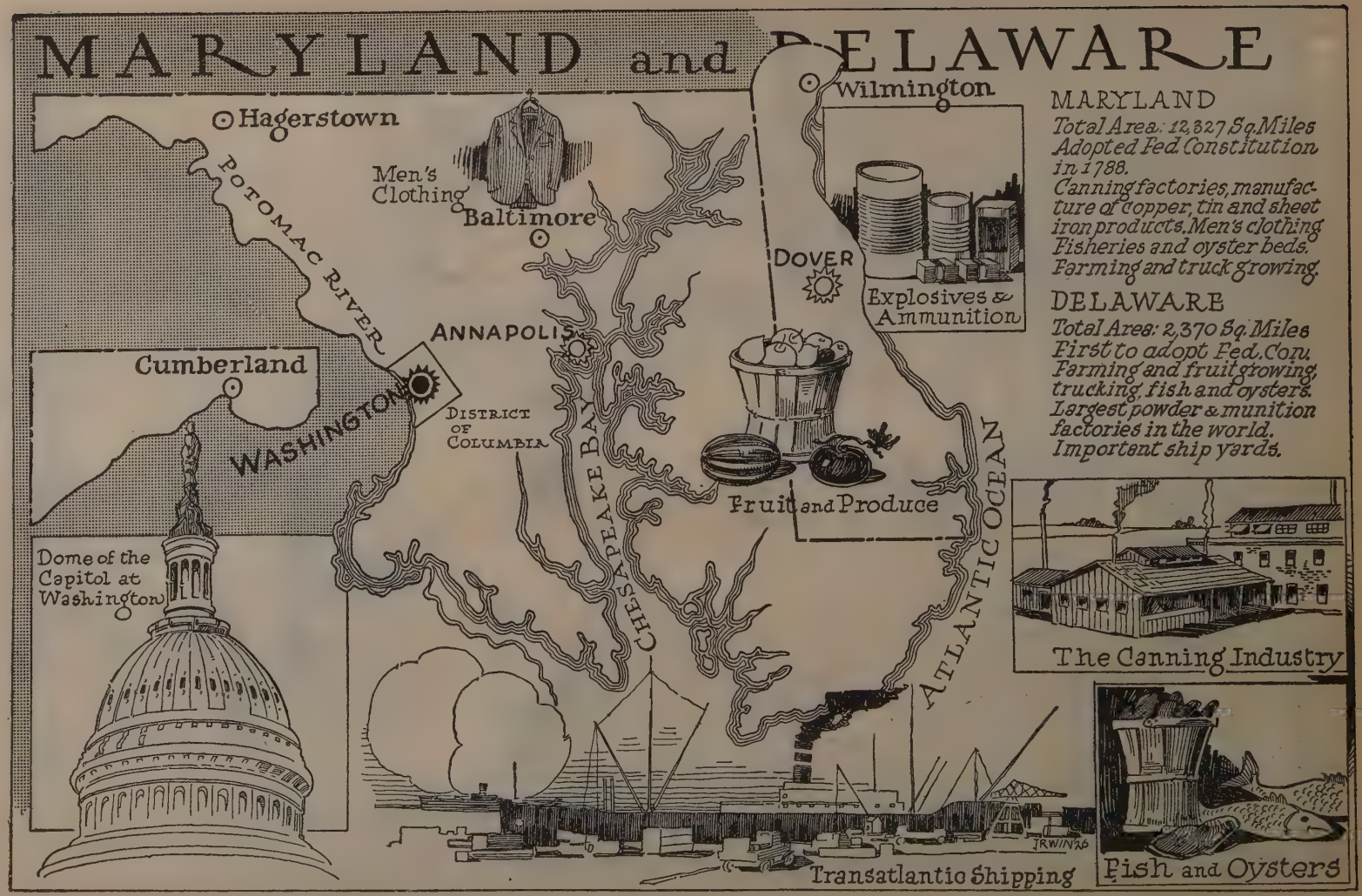
Atlantic City

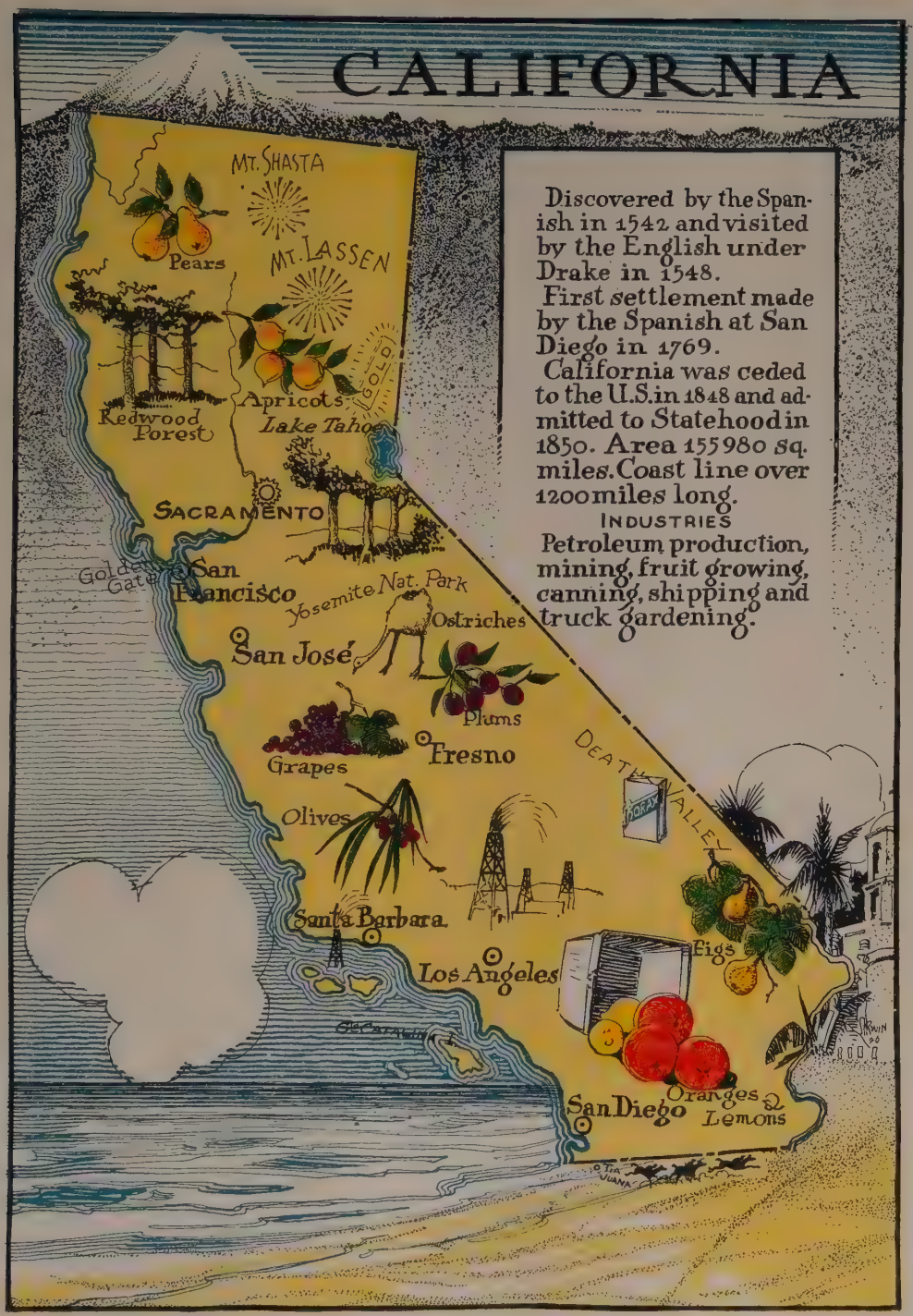
Ocean City

DELAWARE BAY

Wildwood

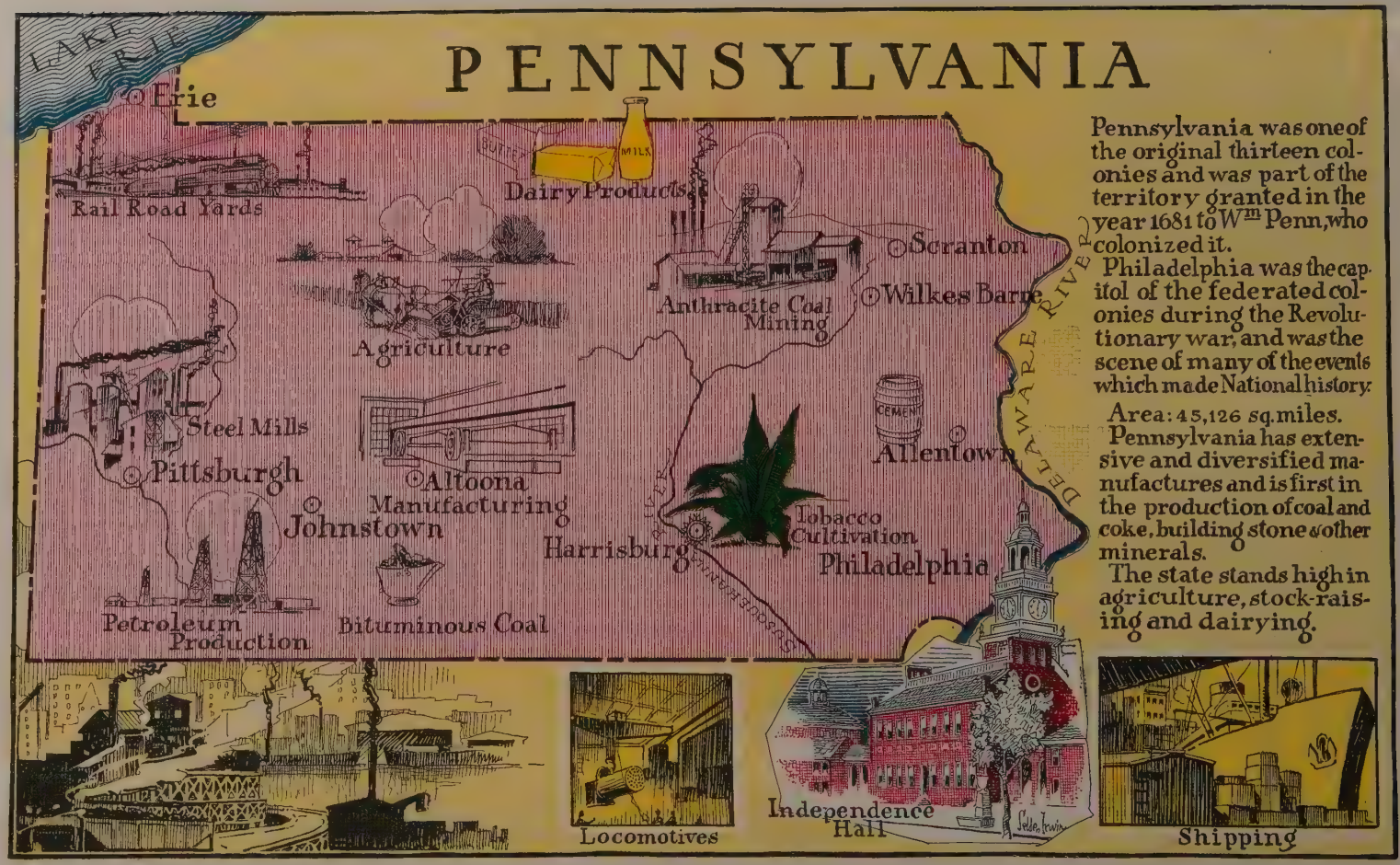
Cape May


MARYLAND and DELAWARE
Hagerstown
Potomac River
Men's Clothing
Baltimore
Wilmington
Dover
Explosives & Ammunition
Annapolis
Cumberland
Washington
District of Columbia
Chesapeake Bay
Fruit and Produce
Atlantic Ocean
Dome of the Capitol at Washington
The Canning Industry
Transatlantic Shipping
Fish and Oysters
IRWIN 26
MARYLAND
Total Area: 12,327 Sq. Miles
Adopted Fed Constitution in 1788.
Canning factories, manufacture of copper, tin and sheet iron products. Men's clothing
Fisheries and oyster beds.
Farming and truck growing.
DELAWARE
Total Area: 2,370 Sq. Miles
First to adopt Fed. Con.
Farming and fruit growing, trucking, fish and oysters.
Largest powder & munition factories in the world.
Important ship yards.



Drawn by Selden Irwin

CALIFORNIA



Drawn by Selden Irwin

PENNSYLVANIA

WEST VIRGINIA & VIRGINIA
Total Area: 24,170 Sq. Mi. Admitted to U. 1863
Iron and steel mills, pottery, tile and glass ware. Bituminous coal mining, petroleum and natural gas. There are numerous manufacturing establishments throughout the state.
Farming & sheep raising is carried on.
Lumber, especially the hard woods, is produced.
Total Area 42,627 Sq. Miles
Ratified U.S. Constitution 1788
Coal, iron, copper, gypsum, zinc and manganese are the principal minerals.
Agriculture is carried on in all parts of the state. Corn, wheat, tobacco and peanuts are grown and the cultivation of apples has become a large industry.
Fish and oysters are marketed. Ship yards at Norfolk and Newport News.
Wheeling
Steel Mills
OHIO RIVER
Parkersburg
WEST VIRGINIA
POTOMAC RIVER
Apples
Glass Factories
Alexandria
Manassas
CHARLESTON
Petroleum
Huntington
Washington's birthplace
Fredericksburg
Spotsylvania
Soft Coal
Roanoke
VIRGINIA
RICHMOND
CHESAPEAKE BAY
ATLANTIC OCEAN
Cigarettes
Petersburg
Coal Mines
Peanuts
Tobacco
Norfolk

Total Area: 41040 Sq. Miles
Admitted to Union 1803

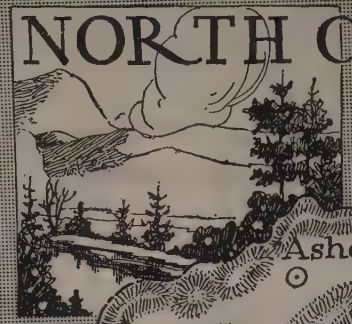
Agriculture, manufacturing and coal mining, production of iron ore, cement, lime, salt, clay and sand-stone.

Second in manufacture of motor cars and first in the rubber industry.

Glass ware, china, tile and brick making give employment to thousands. The iron and steel mills are among the largest in the country and a great variety of manufactured goods are produced throughout the state.

Sheep raising and breeding of dairy cattle is extensively carried on.

NORTH CAROLINA and SOUTH CAROLINA



Tobacco

Winston Salem

Asheville

Grapes

RALEIGH

Mica

PAMLICO SOUND

ATLANTIC OCEAN.

Charlotte

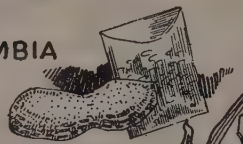
Spartanburg

Anderson

Cotton

Wilmington

COLUMBIA



Peanuts

Sugar Cane

Making the warp - Cotton Mill

SAVANNAH RIVER

Charleston

Tobacco Cultivation

IRWIN '26

NORTH CAROLINA

Total Area: 52,426 Square Miles
Adopted Nat'l. Constitution 1789.
Agriculture, cotton and tobacco cultivation, fruit and grapes. Some minerals, particularly mica. Atlantic coast fisheries supply a large market.

SOUTH CAROLINA

Total Area: 30,989 Square Miles.
Ratified U.S. Constitution 1788
Cultivation of cotton, tobacco, sugar cane and peanuts. There are large cotton textile mills and the manufacture of cotton seed products, cane-sugar and molasses. Lumber, turpentine & naval stores.

KENTUCKY and TENNESSEE

Covington

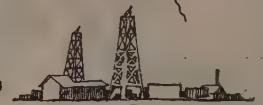
OHIO RIVER

Louisville

FRANKFORT

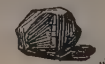
KENTUCKY

Tobacco



Petroleum

Mammoth Cave



CUMBERLAND RIVER

MISSISSIPPI RIVER

Paducah

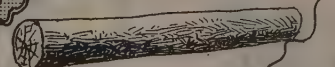
TENNESSEE

NASHVILLE

Coal

Knoxville

Lumber & Millwork



Memphis

Iron and Steel manufacture

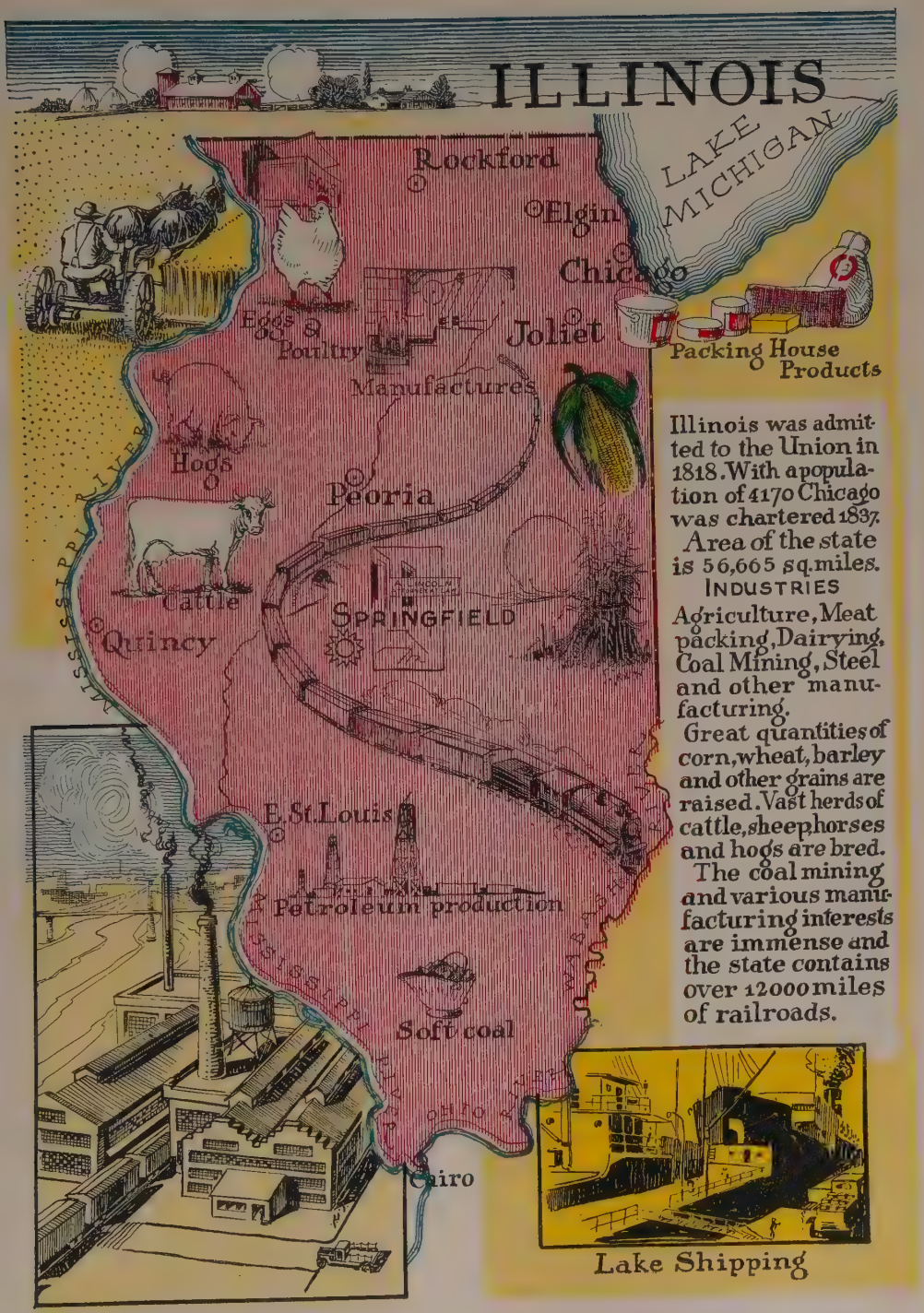
Chattanooga

KENTUCKY

Total Area 40,598 Sq. Miles.
Admitted to Union 1792
Carriag and wagon works, harness and leather manufacture, cordage and the lumber industry.
Horses, hogs, sheep and other livestock are bred. Hemp is an important crop. There are marble and lime-stone quarries, coal, petroleum and large deposits of sulphur.

TENNESSEE

Total Area: 42,022 Sq. Miles
Admitted to Union 1796
The manufacture of iron and steel, production of bituminous coal and lumbering are the chief industries.
The natural products and crops are similar to those of Kentucky, and some cotton is grown.


ILLINOIS
LAKE MICHIGAN
Rockford
Elgin
Chicago
Joliet
Eggs & Poultry
Packing House Products
Manufactures
Hogs
Peoria
Cattle
Quincy
SPRINGFIELD
E.St.Louis
Petroleum production
Soft coal
Cairo
Lake Shipping
Illinois was admitted to the Union in 1818. With a population of 4170 Chicago was chartered 1837.
Area of the state is 56,665 sq. miles.
INDUSTRIES
Agriculture, Meat packing, Dairying, Coal Mining, Steel and other manufacturing.
Great quantities of corn, wheat, barley and other grains are raised. Vast herds of cattle, sheep, horses and hogs are bred.
The coal mining and various manufacturing interests are immense and the state contains over 12000 miles of railroads.

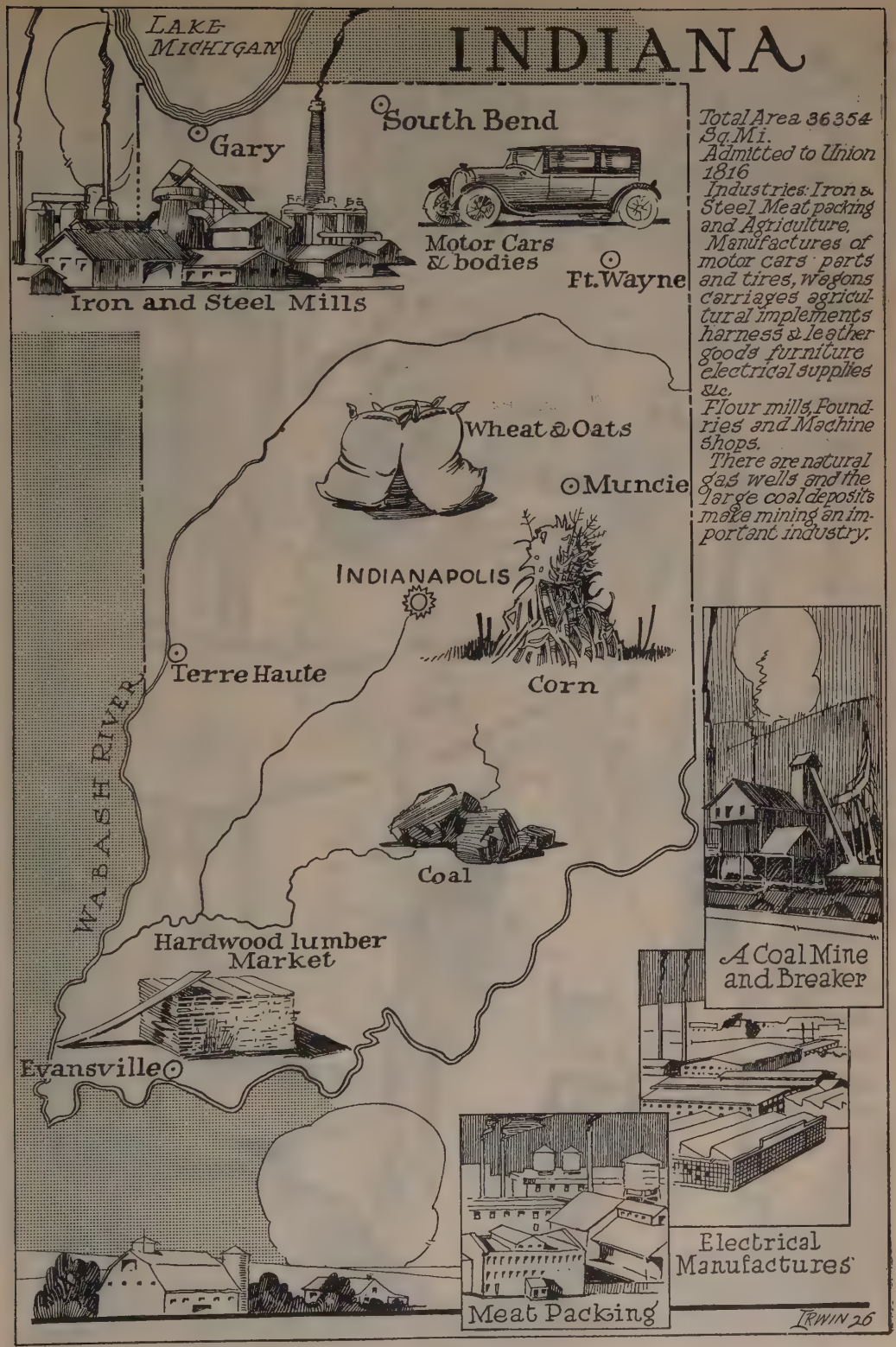
Drawn by Selden Irwin

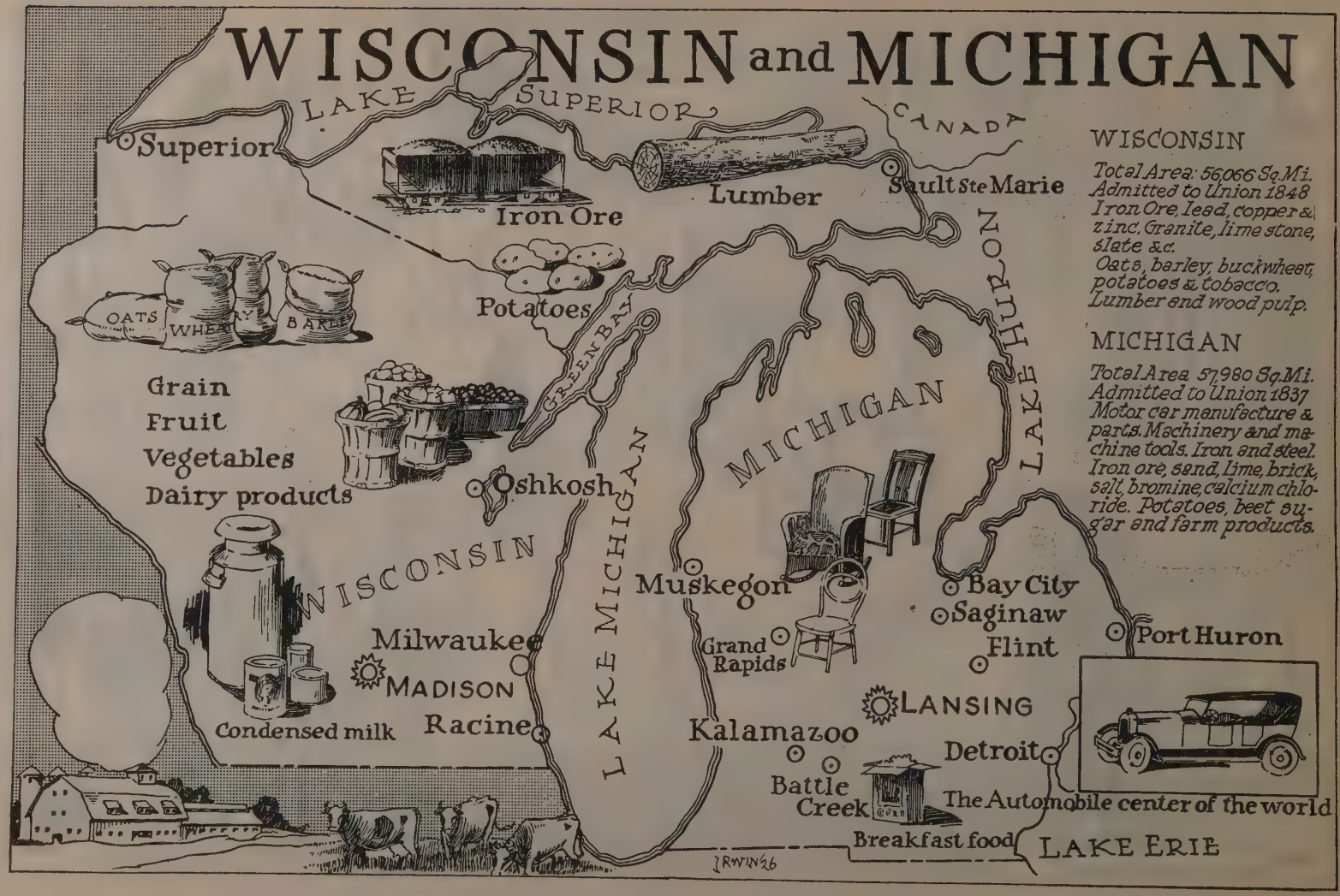
ILLINOIS

FLORIDA
Jacksonville
TALLAHASSEE
Cotton
St. Augustine
GATEWAY AT ST. AUGUSTINE
Sponge Fishing
(WESTERN END OF FLORIDA)
Pine Apple
L. George
Daytona
Phosphate Rock
L. Apopka
Winter Resort Hotels
Pensacola
Tampa
L. Kissimmee
Lemons
Oranges
Lake Okeechobee
Palm Beach
Ft. Myers
CANALS
Grapefruit
Miami
Key West
Dry Tortugas
FLORIDA was discovered in 1513 by PONCE de LEON who came ashore near the southern end of the peninsula and made explorations.
DE NARVEZ followed in 1528.
DE SOTA entered Tampa Bay in 1539 and MENENDEZ founded St. Augustine in 1565.
Florida was ceded to the U.S. by Spain in 1819 and admitted to the Union in 1845.
Area: 58,666 sq. miles
Peaches, pears and cotton are grown in the north; pineapples tobacco, mangoes and guavas in the central parts; oranges, lemons, grapes and grapefruit in the south. There are large canneries, and lumbering, fishing and sponge fishing are important industries.

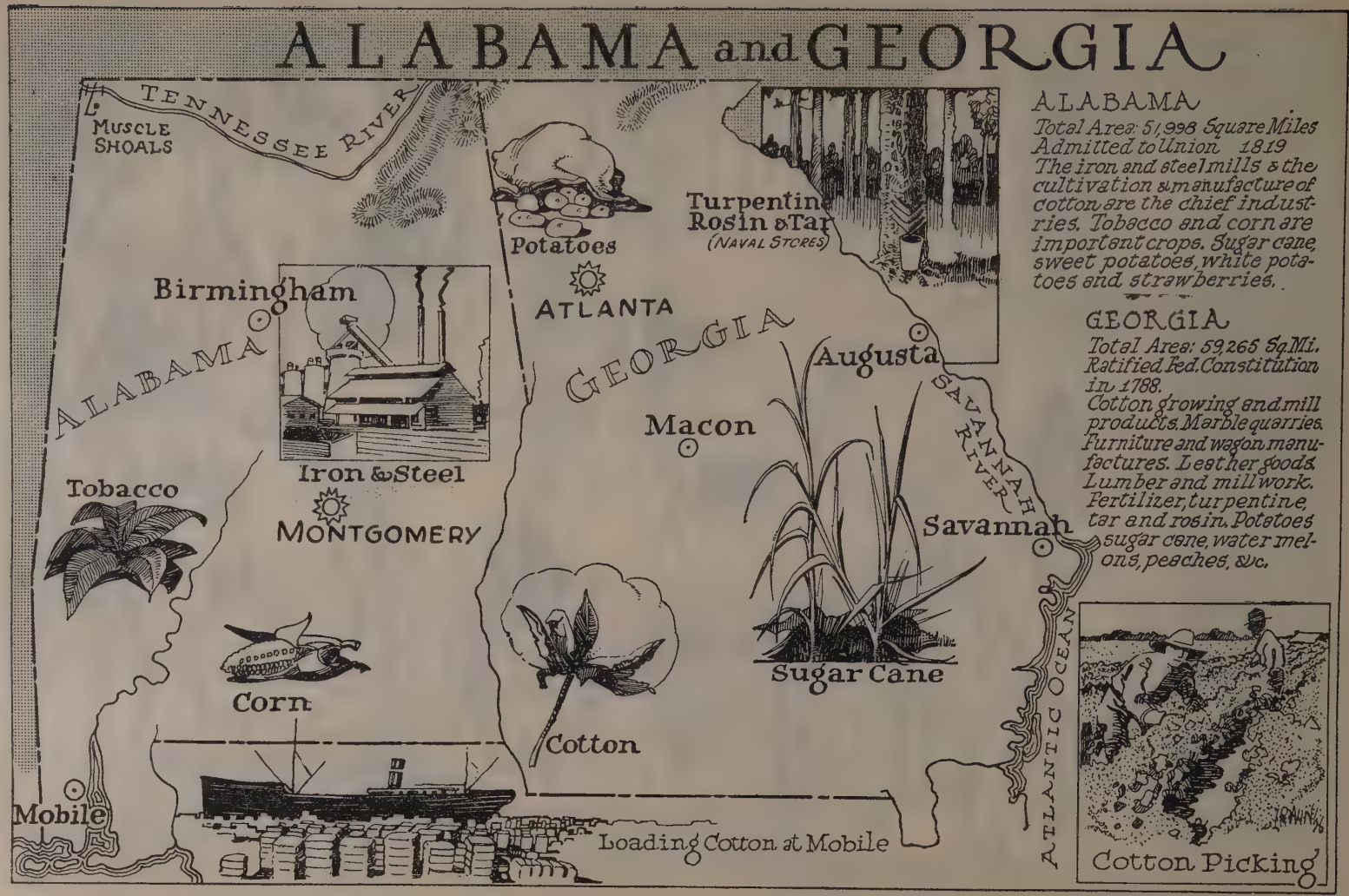
Drawn by Selden Irwin

FLORIDA


INDIANA
LAKE MICHIGAN
South Bend
Gary
Iron and Steel Mills
Motor Cars & bodies
Ft. Wayne
Total Area 36354 Sq. Mi.
Admitted to Union 1816
Industries: Iron & Steel Meat packing and Agriculture.
Manufactures of motor cars parts and tires, wagons carriages agricultural implements harness & leather goods furniture electrical supplies etc.
Flour mills, Foundries and Machine shops.
There are natural gas wells and the large coal deposits make mining an important industry.
Wheat & Oats
Muncie
INDIANAPOLIS
Terre Haute
Corn
WABASH RIVER
Coal
Hardwood lumber Market
Evansville
A Coal Mine and Breaker
Electrical Manufactures
Meat Packing
IRWIN 26


WISCONSIN and MICHIGAN
LAKE SUPERIOR
CANADA
Superior
Iron Ore
Lumber
Sault Ste Marie
OATS
WHEAT
BARLEY
Potatoes
Grain
Fruit
Vegetables
Dairy products
GREEN BAY
LAKE HURON
MICHIGAN
Oshkosh
WISCONSIN
LAKE MICHIGAN
Muskegon
Bay City
Saginaw
Flint
Port Huron
Grand Rapids
Milwaukee
MADISON
Racine
Condensed milk
LANSING
Kalamazoo
Detroit
Battle Creek
The Automobile center of the world
Breakfast food
LAKE ERIE
IRWIN '26
WISCONSIN
Total Area 56066 Sq. Mi.
Admitted to Union 1848
Iron Ore, lead, copper & zinc, Granite, lime stone, slate &c.
Oats, barley, buckwheat, potatoes & tobacco.
Lumber and wood pulp.
MICHIGAN
Total Area 57,980 Sq. Mi.
Admitted to Union 1837
Motor car manufacture & parts. Machinery and machine tools. Iron and steel. Iron ore, sand, lime, brick, salt, bromine, calcium chloride. Potatoes, beet sugar and farm products.

ALABAMA and GEORGIA



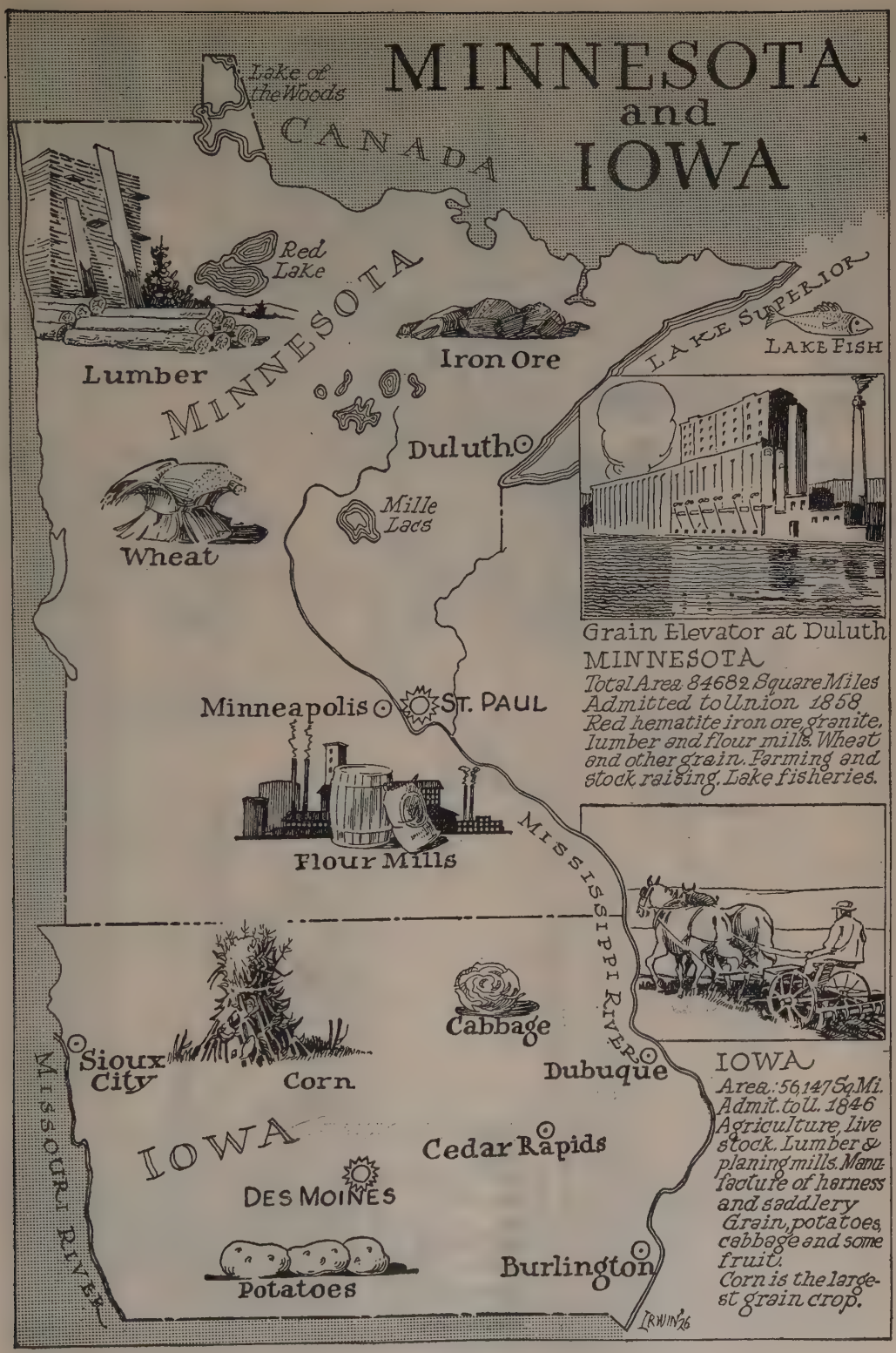
ALABAMA

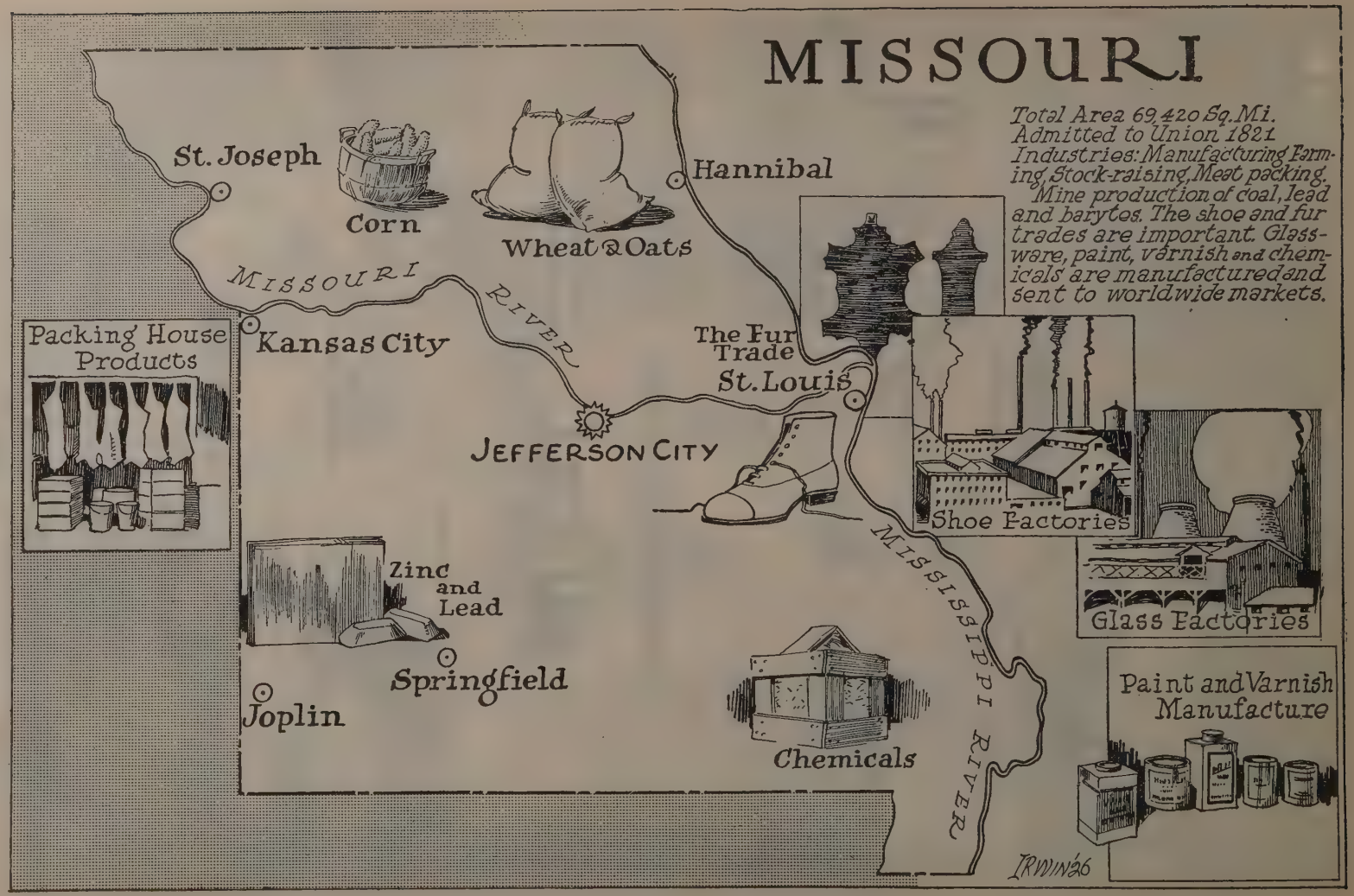
Total Area: 51,998 Square Miles
Admitted to Union 1819
The iron and steel mills & the cultivation & manufacture of cotton are the chief industries. Tobacco and corn are important crops. Sugar cane, sweet potatoes, white potatoes and strawberries.

GEORGIA

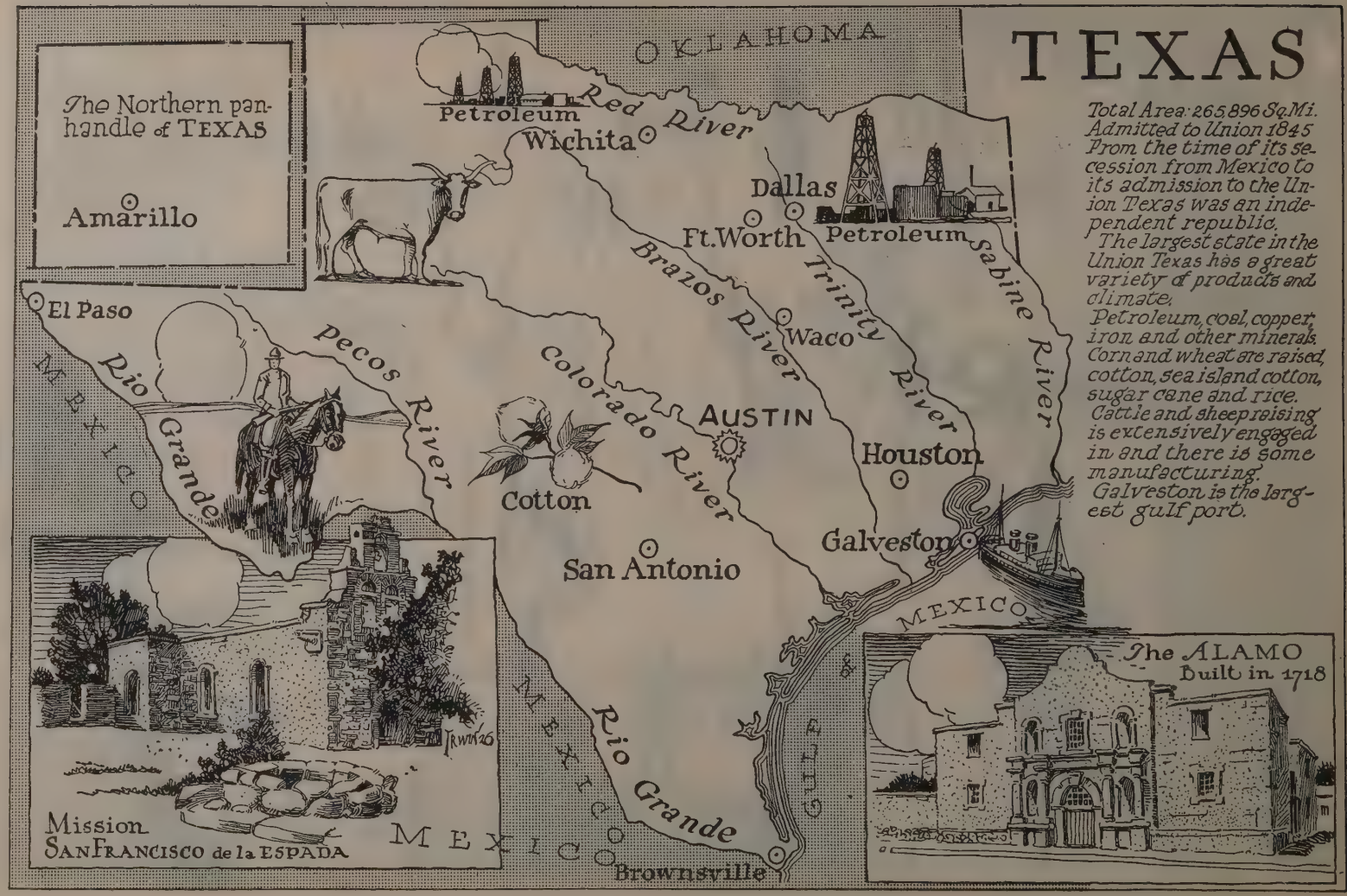
Total Area: 59,265 Sq. Mi.
Ratified Fed. Constitution in 1788.
Cotton growing and mill products. Marble quarries. Furniture and wagon manufactures. Leather goods. Lumber and mill work. Fertilizer, turpentine, tar and rosin. Potatoes sugar cane, water melons, peaches, &c.

ARKANSAS
LOUISIANA
MISSISSIPPI
ARKANSAS
Total Area 53,335 Sq. Miles
Admitted to Union, 1836. Petroleum. Agriculture, cotton, grain, hay and phosphate rock.
LOUISIANA
Total Area 48,506 Sq. Miles.
Admitted to Union, 1812.
Sugar cane, sugar making and refining. Molasses, cotton and cotton seed products. Rice growing & cleaning. Lumber, turpentine & naval stores.
MISSISSIPPI
Total Area 46,865 Sq. Miles Admitted to Union 1817. Products like those of La. Water melons shipped to Northern markets.
Grain
Hay
ARKANSAS RIVER
Fort Smith
LITTLE ROCK
Hot Springs
Phosphate
Pine Bluff
Petroleum
Cotton
Corn
Shreveport
Meridian
JACKSON
Vicksburg
MISSISSIPPI RIVER
Lumber
Water-melons
Sweet Potatoes
SABINE RIVER
BATON ROUGE
Cottonseed Oil and Cake
Rice
Molasses
New Orleans
Sugar Cane
GULF OF MEXICO
GULF OF MEXICO
IRWIN '26


MINNESOTA
and
IOWA
Lake of the Woods
CANADA
Red Lake
MINNESOTA
Lumber
Iron Ore
LAKE SUPERIOR
LAKE FISH
Duluth
Mille Lacs
Wheat
Grain Elevator at Duluth
MINNESOTA
Total Area 84682 Square Miles
Admitted to Union 1858
Red hematite iron ore, granite, lumber and flour mills. Wheat and other grain. Farming and stock raising. Lake fisheries.
Minneapolis
ST. PAUL
Flour Mills
MISSISSIPPI RIVER
Cabbage
Sioux City
Corn
Dubuque
IOWA
Cedar Rapids
DES MOINES
MISSOURI RIVER
Potatoes
Burlington
IRWIN '26
IOWA
Area: 56,147 Sq. Mi.
Admit. to U. 1846
Agriculture, live stock. Lumber & planing mills. Manufacture of harness and saddlery
Grain, potatoes, cabbage and some fruit.
Corn is the largest grain crop.


MISSOURI
Total Area 69,420 Sq. Mi.
Admitted to Union 1821
Industries: Manufacturing Farming, Stock-raising, Meat packing.
Mine production of coal, lead and barytes. The shoe and fur trades are important. Glassware, paint, varnish and chemicals are manufactured and sent to worldwide markets.
St. Joseph
Corn
Wheat & Oats
Hannibal
MISSOURI RIVER
Kansas City
Packing House Products
The Fur Trade
St. Louis
JEFFERSON CITY
Shoe Factories
Glass Factories
Zinc and Lead
Springfield
Joplin
Chemicals
MISSISSIPPI RIVER
Paint and Varnish Manufacture
IRWIN'26

KANSAS and OKLAHOMA
Missouri River
TOPEKA
Kansas City
Meat Packing
Wheat and Corn
Hutchinson
KANSAS
Wichita
Cattle Raising
Coal
Petroleum
Arkansas River
Tulsa
Guthrie
OKLAHOMA CITY
Muskogee
Wheat and Corn
McAlester
Washita River
OKLAHOMA
Red River
Cotton
KANSAS
Total Area: 82,158 Sq. Miles
Admitted to Union 1861
Farming, meat packing, flour mills. Corn, wheat & other cereals. Coal mines, petroleum and extensive salt beds.
OKLAHOMA
Total Area: 70,057 Sq. Miles
Admitted to Union 1907
Corn, wheat, cotton, alfalfa hay and broom-corn. Coal, petroleum, gypsum, salt and asphaltum. Cattle raising & beef packing
IRWIN '26


TEXAS
Total Area: 265,896 Sq. Mi.
Admitted to Union 1845
From the time of its secession from Mexico to its admission to the Union Texas was an independent republic.
The largest state in the Union Texas has a great variety of products and climate.
Petroleum, coal, copper, iron and other minerals.
Corn and wheat are raised, cotton, sea island cotton, sugar cane and rice.
Cattle and sheep raising is extensively engaged in and there is some manufacturing.
Galveston is the largest gulf port.
The Northern panhandle of TEXAS
Amarillo
OKLAHOMA
Petroleum
Red River
Wichita
Dallas
Ft. Worth
Petroleum
Brazos River
Trinity River
Sabine River
Waco
El Paso
Pecos River
Rio Grande
MEXICO
Colorado River
AUSTIN
Houston
Cotton
Galveston
San Antonio
MEXICO
Rio Grande
MEXICO
Brownsville
GULF
Mission SAN FRANCISCO de la ESPADA
The ALAMO
Built in 1718

NORTH DAKOTA SOUTH DAKOTA and NEBRASKA

N. DAKOTA
Total Area 70,837 Sq. Mi. Admitted to Union 1889. Agriculture, mining. Cattle raising. Cement & building stone, salt, baled hay and dairy products.
Baled Hay
Grand Forks
NORTH DAKOTA
Fargo
Bismarck
RED RIVER OF THE NORTH
MISSOURI RIVER
A gold mine at Lead, S.D.
SOUTH DAKOTA
Total Area 77,615 Sq. Mi. Admitted to Union 1889. Cereals and dairy farms. Gold and other minerals, building stone, mica, clay products & mineral water.
Shaded areas indicate Indian Reservations
PIERRE
Sioux Falls
Yankton
NEBRASKA
Corn & Wheat
Packing House Products
Omaha
PLATTE RIVER
LINCOLN
Hastings
NEBRASKA Total Area 77,520 Sq. Miles
Admitted to Union 1867. Farming, grain and cattle raising. Meat packing. Potash deposits.
IRWIN '46

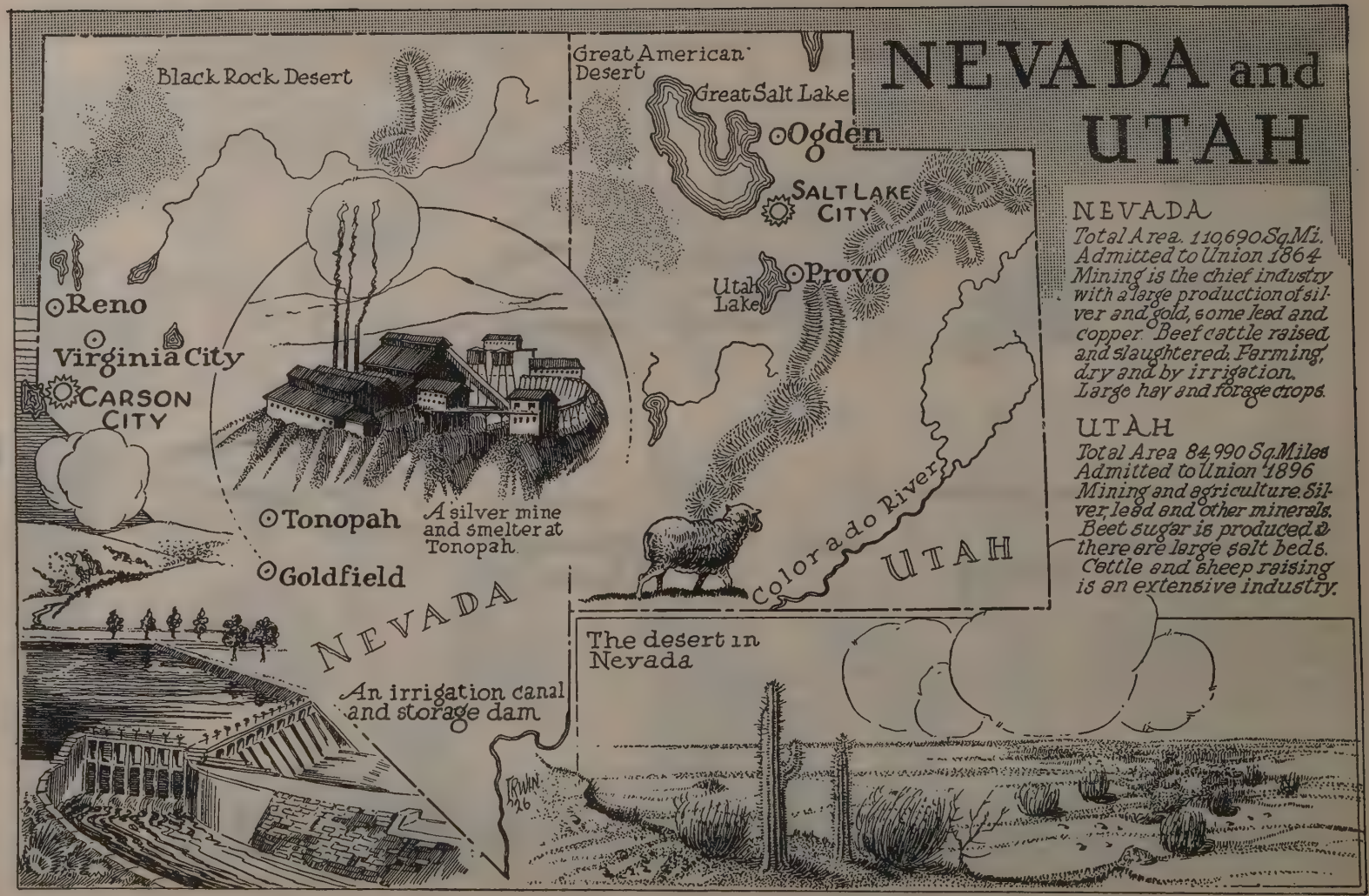
WYOMING & COLORADO

Area 97,914 Sq. Miles. (This does not include Yellowstone National Park)
Admitted to Union 1890.
Agriculture, mining and stock raising.
Petroleum is an important product.
Alfalfa is grown in great quantities.

Total Area: 103,948 Square Miles.
Admitted to Union 1876
Meat packing, canning & preserving.
Flour mills and mining. The mineral wealth is great, including coal, oil, gold silver, copper, lead, zinc, tungsten & radium.

ARIZONA and NEW MEXICO
Grand Canyon
Colorado River
Prescott
Beef Cattle
PHŒNIX
Gila River
ARIZONA
Tucson
Bisbee
Shaded areas represent Indian Reservations.
Distributing ditch of Arizona irrigating system
Silver City
Copper
SANTA FÉ
Albuquerque
NEW MEXICO
Rio Grande
Roswell
An Indian Pueblo
IRWIN '26
ARIZONA
Total Area: 113956 Sq. Miles.
Admitted to Union 1912
Silver, gold and lead mines.
Beef cattle and sheep raising. Extensive irrigation.
NEW MEXICO
Total Area: 122634 Sq. Mi.
Admitted to Union 1910
Mineral deposits similar to those of Arizona, also copper, salt, plumbago & gypsum. Cattle & sheep.

NEVADA and UTAH



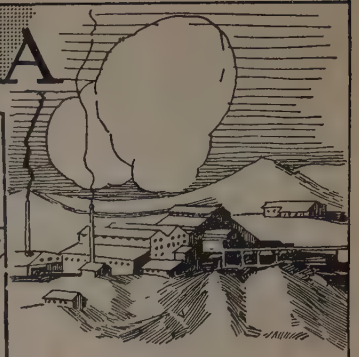
NEVADA

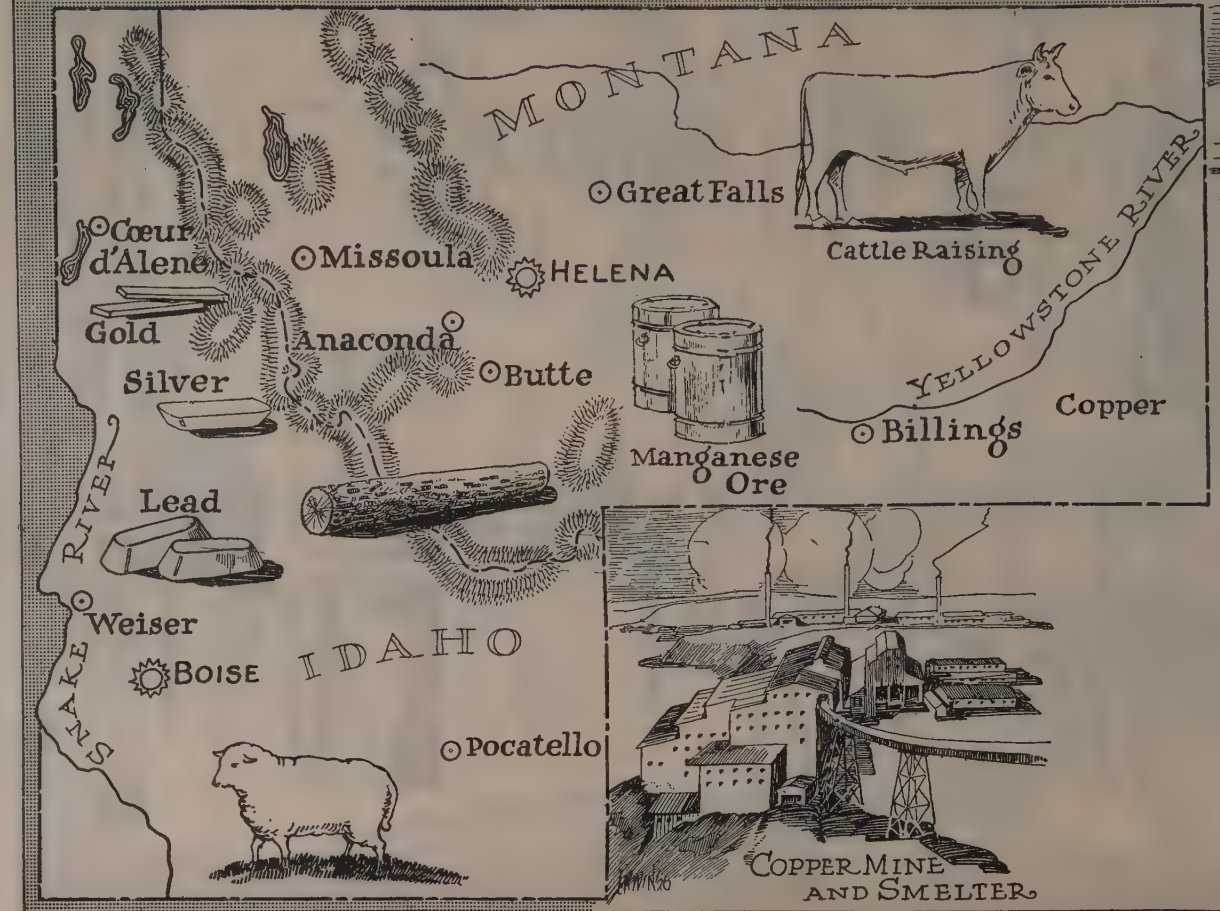
Total Area 110,690 Sq. Mi.
Admitted to Union 1864
Mining is the chief industry with a large production of silver and gold, some lead and copper. Beef cattle raised and slaughtered. Farming, dry and by irrigation. Large hay and forage crops.

UTAH

Total Area 84,990 Sq. Miles
Admitted to Union 1896
Mining and agriculture. Silver, lead and other minerals. Beet sugar is produced & there are large salt beds. Cattle and sheep raising is an extensive industry.

IDAHO and MONTANA





IDAHO

Total Area: 83,888 Sq. Mi. Admitted to Union 1890. Industries: Production of minerals, chiefly gold, silver and lead. Lumber and Flour milling. Farming and stock-raising are important, particularly the breeding of sheep.

MONTANA

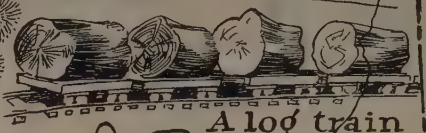
Total Area: 146,997 Sq. Mi. Admitted to Union 1889 Industries: Mining and milling of gold, silver, lead copper and zinc. Rich coal fields, limestone, sandstone, granite and slate. First in production of manganese. Some tungsten is found. Sheep and wool production leads the entire United States.

WASHINGTON & OREGON

Total Area 69,127 Sq. Miles
Admitted to Union 1889
Coal, iron ore and large tracts of timber. Lumber & wood pulp. Wheat, fruit and hops are grown. Salmon fishing and canning are large industries.

Total Area 96,699 Sq. Miles
Admitted to Union 1859
Corn, wheat and potatoes. Grapes, prunes, apples and other fruits. Dairy cattle and sheep raising. Lumber mills, salmon fisheries & meat packing.

Mount Rainier



A log train

Everett

Seattle

WASHINGTON

Spokane

Apples

Tacoma

OLYMPIA

MT. RAINIER

Wheat

Salmon Canning

Astoria

COLUMBIA RIVER

Portland

MT. HOOD

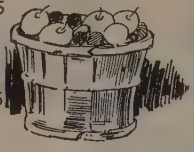
SALEM

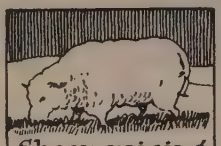
OREGON

PACIFIC OCEAN

SNAKE RIVER

Apples
Peaches
Pears
Prunes
Apricots





Sheep raising

Dairy cattle

CRATER LAKE NAT'L PARK

Klamath Lake

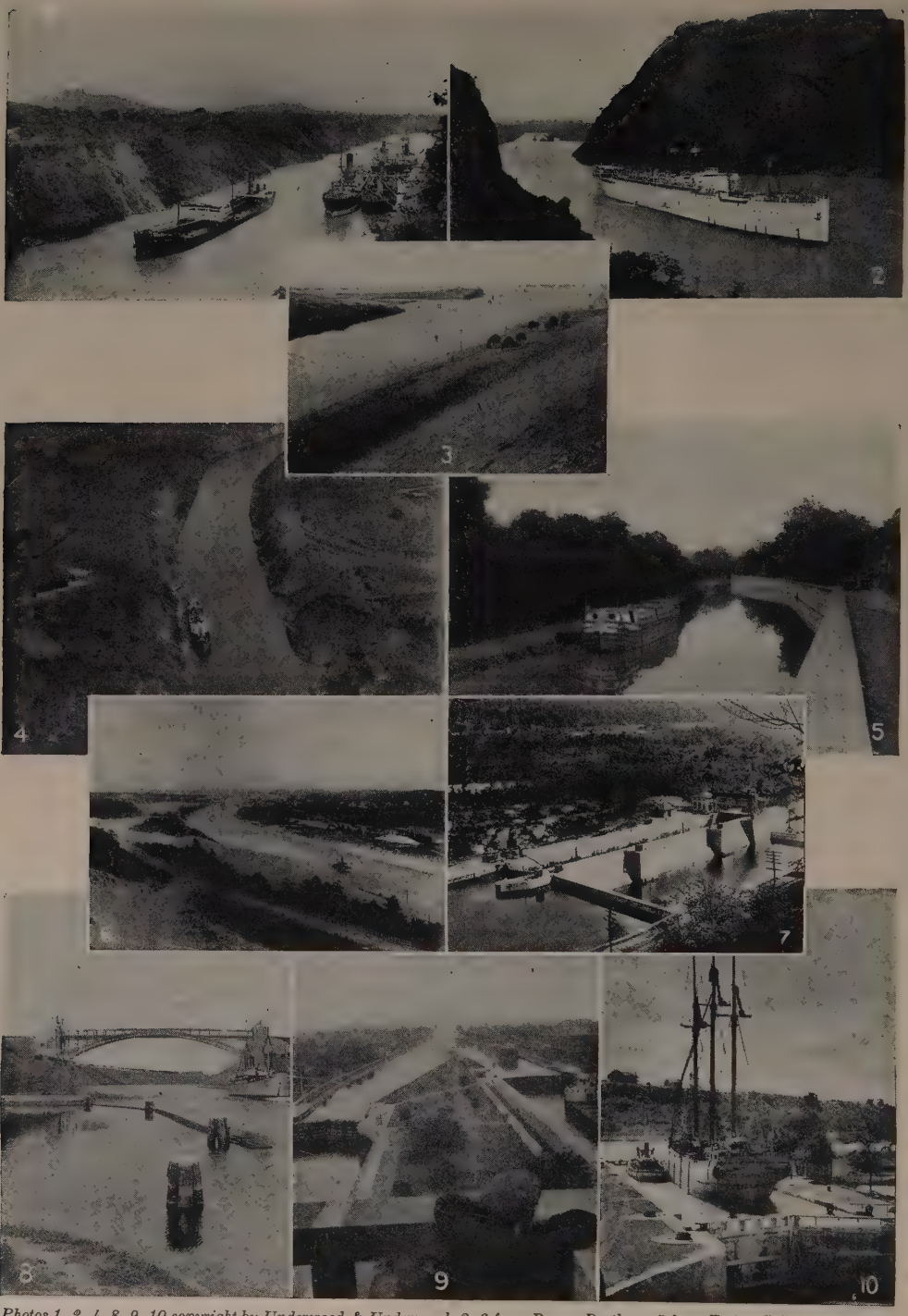
Shaded areas are Indian reservations

IRWIN '26

A LUMBER MILL

ATLAS

AFRICA
ASIA
AUSTRALIA
EUROPE
NORTH AMERICA
SOUTH AMERICA
ISLANDS



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CANALS AND WATERWAYS

1 Panama Canal. 2 Gaillard Cut, Panama Canal. 3 Suez Canal at Ismalia. 4 Culebra Cut, Panama Canal. 5 Chesapeake & Ohio Canal at Georgetown, D. C. (Original survey made by George Washington). 6 Cape Cod Canal, Massachusetts. 7 Erie Barge Canal. 8 Kiel Canal, Germany. 9 Soo Canal, Sault Ste. Marie, Mich. 10 Welland Canal, Canada.

BOOK VI.

ATLAS.

Drawing by SELDEN IRWIN.

MAP OF WORLD, COUNTRIES OF EUROPE, ISLANDS OF NORTH SEA, BRITISH ISLES, AFRICA, ASIA, AUSTRALIA, NEW ZEALAND, SOUTH AMERICA, NORTH AMERICA, CENTRAL AMERICA, UNITED STATES, CANADA AND NORTHWEST TERRITORY, WEST INDIES, HAWAII, PHILIPPINES.

Atlas, a Greek mythological term. Homer represents him as "one who knows the depths of the whole sea, and keeps the tall pillars which hold heaven and earth asunder." Finally Atlas was explained as the name of a primitive astronomer, who was said to have made the first celestial globe. A figure of Atlas supporting the heavens, is often used as a frontispiece in map collections. It is said to have been first used in this way by Mercator. The name applies—first, to a volume of maps, secondly, to any volume containing a tabulated treatment of a subject.

Maps. A representation on a plane, and in reduced scale of a part, or whole of the earth's surface. If it is designed for use of seamen it is called a Chart. The words map and chart are derived from mappa and charta, the former being the Latin for a napkin or cloth, the latter a parchment or papyrus. Maps are frequently named after the material upon which they were drawn or painted. Today maps for military use are frequently printed on cloth.

A collection of maps, is called an Atlas, named after the mythological Atlas, supporting the heavens.

Maps may be divided in different classes according to their use. Physical, which include geological, hydrographical, etc. Political, showing boundaries of states. Ethnological, illustrating distribution of races of mankind. Statistical, illustrating commerce and statistics. Travel maps, highways, railroads, aviation, ocean routes. Historical maps, as showing growth of United States. Educational, designed for reference and general school purposes.

The most ancient known map is one sketched on a clay tablet discovered in Babylon, and is believed to date from the 8th century B. C. It shows the earth as flat, circular in form, surrounded by a river, which the Greeks believed to be an ocean.

The authors of "The New Century Book of Facts," realizing the vital importance of maps in the study of Geography have placed this department adjacent, in order that they may be used together. It is not sufficient merely to know that a certain city is located in the state of New York or Texas, or that a certain state is west of the Mississippi river, or a particular railroad connects two cities; it is important to know the exact geographical location, the exact country traversed by this railroad, and the reasons for the growth of these cities.

Modern mechanics has become so highly developed, that long hours of toil are gradually lessening. People have more time for study and travel. This together with the ever increasing speed of the transportation world, makes it pos-

sible that places and things which were only within the reach of the more wealthy are now at the door of every automobile owner. People have become educated to the value of travel not only through the motor, but also the increasing advertisements of cheap excursions by the railroads. All this means that to better appreciate their travel, these excursions, use must be made of an Atlas. The New Century Atlas, is most up to date, the best that is to be offered.

AFRICA

Abyssinia
Ancola
Aldabra
Algeria
Anglo Egyptian Sudan
Bechuanaland
Belgian Congo
British Somaliland
Canary Island
Erithrea
Egypt
French Equatorial Africa
French Guiana
French Somaliland
French West Africa
Gambia
Gold Coast
Italian Somaliland
Ivory Coast
Kamerun
Kenya
Liberia
Madagascar
Madeira Islands
Military Territories
Morocco
Nigeria
Northern Rhodesia
Port Guinea
Portuguese East Africa
Rio De Dio
Sahara
Senegal
Southern Rhodesia
South West Africa
Tavis
Tripoli

ASIA

Aden
Afghanistan
Aleutian Islands
Arabia
Armenia
Baluchistan
Bhutan
Bokhara
Borneo
British North Borneo
Burma
Celebes
Ceylon
China
Chosen
Formosa
French-Indo China
Hejaz
India
Inner Mongolia
Japan
Java
Korea
Kuril Island
Laceadine Island
Manchuria
Mesopotamia
Mongolia
Molucea Island
Malay Peninsula
Maldine Island
Nepal
New Guinea
New Siberian Island
Nicobar
Palestine
Persia
Pelew Islands
Philippine Islands
Sakhalin
Siam
Siberia
Sinkiang
Strait Settlements
Sumatra
Sylvia
Tibet
Turkey

AUSTRALIA

Barthurst Island
Flores
Flinders
Great Sandy Island
Kangaroo Island
King Island
Louisiade Archipelago
Loyalty Islands
New Caledonia Islands
New Hebrides Islands
New South Wales
New Zealand
Northern Australia
Queensland
Solomon Islands
South Australia
Tasmania
Victoria
Western Australia

BRITISH ISLES

Alderney
England
Guernsey
Hebrides Islands
Ireland
Isle of Man
Isle of Wight
Jersey
Orkney Islands
Scotland
Shetland Islands
Wales

CANADA

Alberta
Baffin Island
Banks
British Columbia
Cape Breton Island
Franklin
Keewatin
King William Island
Labrador
Mackenzie
Manitoba
New Brunswick
Newfoundland
Northwest Territory
Nova Scotia
Ontario
Prince Edward Island
Prince of Wales Island
Quebec
Saskatchewan
Vancouver Island
Victoria Island
Yukon

CENTRAL AMERICA

Belize
Guatemala
Honduras
Mexico
Nicaragua
Panama
Salvador

EUROPE

Albania
Andora
Austria
Asia Minor
Belgium
British Islands
Bulgaria
Corsica
Crete
Crimea
Czechoslovakia
Denmark
Esthonia
Faroe Island
Finland
France
Germany
Greece
Hungary
Iceland
Italy
Latvia
Lithuania
Luxemburg
Malta
Monaco
Netherlands
Northern Caucasia
Norway
Poland
Portugal
Rumania
Russia
Sardinia
Sicily
Spain
Sweden
Switzerland
Trans Caucasia
Turkey in Europe
Ukraine
Yugo Slavia

NORTH AMERICA

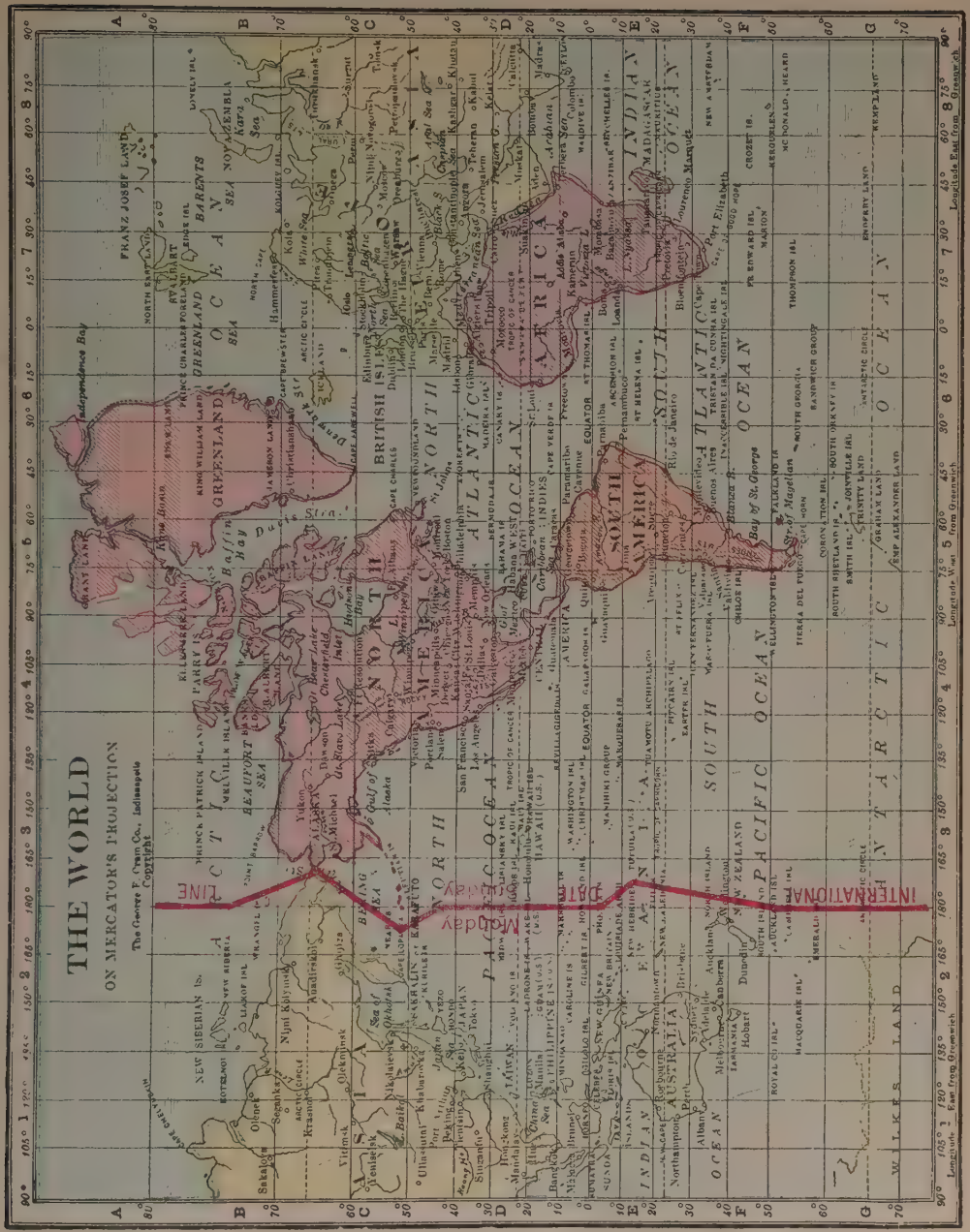
Alaska
Bahama
Bermuda Islands
Costa Rica
Cuba
Dominion of Canada
Dominican Republic
Greenland
Haiti
Isle of Pine
Jamaica
Kadiak Islands
Porto Rico
U. S. of America
Yucatan

SOUTH AMERICA

Argentina
Bolivia
Brazil
British Guiana
Chile
Colombia
Dutch Guiana
Ecuador
Falkland Islands
French Guiana
Galapogos
Grenada
Madre De Dios Islands
Mas A Fuera Islands
Mas A Tierra Islands
Paraguay
Patagonia
Peru
Santaines
Tierra Del Fuego
Trinidad Islands
Uraguay
Venezuela
Wellington Island
Wollaston Island

U. S. OF AMERICA

Alabama
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Florida
Georgia
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming



THE WORLD—Area in square miles: 57,255,200 (aggregate). Africa, 11,622,619; Asia, 17,203,000; Europe, 3,872,561; North America, 8,589,257; Oceania, 3,312,613; Polar Regions, 5,031,935; South America, 7,570,215.

Total Population: 1,838,440,051. Africa, 129,696,579; Asia, 978,483,783; Europe, 444,854,460; North America, 150,229,986; Oceania, 68,882,875; South America, 66,292,368.

ARCTIC
ATLANTIC OCEAN
NORTH SEA
BALTIC SEA
MEDITERRANEAN SEA
ADRIATIC SEA
Ionian Sea
Tyrrhenian Sea
ICELAND
(Denmark)
THE FAEROES
(Denmark)
SHETLAND IS.
ORKNEY IS.
(Br.)
OUTER HEBRIDES
(Br.)
BRITISH ISLES
SCOTLAND
IRELAND
ENGLAND
NORWAY
SWEDEN
DENMARK
FRANCE
SPAIN
PORTUGAL
BELGIUM
SWITZERLAND
GERMANY
AUSTRIA
HUNGARY
CZECHO SLOVAKIA
ITALY
THE ALPS
CORSICA
(Fr.)
SARDINIA
(It.)
BALEARIC ISLANDS
(Sp.)
MAJORCA
MINORCA
SICILY
MALTA
(Br.)
AFRICA
Algiers
Tunis
Rabat
Gibraltar
(Br.)
Strait of Gibraltar
C. FINISTERRE
C. ST. VINCENT
Bay of Biscay
English Channel
St. George's Channel
North Channel
Pentland Firth
Arctic
Reykjavik
Faxa Bay
North Cape
C. Rissthangi
Lofoten Islands
Folden Fjord
Sogne Fjord
Hardanger Fjord
Vest Fjord
Skagerrak
Kattegat
Gulf of Bothnia
Gulf of Finland
Baltic Sea
Gulf of Riga
Gulf of Lyons
Gulf of Genoa
Adriatic Sea
Gulf of Venice
Gulf of Taranto
Gulf of Corinth
Aegean Sea
Ionian Sea
Malta Channel
Strait of Messina
Strait of Bonifacio
Cantabrian Mts.
Pyrenees
Alps
Apennines
Balkan Mts.
Carpathian Mts.
Dinaric Alps
Black Forest
Harz Mts.
Erzgebirge
Riesengebirge
Bohemian Forest
Thuringian Forest
Vosges Mts.
Jura Mts.
Cevennes Mts.
Sierra Nevada
Sierra Morena
Guadarrama Mts.
Iberian Mts.
Pyrenees
Dovrefjeld
Kjolen Mts.
Lapland
Ural Mts.
Caucasus Mts.
Crimea
Black Sea
Sea of Azov
Caspian Sea
Aral Sea
Lake Ladoga
Lake Onega
Lake Peipus
Lake Ilmen
Lake Vener
Lake Vetter
Lake Wenern
Lake Mjosen
Lake Constance
Lake Geneva
Lake Lucerne
Lake Zurich
Lake Como
Lake Garda
Lake Maggiore
Lake Balaton
Lake Neusiedler
Lake Trasimeno
Lake Bolsena
Lake Albano
Lake Nemi
Lake Orta
Lake Varese
Lake Iseo
Lake Lugano
Lake Neuchatel
Lake Thun
Lake Brienz
Lake Wallen
Lake Zug
Lake Aegeri
Lake Sempach
Lake Hallwil
Lake Baikal
Lake Aral
Lake Balkash
Lake Issyk-Kul
Lake Tana
Lake Victoria
Lake Tanganyika
Lake Nyasa
Lake Rudolf
Lake Albert
Lake Edward
Lake Kivu
Lake Chad
Lake Ngami
Lake Eyre
Lake Torrens
Lake Gairdner
Lake Frome
Lake Amadeus
Lake Mackay
Lake Nash
Lake Hope
Lake Callabonna
Lake Blanche
Lake Gregory
Lake Disappointment
Lake Macdonnell
Lake Alexandrina
Lake Albert
Lake Victoria

EUROPE
Scale of Miles
0 100 200 300 400
The Geo. F. Cram Co.
Indianapolis, Ind
UNION OF SOCIALISTIC SOVIET REPUBLICS
SIBERIA
CASPIAN SEA
BLACK SEA
ARAL SEA
CAUCASUS MTS.
KOLA PENINSULA
CRIMEA
VALDAI HILLS
URAL MTS.
URAL RIVER
OB' RIVER
Moscow
Leningrad
Archangel
Murmansk
Vologda
Kazan
Perm
Chelyabinsk
Sverdlovsk
Tobolsk
Tyumen
Omsk
Novosibirsk
Kemerovo
Irkutsk
Chita
Yakutsk
Khabarovsk
Vladivostok
Sakhalin
Kamchatka
Petropavlovsk
Kharkov
Kiev
Odessa
Sevastopol
Simferopol
Rostov on Don
Stalingrad
Astrakhan
Baku
Tiflis
Batum
Erivan
Trebizond
Angora
Sea of Marmara
Constantinople
Bosporus
Varna
Bucharest
Smyrna
Alexandretta
Cyprus
Rhodes
Crete
Tehran
Van
L. Urmiah
Mt Ararat
Aras R.
Tigris R.
Euphrates R.
Volga R.
Don R.
Dnieper R.
Pechora R.
Kama R.
Ural R.
Ob' R.
Irtysh R.
Lena R.
Amur R.
Yenisei R.
Caspian Sea
Black Sea
Sea of Azov
White Sea
Gulf of Onega
Lake Onega
Lake Ladoga
Lake Peipus
Gulf of Finland
Baltic Sea
Gulf of Bothnia
Kola Peninsula
Kolguev I.
Vaigach I.
North Cape
Varanger Fjord
Vardo
Hammerfest
Helsingfors
Finland
Stockholm
Oslo
Riga
Memel
Danzig
Warsaw
Lwow
Kishinev
Galatz
Akkerman
Nikolaev
Kherson
Yeisk
Taganrog
Novocherkassk
Ekaterinodar
Stavropol
Georgievsk
Makhatsh-Kala
Derbent
Vladikavkaz
Elisabethpol
Baku
Alexandropol
Gulcha
Trebizond
Angora
Smolensk
Minsk
Vitebsk
Mogilev
Bobruisk
Pinsk
Brest Litovsk
Grodno
Vilna
Kaunas
Libau
Pskov
Novgorod
Tver
Yaroslavl
Kostroma
Nizhni Novgorod
Vladimir
Ryazan
Kolomna
Tula
Kaluga
Orel
Kursk
Tambov
Voronezh
Kozlov
Penza
Morshansk
Simbirsk
Samara
Saratov
Volsk
Buguruslan
Buzuluk
Orenburg
Nikolayevsk
Uralsk
Chernigov
Poltava
Kremenchug
Ekaterinoslav
Dnieper R.
Dniester R.
Berdichev
Jitomir
Kamenets-Podolski
Moghilev
Elisavetgrad
Czernowitz
Lemberg
Cracow
Warsaw
Petrograd
Tsaritsin
Volga R.
Don R.
Dnieper R.
Pechora R.
Kama R.
Ural R.
Ob' R.
Irtysh R.
Lena R.
Amur R.
Yenisei R.
Caspian Sea
Black Sea
Sea of Azov
White Sea
Gulf of Onega
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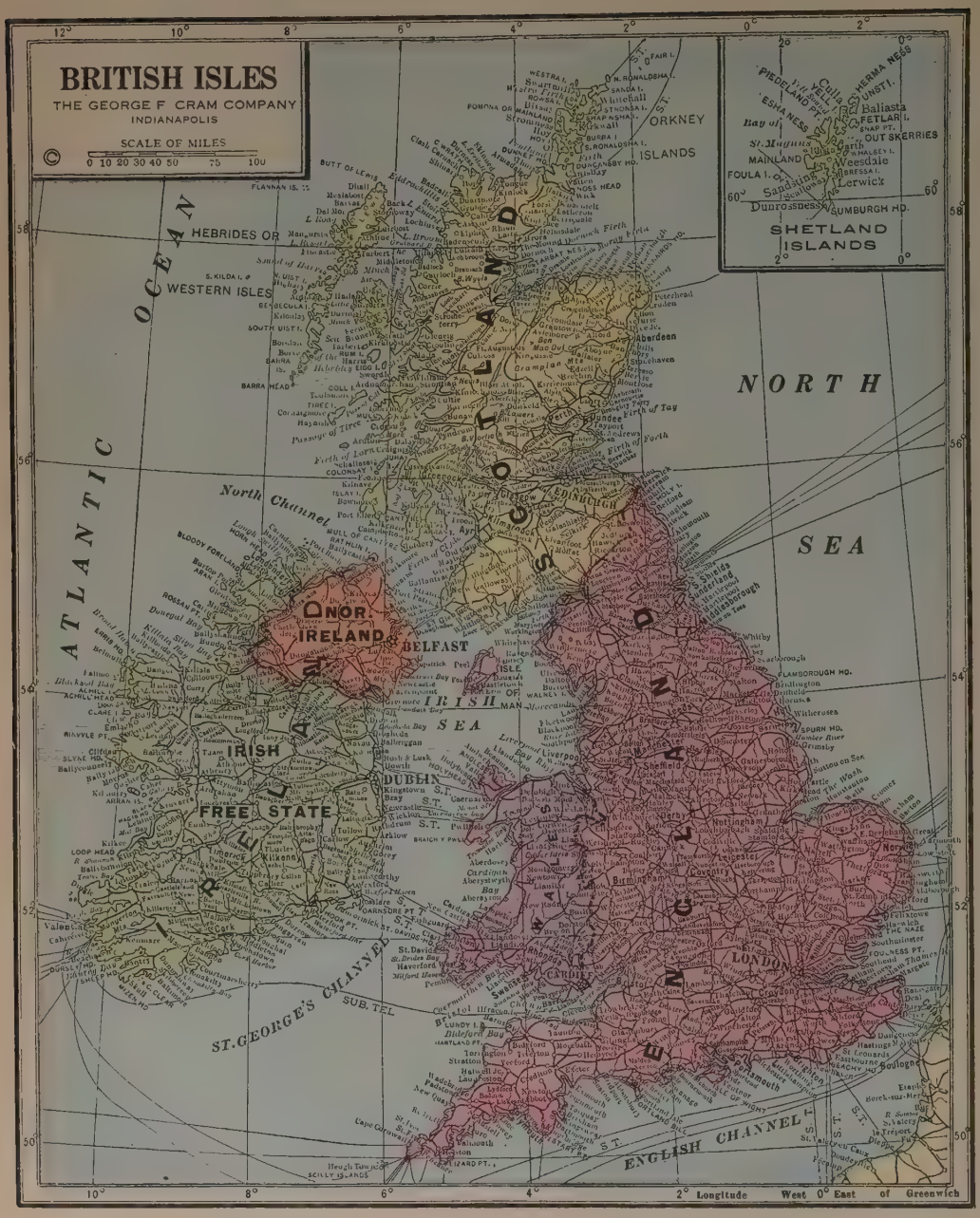
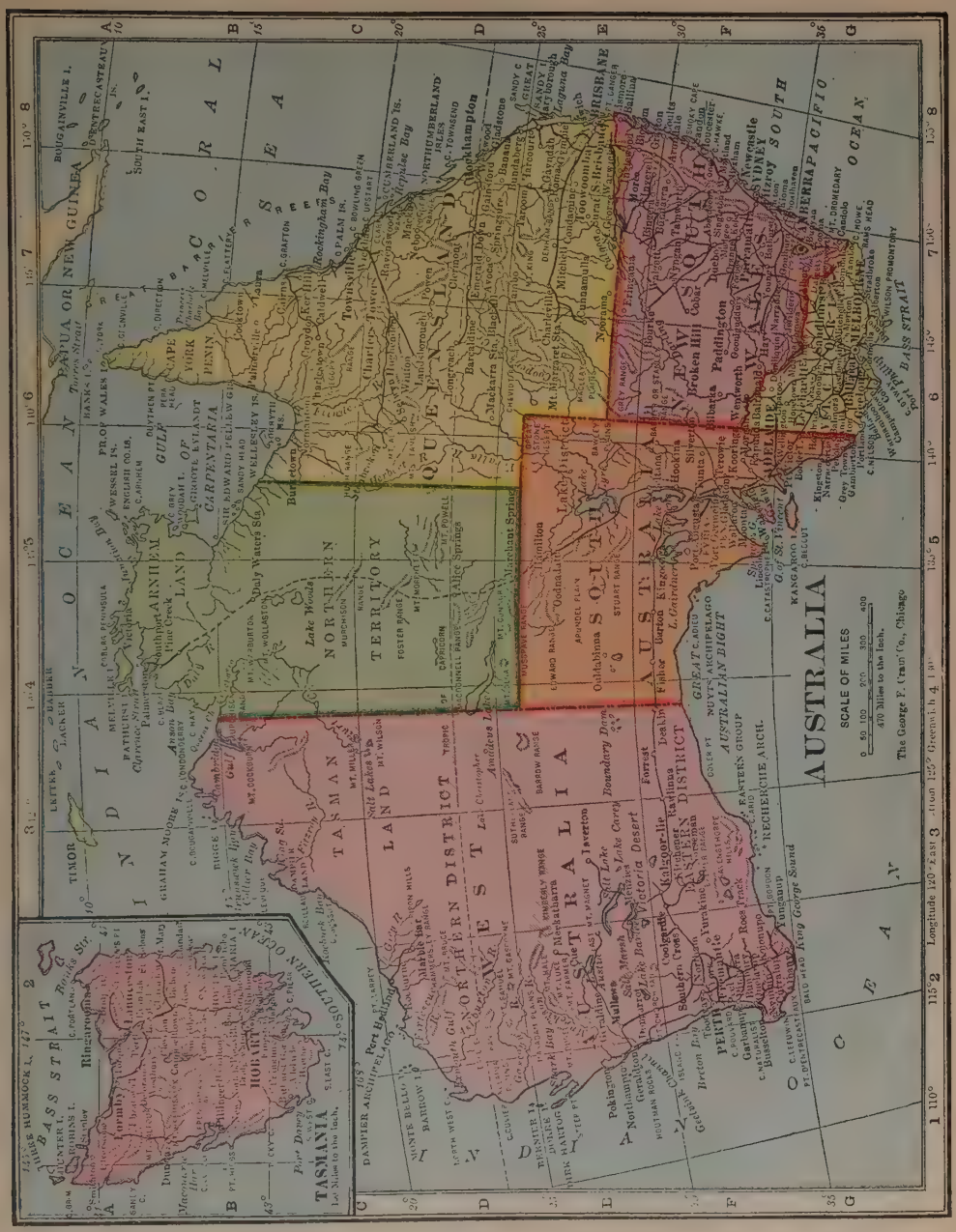
Kishinev
Galatz
Akkerman
Nikolaev
Kherson
Yeisk
Taganrog
Novocherkassk
Ekaterinodar
Stavropol
Georgievsk
Makhatsh-Kala
Derbent
Vladikavkaz
Elisabethpol
Baku
Alexandropol
Gulcha
Trebizond
Angora
Sea of Marmara
Constantinople
Bosporus
Varna
Bucharest
Smyrna
Alexandretta
Cyprus
Rhodes
Crete
Tehran
Van
L. Urmiah
Mt Ararat
Aras R.
Tigris R.
Euphrates R.



BRITISH ISLES—Area: 120,839 square miles. Population: 47,309,929. Capital: London.
England—Area: 51,170 square miles. Population: 35,831,533.
Wales—Area: 7,466 square miles. Population: 2,205,680.
Scotland—Area: 30,405 square miles. Population: 4,882,497.
Irish Free State—Area: 26,561 square miles. Population: 3,139,688.
Northern Ireland—Area: 5,237 square miles. Population: 1,250,531.

AFRICA—Having an area of 11,622,619 square miles, and a population of 129,696,579, comprises various colonies and protectorates, governed by Great Britain, France, Italy, Spain, Portugal and Belgium, and the countries of Egypt, Liberia and Ethiopia.

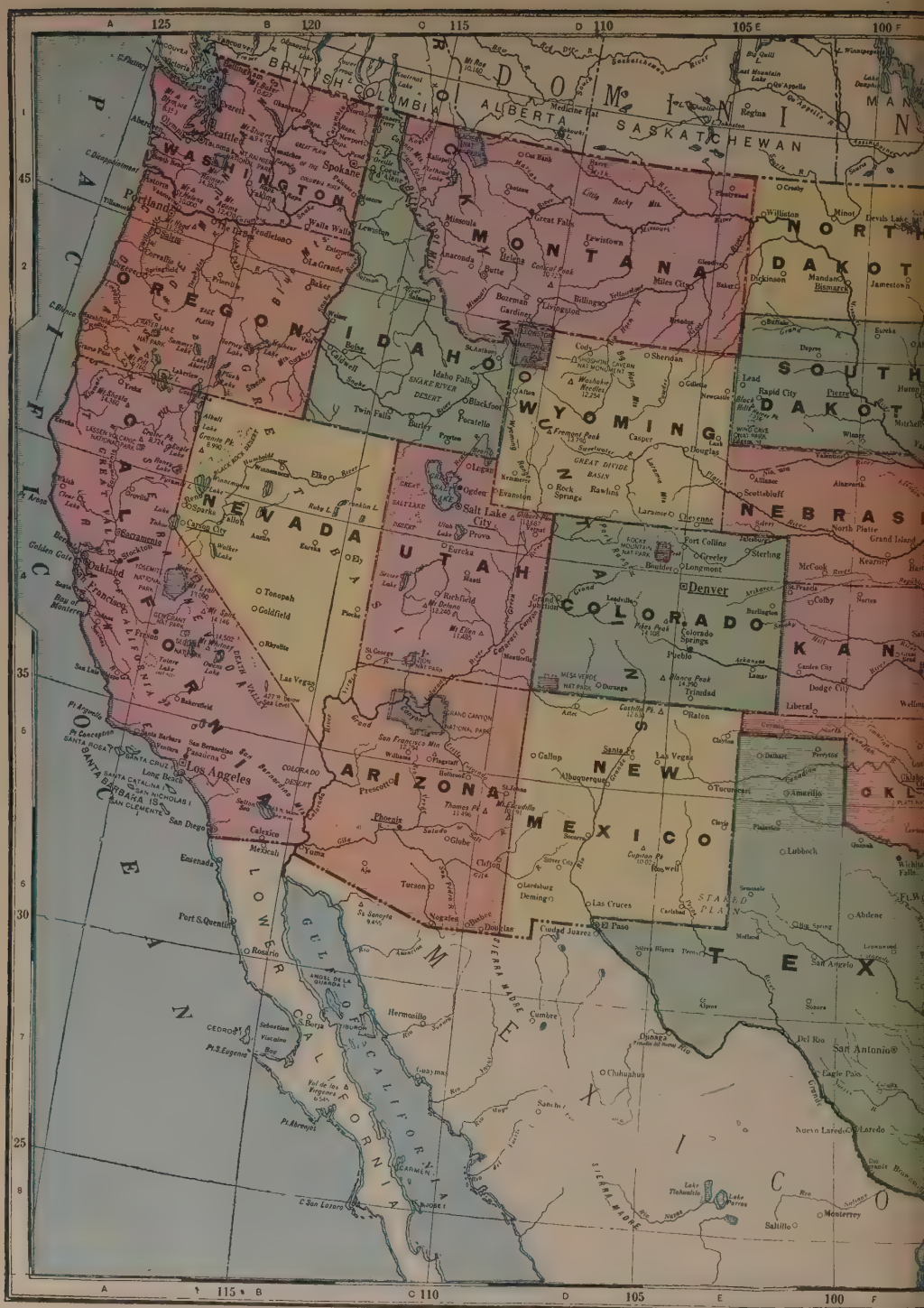
ASIA—Area: 17,206,000 square miles, and a population of 978,483,783 is the largest of the grand divisions of the globe, comprising about one-third of the land surface. China, Japan, Persia, Afghanistan, Siam, Bhutan, Nepal, Turkey and the several Arabian countries, and the various dependencies and colonies, India, French Indo-China, etc., form this grand division.



AUSTRALIA—The Commonwealth of Australia, consisting of six colonies (now denominated Original States) was proclaimed at Sydney on January 1, 1901. Area: 2,974,581 square miles. Population: Last Census, 5,435,734. Capital: Canberra.

SOUTH AMERICA—Area: 7,570,215 square miles. Population: 66,292,368. It comprises ten republics and Guiana which is divided, forming the colonies of Great Britain, Netherlands and France.

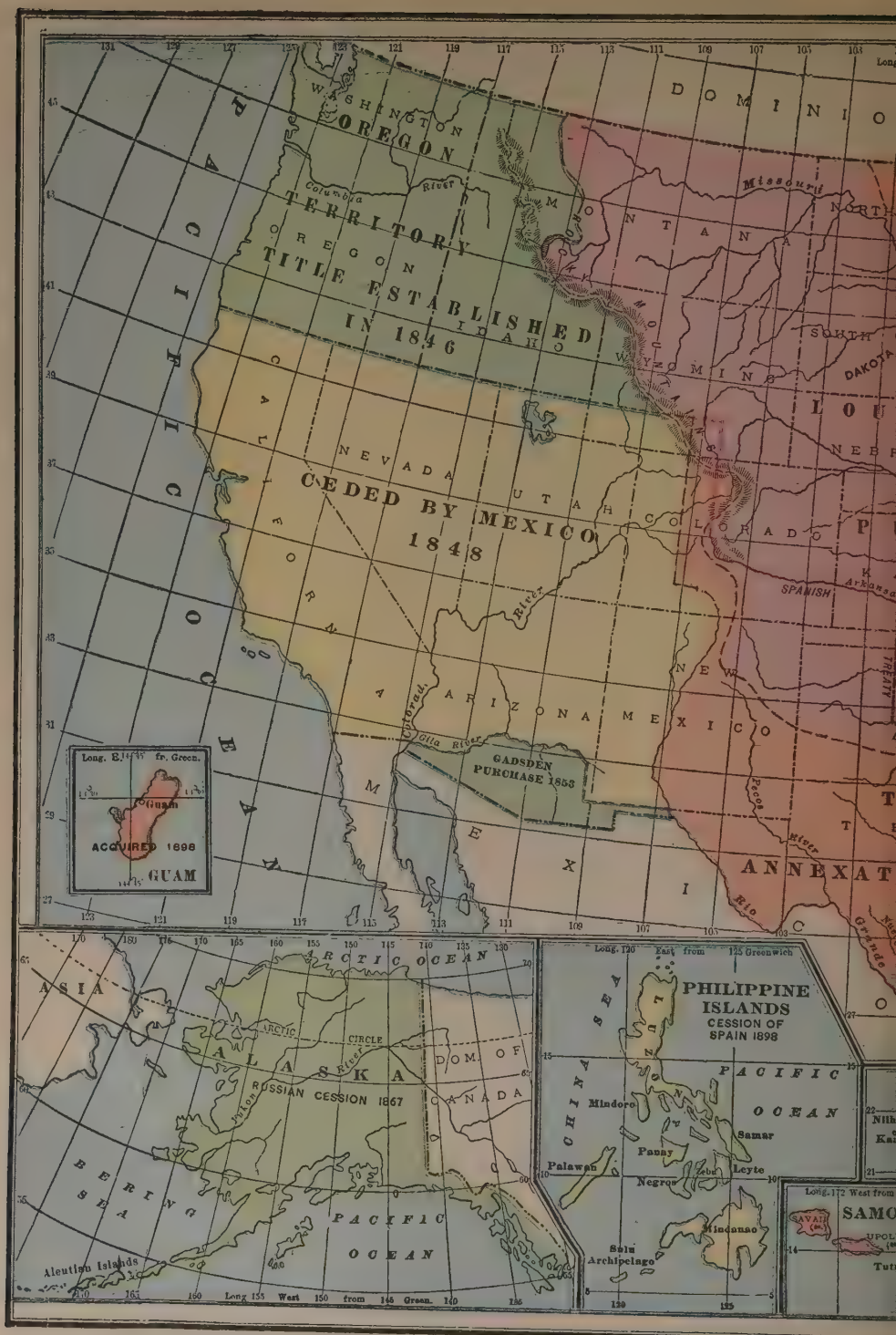
NORTH AMERICA—Area: 8,589,257 square miles. Population: 150,229,986. A grand division of the earth, the northern half of the western hemisphere. It comprises the United States, Dominion of Canada, Mexico, Alaska and the various Central American countries and the West Indies, Cuba and Porto Rico.


BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
DOMINION
MANITOBA
PACIFIC OCEAN
WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
NEVADA
UTAH
COLORADO
KANSAS
CALIFORNIA
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
Portland
Seattle
Spokane
Boise
Salt Lake City
Denver
Los Angeles
San Francisco
Phoenix
Albuquerque
El Paso
Oklahoma City
Dallas
San Antonio
Houston
Omaha
Kansas City
Chicago
St. Louis
Minneapolis
Fargo
Bismarck
Billings
Great Falls
Missoula
Cheyenne
Casper
Reno
Las Vegas
Tucson
Santa Fe
Amarillo
Lubbock
Abilene
Wichita
Topeka
Lincoln
Omaha
Sioux Falls
Rapid City
Pierre
Bismarck
Williston
Minot
Grand Forks
Winnipeg
Regina
Saskatoon
Edmonton
Calgary
Vancouver
Victoria
GULF OF CALIFORNIA
LOWER CALIFORNIA
SIERRA MADRE
MEXICO
Hermosillo
Chihuahua
Monterrey
Saltillo
Nuevo Laredo
Laredo
Del Rio
Eagle Pass
Brownsville
Corpus Christi
Galveston
New Orleans
Memphis
Nashville
Atlanta
Jacksonville
Miami
Tampa
Charleston
Richmond
Washington
Baltimore
Philadelphia
New York
Boston
Buffalo
Cleveland
Detroit
Pittsburgh
Indianapolis
Milwaukee
Duluth
Minneapolis
Des Moines
Kansas City
Omaha
Denver
Colorado Springs
Pueblo
Grand Junction
Salt Lake City
Ogden
Provo
Boise
Idaho Falls
Twin Falls
Pocatello
Spokane
Seattle
Portland
Eugene
Salem
Medford
Klamath Falls
Reno
Carson City
Sacramento
San Francisco
Oakland
San Jose
Fresno
Bakersfield
San Diego
Los Angeles
Long Beach
Santa Barbara
Las Vegas
Tucson
Phoenix
Yuma
Albuquerque
Santa Fe
Roswell
Carlsbad

UNITED STATES
SCALE OF MILES
EXPLANATION
Populations of Cities, Towns, Etc., are indicated by symbols thus,
1,000,000 or over
250,000 to 1,000,000
100,000 to 250,000
50,000 to 100,000
25,000 to 50,000
Less than 25,000
Capitals of States underlined in black
THE GEORGE F. CRAM COMPANY
INDIANAPOLIS
Copyright
CANADA
ATLANTIC OCEAN
GULF OF MEXICO
BAHAMA ISLANDS
CUBA
FLORIDA
MINNESOTA
WISCONSIN
MICHIGAN
IOWA
ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSOURI
ARKANSAS
LOUISIANA
MISSISSIPPI
ALABAMA
GEORGIA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
MAINE
VERMONT
NEW HAMPSHIRE
MASS.
CONN.
R.I.
MARYLAND
DELAWARE
NEW JERSEY
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Chicago
Detroit
Cleveland
Toronto
Buffalo
Pittsburgh
Philadelphia
New York
Boston
Washington
Richmond
Atlanta
Memphis
St. Louis
Kansas City
Minneapolis
St. Paul
Milwaukee
Indianapolis
Cincinnati
Columbus
Louisville
Nashville
Birmingham
New Orleans
Montreal
Quebec
Ottawa
Hartford
Providence
Portland
Albany
Syracuse
Rochester
Scranton
Harrisburg
Baltimore
Norfolk
Charleston
Savannah
Jacksonville
Miami
Key West
Havana
Tampa
Orlando
Tallahassee
Mobile
Montgomery
Shreveport
Little Rock
Omaha
Des Moines
Milwaukee
Grand Rapids
Toledo
Akron
Dayton
Springfield
Evansville
Paducah
Knoxville
Chattanooga
Greensboro
Charlotte
Raleigh
Wilmington
Columbia
Greenville
Augusta
Macon
Columbus
Meridian
Vicksburg
Natchez
Baton Rouge
Galveston
Houston
Dallas
Fort Worth
Austin
San Antonio
El Paso
Albuquerque
Denver
Cheyenne
Salt Lake City
Boise
Portland
Seattle
Spokane
San Francisco
Los Angeles
San Diego
Sacramento
Reno
Phoenix
Tucson
Santa Fe
Oklahoma City
Tulsa
Wichita
Topeka
Kansas City
St. Joseph
Omaha
Lincoln
Sioux City
Sioux Falls
Fargo
Bismarck
Duluth
Minneapolis
St. Paul
Rochester
La Crosse
Green Bay
Madison
Racine
Kenosha
Waukegan
Joliet
Aurora
Rockford
Peoria
Springfield
Decatur
Bloomington
Champaign
Danville
Terre Haute
Fort Wayne
South Bend
Gary
Hammond
Muncie
Kokomo
Lafayette
Indianapolis
Evansville
Cincinnati
Dayton
Springfield
Columbus
Zanesville
Cleveland
Akron
Canton
Youngstown
Toledo
Sandusky
Detroit
Flint
Saginaw
Bay City
Grand Rapids
Kalamazoo
Battle Creek
Jackson
Lansing
Port Huron
Sault Ste. Marie
Marquette
Escanaba
Ironwood
Houghton
Calumet
Hancock
Duluth
Superior
Virginia
Hibbing
Brainerd
Fergus Falls
Moorhead
Grand Forks
Minot
Williston
Glasgow
Great Falls
Helena
Butte
Missoula
Kalispell
Billings
Miles City
Sheridan
Casper
Cheyenne
Laramie
Rawlins
Rock Springs
Evanston
Ogden
Salt Lake City
Provo
Logan
Pocatello
Idaho Falls
Twin Falls
Boise
Lewiston
Walla Walla
Yakima
Wenatchee
Spokane
Everett
Seattle
Tacoma
Olympia
Aberdeen
Hoquiam
Raymond
Centralia
Chehalis
Longview
Kelso
Vancouver
Portland
Salem
Albany
Corvallis
Eugene
Roseburg
Medford
Klamath Falls
Crescent City
Eureka
Fort Bragg
Ukiah
Santa Rosa
Petaluma
San Rafael
Oakland
Berkeley
San Francisco
San Mateo
Palo Alto
San Jose
Santa Cruz
Monterey
Salinas
Hollister
Gilroy
Watsonville
Fresno
Visalia
Tulare
Hanford
Bakersfield
Taft
Coalinga
Los Banos
Merced
Modesto
Stockton
Lodi
Sacramento
Marysville
Chico
Redding
Yreka
Alturas
Susanville
Reno
Carson City
Virginia City
Winnemucca
Elko
Ely
Las Vegas
Barstow
San Bernardino
Riverside
Pasadena
Los Angeles
Long Beach
Santa Ana
Anaheim
Pomona
Ontario
Redlands
San Diego
Yuma
Tucson
Nogales
Douglas
Bisbee
Globe
Phoenix
Prescott
Flagstaff
Winslow
Holbrook
Gallup
Albuquerque
Santa Fe
Las Vegas
Raton
Trinidad
Pueblo
Colorado Springs
Cripple Creek
Leadville
Aspen
Grand Junction
Durango
Silverton
Telluride
Montrose
Gunnison
Salida
Canon City
Fort Collins
Greeley
Boulder
Longmont
Loveland
Estes Park
Sterling
Julesburg
Akron
Fort Morgan
Brush
Wray
Yuma
Burlington
Hugo
Limon
Colorado Springs
Pueblo
Rocky Ford
La Junta
Lamar
Springfield
Trinidad
Raton
Clayton
Tucumcari
Amarillo
Pampa
Borger
Childress
Vernon
Wichita Falls
Abilene
Sweetwater
Big Spring
Midland
Odessa
Pecos
Fort Stockton
Alpine
Marfa
Presidio
Del Rio
Eagle Pass
Laredo
Corpus Christi
Kingsville
Brownsville
McAllen
Harlingen
Port Arthur
Beaumont
Orange
Lake Charles
Alexandria
Shreveport
Monroe
Natchitoches
Leesville
Lake Charles
Lafayette
New Iberia
Morgan City
Houma
Thibodaux
Baton Rouge
New Orleans
Mouths of the Mississippi River
Biloxi
Gulfport
Pascagoula
Hattiesburg
Laurel
Meridian
Tupelo
Corinth
Iuka
Florence
Sheffield
Tuscumbia
Decatur
Huntsville
Gadsden
Anniston
Talladega
Selma
Montgomery
Tuskegee
Auburn
Opelika
Phenix City
Columbus
Eufaula
Dothan
Troy
Brewton
Andalusia
Mobile
Bay Minette
Foley
Pensacola
Milton
Crestview
Fort Walton
Valparaiso
Niceville
Destin
Panama City
Apalachicola
Carrabelle
Tallahassee
Quincy
Chattahoochee
Marianna
Blountstown
Bonifay
Chipley
Jackson
Wewahitchka
Port St. Joe
Wewahitchka
Perry
Monticello
Madison
Live Oak
Lake City
Jasper
White Springs
Jennings
Starke
Macclenny
Jacksonville
St. Augustine
Palatka
Daytona
New Smyrna
Orlando
Kissimmee
Lakeland
Winter Haven
Bartow
Arcadia
Fort Myers
Punta Gorda
Sarasota
Bradenton
St. Petersburg
Tampa
Clearwater
Dunedin
Tarpon Springs
New Port Richey
Brooksville
Inverness
Ocala
Gainesville
Starke
Lake City
Live Oak
Madison
Monticello
Quincy
Chattahoochee
Marianna
Blountstown
Bonifay
Chipley
Jackson
Wewahitchka
Port St. Joe
Apalachicola
Carrabelle
Tallahassee

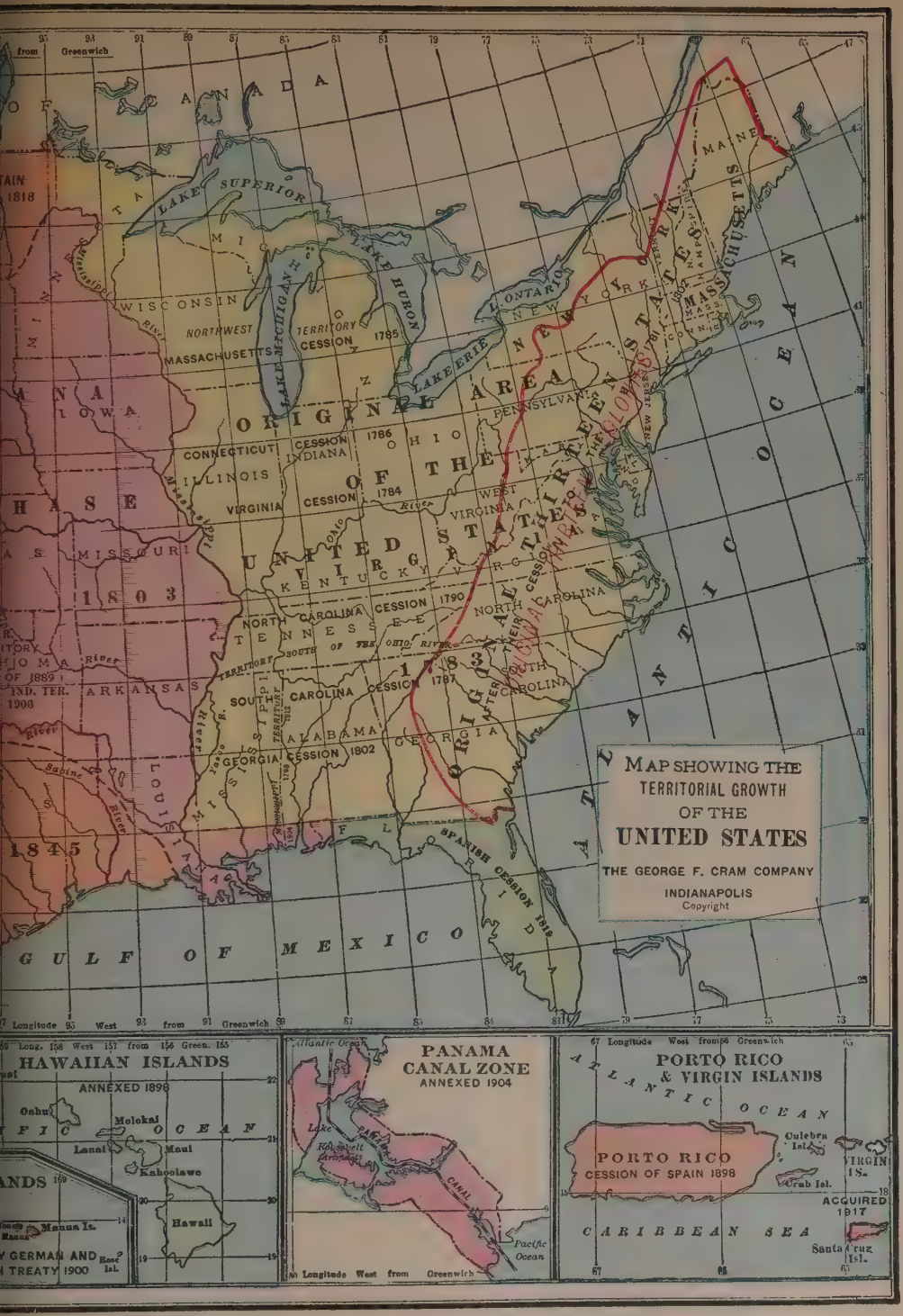
DOMINION OF CANADA AND NEWFOUNDLAND—Area: Canada Land, 3,603,909 square mi
Water, 125,756 square miles; Total, 3,729,665 square miles. Population: Canada, 8,788,488
It comprises ten provinces, and the Northwest Territories. Capital: Ottawa.

ARCTIC OCEAN
GREENLAND SEA
GREENLAND
(DENMARK)
DENMARK STRAIT
ICELAND
BAFFIN BAY
DAVIS STRAIT
BAFFIN I.
ELLESMERE I.
DEVON I.
NORTHWEST TERRITORIES
CANADA
HUDSON BAY
HUDSON STRAIT
LABRADOR PENINSULA
QUEBEC
ONTARIO
NEWFOUNDLAND
NEW BRUNSWICK
PRINCE EDWARD I.
NOVA SCOTIA
CAPE BRETON I.
ANTICOSTI I.
SOUTHAMPTON ISLAND
ATLANTIC OCEAN
Lincoln Sea
Independence Bay
Peary Ld.
Grant Land
Hall Ld.
Kane Basin
Humboldt Glacier
Melville Bay
Jones Sd.
Lancaster Sd
Upernivik
Godhavn
Disco Bay
Jakobshavn
Christianshaab
Lichtenfels
Frederikshaab
Julianehaab
Cape Farewell
Arctic Circle
Repulse Bay
Fox Basin
Fox Channel
Nettilling L.
Amadjuak L.
Cape Dorset
Resolution I.
Salisbury I.
Frobisher Bay
Cape Chidley
Ungava Bay
Port Burwell
Hamilton Inlet
Labrador
Lake Minto
Clearwater L.
Apishgamish Lake
Great Whale R.
Mistassini L.
Mistassini
Eastmain
Rupert House
Moose Factory
Albany R.
Fl. Albany
York Factory
Severn R.
Belcher Islands
Jones Bay
James Bay
Hearst
Cochrane
Lake Nipigon
Fl. Williams
Port Arthur
Lake Superior
Sault Ste. Marie
Duluth
Minneapolis
St. Paul
Lake Michigan
Milwaukee
Chicago
Grand Rapids
Detroit
Toledo
Cleveland
L. Erie
Lake Huron
Toronto
Hamilton
London
L. Ontario
Kingston
Sudbury
North Bay
Three Rivers
Montreal
Ottawa
Quebec
Sherbrooke
Chicoutimi
St. John
Gaspe
Gulf of St. Lawrence
Fredericton
Moncton
Halifax
Sydney
Cape Breton
Bangor
Portland
Boston
Cape Cod
Nantucket I.
Martha's Vineyard
Hartford
New York
Scranton
Harrisburg
Lake Simcoe
Lake Nipissing
Lake Temiskaming
Abitibi L.
Mattagami R.
Albany R.
Severn R.
Winisk R.
Great Whale R.
Koksoak R.
Hamilton R.
Grand R.
Gaspe Basin
Cabot Strait
Port aux Basques
Placentia Bay
Fortune Bay
Conception Bay
St. John's
Belle Isle
Belle Isle Str.
Strait of Belle Isle
Cape Race
Cape Ray
Cape Pine
Cape Chidley
Cape Wolstenholme
Cape Mercy
Cape Dyer
Cape Walsingham
Cape Adair
Cape Alexander
Cape Parry
Cape Hearne
Cape Henrietta Maria
Cape Jones
Cape Sable
Cape Cod
Cape Elizabeth
Cape Ann
Cape Henlopen
Cape Hatteras
Cape Lookout
Cape Fear
Cape Romain
Cape Canaveral
Cape Florida
Cape Sable



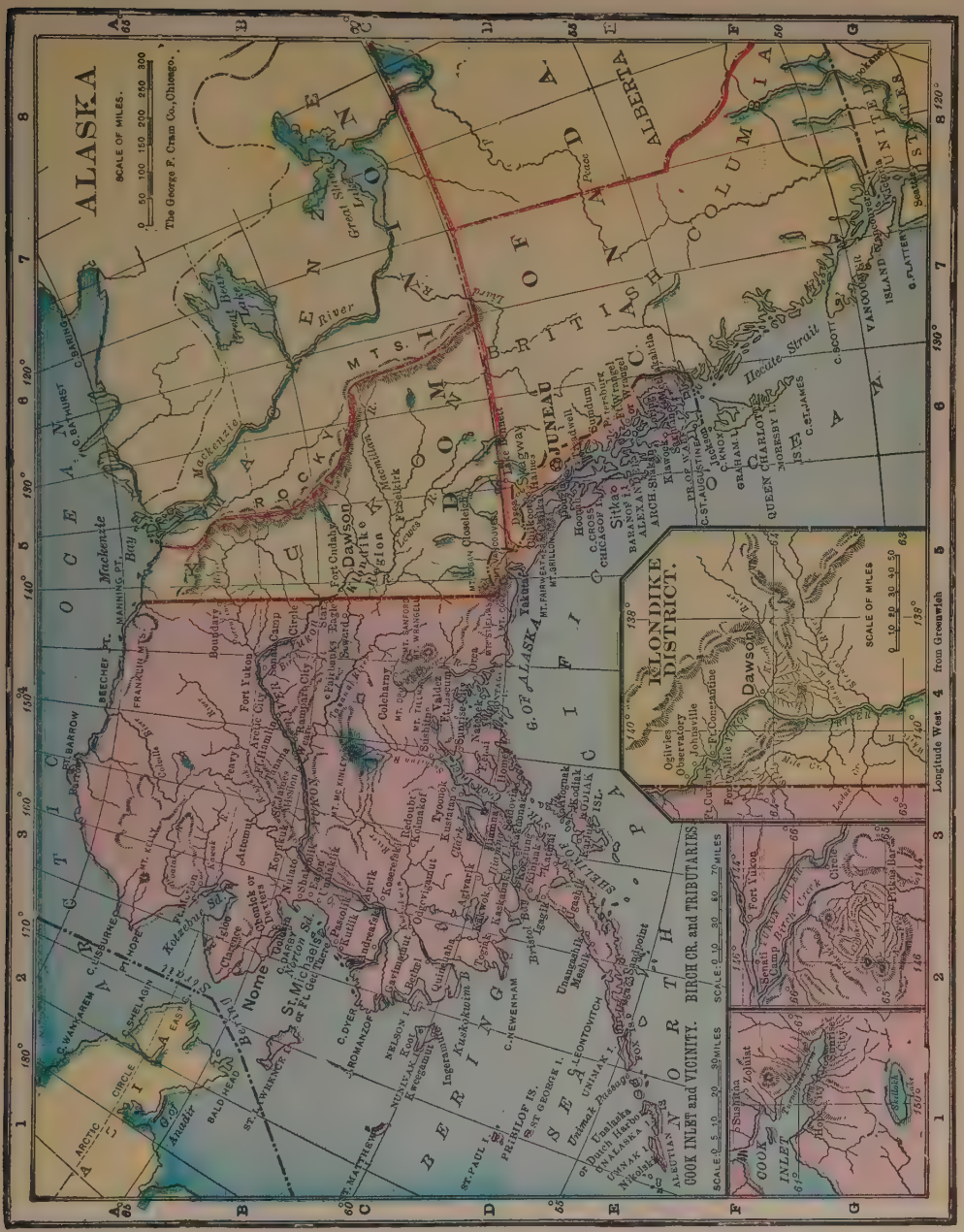
UNITED STATES AND POSSESSIONS—Total Area: 3,743,529 square miles. Total Populatio
117,859,495.

	Area: sq. miles	Population
Continental United States	3,026,789	105,710,620
Alaska	590,884	55,036
Guam	210	13,275



	Area: sq. miles	Population
Hawaii	6,449	255,912
Panama Canal Zone	527	22,858
Porto Rico	3,435	1,299,809
Philippine Islands	115,026	10,350,640
Virgin Islands	132	26,051

WEST INDIES—The West Indies comprise groups of Atlantic islands lying off the Southeast coast of North America, and of different political affiliations, with the exception of Cuba, Haiti and the Dominican Republic which are independent.


ALASKA
SCALE OF MILES.
0 50 100 150 200 250 300
The George F. Cram Co., Chicago.
ARCTIC OCEAN
BRITISH AMERICA
YUKON TERRITORY
ROCKY MTS.
Mackenzie River
Great Slave Lake
Great Bear Lake
Peace River
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
Lake Winnipeg
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
UNITED STATES
Yukon River
Dawson
Fort Yukon
Circle
Eagle
Forty Mile
Boundary
Fort Hamlin
Rampart City
Fort Gibbon
Tanana
Koyukuk
Colchanya
Nulato
Kaltag
Unalakleet
Norton Sd.
Yukon Delta
Kotzebue Sd.
Hotham Inlet
Kobuk R.
Selawik L.
Noatak R.
Kowak R.
Kowak
Kiwalik
Candle
Wainwright Inlet
Point Barrow
Beechey Pt.
Franklin Mts.
Mackenzie Bay
Herschel I.
Demarcation Point
Flaxman I.
Barter I.
Camden Bay
Harrison Bay
Colville R.
Kuparuk R.
Chandler R.
Anaktuvuk Pass
Killik R.
Arctic Circle
Yukon Flats
Porcupine R.
Birch Creek
Fairbanks
Tolovana
Chatanika
Circle City
Rampart
Hot Springs
Ruby
Kuskokwim R.
Kuskokwim Bay
Goodnews Bay
Nushagak R.
Nushagak
Togiak
Togiak Bay
Bristol Bay
Iliamna L.
Iliamna
Kvichak R.
Kvichak
Naknek
Naknek R.
Katmai
Shelikof Strait
Kodiak
Kodiak I.
Afognak I.
Chignik
Alaska Peninsula
Unimak I.
Unimak Pass
Unalaska
Dutch Harbor
Akutan
Akutan I.
Umnak I.
Nikolski
Aleutian Is.
St. Paul I.
Pribilof Is.
St. George I.
St. Matthew I.
Bering Sea
Nome
St. Michaels
Golovin
Bluff
Port Clarence
Cape Prince of Wales
Diomede Is.
East Cape
Cape Wankarem
Cape Shelagskoi
Cape Serdze
Cape Lisburne
Pt. Hope
Cape Thompson
Cape Beaufort
Cape Lisburne
Cape Dyer
Romanzof
Cape Newenham
Cape Leontovitch
Cape Prince of Wales
Bald Head
Gulf of Anadir
Anadir R.
St. Lawrence I.
Gambell
Indian Point
Cape Wankarem
Cape Shelagskoi
Cape Serdze
Cape Lisburne
Pt. Hope
Cape Thompson
Cape Beaufort
Cape Lisburne
Cape Dyer
Romanzof
Cape Newenham
Cape Leontovitch
Cape Prince of Wales
Bald Head
Gulf of Anadir
Anadir R.
St. Lawrence I.
Gambell
Indian Point
Juneau
Douglas
Treadwell
Sitka
Baranof
Alaska Packers Assn.
Chilkoot
Chilkat
Haines
Skagway
White Pass
Dyea
Taku Inlet
Taku Glacier
Stikine R.
Wrangell
Port Wrangell
Petersburg
Kupreanof I.
Kuiu I.
Admiralty I.
Chichagof I.
Hoonah
Hoonah Sd.
Icy Strait
Cross Sd.
Glacier Bay
Mt. Fairweather
Mt. Crillon
Mt. Hayes
Mt. Wrangell
Mt. Sanford
Mt. Churchill
Mt. Drum
Mt. Sumner
Mt. Hubbard
Mt. Logan
Mt. St. Elias
Mt. Vancouver
Mt. Blackburn
Mt. McKinley
Mt. Foraker
Mt. Hayes
Mt. Deborah
Mt. Spurr
Mt. Redoubt
Mt. Iliamna
Mt. Douglas
Mt. Augustine
Mt. Katmai
Mt. Griggs
Mt. Veniaminof
Mt. Shishaldin
Mt. Pavlof
Mt. Dutton
Mt. Edgecumbe
Mt. Fairweather
Mt. Crillon
Mt. Hayes
Mt. Wrangell
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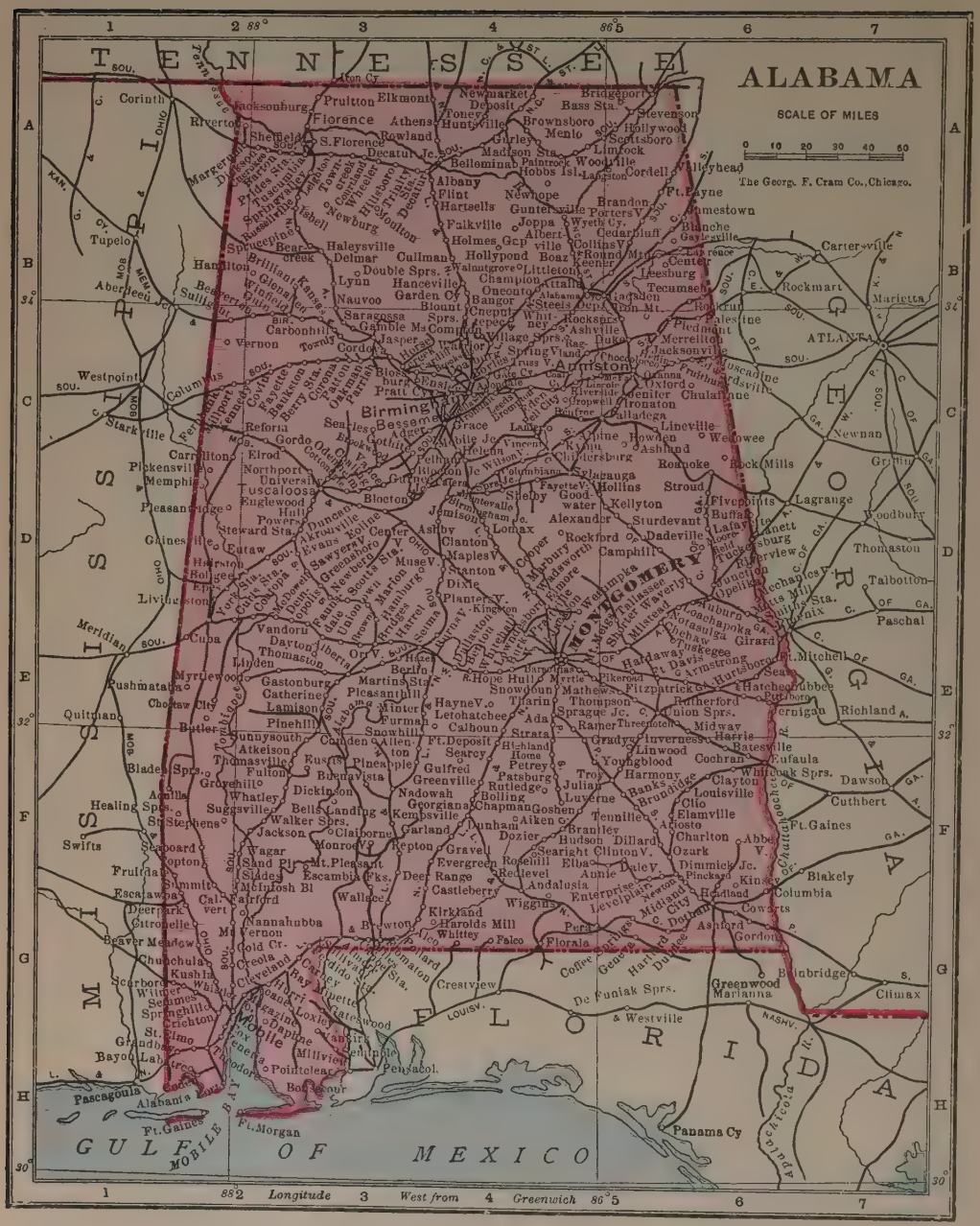
Mt. Katmai
Mt. Griggs
Mt. Veniaminof
Mt. Shishaldin
Mt. Pavlof
Mt. Dutton
Mt. Edgecumbe
Prince of Wales I.
Dixon Entrance
Queen Charlotte Is.
Graham I.
Moresby I.
C. St. James
C. Scott
Vancouver I.
Nanaimo
Victoria
Port Simpson
Metlakahtla
Fort Simpson
Hecate Strait
Queen Charlotte Sd.
Juan de Fuca Strait
Puget Sound
Tacoma
Seattle
Olympia
Port Townsend
Bellingham
Mt. Rainier
Mt. Olympus
Mt. Baker
Mt. Adams
Mt. Hood
Mt. Jefferson
Mt. Shasta
Mt. Lassen
Mt. Whitney
Mt. Tamalpais
Mt. Diablo
Mt. San Jacinto
Mt. San Gorgonio
Mt. San Antonio
Mt. Pinos
Mt. Wilson
Mt. Lowe
Mt. Baldy
Mt. Rose
Mt. Shasta
Mt. Lassen
Mt. Whitney
Mt. Tamalpais
Mt. Diablo
Mt. San Jacinto
Mt. San Gorgonio
Mt. San Antonio
Mt. Pinos
Mt. Wilson
Mt. Lowe
Mt. Baldy
Mt. Rose
KLONDIKE DISTRICT.
SCALE OF MILES
Dawson
Ottawa
Observatory
Forty Mile
Fort Cudahy
Fort Constantine
Fort Yukon
Circle
Eagle
Forty Mile
Boundary
Fort Hamlin
Rampart City
Fort Gibbon
Tanana
Koyukuk
Colchanya
Nulato
Kaltag
Unalakleet
Norton Sd.
Yukon Delta
Kotzebue Sd.
Hotham Inlet
Kobuk R.
Selawik L.
Noatak R.
Kowak R.
Kowak
Kiwalik
Candle
Wainwright Inlet
Point Barrow
Beechey Pt.
Franklin Mts.
Mackenzie Bay
Herschel I.
Demarcation Point
Flaxman I.
Barter I.
Camden Bay
Harrison Bay
Colville R.
Kuparuk R.
Chandler R.
Anaktuvuk Pass
Killik R.
Arctic Circle
Yukon Flats
Porcupine R.
Birch Creek
Fairbanks
Tolovana
Chatanika
Circle City
Rampart
Hot Springs
Ruby
Kuskokwim R.
Kuskokwim Bay
Goodnews Bay
Nushagak R.
Nushagak
Togiak
Togiak Bay
Bristol Bay
Iliamna L.
Iliamna
Kvichak R.
Kvichak
Naknek
Naknek R.
Katmai
Shelikof Strait
Kodiak
Kodiak I.
Afognak I.
Chignik
Alaska Peninsula
Unimak I.
Unimak Pass
Unalaska
Dutch Harbor
Akutan
Akutan I.
Umnak I.
Nikolski
Aleutian Is.
St. Paul I.
Pribilof Is.
St. George I.
St. Matthew I.
Bering Sea
Nome
St. Michaels
Golovin
Bluff
Port Clarence
Cape Prince of Wales
Diomede Is.
East Cape
Cape Wankarem
Cape Shelagskoi
Cape Serdze
Cape Lisburne
Pt. Hope
Cape Thompson
Cape Beaufort
Cape Lisburne
Cape Dyer
Romanzof
Cape Newenham
Cape Leontovitch
Cape Prince of Wales
Bald Head
Gulf of Anadir
Anadir R.
St. Lawrence I.
Gambell
Indian Point
Juneau
Douglas
Treadwell
Sitka
Baranof
Alaska Packers Assn.
Chilkoot
Chilkat
Haines
Skagway
White Pass
Dyea
Taku Inlet
Taku Glacier
Stikine R.
Wrangell
Port Wrangell
Petersburg
Kupreanof I.
Kuiu I.
Admiralty I.
Chichagof I.
Hoonah
Hoonah Sd.
Icy Strait
Cross Sd.
Glacier Bay
Mt. Fairweather
Mt. Crillon
Mt. Hayes
Mt. Wrangell
Mt. Sanford
Mt. Churchill
Mt. Drum
Mt. Sumner
Mt. Hubbard
Mt. Logan
Mt. St. Elias
Mt. Vancouver
Mt. Blackburn
Mt. McKinley
Mt. Foraker
Mt. Hayes
Mt. Deborah
Mt. Spurr
Mt. Redoubt
Mt. Iliamna
Mt. Douglas
Mt. Augustine
Mt. Katmai
Mt. Griggs
Mt. Veniaminof
Mt. Shishaldin
Mt. Pavlof
Mt. Dutton
Mt. Edgecumbe
Prince of Wales I.
Dixon Entrance
Queen Charlotte Is.
Graham I.
Moresby I.
C. St. James
C. Scott
Vancouver I.
Nanaimo
Victoria
Port Simpson
Metlakahtla
Fort Simpson
Hecate Strait
Queen Charlotte Sd.
Juan de Fuca Strait
Puget Sound
Tacoma
Seattle
Olympia
Port Townsend
Bellingham
Mt. Rainier
Mt. Olympus
Mt. Baker
Mt. Adams
Mt. Hood
Mt. Jefferson
Mt. Shasta
Mt. Lassen
Mt. Whitney
Mt. Tamalpais
Mt. Diablo
Mt. San Jacinto
Mt. San Gorgonio
Mt. San Antonio
Mt. Pinos
Mt. Wilson
Mt. Lowe
Mt. Baldy
Mt. Rose
GULF OF ALASKA
PACIFIC OCEAN
Longitude West from Greenwich
SCALE OF MILES
0 10 20 30 40 50 70

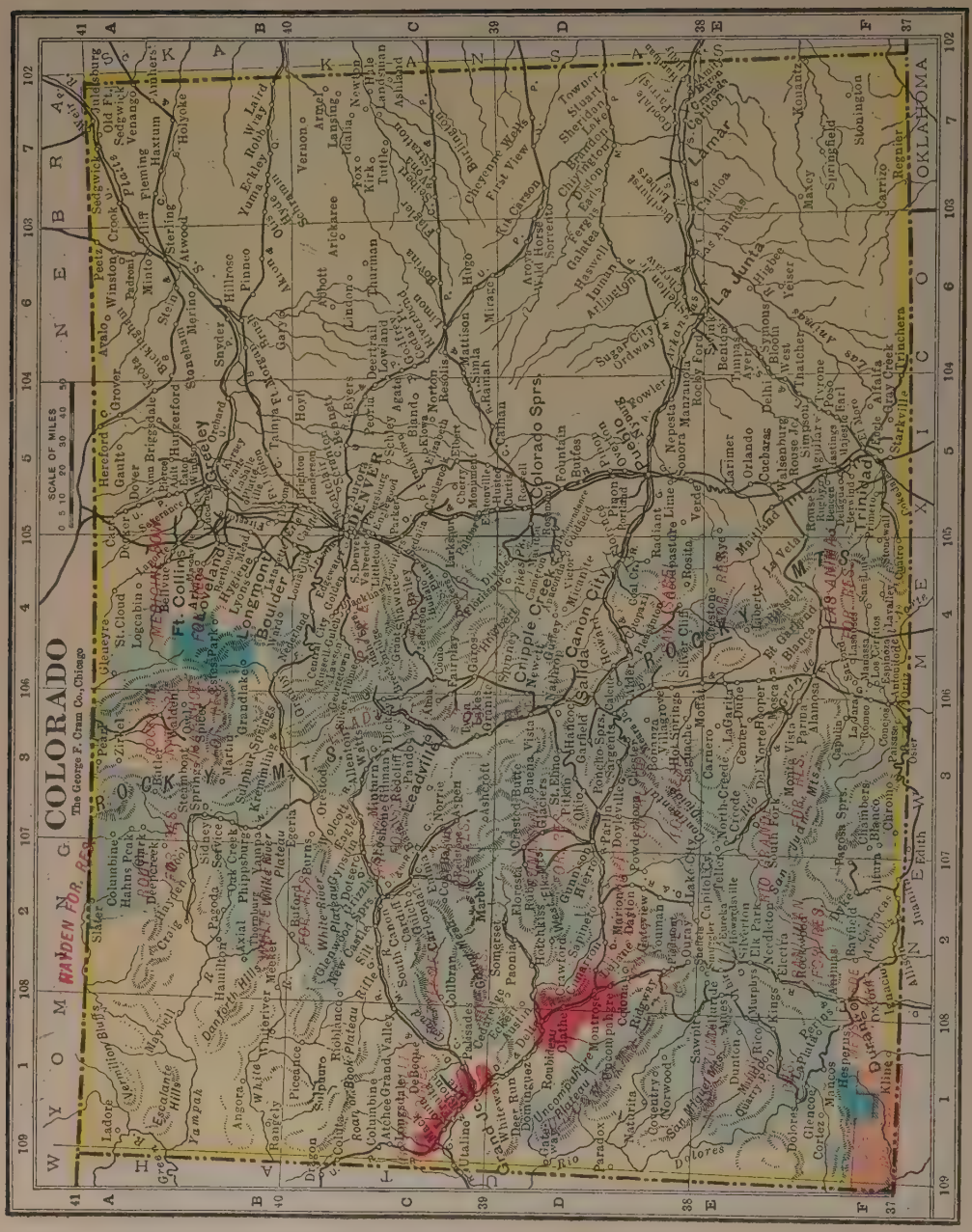


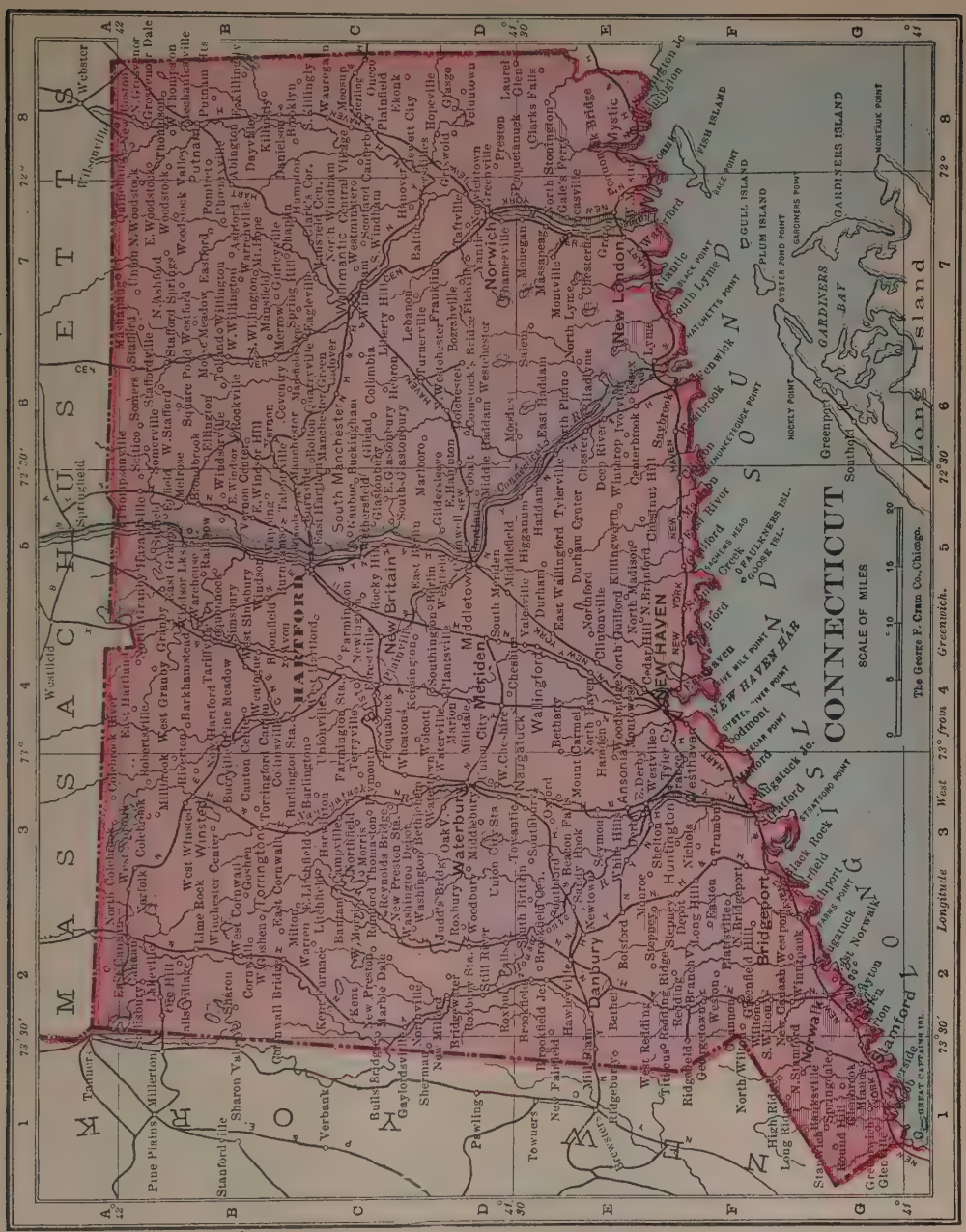
ALABAMA—First Settled at Mobile, 1711. Admitted as a Territory, March 3, 1817. Admitted as a State, December 14, 1819. Area: Land, 51,279 square miles; Water, 719 square miles. Total, 51,998 square miles. Population: Last Census, 2,848,174. Capital, Montgomery.

ARIZONA—Admitted as a Territory, February 24, 1863. Admitted as a State, June 20, 1910. Area: Land, 113,810 square miles; Water, 146 square miles. Total, 113,956 square miles. Population: Last Census, 334,162. Capital, Phoenix.

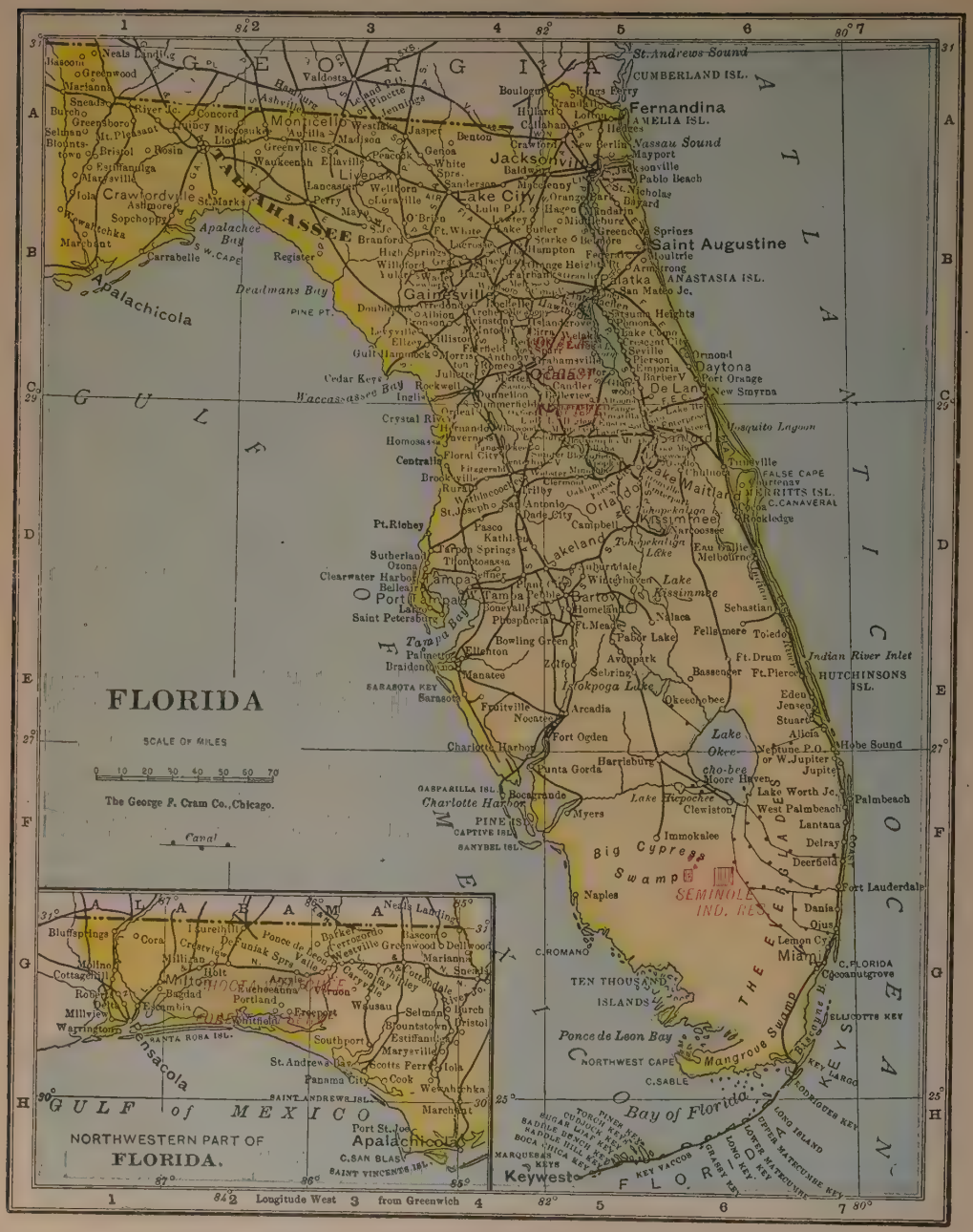
ARKANSAS
MISSISSIPPI
LOUISIANA
TEXAS
OKLAHOMA
MISSOURI
TENNESSEE
LITTLE ROCK
Hot Springs
Pine Bluff
Fort Smith
Texarkana
Memphis
Helena
Jonesboro
Batesville
Conway
El Dorado
Camden
Arkadelphia
Russellville
Searcy
Paragould
Blytheville
Forrest City
Marianna
Clarendon
Dumas
McGehee
Monticello
Crossett
Warren
Hamburg
Lake Village
Osceola
Wilson
Marion
Wynne
Harrisburg
Jonesboro
Newport
Walnut Ridge
Pocahontas
Corning
Piggott
Rector
Maynard
Paragould
Gainesville
Oxford
Ashdown
Mena
Waldron
Booneville
Clarksville
Ozark
Ozark Mts.
Ouachita Mts.
Boston Mts.
Mississippi R.
White R.
Arkansas R.
Red R.
Ouachita R.
Saline R.
St. Francis R.
Little R.
Bayou Bartholomew
Bayou Meto
Bayou De View
Bayou Des Arc
Bayou Des Cognes
Bayou Des Allemands
Bayou Des Glaises
Bayou Des Lacs
Bayou Des Ouachitas
Bayou Des Petites Rivières
Bayou Des Rivières
Bayou Des Rivières
Bayou Des

CALIFORNIA—First Settled at San Diego, 1769. Admitted as a State, September 9, 1850. Area: Land, 155,652 square miles; Water, 2,645 square miles. Total, 158,297 square miles. Population: Last Census, 3,426,861. Capital, Sacramento.


COLORADO
The George F. Cram Co., Chicago
WYOMING
NEBRASKA
KANSAS
OKLAHOMA
NEW MEXICO
UTAH
HAYDEN FOR PRES.
Denver
Colorado Spgs.
Pueblo
Cripple Creek
Canon City
Leadville
Salida
Gunnison
Grand Junction
Durango
La Junta
Trinidad
Greeley
Ft. Collins
Loveland
Longmont
Boulder
Golden
Sterling
Julesburg
Holyoke
Lamar
Springfield
Walsenburg
Alamosa
Monte Vista
Del Norte
Creede
Lake City
Ouray
Telluride
Ridgway
Montrose
Delta
Grand Junction
Fruita
Palisade
Collbran
Meeker
Rangely
Craig
Steamboat Springs
Hot Sulphur Springs
Kremmling
Granby
Grand Lake
Estes Park
Longs Peak
Pikes Peak
Rocky Ford
La Junta
Las Animas
Lamar
Holly
Wiley
Eads
Kit Carson
Cheyenne Wells
Arapahoe
Hugo
Limon
Genoa
Hugo
Deer Trail
Bennett
Brighton
Fort Lupton
Platteville
Greeley
Evans
Windsor
Loveland
Berthoud
Longmont
Lyons
Boulder
Golden
Denver
Aurora
Littleton
Englewood
Parker
Elizabeth
Kiowa
Castle Rock
Monument
Colorado Springs
Fountain
Security
Widefield
Fowler
Manzanola
Rocky Ford
Swink
Las Animas
Hasty
Granada
Lamar
Wiley
Eads
Kit Carson
Cheyenne Wells
Arapahoe
Idalia
Haxtun
Holyoke
Julesburg
Sedgwick
Crook
Peetz
Merino
Sterling
Atwood
Stoneham
Brush
Fort Morgan
Wiggins
Hillrose
Snyder
Orchard
Log Cabin
Barnesville
Hudson
Keenesburg
Roggen
Bijou
Calhan
Falcon
Peyton
Ramah
Simla
Matheson
Limon
Genoa
Hugo
Bethune
Burlington
Flagler
Seibert
Stratton
Vona
Arriba
Cope
Otis
Yuma
Wray

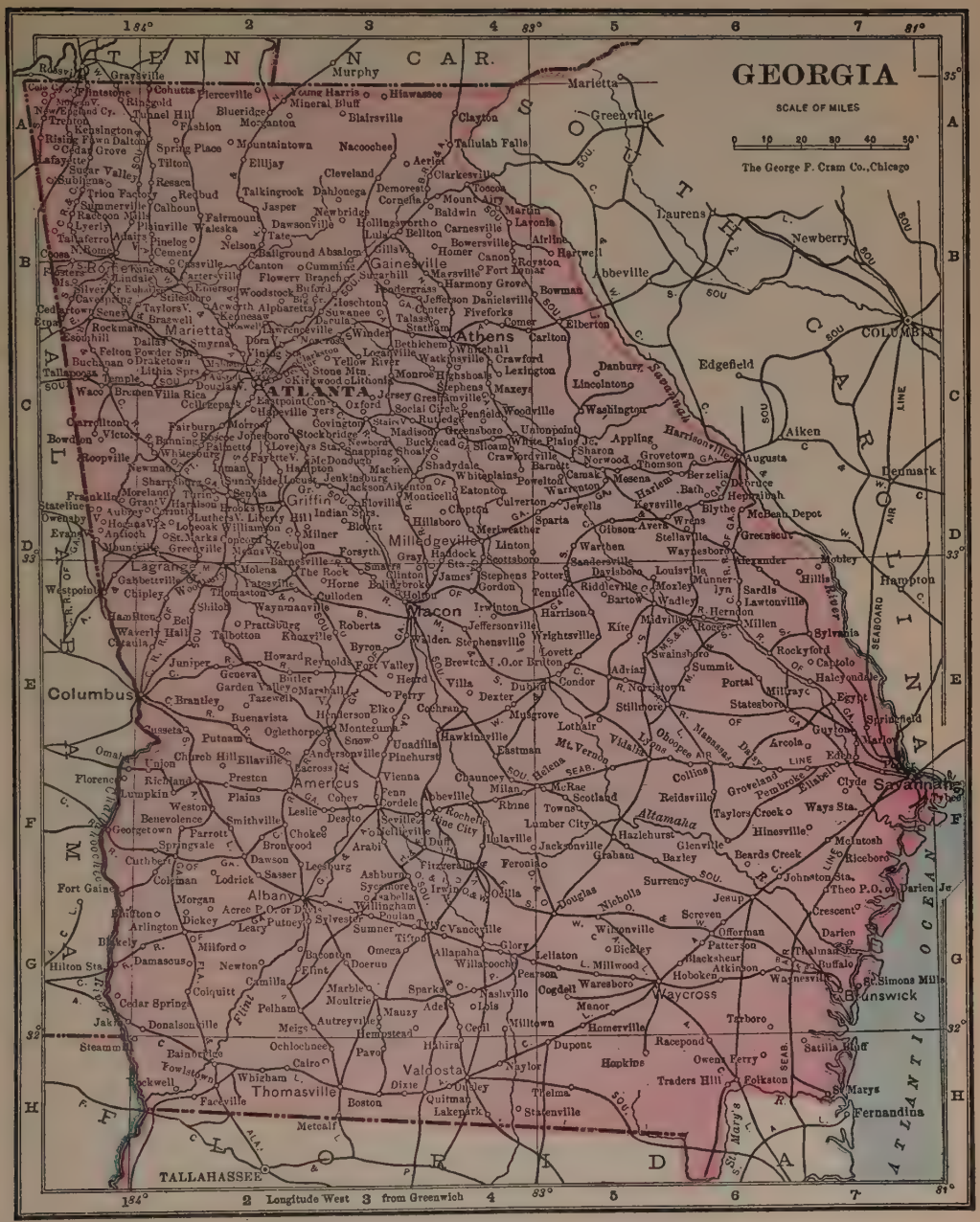


CONNECTICUT—First Settled at Windsor, 1633. One of the Original Thirteen States. Area: Land, 4,820 square miles. Water, 145 square miles. Total, 4,965 square miles. Population: Last Census, 1,380,631. Capital, Hartford.

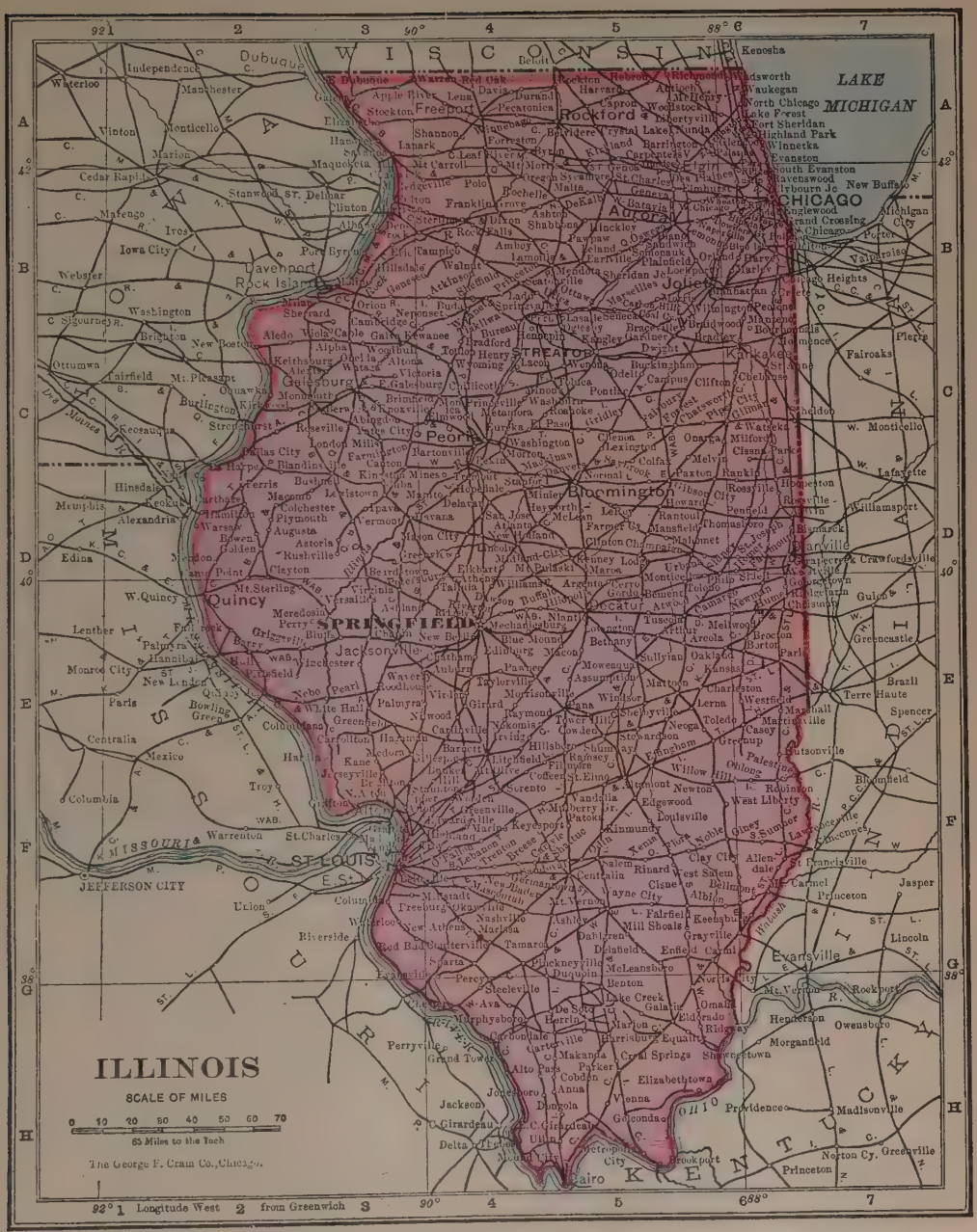


NORTHWESTERN PART OF FLORIDA.

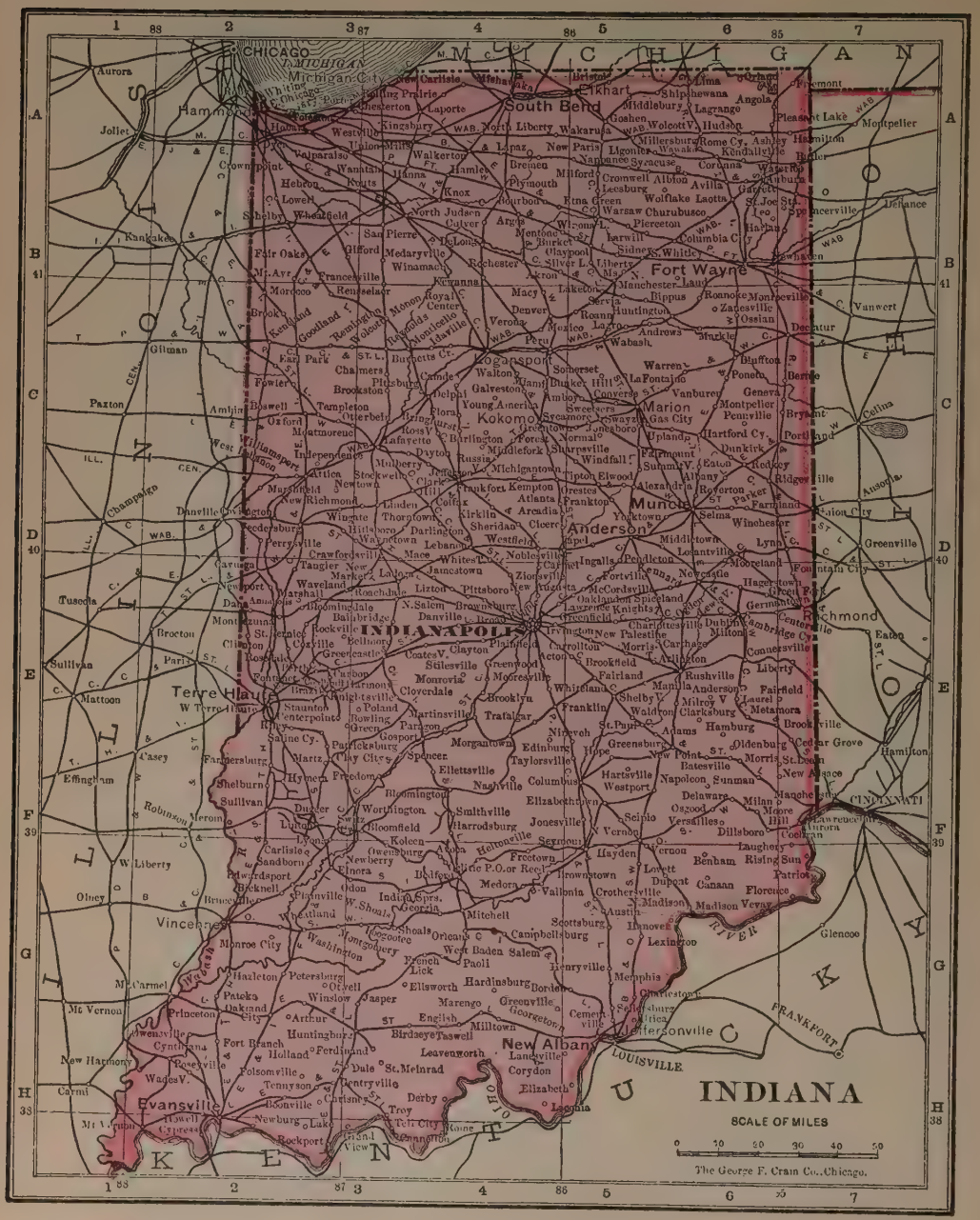
FLORIDA—First Settled at St. Augustine, 1565. Admitted as a Territory, March 30, 1822. Admitted as a State, March 3, 1845. Area: Land, 54,861 square miles; Water, 3,805 square miles. Total, 58,666 suare miles. Population: Last Census, 1,263,549. Capital, Tallahassee.


GEORGIA
SCALE OF MILES
0 10 20 30 40 50
The George F. Cram Co., Chicago
TENN
N CAR.
S. CAROLINA
ATLANTA
Athens
Gainesville
Marietta
Rome
Columbus
Macon
Augusta
Savannah
COLUMBIA
Greenville
Laurens
Newberry
Abbeville
Edgefield
Aiken
Barnwell
Hampton
Beaufort
Orangeburg
Sumter
Florence
Darlington
Marlboro
Dillon
Georgetown
Myrtle Beach
Conway
Chesterfield
Cheraw
Bennettsville
Lancaster
Camden
Kershaw
Winnsboro
Chester
Rock Hill
York
Gaffney
Spartanburg
Union
Greenwood
Laurens
Anderson
Seneca
Walhalla
Pickens
Greenville
Easley
Liberty
Clemson
Belton
Honea Path
Iva
Williamston
Pelzer
Piedmont
Travelers Rest
Taylors
Simpsonville
Fountain Inn
Mauldin
Greer
Inman
Landrum
Tryon
Saluda
Columbia
Lexington
Irmo
Chapin
Prosperity
Newberry
Whitmire
Jenkinsville
Pomaria
Little Mountain
Peak
Silverstreet
Ridgeway
Winnsboro
Blythewood
Hopkins
Eastover
Gadsden
Elgin
Lugoff
Camden
Bethune
Kershaw
Heath Springs
Lancaster
Van Wyck
Fort Lawn
Great Falls
Chester
Richburg
Lowrys
Blacksburg
Kings Mountain
Grover
Shelby
Cherryville
Gastonia
Dallas
Mount Holly
Belmont
Bessemer City
Lincolnton
Cherryville
Kings Mountain
Shelby
Rutherfordton
Spindale
Forest City
Caroleen
Tryon
Saluda
Columbus
Landrum
Gaffney
Blacksburg
Chesterfield
Cheraw
Bennettsville
Dillon
Latta
Marion
Mullins
Conway
Myrtle Beach
Georgetown
Andrews
Hemingway
Kingstree
Lake City
Scranton
Olanta
Timmonsville
Darlington
Hartsville
Society Hill
Florence
Lamar
Pamplico
Effingham
Coward
Quinby
Pamplico
Timmonsville
Olanta
Lake City
Kingstree
Andrews
Hemingway
Georgetown
Conway
Myrtle Beach
Mullins
Marion
Latta
Dillon
Bennettsville
Cheraw
Chesterfield
Gaffney
Blacksburg
Kings Mountain

IDAHO—Admitted as a Territory, March 3, 1863. Admitted as a State, July 3, 1890. Area: Land, 83,354 square miles; Water, 534 square miles. Total, 83,888 square miles. Population: Last Census, 431,866. Capital, Boise.

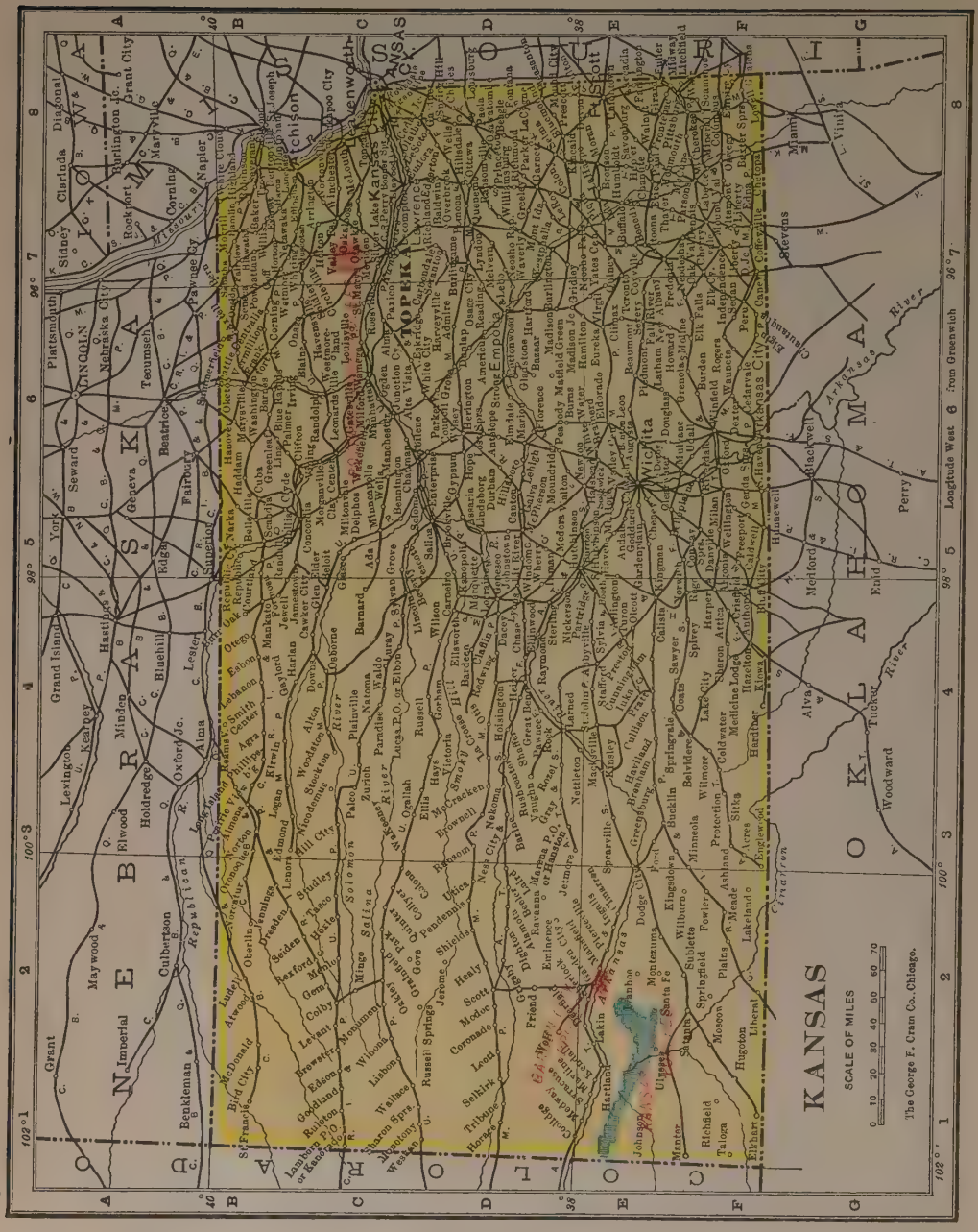


ILLINOIS—First Settled at Kaskaskia, 1720. Admitted as a Territory, February 3, 1809. Admitted as a State, December 3, 1818. Area: Land, 56,043 square miles; Water, 622 square miles. Total, 56,665 square miles. Population: Last Census, 6,485,280. Capital, Springfield.

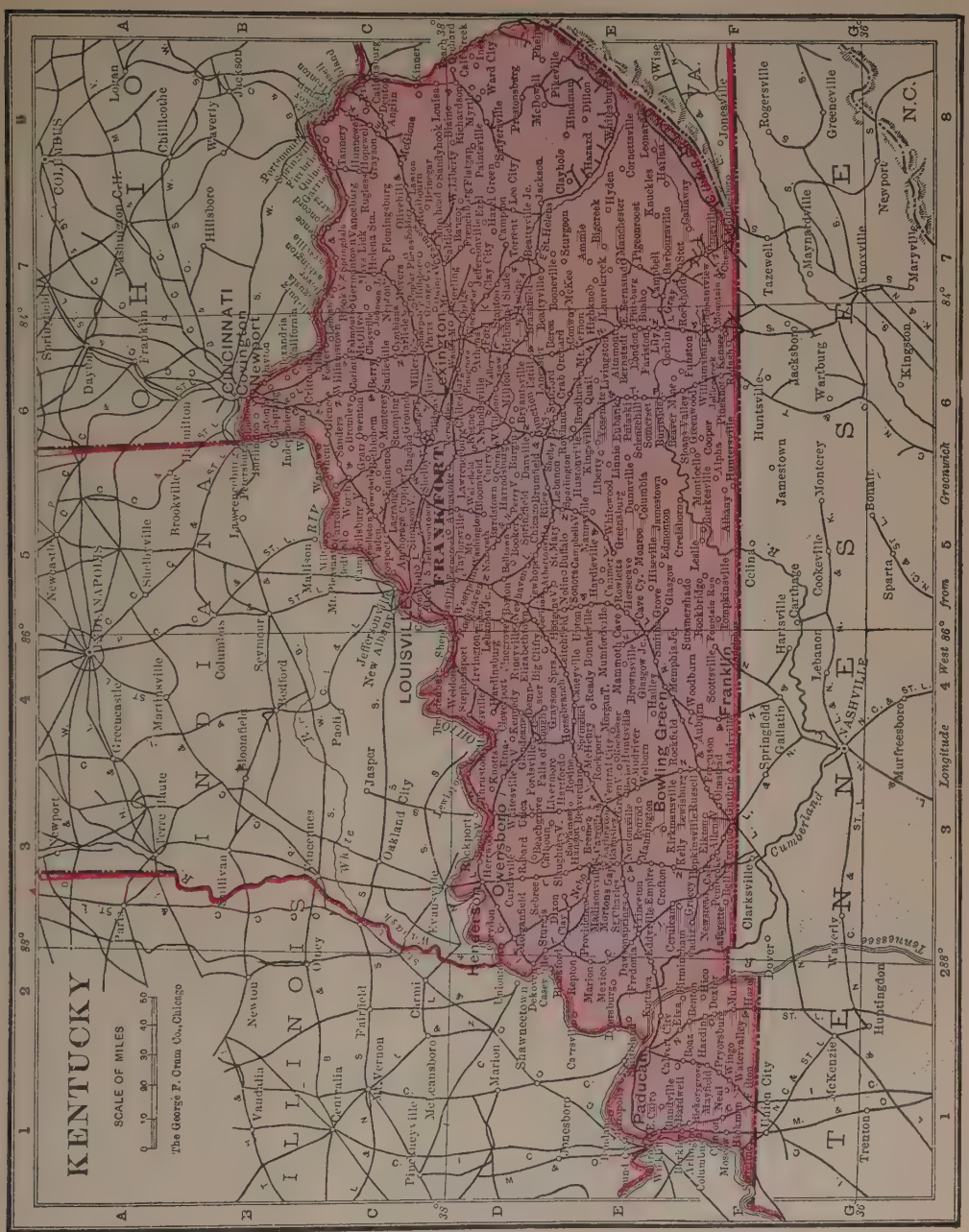


INDIANA—First Settled at Vincennes, 1730. Admitted as a Territory, May 7, 1800. Admitted as a State, December 11, 1816. Area: Land, 36,045 square miles; Water, 309 square miles. Total, 36,354 square miles. Population: Last Census, 2,930,390. Capital, Indianapolis.

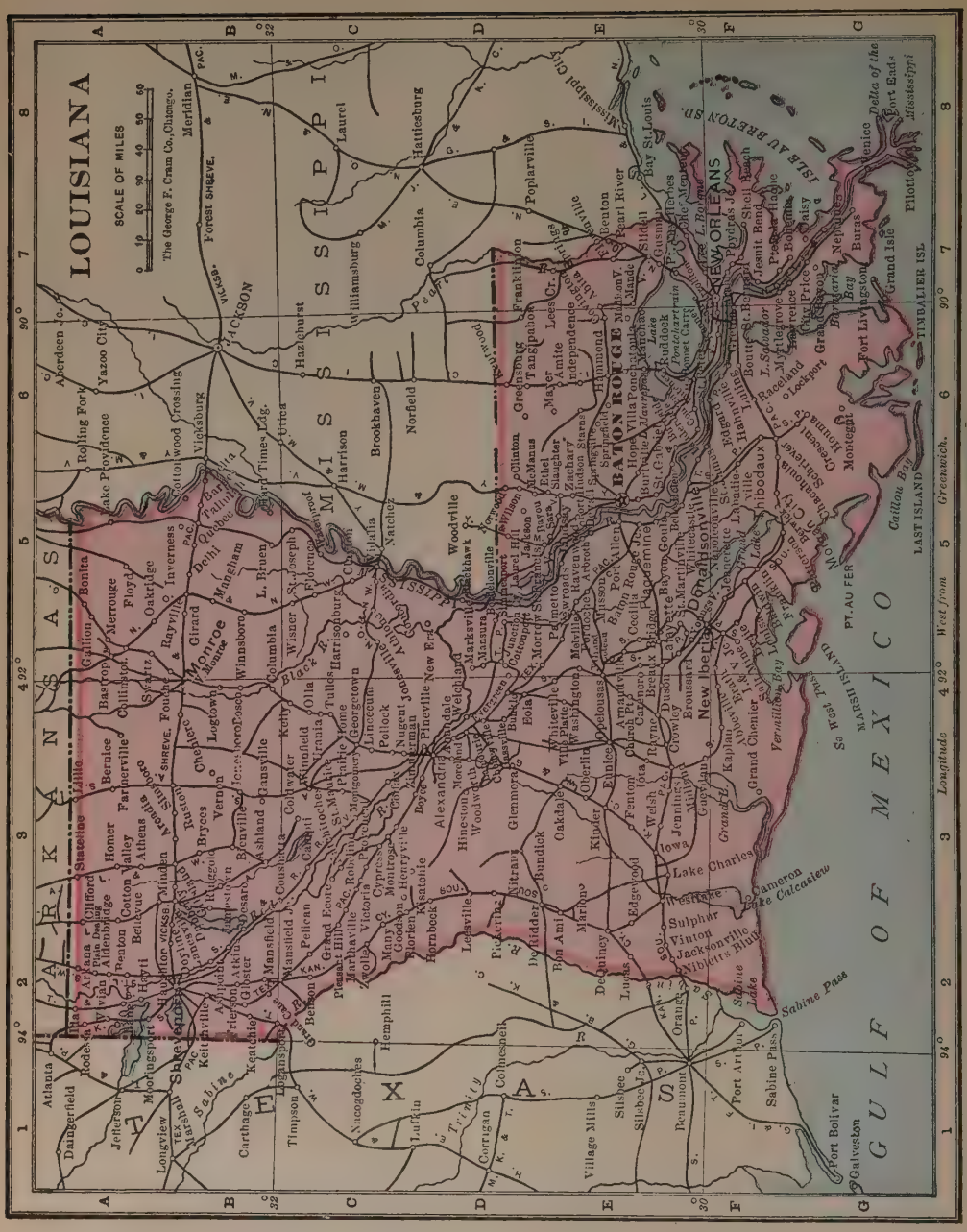
IOWA
SCALE OF MILES
0 10 20 30 40 50
32 Miles to the Inch
The George F. Cram Co., Chicago.
Mississippi
Missouri
Des Moines
Council Bluffs
Sioux City
Dubuque
Davenport
Keokuk
Burlington
Ottumwa
Clinton
Fort Dodge
Waterloo
Cedar Rapids
Marshalltown
Boone
Creston
Red Oak
Atlantic
Shenandoah
Clarinda
Corning
Mapleton
Onawa
Denison
Storm Lake
Spirit Lake
Estherville
Algona
Mason City
Charles City
Decorah
Dubuque
Manchester
Independence
Waterloo
Grinnell
Newton
Oskaloosa
Ottumwa
Fairfield
Mount Pleasant
Burlington
Keokuk
Fort Madison
Muscatine
Davenport
Clinton
Maquoketa
Dyersville
Cascade
Monticello
Anamosa
Marion
Vinton
Tama
Toledo
Marshalltown
Iowa Falls
Eldora
Webster City
Fort Dodge
Humboldt
Algona
Emmetsburg
Spencer
Sheldon
Orange City
Le Mars
Sioux City
Cherokee
Storm Lake
Pocahontas
Rockwell City
Carroll
Denison
Ida Grove
Onawa
Sioux City
Correctionville
Sac City
Manning
Audubon
Harlan
Shelby
Avoca
Walnut
Atlantic
Griswold
Anita
Adair
Casey
Menlo
Guthrie Center
Panora
Perry
Dallas Center
Adel
Redfield
Dexter
Earlham
Winterset
Indianola
Osceola
Chariton
Lucas
Albia
Centerville
Moravia
Ottumwa
Eddyville
Oskaloosa
Knoxville
Pella
Newton
Colfax
Monroe
Prairie City
Altoona
Des Moines
Polk City
Ankeny
Grimes
Runnells
Carlisle
Indianola
Winterset
Truro
Martensdale

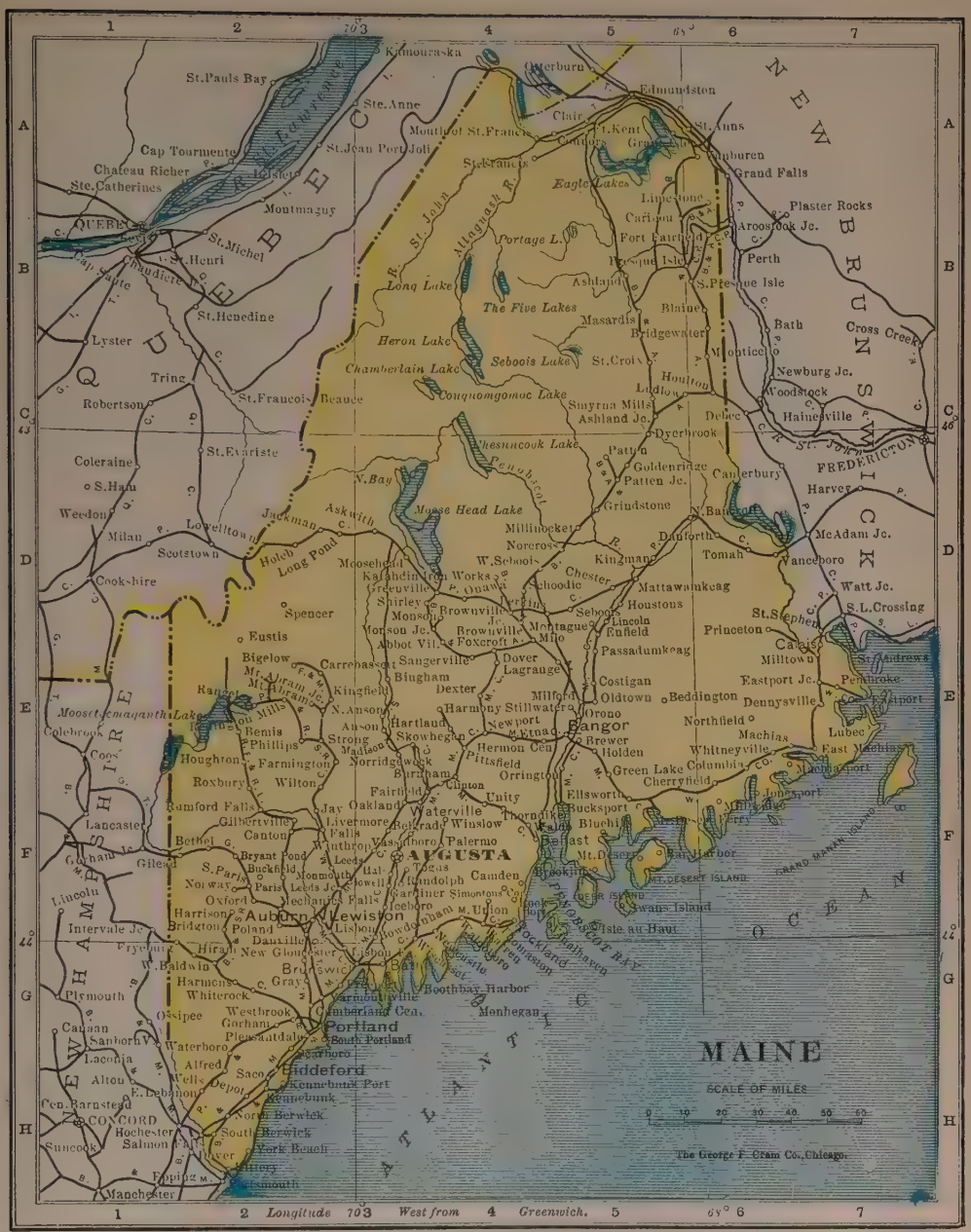


KANSAS—First Settled at Ft. Leavenworth, 1837. Admitted as a Territory, May 18, 1854. Admitted as a State, January 29, 1861. Area: Land, 81,774 square miles; Water, 384 square miles. Total, 82,158 square miles. Population: Last Census, 1,812,986. Capital, Topeka.



KENTUCKY—First Settled at Boonesborough, 1775. Admitted as a State, February 4, 1791. Area: Land, 40,181 square miles; Water, 417 square miles. Total, 40,598 square miles. Population: Last Census, 2,416,630. Capital, Frankfort.

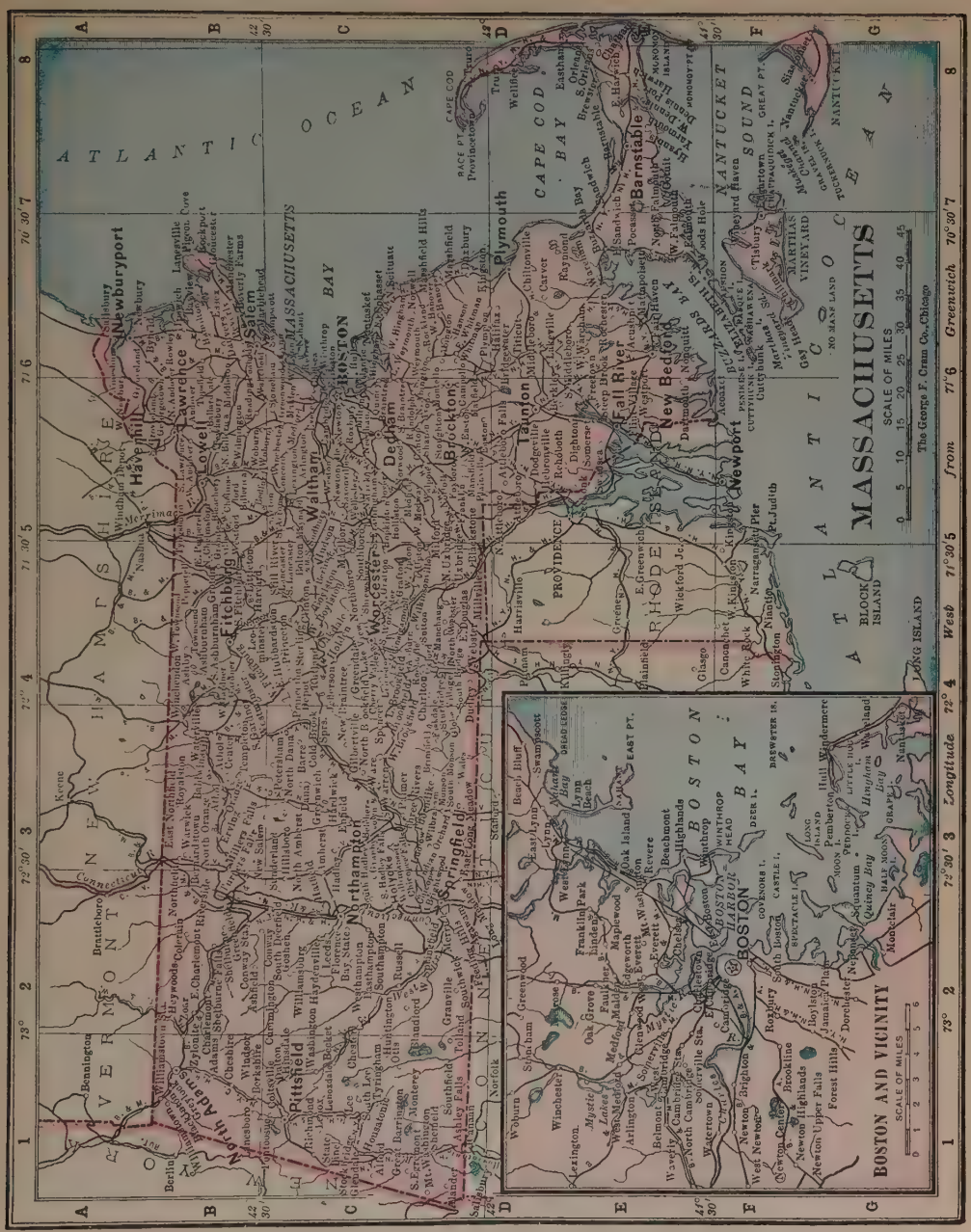

LOUISIANA
SCALE OF MILES
0 10 20 30 40 50 60
The George F. Cram Co., Chicago.
ARKANSAS
MISSISSIPPI
TEXAS
GULF OF MEXICO
Meridian
Forest
Hattiesburg
Laurel
Poplarville
Columbia
Hazlehurst
Jackson
Vicksburg
Yazoo City
Rolling Fork
Aberdeen
Natchez
Woodville
Brookhaven
Norfield
Monroe
Winnsboro
Harrisonburg
Tallulah
Delhi
Rayville
Oakridge
Girard
Wahelam
Columbia
Olla
Wisner
Ferriday
Vidalia
Clayton
Gretna
Franklinton
Tangipahoa
Amite
Independence
Hammond
Springfield
Livingston
Denham Springs
Baton Rouge
Port Allen
Donaldsonville
Thibodaux
Houma
Morgan City
New Orleans
Lake Pontchartrain
Lake Borgne
Chef Menteur
Rigolets
Chandeleur Sound
Isle au Breton Sd.
Isles Dernieres
Timbalier Isl.
Grand Isle
Venice
Delta of the Mississippi
Pilottown
Lake Providence
Oak Grove
Bastrop
Collinston
Farmerville
Berulea
Lillie
Statesville
Homer
Minden
Sibley
Springhill
Shreveport
Mooringsport
Keithville
Logansport
Many
Mansfield
Pelican
Grand Ecore
Natchitoches
Campti
Robeline
Marthaville
Pleasant Hill
Zwolle
Converse
Florien
Hornbeck
Leesville
Pickering
Ragley
Lake Charles
Iowa
Welsh
Jennings
Kaplan
Abbeville
Vermilion Bay
Marsh Isl.
Pecan Island
Grand Chenier
Cameron
Lake Calcasieu
Sulphur
Vinton
Jacksonville
Niblett's Bluff
Sabine Lake
Sabine Pass
Port Arthur
Sabine Pass
Orange
Beaumont
Silsbee
Village Mills
Kountze
Cotton Valley
Minden
Athens
Bryceland
Haynesville
Vienna
Tullos
Jonesboro
Winnsboro
Columbia
Olla
Wisner
Ferriday
Vidalia
Natchez
Woodville
Brookhaven
Norfield
Monroe
Girard
Wahelam
Delhi
Rayville
Oakridge



MAINE—First Settled at Bristol, 1625. Admitted as a State, March 3, 1820. Area: Land, 29,895 square miles; Water, 3,145 square miles. Total, 33,040 square miles. Population: Last Census, 768,014. Capital, Augusta.

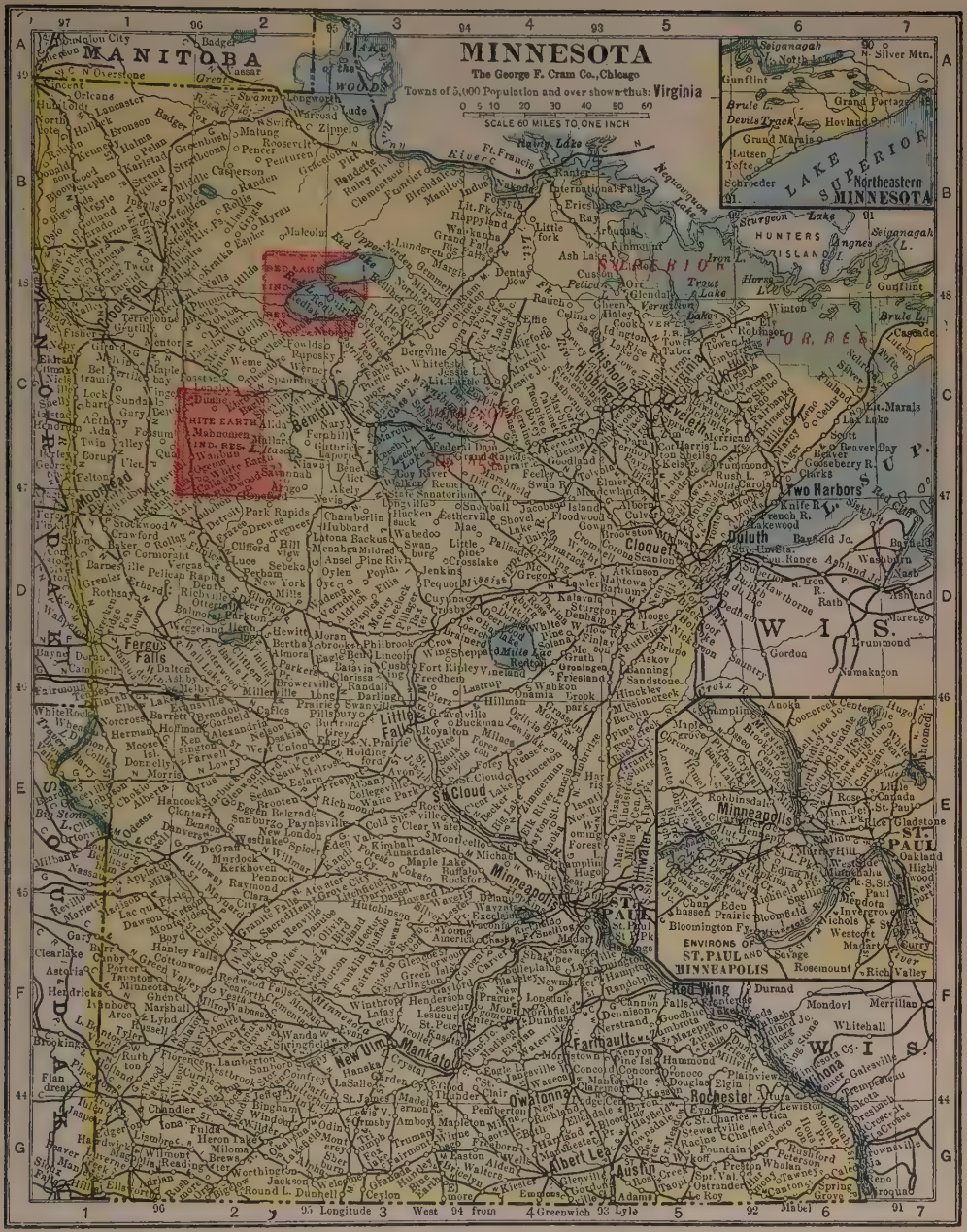
MARYLAND—First Settled at St. Mary's, 1634. One of the Original Thirteen States. Area: 9,941 square miles; Water, 2,386 square miles. Total, 12,327 square miles. Population: Last Census, 1,449,661. Capital, Annapolis.

DELAWARE—First Settled at Wilmington, 1638. One of the Original Thirteen States. Area: Land, 1,965 square miles; Water, 405 square miles. Total, 2,370 square miles. Population: Last Census, 223,003. Capital, Dover.



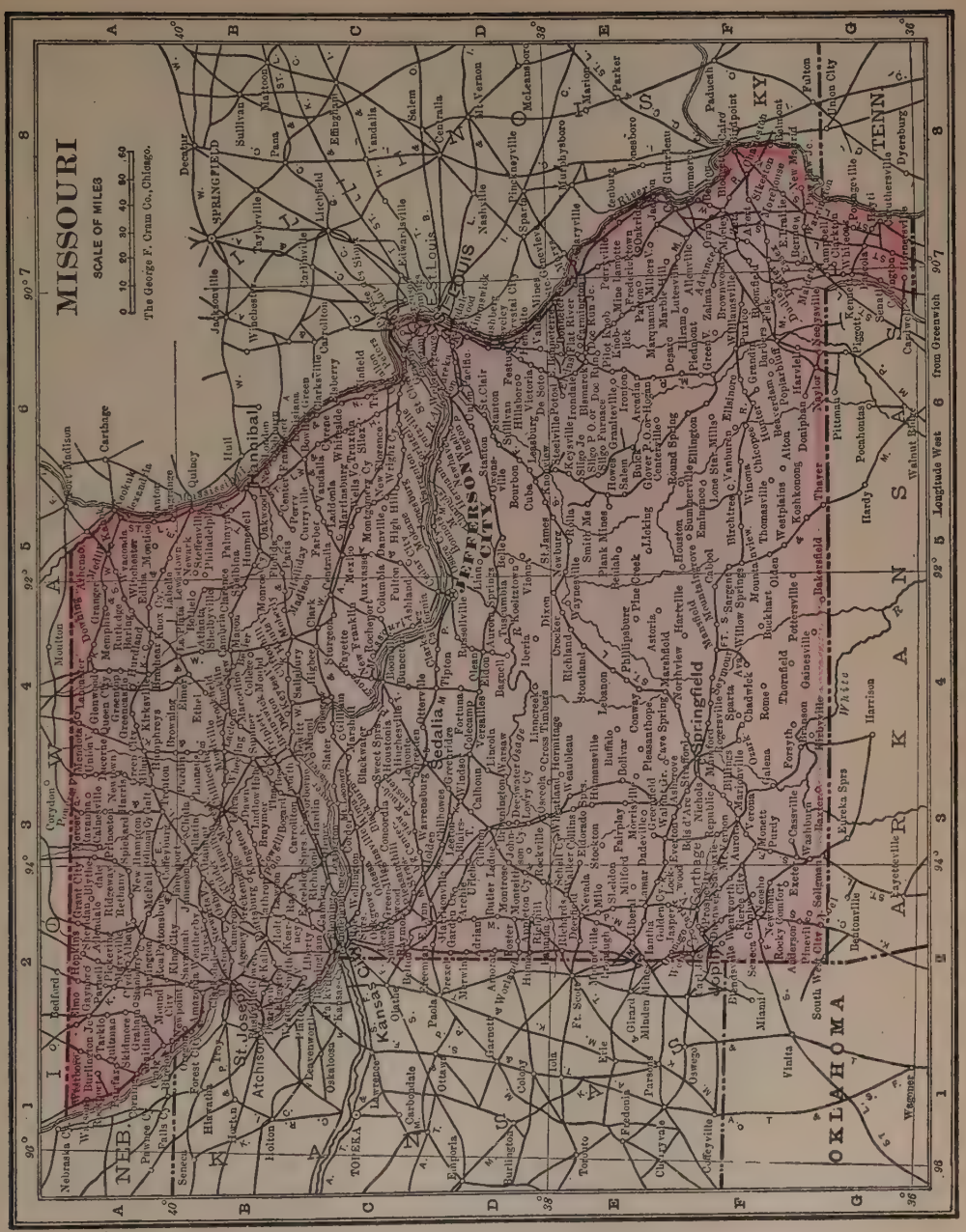
MASSACHUSETTS—First Settled at Plymouth, 1620. One of the Original Thirteen States. Area: Land, 8,039 square miles; Water, 227 square miles. Total, 8,266 square miles. Population: Last Census, 4,144,205. Capital, Boston.

MICHIGAN
SCALE OF MILES
0 10 20 30 40 50 60 70
The George F. Cram Co. Chicago.
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
WISCONSIN
INDIANA
OHIO
ILLINOIS
APOSTLE ISLANDS
NORTHWESTERN MICHIGAN
Copper Falls Mine
Eagle River
Eagle Har.
Allouez
Central Mine
MANITOU I.
Red Jacket
Calumet
Laurium
Lake Linden
Opechee
S. Lake Linden
Hancock
Houghton
Atlantic Mine
Portage Lake
Keweenaw Bay
St. Agassiz
LAKE LINDEN AND CALUMET & HECLA
Barclay
Mass
Wilhelmina
Nestoria
Sidnaw
Redruth
Champion
Humboldt
Republic
Amasa
Floodwood
Kelso
Hazel
Duxbury
Iron River
Stambaugh
Crystal Falls
Iron Mtn.
Norway
Quinnesec
Vulcan
Powers
Carney
Daggett
Ingalls
Fishdale
Crivitz
Marinette
Menominee
Peshtigo
Oconto
Northern Jc.
Clintonville
Sturgeon Bay
Kewaunee
Green Bay
Appleton
Neenah
Two Rivers
Manitowoc
Oshkosh
Hilbert
Lake Winnebago
Ripon
Fond du Lac
Plymouth
Sheboygan
Horicon
Port Washington
Watertown
Waukesha
MILWAUKEE
Elkhorn
Racine
Kenosha
Waukegan
Woodstock
Belvidere
Evanston
Elgin
CHICAGO
Aurora
New Buffalo
Michigan City
Calumet Harbor
Grand Marais
White Fish Pt.
Deer Pk
White Fish Bay
Grand Marais Jc.
Bar Mills
Munising
Seney
Newberry
Rexford
Soo Junction
Mills Sta.
Rudyard
Sault Ste. Marie
ST. JOSEPH ISL.
NORTH CHANNEL
DRUMMOND ISL.
COCKBURN ISL.
GRAND MANITOULIN ISLAND
Marquette
Negaunee
Ishpeming
Cascade
Champion
Humboldt
Republic
Carlshend
Scott
Shingleton
Germfask
McMillan
Trout Lake
Pickford
Raco
Manistique
Gulliver
Thompson
Iron Creek
Metropolitan
Rapid River
Gladstone
Foster Cy.
Faunsdale
Quinnesec
Vulcan
Iron Mtn.
Escanaba
Flat Rock
Fayette
Manistique
St. Ignace
Pt. St. Ignace
Straits of Mackinac
Mackinac Island
Mackinaw City
Cheboygan
Carp Lake
Pellston
Petoskey
Harbor Springs
Boyne City
Charlevoix
Ironton
Mitchell
Central Lake
Bellaire
Alba
Gaylord
Atlanta
Otsego
Lake
Lewiston
Rogers
Hillman
Alpena
Thunder Bay
Black River
Harrisville
Oscoda
Roy
Tawas City
East Tawas
Alabaster
Turner
Au Gres
Omer
Standish
Caseville
Pt. Hope
Harbor Beach
Port Austin
Grindstone City
Huron
Filion
Bad Axe
Sebewaing
Unionville
Cass City
Deckerville
Carsonville
Croswell
Lexington
Marlette
Clifford
Mayville
Caro
Vassar
Frankenmuth
Saginaw
Bay City
Midland
Sanford
Freeland
Shepherd
Remus
Mt. Pleasant
Weidman
Ithaca
Alma
Hemlock
Millington
Birch Run
Flint
Davison
Imlay City
Lapeer
Port Huron
Capac
Emmett
Marysville
Algonac
Detroit
Wyandotte
Trenton
Grosse Ile
Monroe
Toledo
Sarnia
Windsor
Amherstburg
Kingsville
Leamington
Pelee I.
Pt. Pelee
Wheatley
Erie
Port Stanley
St. Thomas
Ingersoll
Woodstock
Tillsonburg
Simcoe
Delhi
Port Dover
Hagersville
Dunnville
Fort Erie
Niagara Falls
Buffalo
Tonawanda
Lockport
Medina
Albion
Marshall
Battle Creek
Kalamazoo
Jackson
Lansing
Ann Arbor
Dearborn
Wayne
Plymouth
Northville
Milford
Howell
Brighton
Pinckney
Hamburg
Dexter
Chelsea
Manchester
Saline
Ypsilanti
Romulus
Belleville
Wyandotte
Ecorse
Grosse Pointe
Mt. Clemens
Utica
Rochester
Pontiac
Oxford
Lapeer
Imlay City
Flint
Fenton
Linden
Brighton
Howell
Milford
Holly
Orion
Rochester
Utica
Mt. Clemens
St. Clair
Port Huron
Marine City

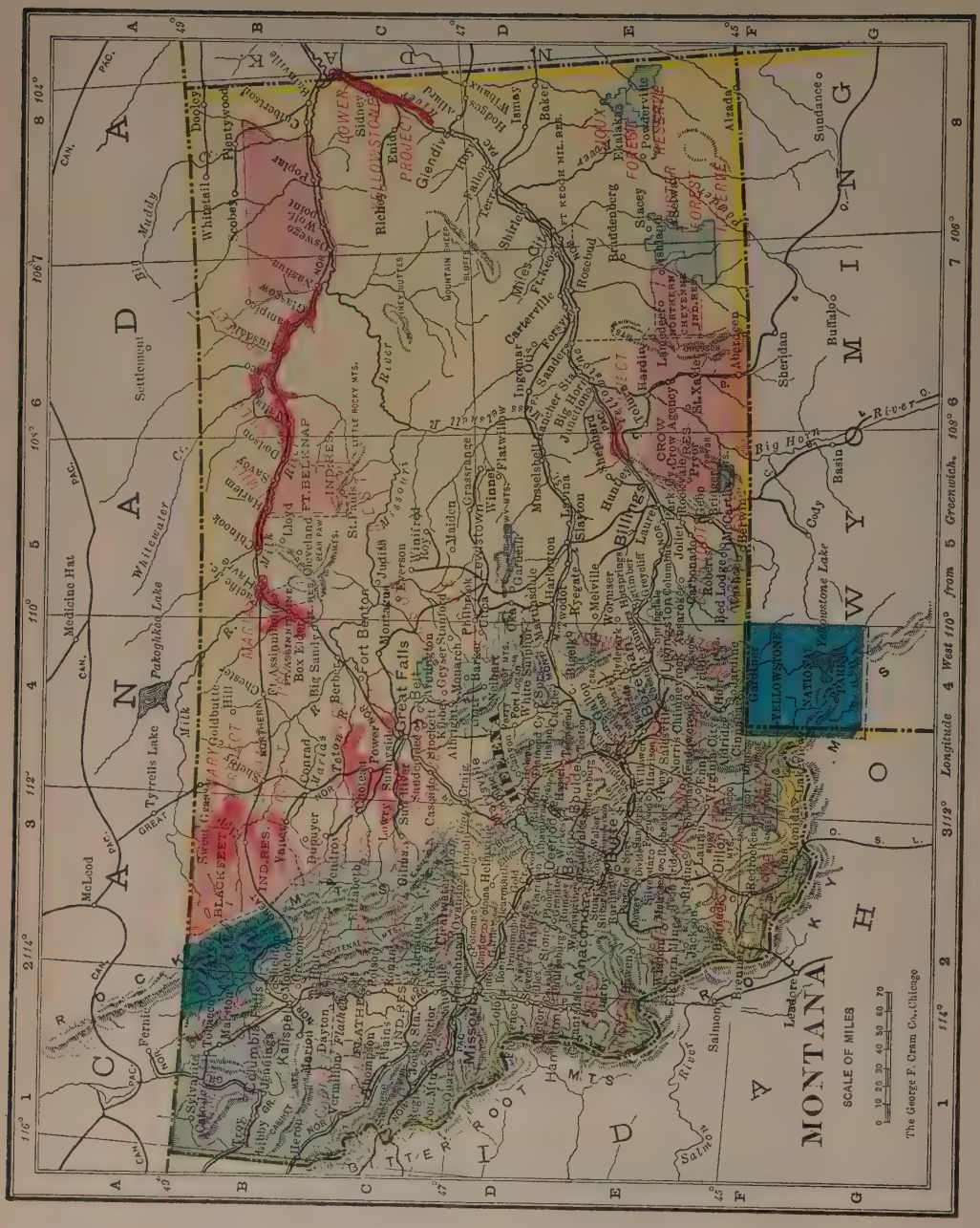


MINNESOTA—First Settled at St. Paul, 1846. Admitted as a Territory, March 3, 1849. Admitted as a State, May 11, 1858. Area: Land, 80,858 square miles; Water, 3,824 square miles. Total, 84,682 square miles. Population: Last Census, 2,387,125. Capital, St. Paul.

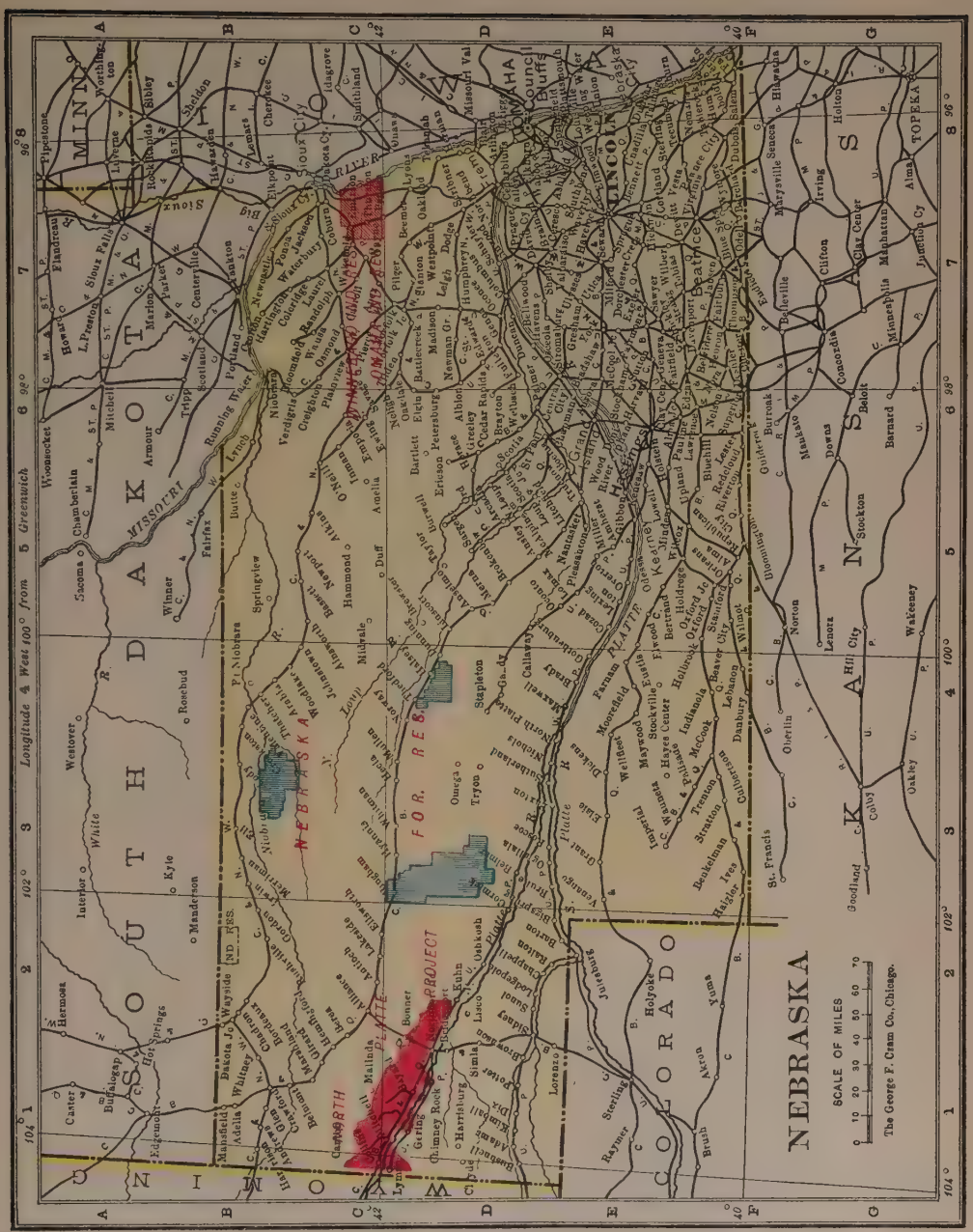
MISSISSIPPI—First Settled at Natchez, 1716. Admitted as a Territory, April 7, 1798. Admitted as a State, December 10, 1817. Area: Land, 46,362 square miles; Water, 503 square miles. Total, 46,865 square miles. Population: Last Census, 1,790,618. Capital, Jackson.



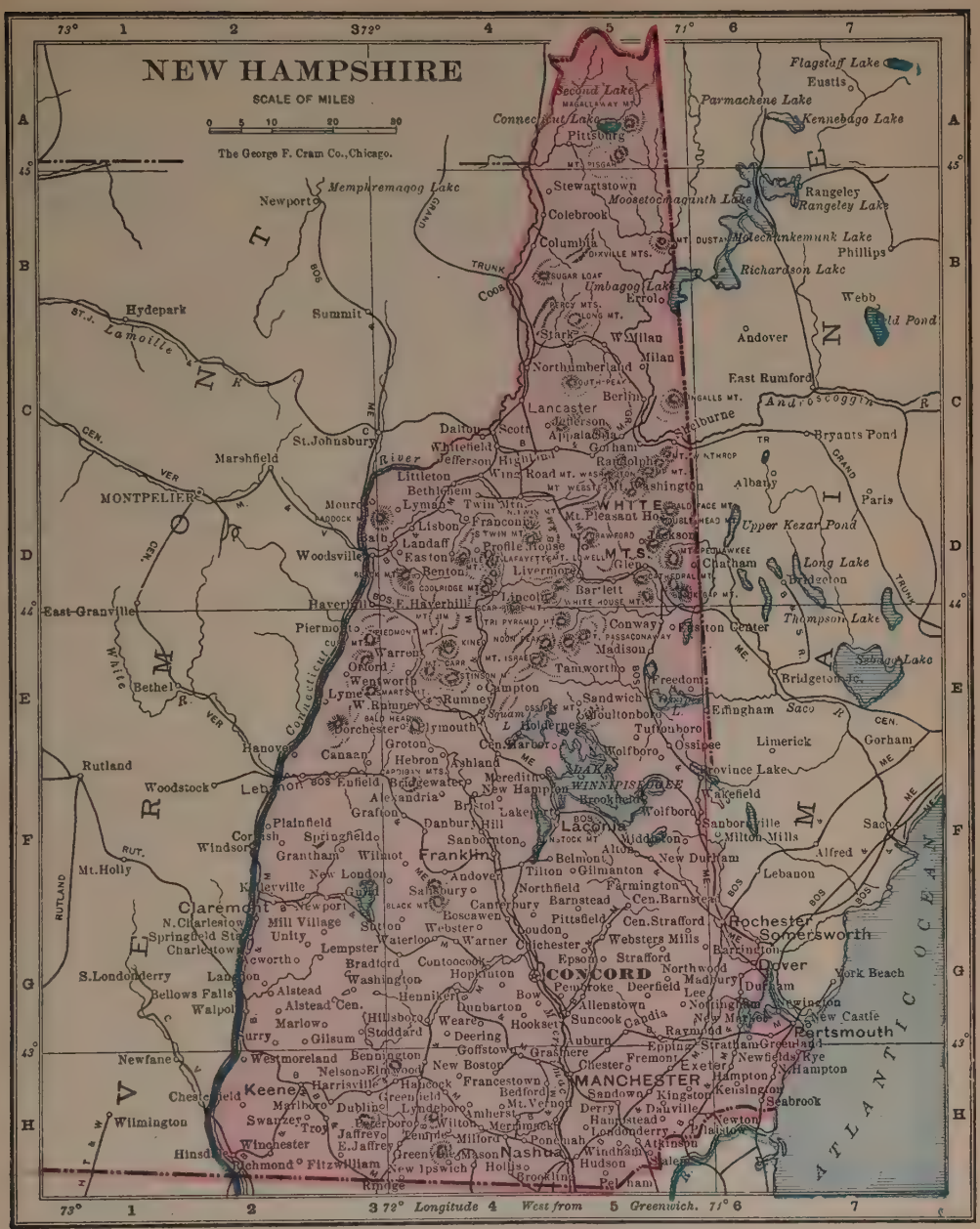
MISSOURI—First Settled at Saint Louis, 1764. Admitted as a Territory, June 4, 1812. Admitted as a State, March 2, 1821. Area: Land, 68,727 square miles; Water, 693 square miles. Total, 69,420 square miles. Population: Last Census, 3,404,055. Capital, Jefferson City.

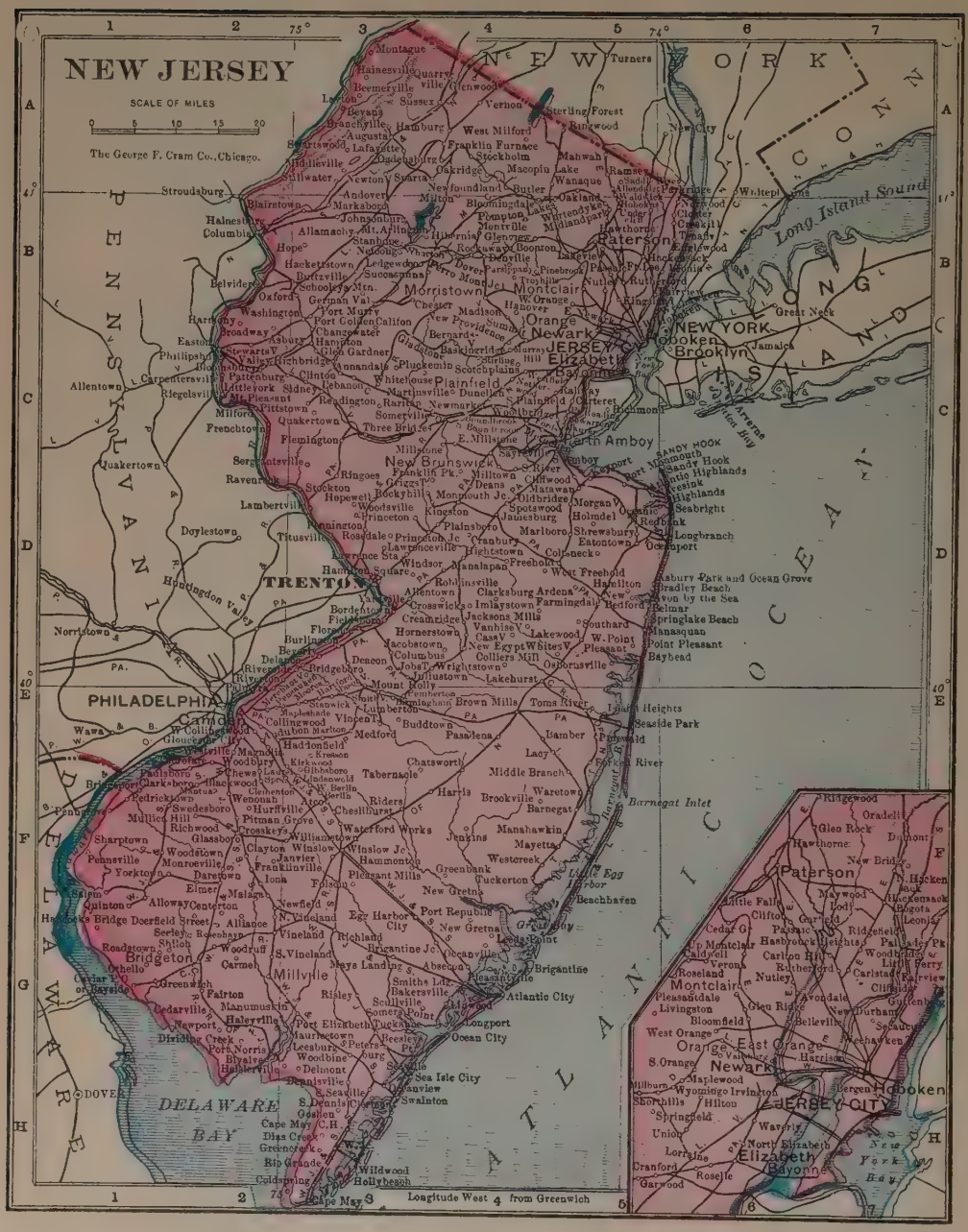


MONTANA—Admitted as a Territory, May 26, 1864. Area: Land, 146,131 square miles; Water, 866 square miles. Total, 146,997 square miles. Admitted as a State, February 22, 1889. Population: Last Census, 548,889. Capital, Helena.

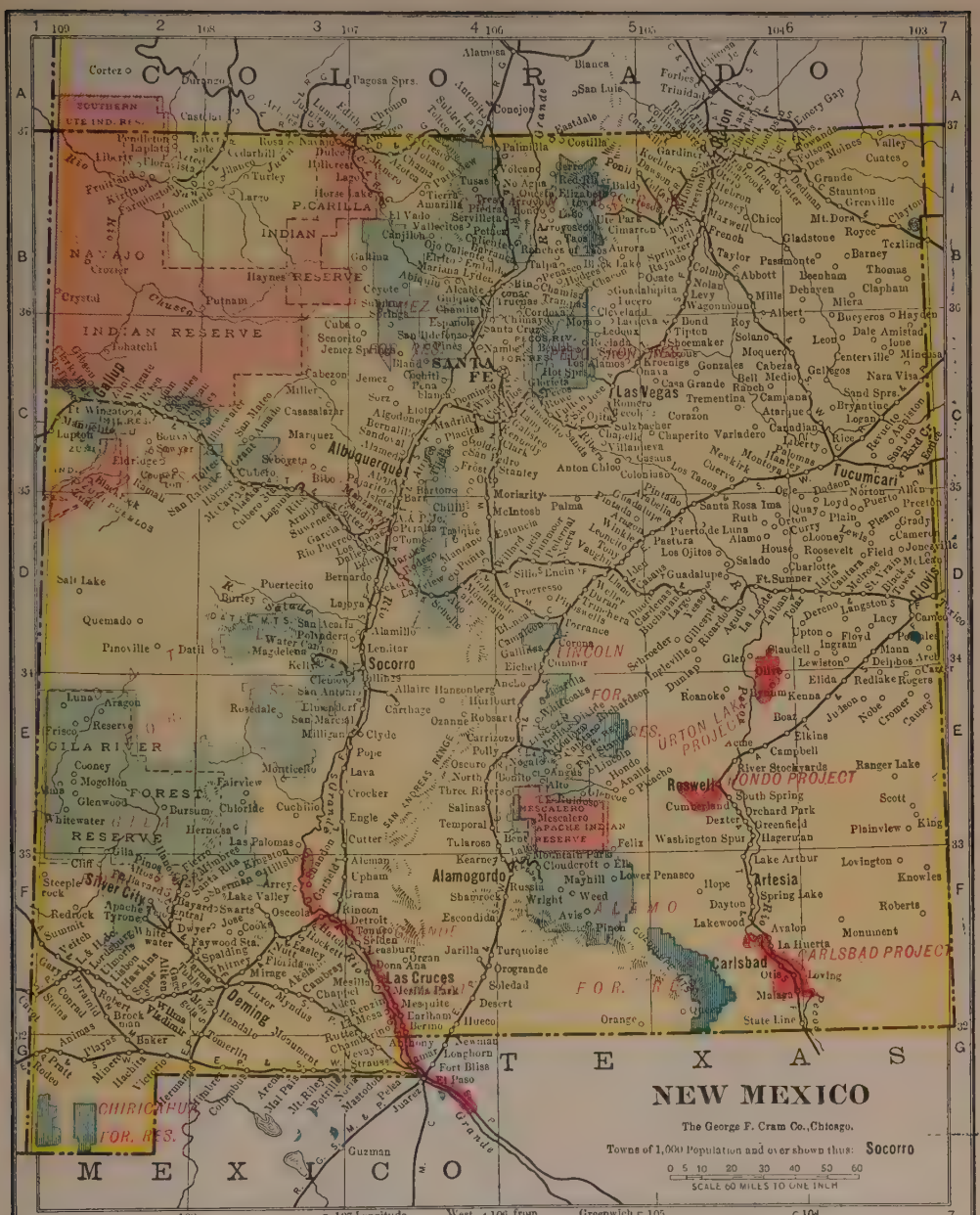

NEBRASKA
SCALE OF MILES
0 10 20 30 40 50 60 70
The George F. Cram Co., Chicago.
SOUTH DAKOTA
COLORADO
WYOMING
KANSAS
IOWA
MISSOURI
Longitude West 100° from Greenwich
NEBRASKA FOR. RES.
NORTH PLATTE PROJECT
MISSOURI RIVER DIVERSION CANAL
PLATTE R.
R. Niobrara
Missouri R.
White R.
Little Blue R.
Republican R.
Omaha
Council Bluffs
Lincoln
Sioux City
Topeka
Scottsbluff
Alliance
Chadron
Hastings
Grand Island
Kearney
North Platte
McCook
Norfolk
Fremont
Beatrice
Nebraska City
Falls City
Crete
York
Columbus
Wayne
Sioux City
Yankton
Pierre
Rapid City
Deadwood
Lead
Spearfish
Belle Fourche
Sturgis
Hot Springs
Custer
Buffalo Gap
Edgemont
Oelrichs
Martin
Winner
Gregory
Mitchell
Chamberlain
Huron
Aberdeen
Watertown
Sioux Falls
Yankton
Vermillion
Elk Point
Dakota City
Sioux City
Le Mars
Cherokee
Spencer
Estherville
Fort Dodge
Webster City
Boone
Ames
Des Moines
Council Bluffs
Shenandoah
Clarinda
Creston
Red Oak
Atlantic
Audubon
Harlan
Denison
Sac City
Storm Lake
Cherokee
Le Mars
Sioux City
Onawa
Missouri Valley
Blair
Tekamah
Decatur
Lyons
Oakland
Pilger
Stanton
Wisner
Norfolk
Madison
Battle Creek
Newman Gr.
Humphrey
Albion
Genoa
Columbus
Schuyler
David City
Seward
Milford
Lincoln
Wahoo
Fremont
Blair
Tekamah
Omaha
Council Bluffs
Nebraska City
Auburn
Tecumseh
Beatrice
Fairbury
Hebron
Superior
Nelson
Hastings
Kearney
Gibbon
Shelton
Wood River
Grand Island
Central City
Fullerton
Genoa
Albion
Cedar Rapids
Loup City
Ord
Arcadia
Burwell
Greeley
Scotia
Ericson
Petersburg
Elgin
Neligh
Oakdale
Battle Creek
Norfolk
Madison
Stanton
Wisner
Pilger
Lyons
Decatur
Tekamah
Blair
Fort Calhoun
Omaha
Council Bluffs
Missouri Valley
Logan
Woodbine
Dunlap
Denison
Ida Grove
Sac City
Storm Lake
Cherokee
Le Mars
Sioux City
Onawa
Whiting
Soldier
Ute
Correctionville
Moville
Anthon
Oto
Holstein
Ruthven
Rembrandt
Linn Grove
Marathon
Rockford
Meriden
Cleghorn
Cherokee
Aurelia
Alta
Storm Lake
Early
Lytton
Sac City
Wall Lake
Odebolt
Arthur
Lake View
Auburn
Carroll
Manning
Coon Rapids
Bayard
Guthrie Center
Panora
Stuart
Adair
Casey
Greenfield
Adel
Redfield
Dexter
Dallas Center
Perry
Waukee
Ankeny
Des Moines
Indianola
Winterset
Creston
Osceola
Chariton
Lucas
Albia
Centerville
Moravia
Unionville
Bloomfield
Davis City
Leon
Mount Ayr
Corydon
Lamoni
Garden Grove

NEVADA—First Settled at Washoe, 1860. Admitted as a Territory, March 2, 1861. Admitted as a State, March 21, 1864. Area: Land, 109,821 square miles; Water, 869 square miles. Total, 110,690 square miles. Population: Last Census, 77,407. Capital, Carson City.


NEW HAMPSHIRE
SCALE OF MILES
0 5 10 20 30
The George F. Cram Co., Chicago.
Longitude West from Greenwich.
Second Lake
Connecticut Lake
Pittsburg
Flagstaff Lake
Eustis
Parmachene Lake
Kennebago Lake
Rangeley
Rangeley Lake
Moosetocmaguntic Lake
Mooselookmeguntic Lake
Richardson Lake
Phillips
Webb
Umbagog Lake
Errol
Stewartstown
Colebrook
Columbia
Stark
Milan
Andover
Northumberland
Berlin
East Rumford
Lancaster
Gorham
Randolph
Mt. Washington
Albany
Paris
Bryants Pond
Upper Kezar Pond
Long Lake
Bridgeton
Thompson Lake
Saco Lake
Bridgeton Jc.
Chatham
Conway
Eaton Center
Madison
Tamworth
Freedom
Sandwich
Moultonborough
Tuftonboro
Wolfboro
Ossipee
Limerick
Gorham
Province Lake
Effingham
Saco R.
Wakefield
Sanbornville
Milton Mills
Alfred
Saco
Lebanon
Rochester
Somersworth
Dover
Durham
York Beach
Portsmouth
New Castle
Newington
Nottingham
New Market
Madbury
Lee
Barrington
Northwood
Pittsfield
Cen. Strafford
Webster Mills
Strafford
Epsom
Chichester
Loudon
Barnstead
Cen. Barnstead
Canterbury
Northfield
Farmington
Gilmanton
Tilton
Belmont
Alton
New Durham
Wolfboro
Brookfield
Wakefield
Lacona
Middleton
Sanbornville
Milton Mills
Alton
Franklin
Andover
Salisbury
Boscawen
Concord
Pembroke
Deerfield
Allenstown
Suncook
Epping
Raymond
Auburn
Deering
Goffstown
Grasmere
Chester
Fremont
Exeter
Hampton
Hampton Falls
Kensington
Seabrook
Kingston
Sandown
Derry
Hampstead
Londonderry
Windham
Salem
Atkinson
Pelham
Hudson
Nashua
Manchester
Amherst
Merrimack
Milford
Pondicherry
Wilton
Lyndeborough
Mt. Vernon
Bedford
Francestown
Hancock
Harrisville
Nelson
Keene
Marlboro
Dublin
Peterboro
Jaffrey
E. Jaffrey
Fitzwilliam
Richmond
Winchester
Hinsdale
Chesterfield
Swanzey
Troy
Wilmington
Newfane
Westmoreland
Bennington
Greenfield
New Boston
Hillsboro
Henniker
Hopkinton
Contoocook
Warner
Bradford
Newport
Claremont
Unity
Springfield
Charlestown
Walpole
Bellows Falls
Alstead
Alstead Cen.
Marlow
Stoddard
Gilsum
Surry
Langdon
S. Londonderry
Windsor
Cornish
Plainfield
Springfield
Grantham
Wilmot
New London
Kearsarge
Mt. Holly
Rutland
Woodstock
Lebanon
Enfield
Canaan
Hanover
Orford
Piermont
Haverhill
E. Haverhill
Bath
Lisbon
Landaff
Franconia
Profile House
Easton
Woodsville
Littleton
Bethlehem
Whitefield
Jefferson
Lancaster
Dalton
Scott
Appalachia
Gorham
Randolph
Mt. Washington
Marshfield
St. Johnsbury
Lamoille R.
Memphremagog Lake
Newport
Hydepark
Summit
Montpelier
Barre
Bethel
Rutland
Woodstock
Windsor
Mt. Holly
Claremont
Keene
Winchester
Hinsdale
Chesterfield
Wilmington
Newfane
Westmoreland
Bennington
Rutland
Connecticut R.
White R.
Lamoille R.
Passumpsic R.
Androscoggin R.
Saco R.
Merrimack R.
Piscataqua R.
Ammonoosuc R.
Pemigewasset R.
Winnipesaukee
Lake
Squam
Newfound
Ossipee
Presidential Range
White Mts.
Green Mts.
Sugar Loaf
Percy Mts.
Long Mt.
Dixville Mts.
Mt. Dustan
Mt. Pisgah
Mt. Magalloway
Mt. Prospect
Mt. Starr King
Mt. Jim
Mt. Cabot
Mt. Waumbek
Mt. Weeks
Mt. Madison
Mt. Adams
Mt. Jefferson
Mt. Clay
Mt. Washington
Mt. Pleasant
Mt. Franklin
Mt. Monroe
Mt. Lafayette
Mt. Lincoln
Mt. Liberty
Mt. Flume
Mt. Willard
Mt. Carrigain
Mt. Hale
Mt. Cleveland
Mt. Osceola
Mt. Tecumseh
Mt. Kancamagus
Mt. Moosilauke
Mt. Cardigan
Mt. Kearsarge
Mt. Monadnock
Mt. Sunapee
Mt. Kearsarge
Mt. Israel
Mt. Cube
Mt. Smarts
Mt. Rumney
Mt. Prospect



NEW JERSEY—First Settled at Elizabeth, 1664. One of the Original Thirteen States. Area: Land, 7,514 square miles; Water, 710 square miles. Total, 8,224 square miles. Population: Last Census, 3,155,374. Capital, Trenton.


C O L O R A D O
T E X A S
M E X I C O
NEW MEXICO
The George F. Cram Co., Chicago.
Towns of 1,000 Population and over shown thus: Socorro
SCALE 60 MILES TO ONE INCH
Las Vegas
Albuquerque
Santa Fe
Roswell
Artesia
Carlsbad
Alamogordo
Las Cruces
Silver City
Deming
Tucumcari
Clovis
Socorro
Lincoln
Ruidoso
Hondo Project
Carlsbad Project
Navajo Indian Reserve
Jicarilla Indian Reserve
Mescalero Indian Reserve
Gila River Forest Reserve
Chiricahua For. Res.
Pecos For. Res.
Lincoln For. Res.
Guadalupe For. Res.
Jemez Hot Springs
Ojo Caliente
Ojo Caliente Springs
Las Palomas Hot Springs
Ruidoso Hot Springs
Mescalero Indian Agency
Fort Bliss
Fort Stanton
Fort Sumner
Fort Selden
Fort Craig
Fort Tularosa
Fort Wingate
Fort Stanton Soldiers' Home
Rio Grande
Pecos River
Canadian River
Gila River
San Juan River
Mimbres River
Rio Hondo
Rio Penasco
Rio Puerco
Rio Salado
Rio Chama
Rio Grande Valley
Pecos Valley
Mesilla Park
Mesilla
Las Cruces
Deming
Silver City
Alamogordo
Artesia
Carlsbad
Roswell
Las Vegas
Albuquerque
Santa Fe

NEW YORK
SCALE OF MILES
0 10 20 30 40 50
The George F. Cram Co., Chicago
LAKE ONTARIO
LAKE ERIE
ATLANTIC OCEAN
Long Island
Greater New York
CITY OF
Rochester
Buffalo
Syracuse
Albany
Utica
Binghamton
Elmira
Jamestown
Schenectady
Kingston
Troy
Watertown
Oswego
Auburn
Ithaca
Corning
Hornell
Dunkirk
Olean
Salamanca
Niagara Falls
Lockport
Batavia
Canandaigua
Geneva
Penn Yan
Hudson
Poughkeepsie
Newburgh
Middletown
Port Jervis
Monticello
Catskill
Cooperstown
Oneonta
Norwich
Plattsburg
Saranac
Malone
Ogdensburg
Massena
Potsdam
Canton
Gouverneur
Watertown
Sackets Harbor
Oswego
Fulton
Phoenix
Baldwinsville
Auburn
Seneca Falls
Waterloo
Geneva
Canandaigua
Victor
Honeoye Falls
Avon
Geneseo
Mount Morris
Dansville
Wellsville
Olean
Salamanca
Jamestown
Dunkirk
Fredonia
Westfield
Ripley
Silver Creek
Hamburg
Lancaster
Tonawanda
North Tonawanda
Lockport
Medina
Albion
Brockport
Spencerport
Fairport
Pittsford
Victor
Canandaigua
Geneva
Penn Yan
Watkins Glen
Elmira
Corning
Hornell
Addison
Painted Post
Bath
Hammondsport
Penn Yan
Geneva
Seneca Falls
Auburn
Cayuga
Aurora
Ithaca
Trumansburg
Cortland
Homer
Tully
Manlius
Fayetteville
Syracuse
Baldwinsville
Phoenix
Fulton
Oswego
Pulaski
Sandy Creek
Adams
Watertown
Carthage
Lowville
Boonville
Utica
Rome
Oneida
Canastota
Chittenango
Cazenovia
Hamilton
Morrisville
Norwich
Oxford
Sherburne
Earlville
Hamilton
Clinton
New Hartford
Whitesboro
Oriskany
Rome
Utica
Herkimer
Little Falls
Ilion
Frankfort
Mohawk
Amsterdam
Johnstown
Gloversville
Fonda
Canajoharie
Fort Plain
St. Johnsville
Herkimer
Middleburg
Schoharie
Cobleskill
Richmondville
Sharon Springs
Cherry Valley
Sharon
Schenectady
Scotia
Ballston Spa
Saratoga Springs
Mechanicville
Troy
Cohoes
Waterford
Lansingburgh
Albany
Rensselaer
Hudson
Catskill
Coxsackie
Athens
Greenville
Windham
Prattsville
Hunter
Tannersville
Haines Falls
Palenville
Kingston
Rondout
Saugerties
Woodstock
Rhinebeck
Red Hook
Tivoli
Germantown
Hudson
Chatham
Kinderhook
Valatie
Stuyvesant
Claverack
Hudson
Catskill
Coxsackie
Athens
Greenville
Windham
Prattsville
Hunter
Tannersville
Haines Falls
Palenville
Kingston
Rondout
Saugerties
Woodstock
Rhinebeck
Red Hook
Tivoli
Germantown
Hudson
Chatham
Kinderhook
Valatie
Stuyvesant
Claverack
Poughkeepsie
Fishkill
Beacon
Newburgh
New Windsor
Cornwall
Middletown
Goshen
Chester
Monroe
Port Jervis
Deposit
Hancock
Callicoon
Monticello
Liberty
Livingston Manor
Roscoe
Margaretville
Arkville
Delhi
Hobart
Stamford
Walton
Sidney
Oneonta
Cooperstown
Richfield Springs
Cherry Valley
Sharon Springs
Schoharie
Middleburgh
Cobleskill
Richmondville
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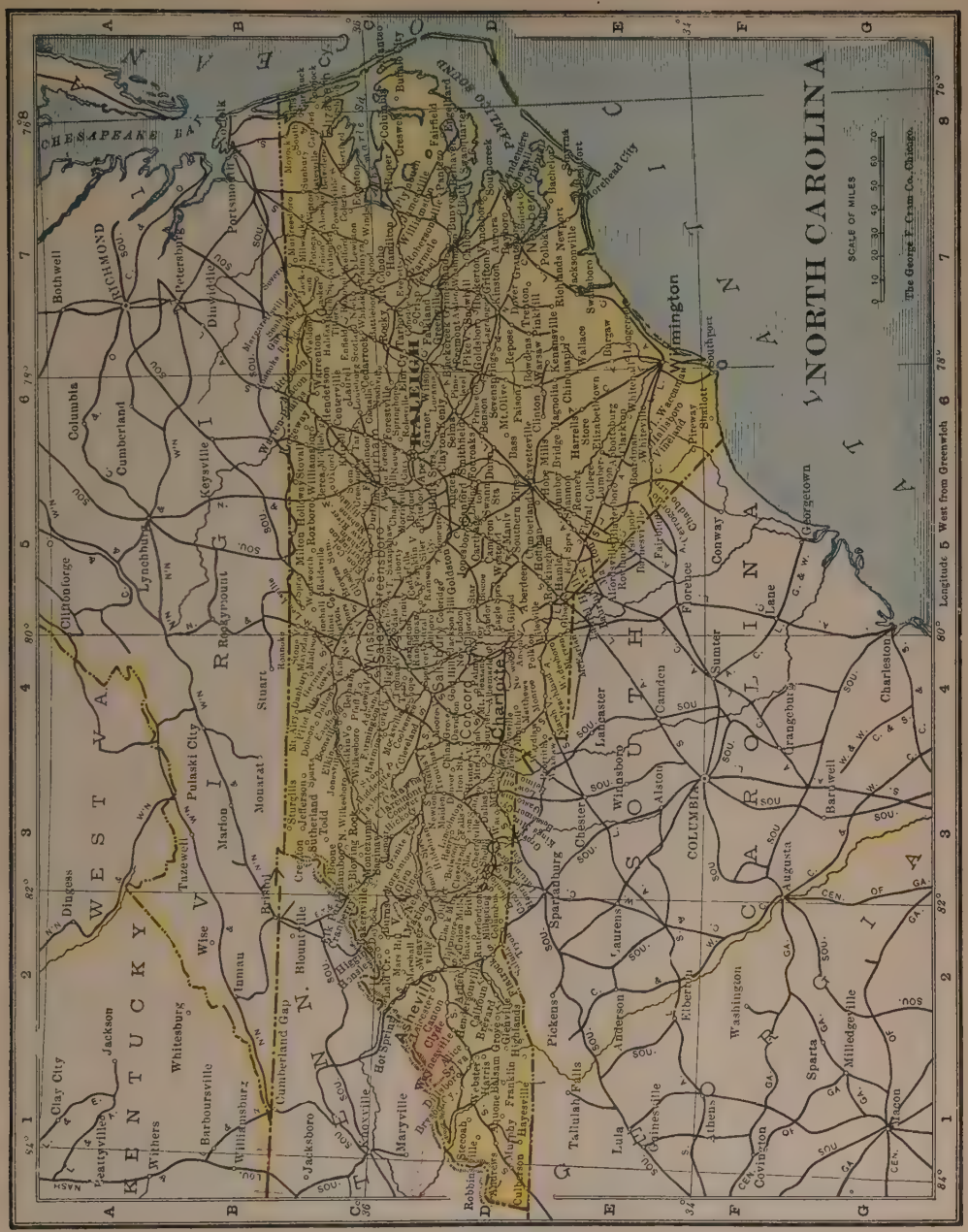
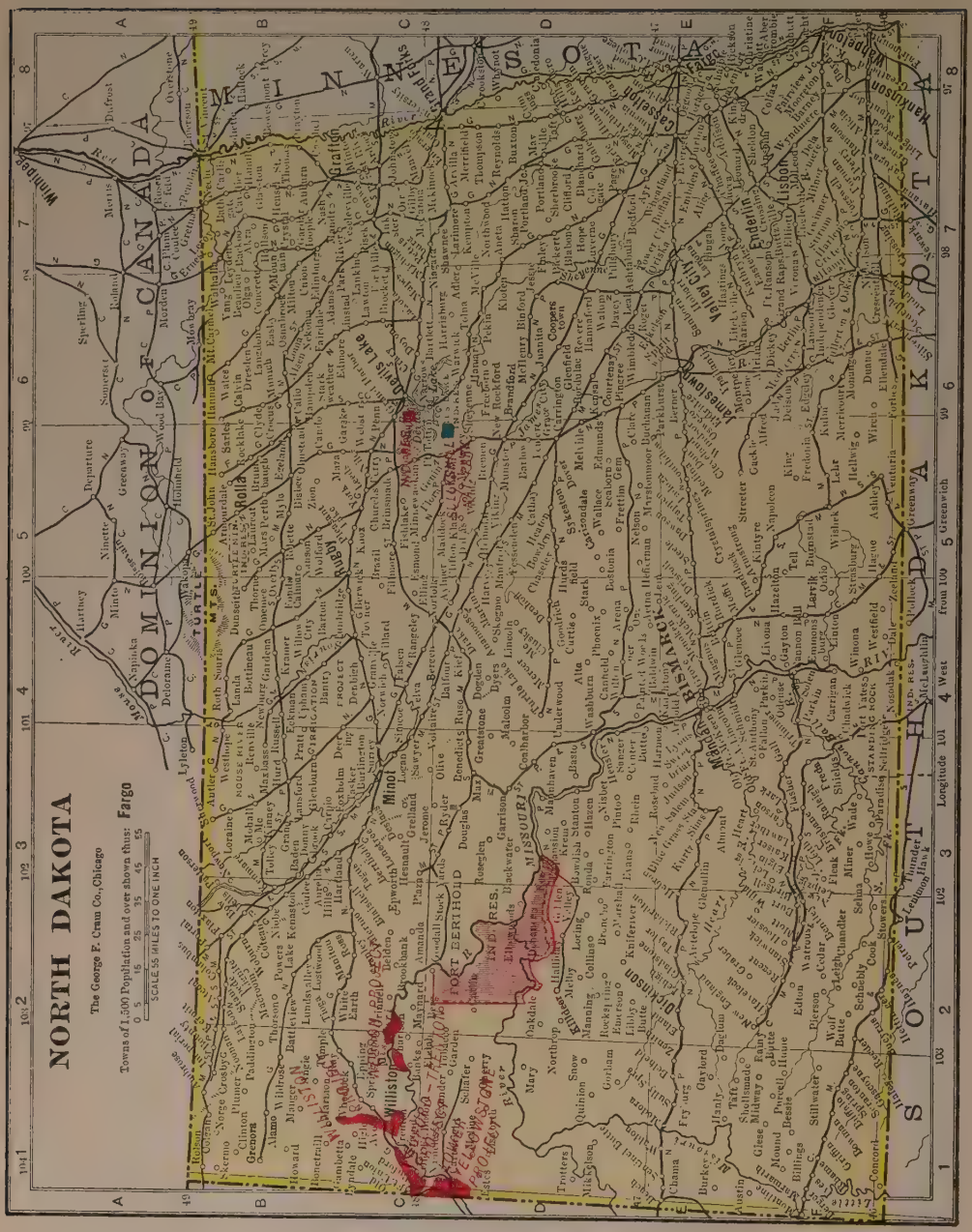
Albany
Rensselaer

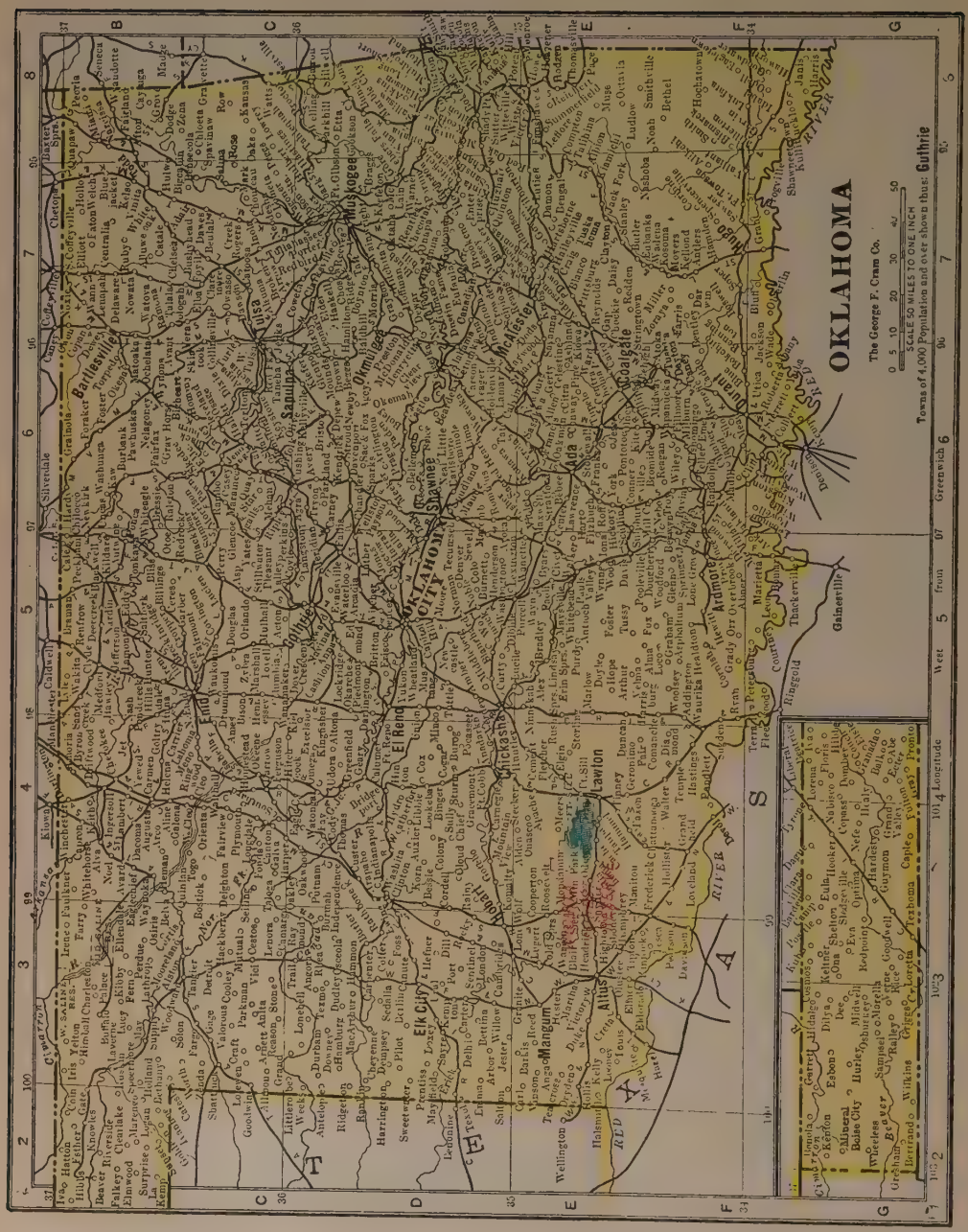


NORTH CAROLINA—First Settled at Chowan River, 1650. One of the Original Thirteen States.
Area: Land, 48,740 square miles; Water, 3,686 square miles. Total, 52,426 square miles.
Population: Last Census, 2,559,123. Capital, Raleigh.

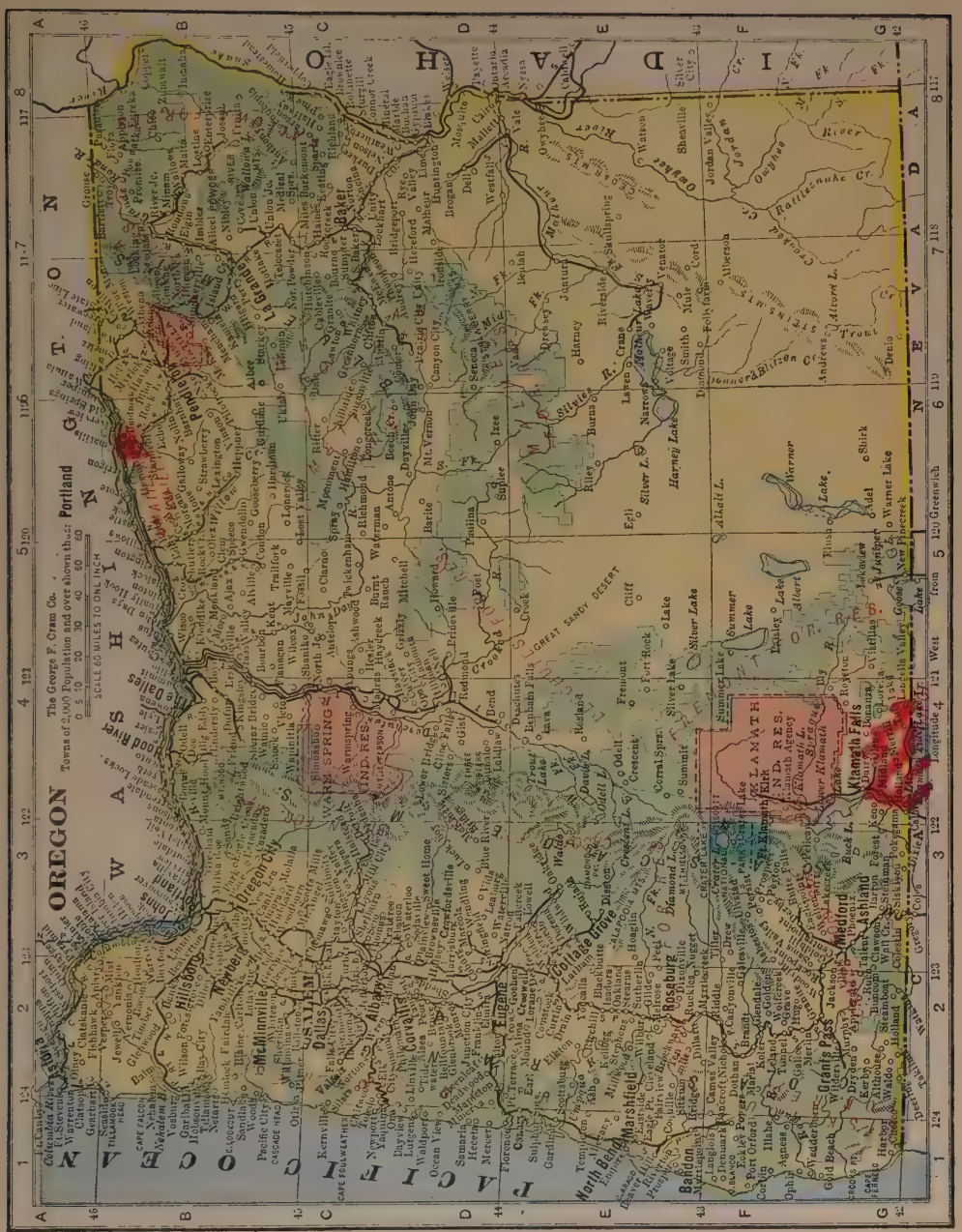


NORTH DAKOTA—Admitted as a Territory, March 2, 1861. Admitted as a State, February 22, 1889. Area: Land, 70,183 square miles; Water, 654 square miles. Total, 70,837 square miles. Population: Last Census, 641,192. Capital Bismarck.

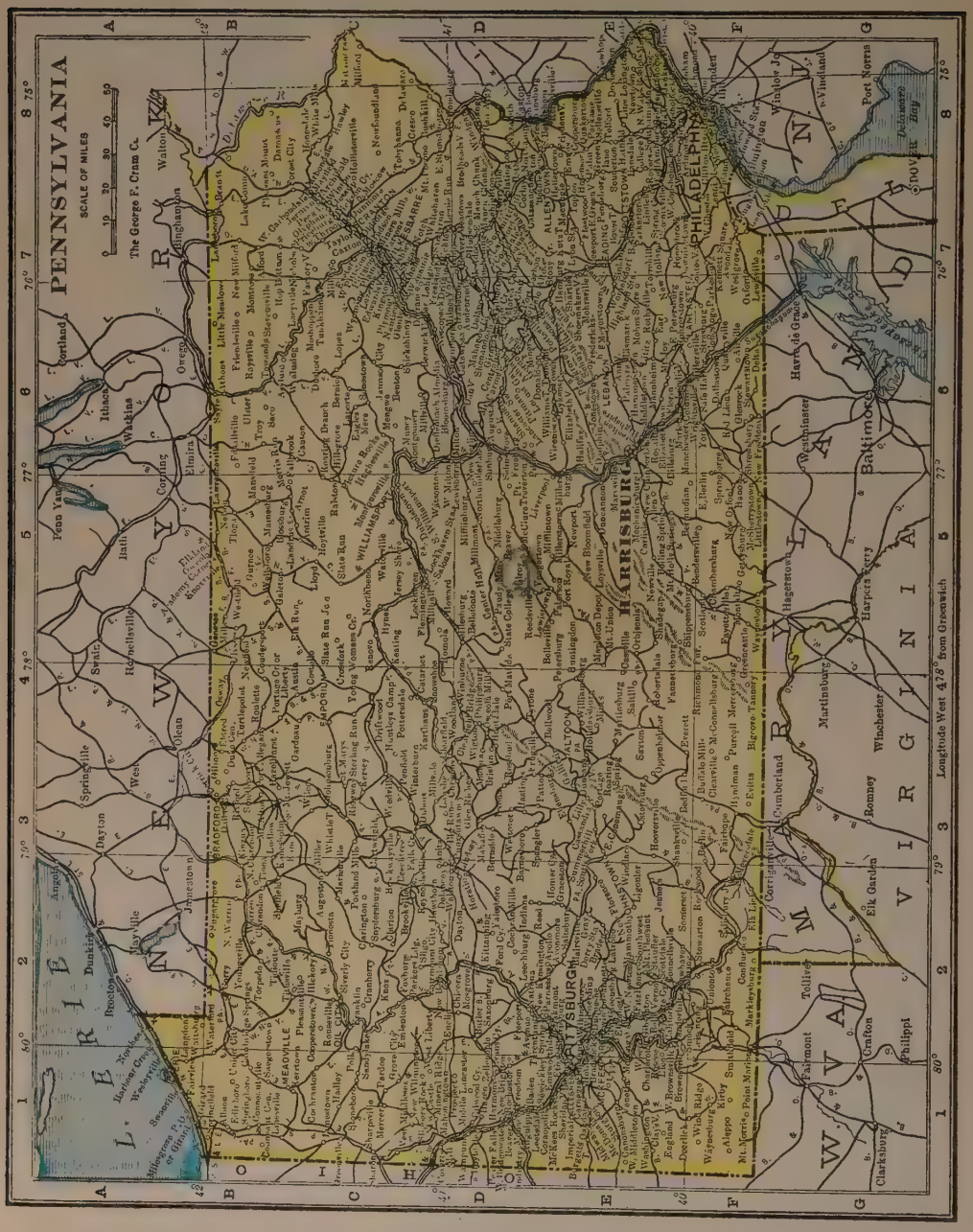
OHIO—First Settled at Marietta, 1788. Admitted as a State, April 30, 1802. Area: Land, 40,740 square miles; Water, 300 square miles. Total, 41,040 square miles. Population: Last Census, 5,759,394. Capital, Columbus.



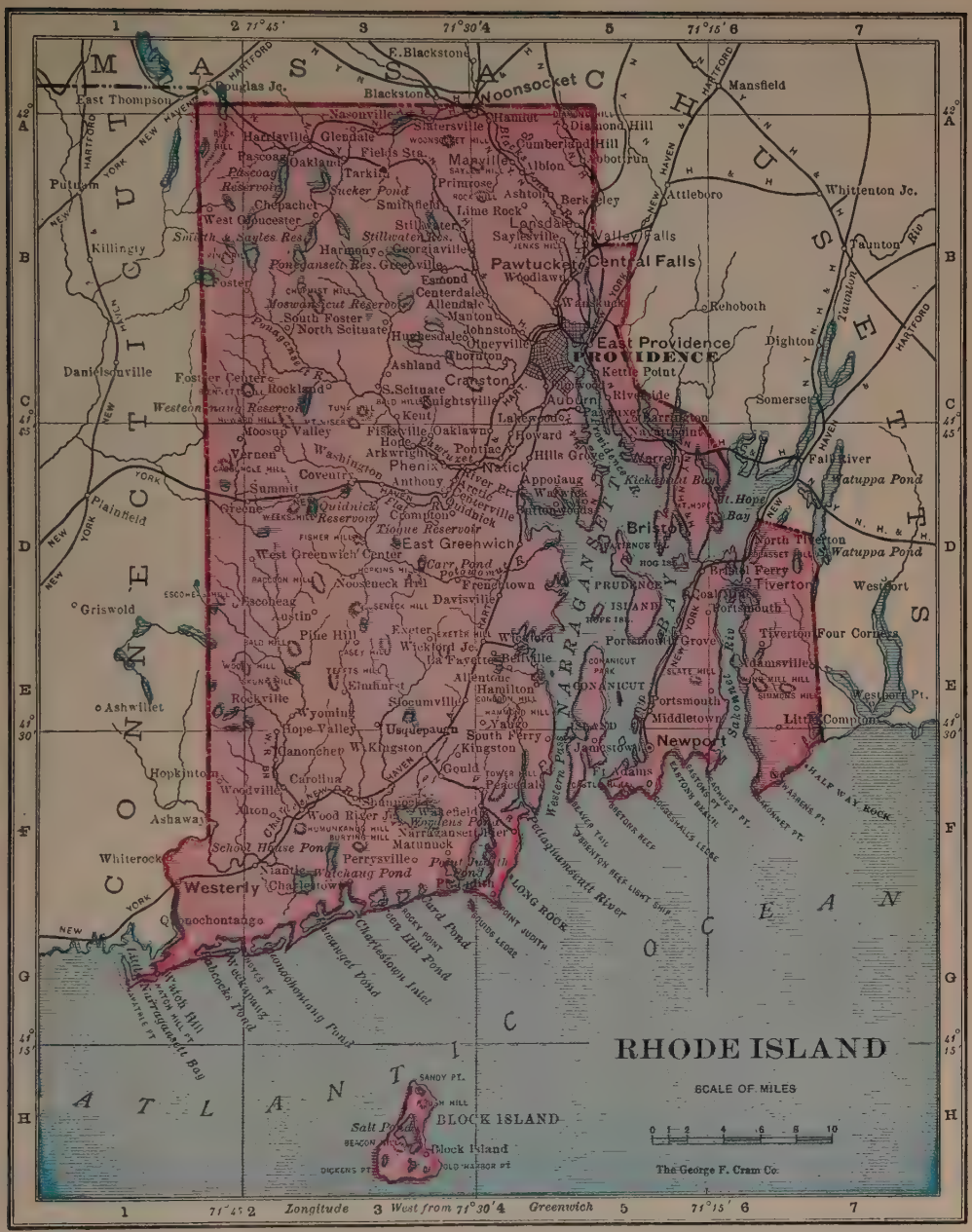
OKLAHOMA—Admitted as a Territory, May 2, 1890. Admitted as a State, November 16, 1907.
Area: Land, 69,414 square miles; Water, 643 square miles. Total, 70,057 square miles.
Population: Last Census, 2,028,283. Capital, Oklahoma City.

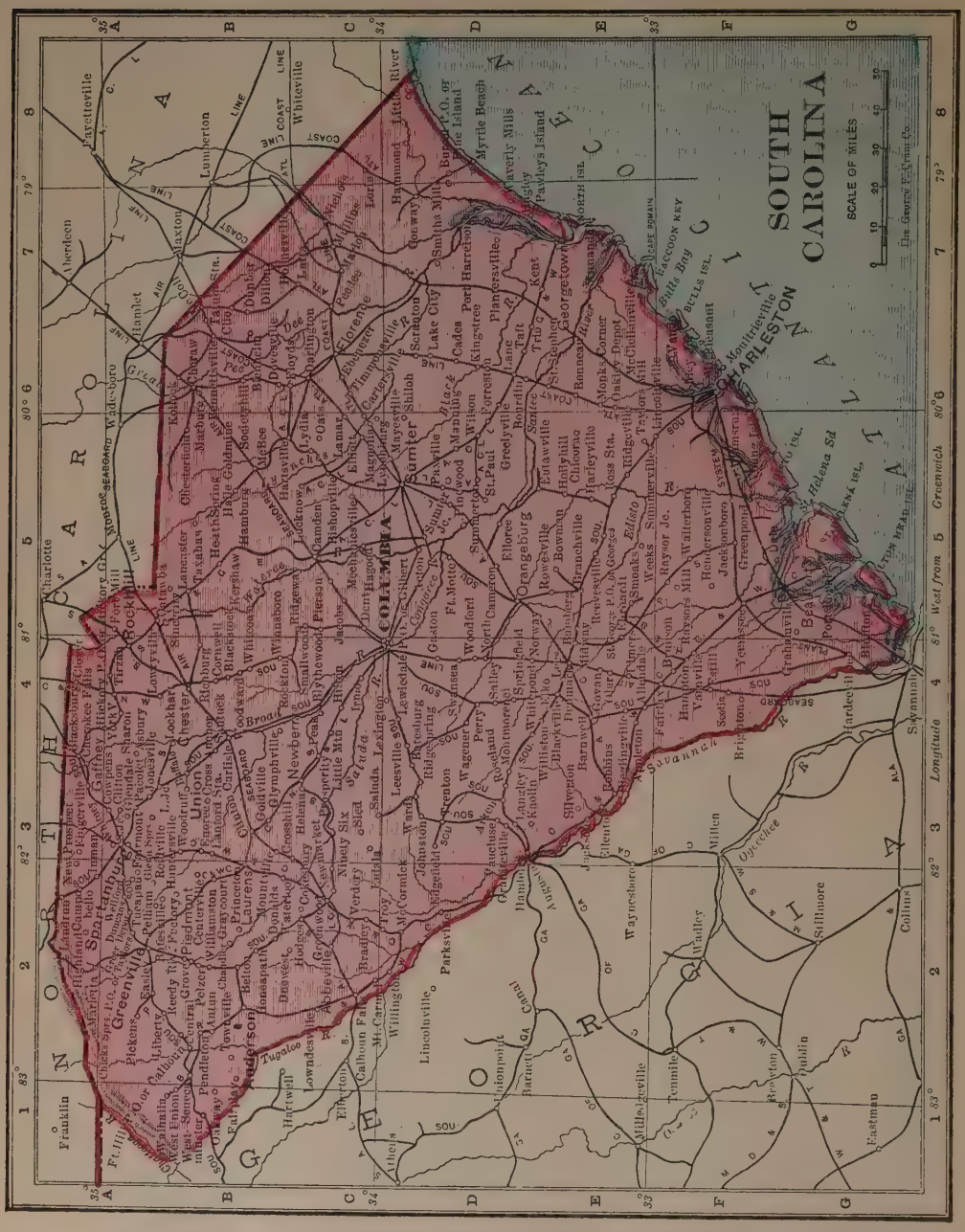


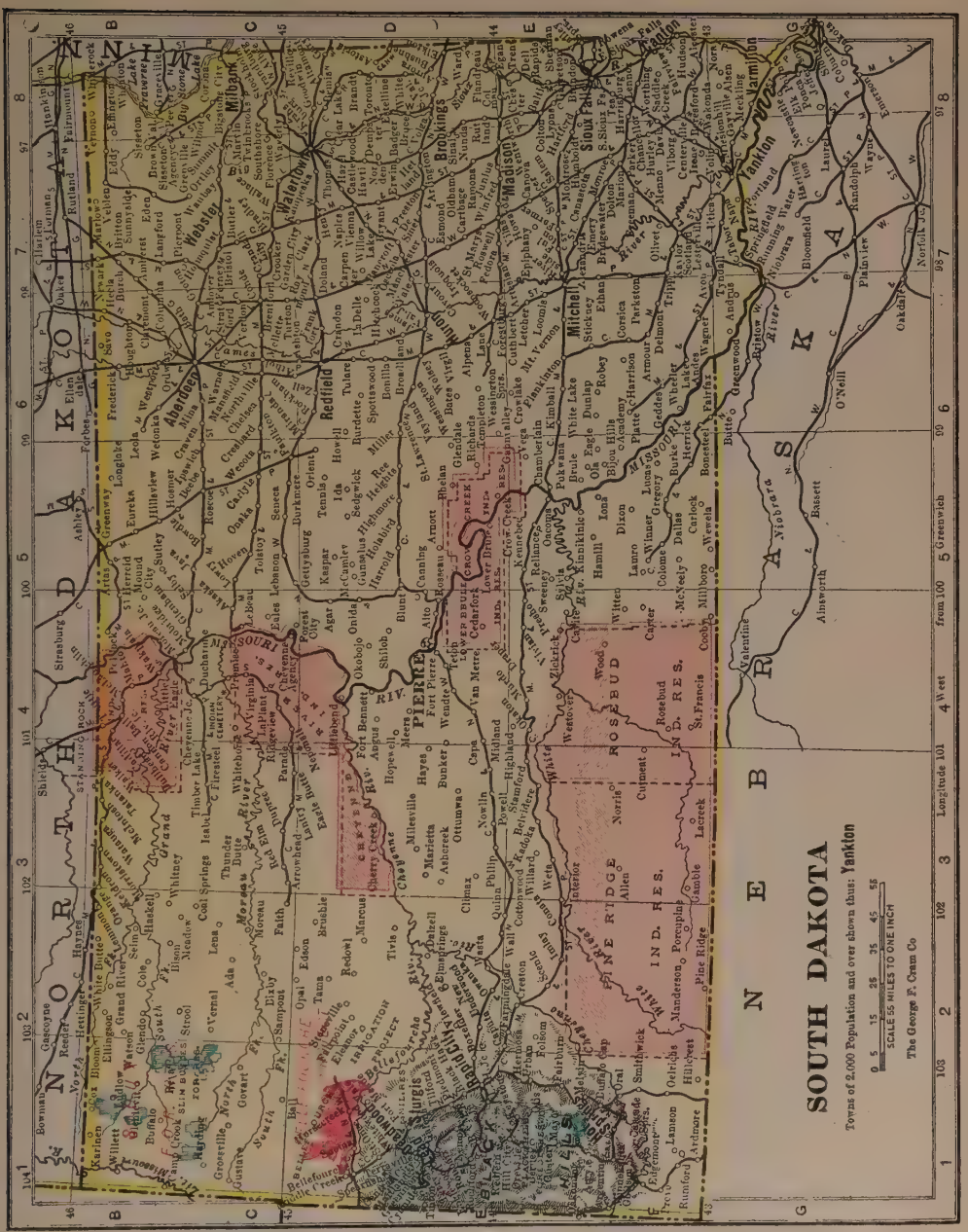
OREGON—First Settled at Astoria, 1811. Admitted as a Territory, August 14, 1848. Admitted as a State, February 14, 1859. Area: Land, 95,607 square miles; Water, 1,092 square miles. Total, 96,699 square miles. Population: Last Census, 783,389. Capital, Salem.



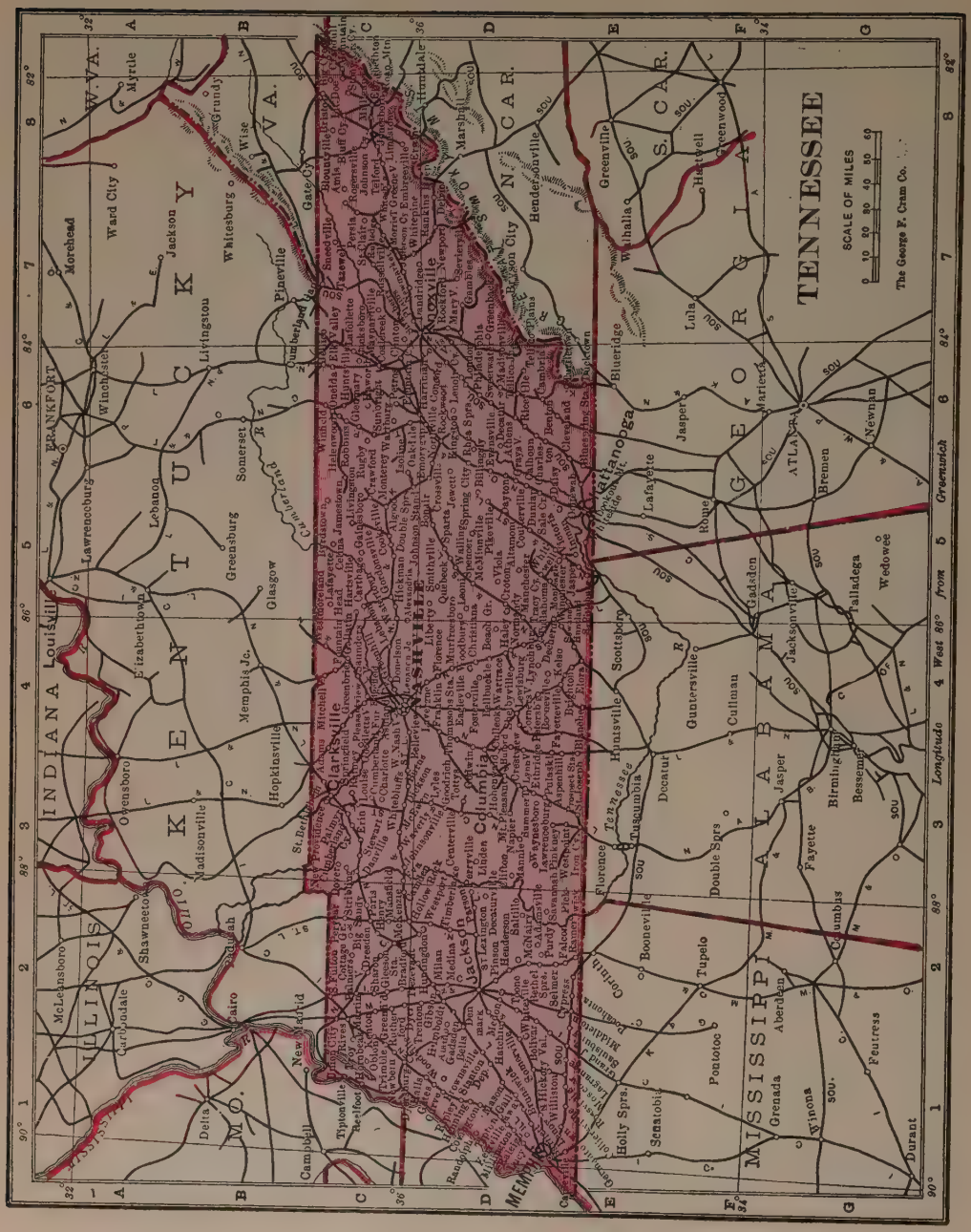
PENNSYLVANIA—First Settled at Philadelphia, 1682. One of the Original Thirteen States. Area: Land, 44,832 square miles; Water, 294 square miles. Total, 45,126 square miles. Population: Last Census, 8,720,017. Capital, Harrisburg.


RHODE ISLAND
SCALE OF MILES
0 1 2 4 6 8 10
The George F. Cram Co.
Longitude West from 71°30'4 Greenwich
MASSACHUSETTS
CONNECTICUT
ATLANTIC OCEAN
PROVIDENCE
East Providence
Pawtucket
Central Falls
Woonsocket
Blackstone
Mansfield
Attleboro
Whittenton Jc.
Taunton
Rehoboth
Dighton
Somerset
Fall River
Watuppa Pond
Bristol
Bristol Ferry
Tiverton
Westport
North Tiverton
Tiverton Four Corners
Portsmouth
Portsmouth Grove
Adamsville
Westport Pt.
Little Compton
Middletown
Newport
Jamestown
Narragansett Pier
Wickford
Wickford Jc.
Kingston
South Ferry
Usquepaug
Hope Valley
Wyoming
Rockville
Ashaway
Hopkinton
Westerly
Watchaug Pond
Charlestown
Quonochontaug
Whitehorse
Niantic
Perryville
Point Judith
Block Island
Sandy Pt.
Salt Pond
Old Harbor Pt.
Dickens Pt.
Beacon Hill
Point Judith Light
Long Rock
Half Way Rock
Sakonnet Pt.
Gooseberry Beach
Easton Beach
Brenton Reef
Seaconnet Pt.
Sakonnet River
Taunton River
Providence River
Narragansett Bay
Point Judith Pond
Charlestown Pond
Green Hill Pond
Worden's Pond
Ninigret Pond
Quonochontaug Pond
Watchaug Pond
Chepachet
Harrisville
Glendale
Oakland
Tarkiln
Primrose
Ashton
Berkeley
Diamond Hill
Cumberland Hill
Robbt Run
Valley Falls
Lonsdale
Saylesville
Albion
Manville
Fiskeville
Oaklawn
Hope
Pontiac
Natick
Phenix
Arkwright
Coventry
Summit
Greene
Quidnick
Crompton
Tiogue Reservoir
East Greenwich
West Greenwich Center
Carr Pond
Frenchtown
Davisville
Austin
Pine Hill
Exeter
Ashaway
Rockville
Wyoming
Hope Valley
Usquepaug
Kingston
Carolina
Woodville
Alton
Wood River Jct.
Hopkinton
Whitehorse
Niantic
Perryville
Point Judith
Charlestown
Quonochontaug
Watchaug Pond
Ninigret Pond
Green Hill Pond
Charlestown Pond
Worden's Pond
Narragansett Pier
Matunuck
Wickford
Wickford Jc.
Davisville
Frenchtown
Carr Pond
East Greenwich
West Greenwich Center
Coventry
Summit
Greene
Quidnick
Crompton
Tiogue Reservoir
Fiskeville
Oaklawn
Hope
Pontiac
Natick
Phenix
Arkwright
Washington
Hills Grove
Appolaug
Wickford
Kickemuit Bay
Mt. Hope Bay
Bristol
Prudence Island
Hope Island
Conanicut Island
Conanicut Park
Jamestown
Newport
Middletown
Portsmouth
Portsmouth Grove
Tiverton
Four Corners
Adamsville
Westport Pt.
Little Compton
Sakonnet River
Taunton River
Providence River
Narragansett Bay
Point Judith Pond
Charlestown Pond
Green Hill Pond
Worden's Pond
Ninigret Pond
Quonochontaug Pond
Watchaug Pond
Block Island
Sandy Pt.
Salt Pond
Old Harbor Pt.
Dickens Pt.
Beacon Hill
Point Judith Light
Long Rock
Half Way Rock
Sakonnet Pt.
Gooseberry Beach
Easton Beach
Brenton Reef
Seaconnet Pt.


SOUTH CAROLINA
SCALE OF MILES
COLUMBIA
CHARLESTON
Greenville
Spartanburg
Anderson
Union
Rock Hill
Darlington
Florence
Sumter
Orangeburg
Greenwood
Aiken
Barnwell
Beaufort
Georgetown
Myrtle Beach
Conway
Marion
Dillon
Lake City
Kingstree
Hemingway
Lamar
Timmonsville
Scranton
Cades
Pamplico
Pee Dee
Lynches
Little R.
Black R.
Waccamaw R.
Santee R.
Cooper R.
Edisto R.
Broad
Saluda
Congaree R.
Wateree R.
Catawba R.
Savannah R.
Tugaloo R.
Seaboard
Coast Line
Southern
Atlantic Coast Line
Seaboard Air Line
Charlotte
Monroe
Wadesboro
Gaffney
Blacksburg
Kings Mtn.
Yorkville
Clover
Lancaster
Chester
Winnsboro
Camden
Kershaw
Bishopville
Hartsville
Darlington
Florence
Timmonsville
Lake City
Scranton
Kingstree
Georgetown
Conway
Myrtle Beach
Little River
Hyman
Dillon
Latta
Marion
Mullins
Lake View
Loris
Aynor
Green Sea
Socastee
Murrells Inlet
Pawleys Island
Waverly Mills
Litchfield Beach
Pleasant Beach
Isle of Palms
Sullivans Island
Fort Moultrie
Mount Pleasant
Charleston
Folly Beach
Kiawah Island
Seabrook Island
Edisto Beach
St. Helena Sd.
Hilton Head Island
Parris Island
Port Royal
Beaufort
Yemassee
Ridgeland
Hardeeville
Ridgeway
Blythewood
Pontiac
Gadsden
Eastover
Hopkins
Gaston
Lexington
Leesville
Batesburg
Ridge Spring
Saluda
Edgefield
Trenton
Johnston
Ward
Modoc
Plum Branch
Allendale
Fairfax
Estill
Hampton
Varnville
Yemassee
Ridgeland
Hardeeville
Sheldon
Frogmore
Lobeco
Port Royal
Beaufort
Lady's Island
St. Helena
Parris Island
Hilton Head
Daufuskie Island
Bluffton
Okatie
Ridgeland
Grahamville
Gardenhire
Switzerland
Ridgeland
Hardeeville
Yemassee

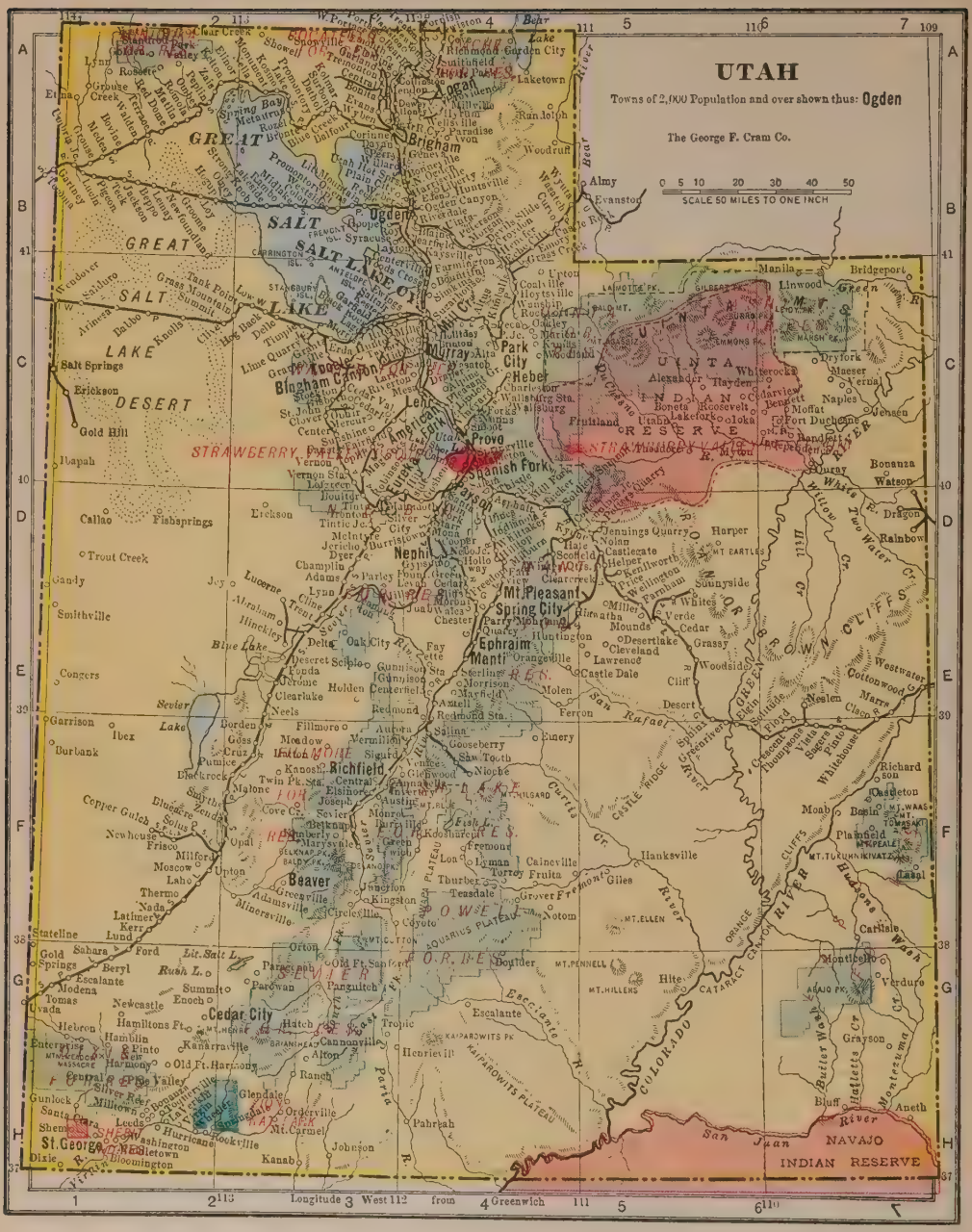


SOUTH DAKOTA—First Settled in 1859. Admitted as a Territory, March 2, 1861. Admitted as a State, February 22, 1889. Area: Land, 76,868 square miles; Water, 747 square miles. Total, 77,615 square miles. Population: Last Census, 681,260. Capital, Pierre.



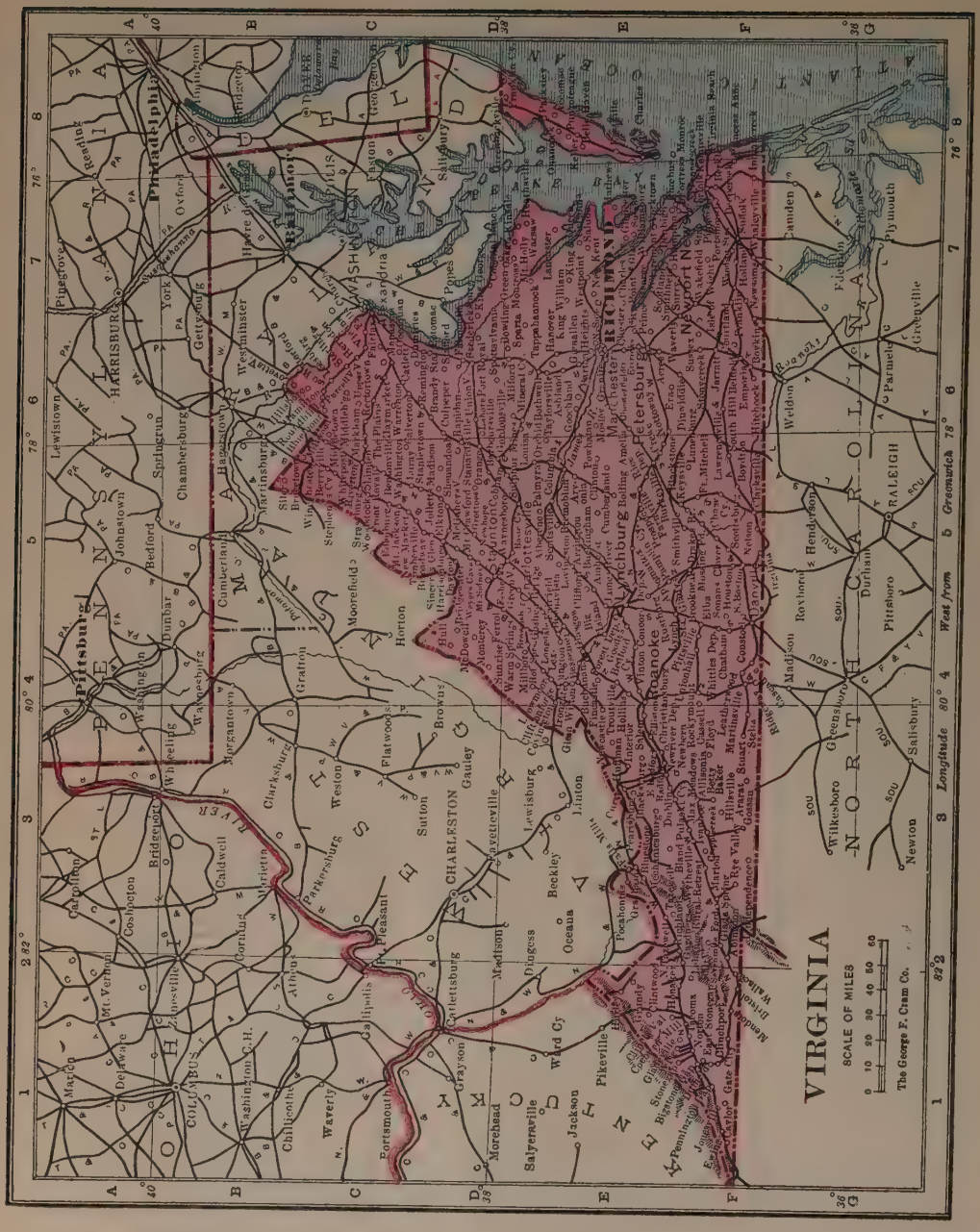
TENNESSEE—First Settled at Ft. Loudon, 1757. Admitted as a State, June 1, 1796. Area: Land, 41,687 square miles; Water, 335 square miles. Total, 42,022 square miles. Population: Last Census, 2,337,885. Capital, Nashville.

TEXAS—First Settled at San Antonio, 1692. Admitted as a State, December 29, 1845. Area: Land, 262,398 square miles; Water, 3,498 square miles. Total, 265,896 square miles. Population: Last Census, 4,663,228. Capital, Austin.

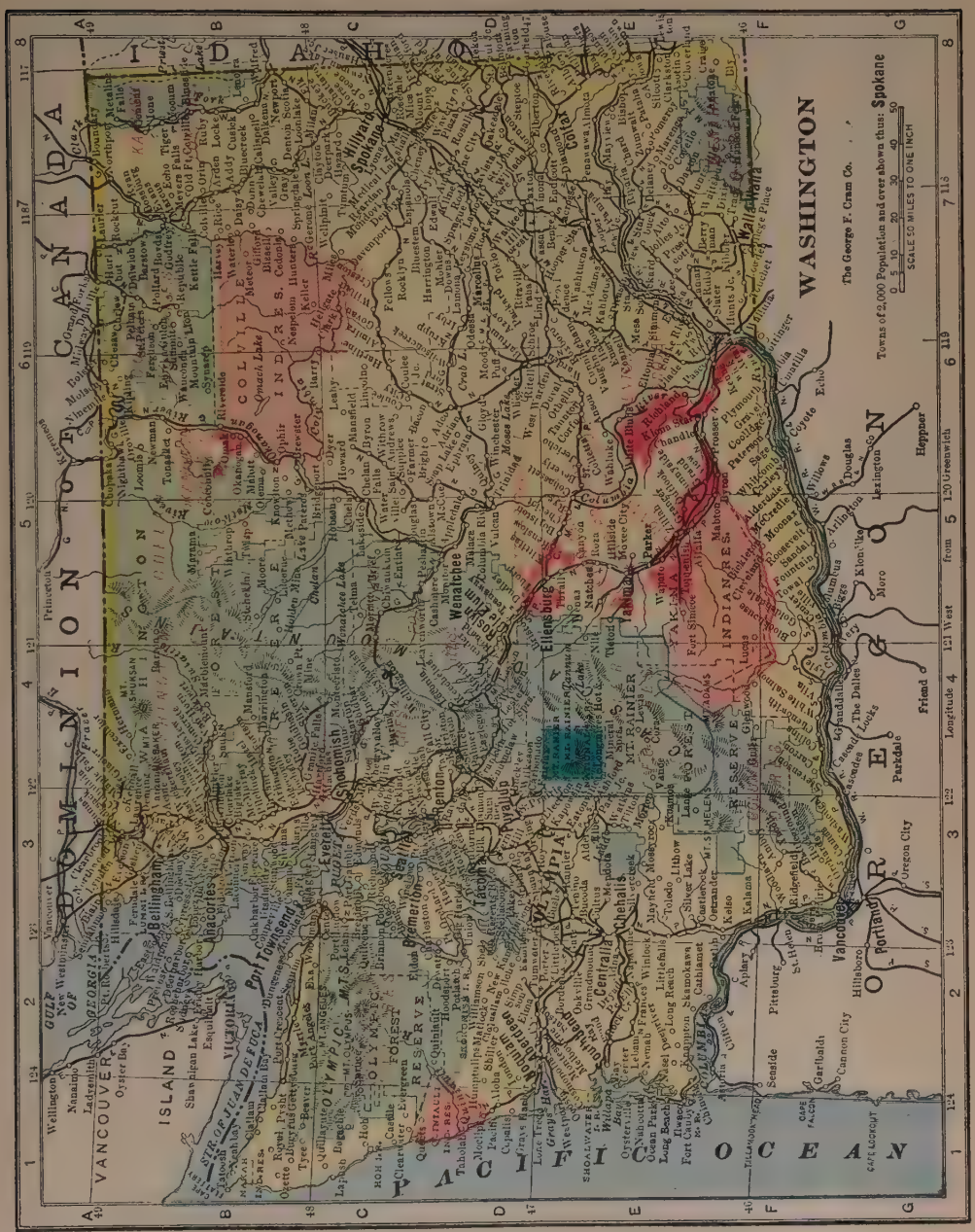


UTAH—First Settled at Salt Lake City, 1848. Admitted as a Territory, September 9, 1850. Admitted as a State, July 16, 1894. Area: Land, 82,184 square miles; Water, 2,806 square miles. Total, 84,990 square miles. Population: Last Census, 449,396. Capital, Salt Lake City.

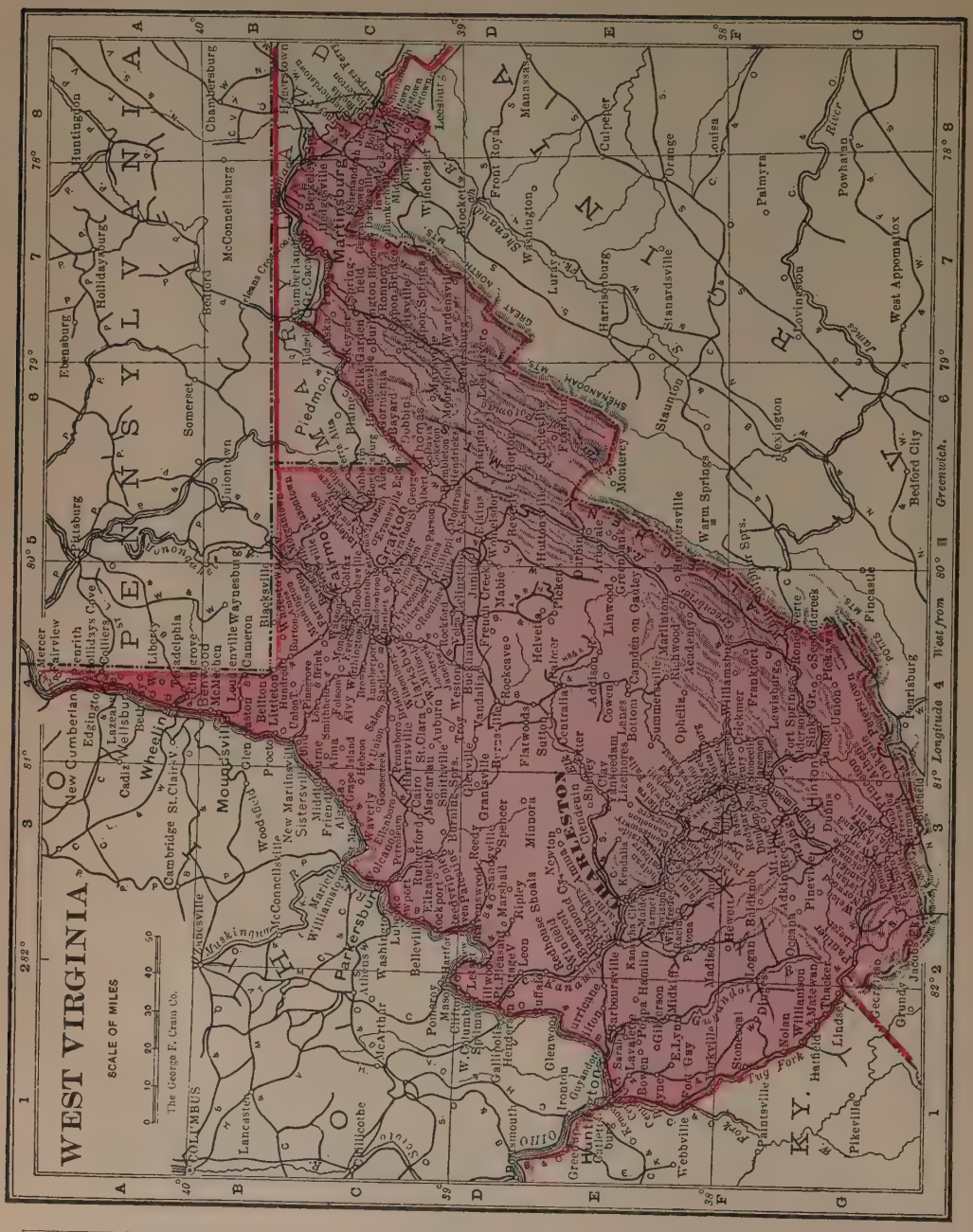
VERMONT—First Settled at Ft. Dummer, 1724. Admitted as a State, February 18, 1791. Area: Land, 9,124 square miles; Water, 440 square miles. Total, 9,564 square miles. Population: Last Census, 352,428. Capital, Montpelier.



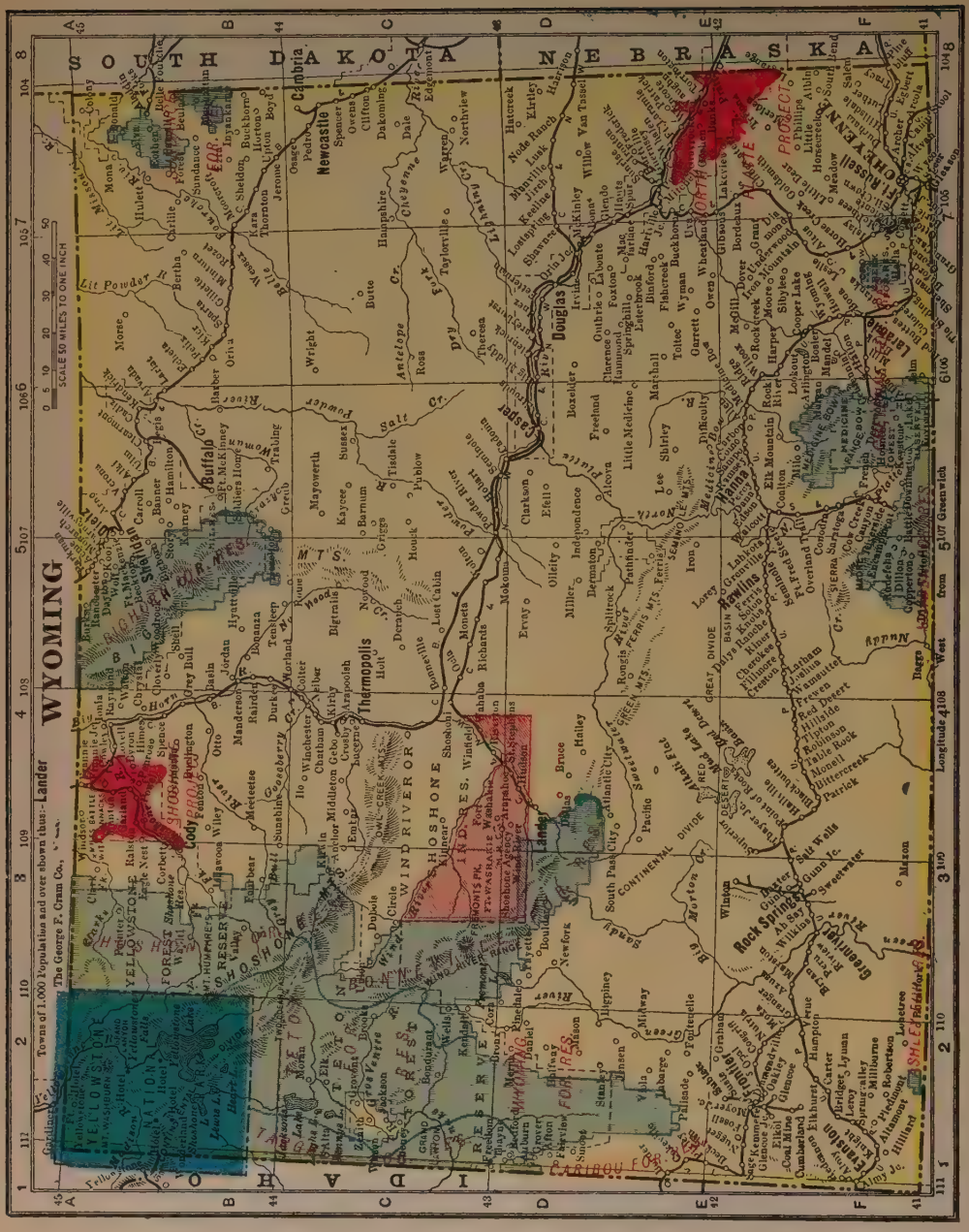
VIRGINIA—First Settled at Jamestown, 1607. One of the Original Thirteen States. Area: Land, 40,262 square miles; Water, 2,365 square miles. Total, 42,627 square miles. Population: Last Census, 2,309,187. Capital, Richmond.



WASHINGTON—First Settled at Astoria, 1792. Admitted as a Territory, March 2, 1853. Admitted as a State, February 22, 1889. Area: Land, 66,836 square miles; Water, 2,291 square miles. Total, 69,127 square miles. Population: Last Census, 1,356,621. Capital, Olympia.

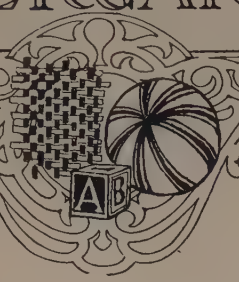

WEST VIRGINIA
SCALE OF MILES
0 10 20 30 40 50
The George F. Cram Co.
PENNSYLVANIA
VIRGINIA
MARYLAND
KY.
OHIO
Wheeling
Parkersburg
Charleston
Huntington
Martinsburg
Clarksburg
Fairmont
Morgantown
Grafton
Piedmont
New Cumberland
Mercer
Fairview
Edgington
Lazeana
Wellsburg
Cadiz
Cambridge
St. Clairsv.
Mounds ville
Woodsfield
McConnellsville
Sistersville
New Martinsville
Middlebourne
Friendly
Alexander
Paden City
Grape Island
Ellenboro
Pennsboro
Harrisville
Cairo
St. Clara
Clarksburg
Smithville
Auburn
Lamberton
Ivydale
Ivy Wood
Salem
Lumberport
Shinnston
Enterprise
Pruntytown
Grafton
Fetterman
Thornton
Rowlesburg
Kingwood
Terra Alta
Bruceton Mills
Oakland
Accident
Friendsville
Swanton
Elk Garden
Piedmont
Keyser
Springfield
Romney
Capon Springs
Wardensville
Hanging Rock
Paw Paw
Great Cacapon
Berkeley Springs
Hancock
Cumberland
Bedford
Everett
Mann's Choice
Hyndman
Bloody Run
Chambersburg
McConnellsburg
Huntingdon
Hollidaysburg
Ebensburg
Somerset
Bedford
Uniontown
Connellsville
Mt. Pleasant
Scottdale
Greensburg
Latrobe
Ligonier
Donegal
Mt. Pleasant
Waynesburg
Cameron
Blacksville
Littleton
Bellton
Proctor
Glen
Wetzel
Marshall
Ritchie
Doddridge
Tyler
Pleasants
Wood
Jackson
Roane
Calhoun
Clay
Gilmer
Braxton
Webster
Nicholas
Fayette
Raleigh
Wyoming
McDowell
Mercer
Monroe
Greenbrier
Pocahontas
Randolph
Barbour
Upshur
Lewis
Harrison
Taylor
Preston
Monongalia
Marion
Wetzel
Tucker
Hampshire
Morgan
Berkeley
Jefferson
Frederick
Shenandoah
Page
Rockingham
Augusta
Highland
Bath
Alleghany
Monterey
Staunton
Warm Springs
Hot Springs
Lexington
Bedford City
Greenwich.
Orange
Culpeper
Louisa
Palmyra
Fredericksburg
Manassas
Warrenton
Harrisonburg
Stanardsville
Gordonsville
Charlottesville
Scottsville
Lovingston
Powhatan
West Appomattox
Pittsylvania
Danville
Pinesdale
Potts
Mt. Airy
Martinsville
Ridgeway
Stuart
Patrick
Floyd
Carroll
Grayson
Wythe
Smyth
Washington
Russell
Tazewell
Buchanan
Dickenson
Wise
Lee
Scott
Virginia
Bristol
Abingdon
Glade Spring
Saltville
Marion
Wytheville
Rural Retreat
Pulaski
Radford
Christiansburg
Blacksburg
Salem
Roanoke
Vinton
Bedford
Lynchburg
Amherst
Appomattox
Farmville
Prince Edward
Buckingham
Cumberland
Powhatan
Chesterfield
Richmond
Petersburg
Hopewell
Colonial Heights
Ashland
Hanover
Fredericksburg
Spotsylvania
Stafford
Prince William
Fairfax
Alexandria
Arlington
Falls Church
Leesburg
Loudoun
Fauquier
Rappahannock
Culpeper
Madison
Greene
Albemarle
Nelson
Amherst
Campbell
Bedford
Franklin
Patrick
Henry
Halifax
Pittsylvania
Charlotte
Prince Edward
Lunenburg
Nottoway
Dinwiddie
Prince George
Chesterfield
Henrico
Hanover
King William
King and Queen
Essex
Caroline
Spotsylvania
Stafford
Prince William
Fairfax
Loudoun
Clarke
Frederick
Shenandoah
Page
Rockingham
Augusta
Rockbridge
Botetourt
Craig
Giles
Montgomery
Pulaski

WISCONSIN—First Settled at Green Bay, 1669. Admitted as a Territory, April 20, 1836. Admitted as a State, May 29, 1848. Area: Land, 55,256 square miles; Water, 810 square miles. Total, 56,066 square miles. Population: Last Census, 2,632,067. Capital, Madison.



WYOMING—First Settled at Wind River, 1743. Admitted as a Territory, July 25, 1868. Admitted as a State, July 10, 1890. Area: Land, 97,548 square miles; Water, 366 square miles. Total, 97,914 square miles. Population: Last Census, 206,381. Capital, Cheyenne.

KINDERGARTEN



AIMS OF KINDERGARTEN
RELATION TO FIRST GRADE
GAMES
STORIES
SINGING GAMES
MANUAL ACTIVITIES
SINGING EXERCISES
MONTHLY PROGRAM
CHILD POEMS

Photos from Selden Irwin.

KINDERGARTEN ACTIVITIES

1 Story Reading **2** Manual Teaching **3** Group Play Class

BOOK VII.

KINDERGARTEN.

STUDY.
Mural Painting in the Congressional Library, Washington.
BY C. S. PEARCE.

AIMS OF KINDERGARTEN. RELATION TO FIRST GRADE. METHOD. GAMES. STORIES. METHOD OF USING MATERIALS. OUTLINE OF YEAR'S WORK BY THE MONTH. TOPICS, STORIES, GAMES, RHYTHMS AND MANUAL ACTIVITIES. REFERENCE BOOKS FOR STORIES, FOR RHYTHMS, FOR POEMS AND RHYMES. POEMS. SINGING EXERCISES. SINGING GAMES.

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1. Aims of the Kindergarten. The Kindergarten through its various activities strives to aid in the development of the child from four to six years of age. The child has exhausted the unorganized activities of the home at the age of four, and is ready for the organized play of a group of his own age. And for this period, the Kindergarten was designed. It provides the child with a systematized plan of play and work which is based upon those experiences of the home with which he is most familiar. It provides more—as its functions carry him out beyond the home into the activities of the neighborhood and community of which he now becomes an important member.

At this age the child manifests an interest in all the activities about him, as is shown by his play. He imitates; he delights in little rhymes and Mother Goose jingles; he names everything and asks innumerable questions about the things he hears and sees; he is never quiet but is constantly exercising his own physical activities and is thus gaining control of his own body. This is the period when the interests of children can be more permanently formed and the Kindergarten provides them with the right sort of materials to work with and gives them organized exercises for their physical and mental development. It helps them to grow more kindly, unselfish, and courteous, and to gain right habits of work and play—all essentials in the development of *worth while* ladies and gentlemen.

2. Relation to First Grade. The Kindergarten provides the first step from the home and mother to the more formal program of the grades in school. Therefore it should combine a home-like atmosphere with the systematized and entertaining routine of school. Application and concentration should be put before the child in such ways that they become a part of his being—valuable assets to his later school career. Stress should be laid on fair play and consideration of others' rights. The many games and the various gift-materials provide the means to this end.

3. Method. When the child enters the Kindergarten, it is usually the first step away from Mother—the first step out into the world by himself. The Kindergarten aims to give him then as much of the home atmosphere as possible. The room should be made attractive with many

interesting pictures, a piano, a sand table, and upon the tables he should have for his enjoyment many things to play with.

After a play by himself, he will be glad to enter into play with others such as sitting upon the circle and rolling the balls back and forth. As he becomes better acquainted, he will pick out certain ones to whom he will roll the ball and this aids in mastering the different names. After the children have played with the balls, they have overcome much of their shyness and so other simple group games can be introduced. Avoid any game at the beginning in which a child must perform an act that would make him at all conspicuous as the self consciousness that comes over him will sometimes stay with him for several weeks.

Marching should be the first rhythm and with a good martial air played upon the piano, they soon fall into the spirit. At the beginning, care and patience will be needed to guide the little ones to follow in line. From the march they are shown how to carry their chairs back and forth from the tables.

It will take several days to learn to carry the chairs properly, to march fairly well, to sing the Greeting, or Good Morning song, and in general to feel at home. Then they are ready to gather together around the circle for a little talk, which will from now on form a part of the daily program. These talks are about some experience, a toy, a picture, or a story about some topic in which all are interested. The talks are followed by some related activities, such as building a bird's nest from clay about which some child has told.

The topics chosen must not only appeal to the child's interest but be instructive as well. They should be concerning the community life about him, the world of nature, geographical studies and people whose lives are so different from ours.

The songs and games make the day more happy and pleasant. These are sometimes related to the topics on hand and again they just appeal to the child's emotional nature. In the songs, the words should be learned before the melody is attempted. Care should be taken to choose songs that are simple and whose pitch is neither very high nor low. Soft and sweet tones should always be used—no child should be allowed to sing to the full capacity of his or her voice for fear of a strain which would impair the quality of the voice for singing in later years. "Quality and not quantity" should always be the motto to follow. Different songs and games should be put "on the shelf" every now and then and left for a month or so. Then the children delight in taking them down, blowing off the dust, and singing and playing them all over again.

The manual activities increase in difficulty as the time goes on and one should notice considerable progress after a few weeks' work. In the gift work, there is a good chance to instill unselfishness. The average child upon entering Kindergarten wants his material all to himself but later on with careful guidance, he will be glad to give from his portion if it will help another to complete his picture.

The rhythms and calisthenic exercises relax the muscles and should be put in often through the program. After steady work at the tables, to have the children stand and imitate riding a bicycle for a few seconds, etc., will cause them to return to their work with new energy. These exercises also follow the child's natural inclination to live in the land of "make believe." Besides these little exercises to relax the muscles, a make believe nap gives a rest to the eyes as well as the body. The teacher should croon a soft lullaby which can be followed by the representation of a "dream fairy," bringing a tiny dream to each one. Upon the sound of the bugle, every one awakes and has a turn to let their imagination play in telling the dream that was brought to them.

4. Games.

(a) BALL GAME, to teach direction, likewise co-operation with a large group. This is a circle game and is played by calling a name and rolling the ball to the person called. If he misses, he is out of the game.

(b) KNIGHT GAME, to teach civic ideals through play, and to introduce the physical exercise of galloping horses.

(c) SENSE GAMES, to increase the keenness of perception. These are many and varied —such as—*A table full* of objects is displayed and after a short survey, covered over and child is asked to tell all he observed. *The Lost Child* also aids in sight development. One child is sent from the room and another one is hidden. The rest change chairs and the child, returning, discovers the lost child. *The Hen and Chicks* game develops the sense of hearing. The hen is chosen to leave the room. In her absence several children are selected for the chicks. When the hen returns, all the children cover their mouths and when the hen clucks, the selected chicks answer "peep" and the correct ones are to be located. *Where's My Kitty?* is on this order. One child is sent out and one is chosen to be the kitty. The child returns and asks, "where's my kitty?" and the kitty answers, "Meow." *"Who Am I?"* develops the sense of touch. A child is blindfolded, another goes up to him and says, "Who am I?" The first child feels him all over and tries to tell who it is.

(d) MY LADY IS GOING ON A JOURNEY GAME, to develop the memory. One is chosen to stand in the center of the circle for the lady's maid. Each child is given the name of some article that a lady would take on a trip. As the maid names these various articles, the one bearing the name stands and turns about and sits down. Upon the mention of TRUNK, all get up and change chairs and endeavor to secure a chair and not be "it," there being one less chair than players.

(e) MUSICAL CHAIR, to teach alertness. Chairs are placed in a row, there being one less chair than players. As the music starts, all march around the chairs. When the music stops, each endeavors to get a chair. The child who does not, must take his chair out, and so on until there is but one remaining.

(f) FINDING THE CHALK, a sense of hearing game. One child is chosen to leave the room while a piece of chalk is hidden. Upon his return, he is to find this chalk with the aid of

music. Loud music tells him he is "hot" and soft music that he is "cold."

(g) THE FARMER AND THE CHICKENS, for a running exercise. A chicken house is built—a circle of chairs with space for a door. One is chosen for the farmer and one for the timekeeper. The rest are chickens who roam around about the chicken house as the time keeper calls different hours of the day. When "midnight" is called the chickens aim to get in the door before the farmer can catch them. Any caught are out of the game.

(h) PINNING THE COLORED PAPERS ON THE BACKS. Two children are chosen and upon each back is pinned a bright colored paper. Each one tries to see the other's paper and at the same time keep his own paper out of sight. This provides active exercise and teaches concentration.

(i) CHALK GAME, to develop the will. Several children are sent from the room while a piece of chalk is hidden. Upon their return they hunt the chalk and upon discovering it, they steal to their chairs and in no other way do they signify that they have found it and thus do not acquaint the others of its whereabouts.

A Kindergarten Class.

(j) WHEELBARROW RACE, an exercise game. Boys take hold of the feet of other boys and hold them as they would the handles of a wheelbarrow; the wheelbarrows then run on their hands to a line marked off on the floor and return to the starting point. See who wins the race.

(k) RUTH AND JACOB. One player is blindfolded, the rest dance in a circle round him till he points at one of them. This person then enters the ring, and when the blindman calls out "Ruth," answers "Jacob," and moves about within the circle so as to avoid being caught by the blindman, and continues to answer "Jacob" as often as the blindman calls out "Ruth." This continues until Ruth is caught. Jacob must then guess who it is that he has caught; if he guesses correctly, Ruth takes his place, and the game goes on; if he guesses wrongly, he continues to be Jacob.

(l) SIMON SAYS, a good concentration game. They seat themselves in a circle and choose one of the company to be Simon. His duty is to order all sorts of different things to be done, the funnier the better, which must be obeyed only when the order begins with "Simon says." As, for instance, "Simon says: 'Thumbs up!'" which, of course, all obey; then perhaps comes "Thumbs down!" which should not be obeyed, because the order did not commence with "Simon says." Each time this rule is forgotten, the child forgetting is out of the game.

(m) BRONCHO GAME, a very active exercise. Three people form the broncho, one the head, the second the body, and the third the tail. Several such bronchos are formed at different places in the room. One child is chosen as a rider and one as a chaser. In order not to be caught, the rider can "jump" on one of these bronchos and he thus becomes the tail and the head becomes the rider and the chaser pursues him. If caught, he becomes the chaser.

(n) FLY AWAY, another good concentration

game. The children are seated with their hands in their laps. When "It" says, at the same time raising his hands, "Fly away, mosquito," or "Fly away, bat," or "Fly away," followed by the name of any other animal that flies, the rest of the players are to fly their hands. When he says, "fly away," followed by the name of an animal that does not fly, the players are not to raise their hands, although the leader flies his. Any one making a miss either by not raising the hands at the right time or by flying the hands at the wrong time becomes "It." Or they can be out of the game and the winner is the one who remains after all the rest are out.

(O) SKIP TAG, a great favorite with little children. A circle is made and one chosen "It." He skips around the circle and tags one to chase him. When caught, the child tagged becomes "It" and repeats the performance until all have played.

(P) AUTOMOBILE GAME, an imagination game. The children sit around in a circle and one stands in the center and begins a make believe story of an automobile ride. All at once in the procedure of the story, he tells how the car ran over a piece of glass or a nail, etc., and a "tire burst" at which all get up and change chairs. The one who misses a chair makes up the next story of an auto ride.

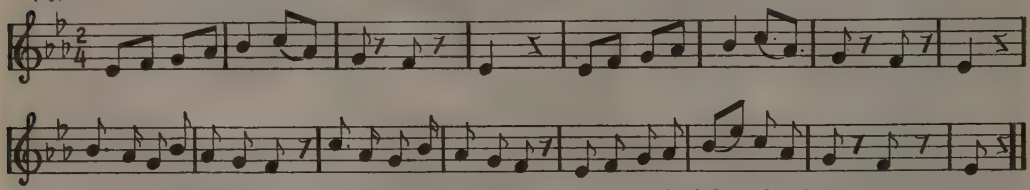
(Q) MODES OF TRAVEL, to increase inventiveness. The players are ranged at one end of the room and numbered from one up. When a player's number is called he crosses the room to the other goal in any way he may choose. No player can employ the same mode of travel as any preceding player. After all have crossed the floor the teacher decides which one travelled in the most unique or interesting way. A variation may be to choose a destination, such as Atlantic City or any place familiar to the children.

(R) FOLLOW THE LEADER, another game to develop the ingenuity of the child. A leader is chosen who takes his place at the head of a line of players. He walks about, at the same time going through various motions. The rest of the players must follow him and imitate all his actions.

Two lines may be formed and a contest take place as to which gives the better exhibition.

A. SINGING GAMES.

(A) RABBIT IN THE HOLLOW. One child crouches in the center of the ring while the hunter roams without. The children in the ring chant the song. When they come to "run, run, run," the hunter from without breaks through while the rabbit escapes and is pursued. If caught he becomes the hunter while another child is chosen for the rabbit.



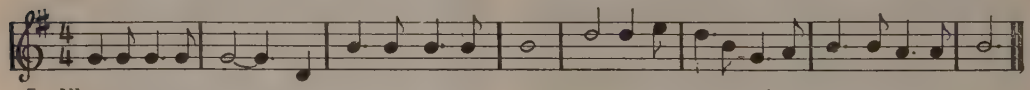
(B) THE FARMER IN THE DELL. One player stands in the center, surrounded by children who, with hands joined, circle about and sing the verses below. At the conclusion of the second verse, the child within the circle chooses one of the circle players to stand beside him. At the end of each of the succeeding verses, the last one chosen, chooses another child to come within the circle. When the last verse has been sung, all the players jump up and down and clap their hands.

The verses:

1.
The farmer in the dell,
The farmer in the dell,
Heigh-o the dairy oh,
The farmer in the dell.

2.
The farmer takes a wife,
The farmer takes a wife,
Heigh-o the dairy oh,
The farmer takes a wife.

3.
The wife takes a child,
The wife takes a child,
Heigh-o the dairy oh,
The wife takes a child.



In like manner are sung:

4.
The child takes a nurse, etc.

5.
The nurse takes a dog, etc.

6.
The dog takes a cat, etc.

7.
The cat takes a rat, etc.

8.
The rat takes the cheese, etc.

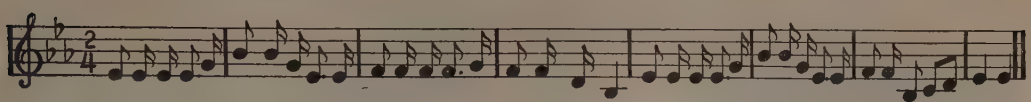
9.
The cheese stands alone, etc.

(C) THE MULBERRY BUSH.

Here we go round the mulberry bush,
The mulberry bush, the mulberry bush.
Here we go round the mulberry bush,
So early in the morning.

This is the way we wash our clothes,
We wash our clothes, we wash our clothes,
This is the way we wash our clothes,
So early in the morning.

Chorus—(Here we go round the, etc.)



This is the way we iron our clothes,
We iron our clothes, we iron our clothes,
This is the way we iron our clothes,
So early Tuesday morning.
Chorus—(Here we go round the, etc.)

This is the way we scrub the floor, etc.
(Wednesday morning.)
Chorus—

This is the way we mend our clothes, etc.
(Thursday morning.)
Chorus—

This is the way we sweep the house, etc.
(Friday morning.)
Chorus—

This is the way we bake our bread, etc.
(Saturday morning.)
Chorus—

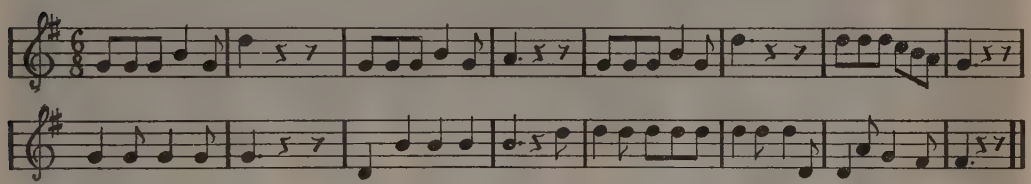
This is the way we go to church, etc.
(Sunday morning.)
Chorus—

(D) CHARLEY OVER THE WATER. One of the players, Charley, stands in the center, the others with hands joined, circle about him, singing—in a chant

Charley over the water,
Charley over the sea;
Charley caught a blackbird,
But he can't catch me.

The players stoop just as the last word is said and should Charley tag any player before he stoops they exchange places.

(E) LOOBY LOO. All join hands in a circle and dance one way as they sing, "Here we dance Looby Loo," and dance back as they sing, "Here we dance Looby Light." This is repeated and then the motions of the song are taken as sung.



Here we dance looby loo,
Here we dance looby light,
Here we dance looby loo,
All on a Saturday night.

Put your right hand in,
Put your right hand out,
Then give your right hand a shake, shake, shake,
And turn yourself about.
Chorus—
Here we dance looby loo, etc.

Put your left hand in,
Put your left hand out,
Then give your left hand a shake, shake, shake,
And turn yourself about.
Chorus—
Put your right foot in, etc.
Chorus—
Put your left foot in, etc.
Chorus—
Put your whole selves in, etc.
Chorus—

(G) ROUND AND ROUND THE VILLAGE.

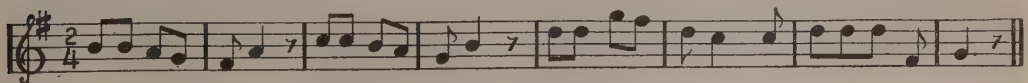
1.
Round and round the village,
Round and round the village,
Round and round the village,
As fast as we can go.

2.
In and out the windows,
In and out the windows,
In and out the windows,
As we have done before.

3.
Follow me to London,
Follow me to London,
Follow me to London,
As we have done before.

4.
Stand and face your partner,
Stand and face your partner,
Stand and face your partner,
And bow before we go.

Directions—The children form a circle with one player standing outside. For the first verse the child dances around the outside of the circle. At the second verse, the child passes in under one pair of arms and out under another and so winds in and out. For the third verse, he remains in the center and chooses one to follow him around the circle. For the last verse, they stand and face each other and bow and part.



B. SINGING EXERCISES.

(A) DUSTY BOB.
(B) ON OUR TIPTOES.
(C) FORMATION GAME.
(D) WE'LL ALL GO A-WALKING.
(E) RIDE A MILE.
(F) ALL SIZES.
(G) THE LAMPLIGHTER.
(H) SOLDIER BOY.
(I) THE TRAIN.
(J) THE STREET CAR RIDE.

These exercises are to be found in Old Tunes, New Rimes and Games by Mari Hofer and published by A. Flanagan Co., Chicago.

C. CONTEST GAMES.

(a) Ring Toss.
(b) White House Egg Rolling Game.
(c) Ten Pins.
(d) Putting the Ring on Sambo's Pipe.
(e) Rubber Horseshoe Game.

5. Stories.

The story is the beginning of literature and should be of such nature as to create a love for good reading. Good stories can be repeated many times. Fairy tales are great favorites but care should be exercised to choose the ones in which the gruesome element is lacking. The children love these repeated again and again. Reproduction by the children can be added and then dramatization of the more simple ones. The latter aids materially in giving the child poise as well as developing fluency of speech. In this work let the child use his own ideas as to what materials should be used and how. This helps the imagination of the child. Care should be taken to guide him in the use of correct grammar and at the same time try not to make him self conscious. When a grammatical error is made, it is well to repeat the correct form immediately after.

Longer stories should be read rather than told to the children so as to let them give their undivided attention to the story. Even simple books can be added to the list of which only a part is read each day. This is excellent work for the memory as the previous day's reading is reviewed in short. The Thornton Burgess Books are illustrations of good books to read as these are very instructive in the lives and habits of animals and are written in a very interesting manner. The Lucy Fitch Perkins' Twin Books also furnish good material for children of Kindergarten age. These books give geographical knowledge which is authentic. The Johnny Gruelle Books supply the aesthetic element.

The following are good for telling, reproducing, and dramatizing.

THE FOX AND THE GRAPES.

A fox was very fond of grapes. One day after he had been running all day and was exceedingly thirsty, he came to a garden where he saw bunches of beautiful, sweet, ripe grapes hanging from a vine which had grown high up over a trellis. His mouth began to water and he wanted those grapes. He tried to jump up to catch them with his mouth but they were too high. Again and again he jumped but with no better success. He simply could not reach them. At last he had to give up and as he turned away, disappointed, he tried to comfort himself by saying: "Well, those grapes are sour, anyway."

Aesop.

THE ELVES AND THE SHOEMAKER.

Once upon a time there was a shoemaker who was a good man and who worked very hard but still he was poor. One day he found that things had gone from bad to worse and that he had only one piece of leather and no money to buy more. He cut a pair of shoes out of the leather and laid them on the bench as it was late and time for him to go to bed.

"It is late, my wife," he said, "I will not do more to-night but will get up early in the morning and make the shoes."

But the next morning when the shoemaker went to his bench, there were the shoes all made. Every stitch was in the right place. "Who could have done the work?"

Soon a man came in to buy a pair of shoes. These pleased him so much that he gave the poor shoemaker a good price for them. This enabled the shoemaker to buy enough leather for two pairs of shoes. That night he cut them out and laid them on the bench and when the morning came again he found the two pairs all made.

Two men came in that day. "These are fine shoes," they said; and they paid a big price for them.

This time the shoemaker bought leather enough for four pairs of shoes. Once more he cut them out and laid them on the bench and once more the following morning he found the shoes completed.

So it went on. Each night he cut out the leather and each morning he found the shoes all made and made very well with every stitch in the right place. Each day he sold them for a good price and bought more leather. At last he became rich.

One night just before Christmas, he said to his wife, "Let us sit up to-night and see who has been so good to us." So they hid behind the door.

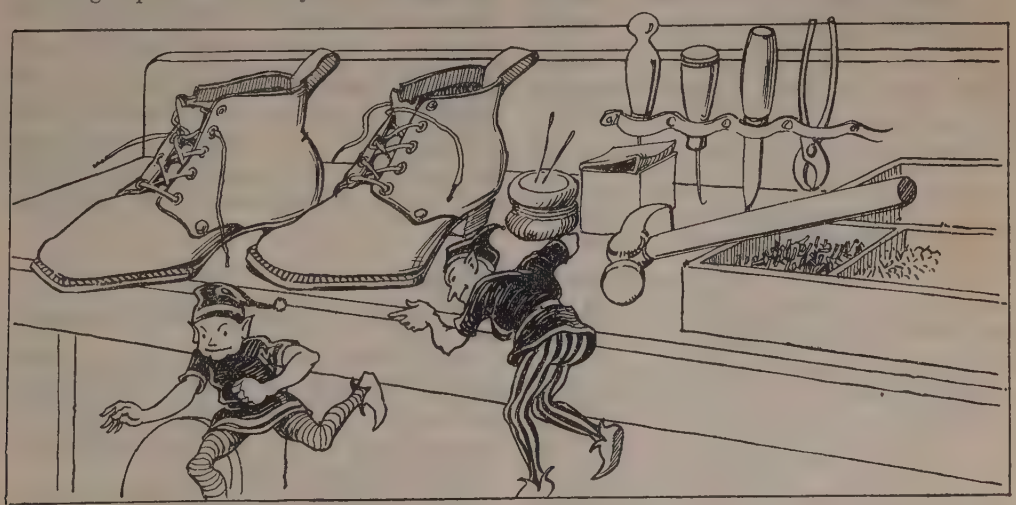
At midnight in came two little elves, skipping and jumping. They ran to the bench, hopped upon it, and set to work. How fast their needles and their hammers flew. They worked until all the shoes were made. Then they placed them on the bench and with a hop and a skip, away they ran.

The next morning the shoemaker's wife said, "These little elves have made us rich and now we must do something for them. Let us make them some new clothes as the ones that they were wearing looked pretty thin and old for this cold weather. I will make them warm coats and trousers and you can make them some shoes."

So the shoemaker made two little pairs of shoes and his good wife made two little red coats and two little blue trousers. That night they laid them on the bench and again hid behind the door to see what would happen.

At midnight, in came the two little elves with a skip and a jump. They got upon the bench and looked around for the leather but they saw none. In its place they saw the suits of clothes. They were delighted and could hardly wait to get into them. Then they danced for joy.

They jumped from the table and ran out the door. No one ever saw them again but the shoemaker and his wife were always happy at their work and were never poor again.



THE ELVES AND THE SHOEMAKER.

THE LITTLE SNOW-GIRL.

Once there was a little boy and a little girl who lived with their father and mother. These two little children had names just like flowers —the little girl being called Violet and the boy, Peony.

One winter day the snow began to fall and it snowed and snowed until the ground was covered. The children stood at the window and watched the snow awhile and then said, "Oh, Mother, may we go and play in the snow?" The mother was busy sewing but she looked up and said they could go but that they must wrap up warm. So the children put on their coats, hats, mittens and galoshes and out they ran to play in the snow. They had a fine time, throwing snow at one another and rolling the snow into balls for a snow-man. Then Violet said, "Oh, Peony, wouldn't it be fun to make a snow-girl?" So they did. They made such a pretty little girl with a snow coat, snow hat, snow mittens, and snow rubbers, and then Violet said to Peony, "Wouldn't it be fun, Peony, if this little girl could play with us?" And do you know that just as Violet finished speaking, this little snow-girl opened her eyes, stepped off the snow, and began to play with the children. My! what a good time they all had. They ran races and played tag. Soon they called to their mother, "See, Mother, what a nice snow-girl we made." Mother looked up from her sewing and smiled—she thought it was one of the neighbor children.

So they played all afternoon until the sun went down. Father came home for supper and he called for the children to come in. But the children answered that they could not go in without the little snow-girl. "Little snow-girl," said Father, "Nonsense, who ever heard of a snow-girl? Where is she?" "Oh," said Violet, "We did make one and she played with us all the afternoon. Then when you came home she ran away down behind the bushes in the garden." "I must go down and see her," said Father. Sure enough, there was the little snow-girl but Father thought it was a neighbor's child too. "Come in and get something warm to eat, little girl," said Father. "And then we will take you home." At first the little girl hung back as she knew what would happen when she got in by the fire but Father took her by the hand and led her into the house. In the living room there was a fine big fire blazing away in the grate, with Violet standing on one side and Peony on the other. Father placed the little snow-girl between them and then went out to get her something warm to eat. When he came back, there stood Violet and Peony as he had left them but between them was a little heap of melted snow on the carpet.

Hawthorne's Wonder Book (Adapted)

THE LITTLE RABBIT.

There was once a little rabbit who built himself a house. Pretty soon there was a knock at the door and a voice said, "Little Rabbit, let me come in. I am so cold." The little rabbit said, "Yes, do come in and get warm." And he opened the door and in came a fox. After he was seated, he said to the rabbit, "Little rabbit, this house is too small for two. You go out and I shall live here now."

Little rabbit felt very badly at being driven from his home and he began to cry as he roamed about. Soon he met a bear who said, "Little Rabbit, why do you cry?" "I cry because the fox came into my house and drove me out," replied the rabbit. "Well, we will see about that," said the bear and together they went to the rabbit's house. In a deep rough voice, the bear called out, "Come out of there, Mr. Fox." But Mr. Fox said, "If I do, I'll eat you up." This frightened the bear and he said he couldn't stay for that and away he ran.

Little rabbit continued on his way and soon he met a wolf. He said to the rabbit when he noticed the tears, "Why do you cry?" "I let the fox in to get warm and he drove me out of my house," said the rabbit. "We shall see about that," said the wolf and they went to the rabbit's house. In a loud voice the wolf shouted, "Come out of there, Fox." But the fox replied that if he did he would eat the wolf up and Mr. Wolf decided he would not stay for that and away he ran.

Next little rabbit met a white rooster who asked him why he cried. The rabbit said, "I cry because the fox has my house and will not let me stay in." "Well, we'll see about that," said the rooster and very bravely he walked back to the rabbit's house. When he reached there he called, "Come out of there, Fox." But the Fox said, "If I do, I'll eat you up." "I have a gun that shoots on the spot. The fox had better run or he'll get shot," said the rooster and out ran the fox and away as fast as he could go without once looking to see who had driven him out. The little rabbit was very grateful to the rooster and thanked him for getting his house back.

THE STORY OF PETER RABBIT.

Flopsy, Mopsy, Cottontail, and Peter lived with their mother in a sand bank at the foot of a fir tree.

One day Mrs. Rabbit called the children to her and said, "Children, I must go to the store and I will tell you what you can do while I am away. You may play in the field where the blackberries grow but you mustn't go near Mr. McGregor's garden. I shall bring you something pretty nice if you are good and do as you are told. Now run along."

"We will be good, mother," they cried and off they went.

Flopsy, Mopsy, and Cottontail were good little rabbits and did as they were told but naughty little Peter, What do you suppose he did? He ran straight to Mr. McGregor's garden and squeezed under the gate and was soon eating his fill of nice tender lettuce.

When he had eaten all the lettuce he wanted, he started for the parsleybed; but just as he rounded the corner, he had a great fright. There

was Mr. MacGregor planting cabbages. Peter was so frightened that he forgot where the gate was but he started to run.

Mr. MacGregor picked up his rake and ran after him, calling, "Stop, thief! Stop, thief!" This frightened Peter more than ever. His shoe came off but he did not have time to find it. And then! What do you think? He fell into a net and there he was, caught fast, and Mr. MacGregor very close to him. It was the button of his coat that had caught in the net and pretty soon a thought came to Peter. What do you think he did? He slipped out of his coat, left it in the net, and ran like the wind.

He made for the tool house and there he saw a watering can. In he jumped but Oh, Oh! Peter had jumped into a can of water. It was cold and wet, but there he had to stay as Mr. MacGregor had come into the tool house. I don't believe he would have ever thought of looking in the watering can if Peter had not sneezed. "Kerchoo!" went Peter. Mr. MacGregor was after him in a minute. Out of the window dashed Peter, upsetting three plants. The window was too small for Mr. MacGregor, and he was tired of running after Peter. He went back to his work.

Peter sat down to rest; he was out of breath and trembling with fright, and he had not the least idea which way to go. After a time he began to wander around, going lippity-lippity-not very fast, and looking all around.

He found a door in a wall but it was locked and there was no room for a fat little rabbit to squeeze underneath.

An old mouse was running in and out over the stone doorstep, carrying peas and beans to her family in the wood. Peter asked her the way to the gate but she had such a large pea in her mouth that she could not answer. She only shook her head at him. Peter began to cry.

Then he tried to find his way straight across the garden, but he became more and more puzzled. Presently he came to a pond where Mr. MacGregor filled his watering cans. A white cat was staring at some goldfish; she sat very, very still, but now and then the end of her tail would twitch as if it were alive. Peter thought it best to go away without speaking to her. He had heard about cats from his cousin, Little Benjamin Bunny.

He went back towards the tool shed but suddenly quite close to him, he heard the scritch-scr-r-atch of a hoe. Peter scampered under some bushes but presently, as nothing happened, he came out and climbed upon a wheelbarrow and looked around. The first thing that he saw was Mr. MacGregor, hoeing onions. His back was turned towards Peter and just beyond him was the gate.

Peter got down very quietly and started running as fast as he could go. Mr. MacGregor caught sight of him but Peter did not care. He kept on going and soon slipped under the gate and was safe at last in the wood outside the garden.

Mr. MacGregor hung up the little jacket and the shoes for a scarecrow to frighten the blackbirds.

Peter never stopped running until he reached the fir tree. He was so tired that he flopped down on the nice soft sand and closed his eyes. He was soon fast asleep.

His mother was busy cooking. She wondered what he had done with his clothes. It was the second little jacket and pair of shoes that Peter had lost in a fortnight.

I am sorry to say that Peter was not very well during the evening. His mother put him to bed without any supper and made him some camomile tea. But Flopsy, Mopsy, and Cotton-tail had bread and milk and blackberries for their supper.

Beatrix Potter.

THE PIED PIPER OF HAMELIN.

Many years ago in Germany in the town of Hamelin there were rats, rats, rats. The town was very pretty. There were trees along the streets and not far away was a beautiful river. But all the beauty of the town was spoiled by so many rats. They were in the streets and in the houses. They were into everything and the people had no peace. At last they went to the Mayor and told him that he must get rid of the rats. The Mayor did not know of any way to rid the town of the rats. He thought and thought but no plan suggested itself.

Just then there was a tap at the door and the Mayor called, "Come in." And in did come a stranger. He was a very queer looking fellow as half of his coat was yellow and half was red. He himself was tall and thin and each blue eye was sharp like a pin. Around his neck was hung a flute.

"Good Day," said the stranger. "I hear you are troubled with rats in this town. Would you like to be rid of them?"

"Indeed we would," replied the Mayor. "But who are you and how do I know that you can rid the town of rats?"

"I am the Pied Piper," said he. "I can play on my flute, music that will charm all things under the sun. In Italy the King's palace was overrun with mice and when I played on my flute, they all followed me away. Will you give me a thousand guilders to take all the rats away from here?"

"Agreed," said the Mayor.

The Piper went out into the street and put his flute up to his mouth. Up one street and down another he went, playing a weird tune. Soon a strange thing happened. Tiny squeaks began to be heard and they grew louder and louder and out of the houses the rats came tumbling; all kinds of rats—little rats, big rats, lean rats, fat rats, brown rats, black rats, white rats, gray rats. Every rat in the town followed him as he played his music. He led them on until he came to the river and in their effort to get nearer to the wonderful music they did not see where they were going and into the river they all went and every one was drowned.

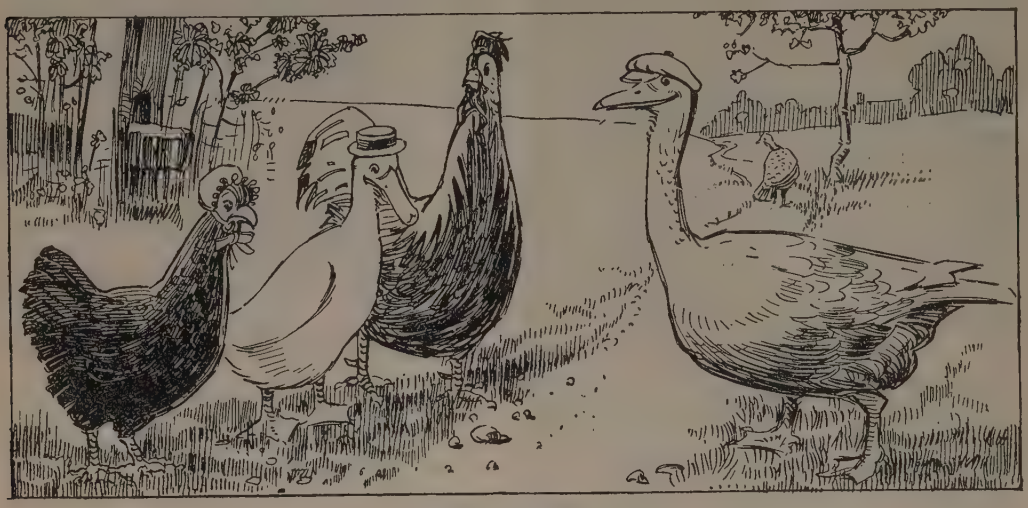
The Piper returned to the Mayor for the thousand guilders but the Mayor said, "Surely, you know that I was only joking."

"But I was not joking," said the Piper. "Will you give me the money or not?"

Still the Mayor refused and in parting the Piper said, "You'll be sorry for I have another

tune to play for people who do not keep their word."

He went into the street once more and began to play on the flute. This time the music was rollicking and soon out of the houses the children came running. They danced and sang and followed the Piper wherever he went. It seemed that they could not help themselves. He led them around the streets and then led them away from the town. The parents called and called but they heeded them not. The Piper led them to a mountain and when they reached it a door in the side of the mountain opened and in went the Piper and all the children and that was the last the people of Hamelin ever saw of the Piper or the children. And oh, how lonesome it was in the town with all the children gone.



HENNY PENNY.

Henny Penny was a little black hen that lived at Farmer Brown's. One day she was in the garden scratching around under an oak tree. Something fell out of the tree onto her head and she flew out of the garden in haste.

"I must tell the King that the world is coming to an end," said Henny Penny and that is what she thought for whatever had fallen from the oak tree, to her was a piece of the sky.

Soon she met a rooster who asked her where she was going.

"I am going to tell the King that the world is coming to an end as a piece of the sky fell on my head today," said Henny Penny.

"I will go with you," said Cocky Locky—for that was the rooster's name. So the two hurried on.

Soon they met a duck by the name of Ducky Lucky.

"Where are you going, Cocky Locky?" asked the duck.

"We are going to tell the King that the world is coming to an end," said the rooster.

"Who told you that?" said the duck.

"Henny Penny told me and she knows for a piece of the sky fell on her head today," replied the rooster.

"I'll go with you," said the duck and the three started off.

Soon they met a goose who asked them where they were going.

The duck said, "We are going to tell the King that the world is coming to an end."

"How do you know that?" asked the goose.

"Cocky Locky told me and Henny Penny told him. Henny Penny knows as a piece of the sky fell on her head this day," said the duck to Goosey Poosey, for that was the Goose's name.

"I'll go with you, if I may," said the goose and he joined the party of three and they set off together to the King's palace.

As they travelled on they met Turkey Lurkey, a nice fat turkey who said to them, "Where are you going?"

"We are going to tell the King that the world is coming to an end," said the goose.

"How do you know that?" asked the turkey.

"Ducky Lucky told me and Cocky Locky told him and Henny Penny told Cocky Locky. Henny Penny knows as a piece of the sky fell on her head today," said the goose.

"I'll go with you," said the turkey.

A little farther on they met a fox by the name of Foxy Loxy who asked them where they were going.

"We are going to tell the King that the world is coming to an end," said Turkey Lurkey.

"How do you come to know that?" asked the fox.

"'Goosey Poosey told me, Ducky Lucky told her, Cocky Locky told Ducky Lucky and Henny Penny told Cocky Locky. Henny Penny knows as a piece of the sky fell on her head today," said Turkey Lurkey.

"Come with me to my house and I will give you a lunch and then we will all go to the King's palace," said the fox.

They were all glad to go as their long walk had made them hungry. The fox led them into his house but they never came out again. It was the fox who had the lunch, or rather it was a dinner as a hen, a rooster, a duck, a goose, and a turkey made a full sized meal.

THE THREE KITTENS.

There were three kittens, one gray, one black, and one white, who lived with their mother in a small house at the edge of town. One day their mother said, "Children, I am going to market to buy you some rolls. You must be good while I am away and do not answer the door if there should be a knock as it may be the wolf." "We will be good," said all the kittens. So off the mother started.

She had not been gone long when there was a knock at the door and a voice called, "Open the door, my children. Here is your mother and she has food for you." But the gray kitten said, "Oh, no, you are not our mother. Our mother's voice is soft and sweet and your voice is harsh. You are the wolf, so be off with you." The wolf ran to the grocery store and bought some fairy chalk which he ate to make his voice sweet. Then he ran back to the kittens' house and knocked on the door again. And in a sweet voice he called out, "Children, let me in. I am your mother and I have food for you." Yes the voice was sweet just like their mother's but little white kitten peeped through the keyhole and saw that the feet were black so he said, "Oh, no, you are not our mother as your feet are black and our mother's feet are white. You are the wolf, so be off with you."

The wolf ran to the baker's and ordered the man to wrap his feet in dough. This done, he ran back to the kitten's house and once again knocked at the door and in a sweet voice said, "Open the door, my children, for your mother. She has food for you." The voice was sweet as their mother's and white kitten looked through the keyhole and saw that the feet were white like their mother's so he opened the door and in bounced the wolf. The three kittens ran in all directions to hide. Gray kitten jumped upon a shelf; white kitten hid under the tub in the kitchen, and black kitten jumped into the clock case. The wolf found gray kitten and ate her up. Next he found white kitten under the tub and ate him up but try as he would, he could not get black kitten in the clock case. And at last he had to give up and go home.

What a sorry sight met the mother when she came into the house. Two of her kittens were gone, only the black one remaining. This one she helped out of the clock case and he told her all that had happened. They started off in search of the wolf. They found him down by the brook fast asleep. His big meal had made him sleepy. The mother sent the little kitten back to the house for a pair of scissors, a needle and thread. When he returned she cut open the wolf and freed the other two kittens and all three ran to the edge of the brook for three stones which the mother sewed in the wolf. Then they all hid to see what would happen. When the wolf awoke, he went down to the brook to get a drink, saying as he went, "My but these kittens are heavy." As he leaned over to drink, the stones were so heavy that they made him lose his balance and he fell over into the water and was drowned. The four cats were so happy that they danced around and sang—

The wolf is dead,
The wolf is dead,
The wolf is dead, hurrah!

LITTLE HALF CHICK.

Once there was a hen which had five chickens. All of them were fine little fellows but the fifth one and he was not at all like the others. He was only half a chicken with but one leg and one eye, so his mother called him Half Chick.

She was very sorry for him whenever she looked at him for she thought he would never be able to go out into the world like the others but would always have to stay with her. But she soon found that she was mistaken as little Half Chick was not satisfied to stay at home under her wing.

Half Chick was not like the others in his ways as well as his looks. They played around the coop but whenever their mother clucked to them, they would run to her but Half Chick would pretend that he did not hear and would roam on farther. And the older he became, the worse he got. He would not mind his mother at all.

One day he hopped up to her and cocked his one eye and said, "Mother, I am tired of staying here and I do not intend to do so any longer. I am going off to see the King."

"To see the King," said his mother. "That is a long ways off—too far for even me to go. You could not go half the distance. Stay at home with me until you are bigger and then we will take a trip together."

But Half Chick was determined to go and off he hopped while his mother called to him to be kind to all he met.

He hopped along through a field and then he came to a stream that was filled up with weeds and waterplants so that it could not flow. It cried out to Half Chick, "Do come and help me! Please pull these weeds out so I can run along my way."

"Take time to help you when I am on my way to the palace of the King! Indeed not!" And with an extra hop, off he went.

He had gone quite a ways when he came to a fire that had been left in a wood. It was just about out and so it cried to Half Chick to bring some dry leaves and sticks to replenish it. But Half Chick said very unkindly, "Get them yourself and don't trouble me. I am going to the palace to see the King and have no time to waste on you." And off he hopped.

The next day when he was not so very far from the palace, he passed a large tree which had caught the wind in its branches.

"Oh, Half Chick," cried the wind, "won't you stop a minute and free me from these branches? I cannot get away by myself."

But Half Chick replied, "Then you should not have gone there. I can't take my time to help you. You got yourself into this trouble and now you can get yourself out the best way you can. I am going to see the King." And away he went.

Soon he reached the palace and he thought he would take a look around. As he was hopping at the back of the palace, the King's cook happened to look out of the window and see

him. "Just the thing for the King's dinner," she said and with that she hurried out and caught Half Chick by his one little leg and took him back into the kitchen where she dropped him into a pot of water. This she put on the stove. Little Half Chick did not like this at all as the water came up into his one little eye. So he called out, "Water, water, do not come up on me like this. You are getting me all wet."

But the water replied, "Half Chick, you did not help me when I was a little stream so now how can you expect me to help you?"

The cook came and stirred up the fire so the chicken would cook faster. This made it very uncomfortable for little Half Chick and he hopped from one side of the pot to the other. Finally he could stand it no longer and he called out, "Oh, fire, have mercy on me and do not burn me so."

But the fire reminded him that he had not helped the fire in the wood when it needed fuel and so now in turn he could not help Half Chick.

The cook came to see how the chicken was cooking and found that he had cooked up so that there was not much of him left, not enough to put him upon the table. She grabbed him out of the pot and gave him a toss through the window. The wind caught him up and whirled him so swiftly through the air that he could hardly catch his breath.

"Oh, wind, do not carry me so fast. I can hardly breathe," said he but the wind replied, "Half Chick, when I was caught in the tree and asked you to help me, you would not do it, so now do not expect me to help you."

So the wind whirled him about and finally dropped him upon the spire of a tall church where he stuck. There he remained and now he tells which way the wind is blowing. Little Half Chick became a weather vane.

LITTLE HALF CHICK.

THE LITTLE FIR TREE.

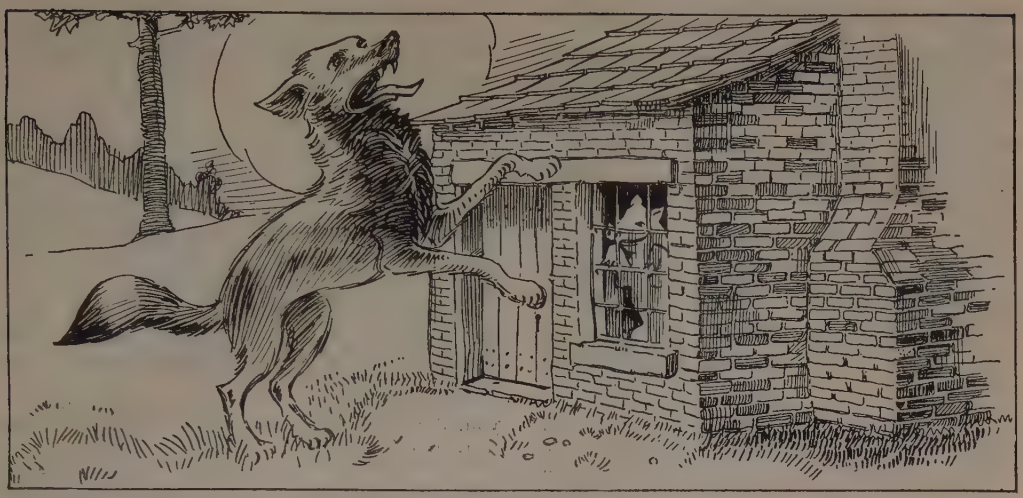
At the edge of a large forest there stood a little fir tree, the little green needles shining in the sun. The little tree was very well satisfied when it was winter time as it still had its green needles while the other trees were bare. But when summer came and all the trees had beautiful leaves and the wind played with them, rustling through them, the little fir tree began to wish that it had leaves instead of needles. It wished so very hard that a fairy heard it and lo! in the morning this little tree was covered with beautiful green leaves which made it feel proud indeed.

But that afternoon a goat and her seven kids came along by the little tree. "These little tender leaves will make us an excellent dinner and we can reach every one," said the mother goat. So they began to eat and it being a small tree, they soon stripped it of every leaf. This made the fir tree very sad and it decided that green leaves would never do as the goats would eat every one. So it wished and wished that it might have gold leaves. Again the fairy heard the wish and granted it. The next morning the little fir tree awoke to find itself covered with lovely golden leaves that sparkled in the sun. How proud the little tree was! But that night a robber came through the woods and as he came to the fir tree, the glitter of the gold caught his eye and he began to pick off the lovely leaves and put them in his bag. The tree being small, he soon had every leaf picked and once again the little tree stood bare.

"Well, green leaves will never do as the goats eat them and gold leaves will never do for the robbers take them. I believe I would like glass leaves," said the tree. The fairy heard the wish and came to the tree and said, "Are you sure you will be satisfied with glass leaves?" "Oh, yes, fairy. Please give me glass leaves." So in the morning the little fir tree was covered with glass leaves and it was indeed a beautiful sight and as the wind blew gently through the leaves it made sweet music. This pleased the wind so much that it began to blow harder and harder and the glass leaves knocking against each other, soon broke all to bits. And again the little tree stood bare.

"I can't have green leaves as the goats eat them and I can't have gold leaves for the robber takes them. And now I can't have glass leaves as the wind breaks them. I wish I had my own little pine needles back again," moaned the tree. The fairy appeared again and asked the tree what it wished now. "Kind fairy, do give me back my own dear needles and I will always be satisfied," said the tree. "All right," said the fairy. "This last wish I will grant." So in the morning the little tree awoke to find itself dressed in its own needles again and how good they looked to it. "Never again will I want any thing but my needles. They are best for a little tree like me for the goats do not eat them, the robber does not take them, and the wind does not break them," said the tree and so it grew at the edge of the forest and was happy and contented ever after.

German Fairy Tale.



THE THREE PIGS.

Long, long ago, when pigs could talk, an old mother pig lived all alone with her three little sons.

Their little house was right in the middle of a big oak forest where there were plenty of acorns and each little pig grew fat and round as an apple. All were as happy as could be until one year came when the heavy frosts killed all the acorns. Mrs. Piggy-Wig had a very hard time to find enough to feed her little ones. One day she had had worse luck than usual, so she called her three sons to her and told them that they would have to go out into the world to seek their fortune.

She kissed them all and started them on their travels, each down a different path.

The first little pig had not gone far when he met a man who was carrying a fine bundle of straw on his back.

"Please, Mr. Man, give me that straw so I can build me a house," said the first little pig.

The man, who was kind, gave the pig the straw and little Piggy-Wig built a cozy little house with it.

The little pig had just finished his house and was about to lie down and take a nap when a big wolf came along and knocked at the pig's door.

"Little pig, little pig, let me come in," said the wolf.

But the little pig said, "Oh, no. Not by the hair of my chinny-chin-chin."

Then the wolf in a very bass voice said, "I'll huff and I'll puff till I'll blow your house in."

So he huffed and he puffed and he blew the house in, because, you see, it was made only of straw and was very light. When the wolf had blown in the house, he ate up the little pig, even to the very tip of his curly little tail.

The second little pig had not gone far on his path when he met a man with a bundle of sticks on his back. When the little pig saw it, he bowed most politely and said, "Please, Mr. Man, will you give me those sticks to build me a house with?"

The man was generous and gave the sticks to the pig, who built a pretty little house with them.

No more was it finished than the wolf came to this house and said, "Little pig, little pig, let me come in." But the pig answered, "NO, no. Not by the hair of my chinny-chin-chin."

"Then I'll huff and I'll puff till I blow your house in," roared the wolf in his heavy bass voice.

So he huffed and he puffed, and he puffed and he huffed, and at last he blew the house in and gobbled up the second little pig.

But the third little pig met a man carrying on his back a load of bricks and mortar, and he said, "Please, Mr. Man, will you give me those bricks and mortar to build me a house with?"

The man gave them to him and the little pig set to work to build himself a house. It took him one whole day and night but when it was done it was a nice, strong little house.

When it was finished along came the wolf, just as he had come to the other little pigs.

"Little pig, little pig, let me come in," said the wolf. But the little pig smiled to himself as he said, "No, no. Not by the hair of my chinny-chin-chin. I'll not let you come in."

"Then I'll huff and I'll puff till I'll blow your house in!" said the wolf.

Well, he huffed and he puffed, and he puffed and he huffed, and he huffed and he puffed, but no matter how hard he huffed and puffed, he could not blow the little brick house in.

At last he could blow no more so he sat down to think it over. Pretty soon he called out, "Little pig, I know where there is a nice field of turnips."

"Where?" said the little pig.

"Behind Farmer Brown's house; and if you will be ready tomorrow morning at six o'clock I will call for you and we will go together and get some."

"Very well," said the pig; "I will be ready at that time."

Well the wise little pig got up at five o'clock, scuttled over to the turnip field and brought home a fine load of turnips before the wolf came. At six o'clock the wolf came to the

little pig's house and said, "Little pig, are you ready?"

"Ready!" cried the little pig. "Why, I have been to the field and back again and now I have a pot full of turnips on to boil for breakfast."

This made the wolf very angry and he said to himself, "I'll get that little pig someway or other." So he called out again in a very friendly voice, "Little pig, I know where there is a nice apple tree."

"Where?" said the little pig.

"Just over the hill in the big orchard," said the wolf. "If you will be ready to go tomorrow morning at five o'clock, I'll call for you and we will go together."

But the next morning the pig got up at four o'clock and was off and away long before the wolf came.

The orchard was farther off than the little pig had expected, so before he had filled his sack with apples, he saw the wolf coming over the hill. He was terribly frightened, but he tried to look very brave when the wolf came up.

"Little pig, why are you here before me?" said the wolf. "Are the apples nice?"

"Yes, very nice," answered the pig. "I'll throw one down for you to taste." So he picked an apple and threw it as far as he could and while the wolf was racing after the apple the little pig climbed down from the tree and ran home as fast as his little legs would carry him.

The next morning the wolf was on hand again, more determined than ever to get the pig. "There is going to be a fair in town this afternoon. Will you go with me to see it?"

"Yes, I shall be glad to go," said the pig. "What time shall we start?"

"At three-thirty," said the wolf.

Of course the wise little pig started long before that and went to the fair alone. After he had seen all he wanted to, he bought a large butter churn and started for home. He had not gone far when he saw the wolf coming up the hill. This frightened the little pig so that he did not know what to do, but he crawled into the churn to hide. This started the churn to rolling and down the hill it went, right toward the wolf. The wolf could not think what the strange thing was, coming straight down the hill toward him; so he turned and ran away home in a fright and he never went to the fair at all.

The next morning he went to the pig's house and told him all about the fright he had had and all about the big round thing that had come rolling down the hill at him.

"Ha, ha," laughed the pig. "So I frightened you, did I? That was a churn I bought at the fair, and I was inside it."

This made the wolf so angry that he vowed that he would eat the pig and that nothing would stop him. So he climbed upon the roof and jumped down the chimney.

But the wise little pig was ready for him, for he had built a big fire and hung a great kettle of water over it, right under the chimney. When the pig heard the wolf coming he took off the cover and splash! right into the kettle of boiling water fell the wolf. Before he could crawl out, the little pig popped the lid back on again and soon all was over for the wolf.

That night the little pig had boiled wolf for supper. So he lived in the little brick house very happily ever after and was never troubled with a wolf again.

LITTLE PETER OF HOLLAND.

At the edge of a little town in Holland there lived a woman and her boy. This woman used to bake cakes and pies to sell and the little boy delivered them.

One day the mother called to the little boy whose name was Peter, to come in and get a basket of cakes to take to the doctor who lived on the other side of the town. It was still afternoon and he would have time to go there and back before supper time. Peter took the basket on his arm and started on his way, whistling as he went. He followed the dike for that was the road.

Peter enjoyed the walk, there was so much to see. He would stop and watch the big sails on the windmills as they turned slowly around like huge white birds sailing through the air. Bright flowers grew on the banks and Peter stopped to pick some of these to take to the doctor.

At last he reached his house and after giving him the basket of cakes and flowers, he started on his way back home. Not wishing to be late, he hurried as already the sun had set and he knew his mother would be watching for him. After he had gone about half way he heard the trickling of water. What child is Holland who does not know the danger that that means! Looking over the side of the dike, on the land side, he saw a tiny stream running in from the sea. Something must be done at once. Peter dropped his basket and putting his hand up to his mouth he shouted as hard as he could, "Help, help! There is a leak in the dike. Come and help!" But no one was near to hear. No time could be lost so Peter ran down the side of the dike and put his little hand into the hole. "There is a leak in the dike! There's a leak in the dike!" he shouted again and again. Still no one came.

Stars came out in the sky and the night was dark. Peter was cold and hungry and frightened too, as he had never been out alone at night before. Still, he did not think of going home as he knew that leak meant danger and there was no one there but himself to keep out the sea. From holding his little arm in the one position so long, it soon began to ache but never once did he think of pulling it out. Tears fell from his blue eyes as he was cold and sleepy. He called again and again but no one heard.

When it grew dark, the mother came to the door to see if Peter was coming but no Peter did she see. She called but no one answered.

"Maybe he is staying with the doctor tonight although he has never done that before," mused the mother. "Still the man may be ill and has kept Peter to help him with his work. I shall wait until morning and then go over to the doctor's house to see."

Early the next morning the mother was up and was soon ready to start to the doctor's house. As she started from the house, she saw a crowd of people coming. Peter was carried by the big man in front and as they neared the mother they all raised their hats and shouted, "Peter is a hero! Peter is a hero! He kept out the

sea with his little hand and has saved us from a flood. He is a brave boy!"

Tears of joy ran down the mother's face when she saw her boy was safe and how proud she was of the little hero. Nothing was too good for Peter that day, nor for many days after as he had done the bravest thing a boy could do. And ever after he was pointed out as the boy who had saved the town from being flooded by keeping his hand in the hole in the dike.

THE BOY AND THE GOATS.

There was once a boy who had three goats, named Willie, Nannie, and Winkie. Each day he took them out to the meadow to graze and he would sit down by the gate and read a book. One morning he took the goats out but instead of them going into the meadow, they jumped the fence into a turnip field. Try as he would, the little boy could not get the goats out. Every time they came to the gate they would run right past it.

Finally the boy gave it up and sat down and cried. Soon a rabbit came hopping by. He stopped when he saw the boy crying and said, "Why do you cry, little boy?"

"My goats are in the turnip field and I can not get them out," said the boy.

"Don't cry any more," replied the rabbit. "I'll get them out for you."

So in he hopped and began to chase the goats. But every time they came to the gate, they would run right past it. So the rabbit gave it up and came out and sat down beside the boy and cried.

A fox came running by. When he saw the boy and rabbit crying, he stopped and said, "Why do you cry, rabbit?"

"I cry because the boy cries and the boy cries because he can not get his goats out of the turnip field," said the rabbit.

"Don't worry about that," said the fox. "I will get them out for you." So in he ran after the goats. But as with the rabbit, every time the goats came to the gate they ran right past it. So the fox sat down beside the other two and cried.

Next a wolf came along. He saw the three crying and so stopped to inquire. "Why do you cry, fox?"

"I cry because the rabbit cries, the rabbit cries because the boy cries and the boy cries because he can not get his goats out of the turnip field," said the fox.

"Never mind that," said the wolf. "I'll get them out for you as they will be afraid of me." So he gave the goats a chase but with the same result. He came out of the field very dejected and said, "I can not get the goats out." And he sat down and cried.

"Buzz, buzz! Buzz, buzz!" came flying a small bee. "Why do you cry, wolf?" he said.

"I cry because the fox cries. The fox cries because the rabbit cries. The rabbit cries because the boy cries and the boy cries because he can not get his goats out of the turnip field," cried the wolf.

"I'll get them out for you," buzzed the little bee.

"What! A bee do what a wolf can not!" said the wolf.

"What! A bee do what a fox can not!" laughed the fox.

"What! A bee do what a rabbit can not!" cried the rabbit.

"What! A bee do what a boy can not! Ha, Ha!" laughed the boy.

"Don't laugh," said the bee. "Wait and see what a bee can do." And in he flew and landed right on the back of Nannie. Buzz! Nannie gave a jump and ran out of the turnip field. Next the bee sat on Willie's back and buzz! he, too, ran out of the field. And last the bee sat on Winkie's back and he ran out of the field. Can you guess what made them run?

The bee flew back to the four friends and said, "Now see what a small bee can do."

"Thank you," they all cried. And the boy drove the goats home again.

Emilie Poulsson (Adapted).

THE LITTLE YELLOW BIRD.

It was a beautiful morning in the spring. The sun was shining so brightly that it put song in every one's heart. A little yellow bird felt it and said to himself, "I shall fly to the King's house and sing him a song this beautiful sunshiny morning." So off he flew.

Pretty soon he passed Gray Pussy's house. Gray Pussy called, "Where are you going, little Yellow Bird?" "I am going to the King's house to sing him a song this fine morning," replied the bird. "Come here and I will show you the pretty ring around my neck," said the cat. "Oh, no, Gray Pussy, you would only eat me up," said the bird and away he flew.

Next he passed Mr. Fox's house. He called to the bird, "Where are you going, little Yellow Bird?" "I am going to the King's house to sing him a song this fine morning," said the bird. "Do come here and I will show you the white tip on the end of my tail." "Oh, no, Mr. Fox. You would only eat me up," said the bird and on he flew.

As he flew along he came to the home of the Black Snake. Black Snake called, "Where are you going, little Yellow Bird?" "I am going to sing a song for the King this sunshiny morning," called the bird. "Come here instead and I will show you the rings on my tail." "Not me, Black Snake, for you would only eat me up." And on flew the bird.

Soon he came to the house where the Boy lived. When the little boy saw the Yellow Bird he called to it and said, "Where are you going, little Yellow Bird?" "I am going to the King's house to sing him a song. This is such a beautiful morning," said the bird. "Come here and I will give you some corn to eat," begged the boy. "Oh, no, little Boy. You would only put me in a cage. No, I shall not stop for the corn," said the bird and on he flew.

At last he reached the King's house and perched in a cherry tree just outside the window. Then he began to sing his beautiful song. The King heard him and said to the Queen, "Hear that beautiful song. Let us give the bird a bag of feathers for his nest." This they did. The bird thanked them and flew back to Mrs. Yellow Bird and they soon had a fine nest built, all lined with soft feathers.

THE THREE PIGGY-WIGS.

Once there were three piggy-wigs living together in a meadow. One was Great Big Piggy-Wig, one was Middle-sized Piggy-Wig, and one was Little Piggy-Wig. One day Great Big Piggy-Wig said to the other pigs, "Let us go across the bridge and eat those little red apples and make ourselves fat. You go first, Little Pig." Now under this bridge lived an old Troll whose eyes were as big as saucers and whose nose was as long as a broom stick. But Little Piggy-Wig started bravely across the bridge, his feet making a trip, trip sound as he went along. As he reached the middle of the bridge, the old Troll spoke up, "Who goes trip, trip over my bridge?" "It is I, Little Piggy-Wig. I am going over to the apple tree to eat red apples to make myself fat." "Don't you go any farther for I am coming up to eat you up," replied the Troll. "Oh, don't eat me up," said the pig, "Wait for Middle-sized Piggy-Wig. He is much fatter than I am." "All right—go on," said the Troll, "As I am pretty hungry today, I shall wait for your brother." So Little Piggy Wig went on over the bridge and was soon eating the red apples. Next came the Middle-sized Piggy-Wig. He was fatter than the first and his feet went trip, trap on the bridge. When he reached the middle of the bridge, the Troll said, "Who goes trip, trap over my bridge?" "It is I, Middle-sized Piggy-Wig. I am going over the bridge to the apple tree to eat red apples and make myself fat." "Don't you go any farther," said the Troll, "for I am coming up to eat you up." "Please do not eat me up. Wait for Great Big Piggy-Wig. He is much fatter than I am," said Middle-sized Piggy-Wig. "Very well," said the Troll. "I am pretty hungry today so I shall wait." So Middle-sized Piggy-Wig went on across the bridge and was soon eating red apples with his brother.

Now Great Big Piggy-Wig started across the bridge. He was so fat and heavy that his feet went TRIP, TROP on the bridge. Pretty soon the Troll called out, "Who goes TRIP, TROP over my bridge?" "It is I, Great Big Piggy-Wig. I am going across the bridge to the apple tree to eat little red apples and make myself fat." "Don't you go any farther," said the Troll, "for I am coming up to eat you up." "All right!" said Great Big Piggy-Wig. "Come on." So the Troll came upon the bridge but as he did so, Great Big Piggy-Wig ran at him and bumped him and thumped him and knocked him down into the river. And that was the last that was ever seen or heard of the Troll. Big Piggy-Wig stood upon the bridge and said, "Now who owns this bridge?" Then he went on across the bridge and joined his brothers. They all ate red apples and grew so fat that they never cared to go back to the meadow.

WHITE RABBIT.

Once there was a little white rabbit which lived near an oak tree. One day he was over under the oak tree looking for something to eat. All of a sudden something fell on his head and in fright he ran over to Brown Rabbit's house which was in a sand bank across the field. When he reached there he was too frightened to even say "Good Day" but instead he gasped, "Oh, Brown Rabbit, I am so frightened. Something fell from the oak tree and it fell upon my head."

"Did it hurt?" said Brown Rabbit.

"Hurt? I should say it did and I wish to know what it was," he replied.

"I am sure that I do not know what it was. Let us go and tell Gray Squirrel as he may know what it was," said Brown Rabbit

So away they ran to the home of Gray Squirrel which was in a tree.

"How do you do?" said Gray Squirrel to the two friends but White Rabbit said, "Oh, Gray Squirrel, I am so frightened. While I was under the oak tree near my house, something fell on my head."

"Did it hurt?" asked Gray Squirrel.

"Well, I should say that it hurt and I wish to know what it was," said White Rabbit.

"I do not know what it was," answered Gray Squirrel, "but perhaps Wise Owl could tell you what it was. He is very wise and knows most everything."

So the three hurried over to his home which was in a hole in a tree. Wise Owl was out on his front porch and when he saw the three, he said to them, "Good Day, my friends. What brings you here?"

"Oh, Wise Owl, I am so frightened. As I was under the oak tree, something fell upon my head."

Wise Owl sat and winked and blinked and then he said very slowly, "Did it hurt you?"

"Hurt me! Well, I should say it did and I would like to find out what it was," replied the White Rabbit.

There was silence again as Wise Owl winked and blinked. Then he said, "Did you look to see what it was?"

"Oh, no. I did not take time to do that as I was too frightened," said the rabbit.

"Then we must go back and see what it was," replied Wise Owl. So all of them went back to the oak tree. And here is what they found—a big brown acorn. White Rabbit laughed when he saw what had fallen on his head.

"Just think! I ran away from that," he said.

"How very wise Mr. Owl is," said the Brown Rabbit and the Gray Squirrel. But Wise Owl just winked and blinked.

THE THREE BEARS.

There once lived in a little cottage at the edge of a great, dark forest a little girl and her father and mother. This little girl had such lovely golden curls that her parents called her Goldilocks. Goldilocks loved to go out in the open and play but sometimes time flew fast and it would grow dark before she would realize.

She loved the deep, dark woods and had many friends with the little wild creatures. The birds sang to her and the little squirrels would play hide and seek with her. But she had been warned by her mother to not go far into the woods as there might be wild beasts that would do her harm.

One day it was a particularly nice day, the sun was shining brightly and the birds were singing so sweetly and seeming to invite her farther into the woods. Goldilocks forgot what her mother had told her and she soon found herself far, far into the woods. Still she was not frightened. She saw some lovely flowers and ran to pick them; then a playful squirrel invited her to give chase. But when she grew tired, she stopped and looked around her and discovered that the place was all new to her. How frightened she became! She remembered all that her mother had told her but alas! it was too late now. There she was in the woods all alone, lost, and very hungry after her run. Goldilocks sat down and cried.

When she had stopped crying, she looked about her and saw in the distance a little house. She knew it was not her house but she thought that maybe some one lived there who could show her the way home. She reached the little house after a short run and knocked at the door. There was no answer. She knocked again and still there was no answer. So she gently lifted the latch and walked in. No one seemed to be around but in the middle of the floor stood a table upon which were three bowls of soup and around the table were three chairs. The bowls and the chairs were of different sizes, one being large, one middle-sized, and one small. Goldilocks was very hungry and she though no one would care if she ate a bit. So she took a taste of the soup in the big bowl but that was too hot and it burned her tongue. She next tasted the soup in the middle-sized bowl, but that was too cold to suit her. So she tried the little bowl and found that was just to her liking and before she realized it, she had eaten every drop.

She was tired from her walk and she decided to sit down for a while. She tried the great big chair but that was much too hard for her. So she sat down in the middle-sized chair and found that too soft. She sank down in it so far that her feet would not touch the floor. She then tried the wee, small chair and that seemed just made for her. But the little chair was not made for as much weight and it broke right in two and the pieces fell on the floor.

Goldilocks decided to see what else the house contained and she went into the next room. There she saw a staircase that led up to the next floor where the bedrooms were. She walked up the stairs and there in the first room she saw three beds, all nice and clean with white, soft pillows on each. One was a very large bed, one was a medium-sized bed, and one was a tiny, wee bed.

After the good soup, and seeing the beds, Goldilocks realized that she was sleepy and so she thought a little nap would do no harm. First she tried the biggest bed but that was too high at the head. Then she tried the second bed but that was too high at the foot. She went over to the tiny, wee bed and climbed in. It was so comfortable that it was no time until she was sound asleep.

Meanwhile three bears—the father bear, the mother bear, and the baby bear, who lived in the house, came back from their walk. The father bear was a great, big bear; the mother bear was middle-sized, and the baby bear was wee, little.

When they came into the house they saw at once that someone had been in the house and for all they knew, might be there still.

The father bear in a great big voice said, "WHO HAS BEEN TASTING OF MY SOUP?" The mother bear in a middle-sized voice said, *"Who has been tasting of my soup?"* And the

wee bear said in a wee voice, "Who has been tasting of my soup and, oh, they have eaten it all up?"

When they went to sit down, the great big bear said in a great big voice, "WHO HAS BEEN SITTING IN MY CHAIR?" And the middle-sized bear in a middle-sized voice said, *"Who has been sitting in my chair?"* And the tiny wee bear said in a tiny wee voice, "Who has been sitting in my chair and, oh, they have broken it down."

They decided to make a hunt for the one who had eaten their soup and who had sat in their chairs. So up the stairs they went. When they came in the bedroom the great big bear said in a great big voice, "WHO HAS BEEN LYING IN MY BED?" And the middle-sized bear said, *"Who has been lying in my bed?"* And the little baby bear said, "Who is this lying in my bed?"

Their voices awoke Goldilocks and you can imagine her surprise when she saw the three bears standing by her bed. She jumped up and ran to the window, threw up the sash, and leaped out and ran for her home as fast as she could run. The bears were slow to realize what was happening and when they got to the window, Goldilocks was out of sight.

She never stopped running until she reached her own home at the edge of the wood and after she had told her mother of her adventure, she promised never again to run so far away from home.

Robert Southy—Adapted.

HANSEL AND GRETEL.

Once upon a time there was a poor woodman who lived in a little hut near a woods. With him lived his wife and two children, a boy by the name of Hansel and a girl named Gretel. The father and mother worked hard to earn money to provide the children with food that they might grow strong and big. The father cut wood in the forest and sold it to the people in the village.

After one winter the father was poorer than ever as the heavy snows had kept him from going far into the forest to cut wood. It was so cold that they had to use most of what he did cut to keep themselves warm and so they had very little money coming in. At last he did not have enough to buy food for the family.

One night after the children had gone to bed, he and his wife sat up talking and trying to think of some way to provide for them. Finally the father said, "The good Father in Heaven may take pity on them if I cannot give them food. Let us take them into the woods and leave them there and the Good God will find shelter and food for them." The mother tearfully consented and they decided that the next morning they would take them into the woods and leave them to the care of God.

The children had not gone to sleep and they heard what the father and mother planned. Gretel cried and said, "What will become of us?" But Hansel told her not to cry as he would find a way out. As soon as the parents had gone to bed, Hansel got up, slipped on his clothes, and stole out into the moonlight. The little white pebbles which lay before the door, shone like silver and he stooped down and picked up enough to fill his pockets. Then he went back to Gretel and said, "Do not be afraid, dear sister. Go to sleep and rest as God will not forsake us." And then he, too, went to bed again.

The next morning, before the sun was up, the mother went and called the children. "Come, children, we are going into the woods to cut some wood." She gave them each a piece of dried bread and told them that it was for their dinner but that they must not eat it until it was that time as it was all they could have.

All four started on their way and every little while Hansel would stop and look back at the house and every time he stopped he would drop a little pebble out of his pocket upon the path.

When they came to the middle of the woods, the father told the children to gather some wood and he would make them a fire so that they would not be cold. So Hansel and Gretel gathered quite a pile of dry wood and the father set fire to it. "Now, children, lie down near the fire and rest yourselves while we go farther into the forest to cut wood. When we are ready we shall call for you," said the mother.

The children first ate their bit of bread and then, because they were tired, they lay down and soon dropped off to sleep. When they awoke it was quite dark and this made Gretel cry. "Don't cry, sister," said Hansel. "Wait until the moon rises and we will find our way home. Soon the moon shone forth and the little pebbles that Hansel had dropped, looked like bits of silver in the path and Hansel, taking Gretel by the hand, started on their way. All night they traveled and then just as day was breaking, they reached their father's house. When the mother saw them, she broke out crying and hugged and kissed them and the father did likewise, for both had felt very badly over the loss of their children.

All went well for a while, but once again hunger came upon them and the parents realized that the children would starve to death if something was not done. So one night the children overheard the father say to their mother, "Everything is again eaten up; we have only one half of a loaf of bread left and when that is gone, the children will surely die. We must put them in the care of God again." With many sobs, the mother said, "Yes. We will take them farther into the woods so that they cannot find their way out."

When all was quiet and the house was wrapped in sleep, Hansel got up and went after more pebbles. But when he got outside no moon was shining and he could not see one. He went back to bed and comforted Gretel again by saying that the Good God would not forsake them.

The next morning the mother came to them and told them to dress to go to the woods. As before she gave them a piece of bread for their dinner. On the way Hansel broke his piece of bread in his pocket and every little while he would drop a crumb on the path.

This time the parents led then far into the woods where they had never been before and,

making a fire, they said to them, "Now lie down and rest and sleep. When we have chopped all the wood we need, we shall come to you."

When dinner time came Gretel shared her piece of bread with Hansel as he had scattered his along the path. It was not enough and from weakness, the children soon fell asleep. When they awoke in the dark night, Gretel again cried but Hansel told her to wait till the moon came out and then they would find their way home. But when the moon did shine, they could not see a single crumb for the birds had picked them all up. Hansel did not give up and would say, "We will soon find the way;" but they did not although they walked all that night and the next day. Still they could not find the way out of the woods. Soon they were so tired that they could not drag themselves another step and so they lay down under a tree and fell asleep.

It was now the third day since their parents had left them in the woods. They had had nothing to eat except berries that they found along their way and they began to realize that if they did not reach the edge of the woods soon that they would perish. All of a sudden they saw a light and they hastened to reach it. When they got there, they found a dear little cottage and imagine their delight when they saw that it was made of gingerbread and cookies with doughnuts for the windows and a roof of sugar.

"Now we shall eat our fill," said Hansel. "I shall take a bite of the roof first and you can eat a window." Hansel reached up and broke a piece off of the roof and was eating when a voice called, "Nibble, nibble, mousekin, who nibbles at my housekin?" "It is but the wind," said Hansel and the children went on eating. Soon the door opened and a homely old woman on crutches hobbled out. The children were frightened when they saw her and they dropped their food and started to run. But the old woman called to them and said, "Ah, dear children, what has brought you here?" When the children had told her their story she took them by the hands and led them into the house where she gave them a good supper. And then she put them to bed in nice little beds where they soon went to sleep.

But the old woman was not good as it would seem. She was really a bad witch and she wanted to lure children to her house where she made them serve her. The next morning the old witch awoke the children with a voice as rough as it had been sweet the night before. "Wake up, you lazy ones. Do you think you have nothing to do but eat and sleep?" and with that she dragged them out of their beds and put them to work—Hansel to gather wood and Gretel to sweeping and dusting. Neither child had been used to hard work and was soon exhausted. But the old witch kept them at it until night. They were so tired by then that they went right to sleep when they went to bed and had no time for fear. The next morning the old witch put Hansel in a cage to fatten to eat and she made Gretel cook things for him to eat. The time came at last when the old witch though he was fat enough to eat and so she called Gretel to come and see if the oven was hot. It was a queer old oven and Gretel said she did not know how to peep into it. The witch said, "Stand up on tiptoe and look it." But Gretel saw that she meant to shove her in when she opened the door, so she said, "You will have to show me how." The old witch stood up on her tiptoes and peeped into the oven and while doing so, Gretel gave her a push and in she went. Gretel hurriedly closed the door and there was the old witch caught in her own trap. Gretel went and unlocked the cage that contained Hansel and both children were once more free.

They ate all they could and then started off to find their way home. A little white bird was flying overhead and Hansel said, "Let us follow the bird and perhaps it will show us the way." Sure enough! When they had crossed a little stream not far from the witch's house, they found they were in a part of the woods that was familiar to them. They traveled on and it was not long until they reached home. How good it looked to them. And how glad the father and mother were to see their dear children back again.

Hansel was able now to help his father and so the father could cut more wood and have more to sell. Gretel helped her mother in the house. Soon they were able to have some hens and they sold the eggs; and then a cow and they sold butter. They were very happy now and had plenty to eat. The children always helped and all went well for the rest of their days.

Adapted from Wilhelm and Jacob Grimm's Hansel and Gretel

BILLY BOB TAIL.

Once there was a little boy by the name of Billy Bob Tail. He had no home and he had no friends. He decided he would go out into the world and seek his fortune. As he walked along, he met a cat.

"Mew, mew! Where are you going, Billy Bob Tail?" said the cat.

"I am going to seek my fortune," replied Billy.

The cat asked if he could go with him but Billy said that he did not want him to go.

"I have no home and I have no friends. Please let me go with you," begged the cat.

Billy felt sorry for the poor cat and so he told him to come but warned him to not scratch him.

The two friends walked along together and soon they met a dog.

"Bow, wow!" said he. "Where are you going, Billy Bob Tail?"

Billy told the dog that he was going out into the world to seek his fortune. The dog wanted to go along but Billy said that he didn't want to be seen with a dog and a cat. But the dog begged and begged as he had no home. He was getting old and his master had said he would kill him. Billy felt sorry for the poor dog and said he could go but he didn't want him to bite him.

The three friends walked on down the road and soon met a cow.

"Moo, moo!" said the cow. "Where are you going, Billy Bob Tail?"

Billy told her the same that he had told the others and she too asked to go along. But Billy did not want to be seen with a cat, a dog, and a cow and he said so. But the cow told him that her master was going to kill her and eat her as she had heard him say so and she didn't want to stay for that. Billy didn't want the cow killed either and so he told her to come along but told her that she must not hook him.

Now the party of four journeyed on until they met a goat who said, "Baa, Baa! Where are you going, Billy Bob Tail?"

"I am going out to seek my fortune and you may go with us if you will be careful not to butt me," said Billy.

On and on the friends went until they came to a dark forest. They decided that they would go into the woods as the fortune they were looking for might be in there.

Billy told the friends to not be frightened as he could whistle and throw stones. The cat said it could mew and scratch; the dog could bark and bite; the cow could moo and hook, and the goat could bleat and butt. So the five thought there was nothing to frighten them since each could do so much and in they started. They had not gone far when they saw a house and from the house was issuing a deep growl. What could it be? Billy thought it was a bear and he told the friends to make all the noise they could and that would frighten him away. So all together they went—a whistle; mew, mew; bow, wow; moo, moo; baa, baa! The bear was very much frightened at the dreadful noise and he ran out of the house and never went back again. The five friends lived there and were very happy in their new home and in the thought that their fortune was found.

Folk Tale.

THE GINGERBREAD BOY.

There was once an old woman who lived with her husband in a very old house. They had but one son.

One day while she was making a cake, she said to the boy that she would make him a little gingerbread boy for him to play with. So she rolled out the dough and cut a little boy. Then with red sugar she covered his hat. With yellow sugar she fixed the coat, and she put brown sugar on his shoes. She put him in a pan and stuck him in the oven. Then she told the little boy that he must stay there and watch to see that the little gingerbread boy did not burn. She said that she would leave the oven open and then he could see. That was just what the little gingerbread boy wanted. The little boy nodded and fell asleep and out jumped the gingerbread boy. As he ran out of the house he called, "I can run away from you, I can." The old woman called to her husband to come and help her catch the gingerbread boy.

The gingerbread boy ran on and on until he came to a barn where some men were threshing wheat and as he came by the door, he called,

"I am a little gingerbread boy.
I've run away from a little old woman,
A little old man,
A little boy,
And I can run away from you,
I can, I can."

The men all ran out of the barn and began to chase the gingerbread boy but he could run very fast and soon he was out of sight and the men gave it up and returned to their work.

Next the little gingerbread boy came to a field of mowers. He called to them,

"I am a little gingerbread boy.
I've run away from a little old woman,
A little old man,
A little boy,
A barn full of threshers,
And I can run away from you too,
I can."

The men started after him but he ran so fast that they, too, had to give up the chase.

On, on he ran until he met a cow. To it, he called,

"I am a little gingerbread boy,
I've run away from a little old woman,
A little old man,
A little boy,
A barn full of threshers,
A field full of mowers,
And I can run away from you, too,
I can."

But the cow did not stop chewing her cud. She didn't appear to hear him. So he ran on until he met a fox to whom he called,

"I am a little gingerbread boy.
I've run away from a little old woman,
A little old man,
A little boy,
A barn full of threshers,
A field full of mowers,
A cow,
And I can run away from you too,
I can."

A fox can run very fast and he gave the gingerbread boy a lively chase. At last they came to a river that was very wide. There both had to stop.

"Would you like to get across?" said the fox, very politely.

"Indeed I should," replied the gingerbread boy.

So the fox told him to jump on his tail and then into the water he swam. The water came higher and the fox told him to climb upon his back for fear he might drown. This the gingerbread boy hastened to do. The fox swam a little farther and the water got deeper so he called, "Jump up on my nose as I am afraid you will drown on my back as the water is getting real deep." The gingerbread boy jumped on his nose where he stayed until they reached the shore and then SNAP! The fox opened his mouth and in went the little gingerbread boy!

THE TRACKS TO THE DEN.

A lion and his mate lived in their den in a large forest. They were getting old and food was scarce. One day the mate came to the lion who was lying in front of his den and said, "We must have food. It has been three days since we have eaten."

"What can we do? We are both too old to hunt now and the animals will not come here to be killed," said the lion.

"We must think of some way to bring them here," said the mate. "Let us say we are sick. Then they will come to visit us."

"A very good plan, mate! A very good plan, indeed!" said the lion.

A crow flew to a tree near by and the mate told her that they were sick and lonesome and would like to have some company. The crow is a great talker and at once she flew away with the news.

"You shall have the first one, dear. I'll wait outside and send him in," said the lion to his mate. So the mate went inside of the den.

Soon the wolf came and said, "I hear that you are sick, sir."

"Yes, so sick, friend wolf, and so lonesome!" said the lion.

"Why then, I'll sit and talk with you," said the wolf.

The lion bade him enter the den and he would follow but instead he remained outside. Soon the mate came out and said, "The plan works fine! That wolf was nice and tender."

Soon two lambs came to call on the lions. "We hear you are very sick," they said. "Your voices are as weak as ours."

"Alas, we are both like little lambs, now. Won't you come into our house and sit with us for a little while. We get so very lonesome," said the lions.

So the lambs entered the den and the lions followed. All was quiet for a while and then the lions reappeared at the door.

"I like spring lamb," said the mate and the lion said he too, was very fond of it.

Soon a fox came along but he stayed at a safe distance. "Good morning, friends! I hear you are very sick," he said.

"Oh very, very, very sick," said the lion and his mate. "Why do you stand so far away? Come near and talk with us, my dear."

But the fox said he had to go. "Go! Did you not come to visit us?" said the lions in unison.

"Yes, but I cannot stay," said the fox. "I see many tracks going into your den but not a single track comes out! Not even a footprint. It is strange, isn't it, friends? I think I shall be on my way." And with that off ran the fox.

"That fox is very clever," said the mate. "Yes, much too clever," replied the lion.

THE HONEST WOODMAN.

There was once a woodman cutting down a tree on a river bank. All at once the ax flew off the handle and fell into the river. "Dear me," said the woodman. "What shall I do now? My ax has fallen into the river and I can cut down no more trees and I can not get food for my children."

"I will get your ax, good sir," said a fairy.

"You must not dive, kind fairy, as the river is too swift here," said the woodman.

"No river is too swift for me," replied the fairy. And she dived in and soon came up with a gold ax. "Is this your ax, woodman?"

"Oh, no! That ax is gold. That is not my ax."

"Then I will dive again," said the fairy. This she did and soon she came up with a silver ax.

"Is this your ax, woodman?" she asked.

"Oh, no! That ax is silver. That is not my ax," again said the woodman.

So the fairy dived the third time and came up with the woodman's ax.

"That is my ax! That is my ax!" shouted the woodman.

"You are an honest man, sir, and I am pleased with you. You shall have all three of the axes as a gift from me," said the fairy.

"Thank you, good fairy. I thank you," replied the man and he went joyfully home to show his wife and children the fairy's gift.

A second woodman had been cutting trees near the place where the first one lost his ax and he had seen all. "Why should not I have a gold ax too? I will! Indeed I will!" said he. So he threw his ax into the river and then sat down and began to weep.

The fairy came to him and asked him why he was weeping. "Alas! Alas! My ax fell into the river," cried he.

"Weep no more," said the fairy. "I will bring it up for you." And she dived down into the river and brought up a gold ax. "Is this your ax, woodman?" said she.

"Yes, yes! That is my ax. Why do you hold it away from me?" he said.

"I am not pleased with you, sir. Your ax was not of gold! Your ax lies in the river and there it shall lie forever, forever!" said the fairy and then she went away.

"I wish I had not done it! Oh, I wish I had not done it!" cried the woodman but it was too late.

THE STORK.

Hans and Katrina lived with their mother and father in a city of Holland. Their house was made of brick, painted blue with snowy white door and window frames. On the roof a stork had built her nest and there she lived with her babies. How the children liked to watch the storks and many pleasant minutes were spent in watching the mother stork fly down to the ground for food and then up again where several hungry mouths stood open ready to receive. The children got so they would put out grain for the mother and she did not have to go far to obtain enough to feed her babies.

One day the house next to Hans' and Katrina's home took fire and soon smoke was rolling from the roof and sparks were flying high into the air. Everywhere was confusion and in the excitement no one thought of the danger the storks were in. The mother stork flew upon the nest and with her wings tried to fan away the smoke that came in clouds over the house. As the fire grew worse, the sparks settled down and mother

stork had no time to fan the smoke away. All she could do was to keep the sparks away from her babies by spreading her wings over them, never once thinking of the danger to herself.

At last the firemen got the fire out. Hans's father looked upon the roof of their house and there saw the poor stork. He hurriedly got a ladder and climbed to the top and carried the stork to the ground. Upon examination, it was discovered that the sparks had burned the wings so badly that she could never fly again. But she had saved her babies by her heroic act. The mother and the little storks were taken care of by the children and their father and mother until the little ones grew big.

The market house was not far from their home and it was no uncommon sight to see the mother stork walking around in there, picking up the bits of food that were dropped on the floor and in that way she was a great help in keeping the market clean and she soon became the friend of everyone.

ANDROCLES AND THE LION

In the city of Rome, there lived a man by the name of Androcles. He was a slave and his master was hard and cruel. When he was angry, he would beat Androcles very severely. The slave stood it as long as he could and then one night he ran away. He hid in the dark woods for many days, only going forth at night to get his food for fear some one would recognize him and take him to his master.

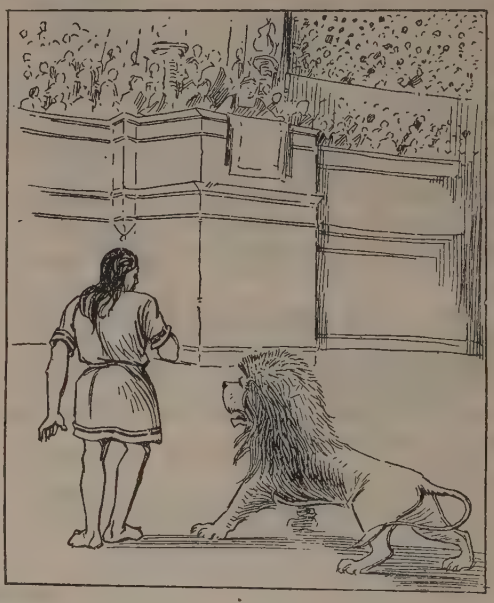
One day in the early evening Androcles was forced to look for food as he was about starved. As he wandered about in search of something he came unexpectedly upon a lion. It was lying down, moaning and groaning. At first, Androcles turned to flee but he noticed that the lion did not pursue him and so he returned to see what was the matter. He went up to the lion and there he saw a large thorn in one of his front paws. He pulled out the thorn and bound up the paw. The lion thanked him just as a dog would do. He jumped about him and licked his hands and feet.

Androcles was no longer afraid and that night the two slept side by side. The next day the lion took the slave to a cave which was his home and every day the lion would go forth and bring food to Androcles. The two became very good friends.

But alas! One day as they were out for a walk in the woods some soldiers came marching by. They saw Androcles and recognized him as they had often seen him with his master. So they took him back to Rome. Now the master was more cruel than before. He beat him and had iron chains fastened to his legs so he could not run away again.

Finally he was taken to a large place that looked like a circus ground. A large stone wall ran around this and against this wall were hundreds and hundreds of seats. People would come to this place to see men fight wild beasts. Androcles was led into the center of the ring and the chains loosened. From another door came a roaring lion. Androcles must fight that lion. How frightened he was! He stood and waited for the lion to come and kill him as he was sure that would happen. The lion came on roaring and exposing the large teeth. One more spring and the lion and man were side by side. Then a queer thing happened. Androcles gave a cry of joy and threw his arms around the lion's neck. The lion licked his hands and feet. The two friends had found each other again.

The people who had come to see the fight could not understand and they shouted and waved their hands. The Emperor called Androcles to him and asked him to explain and when Androcles told him the story, he set the man free and the lion was freed, too. The two went out of the ring together. The lion was given to the slave and they lived together in Rome for many years.



Androcles and the Lion.

THE LITTLE RED HEN.

In a barnyard there lived a very thrifty and hard working red hen. One day as she was scratching around for food she came upon a few grains of wheat. She called to the dog, the pig, the cat, and the rat and said, "Who will help me plant this wheat?"

But the dog said, "I will not."

And the pig said, "I will not."

And the cat said, "I will not."

And the rat in his squeaky voice said, "I will not."

"Then I will have to do it," said the little red hen, and she started to work. She dug up the ground with her sharp little feet and soon the few grains of wheat were resting in the soft earth. Days followed in which there was a

little rain and plenty of sun and soon the wheat grew up straight and tall and it was ready to cut.

"Who will cut this wheat," said the little hen but the dog and the pig said, "Not I." And the cat and rat said, "Not I." The little red hen said, "I will then." And with her little bill she cut every blade.

The wheat was ready to thresh and again the little red hen called for help but each again said that they would not help and the little hen had to thresh the wheat all by herself. So she fanned it until she had every grain threshed out.

"This wheat will make nice flour," she said. But who will help me grind it?"

"Not I," said the dog.

"Not I," said the pig.

"Not I," said the cat.

"Not I," said the rat.

"Then I shall do it myself," said she and with two small stones she rubbed the wheat together until she had nice flour.

Now the flour was ready to make into bread but upon being asked to help, the dog and the pig and the cat and the rat said, "Not we. We shall not help make the bread."

"I shall do it then," said the hen and she kneaded and kneaded the dough until she had three loaves of bread ready for the oven. She put them in and soon there was the tempting smell of fresh baked bread coming from the oven. How good it smelled! It made one feel hungry. At last it was done and the little red hen took it out of the oven and then she said, "Now, who will help me eat this bread?"

"Oh, I will," said the dog and the pig.

"And I will," said the cat and the rat.

But the little red hen replied, "No! Not you. I shall call my little chicks and they and I shall eat the bread. You did not help to make it and you shall not help to eat it."

"Bow-wow," said the dog.

"Squeak, squeak," said the pig.

"Meow, meow," said the cat.

"Dear me!" said the rat

THE FOUR FRIENDS.

Once there was a poor donkey that had grown too old to work. He heard his master say one day that he was useless and should be killed.

"I shall not stay here and be killed," said the donkey. "I shall go to town and play in the band." And off he started down the road.

Soon he met a dog, lying by the road. He seemed unhappy and the donkey felt sorry for him. "Why are you here, Dog?" said the donkey.

"I used to hunt for my master but now I have grown too old. My eyes are not like they were when I was young and I cannot see the game. And now my master intends to have me killed for I heard him say so," said the dog.

"Do not stay here to be killed," said the donkey. "Come with me and we will go to the town and play in the band. You can play the flute and I can beat the drum."

So the donkey and the dog started on down the road. Pretty soon they saw a cat. The cat, when she saw the two friends, called out, "Where are you going?" "We are going to the town to play in the band," said the two.

"Let me go with you?" asked the Cat. "I am too old to catch mice any more and my mistress said that I would have to be drowned and I do not want to die yet."

"Surely you can go with us as you can sing while we play the flute and the drum," they said. So the cat joined them and the three continued on their way toward town. In taking a short cut through a farmyard they saw a rooster standing on a fence. He was crowing as loudly as he could. The friends stopped to listen and when he had finished, they said to him, "Why do you crow so loudly?"

"How happy I have been living here at this farm. I had plenty to eat and plenty to drink and now that I am nice and fat, the cook intends to cook me for dinner tomorrow. So I shall crow while I can for my time is short," said the rooster.

"Why don't you come with us and not stay here to be cooked," said the donkey. "We are all going to the town and play in the band. I shall play the drum, the dog the flute, and the cat will sing. You can sing, too, since you have such a beautiful voice."

The rooster was only too glad to go and so he flew off the fence immediately.

It was getting late and the four friends realized that they could not get to the town that night and that they must find a good place to sleep. They came to a woods and they decided to stop there. The rooster flew up into a tree, clear up to the tip-top. The cat climbed up to the first branch and there settled herself for the night. The dog and the donkey lay down on the ground under the tree and soon all were asleep but the rooster. He could not go to sleep for thinking of the narrow escape he had had. He was so happy that he was saved and he perched there and looked all around in a very satisfied way. All at once in the distance he saw a light. He called his new friends and said, "Wake up, friends. I see a light and there must be a house close by. How good supper would taste, so let us go and ask them for something to eat."

"I would like a juicy bone," said the dog as he awoke.

"And I, a fat mouse," said the cat.

"I'll take some corn for mine," said the donkey.

They started off at once to the place where they saw the light, and sure enough, it was coming from the window of a little brick house. The window was too high for any but the donkey to see in so he walked over to it very quietly and looked in.

"I see a table laden with many good things to eat and around the table are four robbers. Let us think of a way to frighten them away so we can have the good things to eat," said the donkey.

They got their heads together and thought and thought. Finally the dog said, "Let us all make our loudest noise and it will be so terrible when we do it all together that we will frighten the robbers away and we can have the food and the house in which to spend our old age. What say, my friends? The donkey can stand with his

fore feet upon the window sill and I can climb upon his back. Then the cat can get on my back and the rooster on the cat's back. I shall count three and we shall make the loudest noise we can."

At three the donkey brayed, the dog barked, the cat meowed, and the rooster crowed. Such a noise they made! The robbers were so frightened that they ran out of the house as fast as they could go. The four friends went on into the house and sat down to a good feast. After they had eaten all they could eat, they felt sleepy and each began to look for their beds. The donkey went outside to sleep. The cat curled up in front of the fireplace. The dog went to sleep by the door and the rooster went outside and flew up into a tree. Soon all were fast asleep.

The robbers had run a safe distance from the house when they heard the dreadful noise and then had stopped to see if they were followed. They waited several hours and then as all was quiet they decided to creep back. One went on ahead and, meeting no one, he opened the door of the house and walked in. He went to strike a light at the fireplace and that woke the cat who flew at him and scratched him with her claws. He turned to run and as he passed the door the dog bit him in the leg. In panic, he rushed out of the house and passed the donkey who woke in time to give him a good kick. He went back to the other three robbers and told them of his sad experience and they decided to never go back to the little house again and it was left to the four friends who lived happily ever afterwards.

Adapted—Grimm.

KING MIDAS.

Adapted from the story by
Nathaniel Hawthorne.

Once upon a time there lived a very rich king by the name of Midas. He loved gold almost more than anything in the whole world. There was just one thing that he loved more and that was his only child, a little girl whom he called Marigold because of her lovely golden curls.

Midas kept his gold in an underground room of the palace and his greatest pleasure was to go down to this room, lock the doors securely, and then take out the bags of gold and spread it all out on a table. He would fondle it and let the sunshine shine in on it to make it glisten all the more. But the more that he had, the more that he wanted. When he looked at the gold tinted clouds of the sunset, he wished that they were real gold that he could pack them into his bags.

Before he became so fond of gold, Midas had admired flowers very much and had planted a garden in which grew the largest and most fragrant roses any one ever saw or smelled. Midas would spend hours in the garden admiring them and inhaling their wonderful perfume. But now, if he looked at them at all, it was to figure what the garden would be worth if every petal of the roses was a thin plate of gold. He got so greedy for more gold that all he wanted to see was gold and all he wanted to hear was the chink of one coin against another.

One day as usual, Midas was enjoying himself down in the underground room, when he noticed a shadow fall across the heaps of gold and, looking up, he saw a stranger. As Midas knew that he had turned the key in the lock very carefully when he came into his treasure room, he felt sure that the stranger he looked upon was no mortal man but a fairy instead.

The stranger gazed about the room and then turned to Midas and said, "Midas, you are a very wealthy man. I doubt if there is a room in all the world that contains so much gold. You must be very happy and entirely satisfied."

"Yes, I have done pretty well. But after all it is but a mere trifle when you think that it has taken my whole life to get it together. If one could live to be a thousand years old then he might have enough wealth to be proud of," answered Midas.

"Oh, you are not satisfied?" exclaimed the stranger. "Pray what would satisfy you?"

Midas paused and thought. At last a bright idea came to him and he said to the fairy, "It has been a hard task to gather this gold together and it has taken me too long a time. I wish that everything I touch would turn to gold."

"The Golden Touch!" exclaimed the stranger. "But are you sure that this will satisfy you?"

Midas said that it was all he wished and that he would never regret the wish and so the fairy told him that at sunrise he would find himself gifted with the Golden Touch. With this the fairy seemed to fade away into the air and was gone.

Midas could hardly sleep that night for thinking of the wonderful fortune that had come to him. When the first light of day peeped over the hills Midas was awake and was stretching his arms out to touch the objects that were within his reach. He was anxious to see if the Golden Touch was a reality or not. He touched a chair and it became gold. The bed clothes were no longer linen but were changed to a woven texture of the purest gold. Midas was delighted and he jumped from the bed and rushed to the window to let the sun in to shine on the golden objects. As he pulled the tassel of the shade, it, too, turned to a mass of gold. He hurriedly put on his clothes and was overjoyed to see himself arrayed in a suit of gold.

Midas was so enraptured that the room seemed too small for him and so he went downstairs and the bannister of the stairs turned to a bar of shining gold as his hand passed over it in his descent. He lifted the door-latch (it was gold now) to look out upon the world and he noticed the lovely roses growing in the garden and he thought of how often he had wished that each petal was gold. So he went out and touched every rose and they were changed to gold.

Breakfast was called and as the morning air had given him a good appetite, he hastened back to the palace and sat down to the table. He picked up a glass of water and it turned to gold. He tried a cup of coffee, and that turned to gold. Dear, dear! This was not so funny for he had nothing to drink.

Next he took up an egg and that turned to gold. He tried some bread and butter and they met the same fate. No, indeed! This was not so funny as he had nothing to eat.

As Midas was wondering what to do, in came Marigold, crying as if her heart would break and in her hand was clasped a golden rose. Her father said to her, "Why do you cry, my Marigold?"

She held up the rose that her father had so recently changed.

"Well, what is in this magnificent rose to make you cry? Is it not beautiful?"

"No, dear father, it is the ugliest flower that ever grew and its lovely fragrance is all gone. Something dreadful has happened to all the flowers as they have all turned yellow and no longer smell sweetly." And Marigold burst forth into tears again.

To comfort her, Midas got up from the table and walked around to the child. He put his arms around her and, behold! what had he done! The moment he put his arms about her, a change had taken place. Her rosy face had assumed a yellow color, with yellow tear drops upon the cheeks. Her hair was of the same tint. Her little soft, flexible body grew hard and rigid. No longer did Midas have a human child but in her stead, a golden statue. Midas was beside himself with grief as you remember he loved his little girl even more than gold and now here she was lost to him. He wrung his hands and wished that he was the poorest man in the world if he could just have Marigold back again.

While he was in the depths of despair, he suddenly beheld the stranger before him.

"Well, King Midas," said the stranger, "how do you succeed with the Golden Touch?"

"I am most miserable," replied Midas.

"How does that happen? Did I not keep my promise to you? And do you not have everything that your heart desires?" said the stranger.

"Gold is not everything," wailed Midas. "I have lost my most precious possession, Marigold, who was more to me than anything else in the world. Oh, my child, my dear child! I would not have given her one little finger for the power of changing this whole world into a solid lump of gold." And Midas bowed his head in grief.

"You are wiser than you were, King Midas," said the stranger. "Tell me now, do you wish to rid yourself of the Golden Touch?"

Midas replied that it was most hateful to him and so the stranger told him to go to the river and plunge into it. He told him to take a pitcher and fill it with the water and then bring it back to the palace and sprinkle it over any of the objects that he wished changed back again into its former substance.

King Midas lost no time in rushing to the river. Upon reaching the shore, he plunged headlong in, without even waiting to remove his clothes. As his head emerged from the water, he was conscious of a change in himself. It seemed that a heavy weight had been lifted off his heart. He hurriedly dipped in the pitcher which had turned golden with his touch and he was overjoyed to see it turn back to glass. He filled it with the river's water and then hastened back to the palace. The first thing that he did was to sprinkle some on the golden figure of Marigold.

No sooner did it fall on her than the rosy color began to come back into her face and once more she was the dear little girl whom Midas loved.

Midas had grown so much wiser and had found that there are many things that are more valuable than gold. He did not care to have constant reminders of the time when he had been so foolish as to think that gold was all that counted in life, that he sprinkled the precious water on everything that he had changed when he had the Golden Touch and now Midas was a happy and contented king.

THE ANT AND THE GRASSHOPPER.

In a field one summer's day a grasshopper was dancing about to her heart's content. Wearying of playing by herself, she hopped over to the home of Mrs. Bushytail and invited her to join her in a dance. The squirrel told her that she was too busy storing away food for her winter's use to waste her time dancing and hopping about. She told the grasshopper that she, too, should be getting ready for the winter as summer could not last forever.

"Bah," said the grasshopper, "why work when the day is sunny? You may do so if you wish but I shall enjoy myself." And she hopped on. She soon saw Mrs. Bee gathering nectar for honey. She called to her and said, "Come and dance with me. Let us have a merry time. The sun is too bright to waste your time working."

"Dancing may be a very pleasant thing but summer is short and then comes the winter and we should all be prepared. Buzz, buzz, buzz! I can not idle here talking to you for I must away and gather pollen for my bread." And again the grasshopper was left alone.

She shook her head and laughed. "I don't

believe there is any such thing as winter. They can all work if they want to but I shall have my fun. I shall go and see if Mrs. Ant will dance with me." But Mrs. Ant was busy carrying along a kernel of corn. She was taking it to her home. Grasshopper called to her to come and dance with her but the busy ant said she had too much work to do, enough to keep her busy all the summer as she had a great many children to feed and they got hungry in winter as well as in summer. "You had better work, too," and with that the ant picked up the corn and started on her way.

But the winter did come, much to the surprise of Mrs. Grasshopper. The days grew very cold and food became scarce and often she was hungry. Then came the snow and the grasshopper could not find one thing to eat. Something had to be done! She hopped over to Mrs. Squirrel's house and knocked at the door but all were asleep and did not hear her. Then she went to the home of Mrs. Bee but there, too, they were fast asleep and did not hear the knock. Only one place was left, Mrs. Ant's home. Her strength was fast leaving her as she was not used to the cold and she had had nothing to eat for several days. By the time she reached the ant's house she could only whisper, "Please give me something to eat—just a little bit and then I'll pay you back next summer." Mrs. Ant heard the grasshopper and went outside and helped her into her nice warm house. She fed her but the aid had come too late and Mrs. Grasshopper died but not before she realized that it is best to work as well as play.

THE SUN AND THE WIND.

One day the Sun and the Wind were arguing as to which was the stronger.

"I am the stronger," said the Wind. "I can do many things. I cover the ground with snow and freeze the water."

"I am stronger than you," said the Sun. "I warm the ground and make the plants grow. I melt the snow and the ice."

"I see a way to decide who is the stronger," said the Wind. "Here comes a man up the hill. He has on a heavy coat. The one who can make him take off the coat will be considered the stronger."

"Agreed," said the Sun. "You begin."

So the Sun went behind a cloud and the Wind began to blow as hard as he could upon the man. "How cold it is," said the man. "That wind is so strong, I must hold my coat close or it will blow it off of me." And he fastened his coat up tight and the Wind, try as he would, could not make him take it off.

Then the sun came out and began to shine. He shone so warmly that the man said, "How warm it has gotten! This is a queer day. First it is cold, and then it is warm. This coat feels too heavy. I must take it off." And with that, he pulled off his coat and carried it on his arm on up the hill.

And so the argument was settled. Which was the stronger?

Aesop.

THE GOOSE THAT LAID THE GOLDEN EGG.

There was once a man who owned a very fine goose. Every day she laid an egg of gold and soon the man became rich.

As he grew rich, he grew greedy too. He said to himself, "The goose must be gold inside. I shall kill her and get all the gold at once and not have to wait for just one golden egg a day."

So he killed the goose but he found no gold. The man was very sad and wished that he had been content with the golden eggs.

A little is better than none at all.

Aesop.

THE HARE AND THE TORTOISE.

A hare was out in a field boasting that he could run faster than any one else. "I was never beaten in a race in my life," said he.

A tortoise was near by and he heard the hare. "I will run a race with you," he said.

This made the hare laugh as everyone knows that the tortoise is about the slowest thing there is.

"That is a good joke," said the hare. "I could dance around you all the way and then win."

But the tortoise was not to be daunted and so a goal was fixed. The hare was off with a bound and was soon out of sight. He looked around and not seeing the tortoise, he said, "That tortoise is so slow that I can take a nap and still get up and beat him."

This he did. The tortoise plodded along and soon passed where the hare was sleeping. But he did not stop. He kept right on going until he reached the goal.

By and by the hare awoke. He jumped up and ran as fast as he could. When he reached the goal, imagine his surprise when he saw the tortoise there before him.

Aesop.

THE RABBITS AND THE FROGS.

Some rabbits lived in the woods where there were many wild beasts. The rabbits were so bothered by them and so afraid of them that they did not know what to do. One day they were dreadfully frightened by some lions and one rabbit said to the rest, "We are so afraid of these large animals, let us jump into the river. It is better that we drown than to live in this continual state of fear. We shall be killed by them anyway, I am sure."

So the timid little rabbits ran as fast as they could to the river. As they approached it, a group of frogs who were sitting on the bank of the river, became frightened and jumped into the water.

The one rabbit again spoke, "The frogs are afraid of us. We are all afraid of anything bigger than we are." And they all ran back to the woods.

Aesop.

THE STAG IN THE LAKE.

One very hot day a stag came to quench his thirst at a lake. After he had taken his drink, he lingered to view himself from head to toe in the clear pool. The thing that he admired the most was his pair of beautiful antlers. "If only the rest of my body displayed the strength that is in these horns, how proud I would be," said he. "But, ah me! how slender are these poor legs of mine. I would almost rather have none."

Just then some men and their dogs who were hunting deer, came to the lake where the stag stood. Like a flash, he was off at full speed; and those legs, at which he had complained so much, soon took him far out of reach of the men and hounds. But the horns, of which he was so proud, caught in the branches of a low tree and held him there till the hounds came to pull him down.

Aesop.

THE CAT, THE MOUSE, AND THE COCK.

A young mouse who had taken his first trip away from home, came back in great haste and said, "Oh, Mother, I have had such a fright! While I was away to-day, I saw a horrible thing. It had such a fierce look and it strutted first here and then there and always on two feet. He wore a small red flag upon his head and another one at his throat and he would flap his arms up and down as if he would fly. But instead of flying, he would stretch out his head and scream at me with his sharp mouth and I thought he was going to eat me up. It made me shake from head to foot and I was very glad to run home as fast as my four legs would carry me. If he hadn't frightened me so, I should like to have stayed and made the acquaintance of the sweetest little soul. She had soft fur like ours but hers was a glossy black. She had four legs and a fine long tail that she would wave from side to side. She looked very meek and when she fixed her two bright eyes on me, I thought she wished to speak. But that terrible creature roared just then and I ran home."

"My dear child, it is well that you ran—not from the one you spoke of as he was only a rooster and would do you no harm but from the one you thought so sweet as she was a cat and cats eat all the mice they can catch. From now on do not be too hasty to judge by the looks."

Aesop.

THE BIRDS, THE BEASTS, AND THE BAT.

Once upon a time the birds and the beasts went to war. The bat—which could hardly be called a bird or a beast—stayed out of the way of both until he thought the beasts were winning the fight. Then he joined their ranks and to prove his right to be there, he said, "Look! Can you find a bird that has two rows of teeth in his head as I have?"

The war went on and the tide changed—the birds seemed to be the winning side. Then the bat joined their ranks. To them he said, "What else can I be but a bird since I have wings?"

This was not thought honorable by either the birds or the beasts and neither would own him and to this day he hides and skulks in caves and trunks of trees, coming out only at night after the birds of the air have gone to their nests and the beasts of the field are sound asleep.

One must always play the game fairly.

Aesop.

THE BOY AND THE NUTS.

A little boy once put his hand into a jar where his mother kept nuts and figs. He took all that his hand would hold but when he went to pull it out, he found that the neck of the jar was too small for him to do so. The little boy began to cry when he could not get the figs and nuts out. A friend standing near, said, "Grasp at but half, my child, and you will get it; but if you grasp at all, you are liable to lose all."

Aesop.

THE HORSE, THE WOLF, AND THE FOX.

It was a cold, snowy night and food was hard to find. A fox had searched everywhere but with no success. As he roamed around, he met a wolf who also was looking for food. To him, he said, "Do you see the horse in that field? I think if you would help me, I could kill him and we would both have a good meal." To this the wolf agreed. When they came up to the horse, the fox was surprised to see how much smaller he was than the horse.

"May I ask you your name and that of the man who owns you?" politely asked the fox. "My name is Prince but if you would know the name of my master you will have to see the stamp on the bottom of my shoe," replied the horse. The fox guessed what this would mean and said, "Oh, but I do not know how to read, but my friend here is smarter than I am and I am sure he can read it," and he bowed low to the wolf. The wolf was made quite vain by this flattering speech. He walked up close to the horse and bent his head low to read, but, alas! Prince gave a kick and that was the end of the wolf.

Do not ask of others what you would not do yourself.

Aesop.

THE FOX AND THE STORK.

One day as Mr. Fox was out for a walk, he met Mrs. Stork. He invited her to take dinner with him the following day. This she gladly agreed to do.

The fox thought he would have some fun and so he prepared some soup which he would serve in a flat plate.

The next day Mrs. Stork came all ready for a good dinner. There on the floor were two plates of soup. The fox lapped up his with his tongue but the stork could not get a drop with her bill. So the fox ate her soup, too.

"I am sorry you do not like your soup, Mrs. Stork," said the fox.

"Oh, that is all right, Mr. Fox. You must come to my house to dinner tomorrow."

When the fox came to the stork's house the next day, he found the dinner was meat served in long necked vases. The stork could get the meat with her long bill but the fox could but smell his. So Mrs. Stork ate hers and then the fox's meat, too.

"I am sorry you do not like the meat," said the stork. And the fox had to go home hungry as the stork had done the day before. A joke is never so much fun when played on yourself.

Aesop.

THE BOY AND THE WOLF.

A shepherd boy was watching some sheep in a pasture near the village. He had been told that there were wolves in the woods close by and that if any appeared, he was to call to the men to come. This day seemed particularly long and in an idle mood, he decided to see if the men would really come if he called.

He rushed toward the village and called as loudly as he could, "Wolf, wolf! The wolf has come!"

Quickly the men came, armed with guns and sticks to drive the wolf away. When they reached the field, they saw no wolf, so asked, "Where is the wolf?"

"There is no wolf," said the boy. "I only called out for fun." The men went back to the village.

The boy thought that he had had so much fun that he would try the trick again the next day. He called out, "The wolf! The wolf! Come quick for the wolf is here."

Again the men came running from the village and when they saw no wolf, they were angry with the boy for having fooled them again.

Then one day the wolf really did come and the boy called and called, "Oh, come quick! The wolf has really come!" But the men thinking that they would not be fooled again, heeded not. The boy tried to drive the wolf out but he was not able to and before long he had killed every sheep. The boy walked slowly back to the village. He had to tell the men that the wolf did come and had killed the sheep. The men were very angry and said, "How were we to know that you were not fooling us?" And the boy was never entrusted with sheep again.

Aesop.

THE FOX AND THE CROW.

A big black crow sat in a tree. She sniffed and said, "I smell cheese. It must be over in Farmer Brown's window. I shall fly over and see."

So spreading her wings, she went over to the pantry window, cawing as she flew. Sure enough! There was some cheese. She broke off a piece with her bill and flew back to the tree.

A fox came along, saw the crow and wanted the cheese she had. He sat down at the foot of the tree and said, "How handsome you are, Mrs. Crow! Your coat is such a glossy black and your feathers are so smooth."

The crow was pleased with what the fox said and she preened around that her feathers might shine all the more in the sun.

"I am sure that one with so much beauty must have a beautiful voice, too," went on the fox. "Will you not sing for me?"

Thinking that she must please the fox whom she looked upon now as her friend, the crow opened her mouth to say, "Caw" but as she did so she dropped the cheese. This is just what the fox wanted and he grabbed it up and ran off. As he went, he called back to the crow "Thank you for my dinner, Mrs. Crow."

Aesop.

THE CROW AND THE PITCHER.

One day a crow was thirsty. He looked around for some water but all he could find was in a pitcher. But it was down in the pitcher so far that he could not reach it with his bill. He tried to break the pitcher but he could not. Then he tried to turn it over so the water would run out but this, too, he was unable to do.

Finally he saw some pebbles on the ground close by. He picked up one and dropped it into the pitcher. He noticed that the water rose a little. Then he dropped in another pebble and the water rose still higher. So he dropped in another and another until the water came up where he could reach it and he drank all the water he wanted. So where there is a will, there is a way

5. MANUAL ACTIVITIES.

First there are the shells, scoops, and tin dishes for the sand table with which the children begin their play. Balls of various sizes and kinds, bean bags, some toys such as found in the home, and picture books supply the needs of the beginners and with these they have the first step in getting acquainted and learning to play in a group.

Pegs of the six colors of the rainbow—red, orange, yellow, green, blue, and violet—to put in peg boards. These boards are square with round holes in them. Sticks, natural or in the

six colors, ranging in length from one to five inches. Balls covered with worsted covers of the six shades.

Wooden beads for stringing on shoe laces. These beads come in the half inch and inch size, six colors, and shaped like cubes, balls, and cylinders.

Two inch wooden cubes, cylinders, and balls for rolling and building.

Wooden and paper parquetry in the six colors for design work. These are shaped in the diamond, the triangle, the square, and the circle.

Cardboard kaleidoscopes in the straight sticks, one to four inches long, and the half circle.

Mosaic cubes and round tiles for building.

Plasticine and clay flour for modeling.

Colored papers of the six standard colors for chain making.

Metal rings, circle, half circle, and quarter circle, for design work.

Inch straws and paper parquetry for stringing.

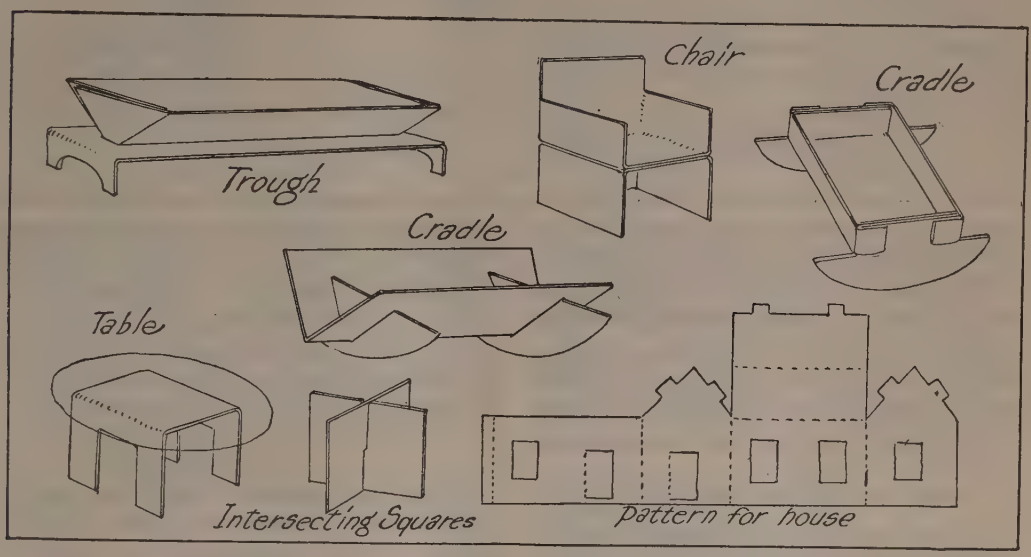
Mats and fringes of heavy paper for weaving.

Four by four and five by five inch square and round colored papers for folding boats, soldier hats, drinking cups, pin wheels, etc.

Drawing paper and colored crayons for free hand drawing as well as pattern work.

Watercolor paper, which is white and of a firmer grade, paint brushes, and watercolors for painting.

Thin white paper for free hand cutting and blunt pointed scissors.



Colored construction paper for making wheel barrows, baskets, wagons, boxes, furniture, etc. This grade is used for mounts also for the other papers.

Prick cards and sewing cards, yarn and heavy needles.

Stencil cards.

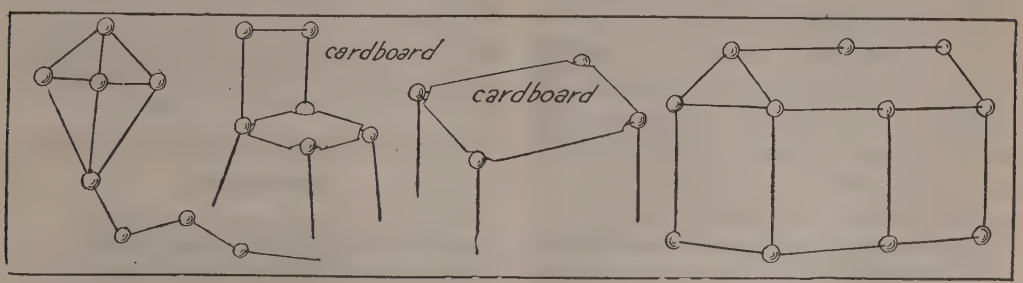
Puzzle pictures of birds and animals to put together.

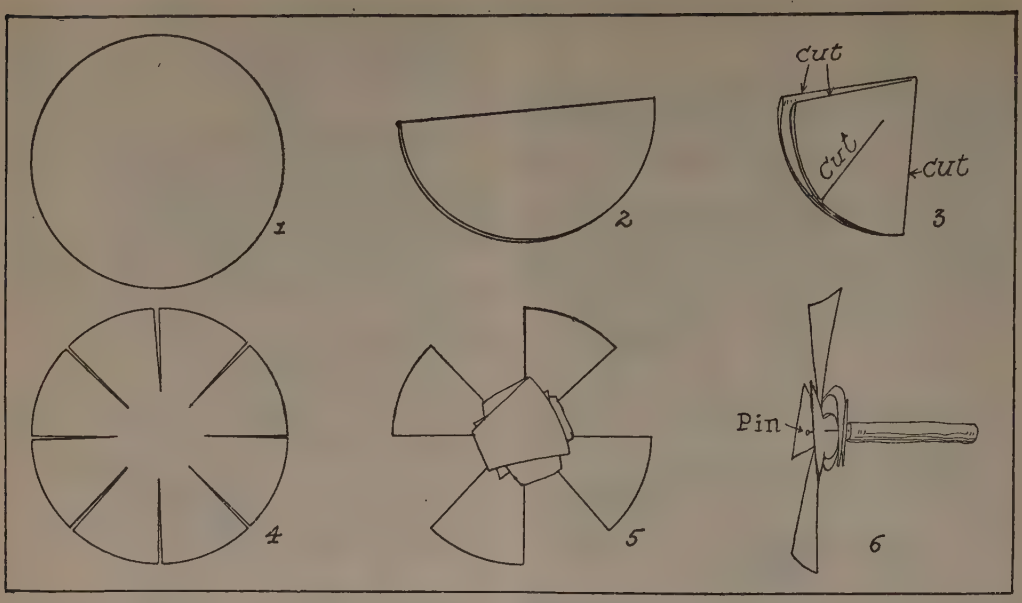
Magic Dot Cards and Dots. These cards contain pictures and are filled with little holes into which the colored dots are placed. These come in large and small sizes.

Paste, paste brushes, and individual paste jars for pasting the various pictures and the chains.

Square and round lentils in the six colors for design laying.

Seed peas and toothpicks for construction work. These peas must be soaked over night before using.





Pin Wheel—involving the following processes; drawing around a circle, folding, cutting, and pinning every other one to a round stick.

Gummed rings and strips for reproducing on mounting sheets the designs laid with sticks and rings.

Bradley's Straight Line cut-outs—these furnish pleasing material for first steps in paper cutting and construction, besides forming attractive borders for the room.

Boxes of blocks, the third gift, containing eight two-inch cubes; the fourth gift boxes with eight oblong blocks, one by two inch and two by four inch sizes; the fifth gift boxes containing more cubes and some that are divided diagonally into halves; the sixth gift boxes with oblong blocks and some that are divided crosswise and lengthwise, and the curvilinear gift boxes containing the divided cylinder and thus gives half rings and quarter rings of sufficient depth to produce the effect of arches.

6. Method of Using the Materials.

The first use of the materials should be experimental with no suggestions from the outside. The child likes to feel them and to try his own ideas even though this be little more than laying the blocks, etc., out in a row in front of him or letting the sand sift through his fingers.

After he has become acquainted with the materials, some phase of a story that has been read or some of the talks will suggest to his mind something to construct. Be sure to let him carry out his own ideas rather than to copy from the idea of an adult. By questions and suggestions these ideas can be further developed and the result more satisfactory. In an amazingly short time one will be surprised to see the improvement and the really complicated construction that they are able to carry out.

In the Indian project, many of the materials will lend themselves to the construction of the wigwams, the canoes, and the Pilgrims' log houses. Group building will enlarge the structures and the talking over of the thing to be built will develop new angles and bring it nearer perfection. So with other projects.

The sand table furnishes the best group work and each strives to add something to the project being worked out. They know that only the best will be used in it and this stirs them on to develop fineness in their work.

Rings, sticks, and tablets may be used for flat pictures. Many artistic designs are developed which aid the idea of symmetry. With the rings and sticks, life forms are constructed which can be used as patterns from which to draw and color.

The prick cards and stencils are not aids to creative self activity but they help to train the child in the sense of direction and by the connection of points or lines to form a picture.

The plasticine and clay as well as the cut-out pictures furnish the material for the child to take home. The thought of making a picture or present for Mother always appeals to the child and brings forth his best efforts.

The pegs and the sticks give the first step for little number stories which is an aid toward the First Grade.

The folding lessons should be by dictation which serves as a great help in gaining attention and in developing the ability to construct by direction rather than from a pattern.

7. Outline of the Year's Work by the Month.

SEPTEMBER.

Great big trunks packed to the brims;
Worn-out shoes; hats without brims;
Faces brown with sun and weather;
Clothes grown small—scarce hook together.

Journeys home 'mid lots of fun;
Thoughts of school that's just begun;
Lots of lessons to remember
Cooler days—and that's September.

Youth's Companion.

TOPICS.

THE HOME-HARVEST-FRUIT-VEGETABLES.

The child has just left the home and naturally that and all it implies holds first importance in his mind. So the first talks should be on Home—what the home is like—the family with its various members—the pets—the playthings—the occupation of the father—the neighborhood.

What the home is like—In this talk the child is led to tell what the house is like, how arranged inside, etc. The color of the house is brought out here. Great interest is manifested in where the child plays and each one tells what they play at home.

The members of the family—Mother is foremost here and many talks are developed as to her different tasks. "Here We Go Round the Mulberry Bush," is a good game to illustrate some of her duties. The baby comes next—what does mother do for him; what can the child do? He can sing the baby to sleep—Bye Baby Bunting being a good lullaby song and a new one can be taught. Then the rest of the family come in for their share.

The pets—Many conversations can be had about the various pets, their habits, their care, and their plays. Maybe some child has a pony and Dusty Bob makes an interesting singing game.

The playthings or toys at home—Have the children bring their favorite toy and demonstrate how the various ones work. The many colored balls will be one of the most popular and a test for color distinction can be made.

The occupation of the father—Perhaps one father will prove to be a carpenter and the talk can be on how he builds the house. Building blocks and other gift material afford an unlimited scope for the child's imagination here and the work of their little hands is often a work of art.

The neighborhood—Here the child tells of his playmates. He also makes many comparisons. The formation game is a neighborly game.

The harvest—Talk about the effect of the sun and rain on the corn and wheat that grows on the farm. The children have taken rides into the country and have noticed how the grains look at this season and how they differ from the same kind during the spring and summer. Kernels of corn and wheat should be shown to them and then a full grown ear of corn and a bunch of wheat. Then tell them that the farmer cuts down the grains and gets it ready for winter use. The various activities of threshing time come in here and are highly interesting to the child. Flour and cornmeal can be shown and this leads to the introduction of where the grains are ground and the life of the miller is developed. The dramatization of The Little Red Hen is good to show the different steps of the growth and development of the grain of wheat.

The fruits and vegetables—Have fruits and vegetables on hand and let the children distinguish between them. Call attention to the way the fruit tree looked in the spring and the way it looks at this season of the year. Develop the fruit from the blossom to the mature fruit and in this development call attention to the trees' friends, such as certain birds that destroy the harmful insects that blight the trees. With the vegetables observe that in some kinds, the part we eat grows under the ground and let the children name the kinds they know.

STORIES.

Familiar stories should be used a great deal this month. The Three Bears is popular and should be dramatized, allowing the children to choose the materials to be used and how. Care must be taken to have correct expression and lead the child from its own vernacular without causing self consciousness.

The Little Red Hen, as stated before, furnishes a good example of how the wheat is raised and cared for.

The Little White Rabbit and The Fox and the Grapes are good fall stories as acorns and grapes are ripe at this season.

GAMES.

The Farmer in the Dell.

Ring Around the Rosy or London Bridge Is Falling Down for old familiar ones which, like the stories, must be used to lead the child from the known to the unknown.

Here We Go Round the Mulberry Bush.

The circle ball game as given in the games, acquaints the children with each other's names.

Where's My Kitty, for a sense game.

Adam's Sons, for imitation.

SONGS.

Good Morning to You.
The Farmyard.
Piggy Wig.
Here's a Ball for Baby.

Jack and Jill and some other Mother Goose songs as the words are already familiar to the child.

MANUAL ACTIVITIES.

Various balls—the large water balls for the Ball Game mentioned before; the spectrum colored balls for the teaching of the colors (having the children name the color whether the balls are distributed or collected).

The small wooden balls may be used to roll at targets such as the ten pins or buildings made of blocks.

The colored wooden beads are strung on shoe laces and are arranged according to color at first and then when the colors are learned the child may arrange in any rhythmic order, and many times very interesting strings are designed.

With crayons and scissors, balls are cut and colored, using the six primary colors. From the round ball the apple grows, also the peach. Then the pear follows with the round base. Fruit baskets can be arranged—some free hand and others done by cutting a pattern. The various vegetables are cut and colored and arranged in various kinds of pictures in which pasting is another activity.

Pegs are used a great deal, with and without the peg boards. Color arrangement is carried out here again.

The sand table affords free play for the child. The construction of hills and houses is the main theme followed.

Plasticine is used to make the balls, fruits, and vegetables or the many things as suggested by the stories. For the Three Bears the chairs, beds, and bowls are made—crude, of course, in the beginning but improving with practice.

Blocks are used to construct the *home* after a certain amount of free play with them in which skill in handling has been acquired.

Free hand drawing of the fall flowers develops the art instinct. A sense of proportion is developed in this. The salvia, goldenrod, and wire grass are good subjects. These drawings should be developed from the flowers themselves and done with the colored crayons.

OCTOBER.

"Come, little leaves," said the wind one day.
"Come o'er the meadows with me and play;
Put on your dresses of red and gold,—
Summer is gone and the days grow cold."

George Cooper

TOPICS.

THE LEAVES—NUTS—THE PREPARATION OF BIRDS, ANIMALS, AND TREES FOR WINTER.

The Leaves.

Draw the children's attention to the new month. The leaves are now changing color and each little leaf puts on its Autumn dress. Some have red dresses, some yellow, some brown, and others have golden ones. Then the wind comes along and invites them to leave Mother Tree and to go with him for a play and he sends them whirling over the fields. They have work to do too. The little flowers that have been blooming all summer, have gone but their little roots stay in the ground and must be kept warm. So the little leaves cover them over with a bright blanket and when Jack Frost comes he is not able to harm them. Then when winter comes, the snow falls over all and makes another cover for the sleeping flowers.

The Nuts.

Not only have the leaves left Mother Tree but various nuts have fallen to the ground. Show if possible, the different kinds of nuts and the houses that they lived in until Jack Frost tapped at the door. It is very interesting to the child to see the many ways Mother Nature has provided for the little nuts in the way of houses. For instance—the prickly chestnut burr is lined with *velvet* and has rooms for three nuts. Some of these nuts will be gathered by children, others by squirrels for their winter storehouse and some will be left on the ground and like the leaves, they sleep through the long winter under the blanket of snow and when spring comes they burst their little coats and send their roots down into the ground which later shoot up into trees.

Preparation for Winter.

It is at this season of the year that the birds must think of going to a warmer home. The leaves have fallen from the trees and they no longer offer shelter from the wind. The flower seeds have scattered and food is getting scarce. So in October one sees many flocks of birds starting south. There are some, however, who brave the rigors of winter and it is for these that we should be ever mindful and throw bread crumbs and other food where they can get it.

The caterpillar has provided for himself and has built himself a home. Cocoons should be gathered and explained to the children and kept in the room to watch developments and see the lovely butterflies as they emerge from them in the early summer. The study of the silkworm is taken up here too as it is so closely related.

All the furry animals are provided by Mother Nature with an extra heavy coat. Then they in turn must provide their winter store. Many gather nuts and store them away, as in the case of the squirrel. The bear goes into a cave and sleeps the winter through.

The trees have been busy all summer and now comes their time to rest. The leaves have been taking care of very tiny buds but now they have flown away to cover the flower seed and nuts and the baby buds must put on a heavy winter dress, a varnish, under which they will sleep until the warm sun awakes them and it is time for them to grow into leaves.

Hallowe'en preparations occupy the last week and much interest is manifested in the first party of the year.

STORIES.

The North Wind at Play—in Miss Poulsson's Book.

The Thrifty Squirrel—in In the Child's World.

The Baby Buds' Winter Clothes—in In the Child's World.

The Little Rabbit—in this volume.

The Squirrels' Harvest—in Half a Hundred Stories.

Mother West Wind Stories by Thornton Burgess.

GAMES.

The Leaves Are Green.
The Little Gray Squirrel.
The Lost Child—sense game for hearing.
Fly Away.
Finding the Chalk by Music.

SONGS.

Milkweed Babies.
Autumn Leaves.
Numbering the Fingers—in Frobel's "Mother Play."

Wee Willie Winkie
The Crooked Man
Little Tommy Twig
} Actions given suitable to the words as given in the poem section of this volume.

RHYTHMS.

Rhymatic exercises are introduced this month and are added to each month as they appeal greatly to the child and help him on expressing himself by means of physical action. The march is the first rhythm taught from which is developed the soldier march. The skip follows

this. Then the flying birds which signify the migration of the birds south. For dramatized action we have for this month the bending trees; the falling leaves which are twirled about by the wind and then fall softly to the ground for their long winter nap; the squirrels gathering nuts and storing them away, and bicycle riding.

MANUAL ACTIVITIES.

Colored leaves should be collected and pressed. Then a thin varnish is applied and the leaves are ready to paste in designs. Or a leaf is marked on paper and then colored the autumn colors.

Purple circles are arranged in clusters for grapes.

Many colored circles are used for balloons that one sees at the fair. A man is cut and colored and these circles arranged on lines (strings) and fastened to the man's hand.

Beads have been popular and now one can add the stringing of beans, peas, or pumpkin seeds which the children delight in bringing from home.

Seed peas put to soak can be utilized with toothpicks to make kites and furniture.

For Hallowe'en, pumpkins may be cut out and colored with eyes, nose, and mouth. Witches, owls, and cats can be cut from black paper and posted around the room for decoration.

Pumpkins and Jack-O-Lanterns are made from the plasticine.

Paper lanterns are made by cutting a folded paper (6 by 9) in strips one half inch wide and leaving them joined at the open sides. Then the paper is opened out and the strips colored in the different colors. This completed, the lantern is rolled around and joined by pasting and then a handle is added.

Paper chains make a very good pasting lesson and form decoration for the usual Hallowe'en party.

NOVEMBER.

It is cold and still,
The wind is away,
And Little Jack Frost
Is busy at play.
He nips my cheeks—
He nips my nose,
But before I can catch him
Away he goes.
Jack Frost! Jack Frost!
You queer little elf!
Where do you go when you hide yourself?

Alys E. Bentley,
A. S. Barnes Co.

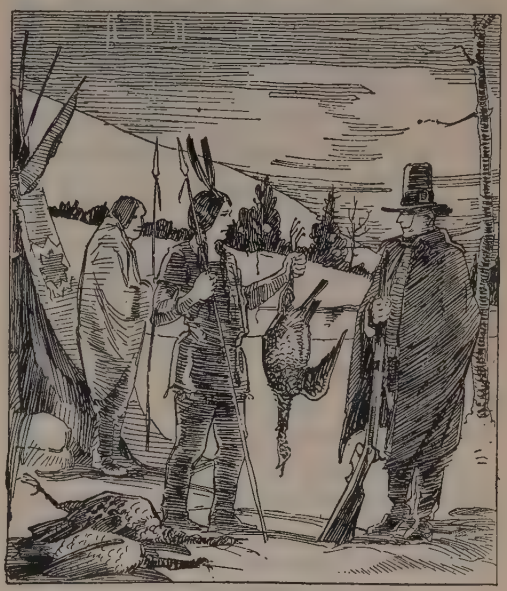
TOPICS.

The Indians.

No subject proves more interesting than the first men of our land. The personal appearance of the Indian is taken up first—the red skin, high cheekbones, black eyes, and coarse straight black hair. Then the dress—suits were made by the squaws out of deerskin and sewed together with small strips of skin in a bone needle. The shoes, or moccasins, were made of deerskin too and ornamented with shells. The boys and girls dressed very much the same. The father wore feathers in his hair and strings of shells around his neck. The children love to bring their modern day moccasins for display and will like to wear their Indian suits.

The home of the Indian is talked of next. Small trees were cut down by the squaws and put in the ground in a circle. These were brought together at the top and bound with a strip of skin. Around this, large buffalo skins were placed with just a small opening for the door. Over this door was fastened a small skin to shut out the cold. In the center of the wigwam, as the tent is called, a hole was hollowed out for the fire. This furnished the heat and the light for the home as well as being used for cooking when the weather did not permit of cooking outdoors.

While the woman built the wigwam and cooked the food, the man or warrior, hunted game—such as buffalo, deer, and small game with his bow and arrows. He was also the fighter. He made the canoes out of birch bark and the large boats out of a large log which he hollowed out by means of first burning and then scraping.



INDIANS—THANKSGIVING.

Several families of Indians lived in a group and belonged to a tribe. When game and food became scarce, the tribe packed their belongings and fastened them on the ponies and all sought a new place where there was running water and plenty of food for both the Indians and the ponies. The women did all of the packing of the wigwams and things and then when the new home was reached, they again set everything to rights.

Long, long ago there were no white men in this country and the Indian reigned supreme—no houses—no stores. Everywhere were woods and prairies. This now leads to the introduction of the white man.

Thanksgiving.

In England the King wished all the people to pray to God as he did and if they did not they

were punished. There were some people who did not like this and so decided to leave England and go to Holland and live with the Dutch people and there they could attend whatever church they wished. This they did and were very well satisfied for a time. But as their children grew up they had adopted Dutch ways and this was not to the liking of the English people. They had heard of the new country called America and they decided they would brave the ocean and go there to make their home. They got two boats, the Mayflower and the Speedwell, and all started for what is now our land. They had not gone far until the Speedwell broke down and they returned to England for repairs. It could not be fixed, so all that could crowded into the Mayflower and once more started on their way. These people were called Pilgrims which means Wanderers.

The trip in the sail boat was a long and tiresome one and all grew very restless. A baby was born on the trip and was called Oceanus and he helped to pass the time for the little children. At last a day came when land was sighted and there was great rejoicing. But there were no comfortable homes waiting for them—nothing but a bleak coast with woods beyond in which many perils lurked. The men landed first and had to build crude log houses before the women and children could go ashore. And among the first buildings to be constructed was a church.

The first winter for these Puritans was a very hard one and with so many privations, many sickened and died and when spring came only about half of the number were living. They had met some friendly Indians and they showed the white man how to plant corn. In the fall, with God's help, the Puritans had a plenteous harvest. They had better homes and more people had joined them from England. So the white people decided to set a day aside to thank God for his blessings and this was the first Thanksgiving. The friendly Indians were invited to the feast and their contribution to it was fluffy white popcorn—the first the white people had ever tasted. But before partaking of the feast, these people assembled at the church and prayed to God and thanked him for all. This first Thanksgiving lasted three whole days.

STORIES.

The Elves and the Shoemaker—a thanksgiving story.
Billy Bob-Tail.
Peter Pan.
Thanksgiving story in Miss Wiltse's "Kindergarten Morning Talks and Stories."
The Little Snow-Girl adapted from Hawthorne's Wonder Book.

GAMES.

The Hen and the Chicks.
Simon Says.
The Farmer and the Chickens.
Sense game as given in (c) of Games.
Skip Tag.

SONGS.

Jack Frost.
Thanksgiving.
Mother Goose Songs.
Winter Song.
The Disappointed Snowflakes.

RHYTHMS.

Jack in the Box.
Galloping Horses.
Brownies.
Indian Dance.

MANUAL ACTIVITIES.

The sand table has been used for free play up to this time but now the children will be interested in developing an Indian display. Canoes, wigwams, Indians, and ponies can be made of stiff paper and made to stand in the sand. One end can be reserved for the Puritans and their log houses.

Cutting and coloring of the turkey.
Clay modeling of the canoe and the wigwam.
Building of forts with blocks.
Stringing of straws and paper parquetry.

DECEMBER.

"A little fir grew in the midst of the wood,
Oh, there in his evergreen dress he stood.
His branches were sweet with the balsam smell,
His needles were green where the snow fell,
And always contented and happy was he—
The very best kind of a Christmas tree."

Henry Van Dyke.

TOPICS.

PREPARATION FOR CHRISTMAS.

Review of why we have a Thanksgiving day—yes; it is to thank the Heavenly Father for all the blessings we enjoy. What month does Thanksgiving come in? Yes; November. And now we are in another month, a month that should be the happiest of all the months. This month gives us the day that the Heavenly Father sent us that which we thank Him most for. This day is the birthday of Christ. Tell the story of the first Christmas, and why it is called "Christmas Day." Show pictures of the Christ-child in the manger, also of the wise men and the shepherds.

The true spirit of giving should be presented to the children. We give because we love those for whom we are working and we want to make them happy. So we give to each other on Christmas Day because it was on that day that the Heavenly Father gave us the Christ-child. The children want to make gifts for their father and mother as they are the ones they love best and preparations are made for an entertainment on the last day of school before the holidays.

Many talks are had upon Santa Claus and the thought of his love for the children is the motive for his lavish giving. Toylands are visited and much free talk is given on the toys seen there—how they work, etc. The children imitate the mechanical action of the various toys

STORIES.

The Night Before Christmas.
Christmas at the Lighthouse.
The Little Fir Tree.
The Bird's Christmas—In the Child's World.
Santa Claus and the Mouse.
The Story of the Christ Child.
Little Piccola.

GAMES.

Pinning candles on a Christmas Tree and seeing who can pin one at the top. Eyes blindfolded.

Santa Claus and His Bells—played the same as the Hen and Chicks with "Merry Christmas" substituted for "Cluck" and "Tinkle, tinkle" for "Peep, peep."

Musical Chair.

SONGS.

Round and Round the Christmas Tree.
Little Jack Horner.
Kris Kringle.
Holy Night, Silent Night.
Away in a Manger.
Santa Claus So Jolly.
Jingle, Jingle, Tiny Bells.

RHYTHMS.

For dramatization of action use the various toys as—beating drums, blowing horns, sliding on sleds, etc.

The long stride of the giants.
Rocking Dolly to sleep.
Riding a Rocking Horse.

MANUAL ACTIVITIES.

For the room and tree decorations, make chains of holly leaves fastened together, these to be cut and colored by the children. Also make Christmas bells out of red cardboard. Chains can be made of small pieces of spaghetti and cranberries.

For the gifts—calendars can be made by coloring anything appropriate to Christmas and mounting on a red or green mount with a little calendar pad pasted just below; blotters can be had by making a fancy cover and fastening it to a piece of blotting paper with a ribbon, 4 by 6 is a convenient size; candle shades with the design on each of the four sides cut out and a tissue paper mounted underneath for a facing; needle books; pen wipers, a colored design combined with red flannel; a telephone list with a Christmas design at the top; a memorandum book, and many other simple useful things that little hands can make.

The sand table is fixed up for Santa Claus Land using sheet wadding for the snow. His house can be constructed of blocks and the work of making a sleigh, reindeers, and toys will make fine occupation for the children.

Out of parquetry and rings many toys are constructed. Plasticine is used in a free construction, too.

Considerable time is used in the learning of little songs and verses for the first *real* entertainment when *Santa Claus* will come and the tree will have many surprises for them.

JANUARY.

"Late lies the wintry sun abed,
A frosty, fiery sleepy head,
Blinks but an hour or two and then,
A blood-red orange, sets again."

R. L. Stevenson.

TOPICS.

The New Year—The Eskimos.

The New Year—Always the New Year brings with it new resolutions and each child will be glad to tell of one thing in which he or she intends to do differently. Some may resolve to keep their hands and face clean, some to come to school every day and to be on time, others to obey when spoken to either at home or at school, and some one else to not be rude and talk when others are talking. In this New Year talk, a survey is made of the different things that the children have learned up to date.

The Eskimos—The children are very interested in the study of the people that live up in the cold north—which means almost Santa land to them. First the appearance of the Eskimo is considered—coarse black hair, black eyes set in a round, yellow face, and they are of short, heavy-set stature. The dress, made by the mothers, consists of two suits of fur, one with the fur turned inside and one with the fur turned outside. The hoods and leggings, likewise, are made of fur and the shoes (kamiks) are made of skins. All dress much the same and one would have difficulty in telling which were the boys and which the girls. Their winter home is made of stone since there are no trees that far north and consequently no wood except driftwood that is washed ashore from some wrecked ship. The house has three parts to it—a large round room where the Eskimos sit, eat, and sleep. The next part is a long low tunnel and at the other end of this is a small round room which is built to keep out the cold. In this is the doorway which is a small round hole which necessitates the Eskimos dropping down on their hands and knees to enter. The stones of the igloo, as the house is called, are put together with moss and covered over with snow that is patted down by means of their snow shovels. In contrast to the Indian, the Eskimo men build these houses. In the room where the Eskimos live there is a bench at one side, often of ice, and this is used as the bed at night and to sit on during the day. A stone lamp filled with whale oil and moss as a wick is used for lighting and heating the igloo as well as for cooking the meat that they do not eat raw. In the summer the Eskimos leave this stone house after opening up the top to let the sun clean house for them in their absence and they journey to a new spot and pitch tents made of skins of the musk ox. The women set up the summer home.

It being so cold in this far away land, the Eskimos have no vegetables and so live on meat and fish. When a bear or a whale is caught by one man of the Eskimo village, the women cut it up and it is passed around to all the families. One sweet morsel to the children, such as candy to our children, is the layer of fat that comes under the skin of the whale which is called blubber. They like to eat this raw. Fishes' eyes are another choice tidbit.

The Eskimos have no horses but dogs carry them about. The fathers usually have a sled made from driftwood and to this are hitched from ten to twenty dogs and it is remarkable to know how rapidly they can travel over the snow. Driftwood is too scarce for the children's

sleds so they are made from blocks of ice. At an early age the little boys learn to drive dogs, to hunt with bow and arrow, and to fish. The Eskimos know that without constant hunting for food, the extreme cold would soon make an end to them. In the summer they catch many fish and dry for winter use and walruses, seals, bears, and deer, caught through the summers, are cut up and placed in storage to guard against the time when it might be impossible to secure food. The big snow storms of the winter often shut them in for many days at a time.

The Eskimo men have each a small boat similar to the canoe of the Indian. In this, the man pulls a skin coat over him and then even if he turns clear over in the water, he can not get water in the boat. Such a boat is called a kyak. For changing their abode in the summer, large "Women Boats" are used.

The dark day of the winter and the light night of the summer is an interesting study. Half of the year it is night most of the time and the other part it is day. The Eskimos have no clocks and so they reckon time by "*sleeps.*"

These people are great believers in signs. They believe the Northern Lights to be the spirits of children dancing in the sky. If they are not industrious and thrifty, they think the giants who live at the edge of the world will come and get them. If a bear is killed, his head is kept for five days and their belief is that then the spirit of the bear goes to the land where the relatives of the Eskimos' live who have passed away.

STORIES.

The Eskimo Twins—a book by Lucy Fitch Perkins.
Buster Bear—Thornton Burgess.
The Three Kittens.
Toolooah—in Child Life in Many Lands.
Hansel and Gretel.
The Snowflakes—Kindergarten Stories and Morning Talks by Miss Wiltse.

GAMES.

My Lady is going on a Journey.
Who Am I?
Ruth and Jacob.
Chain Skip Tag.
Bean Bag Relay Race.

SONGS.

New Year Greeting.
Eskimo Song.
The Clocks.
Dolly's Lying in the Closet.
Day and Night.

RHYTHMS.

Snowflakes.
The Bears.

MANUAL ACTIVITIES.

The presents that the children received for Christmas are still very important and they love to tell about them. They should be allowed to bring some of them to school and show others how they work. Then pictures can be made of the more simple ones, such as the horns, drums, etc.

Snow pictures should be made. The sky is colored blue if for daylight and gray if for night. The snow is made by tearing a piece of white paper to represent an uneven horizon line and then pasted on the mount. A snow man can be built up of various sized circles and the eyes, nose, mouth, buttons, and stick hands being added by means of black crayolas. Skeleton trees, colored black, and a yellow moon make good night pictures. Rabbits jumping in the moonlight on the snow is another suggestion. Boys rolling up large snow-balls can be cut from a pattern, colored and pasted on a snow mount.

Plasticine makes wonderful snow men.

Many pictures of the Eskimos are made. The children delight in making the little Eskimos of construction paper and covering all but his face with sheet wadding to represent fur. The igloo is also covered with the cotton for snow. These pictures can be made very artistic and are of great value in impressing the study of the Eskimo upon their minds. An iceberg or two should be shown as well as some of the animals that live in that region.

The sand table furnishes good material for working out Eskimo land. Cotton and the artificial snow that one gets at Christmas time add much in making realistic effect.

Stick laying—making simple things as snow shovels, sleds, etc.

FEBRUARY.

"There are many flags of many lands,
There are flags of every hue;
But there is no flag, however grand,
Like our own Red, White, and Blue."

TOPICS.

LINCOLN—VALENTINE'S DAY—THE POSTMAN—WASHINGTON.

Lincoln—A story of his life in a simple way should be told to the children and various pictures of him shown so as to impress on their minds the type of man he was. The story of his great desire for learning and the many handicaps that he had to overcome to attain his ambition—the meagerness of their home and circumstances—the rise from a rail-splitter to clerk in a grocery store, then to being a lawyer, and thence to President of our United States—the Civil War and its cause which happened during his term of office—and his untimely death are all topics of interest if told in a child's vocabulary.

Valentine's Day—A little talk on the subject of sending valentines to one another—to show our love.

The Postman—At Valentine time we are very interested in the Postman that delivers the missives or the clerks in the Post Office who hand them out if the town is not large enough to have city delivery. No matter the weather, the postman is always on hand. From him, we go back to a brief study of the Office and of how the mail reaches there and is taken care of. An excursion to the Post Office proves of great value in seeing how much attends the delivering of one Valentine to your door or the sending of one.

Washington—Here again as with Lincoln,

simple story is given of his life and a comparison can be made of the two homes and environment by means of many pictures. Washington's people had the very thing that Lincoln opposed—slaves—but at that time it was thought nothing of. The rise of Washington was more rapid, going from surveyor to the leader of the army during the Revolutionary War and then to the Presidency of the United States.

"First in War,
First in Peace,
And first in the hearts of his Countrymen."

STORIES.

Stories about Lincoln and Washington.
Philip's Valentine—in "In the Child's World."
The Three Pigs.
Androcles.
The Lion and the Mouse.

GAMES.

Soldier Boy.
Chalk game as given in (i) of this volume.
Automobile Game.

SONGS.

America.
George Washington.
Abraham Lincoln.
A Pretty Way.
Flag Of Our Country.
A Valentine.
The Star Spangled Banner.
Soldier Boys.

RHYTHMS.

A Soldier's March—Soldier hats and flags should figure in this. At the conclusion of the march, the flag salute should be given.

"I give my hand,
I give my head,
I give my heart to my countrymen.
One God, one country, and one flag."

An orchestra can be added in which some play their horns and drums and one is chosen to carry the baton and to lead them. The teacher should play a soldier march and while the children will not add to the musical side they will develop a rhythmic sense.

MANUAL ACTIVITIES.

A log cabin can be built of sticks for Lincoln's home.

Then one can be drawn upon paper and colored. A silhouette of Lincoln's face should be made and pasted upon a shield of red, white, and blue.

Valentines for the fourteenth take considerable time as the envelopes are to be made as well. Then a mail box must be covered for the collection of valentines for each other which are given out on that day. Postmen are selected to deliver the valentines to their make believe house (chairs arranged in rows as though they were houses on different streets). So for this, mail bags must be made for the postmen. These can be made by sewing two large pieces of paper together.

For Washington's birthday we will want to make a flag. The first results will be rather discouraging but with repeated attempts, the children will be better able to keep their red coloring within the right lines. Soldier hats should be made by folding. As for Lincoln, a silhouette of Washington should be made. Pictures of Washington as a little soldier boy and as a boy cutting down the cherry tree (a story that every child is familiar with) can be constructed by a cutting, coloring and pasting lesson.

The sand table can be brought into use again for a soldier picture. Tents can be folded, soldiers cut out and fastened on sticks to stand in the sand as on parade. Flags should be colored to adorn the forts.

MARCH.

"Weather-cock, what makes you go
Round and round the whole day so?"
"'Tis the wind whirls me!
'Tis the wind twirls me!
So to all the world I show
How the merry wind doth go."

(From the German)

TOPICS.

THE DUTCH PEOPLE—THE MILLER—THE CIRCULATION OF SAP IN THE MAPLE TREES—THE PUSSY WILLOW.

The Dutch People—March is our windy month and it makes one think of the country where the wind is put to a great deal of use—Holland. Here the wind is needed to make the myriads of windmills go around that are so necessary to keep the land from being flooded.

The people of Holland are fair skinned, with yellow hair and blue eyes. The little girl wears her hair in two long braids down her back while the boy wears his in a bob. Like us, the Dutch boys and girls dress differently. The girl wears a spotless white blouse with a broad girdle of velvet which laces up the front. Her skirt is very full and comes down to the ankles. It is usually made of some bright woolen material. The Dutch people are fond of bright colors. Then the girl wears a lace or a starched linen cap that has points out at each side. The boys wear velveteen jackets that are short and are fastened together with large brass buttons and in the case the father is very rich these buttons are of gold. His trousers are long and baggy, being brought into a band at the ankles. His cap is a little round cloth affair. On the children's feet are woolen stockings that the mother knits and then wooden shoes. They would seem most awkward to us but these Dutch boys and girls can klump along very fast over the cobble stone

The homes are made of brick and are very tall, running to a high gable. Sometimes the houses are six stories high but the top stories are very narrow. The houses are painted bright colors with white door and window casings. The roofs are of red tile. The floor inside is likewise of tile which is kept spotless. The children before entering the house remove their shoes and go around in their heavy woolen stockings. The housewife in Holland is a very industrious type and every thing in the house is kept as neat as a pin. Dutch Cleanser that your mother uses to clean with was so called because it is characteristic of the Dutch to chase away dirt.

The country of Holland is lower than the ocean and so huge walls have to be built to keep the sea from flooding the land. These walls, called dikes, are made of crushed rock and dirt and are wide enough at the top to make a road. Along the dikes are stationed little houses in which men live who watch the dike that no leak comes in it. If one is discovered, a bell is rung as we ring a bell for fire and the men rush to that place to repair it before the water sweeps over the land. Because of the lowness of the land windmills are constantly kept at work to pump water off the land into canals which carry it into the sea through the sluices. These canals are made by digging wide ditches and are used as streets in many places, the people going back and forth to their work or school by means of boats in the summer and skates in the winter when the canals are frozen over.

The windmills have other duties to perform too. They crush the rock for the dikes and grind the wheat and corn for food. They, like the houses, are painted bright colors with snowy white sails and must add much to the picturesqueness of the scenery.

The Dutch are great lovers of flowers and their two favorites are the tulip and the hyacinth. They raise large fields of these and have worked and worked until they have some types that are seen nowhere else. For instance, they have succeeded in raising a black tulip.

In winter skating is a great pastime, grandma and grandpa as well as the children enjoying the sport. The women skate to market with their basket on their heads. In the evening they often have skating festivals. At this time all kinds of fancy sleds and ice boats are displayed. Lights are attached to many and it is quite a beautiful sight.

As in Greenland where the Eskimos live, the dog is used as a horse. In Holland they are made to pull the milk wagons and to carry back and forth to market. One does not see so many horses. But in the meadows cows graze and from their milk, butter and cheese are made.

The stork is a native of Holland and it is no uncommon sight to see their crude nests built upon the tops of the houses. The Dutch like it so. The storks are often seen about the market house picking up the refuse which helps to keep the market clean.

The Miller—From the study of the Dutch people we have found out how their flour is made and that leads us to discover how ours is made. Here the farmer takes his wheat and corn to a mill whose big wheel is turned by the river close by or to a mill that has a great deal of machinery which cleans the grain and grinds it into flour. Show the children the bran that comes from the wheat as well as the flour. An excursion to a mill and its dusty miller is very educative.

The Circulation of Sap in the Maple—We know that spring is on her way by the moist appearance of the maple tree. Explain the process of sugar-making to the children. Suggestions for this talk can be found in "In the Child's World."

The Pussy Willow.—Find if the children have seen anything that would make them think that Mistress Spring was on her way back after her winter down south. The snow melting will be one answer and they have just learned that the moist appearance of the trees shows that spring is near. Yes, maybe some child will bring a sprig of pussy willow. Call their attention to the nice warm dress that pussy has and so she will not mind the cold March winds. While March is one of our spring months, still Jack Frost returns now and then for a visit but unlike in the winter, he does not stay long at a time now.

STORIES.

Little Peter of Holland.
The Mother Stork.
The Maple Tree's Surprise—"In the Child's World."
Charlotte and the Ten Dwarfs.
The Wind—a poem to learn.

GAMES.

Rabbit in the Hollow.
Modes of Travel.
Dutch Dance—Mari Hofer's Folk Dance Book.
Follow the Leader.

SONGS.

The Wind.
The Children of Holland.
The Song of the Trades—with "miller" supplied.
The Pigeons.
Pussy Willow.
The Windmill—by Inez Gordon Brown in The Kindergarten and First Grade Magazine, published by Milton Bradley & Co.

MANUAL ACTIVITIES.

For the Dutch many pictures can be attractively arranged, showing blue sky and blue water, brown strips pasted so as to represent the dikes, the bright colored windmill by the water, and the Dutch boy or girl. Others can show the Dutch house and the stork at the top by the chimney. A boy or girl with tulips which are an easy flower for children to make, a girl with her geese, and any other arrangement that one may desire.

With sticks the Dutch house can be constructed and also the windmill.

The sand table lends itself beautifully for making a Dutch picture.

Free hand drawings of maple trees with a pail catching the sap as it runs out of the improvised spout.

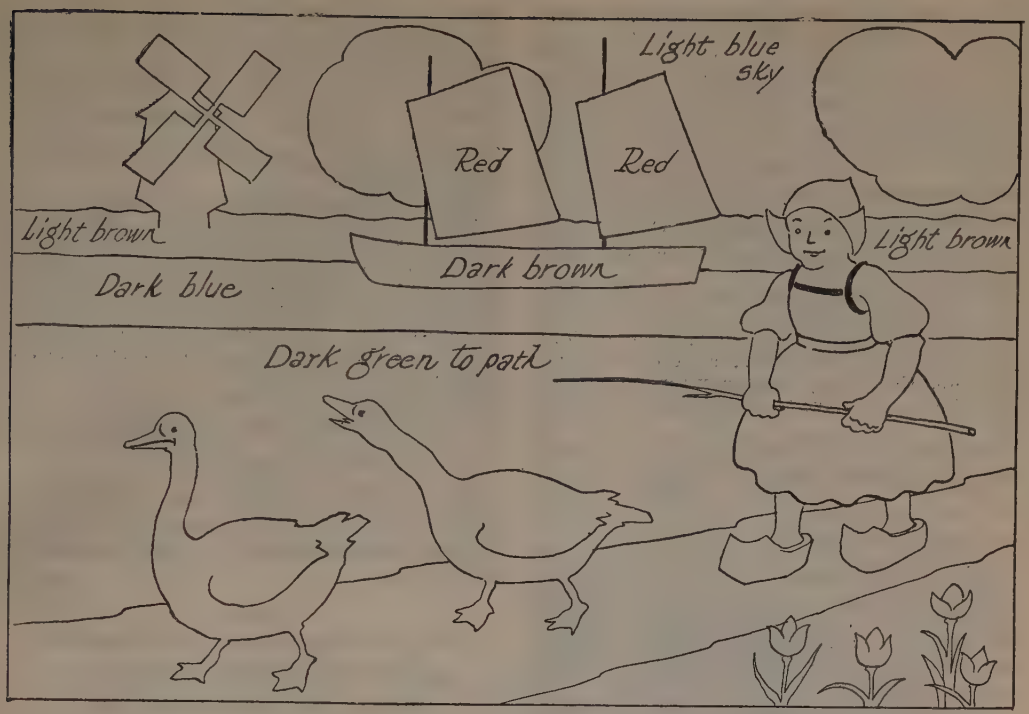
The wind suggests the making of kites—real kites and pictures of kites. Pin wheels are good for this time of year.

Out of the pussy willows that are brought in, pussies can be made sitting on a fence, the head with its ears and the tail are supplied with a black crayola. The soft fur of the pussy willows give them a realistic appearance.

APRIL.

"The rain is raining all around,
It falls on field and tree
It rains on the umbrellas here
And on the ships at sea."

R. L. Stevenson.



A Dutch Picture for Construction.

TOPICS.

Easter—The Farmer's Spring Work—The Barnyard—The Change in Clothing.

Easter—Last month the children's attention was drawn to the waking trees and now some of the early flowers, such as the crocus, are waking up and more will follow. There is also something in the school room that has been sleeping the whole winter through in the nice little house that it spun. It is the caterpillar and when it wakes up it will come out of the little house as a beautiful butterfly. It will stay in one position for quite some time as it has never been out in the world before, its wings are weak and it can not fly. It will later move them slowly up and down and as they grow stronger, it will finally fly.

The grass is now beginning to grow and the trees and bushes are budding out. Baby chicks are hatching and in the midst of growing things, we are not unmindful of who it is that makes things grow. The children will recall the wee babe that they talked of at Christmas time. In brief, tell of how He grew to be a man and became a carpenter. He told the people about the Heavenly Father and after a while He went to live with the Heavenly Father. And the day that He arose is called Easter. The real significance of the day can not be understood by the children of this age and they should be led to think of this season as a season of life rather than a season of death.

After Easter the children will want to tell all about the day and what they did. There are often vivid tales of finding colored Easter eggs and about Easter baskets that they received and where they were hidden.

The Farmer's Spring Work—It is at this time of the year that the farmer gets the ground ready for the seeds. He plows the ground first and then goes over it with a harrow to smooth the clods of earth that the plow has turned up. The seed is planted mainly by machinery in the large fields but in the garden by hand. A talk can be had as to how the different seeds are planted and what the plant is like when it matures, showing again that in some plants, the eatable part grows above the ground and in some it grows below. An excursion to see the planter is the best introduction to this paragraph and the child will be better able to imitate the activities in his small way. If it is not easy to go to see a farmer, a gardner can be observed.

The Barnyard—Along with the talk about the farmer preparing the ground for the spring planting, the subject of the animals that the farmer uses comes up. Where have the animals of the farmer been kept through the long winter when snow was on the ground and the days were very cold? Yes, in the barn where every morning and night the farmer went out to feed them the hay, oats, corn and wheat that he stored in the barn last fall. But now if one were to go out to the farm he would see the different animals out in the barnyard. They are beginning to shed their heavy clothing and to put on lighter suits of fur. This is noticed particularly in the cows and the horses. Have the children name what other animals would be found in the barnyard. Call attention to the chickens, especially to the hen and chicks and then tell how

the mother hen sits on the eggs as the mother bird does, and keeps them warm until the chickens are hatched. As soon as the chickens are hatched the farmer takes the hen and her chicks and puts them in a coop. It is always an interesting sight to see Biddy in the coop and her babies running in and out, gathering the bits of grain that the farmer has scattered about and the constant "Cluck, cluck" of the hen makes us know that she is teaching her babies what to do. Then as dusk comes on, she calls them all in and they snuggle down under her warm feathers for the night.

Notice that the ducks, geese, chickens, turkeys, etc, have feathery coats and two legs. They are called fowls and are a kind of bird. They cannot fly like birds, as their legs are longer and their wings too heavy for long flights. The animals that have hairy or wooly coats have four legs.

The Change in Clothing—We, like the animals, have been wearing heavier clothing to keep out the cold and now we begin to think of making a change, too. Trace the source of the winter clothing and have pictures of the farmer shearing his sheep. Now, the childen see that the material of the clothes that they put on for spring and summer is different and the source of cotton should be the next subject. The children saw the work of the caterpillar and from this, can be shown how silk is obtained from the cocoon of the silkworm.

STORIES.

Little Half Chick.
Chicken Little.
The Story of Speckle—in "In the Child's World."
The Pied Piper of Hamelin.

GAMES.

In Our Garden.
White House Egg Rolling Game.
The Snail.
Little Playmate, Dance With Me.
Dramatization of the Fox and the Crow.
Looby Loo.
Broncho Game.

SONGS.

The Robin.
The Woodpecker.
The Birds' Lullaby.
The Butterfly.
The Rain.
Easter Is Here.

RHYTHMS.

Dance of the Sunbeams.
Butterflies.
Going to Church.

MANUAL ACTIVITIES.

For Easter the children will be kept busy making Easter baskets, coloring Easter eggs, making rabbits and chickens, some coming out of the shell, and various other things indicative of Easter. This work will be free hand and also by the use of patterns.

Umbrellas can be made by cutting a good sized circle of black and folding in half and over from side to side and pasting on a mount and adding a handle and point.

Birds should be made. Wings can be pasted to each side and then when the bird is suspended by a fine black thread, he looks like he was flying.

Plasticine makes fine bird's nests as well as Easter baskets.

Out of sticks can be built bird houses.

The children should arrange a bath for the birds in the school yard so that they can observe the habits of the birds more closely. Bits of string and yarn should be hung where the birds can get it for the construction of their nests. An old nest of two should be brought into the school and examined to see how it is made and what materials are used.

It is interesting to keep a calendar for the month of April, cutting and pasting little umbrellas on the rainy days and round yellow suns on the bright, pleasant days.

The landscape pictures at this period should show a great improvement. The sky, grass, or water should extend evenly across the paper and be done with a much lighter stroke than earlier in the year.

MAY.

"Oh, sun shine bright in the heavens;
Birds, carol your sweetest lay;
Bloom, beautiful star-eyed daisies,
The year has brought us the May."

Susie M. Best.

TOPICS.

MAY DAY—MOTHER'S DAY—THE CIRCUS.

May Day—For May Day a little program of verses and songs should be prepared. The dance around the Maypole is one of the especial features. The children are too little to make this complicated and it is effective if two circles are formed and, moving in opposite directions, they wind around the pole rather than weave. A lively skip music, changing to marching time, gives variety. The maypole gives great pleasure to the children and therefore should not be confined to May Day alone but used all through the month.

Mother's Day—Though this day comes on a Sunday, there should be observance of it the following Monday. If real flowers are not available for each child to wear, the table period can be devoted to making them. Have the children know why this day is observed and many conversations will follow about the many thing that "Mother" does for them.

The Circus—This and June are the months that the circus comes to town. All the interest is centered on that, both for a period before its arrival (in anticipation) and after its departure. They will tell about the different animals that they saw in the parade. The animals should be put in classes—the wild ones and the tamed ones. Have the children name the ones that are kept in the cages and then the ones that are used by the men for carrying purposes. The elephants are always the most favored and the children will delight in telling what they did in both the parade and in the circus. Have them

imitate the bear and the elephant. A little talk can be had as to where these various animals come from and ask the children where they think they would rather be, at home or in the circus.

The clowns will be discussed, too.

The Bees—The bees are busy now with their summer's work. The Queen Bee gets her workers together and allots to each his particular task which is performed with great dispatch. Children like honey and are therefore interested to know a little as to how it is made. Miss Poulsson has good suggestions for this talk. After a little excursion out into the open and observing the busy bees, the children will return more eager to do their work well. The bees teach industry and when the children realize that it is from them that they get the honey, they take even more interest in taking care of the flowers for it is from them that the bee gets the nectar.

STORIES.

The different bird stories in the Boston Collection of Kindergarten stories.

A Narrow Escape—in "In the Child's World."

The Little Pink Rose—in "Stories to Tell Children," by Bryant.

The Honest Woodman.

Danny Meadow Mouse—by Thornton Burgess.

GAMES.

Follow the Leader.
Street Car Ride.
Wheelbarrow Race.
Fly Away.

SONGS.

A Toad Came in from out of Town.
Child's Garden.
The Dandelion.
The Tulip.
The Seeds.
Dance of the Fairies.
My Old Dan.
The Zoo.

RHYTHMS.

The Merry-Go-Round.
The May Pole Dance.

MANUAL ACTIVITIES.

For May Day make baskets for May flowers and fasten a ribbon or colored thread so as to hang them on a door knob.

Tulips can be cut out and colored and pasted on a card board pot.

Hyacinths can be made by pasting little stars cut from colored paper along a stalk. Then paste a pot over the lower end. All this is done on a mount about 4 by 6.

A bird in a birdcage makes an attractive window decoration and from the outside they very much resemble a real bird. Make the cage from fancy wall paper by folding the paper and cutting out the bars. This cage should be at least 9 by 12. Then a bird is cut and colored yellow and pasted to the back of the cage as though standing on a perch.

Various flowers can be worked out with the parquetry and with the rings.

Gardens are constructed with the sticks or pegs.

Clay makes very nice flower pots when dried and covered with shellac.

Pictures of children working in the garden can be developed. The tools for use in the garden can be cut free hand, such as the hoe, the shovel, and the rake.

The circus parade will be eagerly made after the children have seen it. A long strip of wall paper, blue in color, and upon which a narrow brown strip has been pasted to represent the street, makes a suitable mount for this picture. The wagons are cut with the bars and an animal pasted back to look as though it were in the cage. The wagons, harness on the horses and the trappings of the elephants should all be colored bright colors. They add to the gayness of the picture. The clowns, animals, and all should be drawn from patterns or else cut out after being tranced for them. This parade will take considerable time because of the quantity of objects to be shown.

Milton Bradley's Straight Line Cut-outs of the circus make very good borders.

Blocks and colored tablets make Merry-go-rounds, patterned from the child's imagination.

Great plans are laid for the last festivity of the year—the picnic. On this occasion they have a jolly good time out at a spot selected where there are no perils. The children delight in getting away for the day where they can have free play and also all the games that they like best. And of course the lunch is one of the big features of the day.

REFERENCE BOOKS FOR STORIES.

Mother Stories and *More Mother Stories*, by Maud Lindsay, published by Milton Bradley & Co., Springfield, Mass.

In the Child's World, by Emilie Poulsson, published by Lathrop Pub. Co.

Boston Collection of Kindergarten Stories.

The Story Hour, by Kate Douglas Wiggin and

Nora A. Smith, published by Houghton, Mifflin & Co., Boston, Mass.

Child Life in Many Lands—The New Century Reader, published by Rand McNally & Co., Chicago, Ill.

How to Tell Stories to Children and *Stories to Tell to Children*, by Sara C. Cone Bryant, published by Houghton Mifflin & Co., Boston, Mass.

For the Children's Hour, by Carolyn S. Bailey & Clara M. Lewis, published by Milton Bradley & Co., Springfield, Mass.

Kindergarten Stories, by Miss Wiltse.

The Thornton Burgess Books.

The Johnny Gruelle Books, published by P. V. Volland Co., New York.

Aesop's Fables, published by Macmillan & Co., London.

A Kindergarten Story Book, by Jane L. Hoxie, published by Milton Bradley & Co., Springfield, Mass.

The Twin Books, by Lucy Fitch Perkins—these books deal with children of various countries, such as the Eskimos and the Dutch.

REFERENCE BOOKS FOR SONGS

Songs and Shadow Pictures for The Child World, Jessie L. Gaynor, published by The John Church Co., Chicago.

The Song Primer, published by A. S. Barnes & Co., Chicago, Ill.

Child Land in Song and Rhythm, Jones Barbour, published by Arthur P. Schmidt, New York.

Primary Melodies—Rote Songs, published by Ginn & Co., Chicago, Ill.

First Year Music, by Hollis Dann, published by the American Book Co.

Mother Goose Songs and *More Mother Goose Songs*, by Ethel Crowninshield, published by Milton Bradley & Co., Springfield, Mass.

Robert Louis Stevenson Songs, by Ethel Crowninshield, published by Milton Bradley Co.

Small Songs for Small Singers, by Neidlinger, published by G. Schirmer, New York.

Songs of the Child World, Nos. I and II, by Riley and Gaynor, published by The John Church Co., Chicago, Ill.

Finger Plays, by Emilie Poulsson, published by the Lathrop Publishing Co.

Ring Songs and Games, The "Wheelock Girls' Song Book," by Flora H. Clifford, published by Milton Bradley & Co., Springfield, Mass.

Songs of Happiness, by Carolyn S. Bailey and Mary B. Ehrmann, published by Milton Bradley & Co., Springfield, Mass.

REFERENCE BOOKS FOR RHYTHMS.

Rhythms of Childhood, by Caroline Crawford and Elizabeth Fogg, published by A. S. Barnes & Co., Chicago, Ill.

Dramatic Games and Dances for Little Children, by Caroline Crawford.

Music for the Child World, by Mari Hofer, published by Clayton F. Summy Co., Chicago, Ill.

Folk Games and Gymnastic Play for Kindergarten and Primary Playground, Saul Bros., Publishers, Chicago, Ill.

Folk Dance Book, by Mari Hofer. I & II. Published by A. Flanagan & Co., Chicago, Ill.

Children's Singing Games, by Mari Hofer, published by A. Flanagan & Co., Chicago, Ill.

REFERENCE BOOKS FOR POEMS AND RHYMES.

A Child's Garden of Verse, by Robert Louis Stevenson.

Eugene Field Reader, published by Charles Scribner's Sons.

Memory Gems for Children, by Jessie Carr Tyndall, published by the Milton Bradley & Co., Springfield, Mass.

Christina G. Rossetti's Poems.

Gordon Readers, published by D. C. Heath & Co.

Free and Treadwell Reader, published by Row, Peterson & Co.

The Howe Readers, published by Charles Scribner's Sons.

Graded Literature Readers, published by Charles E. Merrill Co.

8. THE RESULTS OF A YEAR'S WORK.

By the end of the year through the singing of songs the children should have better control of their voices. Monotone drills and the reproducing of tones from the piano, should cultivate a better tone and help to get the voice into the head rather than in the throat.

By the discussion of the various subjects, much valuable information has been obtained and much of it will leave a lasting impression which will prove a benefit in the years to come. The mind of the average Kindergartner is very receptive and so care should be exercised that authentic facts are given them. Through the discussion of the economic topics, the children are led to feel a more kindly interest in the home and those who make the home possible, in animals, birds, bees, etc., and to feel that they must aid them rather than hinder or destroy.

Observing the rights of others should be one lesson learned. Habits of courtesy should become almost second nature.

Through the stories, a love for good literature should be attained. Concentration is created. By the dramatization of the stories, a better vocabulary is given to the child and a freedom to express oneself in good grammatical sentences.

The manual activities aid in habits of neatness; a sense of the artistic is fostered; a better color and form idea is formed; the imagination is developed and it helps the child to reproduce what he sees and to create as well.

The games are the greatest factor in instilling the thought of fairness. Initiative in taking the lead is developed. In group games the child must realize that he is part of a whole and must aim to do his best to make the game of interest to all.

Rhythms have developed better control of the muscles and have given more poise. In some cases little physical defects are corrected. A

sense of grace should have been created. Ability to keep time has been attained. The little calisthenics such as imitation of the peddling of a bicycle, the reaching for imaginary grapes, the jumping up from a stooping position as a Jack-in-the-box, deep breathing exercises, etc., strengthen the muscles and are an aid toward better health.

HOW TO DO IT.

Do you want to be happy and gay, little man,
  Do you want to be happy and gay?
Then do a kind deed every day, little man,
  Then do a kind deed every day.

Do you want to be merry and glad, little maid,
  Do you want to be merry and glad?
Then speak a bright word to the sad, little maid,
  Then speak a bright word to the sad.

Do you want to be healthy and wise, little folk,
  Do you want to be healthy and wise?
Then early to bed and to rise, little folk,
  Yes, early to bed and to rise.

From Graded Literature Readers, Book II.
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DREAMING.

A little boy lay dreaming,
Upon his mother's lap,
That the pins fell out of all the stars
And a star fell into his cap.

So when his dream was over,
What did that little boy do?
Why, he went and looked into his cap
And found it was not true.

Nursery Rhyme.

BOATS SAIL ON THE RIVERS.

Boats sail on the rivers,
  And ships sail on the seas;
But clouds that sail across the sky
  Are prettier far than these.

There are bridges on the rivers,
  As pretty as you please;
But the bow that bridges heaven,
  And overtops the trees,
And builds a road from earth to sky,
  Is prettier far than these.

Christina Rossetti.

THE LOST DOLL.

I once had a sweet little doll, dears,
  The prettiest doll in the world;
Her cheeks were so red and so white, dears,
  And her hair was so charmingly curled.
But I lost my dear little doll, dears,
  As I played on the heath one day;
And I cried for her more than a week, dears,
  But I never could find where she lay.

I found my poor little doll, dears,
  As I played on the heath one day;
Folks say she is terribly changed, dears,
  For her paint is all washed away.
And her arm trodden off by the cows, dears,
  And her hair not the least bit curled;
Yet for old sake's sake, she is still, dears,
  The prettiest doll in the world.

Charles Kingsley.

THE NEW MOON.

Dear mother, how pretty
The moon looks tonight!
  She was never so pretty before;
Her two little horns
Are so sharp and so bright,
  I hope she'll not grow any more.

If I were up there,
With you and my friends,
  I'd rock in it nicely you'd see;
I'd sit in the middle
And hold by both ends;
  Oh, what a bright cradle 'twould be!

And there we would stay
In the beautiful skies,
  And through the bright clouds we would roam;
We would see the sun set,
And see the sun rise,
  And on the next rainbow come home.

Eliza Lee Follen.

THE ROBINS.

One day the sun was warm and bright,
  No cloud was in the sky,
Cock robin said, "My little dears,
  It's time for you to fly."
And every little robin said,
  "I'll try, I'll try, I'll try."

I know a child, and who she is
  I'll tell you by and by;
When mother says, "Do this, or that,"
  She says, "What for?" and "Why?"
She'd be a better child by far
  If she would say, "I'll try."

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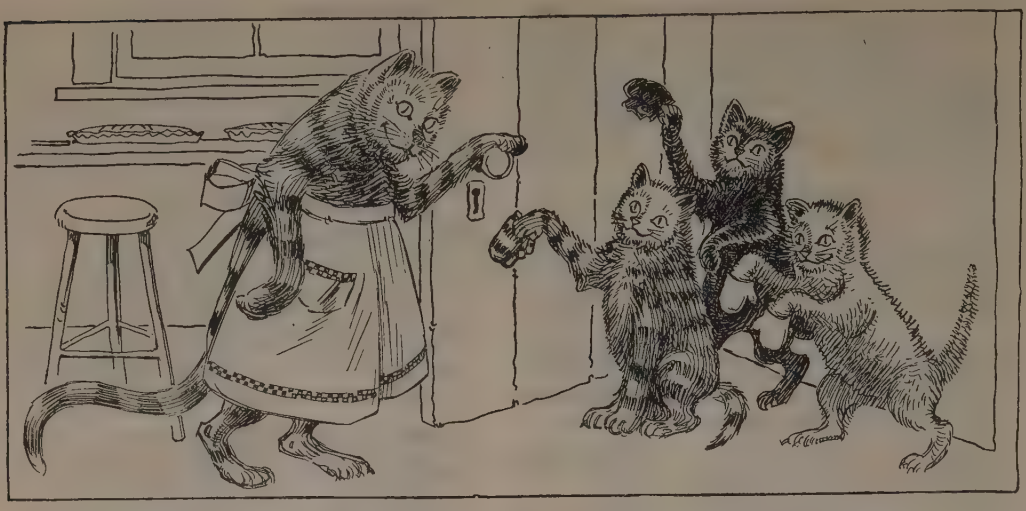

THE THREE KITTENS.

Three little kittens
Lost their mittens,
And they began to cry,
"Oh, mother dear,
We very much fear
That we have lost our mittens."

"Lost your mittens!
You naughty kittens!
Then you shall have no pie."
"Me-ow, me-ow, me-ow!"
"No, you shall have no pie."

Three little kittens
Found their mittens,
And they began to cry,
"Oh, mother dear,
See here, see here!
See, we have found our mittens."

"Found your mittens!
You dear, dear kittens!
Then you shall have some pie."
"Purr, purr, purr!
Oh, we shall have some pie.
"Purr, purr, purr!"

WHO STOLE THE BIRD'S NEST?

"To-whit! To-whit! To-whee!
Will you listen to me?
Who stole four eggs I laid,
And the nice nest I made?"

"Not I," said the cow, "Moo-oo!
Such a thing I'd never do;
I gave you a wisp of hay,
But didn't take your nest away.
Not I," said the cow, "Moo-oo!
Such a thing I'd never do."

Coo, coo! Coo, coo! Coo, coo!
Let me speak a word, too.
Who stole that pretty nest
From little yellow breast?"

"Not I," said the sheep, "oh, no!
I wouldn't treat a poor bird so;
I gave the wool the nest to line,
But the nest was none of mine.
Baa, baa!" said the sheep, "Oh, no!
I wouldn't treat a poor bird so."

"Caw, caw!" cried the crow,
"I should like to know
What thief took away
A bird's nest to-day?"

"Cluck, cluck!" said the hen,
"Don't ask me again;
Why I haven't a chick
That would do such a trick.
We each gave her a feather,
And she wove them together.
Cluck, cluck!" said the hen,
"Don't ask me again!"

"I would not rob a bird,"
Said Little Mary Green;
"I think I never heard
Of anything so mean."
"'Tis very cruel, too,"
Said little Alice Neal;
"I wonder if he knew
How sad the bird would feel?"

A little boy hung down his head,
And went and hid behind the bed;
For he stole that pretty nest
From poor little yellow breast;
And he felt so full of shame
He didn't like to tell his name.

Lydia Maria Child.

EARLY TO BED.

Cock crows in the morn
To tell us to rise,
And he who lies late
Will never be wise.

For early to bed,
And early to rise,
Makes a man healthy,
And wealthy, and wise.

Nursery Rhyme.

BIRDS THOUGHTS.

I lived first in a little house,
And lived there very well;
I thought the world was small and round,
And made of pale blue shell.

I lived next in a little nest,
Nor wanted any other;
I thought the world was made of straw,
And brooded by my mother.

One day I fluttered from the nest
To see what I could find.
I said, "The world is made of leaves,
I have been very blind."

At last I flew beyond the tree,
Quite fit for grown-up labors.
I don't know how the world is made,
And neither do my neighbors!

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TWO LITTLE KITTENS.

Two little kittens, one stormy night,
Began to quarrel, and then to fight.
One had a mouse, the other had none;
And that's the way the fight was begun.

"I will have the mouse," said the bigger cat.
"You will have the mouse! We'll see about that."
"I will have that mouse," said the older one.
"You shall not have the mouse," said the little one.

I told you before 'twas a stormy night
When these two kittens began to fight.
The old woman took her sweeping broom,
And swept the two kittens out of the room.

The ground was covered with frost and snow,
And the two kittens had nowhere to go;
So they laid them down on a mat at the door,
While the old woman finished sweeping the floor.

Then they crept in as quiet as mice,
All wet with snow and cold as ice:
For they thought 'twould be better that stormy night
To lie down and sleep, than to quarrel and fight.

LADY MOON.

Lady Moon, Lady Moon, where are you roving?
"Over the sea."
Lady Moon, Lady Moon, whom are you loving?
"All that love me."

Are you not tired with rolling and never
Resting to sleep?
Why look so pale and sad, as forever
Wishing to weep?

"Ask me not this, little child, if you love me:
You are too bold:
I must obey my dear Father above me,
And do as I am told."

Lady Moon, Lady Moon, where are you roving?
"Over the sea."
Lady Moon, Lady Moon, whom are you loving?
"All that love me."

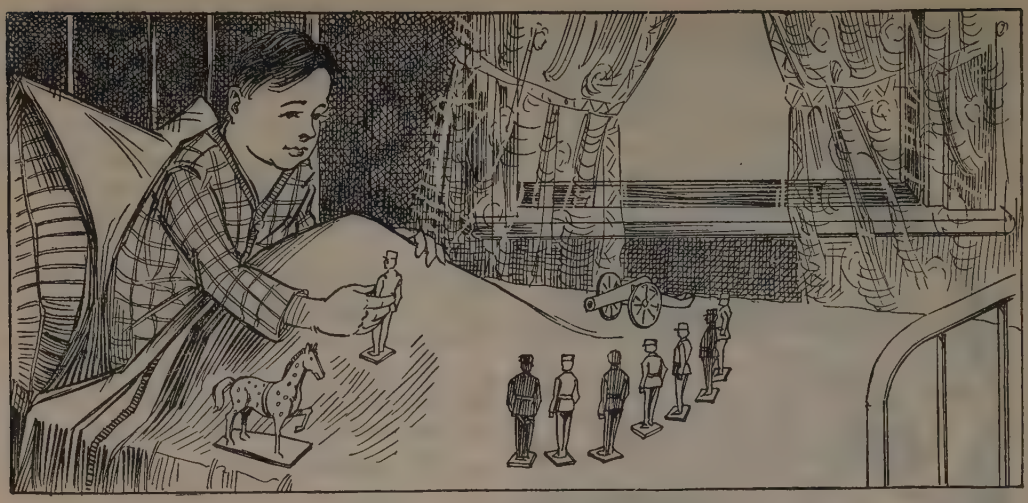
Lord Houghton.

SWEET AND LOW.

Sweet and low, sweet and low,
Wind of the western sea.
Low, low, breathe and blow,
Wind of the western sea!
Over the rolling waters go,
Come from the dying moon and blow,
Blow him again to me;
While my little one, while my pretty one, sleeps.

Sleep and rest, sleep and rest;
Father will come to thee soon.
Rest, rest on mother's breast;
Father will come to thee soon.
Father will come to his babe in the nest;
Silver sails all over the west,
Under the silver moon;
Sleep, my little one, sleep, my pretty one, sleep.

Alfred Tennyson.



THE LAND OF COUNTERPANE.

When I was sick and lay a-bed,
I had two pillows at my head,
And all my toys beside me lay
To keep me happy all the day.

And sometimes for an hour or so
I watched my leaden soldiers go,
With different uniforms and drills,
Among the bedclothes, through the hills;

And sometimes sent my ships in fleets
All up and down among the sheets;
Or brought my trees and houses out,
And planted cities all about.

I was the giant great and still,
That sits upon the pillow-hill,
And sees before him, dale and plain,
The pleasant land of Counter-pane.

Robert Louis Stevenson.

BED IN SUMMER.

In winter I get up at night
And dress by yellow candle-light.
In summer quite the other way,
I have to go to bed by day.

I have to go to bed and see
The birds still hopping on the tree,
Or hear the grown-up people's feet
Still going past me in the street.

And does it not seem hard to you,
When all the sky is clear and blue,
And I should like so much to play,
To have to go to bed by day?

Robert Louis Stevenson.

WINDY NIGHTS.

Whenever the moon and stars are set,
Whenever the wind is high,
All night in the dark and wet,
A man goes riding by.
Late in the night when the fires are out,
Why does he gallop and gallop about?

Whenever the trees are crying aloud,
And ships are tossed at sea,
By, on the highway, low and loud,
By at the gallop goes he.
By at the gallop he goes, and then,
By he comes back at the gallop again.

Robert Louis Stevenson.

MY SHADOW.

I have a little shadow that goes in and out with me,
And what can be the use of him is more than I can see.
He is very, very like me from the heels up to the head;
And I see him jump before me when I jump into bed.

The funniest thing about him is the way he likes to grow—
Not at all like proper children, which is always very slow;
For he sometimes shoots up taller like an india-rubber ball,
And he sometimes gets so little that there's none of him at all.

He hasn't got a notion of how children ought to play,
And can only make a fool of me in every sort of way.
He stays so close beside me, he's a coward you can see;
I'd think it shame to stick to nursie as that shadow sticks to me!
One morning, very early, before the sun was up,
I rose and found the shining dew on every buttercup;
But lazy little shadow, like an arrant sleepy-head,
Had stayed at home behind me and was fast asleep in bed.

Robert Louis Stevenson.

THE WIND.

I saw you toss the kites on high
And blow the birds about the sky;
And all along I heard you pass,
Like ladies' skirts across the grass—
O wind, a-blowing all day long,
O wind, that sings so loud a song!

I saw the different things you did,
But always you yourself you hid.
I felt you push, I heard you call,
I could not see yourself at all—
O wind, a-blowing all day long,
O wind, that sings so loud a song!

O you that are as strong and cold,
O blower, are you young or old?
Are you a beast of field and tree,
Or just another child like me?
O wind, a-blowing all night long,
O wind, that sings so loud a song!

Robert Louis Stevenson.

LITTLE BOY BLUE.

The little toy dog is covered with dust,
But sturdy and stanch he stands;
And the little toy soldier is red with rust,
And his musket molds in his hands.
Time was when the little toy dog was new,
And the soldier was passing fair;
And that was the time when our Little Boy Blue
Kissed them and put them there.

"Now don't you go till I come," he said,
"And don't you make any noise!"
So toddling off to his trundle-bed,
He dreamt of the pretty toys;
And, as he was dreaming, an angel song
Awakened our Little Boy Blue—
Oh! the years are many and the years are long,
But the little toy friends are true!

Ay, faithful to Little Boy Blue they stand,
Each in the same old place—
Awaiting the touch of a little hand,
The smile of a little face;
And they wonder, as waiting the long years through
In the dust of that little chair,
What has become of our Little Boy Blue,
Since he kissed them and put them there.

Eugene Field.

LITTLE DUCKS.

"My dears, whatever are you at?
You ought to be at home;
I told you not to wet your feet,
I told you not to roam.

"Oh, dear! I'm sure you will be drowned,
I never saw such tricks;
Come home at once and go to bed,
You naughty, naughty chicks!"

Now most of them were five days old,
But one whose age was six—
"Please, ma'am," said he, "I think we're ducks;
I don't believe we're chicks."

From the Graded Literature Readers, Book II.
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THE BEE AND THE FLOWER.

The bee buzzed up in the heat.
"I am faint for your honey, my sweet."
The flower said, "Take it, my dear,
For now is the spring of the year,
So come, come!"
"Hum!"
And the bee buzzed down from the heat.

The bee buzzed up in the cold,
When the flower was withered and old.
"Have you still any honey, my dear?"
She said, "It's the fall of the year,
But come, come!"
"Hum!"
And the bee buzzed off in the cold.

Alfred Tennyson.

LOOKING FORWARD.

When I am grown to man's estate,
I shall be very proud and great,
And tell the other girls and boys
Not to meddle with my toys.

Robert Louis Stevenson.

WHOLE DUTY OF CHILDREN.

A child should always say what's true,
And speak when spoken to,
And behave mannerly at table,
At least as far as he is able.

Robert Louis Stevenson.

AN EMERALD AS GREEN AS GRASS.

An emerald is as green as grass;
A ruby, as red as blood;
A sapphire shines as blue as heaven;
A flint lies in the mud.

A diamond is a brilliant stone
To catch the world's desire;
An opal holds a fiery spark;
But a flint holds fire.

Christina G. Rossetti.

THE SHUT-EYE TRAIN.

Come, my little one, with me!
There are wondrous sights to see
As the evening shadows fall;
In your pretty cap and gown,
Don't detain
The Shut-Eye train—
"Ting-a-ling!" the bell it goeth,
"Toot-toot!" the whistle bloweth,
And we hear the warning call;
"All aboard for Shut-Eye Town!"

Over hill and over plain
Soon will speed the Shut-Eye train!
Through the blue where bloom the stars
And the mother moon looks down
We'll away
To land of Fay—
Oh, the sights that we shall see there!
Come, my little one, with me there—
'Tis a goodly train of cars—
"All aboard for Shut-Eye Town!"

Swifter than a wild bird's flight,
Through the realms of fleecy light
We shall speed and speed away!
Let the night in envy frown—
What care we
How wroth she be!
To the Balow-land above us,
To the Balow-folk who love us,
Let us hasten while we may—
"All aboard for Shut-Eye Town!"

Shut-Eye Town is passing fair—
Golden dreams await us there;
We shall dream those dreams, my dear,
Till the Mother Moon goes down—
See unfold
Delights untold!
And in those mysterious places
We shall see beloved faces
And beloved voices hear
In the grace of Shut-Eye Town!

Heavy are your eyes, my sweet,
Weary are your little feet—
Nestle closer up to me
In your pretty cap and gown;
Don't detain
The Shut-Eye train!
"Ting-ling!" the bell it goeth,
"Toot-toot!" the whistle bloweth—
Oh, the sights that we shall see!
"All aboard for Shut-Eye Town!"

Eugene Field.

THE WIND AND THE LEAVES.

"Come, little leaves," said the wind one day.
"Come o'er the meadows with me and play;
Put on your dresses of red and gold,—
Summer is gone and the days grow cold."

Soon as the leaves heard the wind's loud call,
Down they came fluttering, one and all,
Over the brown fields they danced and flew,
Singing the soft little songs they knew.

Dancing and flying the little leaves went;
Winter had called them and they were content.
Soon fast asleep in their earthy beds,
The snow laid a coverlet over their heads.

George Cooper.

WHAT IS PINK.

What is pink? A rose is pink,
By the fountain's brink.

What is red? A poppy's red,
In its barley bed.

What is blue? The sky is blue,
Where the clouds float through.

What is white? A swan is white,
Sailing in the light.

What is yellow? Pears are yellow,
Rich and ripe and mellow.

What is green? The grass is green,
With small flowers between.

What is violet? Clouds are violet,
In the summer twilight.

What is orange? Why, an orange,
Just an orange!

Christina G. Rossetti.

DAISIES.

Where the pretty bright-eyed daisies are,
With blades of grass between,
Each stands up like a star
Out of a sky of green.

Christina G. Rossetti.

THE SWING.

How do you like to go up in a swing?
Up in the air so blue.
Oh, I do think it's the pleasantest thing
Ever a child can do.

Up in the air and over the wall,
Till you can see so wide,
Rivers and trees and cattle
And all over the countryside.

Robert Louis Stevenson.

THE LITTLE ELF.

I met a little Elf-man once,
Down where the lilies blow.
I asked him why he was so small,
And why he did not grow.

He slightly frowned, and with his eye
He looked me through and through.
"I'm quite as big for me," said he,
"As you are big for you."

John Kendrick Bangs from Gordon Reader, published by D. C. Heath and Co.

MILKING TIME.

When the cows come home the milk is coming;
Honey's made while the bees are humming;
Duck and drake on the rushy lake,
And the deer live safe in the breezy brake;
And the timid, funny, pert little bunny
Winks his nose and sits all sunny.

Christina G. Rossetti.

RIDDLES.

Higher than a house, higher than a tree,
Oh, whatever can it be?
A Star.

Black within and red without;
Four corners round about.
A Chimney.

From Gordon Reader, published by D. C. Heath and Company.

THE COW.

Thank you, pretty cow, that made
Pleasant milk to soak my bread,
Every day and every night,
Warm, and fresh, and sweet, and white.

Do not chew the hemlock rank,
Growing on the weedy bank;
But the yellow cowslips eat,
They will make it very sweet.

Where the purple violet grows,
Where the bubbling water flows,
Where the grass is fresh and fine,
Pretty cow, go there and dine.

Jane Taylor.

THE CITY MOUSE.

The city mouse lives in a house;—
The garden mouse lives in a bower,
He's friendly with the frogs and toads,
And sees the pretty plants in flower.

The city mouse eats bread and cheese;—
The garden mouse eats what he can;
We will not grudge him seeds and stalks,
Poor little timid furry man.

Christina G. Rossetti

From Gordon Reader, published by D. C. Heath and Company.

He prayeth best who loveth best,
All things both great and small;
For the dear God who loveth us,
He made and loveth all.

Samuel Taylor Coleridge.

TWINKLE, TWINKLE LITTLE STAR.

Twinkle, twinkle, little star;
How I wonder what you are!
Up above the world so high,
Like a diamond in the sky.

When the blazing sun has gone,
When he nothing shines upon,
Then you show your little light,
Twinkle, twinkle, all the night.

In the dark blue sky you keep,
And often through my curtains peep;
For you never shut your eye
Till the sun is in the sky.

As your bright and tiny spark
Lights the traveler in the dark,
Though I know not what you are,
Twinkle, twinkle, little star!

Nursery Rhyme.

WHITE SHEEP.

White sheep, white sheep,
On a blue hill.
When the wind stops—
You all stand still.
When the wind blows—
You walk away slow;
White sheep, white sheep,
Where do you go?

Nursery Rhyme.

BLOCK CITY.

ROBERT LOUIS STEVENSON.

What are you able to build with your blocks?
Castles and palaces, temples and docks.
Rain may keep raining and others go roam,
But I can be happy and building at home.

Let the sofa be mountains, the carpet be sea;
There I'll establish a city for me:
A kirk and a mill and a palace besides,
And a harbor as well where my vessels may ride.

Great is the palace with pillar and wall,
A soar of a tower on top of it all,
And steps coming down in an orderly way
To where my toy vessels lie safe in the bay.

This one is sailing and that one is moored:
Hark to the song of the sailors on board.
And see, on the steps of my palace the kings
Coming and going with presents and things.

Now I have done with it, down let it go.
All in a moment the town is laid low.
Block upon block lying scattered and free,
What is there left of my town by the sea?

Yet as I saw it, I see it again,
The kirk and the palace, the ships and the men,
And as long as I live, and where'er I may be,
I'll always remember my town by the sea.

Robert Louis Stevenson.

A GOOD BOY.

I woke before the morning,
I was happy all the day,
I never said an ugly word,
But smiled and kept at play.

And now at last the sun
Is going down behind the wood,
And I am very happy,
For I know that I've been good.

My bed is waiting, cool and fresh,
With linen smooth and fair,
And I must off to slumber land,
And not forget my prayer.

Then sleep will hold me tightly
Till I waken at the dawn,
And hear the robins singing
In the lilacs round the lawn.

Robert Louis Stevenson.

WHERE GO THE BOATS?

Dark brown is the river,
Golden is the sand,
It flows along forever,
With trees on either hand.

Green leaves a-floating,
Castles of the foam,
Boats of mine a-boating—
Where will all come home?

On goes the river
And out past the mill,
Away down the valley,
Away down the hill.

Away down the river,
A hundred miles or more,
Other little children
Shall bring my boats ashore.

Robert Louis Stevenson.

SIMPLE SIMON.

Simple Simon met a pieman
Going to the fair;
Said Simple Simon to the pieman,
"Let me taste your ware."

Said the pieman to Simple Simon,
"Show me first your penny."
Said Simple Simon to the pieman,
"Indeed I have not any."

Simple Simon went a-fishing
To try to catch a whale;
But all the water that he had
Was in his mother's pail.

Simple Simon went to see
If plums grew on a thistle;
He pricked his fingers very much,
Which made poor Simon whistle.

Simple Simon went a hunting,
To try to catch a hare;
He rode a goat about the streets,
But could not find one there.

He carried water in a sieve,
But soon it all ran through;
And now poor Simple Simon
Must say good-bye to you.

American Mother Goose Rhymes.

LITTLE THINGS.

Little drops of water,
Little grains of sand,
Make the mighty ocean,
And the pleasant land.

And the little mountains,
Humble though they be,
Make the mighty ages
Of eternity.

Little deeds of kindness,
Little words of love,
Make our earth an Eden,
Like the heaven above.

Ebenezer Bobham Brewer.

Bow-wow wow!
Whose dog art thou?
Little Tom Tucker's dog,
Bow-wow wow!

AMERICA.

My country, 'tis of thee,
Sweet land of liberty,
Of thee I sing;
Land where my fathers died,
Land of the Pilgrims' pride
From every mountain side,
Let freedom ring!

My native country, thee—
Land of the noble free—
Thy name I love;
I love thy rocks and rills,
Thy woods and templed hills;
My heart with rapture thrills,
Like that above.

Let music swell the breeze,
And ring from all the trees
Sweet freedom's song;
Let mortal tongues awake;
Let all that breathe partake;
Let rocks their silence break,
The sound prolong.

Our fathers' God to Thee,
Author of liberty,
To Thee we sing;
Long may our land be bright
With freedom's holy light;
Protect us by Thy might,
Great God, our King!

Samuel F. Smith.

OUR FLAG.

There are many flags of many lands,
There are flags of every hue;
But there is no flag, however grand,
Like our own Red, White, and Blue.

Then hurrah for the flag, our country's flag,
With its stripes and its bright stars, too
For there is no flag, however grand,
Like our own Red, White, and Blue.

From the Howe Reader, Book II, published by Charles Scribner's Sons.

A MUSIC BOX.

I am a little Music Box,
Wound up and made to go,
And play my little living tune
The best way that I know.

If I am naughty, cross, or rude,
My music will go wrong,
My little works be tangled up,
And spoil the pretty song.

I must be very sweet and good
And happy all the day,
And then the little Music Box
In tune will always play.

Abbie Farwell Brown.

From the Howe Reader, Book II, Published by Charles Scribner's Sons.

THE ROCK-A-BY LADY.

The Rock-a-by Lady from Hush-a-by Street
Comes stealing; comes creeping;
The poppies they hang from her head to her feet,
And each hath a dream that is tiny and fleet—
She bringeth her poppies to you, my sweet,
When she findeth you sleeping!

There is one little dream of a beautiful drum—
"Rub-a-dub!" it goeth;
There is one little dream of a big sugar-plum,
And lo! thick and fast the other dreams come
Of popguns that bang, and tin tops that hum,
And a trumpet that bloweth!

And dollies peep out of those wee little dreams
With laughter and singing;
And boats go a-floating on silvery streams,
And the stars peek-a-boo with their own misty gleams,
And up, up, and up, where the Mother Moon beams,
The fairies go winging!

Would you dream all these dreams that are tiny and fleet?
They'll come to you sleeping;
So shut the two eyes that are weary, my sweet,
For the Rock-a-by Lady from Hush-a-by Street,
With poppies that hang from her head to her feet,
Comes stealing, comes creeping.

Eugene Field.

Mary had a little lamb,
His fleece was white as snow;
And every where that Mary went,
That lamb was sure to go.

CRADLE SONG.

Sleep, baby, sleep!
Thy father is watching the sheep!
Thy mother is shaking the dreamland tree,
And down drops a little dream for thee.
Sleep, baby, sleep!

Sleep, baby, sleep!
The great stars are the sheep,
The little stars are the lambs, I guess;
The bright moon is the shepherdess.
Sleep, baby, sleep!

Sleep, baby, sleep!
Thy father is watching the sheep!
Thy mother is shaking the dreamland tree,
And down drops a little dream for thee.
Sleep, baby, sleep!

From the Howe Reader, Book II, published by Charles Scribner's Sons.

BILL OF FARE.

Pies of pumpkin, apple, mince,
Jams and jellies, peaches, quince,
Purple grapes and apples red,
Cakes and nuts and gingerbread—
That's Thanksgiving.

Turkey! Oh, a great big fellow!
Fruits all ripe and rich and mellow,
Everything that's nice to eat,
More than I can now repeat—
That's Thanksgiving.

Lots and lots of jolly fun,
Games to play and races run,
All as happy as can be—
For this happiness, you can see,
Makes Thanksgiving.

We must thank the One who gave
All the good things that we have:
That is why we keep the day
Set aside, our mammas say,
For Thanksgiving.

Eugene Field.

THE MONTHS.

January brings the snow,
Makes our feet and fingers glow.

February brings the rain,
Thaws the frozen lake again.

March brings breezes sharp and chill,
Shakes the dancing daffodil.

April brings the primrose sweet,
Scatters daisies at our feet.

May brings flocks of pretty lambs,
Sporting 'round their fleecy dams.

June brings tulips, lilies, roses,
Fills the children's hands with posies.

Hot July brings thunder-showers,
Apricots and gilly-flowers.

August brings the sheaves of corn;
Then the harvest home is borne.

Warm September brings the fruit;
Sportsmen then begin to shoot.

Brown October brings the pheasant,
Then to gather nuts is pleasant.

Dull November brings the blast—
Hark! the leaves are whirling fast.

Cold December brings the sleet,
Blazing fire and Christmas treat.

Sara Coleridge.

From the Howe Reader, Book II, published by Charles Scribner's Sons.

THE NIGHT BEFORE CHRISTMAS.

'Twas the night before Chrismas,
When all through the house
Not a creature was stirring,
Not even a mouse.

The stockings were hung
By the chimney with care,
In hopes that St. Nicholas
Soon would be there.

The children were nestled
All snug in their beds,
While visions of sugar-plums
Danced through their heads.

Mamma in her 'kerchief,
And I in my cap
Had just settled our brains
For a long winter's nap.

When out on the lawn
There arose such a clatter:
I sprang from my bed
To see what was the matter.

Away to the window
I flew like a flash,
Tore open the shutters
And threw up the sash.

The moon on the breast
Of the new fallen snow
Gave a lustre of mid-day
To objects below:

When what to my wondering eyes
Should appear—
But a miniature sleigh
And eight tiny reindeer!

With a little old driver,
So lively and quick:
I knew in a moment
It must be St. Nick.

More rapid than eagles
His coursers they came,
And he whistled and shouted
And called each by name:

"Now, Dasher, now, Dancer,
Now, Prancer, now, Vixen!
On, Comet! On, Cupid!
On, Donner and Blitzen!

To the top of the porch,
To the top of the wall,
Now, dash away, dash away,
Dash away, all!"

As dry leaves before the wild hurricane fly,
When they meet with an obstacle, mount to the sky:
So up to the house-top the coursers, they flew,
With a sleigh full of toys, and St. Nicholas, too.

And, then in a twinkling,
I heard on the roof
The prancing and pawing
Of each little hoof.

As I drew in my head,
And was turning around,
Down the chimney St. Nicholas
Came with a bound.

He was dressed all in fur
From his head to his foot,
And his clothes were all tarnished
With ashes and soot.

A bundle of toys
He had flung on his back,
And he looked like a peddler
Just opening his pack.

His eyes, how they twinkled!
His dimples, how merry!
His cheeks were like roses,
His nose like a cherry.

His droll little mouth
Was drawn up like a bow,
And the beard on his chin
Was as white as the snow.

The stump of a pipe
He held tight in his teeth,
And the smoke, it encircled
His head like a wreath.

He had a broad face,
And a little round belly
That shook when he laughed
Like a bowl full of jelly.

He was chubby and plump—
A right jolly old elf,
And I laughed when I saw him
In spite of myself.

A wink of his eye,
And a twist of his head
Soon gave me to know
I had nothing to dread.

He spoke not a word
But went straight to his work,
And filled all the stockings
Then turned with a jerk—

And, laying his finger
Aside of his nose,
And giving a nod,
Up the chimney he rose.

He sprang to his sleigh,
To his team gave a whistle,
And away they all flew
Like the down on the thistle.

And I heard him exclaim
Ere he drove out of sight:
"MERRY CHRISTMAS TO ALL,
AND TO ALL A GOOD NIGHT."

Clement Moore.

THE COW.

The friendly cow all red and white,
I love with all my heart.
She gives me cream with all her might,
To eat with apple tart.

She wanders lowing here and there,
And yet she cannot stray,
All in the pleasant open air,
The pleasant light of day;

And blown by all the winds that pass
And wet with all the showers,
She walks among the meadow grass
And eats the meadow flowers.

Robert Louis Stevenson.

MEMORY GEMS.

'Tis a lesson you should heed:
Try, try again;
If at first you don't succeed,
Try, try again.

He prayeth best who loveth best,
All things both great and small,
For the dear God who loveth us,
He made and loveth all.

If a task is once begun,
Never leave it till it's done;
Be the labor great or small,
Do it well or not at all.

Do your best, your very best,
And do it every day;
Little boys and little girls,
That is the wisest way.

Be the matter what it may,
Always speak the truth;
If at work or if at play,
Always speak the truth.

One good trick is better than a hundred poor ones.

Hearts, like doors, will ope with ease
To very, very little keys;
And don't forget that two are these:
"I thank you, sir," and "If you please."

To do to others as I would
That they should do to me,
Will make me honest, kind, and good,
As children ought to be.

Little children, you must seek
Rather to be good than wise;
For the thoughts you do not speak
Shine out in your cheeks and eyes.

Birds of a feather flock together.
Fine feathers do not make fine birds.

All things bright and beautiful,
All creatures great and small
All things wise and wonderful,
The good God made them all.

Politeness is to do or say
The kindest thing in the kindest way.

In books or work or healthful play
Let my first years be passed,
That I may give for every day
Some good account at last.

FINGER PLAY.

Roll your hands, roll your hands,
As slowly, as slowly, as slow can be.
Then fold your arms like me.

Roll your hands, roll your hands,
As swiftly, as swiftly, as swift can be.
Then fold your arms like me!

Clasp your hands, clasp your hands,
As softly, as softly, as soft can be.
Then fold your arms like me!

Clap your hands, clap your hands,
As loudly, as loudly, as loud can be.
Then fold your hands like me.

If all were rain and never sun,
No bow would span the hill;
If all were sun and never rain,
There'd be no rainbow still.

Christina G. Rossetti.

THE DUEL.

The gingham dog and the calico cat
Side by side on the table sat;
'Twas half-past twelve, and (what do you think!)
Nor one nor t'other had slept a wink!
The old Dutch clock and the Chinese plate
Appeared to know as sure as fate
There was going to be a terrible spat.
(I wasn't there; I simply state
What was told to me by the Chinese plate!)

The gingham dog went "Bow-wow-wow!"
And the calico cat replied "Mee-ow!"
The air was littered an hour or so,
With bits of gingham and calico,
While the old Dutch clock in the chimney-place
Up with its hands before its face,
For it always dreaded a family row!
(Now mind: I'm only telling you
What the old Dutch clock declares is true!)

The Chinese plate looked very blue,
And wailed, "Oh, dear! What shall we do!"
But the gingham dog and the calico cat
Wallowed this way and tumbled that,
Employing every tooth and claw
In the awfullest way you ever saw—
And, oh! how the gingham and calico flew!
(Don't fancy I exaggerate—
I got my news from the Chinese plate!)

Next morning, where the two had sat
They found no trace of dog or cat:
And some folks think unto this day
That burglars stole that pair away!
But the truth about the cat and pup
Is this: they ate each other up!
Now what do you really think of that!
(The old Dutch clock it told me so
And that is how I came to know.)

Eugene Field.

SINGING.

Of speckled eggs the birdie sings,
And nests among the trees;
The sailor sings of ropes and things
In ships upon the sea.

The children sing in far Japan,
The children sing in Spain;
The organ with the organ man
Is singing in the rain.

Robert Louis Stevenson.

THE HORSES OF THE SEA

The horses of the sea
Rear a foaming crest,
But the horses of the land
Serve us best.

The horses of the land
Munch corn and clover,
While the foaming sea horses
Toss and turn over.

Christina G. Rossetti.

CHICK-A-DEE, DEE.

Chick-chick-a-dee-dee! saucy note
Out of sound heart and merry throat,
As if it said Good-day, good Sir!
Fine afternoon, old passenger!
Happy to meet you in these places
Where January brings new faces.

Ralph Waldo Emerson.

THE SUN'S TRAVELS.

The sun is not abed when I
At night upon my pillow lie;
Still round the earth his way he takes,
And morning after morning makes.

While here at home, in shining day,
We round the sunny garden play,
Each little Indian sleepy-head
Is being kissed and put to bed.

And when at eve I rise from tea,
Day dawns beyond the Atlantic sea;
And all the children in the west
Are getting up and being dressed.

Robert Louis Stevenson.

How doth the little busy bee
Improve each shining hour,
And gather honey all the day
From every opening flower!

How skillfully she builds her cell!
How neat she spreads the wax!
And labors hard to store it well
With the sweet food she makes.

Isaac Watts.

AT THE SEA-SIDE.

When I was down beside the sea,
A wooden spade they gave to me,
To dig the sandy shore.

My holes were empty like a cup,
In every hole the sea came up,
Till it could come no more.

Robert Louis Stevenson.

A GOOD PLAY.

We built a ship upon the stairs
All made of the back bedroom chairs,
And filled it full of sofa pillows.
To go a-sailing on the billows.

We took a saw and several nails,
And water in the nursery pails;
And Tom said, "Let us also take
An apple and a slice of cake;"—
Which was enough for Tom and me
To go a-sailing on till tea.

We sailed along for days and days,
And had the very best of plays;
And Tom fell out and hurt his knee;
So there was no one left but me.

Robert Louis Stevenson.

MY BED IS A BOAT.

My bed is like a little boat;
Nurse helps me in when I embark;
She girds me in my sailor's coat
And starts me in the dark.

At night, I go on board and say
Good-night to all my friends on shore;
I shut my eyes and sail away
And see and hear no more.

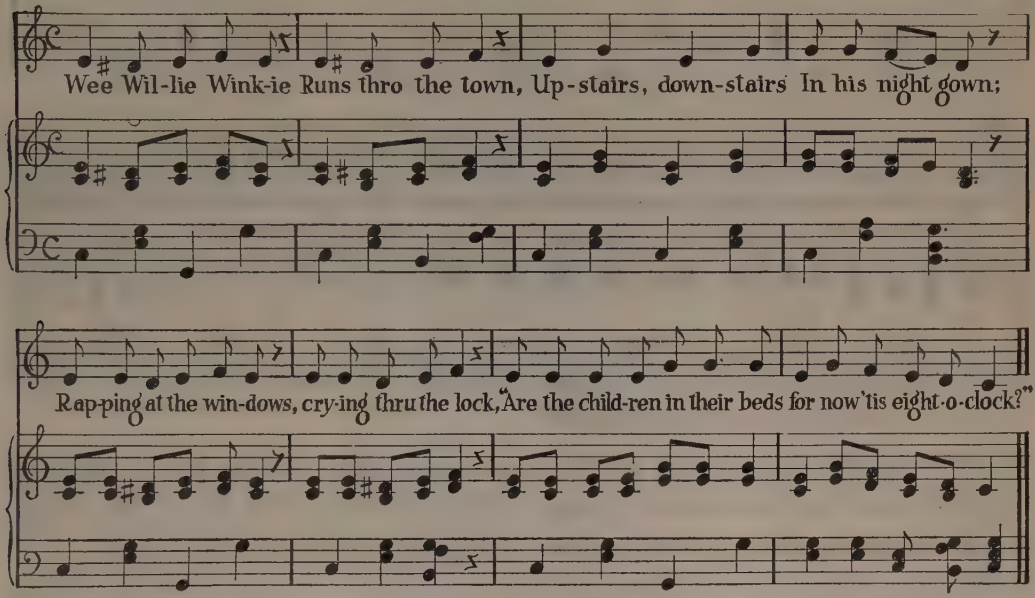
* * * * * *

All night across the dark we steer;
But when the day returns at last,
Safe in my room beside the pier,
I find my vessel fast.

Robert Louis Stevenson

WEE WILLIE WINKIE.

MOTHER GOOSE. BEATRICE R. COFFLAND.


Wee Wil-lie Wink-ie Runs thro the town, Up-stairs, down-stairs In his night gown;
Rap-ping at the win-dows, cry-ing thru the lock, "Are the child-ren in their beds for now 'tis eight-o-clock?"

Wee Willie Winkie runs through the town,
Upstairs and downstairs in his night gown.
Rapping at the window,
Crying through the lock,
"Are the children in their beds, for now it's eight o'clock?"

William Miller.

One is chosen for Wee Willie Winkie and he runs around on tiptoe. At "rapping at the windows" he stops at someone's chair and knocks —pretends to cry through the lock, and points finger to ask if all are in bed.

SIMPLE SIMON.

Simple Simon met a pieman
Going to the fair.
Said Simple Simon to the pieman,
"Let me taste your ware."
The pieman said to Simple Simon,
"Show me first your penny,"
Said Simple Simon to the pieman,
"Indeed I have not any."

Mother Goose.

This should be done in pantomime by two children while the other children sing the words. The two walk around and meet each other, one as Simple Simon and one as the pieman. Stop when the conversation begins. On "Let me taste your ware" Simple Simon motions for some pie and indicates what he wants with it by pretending to eat. The pieman motions for the penny but by the shake of the head and throwing of the arms, Simple Simon shows that he has not any.

LITTLE TOMMY TWIG.

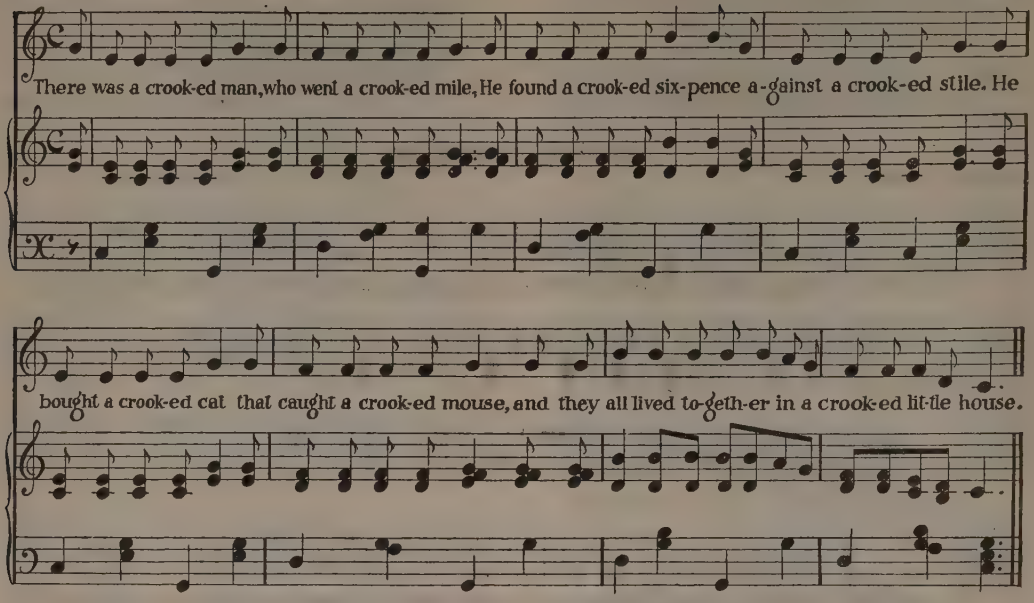
Little Tommy Twig had a fine bow and arrow.
What will he shoot? Why, a poor little sparrow.
Oh, fie! Little Tom with your fine bow and arrow!
How cruel to shoot a poor little sparrow.

Mother Goose.

An imaginary bow and arrow held in position for shooting for the first line. A pointed finger for the second line. A stamp of the foot for the third. A clap of the hands and pointed finger for the fourth.

THE CROOKED MAN.

MOTHER GOOSE. BEATRICE R. COFFLAND.

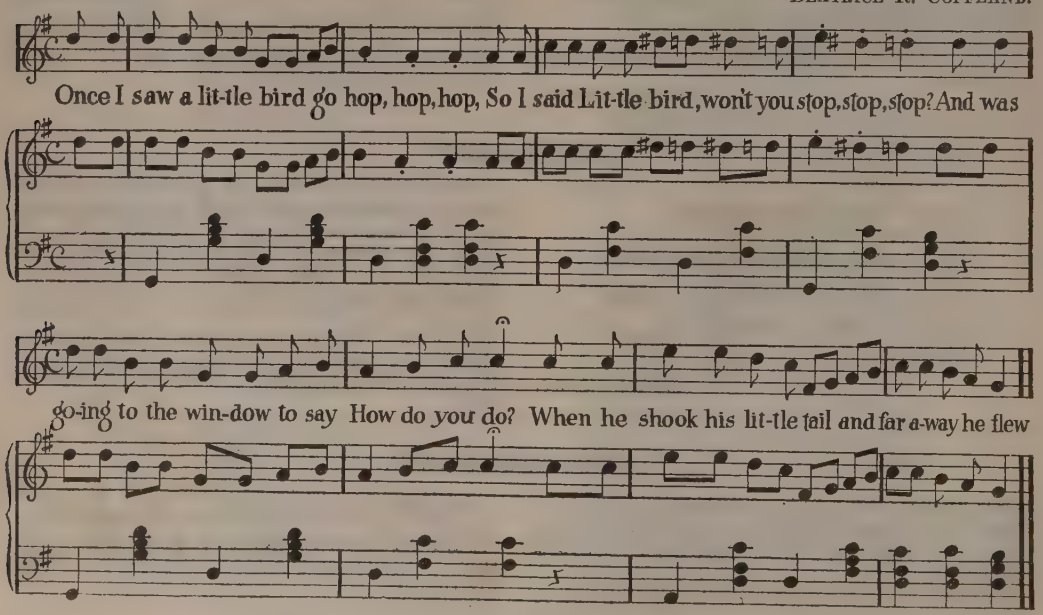

There was a crook-ed man, who went a crook-ed mile, He found a crook-ed six-pence a-gainst a crook-ed stile. He
bought a crook-ed cat that caught a crook-ed mouse, and they all lived to-geth-er in a crook-ed lit-tle house.

There was a crooked man, and he went a crooked mile,
He found a crooked sixpence against a crooked stile;
He bought a crooked cat, which caught a crooked mouse,
And they all lived together in a crooked little house.

Mother Goose.

One starts out as the crooked man who walks crooked by crossing one foot far over the other, etc. He touches one for the crooked sixpence who follows behind in the same manner—then one for the cat and one for the mouse. Much laughter is evoked by the crooked walking.

MOTHER GOOSE. BEATRICE R. COFFLAND.


Once I saw a lit-tle bird go hop, hop, hop, So I said Lit-tle bird, won't you stop, stop, stop? And was
go-ing to the win-dow to say How do you do? When he shook his lit-tle tail and far a-way he flew

THE LITTLE BIRD.

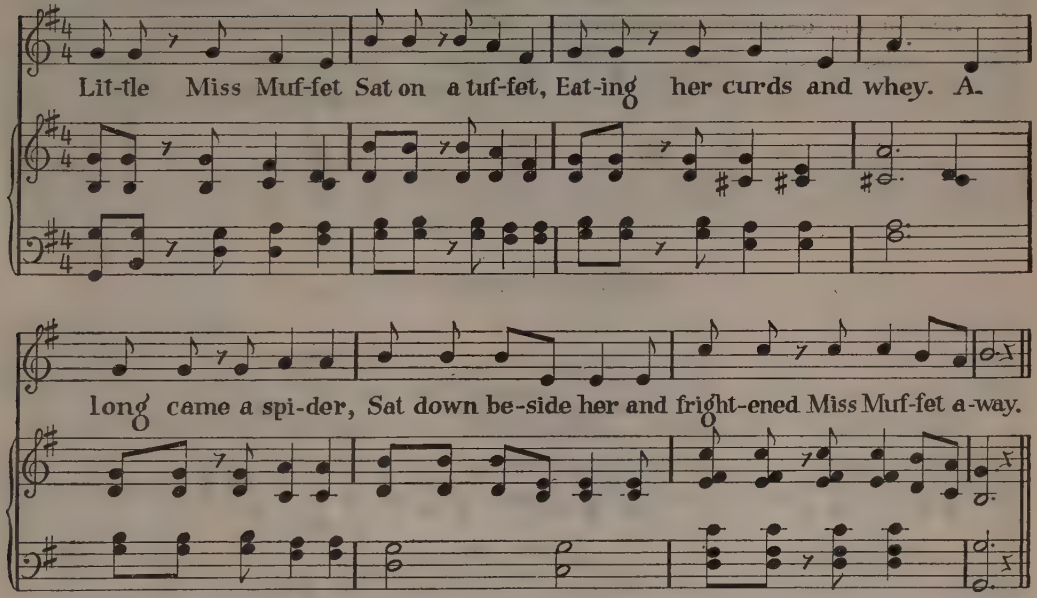
Once I saw a little bird go hop, hop, hop;
So I said, "Little bird, won't you stop, stop, stop?"
And was going to the window to say, "How do you do?",
But he shook his little tail
And far away he flew.

Mother Goose.

Several are chosen to stand in a row. Hand shading the eyes for "once I saw." Three hops for "hop, hop, hop." Hands held out entreatingly for "Little bird won't you stop, stop, stop?" A bow or courtsy for "How do you do." Wave of the hand for "shook his little tail" and flying of the arms for "far away he flew."

LITTLE MISS MUFFET.

MOTHER GOOSE. BEATRICE R. COFFLAND.


Lit-tle Miss Muf-fet Sat on a tuf-fet, Eat-ing her curds and whey. A-
long came a spi-der, Sat down be-side her and fright-ened Miss Muf-fet a-way.

Little Miss Muffet sat on a tuffet,
Eating of curds and whey.
Along came a spider
And sat down beside her
And frightened Miss Muffet away.

Mother Goose.

Miss Muffet sits on a stool with a bowl and spoon pretending to eat. A child crawls toward her as the spider which frightens Miss Muffet and she drops the things and runs away.

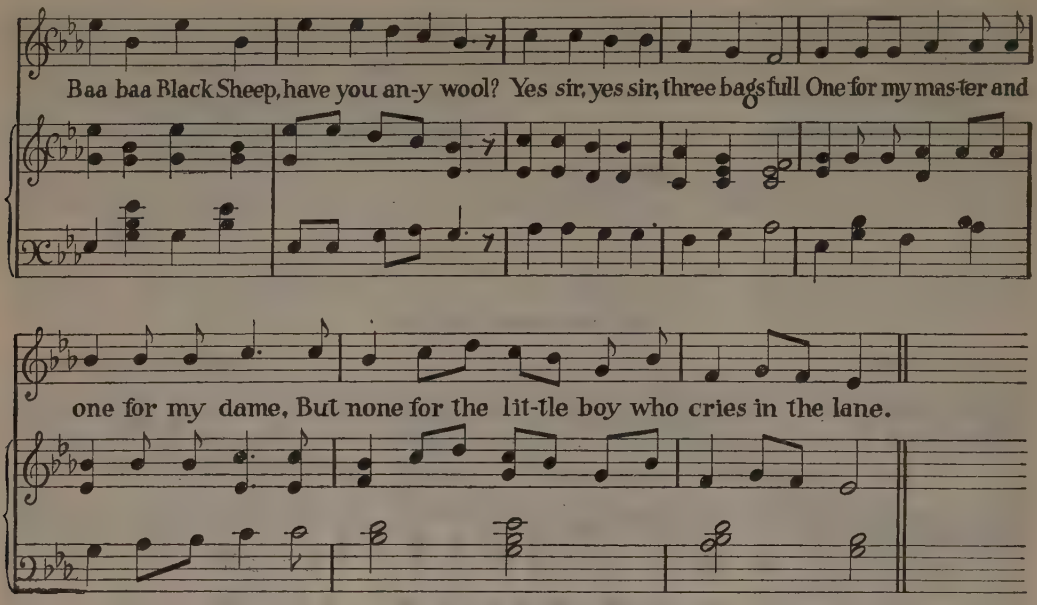
BAA, BAA, BLACK SHEEP.

"Baa, baa, black sheep,
Have you any wool?"
"Yes sir, yes sir.
Three bags full.
One for my master,
One for my dame,
But none for the little boy
Who cries in the lane."

Mother Goose.

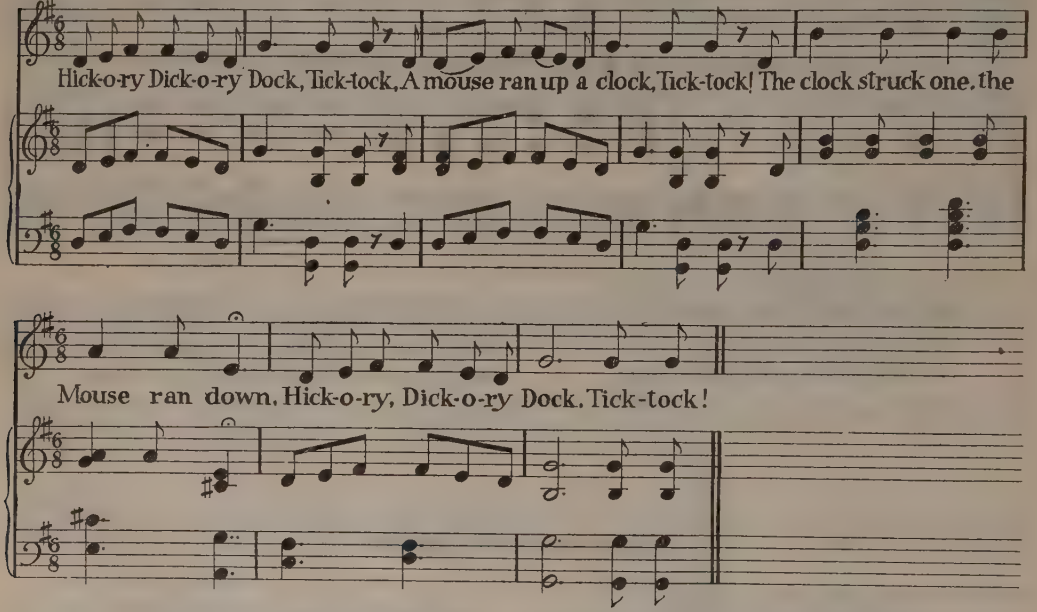
One in the center of a ring with arms over his eyes pretending to cry. All the rest skip around him as they say the first four lines. Then they stop and hold up one finger to show one bag for the master, and one to show a bag for the dame. But they stamp their feet and point at the little boy for the last two lines.

MOTHER GOOSE. BEATRICE R. COFFLAND.


Baa baa Black Sheep, have you an-y wool? Yes sir, yes sir, three bags full One for my mas-ter and
one for my dame, But none for the lit-tle boy who cries in the lane.

HICKORY, DICKORY, DOCK.

MOTHER GOOSE. BEATRICE R. COFFLAND.


Hick-o-ry Dick-o-ry Dock, Tick-tock, A mouse ran up a clock, Tick-tock! The clock struck one, the
Mouse ran down, Hick-o-ry, Dick-o-ry Dock, Tick-tock!

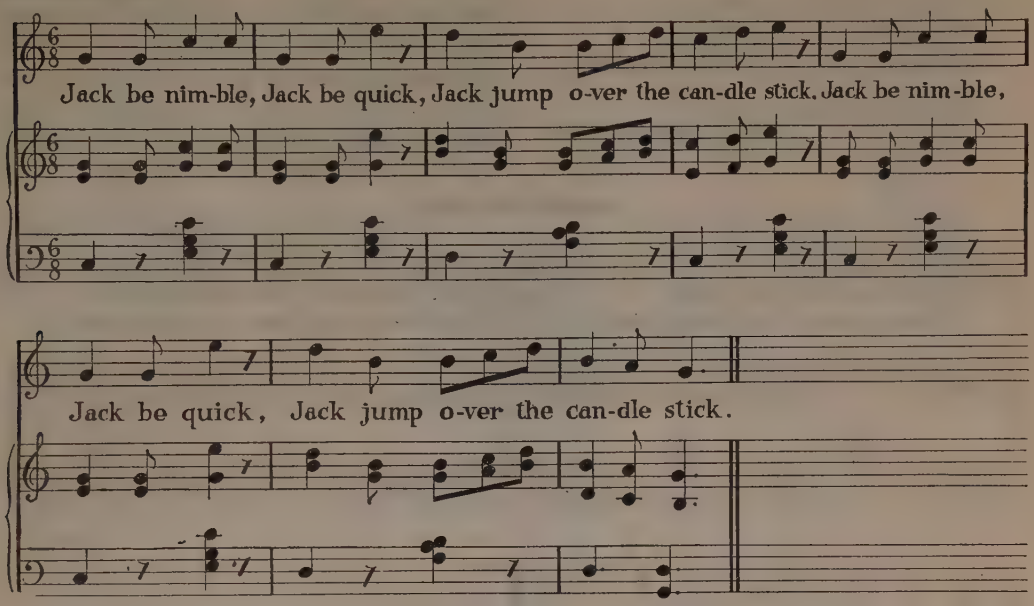
Hickory, dickory, dock; tick, tock.
The mouse ran up the clock, tick, tock
The clock struck one,
The mouse ran down.
Hickory, dickory, dock; tick, tock.

Modified Mother Goose.

Three children each in two lines facing each other. They walk toward one another on the "Hickory, dickory" and then stop and stamp twice on the "Tick, tock." Walk back on the second line. Clap hands on "one." Repeat the motions of the first line for the last line.

JACK, BE NIMBLE.

MOTHER GOOSE. BEATRICE R. COFFLAND.

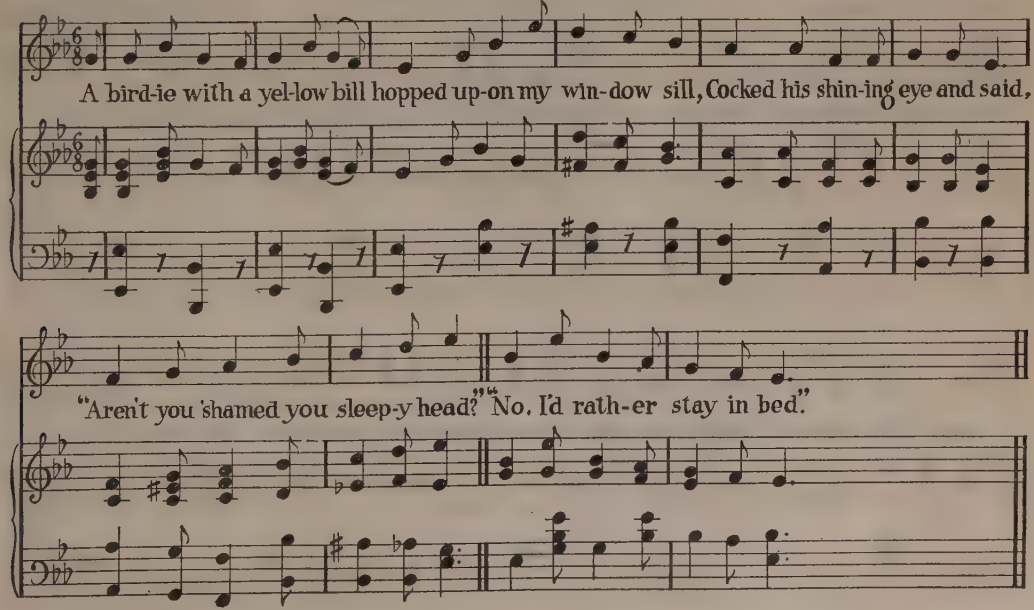


Jack, be nimble,
Jack, be quick,
Jack, jump over the candle stick.
Jack, be nimble,
Jack, be quick,
Jack, jump over the candle stick.

Something to represent a candle is placed in the center of the circle, and each takes turn playing Jack and jumping on the word "jump."

A BIRDIE WITH A YELLOW BILL.

MOTHER GOOSE. BEATRICE R. COFFLAND.


A bird-ie with a yel-low bill hopped up-on my win-dow sill, Cocked his shin-ing eye and said,
"Aren't you shamed you sleep-y head?" "No, I'd rath-er stay in bed."

A birdie with a yellow bill,
Hopped upon my window-sill.
Cocked his shining eye and said,
"Aren't you shamed, you sleepy-head?"

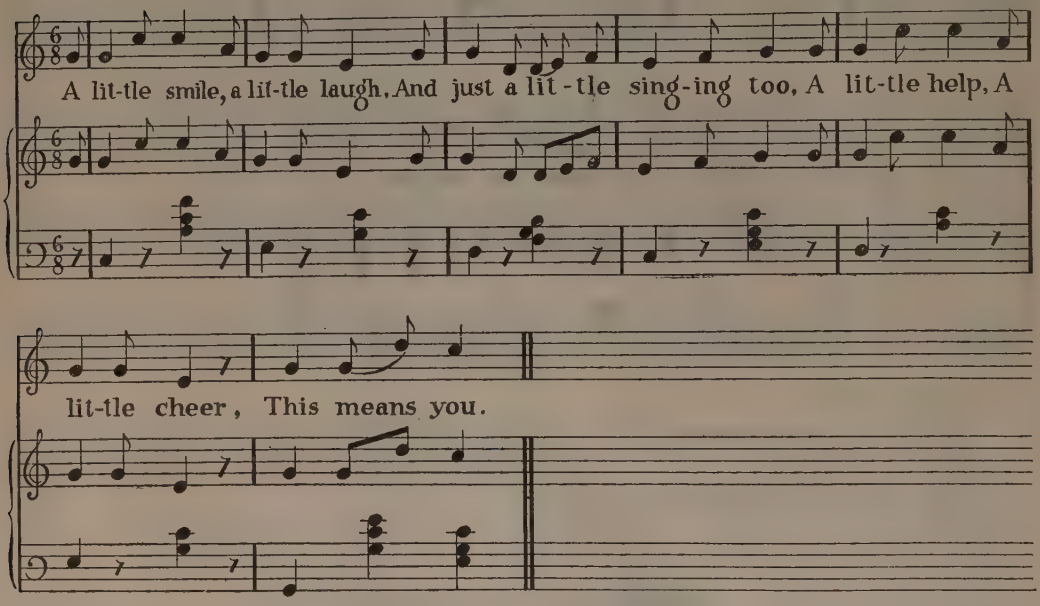
"No, I'd rather stay in bed."

Robert Louis Stevenson.

Several stand to take part in this. For the first line, they put the fingers and thumbs of both hands together to represent the bill—opening and shutting the palms together. A little hop for "hopped" and a hand held out for a window-sill are the motions for the second line. On the third line, cock the head and then point a finger at an imaginary "sleepy-head." A few children chosen for the sleepy-heads reply the last line as they stretch and pretend a yawn.

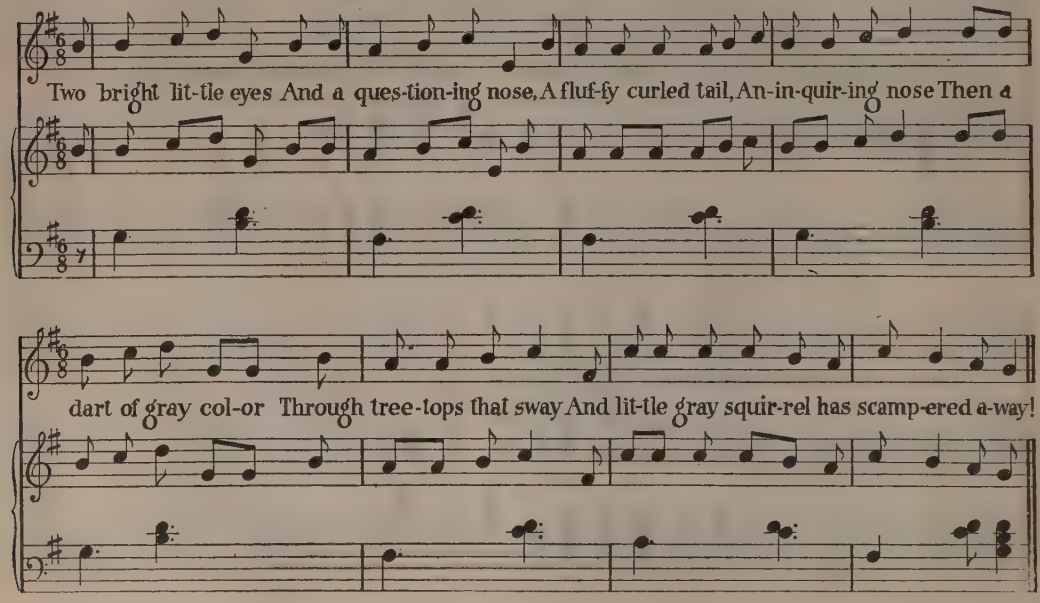
THIS MEANS YOU.

BEATRICE R. COFFLAND.



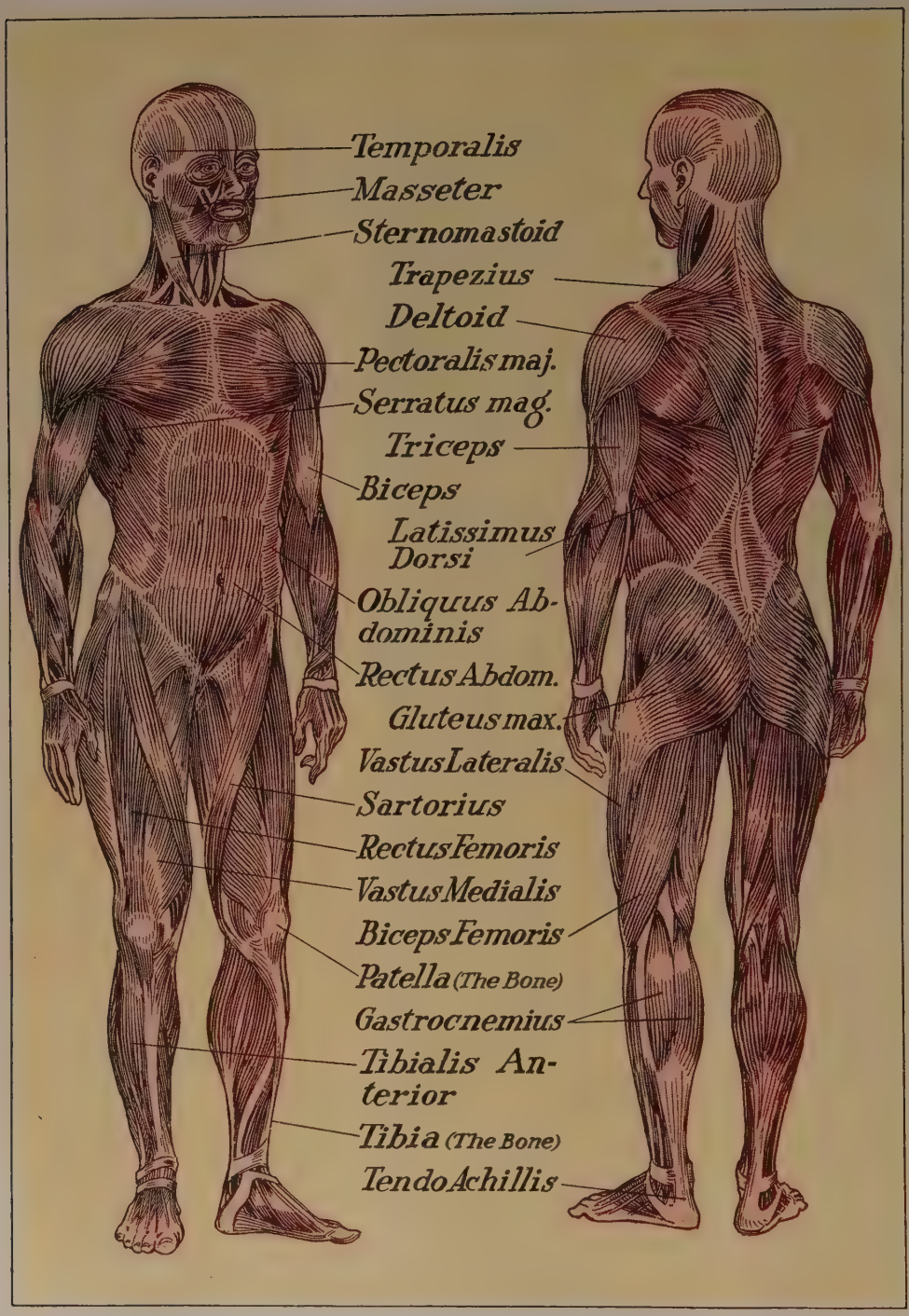
THE LITTLE GRAY SQUIRREL.

GAYNE T. K. NORTON. BEATRICE R. COFFLAND.


Two bright lit-tle eyes And a ques-tion-ing nose, A fluf-fy curled tail, An-in-quir-ing nose Then a
dart of gray col-or Through tree-tops that sway And lit-tle gray squir-rel has scamp-ered a-way!

PHYSIOLOGY

PLAN OF THE HUMAN BODY
DIVISIONS OF SKELETON
MUSCLES
CAVITIES AND ORGANS
FOUR FUNDAMENTAL FUNCTIONS
SENSORY APPARATUS
MOTOR APPARATUS
NUTRITIVE APPARATUS
REPRODUCTIVE APPARATUS
PHYSIOLOGY OF MUSCLE AND NERVE
CENTRAL NERVOUS SYSTEM
SENSES
CIRCULATORY SYSTEM
RESPIRATION
INTESTINES
FOODS
HEREDITY
ENVIRONMENT
HYGIENE
COMMUNICABLE DISEASES
INFANT HYGIENE
DICTIONARY OF MEDICAL TERMS

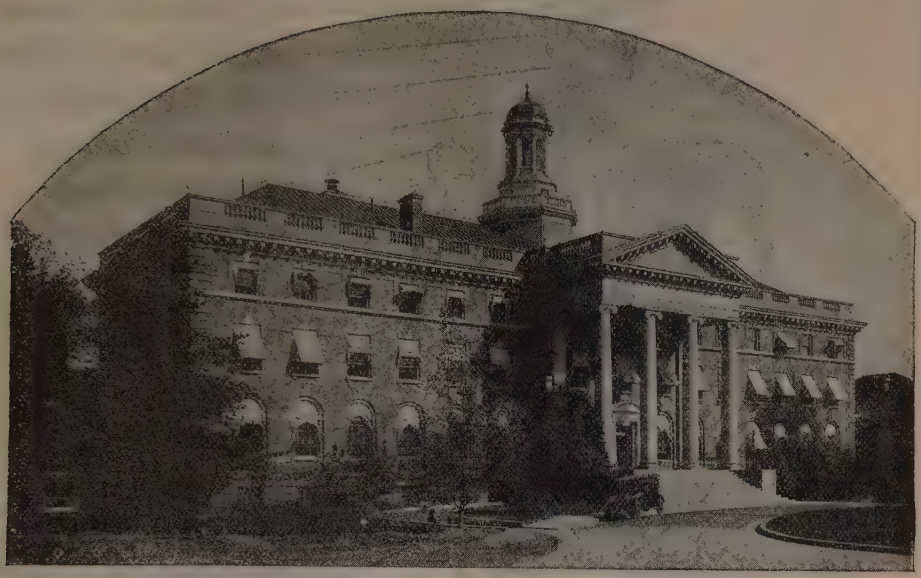


Drawn by Selden Irwin

THE MUSCULAR SYSTEM

BOOK VIII.

PHYSIOLOGY.



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WALTER REED MEMORIAL HOSPITAL.
WASHINGTON, D. C.

PLAN OF THE HUMAN BODY. SKELETON AND DIVISIONS. CAVITIES, WALLS AND CONTENTS. FUNCTIONS OF THE HUMAN BODY. PHYSIOLOGY OF MUSCLE AND NERVE. CENTRAL NERVOUS SYSTEM. SPECIAL SENSES. BLOOD AND LYMPH. CIRCULATION OF THE BLOOD. RESPIRATION. PHYSIOLOGY OF DIGESTION AND SECRETION. INTESTINES. DEFECATION. FOODS AND THEIR DIGESTION. FERMENTS AND ENZYMES. LIVER. KIDNEY. ORGANS OF REPRODUCTION. HEAT AND ITS REGULATIONS, HEREDITY. ENVIRONMENT. HYGIENE. TABLE INSPECTION. TONSILS. TEETH. HEARING. COMMUNICABLE DISEASES. WEANING. INFANT HYGIENE. MEDICAL TERMS.

A study of the Human Body, its material, its parts, the way these parts fit together, is called Anatomy.

A study of the use of each part, the work it does, the function it performs, the coming together of all these operations to make up the one complex series of well-timed, closely connected activities that we call the life of an organism, is called Physiology.

A study of the right use, the proper activities, and right care during and after these activities; of the well-being of each and every part and of their individual and collective functions; a study of how to keep well; a study of the health of the body and its life—this is called Hygiene; any of these statements is a sufficient definition.

PLAN OF THE HUMAN BODY.

The plan of our body is that of the mammalian vertebrate. That is the fundamental structure of the body is the backbone (inside-skeleton) or Endoskeleton. This backbone is not, as the name suggests, one bone, but a series of them numbering twenty-four, each called a vertebra. These are piled together in a column so that a central opening in each fits to the preceding and to the following, making a canal through which passes the great nerve cord called the spinal cord. From this the column is also called the spinal column. We have, then, as names for the foundation structure: *backbone, spinal column,* or *vertebral column.* Animals whose bodies have this as a feature are called vertebrates.

The conception includes the idea that the backbone is so placed that the body has a forward, or up-end, that develops a head; a hind, or down, or tail end. In carrying on life activities this results in using the body so that there is a front and a back, a right and a left side.

The back bone is so planned that it constitutes

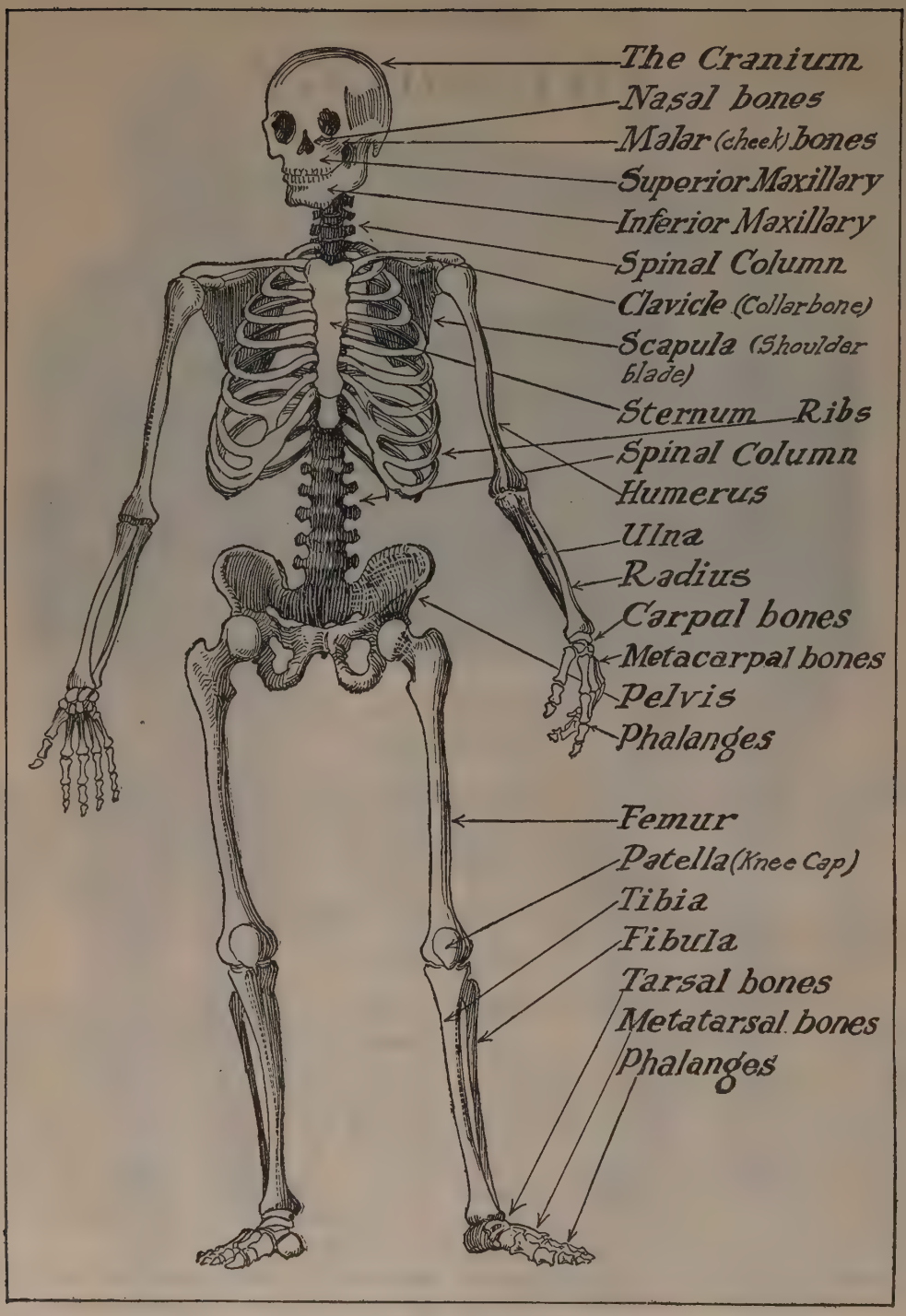


FIG. II The Skeleton.

the basis for two cavities extending the length of the body—one on the backside called the *Dorsal Cavity;* or, since it holds the central nervous system (the brain and the spinal cord), it is also called the *Neural Cavity;* one on the front side is called the *Ventral Cavity* or, since it holds the groups of organs called the Viscera (heart, lungs, stomach, intestines, etc.) it is also called the *visceral cavity.*

This axis also provides for two girdles—one near the front and one at the hind end. From these extend limbs which in some forms are used in water as oars and called *fins;* in others for walking or running, or crawling on land, and are called *legs.* The front pair of limbs, in some forms, are used in such a way that they become wings, or arms and hands. These extensions or limbs may be entirely lost by using ways of movement that make them unnecessary as in the case of snakes. But here we usually find vestiges of girdles just as in the case of tailless vertebrates, where we find structures that point to a tail useful in former generations. These features all belong to the vertebrate and they all grow from a bony foundation, called the skeleton.

The bones of the skeleton are covered by muscles which move them. They are also covered by a network of blood vessels, intermingled with a network of nerves, an enmeshing connective sheet binding all together, all covered by a skin. We call it the *Endoskeleton*, i.e., the *Inner Skeleton.*

There are five well-developed classes of vertebrates. Among them is the *human body* which is built on the *Mammalian plan.* This means that the animal is a vertebrate, with (1) an Endoskeleton as described; (2) a skin that covers and protects, forms and carries an outer-skeleton or exoskeleton of slime and scales, as fish; or of dry scales as snakes; (3) or as illustrated in the case of scales on lizards, alligators and turtles where the scales may become large, strong, bony plates, often with great horns; (4) or of feathers, as in the case of birds; (5) or hair, as in the case of fur-bearing animals, cattle, sheep, cats, dogs and man.

Also the young are shed from the body of the mother not as eggs, but developed so far that they look so like the father and mother, that love, parental care and home in larger and better ways are brought about and so make provision for a soul development that does not show itself in such ways among lower animals. Their young are fed on milk from glands called mammae developed on the mother's body. The name mammal comes from the name of these glands.

I. **The Axial Part of the Endoskeleton.**
   1. Skull.
   2. Spinal column.
      a. Cervical vertebrae.
      b. Dorsal vertebrae.
      c. Lumbar vertebrae.
   3. Sacrum—5 modified and fused vertebrae.
   4. Coccyx—4 vestigial vertebrae.

II. **The Appendicular Part of the Endoskeleton.**

III. **The Supporting Structures—the Inner Skeleton or Endoskeleton.**

The ideas of support, meaning the holding in position of the parts of the structure for sustaining weight or shock; and of protection, cannot well be separated in considering the Endoskeleton, usually called merely "skeleton." And we cannot overlook the part it plays in the function of motion, as will be seen in the discussion of that topic. For convenience we study the structural features of the entire Endoskeleton, as the supporting framework of the body. Glancing at the outline, it will be seen that we will have to consider, first, the axial skeleton, second, the appendicular skeleton.

Axial Skeleton.

In the Human, the framework of the head, i.e. the skull, rests on top of the backbone. This skull consists of eight bones which are drawn and named in figure (III). The joints by which the eight bones are held together to make the cavity for holding the brains, are called *sutures.* These are *immovable joints.* The figure shows the dove-tailing by which they are tightly held together, making a light but strong-walled box, which is completely filled by the brain and has openings only for the passing of nerves (chief of which is the great nerve called the spinal cord), and of blood vessels.

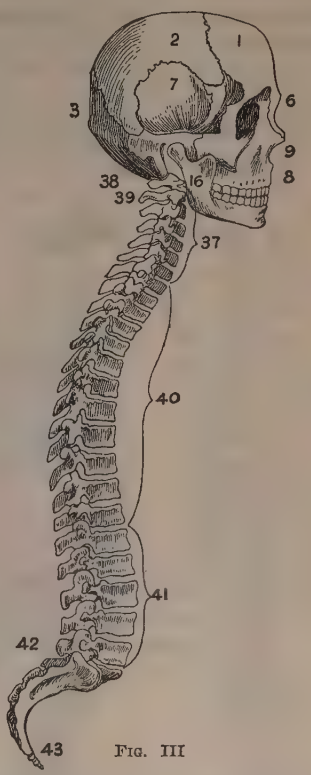


FIG. III

1, frontal bone; *2*, parietal; *3*, occipital; *6*, orbital cavity; *7*, temporal bone; *8*, maxillary; *9*, malar; *16*, mandible; *37*, cervical or neck vertebræ; *40*, dorsal or thoracic vertebræ; *41*, lumbar vertebræ; *42*, sacrum; *43*, coccyx; *38* and *39*, spines of axis and atlas.

Under and in front of the skull, are *fourteen face bones.* The larger and more conspicuous from their positions are shown in figure (II). Three small bones in each ear, i.e. six bones, might also be counted among the bones of the head. They are named from their shape, *Hammer, Anvil* and *Stirrup.* All these belong with the *Appendicular* skeleton.

Coming to the rest of the backbone (Spinal column, or vertebral column) we have to consider the Vertebrae or segments of the backbone. These are twenty-four separate bones, varying in shape according to the needs of their position. The figure shows them grouped as they occur in the body and as listed in the outline. The figure shows a typical vertebra and makes plain how when twenty-four are piled in a column they give, with the skull, the cavity for the Brain and Spinal Cord, as shown in figure (3). The joints are classified as *slightly movable.* This column of Vertebrae rests on the bone called the *Sacrum.* This bone really consists of five large vertebrae grown together. Following these are five much reduced vertebrae, no longer needed, called the *Coccyx*, the remnant indicating a tail once usable in our progenitors. All this constitutes the part of the Endoskeleton called the axial skeleton.

II. The Appendicular Part of the Endoskeleton.

Appended to various parts of this axis (axial skeleton) are bones that taken together make up the Appendicular Skeleton.

Beginning with the head we have already fourteen face bones as named in the outline and referred to in study of the head. Many are shown in figures (2) and (3).

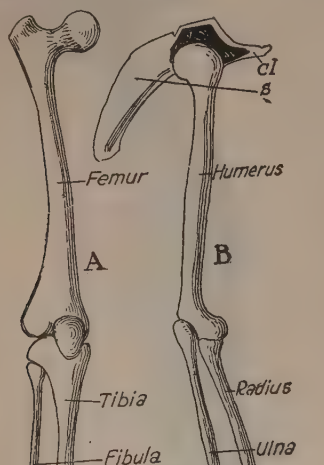


FIG. IV

The *Hyoid bone* on which the tongue rests has no skeleton connection. The twenty-four ribs and the Sternum, or Breast bone, and the part they play in forming the thorax or chest cavity with the axis can be very well understood from the study of figure (V) of the Endoskeleton.

The most conspicuous features of the Appendicular part of the Endoskeleton are the parts making up and suspended from the two girdles. These two can best be studied by using the outline and referring to the cut of Endoskeleton and then handling these parts of your own body.

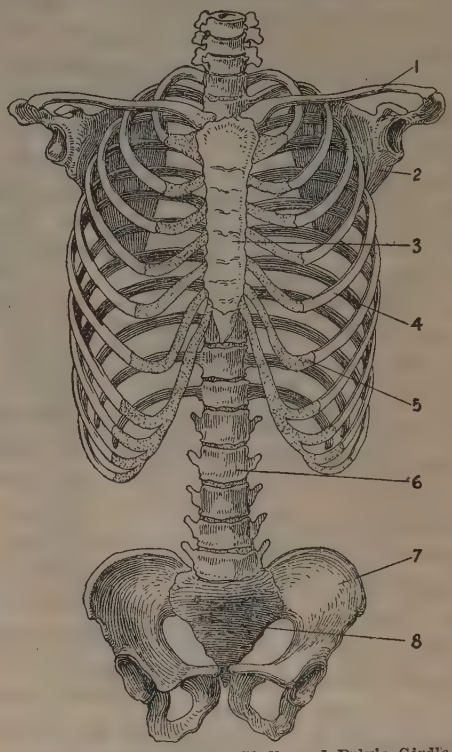


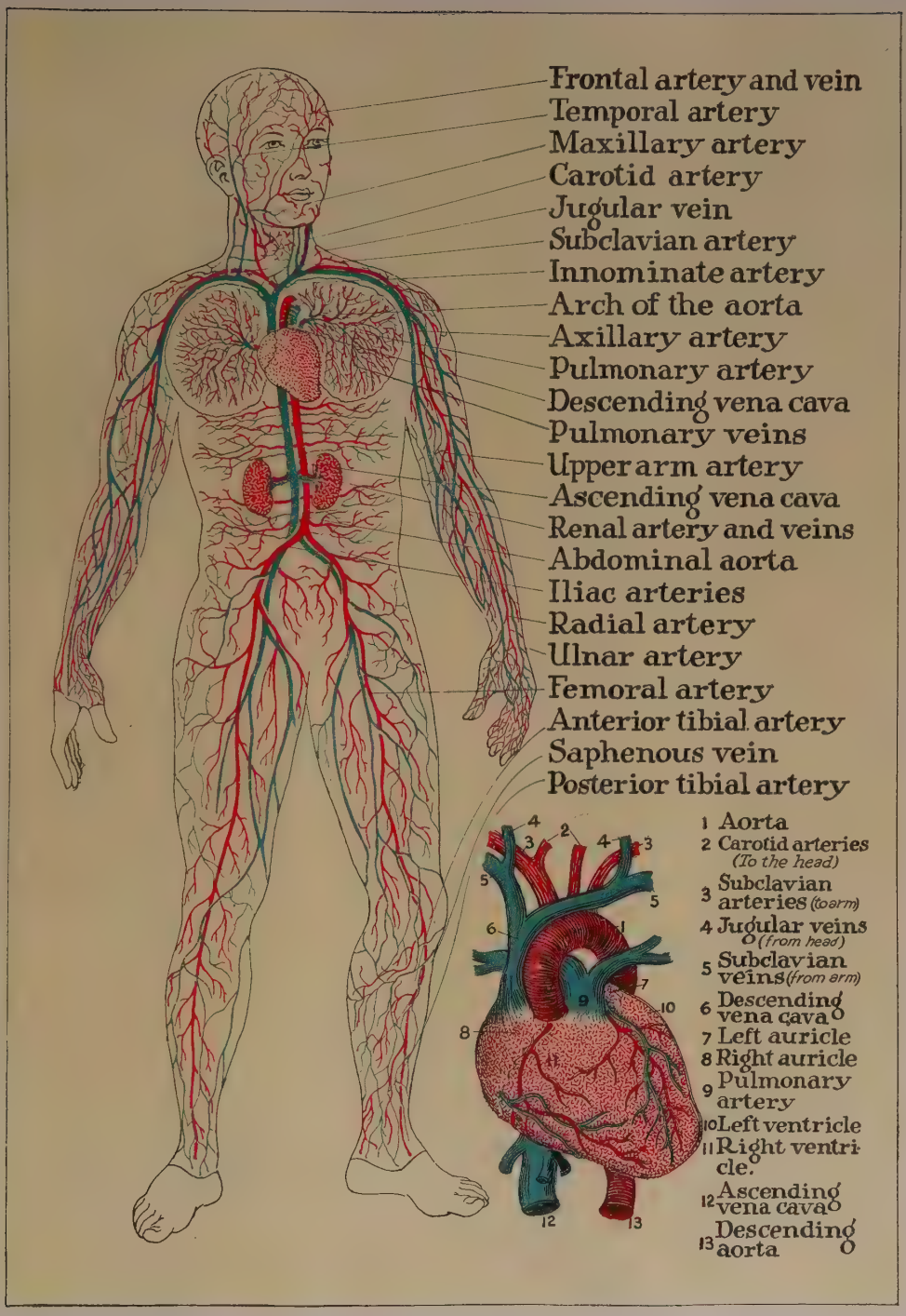
FIG. V Chest, Pectoral Girdle and Pelvic Girdle. *1*, Clavicle; *2*, Scapula; *3*, Sternum; *4*, Ribs; *5*, Costal Cartilage; *6*, Vertebral Column; *7*, Osinnominatum; *8*, Sacrum.

III. The Supporting Structures.

In the study of the *protecting structures*, we have to consider the outer skeleton, or the *exoskeleton.*

The parts we are concerned with as the outer skeleton is chiefly the layer called the *epidermis*, and of this only the *cuticle*, the hair and nails which are outgrowths of the live part of the epidermis. The thickness of the whole sheet, not the protective skeletal part only, varies from one-eighth inch to one-hundredth inch in different parts of the body. The area it covers in an adult varies from twelve to twenty square feet.

As an outer skeleton (exoskeleton) it serves, like the inner skeleton (endoskeleton), as a support. It does this (1) through layers, forming holdings for nerve end-organs of touch, blood-vessels and sweat glands, which together regulate the temperature of the body and perform an important excretory function by eliminating



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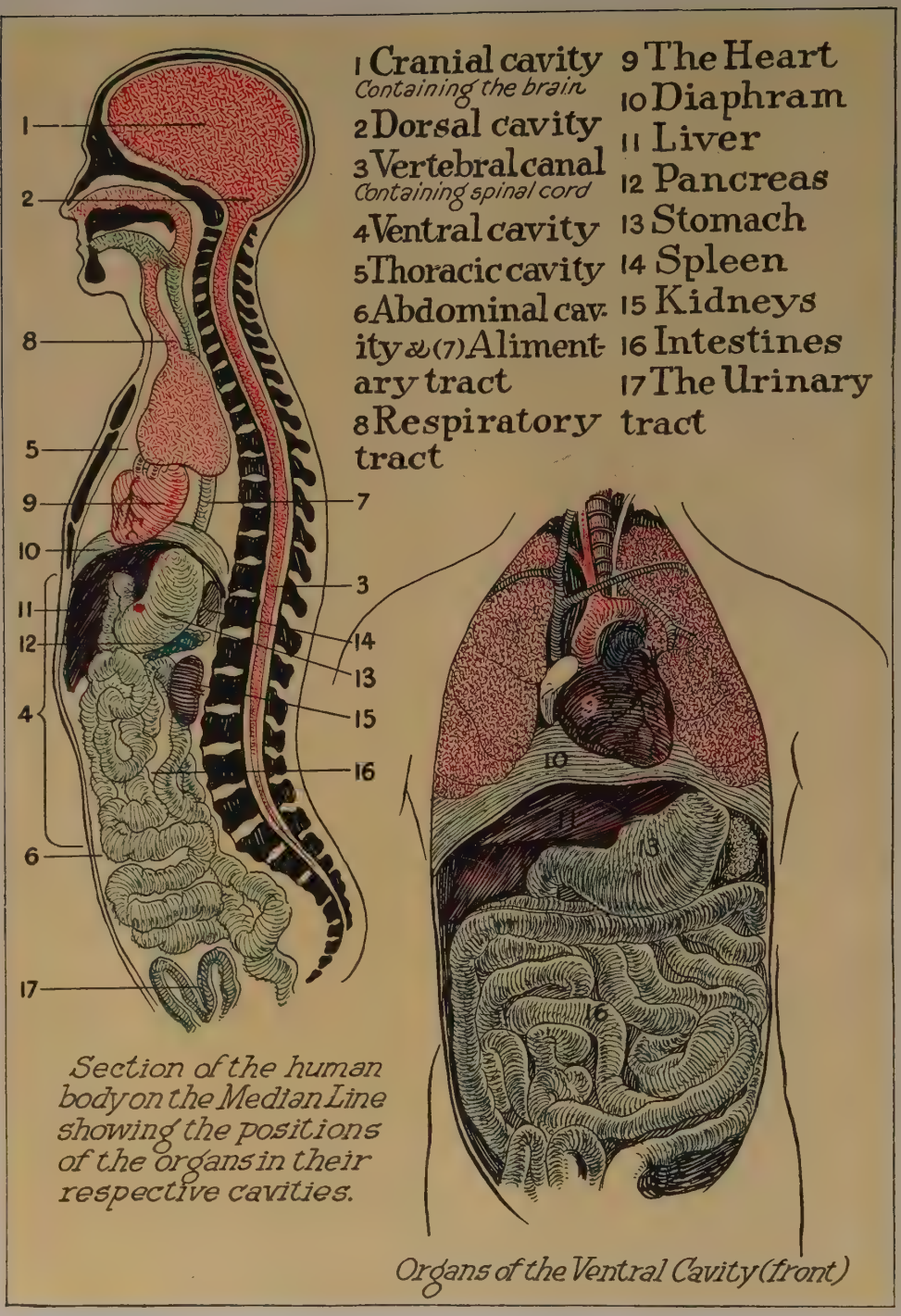
THE CIRCULATORY SYSTEM



Drawn by Selden Irwin

THE ORGANS OF THE HUMAN BODY

poisonous matter in solution that we call sweat; (2) it also serves as a protection as does the inner skeleton.

FIG. VI

Longitudinal section of skin (partly diagrammatic), magnified about 100 diameters. Its structure and contents (with the exception of the lymphatics).—E, epidermis; D, dermis; CL, color layer; TC, tactile corpuscle; N, nerve; V, vein; A, artery; CT, connective tissue; F, adipose tissue; HF, hair follicle; PT, perspiratory tube and gland; SG, sebaceous gland; EP, erector pilate muscle; H, a hair.

Among the ways of functioning in this manner are (1) *covering*—for this purpose it is elastic, strong, light, and beautiful. (2) It prevents *evaporation* of the body fluids. (3) It prevents the *entrance of dangerous* and *foreign* matter, as dust and bacteria. (4) It prevents too rapid *access* and *loss* of heat. (5) It prevents or lessens injuries from *friction, bruises,* and *cuts.* (6) It covers the space provided by the inner layer for the very extended *distribution of nerve-ends* and so makes possible the various experiences of sensation, touch, taste, smell, hearing, seeing, and by this means regulates the intensity of the function.

It also gives protection as an *aggressive agent*—having parts developed for positive offense as well as parts that protect by their negative defensive ways. For this we have the nails and the teeth. The teeth are outgrowths of that part of the skin which lines the mouth. This is called *mucous membrane,* and is really an extension of the skin inward to line the inner cavities of the body reached by air. With us the teeth are no longer needed primarily as protective mechanisms but some features of their structure show that they were used for such purposes. The nails are highly modified for uses quite different from those of the claws and talons of offensive, preying animals.

Cavities, Walls and Contents.

The foundations for the great cavities of the body, as can be seen in the figure of the Endoskeleton, are provided by these parts of the axial and appendicular skeleton. The best way to study them is by using the outline and figures together, but further study of these and their contents will be made under other headings already referred to under the study of the plan of the Human Body. Here we study them with the definite aim of getting clear notions of *walls, contents, size,* and *relations.*

The illustration shows the dorsal cavity running the length of the body, consisting of the two parts, (1) the skull or *cranial cavity,* holding the brain; (2) the walls consisting of the bones of the skull, resting upon the backbone. The cavity is continued through the backbone as the spinal canal, holding the spinal cord, which is but an extension of the brain into the backbone.

In front of this and extending parallel with it, is the *ventral* or *visceral cavity,* consisting of irregular cavities, varying much in size and shape, holding organs that, taken together, are called *viscera;* it consists of the subdivisions:

I. *Nose cavity* or nasal chamber;
II. Mouth or oral chamber;
III. Throat or Pharynx;
IV. Thorax or Chest;
V. Abdomen or Belly;
VI. Pelvic cavity.

(1) The *nose cavity* extends into the upper part of the throat called the nose-throat; the *mouth,* leading into the middle part of the throat is called the mouth-throat. These two parts of the throat are called the voice-throat. The three parts, nose-throat, mouth-throat, and voice-throat together make a continuous cavity, somewhat funnel-shaped, though quite irregular, and are called the throat or *pharynx.*

(1) The walls of the nose cavity, which is a double, rather pear-shaped cavity, are fleshy at the front part, the entrance divided by a partition to make the two nostrils—called the *anterior nares;*—but, at the base, the walls of the chamber proper are bony. All the way they are covered with mucous membrane.

The partition, called the *Septum,* is cartilaginous in front, but bony further back. The back openings into the upper or nose-throat we call *posterior nares.*

The front part of the chamber is called the respiratory portion. The lining of the outer portion of this bears hairs which help strain out of the entering air the coarse dust particles. In the bony-walled portion, the mucous membrane lining bears ciliated *epithelium* which with secretion from the gland cells of the mucous membrane helps to remove fine dust and other foreign materials.

The wall surface of the nasal chamber is much increased by curved shelves of bone plates projecting into the cavity from the wall. This increases the air-warming capacity of the nasal chamber by furnishing room for more abundant distribution of blood capillaries and thereby in-

creases the amount of warm blood at the surface; as well as increasing the air-cleansing capacity, by enlarging the surface of ciliated Epithelium.

Besides these two important functions the mucous membrane lining is supplied with a network of nerve fibers and nerve-ends that make up the receptive end of the machinery for the sense of smell. The nerve net work gives the mucous membrane a characteristic appearance and we call it the Schneiderian membrane.

(2) Turning again to the cut just studied for the nasal cavity, we take up next the study of the mouth cavity. With a mirror, see all you can, and with a clean finger-tip feel all you can, of your own mouth. The floor of the nasal chamber makes a part of the roof of the mouth; like the nasal chamber, it opens backward into the throat—the part known as the mouth-throat.

It is a cavity nearly oval-shaped, closed by the lips in front; when closed the floor and roof are usually in contact, and the sides come up to the tooth-arches. The space in front of the teeth is the vestibule, and behind these the mouth cavity proper.

In the cavity, *mouth-digestion*, consisting of *mastication* and *insalivation*, takes place. Here too, the tasting of the food is experienced, and absorption of what is digested and the swallowing process, *deglutition* begins. Get the relations by studying the outlines.

The enclosing walls in front and at the sides are the lips and cheeks, while the floor holds the tongue and its supporting bone, the hyoid. These walls consist of *glandular*, *muscular*, and *connective* tissues. The skin flaring upward and outward forms the neck.

The cavity holds within its space and by its walls the jaws, upper and lower, bearing the teeth, sixteen in each in the second set (preceding this was a first set consisting of ten in each jaw); also the tongue, free in front and supported behind by the hyoid bone; within the mouth walls are the salivary glands which bring their secretions to the mouth cavity by ducts; there are three pairs of them, the *parotid*, *submaxillary* and *sublingual;* within the mucous membrane lining are many mucous glands. On the surface of the tongue are the taste organs.

The whole mucous lining is pink in color, showing the great abundance of capillary blood-vessels. Then there are lymph vessels and lymph glands. The walls hold muscles for various movements and blood and nerve supply for the chemical and mechanical activities.

The joints for the teeth as well as for the parts of the upper jaw are of the immovable sort; while that for the lower jaw is a perfect hinge-joint.

(3) The two cavities just studied open into the next cavity backward and downward. This is the throat or pharynx—see fig. (7). It consists of the well-defined parts referred to as the nose-throat, the mouth-throat, and below these the larynx-throat. The whole cavity is somewhat funnel-shaped; about four and one-half inches long and wider than thick. Its walls are muscular and membranous. *Seven* openings communicate with it—the *two posterior nares*, the *two Eustachian tubes*, the *mouth*, the *larynx* and the *œsophagus*.

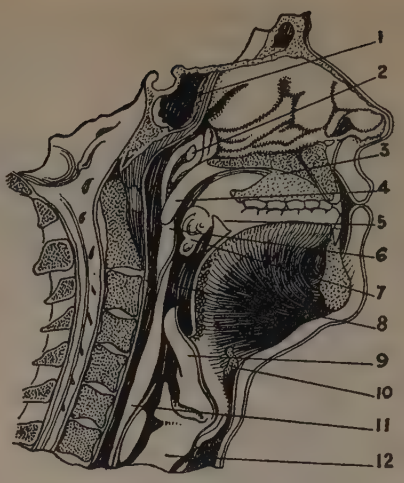


FIG. VII

A vertical section through the middle of the face, neck, and upper vertebrae.—*1*, Cavity in the skull; *2*, opening of left Eustachian tube; *3*, the hard palate; *4*, the soft palate; *5*, muscular wall in front of tonsil; *6*, muscular wall behind the tonsil; *7*, the left tonsil; *8*, pharynx, or throat; *9*, the epiglottis; *10*, the hyoid bone; *11*, oesophagus; *12*, the cavity of larynx.

In the side walls of the mouth-pharynx are the tonsils. These are rounded in form, about half an inch long, and about a third of an inch wide and thick, well imbedded in the walls and show the openings of twelve or fifteen crypts.

The whole cavity is lined with mucous membrane which varies in the thickness of its epithelial covering. In the nasal portion, the epithelial cells are ciliated, to help in the cleansing of the air on its way to the larynx and lungs.

The front walls of the larynx-throat are made up of the backwalls of the larynx and its epiglottis. Embedded within the walls are muscles to help in the swallowing process, i.e., deglutition.

The esophagus or gullet is the tube connecting the pharynx with the stomach. In front of the upper part lies the larynx, the base of the tongue with its hyoid bone; the *trachea* and esophagus and some large bloodvessels, the *thyroid gland* and large neck muscles—all in front of the cervical vertebrae of the backbone and surrounded by skin, together they make up the neck.

(4.) The base of the neck rests upon the top of the next large cavity that we call the *thoracic* or *chest cavity*. This, the fourth chamber of the series that makes up the great ventral cavity, is somewhat conical in shape and has for its foundation walls the thoracic vertebrae of the backbone and the ribs extending in ring-like fashion forward and slightly downward, meeting in front at the breast-bone or sternum, excepting the two vestigial pairs at the base that we call the floating ribs. These endoskeletal features give the chest a basket-like appearance, with the wide part down. The open spaces between any two adjacent ribs are filled in with muscles that help in the breathing process by increasing and decreasing the size of the cavity. All this is well covered by thick, finely developed skin, holding (1) sparsely-set hairs, coarse in parts, and (2) the mammary glands.

The floor of the cavity consists of muscles and their central fastening to the central tendon, all of which is called the *diaphragm*. From the outer edges of this, which are fastened to the ribs and spinal column, there is a decided curving upward, giving the floor of the chest quite a convex surface.

The upper end, gives the opening into the neck, allowing passage for the tubes and vessels mentioned in connection with the study of the throat, is quite constricted, as the figure shows.

The squarish contour of the chest, in spite of the features just described, is brought about by the arrangement and attachment of the shoulder girdle, as the figure shows.

So many controllable and uncontrollable irregularities occur from habits through ignorance of structural conditions at this spot that it is important to get clear ideas of arrangements here, and conform habits to such knowledge.

The lining of the cavity consists of *serous membrane* whose inner layer is an *epithelium*, called here *endothelium*. This makes the cavity moist, perfectly smooth, and air-tight.

Within the cavity are lungs, the greater length of the trachea and trunks of the bronchi. Between the lungs are set the heart and the large blood-vessels connected with it. There are special sacs encasing the lungs, called the *pleurae*. Another encasing the heart, called the *pericardium*. These are reflections of the membrane lining the walls of the cavity. The surfaces moving upon each other, because of expansion and contraction of the chest cavity, inflation and deflation of the lungs in the respiratory process, the beating of the heart in providing for the circulation of the blood, are protected against the wear, heat and pain of friction by the smoothness of these surfaces which protection is enhanced by the secretions abundantly made by the cell-glands within the membrane.

(5) Below the chest cavity is the *abdomen* or belly. This is nearly cylindrical in shape, has mainly fleshy walls held up by connection with the backbone, and the lower edges of the bony framework of the chest, the bottom edges resting on the upper rim of the pelvic cavity made by the strong, heavy bone structure of the pelvic girdle.

The skin covering the muscle and connective tissue is thick, strong, smooth, beset with fine hair generally, but with heavy and coarse hair along the mid-line well down near the base.

The cavity contains the *liver, pancreas, spleen;* the *stomach, intestines*—large and small; against the rear wall on either side of the backbone, are the *kidneys*, and the *adrenal glands* and their ducts; large blood-vessels, *lymphatic vessels* and *glands*; large nerve cords and ganglia and net-like sheets. The lining is a membrane covered with endothelium and called peritoneum, sending reflections into the cavity to enwrap organs moving on and over one another and against the walls; various forms of connective tissue; muscles and skin covering all, with distribution over some areas of fine hairs and over others, of course, heavy hairs.

The floor of the cavity consists of the widely flaring surfaces of the pelvic, the *innominate* or *hip bones* of the pelvic girdle. The central portion of this floor is the large opening into the next and last of the series of cavities and designated as the pelvic cavity.

(6) The cavity mentioned is the *pelvic basin*. The walls all around are bony—the rounded, irregular surfaces of the hip bone at the side; the curve of the group of fused vertebrae that we call the *sacrum*, curving sharply backward, tipped by the downward curving of the vestigial vertebrae making up the *coccyx*.

The cavity holds some loops of the small intestine, the *sigmoid flexure* of the *colon;* the end of the large intestine, called the *rectum;* the bladder and its ducts; the internal reproductive organs, their tubes and ducts, the ligaments, muscles and nerves. The series of cavities and their walls, from the throat downward, are frequently spoken of as the *trunk of the body*.

FUNCTIONS OF THE HUMAN BODY.

Now, turn your thought chiefly upon the fact that this is a living machine; that these structures have developed, are developing now, mainly by the use to which they are put, the functions they perform; that the combination of structures that make up the body as a whole is a result of nicely *coordinated, exactly timed* and *accurately* proportioned activities that taken together constitute *the life of an individual*. Looking over these activities, we find them amazingly numerous, complex, and often conflicting. And we see them as responses to stimuli coming out of the environment of the individual.

We also find *action* an absolute essential to life. We do not think of life without some kind of action. The larger, the greater, and richer the life, the higher the degree and quality and complexity of action—*doing*. In order to maintain life within a body, the body must continue to do. Look, for a moment, how varied and complex the doing.

We touch an object in our surroundings, and we feel. If the feeling is pleasant, we enjoy, i.e., are pleased with it and ourselves, and indulge in more of it. If the feeling is unpleasant, we are unhappy about it—want less or none of it and act to avoid it. In either case the result is motion within the body substance, and of the entire body, i.e., *locomotion*. This, of itself, may give its own pleasure or pain and bring pleasure or pain by the new contacts from change of position.

Whether pleasure or pain, the result is using up of energy and wearing out of body substance. This implies chemical and mechanical activity, reduction of energy, the formation of waste-matter. This makes necessary the formation of new body matter, living material, and of matter that is non-living and wholly different from body matter. It also means the replenishing of the stock of energy. This, too, brings its pleasure and pain and its motion, increasing the complexities by the interminglings. It means the removal of the waste matters, the replacement of this worn-out material by new, the constant alternation of accumulation and reduction of the stock of energy and so becoming unbalanced. The satisfaction in the whole series of activities may result in such extensive indulgence that there is accumulation of body matter and of energy. This is *growth*. For

probably all forms of life there is a definite limit to this in an individual.

But growth may be transferred to a new individual. *This is reproduction*—replacement of an old, passing generation of individuals by a new, coming one. This results in amazingly complex activities and wonderfully interesting life histories, relationships, and *springs of action.*

We may conveniently group these *actions* into four great groups of activities, naming these the *four fundamental vital functions.*

I. The Function of Sensation and its Apparatus—the *Sensory Apparatus.*
II. The Function of Motion—the *Motor Apparatus.*
III. The Function of Nutrition—the *Nutritive Apparatus.*
IV. The Function of Reproduction and its Apparatus—the *Reproductive Apparatus.*

Considering first the *FUNCTION OF SENSATION*, we may lay a good foundation for further study, by making a study of the body parts and their actions concerned in the simplest and most direct of the sensations—*touch.* When this is clear in mind, consider that from this fundamental process evolve the more complex senses like taste, smell, hearing and sight—all essentially touches, but the touching agents more subtle and demanding modifications of the former structure in adjustment to the more delicate touching, so that the essential similarity is lost sight of until careful thinking is done. The figure and its explanation in the legend should make clear the elements involved. The various parts of the drawing are not made to the same scale. The brain is drawn as though it were transparent. The whole drawing is purely schematic.

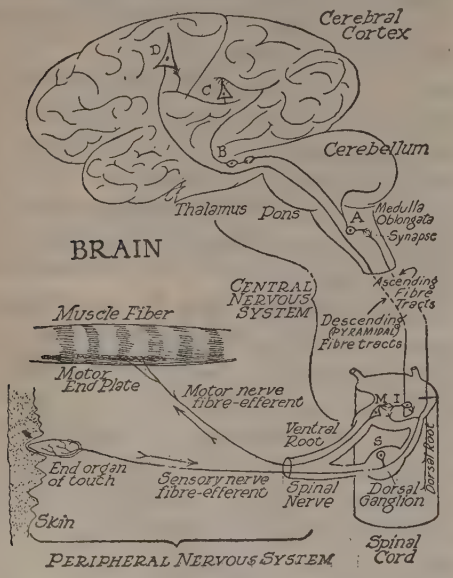


FIG. VIII

The end-organ of touch, in the skin, contains the endings of the dendrite from the sensory nerve cell *S*: stimuli from the skin are transmitted to the spinal cord along the fibre; they may go there directly or by way of the intermediate nerve cell I, to the motor nerve cell M, which sends nervous impulses down its axone, the motor or efferent fibre, to the muscle fibre, causing it to contract. This is *reflex contraction.* Nervous impulses from the sensory nerve cell may also be transmitted up the spinal cord to the nerve cells in the brain (A, B, C,) and may give rise to sensation.

Many connections exist in the brain (associative tracts), and as a result of the sensory stimulation the motor cells (pyramidal cells), D, of the motor cortex may be excited and send impulses down the cord thru the pyramidal fibre tracts, eventually reaching (through the intermediate nerve cell I) the motor cell of the spinal cord, producing a voluntary contraction of the muscle. Or, as a result of other connections and other stimuli, the motor nerve cells may receive nervous impulses which prevent its activity. This is called *inhibition.* Of the numerous possible courses those which are taken by the nervous impulses are determined by process of training and memory.

The illustration of the next of the Fundamental Vital Functions—*MOTION AND ITS APPARATUS*—shows the starting in quite a similar way and its expression so different that the outworking results in quite a different set of body parts.

Returning to the cut (FIG. VIII) a set of structures shows the machinery which we call motor end plates and the nerve connections translate a thought, a wish, a willing into motion, action or doing; also part of the machinery of reflex action. A bundle of fibres so constructed, placed and operated, and combined with many others like it makes a muscle. These muscles are fastened by connective tissue of various kinds to each other, and to the bones, and there, passing over their joints in the Endoskeleton, are the source of all the movements we make.

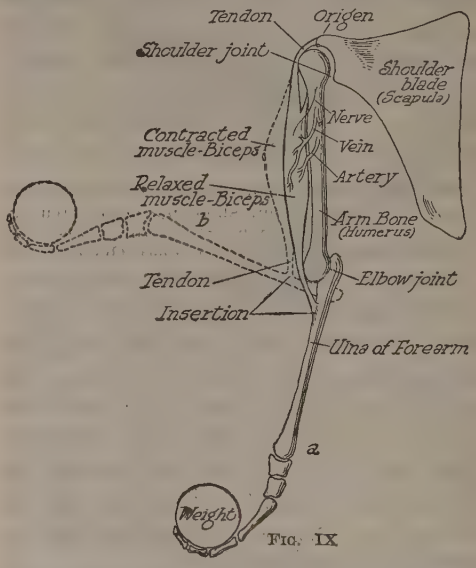


FIG. IX

The picture shows the biceps muscle and its related parts and is used to illustrate the action explained in the text.

TABLE I

FUNCTION OF SENSATION Consisting of PROCESSES	accomplished by	SENSORIAL APPARATUS Consisting of SYSTEMS
A. Reception	accomplished by	End Organs Touch— tactile corpuscles { bulbs of Krause; Pacinian corpuscles Taste— taste buds Smell— olfactory corpuscle Hearing— organ of Corti Sight— rods, cones } of retina
B. Conduction	accomplished by	Nerves..... { Process of Cells { Medullated; Non-Medullated } Fibers; Axis Cylinders; Medullary Sheath; Neurilemma. Ganglia—Cells and their processes. Synapses.
C. Central Reception and Interpretation	accomplished by	Nerve-Cells { Gray Matter; Ganglia
D. Elaboration	accomplished by	3. { Central or Cerebro-Spinal Brain..... { Cerebrum, Cerebellum, Medulla } { White & Gray Cortex and Fibers.; Convolutions and Fissures; Hemispheres and Lobes Protection—Cranium; Membranes; Ventricles and Fluids. Cranial Nerves (12 pairs) and Ganglia. Spinal Cord... { White and Gray Matter; 31 pairs Spinal Nerves and Ganglia. Protections { Membranes, Spinal Canal, Cavities and Fluids.

TABLE II

FUNCTION OF MOTION* which is accomplished by the Consisting of a series of PROCESSES: These are*	accomplished by	MOTOR APPARATUS SYSTEMS: These are*
1. Nerve-end stimulation	accomplished by	Nerve end platelets.
2. Muscle contraction	accomplished by	Muscle fibres. Made up of muscle cells and their products, wrapped in sheath called sarcolemma, grouped into bunches called fibres; bunches of these are wrapped in membranes making fascicles; bunches of these are grouped, covered by fasciae, making a muscle; the body of the muscle substance makes the muscle belly, while the extended and united ends of the wrappings make tendon for muscle origin and insertion.
3. Moving a load, work.		Muscle is fastened over joints in the bones of the endo-skeleton. Freely movable joints, as hinge-joints like the elbow; ball-and-socket-joints as the shoulder Slightly movable, as the joints of the back-bone. By contraction and so shortening the distance between points of attachment the bones are moved because of the pull of contraction across the joint. By wonderful adaptation of these structural elements the amazing variations in movements and the superb skills as in playing musical instruments, ball-playing, dancing and the like are brought about.
4. Weariness, wear, repair	accomplished by	Lymph spaces. Lymph capillaries. Blood capillaries. The sense of weariness and exhaustion comes about largely through the mechanical and chemical breakdown of the muscle substance and its accumulation and change producing poisoning effects upon the muscle stuff. Removal through lymph spaces, lymph capillaries and blood capillaries and so getting the waste and poison into the blood stream and finally to the various excretory systems: at the same time the capillaries of the blood system bring a supply of nutritious stuff which is used in repair.

*After starred words read both *across page* and *down column*.

See the shape of the muscle in the cut; feel your own. Notice the origin and insertion, and the passing of the tendons over the joints. Return to the cut showing how nerve ends, tiny plates at the branching ends of the nerve fibre spread over various muscle fibres. Now, think of impulses coming to the muscle fibres, as there explained. Start them going in your own.

This causes the length of the muscle to decrease, that is, the muscle shortens. At the same time, since the amount of substance remains the same, thickness and width, must increase. Feel yours thicken and widen. The tendons do not stretch or contract, but the pull from the muscle is passed through them. The fore-arm's weight, plus the weight of the hand, plus the weight of the ball in the hand are raised from A to B.

In the same manner, by the same principle, all our most complicated movements are made.

The summary chart is not intended to give an exhibit of the large number of muscles in the human body (about 600), nor of the kinds, classified either as to size, shape, office or innervation.

A single illustration of one of the simpler types will serve for clearly thinking out the whole complicated machinery. This, of course, will be best done if one set of organs and their motions be taken up in the order given in the table, and immediately where possible studied from the parts of your body which in such study are caused to act for the sake of the study (see Table II, marked Funct. Mot.)

When you reflect that these actions are small, that the body parts doing them are microscopic in size, that every large act that we do is a total of many small acts and that every large body part performing these large activities, is made up of groups of many of these small parts, we are amazed at the smoothness and simplicity of the action. Then consider that every act, small or large, in taking place wears out the body parts performing it, and that this worn out part must be replaced by a new part; also that the worn out substance and the by-product of waste material—a chemical compound that is usually poisonous—whether gaseous, liquid or solid, must be removed in order that the newly made parts replacing the worn out and the waste, can properly function, you can readily understand the unity that is necessary to complete the smallest action and the amount of replacement that is always necessary.

This means supply of raw material, nonliving and of unfit structure and chemical makeup, and a whole series of complicated processes to make fit and to get into place. This constitutes the third of the Fundamental Vital Functions, the *FUNCTION OF NUTRITION.*

For illustration of the whole series of complicated processes we must limit our study to one of the simplest functions listed in the whole scheme.

The figure 10 shows a diagrammatic drawing of a small portion of a salivary gland, where one of the ingredients of saliva is made for use in mouth digestion. It shows a pocket of cells at the labelling alveolus, with a tube leading to the mouth, and surrounded by bloodvessels and lymph tubes, and entered by a nerve fibre. It is held in place by connective tissue of several kinds.

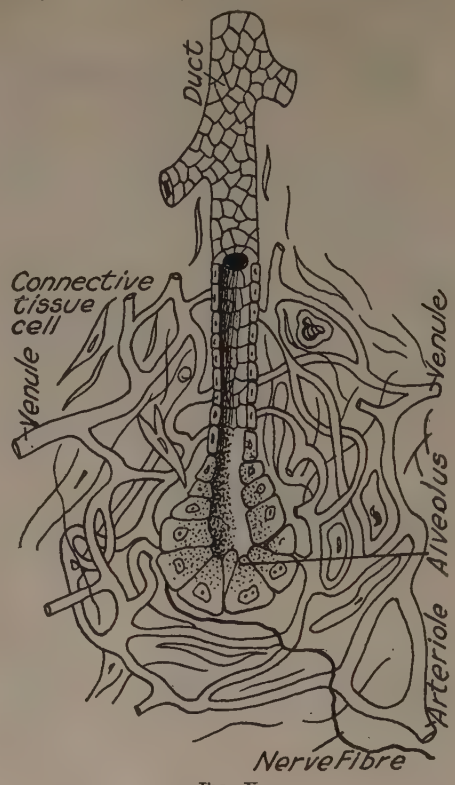


Fig. X

The cells making the walls of the alveolus can be seen holding granules. The material of these is derived from the blood and in the cytoplasm of the cells manufactured into saliva. This passes out through the tube and so gets to the mouth. Now, if you take an unflavored cracker, chew it well, and notice it becoming sweet, also disappearing without your swallowing, you may understand what we mean by digestion.

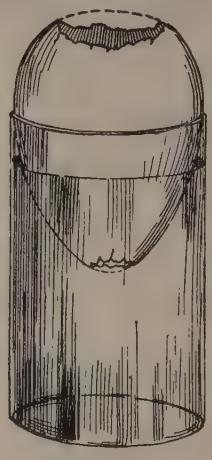


Fig. XI

TABLE III

I. FUNCTION OF NUTRITION* which is accomplished by the		NUTRITIVE APPARATUS
Consisting of a series of		Consisting of
PROCESSES: These are*	accomplished by	SYSTEMS: These are* made up of organs, which are constructed of tissues, and tissues are built up of cell and cell-products.
1. Mastication*		
A Mechanical Process	accomplished by	1. Masticatory System Consisting of *Organs*. 1. Mouth—a cavity whose walls consist of Tissues. 2. Teeth. 3. Jaw-Bones and Joints. 4. Muscles. 5. Blood Vessels. 6. Nerves. 7. Mucous Membrane. 8. Tongue.
2. Insalivation and Mouth Digestion (Chemical)	accomplished by	2. Insalivatory System Consisting of *Organs*. 1. 3 pairs of Salivary Glands. 2. Mucous Glands.
3. Sensation	accomplished by	3. Gustatory or Taste System Consisting of *Organs*. 1. Taste Buds. 2. Nerves. 3. Brain Center.
4. Absorption	accomplished by	4. Absorptive System Consisting of *Organs*. 1. Capillaries and larger 2. Blood Vessels. 3. Lymph Spaces and Vessels.
5. Deglutition or Swallowing	accomplished by	5. Deglutitory System Consisting of *Organs*. 1. Mouth, Tongue and Breathing System. 2. Palate {Hard / Soft} 3. Throat. 4. Gullet or Œsophagus. 5. Cardiac Sphincter.
6. Stomach Digestion and Chymification	accomplished by	6. A Digestive System a. Secretory {Mucous Glands / Gastric Glands} Chemical b. Conducting—Muscular Coat of Walls —Mechanical.
7. Absorption	accomplished by	7. Vascular ... Blood Vessels in Walls.
8. Intestinal Digestion and Chylification	accomplished by	8. A Digestive System { a. Secretory {Mucous Glands / Intestinal Glands / Liver / Pancreas} Chemical. ; b. Conducting (Peristalsis) {Muscular Coat of Walls} Mechanical }
9. Absorption	accomplished by	9. Absorptive {Villi, Lacteals, / Capillaries.}
10. Defæcation	accomplished by	10. Conducting (Peristalsis) {Muscles of Coat / Rectum / Anal Sphincter}
11. Circulation	accomplished by	11. Circulatory {Heart, Arteries, / Capillaries, / Veins, Blood.}
12. Respiration and Oxygenation	accomplished by	12. Respiratory {Nose and Mouth, / Throat, Larnyx, / Trachea, Bronchi, / Lungs, Bloodvessels, / and Blood.}
13. Assimilation, Deoxidation and Dissimilation, creation of Energy Metabolism {Anabolism / Katabolism}		
14. Excretion	accomplished by	14. Excretory System {Kidneys, / Lungs, / Skin.}
15. Lymphatic Circulation	accomplished by	15. Lymphatic System {Lacteals, Lymph Spaces, / Rec. Chyli, / Thoracic Duct, / Lymphatic Glands.}

*After starred words read both *across page* and *down column*.

The fluid made by these cells is a chemical substance that changes the starch into sugar, that is why the cracker now tastes sweet, but in the mass of saliva it is dissolved and as a solution passes into the capillary bloodvessels lining the walls of your mouth just as you see in the figure, such bloodvessels making a network about the alveolus. They lie there so thick and are so full of red blood that the walls of your mouth are pink in color.

How does sugar get into the bloodvessels? How does saliva matter get out of the cells?

Look at the figure of the hen's egg set in a glass of water, after the shell has been picked open above and below without destroying the thin white sheet of membrane inside the shell.

There are no holes in the membrane, but notice that the membrane bulges outward; water has passed through the membrane, increasing the content. (See FIG. XI.) We call this *osmosis*, which means an exchange of heavier and lighter liquids through a membrane without rupture.

In the same way saliva stuff passes out of the cell, while other liquid stuff passes in, and in the blood-vessels of the mouth from the blood, through the walls of the vessels, without holes or rupture, liquid passes to the mouth; also the digested starch, now sugar solution, passes through the walls of the blood vessels into the blood stream.

The related processes that bring about the total result, nutrition, elimination of waste, assimilation, of the whole organism are approximately exhibited in the following table.

As previously said, an excess in the supply of manufactured material for replacing the worn out and the waste results in growth. Excessive growth is cared for by transfer to a new individual; this is the *FUNCTION OF REPRODUCTION AND ITS APPARATUS*, the fourth of the four Fundamental Vital Functions. The essential feature of reproduction is the coming together of two cells, each in itself incomplete, from two different individuals, one the male and the other the female. These are sperm cells and eggs and each incapable of coming to a new individual without the other. The poet's way of putting it is "useless each without the other."

Being formed in different bodies, the coming together of the two becomes an important problem; this is variously solved among the plants and animals, and goes a long way towards explaining the vast numbers of different kinds of bodies, also the varying behaviors and life histories.

In some, plants and animals, each sex produces its kind of cell and the individual gives itself no concern about the coming together of their products. Some female fish shed their eggs anywhere in the water and the male fish of the same species anywhere in the same water. The coming together of the two mating cells is a matter of chance.

In others, plants and animals, the female holds her cells in her body. The male of the same species becomes interested and is equipped with the desire and means to place his sperm cells where they can get to the eggs and so unite with them. It is easy to see that this is a source of immense variations in body, action and life history.

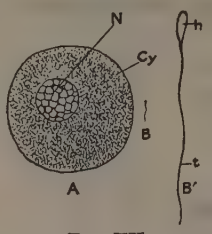


FIG. XII

A, ovum—a single incomplete cell from ovary of the female; B, sperm cell from the testis of the male; B, size proportionate to ovum; B', same enlarged; Cy, cytoplasm; N, nucleus; h, head; t, tail.

To become a new human individual these two cells must unite; the sperm enters the ovum and then very wonderful changes take place, and the two become one. This one is now an embryo, and destined to grow through many changes, recapitulating vast history and finally becomes a mixture of the characters of both parents, like the father in some respects, like the mother in others; never wholly like either. The characters of each are blended in ways that make each individual a new, unique character—nothing ever before like it, nothing ever again just like it.

Because of the need of coming together from different individuals, there are the differences in size and shape, also in power. The sperm is the smallest cell of the human body, the ovum the largest. The sperm is equipped with desire and an organ to go and find his mate. The organ is the tail. The ovum is loaded with food for the young that is to be—heavy and not provided with an organ of motion, but awaits the coming of her mate. There are vast numbers of sperm; there are relatively few ova.

PHYSIOLOGY—HYGIENE.

Anatomy has to do with the structure of the body or as it is known the organism.

Physiology has to do with the functions of the body or organism.

Hygiene refers to the understanding of both of these important studies so we can care for our bodies and understand them in order to increase their normal activities, at the same time preserving them and conserving their energies.

It is the duty of all intelligent persons over twelve years old to thoroughly recognize the necessity of being familiar with these three subjects. The first step then is to have an acquaintance with the physiology of the body, adequately understand the functions—(which is only another name for the mechanics or workings) of the organism so that any departure from what is natural or normal may be quickly recognized and corrected as well as keeping it fit when it is in good health.

PHYSIOLOGY OF MUSCLE AND NERVE.

The notable feature of muscle is the power of contraction. There are small cells in the body called Cilia that also possess this property but in the main it is muscles that have the power of contraction. The muscle tissues are divided into three divisions from a functional standpoint. It is to be understood in Physiology that when the term function is used it means the special action of that tissue or gland, in contradistinction to the word organic, which means the special structure of the individual organ or tissue.

The three groups of muscle are named *Striated Skeletal Muscle, Plain (Smooth) Muscle* and *Striated Heart Muscle.*

SKELETAL MUSCLE.

Skeletal Muscle produces the voluntary movements or those under control of the will. Each muscle is composed, of course, of many fibers. Each one of these fibers is held in a little bag or membrane and this is called the *Sarcolemma.*

Muscles possess the two qualities, *extensibility* and *elasticity.* They stretch from bone to bone and are always, so to speak, in an elastic state of stretching or tension. This is referred to as muscle tone. A muscle acts better to stimuli when it is in this elastic state of tension than when altogether relaxed. In the body muscles are placed in sets of *extensors* and *flexors* and they are antagonistic to each other. This delicate balance of elasticity and tone is not only beneficial here but also must be maintained in other kinds of muscle as for instance the heart muscle and the muscular coat of the arteries.

Muscles are made to contract by a stimulus sent down by the brain through what is called a motor nerve. If anything severs or interferes with this nerve the muscle is paralyzed and will not act. A muscle, however, has an independent irritability and will contract if an electric current is made to come in contact with it. If you push the stimuli to a muscle too rapidly it will come into a state called muscle fatigue and by and by will not act. In other words, a muscular structure requires a certain latent period or resting time to pick up its tone again. Before a muscle passes into a stage of fatigue, it will sometimes stay in a fluttering condition of constant contraction, this is called compound contraction or tetany. In death the muscles pass from a viscous to a solid state, this is called *Rigor Mortis.* All muscles do not develop it alike. It usually starts in the jaw and descends downward.

PLAIN MUSCLE (Smooth)

This is located in the walls of the organs like the stomach, in the arteries and veins, the digestive canal, in the genito urinary organs, the windpipe, and in the eye ball as well as the muscles of the hair. It is not under the control of the will generally speaking. They are regulated by reflexes or unconscious stimuli from the brain. The sensitiveness of this type of muscle is more sluggish in its reaction to stimuli. The heart muscle is classed in this type but it is more rapid in its actions and also possesses an individual quality of rythmic action not possessed in like degree by other members of this class.

NERVE FIBER.

The nerve fibers of the body are divided into two classes called *medullated* and *non-medullated.* The brain and the spinal cord, the cranial nerves, and the roots of the nerves along the spine are classed as *medullated.* All these structures have a core called an axis cylinder and surrounding this core is a sheath. This sheath is divided every so often. Around this sheath is a very delicate coat called the *Neurolemmal Sheath.* The other division of nerves do not have this medullary sheath. Nerves going to an organ are called *efferent.* Those leaving the organs and carrying impulse to the brain are called *afferent.*

Furthermore, nerves which carry motor impulses or stimulate to action, come out through the front or anterior roots in the spine while those bringing back sensations come through the back or posterior roots. Various agencies stimulate nerves.

(1) Chemicals,
(2) Mechanical means,
(3) Heat or cold,
(4) Electrical stimuli.

There are certain spots in the body where voluntary muscles can be especially well stimulated. They are called Motor Points and are where muscle receives its Motor Branch. The nature of the nerve impulse by which nerves contract or otherwise affect an organ is supposed to be in a form of matter akin to electricity or its associate form the electrons.

When a nerve trunk is killed or divided all that part of the nerve beyond the division dies or degenerates. If the nerve can be reunited it regenerates. The process of divided nerve is similar to the relation of central telephone office and your telephone, cut the wire and the usefulness of the telephone is immediately lost.

CENTRAL NERVOUS SYSTEM

All the processes of this system are related by a unit called the **neuron.** The neurons are supposed to communicate by contact only. These neurons resemble spiders with the branches representing the legs. As in the case of muscle cells and almost every other cell in the body, they must have their "resting" or relaxing period. When nerves are spoken of as having reflex action it means they are acting independently by carrying afferent (organ to brain) impulses to the brain. As for instance, the eye sees an insect coming toward it and the lids close before the individual has time to think it out. This is utilized in examinations as for instance when you are asked to cross one knee over the other, examiner taps knee cap, your knee jerks forward. The brain and the spinal cord are nothing but a big assemblage of nerve cells and nerve fibers. These are divided into grey matter and white matter. In general the gray matter originates the thoughts and nerve impulses. The white matter carries them along.

The cerebrum, divided into two halves or hemispheres, has various spots or areas that do certain things. Part of it is intellectual so to speak. Part of it controls the limbs, part of it the eyes and so on. If any one of these parts

are struck in such a way that they are killed or by being pressed on by blood or fluid or by degeneration through tumor or disease, they cease to function. This explains the phenomena of paralysis. For instance if the leg center is pressed then paralysis of the limbs occurs. These impulses pass down through the lower portions of the brain, that is, through the cerebellum, the pons, and the medulla-oblongata. These impulses, from the centers, rule over the heart, lungs, and control the temperature of the body. The *vaso motor* nerves are located in a locality known as the fourth ventricle at the base of the brain. As part of the nerve fibers cross in the medulla oblongata it explains why when you are hit on the left side of the cranium the right side becomes paralyzed. These nerve fibers are arranged in the form of bundles of wires and are called tracts.

Various diseases pick out different tracts as for example, *Infantile Paralysis* picks out the front, therefore is called *anterior Poliomyelitis*. *Locomotor Ataxia* picks out certain fibers relating to locomotion. A disease called *Multiple Sclerosis* selects spots here and there. *Paresis* affects the grey matter of the brain. *Aphasia* or loss of speech may come from degeneration in the motor nerves that stimulate action or the sensory nerves that convey impressions.

CRANIAL NERVES

There are twelve cranial nerves and these all have special functions. They arise as direct offshoots from the brain.

(1) Olfactory or nerve of smell.
(2) Optic or nerve of vision.
(3) Supplies motion to the eye.
(4) Supplies motion to the eye.
(5) Supplies teeth, nose, eyes, face and is the one chiefly concerned in facial neuralgia.
(6) Supplies motion to part of the eye.
(7) Supplies motion and receives sensations from the face.
(8) Nerve of hearing.
(9) Taste, sensation, motion.
(10) A very important nerve going to the lungs, heart and digestive organs. It is probably one of the most important nerves in the body and any interference with its function results in many of the serious ailments related to disease of these organs.
(11) Supplies motion to some muscles of the neck.
(12) Supplies motion to the larynx and the tongue.

Anything interfering with the function of any one of these nerves will cause pain or paralysis of their function. Degeneration of optic nerve causes blindness, of auditory nerve loss of hearing. Interference with the tenth induces heart disturbances. Paralysis of the twelfth brings on difficulty of speech and so on. *Syphilis* has a great tendency to affect these nerves, particularly those supplying motion to the eye.

There is another large mass of nerve fibers connecting many important structures and spread out like a web in and about the spinal nerves to the various organs. It includes the often alluded to *Solar Plexus*. While not strictly speaking altogether sympathetic in the usual meaning of that term, it is nevertheless called the *Sympathetic System*. This system was formerly supposed to be independent of the mind but it is now felt, that they are not free from voluntary control and that, therefore, worry, habits, mental disturbances can affect partially, at least, the activities of this great webbing of nervous tissue binding together so many important organs.

SLEEP.

No definite theory as to what causes sleep has as yet been accepted.

SPECIAL SENSES.

There are in the body nerves specialized to sensations. We understand these best on the skin. The four leading forms of sensation are: namely *pressure, warmth, cold* and *pain*. The deeper organs seem only sensitive to pressure and pain in a slight degree and are not sensitive to either touch or temperature. The pain sense is the most widely distributed. It is supposed to be related to the irritation of so many "pain points" located in the nerve distribution. The muscles have a muscular sense. It is probably used in judging weight and resistance. We have the sensation of hunger which probably is partly due to the so called hunger contractions of the stomach. Hunger may be disagreeable. Appetite on the other hand is located in the nerves of the stomach and is usually pleasant. Thirst is probably located in the nerves of the pharynx and whenever the water content becomes too low these nerves are stimulated. The nerves of taste are supplied from two sources. The front two-thirds from the fifth nerve. The back, one-third from the glosso-pharyngeal nerve. There are also taste buds scattered about in the throat which are supposed to be auxiliary to the main nerves. This makes the sense of taste not entirely dependent on any one nerve. The four main taste sensations are *sweet, bitter, sour* and *salty* and all others are combinations of these. There are also combinations of taste sensation with those of odor. Common sensibility of the tongue also enters into it as in the case of pepper and alum. If we hold our nose during ingestion of food certain tastes will disappear. Very disagreeable tastes are usually bad odors.

SMELL.

It is generally supposed that the sense of smell is caused by small particles of the matter detected, floating through the air at least in a gaseous form and striking the olfactory membrane. Odor is largely a matter of association and has a large measure of the psychological in it. For instance musk is pleasant to some and very unpleasant to others as is also garlic. The sense of smell may be fatigued. The sense of smell is highly developed and the very small particles that affect it are almost beyond belief. The dog especially has a high sense of smell. Two odors may neutralize each other as for instance Balsam of Peru and that of Iodoform.

SIGHT.

The eye is, of course, the organ of vision. The eye is an optical instrument that catches

rays of light emanating from external objects, brings them to focus on a curtain of nerve fibers, the retina, which in turn gives the sense of sight to the brain by a series of special impulses.

Through a window called *cornea*, the rays are passed through a complex curtain called the *Iris* which has the power of becoming larger or smaller according as the light is too bright or too dim thus varying the aperture (called the pupil) in size of opening. The light is caused to come to a focus by a clear lens called the *crystalline lens* (opacity of which is a cataract) which has the power of adaptation to distance and is then thrown on a curtain similar to a stereoptican background which curtain is called the *retina* and is alluded to as being composed of *rods* and *cones*. The impression is transmitted to the brain through the optic nerve. Defects of vision can occur anywhere in any of these structures but failure of the crystalline lens is probably the most common in which case one wears glasses which make up for the defect the crystalline lens cannot correct. However, the cornea can also have its share in astigmatism. The *iris* or curtain can be affected by many drugs. When it is constricted it is called *Miosis*, when dilated *Mydriasis*. Atropin (Belladona) and Cocaine dilate the pupil while Eserin Pilocarpine constricts the opening. The instrument for examining the eye is called an *opthalmoscope*. Certain people do not react to the sensations of color, particularly red. This is referred to as color blindness.

HEARING.

The ear is divided into three main parts. That outside of the drum or *Tympanum*. The middle part containing the bones of hearing (hammer, anvil and stirrup, named for their respective resemblance) with ligaments and muscles and a connecting tube the Eustachian canal which connects with the throat and serves to equalize the air pressure on both sides of the drum membrane. The internal ear with its organ of sensation, the *Cochlea*. Its vestibules and semicircular canals making a structure called the *Labyrinth*. The sound waves strike the ear drum, are transmitted to the bones and in turn are carried on through a very delicate and complex system which selects different waves in the internal ear to the auditory nerve and thence to the brain.

The importance of keeping the Eustachian canal open is apparent and its occlusion in nose and throat affections account for the buzzing in the ears. On the other hand, the importance of micro organisms or germs passing up through it from the nose and throat accounts easily for the prevalence of ear troubles during epidemics of nose and throat diseases. Different people have various ranges of hearing as in the case of smell and sight. The semicircular canals are concerned also in giving us a sense of proportion and direction. Interference with them makes us dizzy and gives us *vertigo* and *nausea*. They are the supposed causes of sea sickness and car sickness.

BLOOD AND LYMPH.

The blood is the fluid which is kept in circulation by the heart. It flows through a series of tubes known as the arteries, veins and capillaries, and keeps up the nutrition of the body. Its functions are varied. *First*, it carries the food after it has been prepared by the digestive organs. *Second*, brings oxygen from the air to the lungs. *Third*, carries away the products of combustion, so to speak, of this same oxygen designated as carbonic acid gas and other waste products from the tissues, as for instance, the nitrogenous compounds Urea, Uric Acid and similar material. *Fourth*, distributes the various secretions of the glands and internal organs. *Fifth*, maintains the temperature of the body, as well as preserves the proper balance of fluid.

The blood consists of a fluid part, the Plasma, and in it floating, so to speak, a number of minute bodies, the corpuscles. These corpuscles are further divided into three groups; namely the *red corpuscles*, the *white corpuscles* (also called Leucocytes) and the *Blood Plates*. The Plasma is colorless or with a greenish yellow tint. The red color of the blood is due to the red corpuscles. Blood coagulates on exposure to the air. This is due to the spontaneous formation of a fibrinous product which is a special endowment and is dependent on the existence of a ferment-like substance fibrinogen associated with lime salts.

People whose blood does not possess this quality of coagulation are described as having Hemophilia and are in grave danger from bleeding to death following injury or operation. For this reason one should have a "coagulation time" test taken on him before submitting to operation if there is any doubt at all about his possessing the coagulating quality in his blood.

Blood is alkaline not acid in reaction to litmus. The red corpuscles in health average 5,000,000 to an arbitrary standard, the cubic micro millimeter in males. 4,500,000 in females. They carry an iron compound *Haemoglobin*. Their function is to carry oxygen gas which unites easily with this iron compound. When a person goes to a laboratory to have a so called "red count" made, it is to determine how near to the normal number of 5,000,000 he happens to possess. A low count is indicative of the condition *Anaemic*.

The white cells called Leucocytes are more complex than the red. They number about 6,000 to 7,000 per cubic millimeter. If an individual goes to a laboratory to have a so called "white count" done, it is to estimate the number of these white cells. In many conditions, notably acute Appendicitis, the number is greatly increased to 15,000 to 20,000. While in Pneumonia, it may reach 35,000 to 50,000. If a patient has pain in the region of the Appendix and a count of 15,000 to 20,000 is obtained, it is practically certain he will have an abscessed Appendix. The blood is obtained by pin prick from finger or ear. A high count is known as Leucocytosis. In Typhoid Fever, you have a low count and this is known as Leucopenia.

White cells have a power of movement all their own and this has earned for them the name of wandering cells. They can go through spaces between the other body cells as for instance the bloodvessels. The white cells:

(1) They protect the body against so called micro-organisms or germs. They either

ingest them or else destroy them. This has earned for them the term "policemen of the blood."

(2) They aid in absorbing fats and peptones from the intestines.

(3) They aid in coagulation.

(4) They help to maintain the so called proteins in the blood.

BLOOD PLATES.

They occur in great numbers in the blood, 300,000 to the cubic millimeter. Their exact use is not understood.

Blood is a complex fluid and is not a simple compound. Its reaction, contents, amount of protein (white of egg is a class of protein) and clotting features are specific for any individual. Blood transfusion cannot, therefore, be done indiscriminately. The blood of one healthy individual may be toxic or poisonous to another. Likewise, serums obtained from other animals may be toxic to a man. In order to combat this feature, it is usual in giving the blood of one person to another, to type them and examine them so as to find out whether they measure up approximately alike. No one should receive blood from another person unless the giver or donor is known to be of their type, unless it is in the case of grave emergency, and known that the donor is free from Syphilis.

LYMPH.

The Lymph is the other fluid of the body found in the system of corollary tubes to the blood circulation, known as the *Lymphatic System* as well as in certain open spaces outside of the bloodvessels. All tissues are probably bathed in this fluid Lymph. They, the Lymphatics and the Lymph spaces, are really a sort of *"Clearing House"* between the blood stream and the tissues.

CIRCULATION OF THE BLOOD.

To understand the circulatory apparatus, it is well to consider it as an organ of the body in itself. It is in endless motion, which never for a moment stops from birth to death, yet it is not the same in all parts of the body. In one part as for instance the carotid artery, it may be traveling at a high velocity, yet in another it may be moving very slowly as in the microscopic vessels, the Capillaries. The time necessary for a complete circulation of the blood is usually stated as 23 seconds.

The pressure of the blood is not the same in all individuals and is produced by pressure waves (like the waves of a stone falling into a pond) induced by the alternate contraction and expansion of the heart and its effect on the blood in the arterial vessels.

The maximum or highest point is obtained by the action of the heart in contraction known as *Systole.* This is the apex of the pressure and is called *Systolic.* The lowest or minimum pressure is obtained after the heart has rested and is known as *Diastolic* pressure. In man this is about 110 to 120 millimeters measured on a mercury column for the Systolic or high point while the lower or Diastolic is between 67 and 75 millimeters. Subtracting one of these from the other gives the so called pulse pressure. Therefore, a man with this blood pressure has a heart beat which has a force equal to lifting a column of mercury in a tube 45 millimeters high. This is what taking your blood pressure actually means. Anything which makes the resistance to the blood flow greater will cause the heart to increase the force of its beat.

THE PULSE.

When the heart throws the blood into the arteries, if they were hard and rigid, then the pressure would be the same everywhere in the body and as much blood would have to flow into the heart as flowed out from it. This is not the case. The arteries are soft, compressible and elastic. They fill up near the heart and pass the pressure along in a series of snake-like movements until finally in a feeble way it reaches the most distant parts of the body. In so called hardening of the arteries seen in the aged and those with *Arteriosclerosis* from disease, this remarkable property is to a more or less degree lost with the result that a variety of untoward symptoms arise interfering with comfort and health. Whenever an artery comes to the surface and is easily felt this blood pressure wave or pulse may be detected. If this wave occurs regularly it is called a *regular pulse* or wave. If in good tune, it is called *rhythmic.* If soft, compressible and elastic it is said that the *tension* is good. If a normal quantity of blood is evidently passing along with each wave it is said the *volume* is good. If life insurance or other examinations are made these are the terms used to describe the pulse.

HEART BEAT.

The heart is divided into four rooms or chambers. The two upper or receiving chambers are called *Auricles.* The two lower or chambers of pressure activity are called *Ventricles.* A heart beat consists first of the squeezing in or contracting of the upper or filling chambers. Next a squeezing in or contracting of the emptying chambers and then a rest when the blood is again running into the heart. Activity is known as *Systole.* Resting is known as *Diastole.* The beat begins in a bundle of nerves at the upper portion of the heart and spreads out over the heart like the wind setting in motion a field of wheat. It is not a sudden spasmodic action. Many heart diseases are the result of interference with this spreading wave. This wave is accomplished by the action of different nerve nodes like the lighting progressively of the bulbs on an electric sign. Interference causes serious trouble as in the case of heart bloc when the impulse is stopped or in fluttering where it acts too often in one part. Valves between the chambers and vessels, keep the stream from flowing back in the wrong direction while the squeezing of the walls in contraction is going on. If at any point through disease these valves do not fit tight leakage occurs in the wrong direction. While the ventricles are in action, two sounds are to be heard over the heart, one at the beginning, the other at the end of the action. It resembles "lubb-dup." A stethoscope

intensifies these sounds. When heart sounds "lubb-dup" are replaced through disease by soft purring-like sounds these replacements are designated as murmurs. They are useful in ascertaining just what portion of the mechanism is at fault. But these so called murmurs are not accepted with the same finality and importance they once were.

The cause of the heart beat consists of impulses sent down by the central nervous system from the center designated as being in the fourth ventricle of the brain. Those to hasten it are described as coming through a nerve, the *Cervical Sympathetic.* Those to retard it through the *Vagus* or 10th cranial nerve. If either one of these nerves are paralyzed or interfered with by disease or accident or drugs the other will gain the ascendency. Cut the *Vagus* and the heart will run away with itself. Interfere with the sympathetic or acceleration nerve and the heart will beat too slow. While the nerves above mentioned start or regulate the contraction they have nothing to do with its rhythm. It is, therefore seen, that the heart is an automatic organ. It needs to be started but runs on itself.

The rate of the heart beat varies.

At birth	135 to 140
Infancy	120
Childhood	100
Youth	90
Adult	75
Old age	70

Exercise increases it. Blood pressure affects it. Low pressure increases it.

VASO-MOTOR NERVES.

There are in the coats of the blood vessels a series of nerves which dilate them or constrict them as necessity arises to maintain normal blood pressure. These are absolutely essential and very important. One set is designated as *Vaso-Constrictor* and they diminish the size of the bloodvessels. They are seen in action when the face grows pale. The antagonistic set are the *Vaso-Dilators.* They are seen in action when we blush and they open or dilate the blood vessels.

These constrictor nerves are in constant tonic activity. They have their center in the brain and it is known as the *Vaso-Motor* center. The center of the dilators is not so well made out. These nerves have a great deal to do with our bodily welfare. They are concerned in surgical shock after operations, in fainting, in various skin diseases, in the actions of many drugs, in the disease known as *Hypertension* and in the symptoms of high blood pressure. They maintain the equilibrium of the circulation giving to a part that needs it, more blood and withdrawing it from others that do not. They can literally make a man "bleed into his own veins." They are an important adjunct to the heart and are almost as necessary to our lives as that important organ.

RESPIRATION.

Respiration relates as a rule to the process between a body and its surroundings, of the interchange of some form of gas. In the human being this consists in the absorption into the blood of oxygen and the elimination outward of carbonic acid or carbon dioxide gas. From the time we are born until the period of our death this process of changing of gases must go on. It may, apparently, stop for a short period as when some one is resuscitated from drowning or during an anaesthetic, but even then it is a matter of using up a residual or reserve air, that the lungs always hold, which carries the injured over the hazard.

It may be said therefore to be a constant process like that of the heart beat. We must have fresh air. The only way to come to a clear understanding of the breathing in of oxygen is to remember that the gas oxygen is in reality like food. Ordinary food is taken into the stomach. Oxygen by way of the lungs. The bowels must move to eliminate the waste of rough food—the ashes so to speak. The lungs must bring back that Carbonic acid gas to the outer air as the ashes of the gas oxygen. In the last analysis the results are quite the same, except that in an emergency we can go without food for the stomach while we cannot go at all without food for the lungs else we die of asphyxiation.

So we come to understand that the *metabolism,* (which is to say changing of matter like food into living tissue of the body) is simply a process by which fats, sugars, proteids and salts with water on the one hand and on the other the gas oxygen are taken into the body, and turned into living tissue. What is worn out and of no further use is eliminated, the foodstuffs by bowel and kidney, while the gas comes away through the lungs as carbonic acid.

The interchange of gas occurs in the lung, where a myriad of little cells like the compartments of a honey comb or automobile radiator are lined with veins and arteries. The bloodvessels bring the blood impure with carbonic acid gas so that it is dark in color, and give the gas over to the air in the little air chamber. It is taken up, oxygen is furnished in exchange and the blood goes on its way purified, bright red in color. This process of purifying is often referred to as *ventilation.*

The lungs are two large organs arranged in lobes. They operate like bellows. They are in two closed cavities which are encased in the thorax. A vacuum exists between the sides of the chest wall and the covering of the lungs. This makes the pressure coming from within the lungs greater than that between wall and lung. As we take air into our lungs it is referred to as *Inspiration* as we breathe it out it is called *Expiration.* The action of *Respiration* is carried on by the big domelike muscle that resembles the ceiling in a cathedral and which separates the lungs and heart from the stomach, bowels and liver, also by the bringing up or elevating of the ribs. Also by the various muscles of the chest.

Ordinary breathing is called *quiet breathing.* Difficult breathing is called *dyspnea.* Breathing is also referred to as *costal* in which the chest is predominant, abdominal, when that portion of the body is the chief factor. Artificial respiration is that carried on by a force outside the body. An instrument, *THE PULMOTOR,* auto-

matically does this. It is however frequently not around when needed. Two other methods are in common use. The *Sylvester Method* is as follows. Raise arms above chest then lowering them down against the sides of the chest so as to make pressure inward, releasing, and the same procedure over again. Do not hurry. Do it less often than one would breathe or about 10 to 15 times a minute, holding tongue forward.

The *Schafer Method* is done with less labor and as it may have to be carried on in some cases of drowning for almost an hour this feature is of some importance.

Patient lies face downward, be sure tongue is out. Pad under chest. From a point at hips operator straddles body, facing head, places both hands over lowest ribs called *diaphragm.* Throws weight of his own body against hands. Slowly sits up again without removing hands. Do not hurry. Do it 10 to 15 times per minute.

As was stated before a vacuum exists between the lung and chest wall. If air rushes into this vacuum, or enters from a puncture through the lung inside or chest wall outside, the lungs immediately shrink. This condition is known as *Pneumothorax.* It is utilized in Tuberculosis to rest the lung. The lungs are supplied with nerves from various sources. The most important is the *Phrenic* in so far as it innervates the diaphragm. Numerous nerves go to the various muscles. Ordinarily breathing goes on involuntarily in a rhythmic manner, but to a limited extent breathing is under voluntary control. But we cannot hold our breath beyond a certain point therefore an infant cannot come to grief in this way.

Holding sway over the whole scheme of Respiration is a center in the brain called the respiratory center. It is located under or in the medulla oblongata. This center acts almost automatically, so that if you are threatened with lack of air or asphyxiation, the carbonic acid rising into a condition of excess you breathe faster. The excitation of any sensory nerves will stimulate this center. So that a cold bath, pain, grievous sights, annoying sounds will all make one breathe faster.

The interchange of gases in respiration is always affected by pressure. Atmospheric pressure is quite a factor. People going down in deep sea work, or those engaged in building tunnels or caisson work must avoid too rapid changes from low to high or high to low pressure. Caisson sickness has to do with high pressure. Mountain sickness with low pressure. In all that pertains to Respiration the main thought never to be forgotten is that fresh air is a *necessary food* which we cannot possibly do without for a moment. Furthermore the air we inspire should be on the move so to speak and not stagnant. There can never be any argument as to whether we should have fresh air. Being a continuous necessity it must then be ever present.

PHYSIOLOGY OF DIGESTION AND SECRETION.

Mastication is entirely a matter of the will. Reasonable time should be taken for it. Deglutition (or swallowing the food) is at first voluntary; later it is not.

At the upper end of the wind pipe is a sort of cap or valve known as the epiglottis which shuts off the food from going down the windpipe.

The cardiac (heart) end of the stomach has a *Sphincter muscle* (a valve) which is open when food enters; is closed when the stomach is full.

The stomach of man is a single organ. However different parts of it act differently. The two main parts are the *Fundus* with the main body and the *pylorus* or smaller lower end. The lower end has the pyloric valve which allows food to escape when it has been properly prepared. The stomach has three layers of muscles, *longitudinal, oblique,* and *circular.* They give it a churning movement pulling as they do in different directions. The upper part of the stomach acts more as a reservoir while the active mixing and digesting is carried on in the lower end. Food of a solid nature may remain for quite awhile but liquids are passed along with celerity. The stomach fits around the food within it. Different kinds of food have a different period of residence in the stomach. Starches which are not digested there pass out in half the time of such foods as meat and the like which the stomach digests. The stomach therefore is a large receiving organ for food which it ejects at stated intervals into the duodenum. Food such as we eat could not be directly thrown into the intestines, they are in no sense large enough to receive it. The stomach receives its nerve supply from the vagus and the splanchnics (sympathetic). It is however something like the heart, an automatic organ.

THE INTESTINES.

The bowels have two muscular coats, an outer lengthwise or longitudinal, and an inner round and round or circular. Like the stomach they have an inner soft velvet-like layer called the mucous coat which absorbs the food.

Two kinds of movements are brought about by these muscular coats. First, *peristalsis,* this is a constriction of the walls. It works in segments like a block signal system on a railroad and has the effect of squeezing the food or residue on from part to part. Food passed through the small gut takes about 4 to 6 hours, and after a full meal the chances are it is spread along its whole length.

The second kind of movement is the *rhythmic* movement and it operates not so much to push food along but rather to separate it and re-unite it into small masses. This aids in digestion and also forms the stool.

The nerve fibers of the intestines have not altogether been clearly made out. Like the splanchnics, the vagus and other extrinsic nerves they have their specific effects. The intestine like the stomach is classed as an automatic organ.

The opening of the small into the large intestine is controlled by a valve, the *ileocecal,* and by a sphincter (like the rectum). The large intestine is something of a reservoir and in civilized man its place has been taken by the modern cook who prepares the food so that the roughage that normally was collected in this organ is either broken up or removed altogether.

The nerves of the large intestine come from two sources, (1) from the lumbar nerves (2) from the sacral nerves.

DEFECATION.

That part of the undigested and indigestible portions of food with other wastage and secretions not used up reach the bend in the large intestine known as the *Sigmoid Flexure*. The rectum is thought not to hold the fecal matter for long under normal conditions. In reality under civilized life the probabilities are that it does.

Two sphincters or valves hold the fecal matter in the rectum. Defecation is partly voluntary and partly involuntary; part is carried on by the abdominal muscles. They increase the pressure. Defecation is however mostly involuntary and is carried on by a nervous reflex.

VOMITING.

Ejection of the contents of the stomach up into the mouth by way of the esophagus and to the outside.

It is a reflex nervous act and the abdominal muscles assist. The cardiac end of the stomach is opened while the lower end contracts. It is as before stated essentially nervous, caused by irritations to the brain, disturbances of the sense of position by way of the ear labyrinth, irritation of the stomach wall by products of fermentation or by emetics. Also by reflexes, through connection with the uterus, liver, kidney and other organs. Morning sickness in pregnant women is due to this reflex activity. It is supposed by many that there is a definite vomiting center in the brain. The drug apormorphine which, when injected directly into the body promptly produces vomiting, possibly acts on this center.

FOODS AND THEIR DIGESTION.

The substances we require to keep the body properly nourished are foods. There is a wide range of various foods on the face of the earth. However they can all be reduced to five essential elements.

PROTEIDS
WATER
CARBOHYDRATES
SALTS
FATS

Withdrawal of any one of these, especially water and the mineral salts, spell injury and even death to the body. In any of our bodily ailments it is merely a question of too much of one and not enough of another. Some of the most serious skin diseases represent an absence of one or the other. Dietetics and the science of food selection with their series of charts and figures merely represent the amount of which each one of the foods contain of these five elements. Animal foods have large quantities of proteins and fats. Vegetable foods have large amounts of carbohydrates and water. Some vegetables like peas however have even more protein than meat. To understand the word protein, is to recall the white of an egg. To understand the word carbohydrate is to recall starch and sugar. Fat is fat. The animal foods are more completely digested than the vegetable as the latter has shreds and fibers of cellular or fiber-like material.

There is another element in food known as vitamines. They are not as yet capable of being separated or isolated.

FERMENTS AND ENZYMES.

Ferments are as a rule living collections of organisms. Enzymes are the non-living unorganized elements which produce actions of a fermentive character. The first enzyme we meet is that of the salivary glands. It is called *Ptyalin* and it has an action on starchy foods. The salivary glands have secretory functions and these determine the flow of saliva.

Certain drugs act very definitely on this gland. *Atropine* or *Belladona* paralyzes the nerve of the salivary gland causing dryness of the mouth. Nicotine likewise lessens it.

All normal activities of the stomach so far as action on the food is concerned and for breaking it up into substances fit for absorption are directly produced, by fermentation. It is an error to ascribe certain conditions causing flatulence and so called "Gas" to enzyme action as a general term. It may be that the wrong food is fermenting into undesirable compounds but fermentation is normally present in the stomach.

Pepsin is the enzyme of the stomach. Like all other enzymes and ferments it acts without destroying or lessening itself. However pepsin must act in the presence of dilute hydrochloric acid, so that normal gastric juice is always acid and sour. It is to be remembered that enzymes that act on one kind of food cannot act on another. The gastric juice and the enzymes are secreted by many tubular or goblet-like cells in the velvety mucous membrane. The ferments are probably induced to flow by nervous impulses first started when food enters the mouth.

The gastric juice has also a milk changing ferment called *Rennin*. Rennet was used in olden times to make cheese and was obtained from the calf's stomach. It is the same as that of man. So it is to be expected that whenever milk which has been ingested for a time, is vomited, it will come up in the form of curds. Proteins are digested, water, some forms of sugars but not many, alcohol, drugs, and mineral salts are absorbed in the stomach. It is not as rapidly done as is generally supposed.

DIGESTION AND ABSORPTION IN THE INTESTINES.

Most of the more elaborate digestion of food is done in the intestine and here most of it is absorbed. Intestinal digestion begins at the duodenum and is nearly completed by the time it reaches the end of the small intestine at the ileocecal valve. Three juices enter into the process. The *Pancreatic*, the *succus entericus* (secretion from intestine) and the bile.

The pancreatic juice comes from the pancreas. It is not the secretion concerned in the disease Diabetes. It is like the gastric juice concerned in digestion only. It has a number of properties and secretions. First is a substance *secretin*. The next secretion is that of *Trypsin*. It also digests Protein but it acts in alkaline as well

as neutral and acid conditions. The next is *Amylase* which is the ferment which acts upon starches changing them into sugars. Starch as such is absorbed. The next is *Lipase Steapsin* which digests fats, changing them into emulsified forms similar to soaps. The action of the intestinal juice is not as yet thoroughly understood. All the food not absorbed by the stomach, which is very little at all of some kinds, is absorbed in the intestine. This throws a heavy load upon these organs and causes us to arrive at the reason why so much that is made out as "Indigestion" by doctors is really intestinal in type.

Bacteria swarm in the lower intestine at all times. By some they are judged as necessary. By others who have made experiments on animals in the arctic regions who have none, they are held as not necessary.

THE LIVER.

The liver plays an important part in the nutrition of the body. It is not concerned to any great extent at all with the movement of the bowels and so cannot be acted upon in that province by cathartics or purgatives. Its function is to secrete the Bile, and to be concerned in the production of urea and in the elaboration of glycogen. It has other functions not well understood among which are the production of bile pigments and substances to aid in coagulation of the blood.

The *bile* has many functions but the most important is the part it takes in the digestion of fats.

A part of it is stored in the Gall Bladder when active call for it is absent. Precipitation of the salts of bile form Gall Stones. It contains two color pigments called *biliverdin* and *bilirubin*. When they are absorbed in the blood by stoppage of the flow of bile or in disease they stain all tissues like a dye and are the direct cause of the yellowish green appearance known as *jaundice*. The liver forms Glycogen, known as animal starch. It is stored in the liver as a reserve fund of carbohydrates.

SPLEEN.

This is the mysterious organ of the body. It is the "undiscovered country" so to speak. Removal of it does not seem to affect the body.

KIDNEY.

The Kidney is a system of little tufts of blood-vessels resembling a rosette on a bonnet. These lie in little balloon-like capsules. The urine drops out, separated from the blood, of the tufts into the capsule and is removed through long snake-like tubes. As it passes through these tubes it is further acted upon and receives other excreted matter. The tubes all run together into a pyramid like point and the urine is collected in the cavity of the kidney (pelvis), where it leaves by way of ureters to the bladder.

Selective cells or epithelium are responsible for separating the waste elements from the blood. The process was originally supposed to be filtration. It is partially so. The more rapidly and strongly the blood comes to the kidney the more it separates the nitrogenous or protein waste, which is mostly secreted here. One of these products is urea. Another is Uric acid. Drugs, bacteria, and the like are also thrown out of the blood by way of the urine.

In albuminuria it would appear that the kidney structure is at fault but a disease like Diabetes has nothing to do with the kidney. The kidney merely removes the sugar as it would a drug from the blood. Whenever these long snake like tubes become clogged with cells or blood they form casts of the tubule like a plaster of Paris cast and when these are washed by the urine out of the body they can be detected easily through microscope.

The sweat also in addition to its effect on the temperature of the body, effect the excretion of waste products.

INTERNAL SECRETIONS.

By this time the reader has become familiar with glands that secrete juices by tubes called ducts into the exterior for various purposes, such as digestion. Glands also secrete substances necessary to life and health directly into the blood and lymph. They are highly necessary to the condition known as feeling "Fit" and in the main, contribute largely to our buoyancy, ambition, and interest in what is about us but it must also be remembered they are just as necessary to life itself. Internal chemical products which induce glands by secretions to activity are known as *hormones*.

The liver has not an internal secretion demonstrated as yet. The *Thyroid Gland*, the over growth of which is termed *Goiter*, is a conspicuous example of an organ which operates very largely by internal secretion. Small glands near the thyroid called *Parathyroids* also have a separate internal secretion. The thyroid excretes a hormone which is practically a form of iodin. In any event iodin is necessary to the activity of the gland. This internal secretion of the thyroid exercises control of nutrition and growth. Various conditions affect it, such as the arrival of puberty especially in girls and the condition of Pregnancy in women. Both of these make a call on the thyroid and if it is not large enough to secrete enough to meet the demand of the body it promptly enlarges. As long as this enlargement is merely a physiological increase, the internal administration of iodine will reduce it. If it is chronic and the frame work of the gland enlarges too, iodine will not reduce it.

THYMUS.

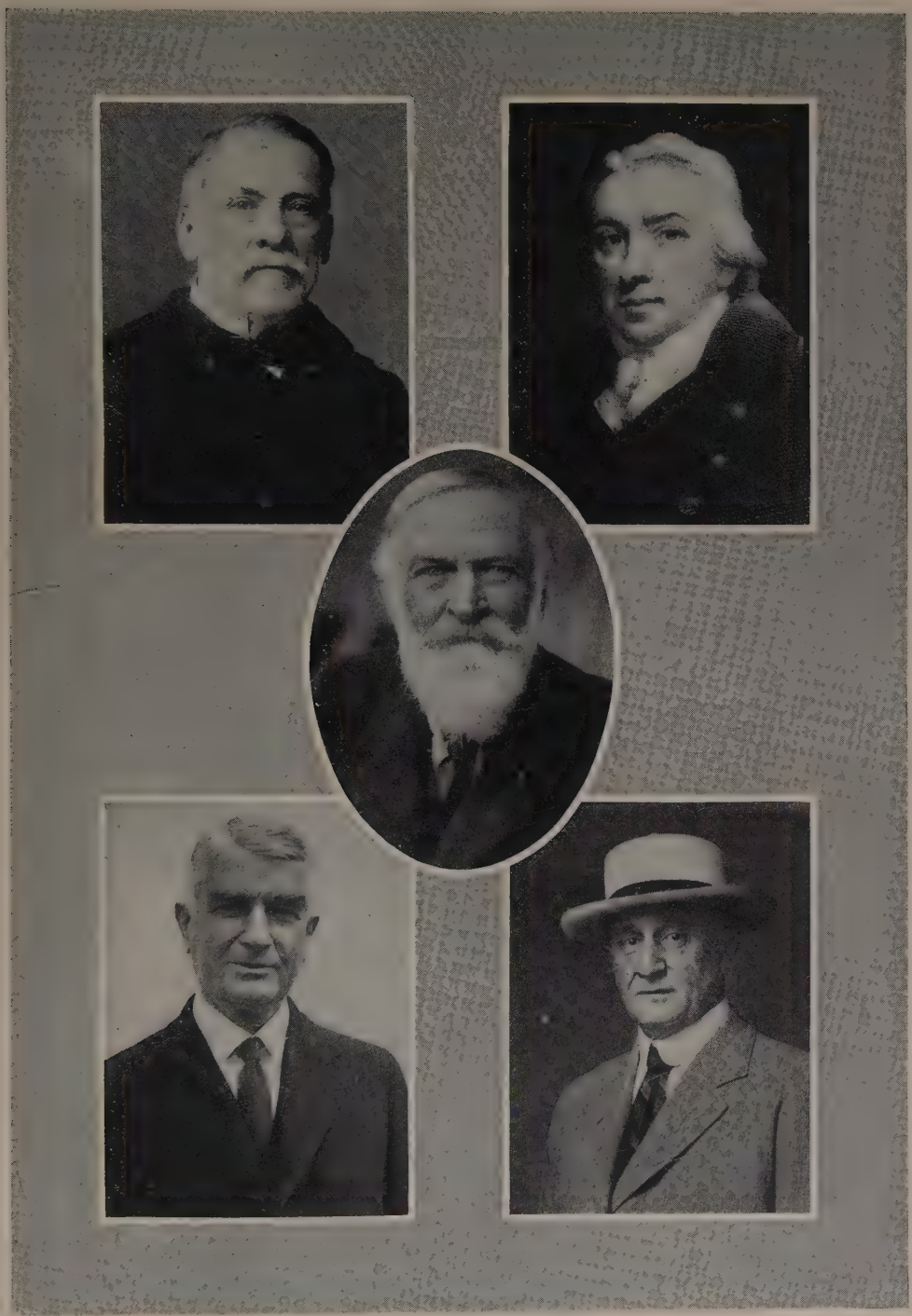
This furnishes an internal secretion perhaps in pre-natal manner and also in the infant which ceases very shortly after birth.

THE ADRENAL BODIES.

Located near and above the kidneys are these ductless glands. They no doubt regulate blood pressure, but it is probable they also have an effect in regulating spasmodic conditions of the inhibitory apparatus.

PITUITARY BODY.

Located in the Brain. Consists of two parts a forward or anterior part or lobe. A backward or posterior part or lobe.



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FAMOUS SURGEONS AND PATHOLOGISTS—I

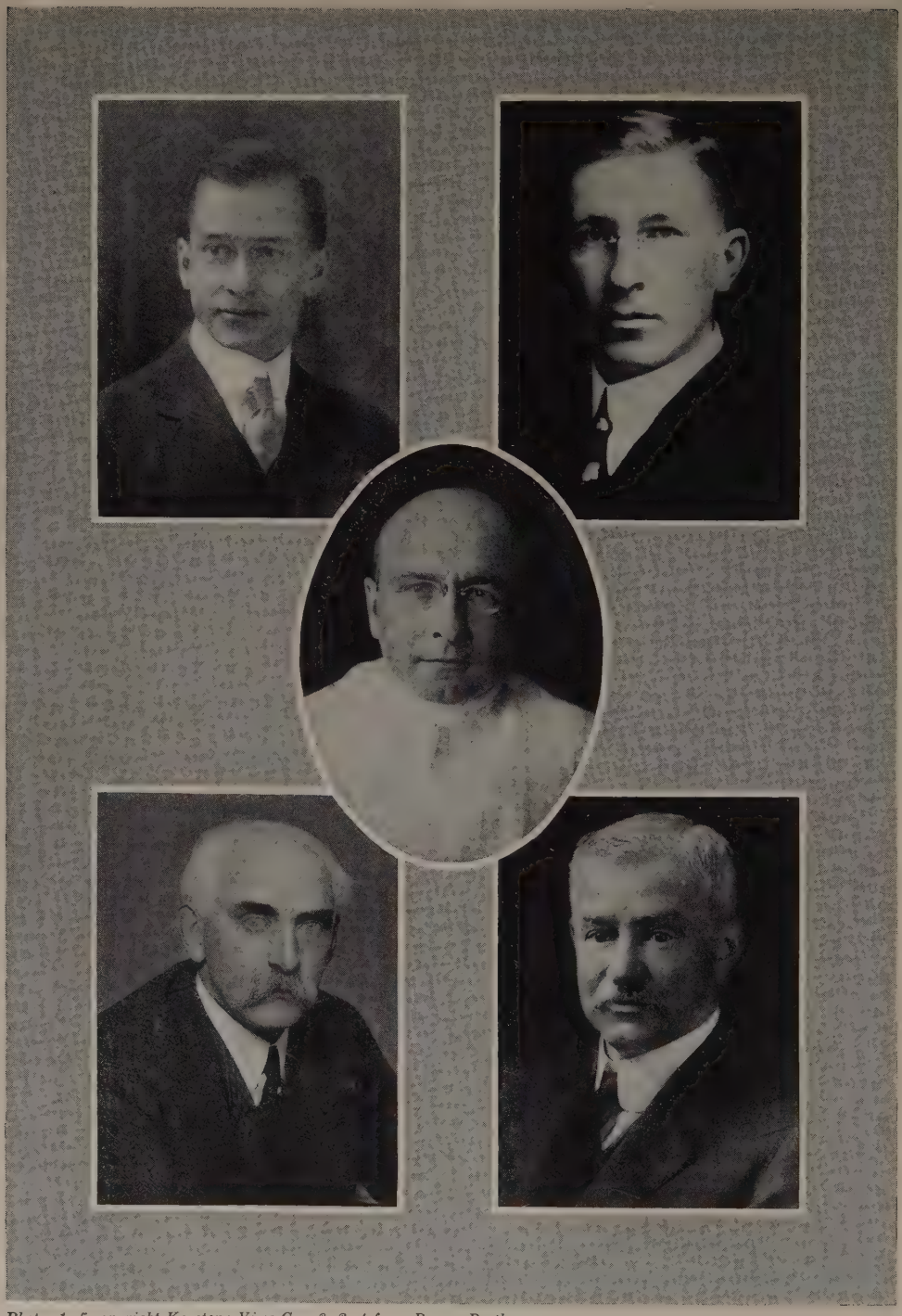
Louis Pasteur

Dr. William Mayo

Dr. Adolf Lorenz

Edward Jenner

Dr. Charles Mayo



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FAMOUS SURGEONS AND PATHOLOGISTS—II

Dr. Francis G. Blake
Dr. Joseph A. Blake
Dr. Alexis Carrel
Dr. F. G. Banting
Dr. Howard Atwood Kelly

The anterior lobe has an effect on growth of the body.

The posterior lobe secretion raises blood pressure and stimulates possibly all involuntary muscles in the body. It is the secretion of this part of the Pituitary Body that is used to induce labor pains in the pregnant woman. This it does promptly when injected. Care must always be taken that the outlet is large enough to admit passage outward of the child as rupture of the uterus may result. It is also used to contract the uterus and stop bleeding after the child is delivered. This secretion is also used in surgery to act on dilated intestines to produce a contraction of their muscles and expel gas during the period after operation.

The anterior lobe has to do with growth, giants and dwarfs are the result of the unnatural functioning of the organ. Obesity especially about the hips is regarded as due to an abnormality of this gland.

ORGANS OF REPRODUCTION.

Owing to the general prevalence of interest in the internal secretions of these organs they have become a matter of popular importance. The testicles have two secretions. The one the *spermatozoa*, is directly concerned in fructification and the reproduction of life. Passing out by the way of the genital organs of the male it fertilizes the female egg or ovum.

The other is an internal secretion passing from gland into blood. It produces the characteristics of vitality and sexual appetite in men and except in this indirect manner has nothing to do with reproduction. Therefore implanting a testicle under the skin of a man will in no way beget children at all except that the procedure awakens activity in his own glands to secrete virle spermatozoa. But it may produce quite a number of changes which may be regarded as increasing his general well being. In many cases these are not permanent and cease as the implanted organ atrophies or dries up. The students and observers of this procedure have not the confidence in it that the popular mind has painted. Animals in which testicles are removed become femininized.

The ovaries have an internal secretion but its influence has not been made out. Women who have had them removed may gain in weight, at times suffer with hot flashes and headaches but no other changes have been noticed. While some women have an altered sexual appetite, the majority seem to suffer no changes.

PANCREAS.

It has been pointed out that the Pancreas secretes a digestive juice. There are however in this gland a number of spots called the islands of *Langerhans*. They secrete a substance that has nothing to do with the direct digestion of food. Its duty seems to be to act as a coupling so to speak between the cells of the body that need sugar and the sugar itself. Loss of these spots or islands produce *diabetes*. The more islands lost, the more severe the *diabetes*. Like two Pullman cars ready to move that have no coupling, so is the cell ready to absorb the sugar and the sugar in the blood ready to be absorbed by the cell. The result is that sugar accumulates in the blood and is removed when in excess by the kidney. As stated before *diabetes* is a disease of the blood not of the kidney. Insulin, the newly discovered product is an artificially prepared secretion obtained from the pancreas of animals. It is this coupling which on being injected into a diabetic immediately affords a union of cell and sugar. Its danger is in giving more coupling than is needed. The immediate swallowing of sugar or orange juice will correct this. Tests for blood sugar mean taking some blood and determining the percentage of excess sugar in it.

NUTRITION. HEAT.

Proteins or Proteid Food supply some energy, but their main use is to build up tissues of body.

Carbohydrates furnish the energy of the body —the coal in the furnace to furnish power.

Fats furnish the coal in the furnace so to speak for heat.

Vitamines furnish some peculiar power to build up the body. As they have not been isolated and their existence is mainly shown by the desperate conditions that arise when they are absent, it is difficult to give a description. They are designated by the letters A—B—C. found in Cod Liver Oil, Vegetables, Milk, Butter and Yeast.

They are absolutely necessary to a growing baby and are supplied to it by way of fruit juice, tomato juice and the water from spinach.

As most every organ of the body is largely composed of water and every process is concerned with water it is at once apparent water is an absolute necessity. Likewise the minerals and mineral salts. Iron in the blood, iodin for growth, carbonates of soda and potash, in the chemistry of the blood, common salt for the production of chloride, as well as lime for the bones and teeth make an ash free diet that is full of danger and death.

Flavors and condiments act favorably by making the food appetizing. In moderate amounts they increase the flow of gastric juice.

Coffee and tea in moderate amounts are stimulant to muscular energy. They are perhaps harmless unless taken by those who have a so called idiocyncrasy for them. Alcohol possesses some value as a food and to supply energy but as a stimulant in practically all cases coffee is superior. Alcohol has a poor after effect.

HEAT AND ITS REGULATIONS.

1. Heat is lost through excreta.
2. Expired air.
3. By sweat.
4. By conduction directly away from skin.

Heat is produced.

1. By oxidation of food.
2. By exercise.

Heat is supposed to be regulated by a heat center in the brain and it is the interference of this center by organism and through secretions of a toxic nature that gives us fever in disease. This is done in pretty much the same way a carburetor in an automobile when tampered with and its regulation thrown out of the normal

gives you either too lean or too rich a mixture. So the toxic products of disease interfere with the heat carburetor so to speak and give us either a subnormal or a fever temperature.

REPRODUCTION.

This is a difficult subject to comprehend and concerns the union of the ovum or female egg and the spermatezoa—a small unit resembling the common tadpole though microscopic in size. This union is called fertilization and one of its fundamental problems is heredity.

The ovary is a small organ lying on the right and left side of the uterus. It has no direct connection with the uterus. The uterus has two arms or tubes in the form of the arms of a bat and on the end of these tubes is a stringed ending resembling the vegetable kale. Each month a so called Graafian Follicle passes up to the surface of the ovary. It contains the egg or ovum, a miniature explosion takes place and the egg projected passes down through the open end of the tube into the uterus.

Menstruation while not fully understood is thought to be a preparation, by casting off the inside covering of the uterus like a snake does its skin, for the fertilization of the egg.

If the egg meets the spermatezoa in the uterus or the tube then fertilization takes place.

This maturation is a complex process and resembles the various figures proceeded by that form of fireworks known as the pin wheel.

After various steps in a period of 280 days the reproduction is complete. Hormones forming in the blood of the mother cause the breast to function and other changes. If these hormones are improperly formed the toxic conditions of pregnancy eclampsia and the other kidney poisonings occur.

HEREDITY.

This embraces the idea that in fertilization we have two cells uniting in one cell and thereby building up many more and also that these cells build up with many characteristics of the two that caused them, in an orderly manner. There is in this connection a law formulated by Mendel. It supposes that characteristics are handed down in blocks or units. Substances in the parent cells called unit factors are supposed to make them. In most cases there is no blending but the child takes on whatever is dominant in either parent. The equivalent characteristic is supposed to be there hidden away so to speak and is called recessive.

Heredity does not altogether shape the course of the individual, environment may change the life, at the same time it is profoundly possible by the Science of Eugenics to breed the better class of characteristics.

ENVIRONMENT.

Those influences which surround us in all phases of life and control in a large sense, the acts, desires and impulses of the average individual. Modern Science gives more stress to this by far than it does to heredity. It is true that some of the world's most famous men have had the worst kind of environment and maybe a rather undesirable heredity history and yet through it all mounted to fame.

Some of our greatest artists and composers have written and scored the world's greatest masterpieces while ill with Tuberculosis or other maladies equally as devastating to the human body. These however are exceptions to the general rule and only bring out in greater relief that the "average person class" to which we most all belong must have a good environment. The better the environment, in all probability the better the citizen will be. If you have good books around, the child will naturally accept good books as a part of a regular scheme of life. If you have a reference book around handy and go to it yourself whenever you find or hear of a subject you do not know about, then the child by imitation will take this up as a natural movement of its environment and go and do likewise. It therefore behooves us to have such books easy to obtain and consult.

"Early instruction in truth will best keep out error. Some one has well said, 'Fill the bushel with wheat, and you may defy the devil to fill it with tares.' "—*Tyron Edwards.*

As we find it in the case of books we find it in the matter of health. If the environment of a child includes parents or guardians naturally alert to teach it little by little the facts of health and disease it will be far easier for such a child to keep itself fit than one who has to learn it all off "by heart" (as they say in school), from text books in a few weeks. Information taken little by little each day as it is usually done without effort remains fixed in the mind and is not forgotten. Neither does it seem anything like the task it is often made to appear when it is all imparted and received in a few weeks.

One may be said to grow up in an environment of hygiene where the child receives little bits of advice on diet, health and right living from day to day. It comes to him naturally as the bird or kitten learns little by little from its mother, the various movements it will be later called upon to use. Instinct does a lot for a fledgeling or a kitten, but so also do its parents.

Tuberculosis is no longer regarded as a serious disease from Mother to child except she naturally gives her off-spring a weakened constitution. But if after the child is born she constantly expectorates around the home she is simply placing her child in an environment fraught with millions of bacteria which inhaled into its weakened constitution give it the disease. Environment not heredity gave it the disease.

We think at this time in the same terms about Cancer. It is not hereditary but acquired. So then it behooves us all to have cheerful homes, good reading matter, exhilarating amusement that shall be free from stimulation or taint, plenty of sleep, relaxation, periods for reflection, good food picked out with excellent judgment with a common sense regard for not having too much of any one kind, abundance of water, if possible congenial work, friends for social intercourse, and in the case of children parents who are ever on the alert to detect early signs of decay or deformity, or infection. Had we all these then could we say we had an ideal environment.

HYGIENE.

What has been said earlier about care of the body, when it is well, to avoid possible mild ailments leading on to more serious defects applies to the school children. Often times parents object to the ministrations of school nurses. Possibly there are some over zealous, but in the main the whole theory on which school nursing is based, is that by frequent examinations and observance the little things at their beginning can be detected and thus the later serious defects prevented or arrested. For instance calling your attention to a bad tooth or infected tonsil easily curable may prevent development of a "leaking heart" incurable.

Height and weight are of great value in ascertaining the nutrition and growth. But it must not be forgotten that there are exceptions to this rule as you may notice in a tall girl who is very active and yet may be normally thin. However for the most part they are good guides.

TABLE INSPECTION.

Observe your child at home and tell him or her to report to school nurse anything you notice out of usual. Or else consult your physician. For many diseases begin with poor color, sallow skin, constipation, diseased teeth, child sleeping with mouth open, snoring, dislike of exercise, dry brittle hair. The chronic diseases like Tuberculosis, Kidney disease and the like seldom if ever begin with pronounced symptoms. See that your child gets a well balanced ration. This does not require any unusual effort. Proteins, carbohydrates, fat, water and mineral salts must all be present as each one does something in the upbuilding. No wonder then that a child who wants almost all his diet to be sweets or starches languishes and has to be given cod liver oil. Fruits are absolutely required. Fats in proper amount as well. The proteins come in meat, cereal, milk, and eggs. Plenty of water in some form or other. Most children actually like good water. Exercise without excessive play. Do not forget oxygen is a food too, so fresh air always. Ten to twelve hours sleep. Comfortable clothing, a good bath frequently, and he must have some recreation he likes.

EYES.

It is better to take your child to a good oculist now and then. It is true there are men who may give glasses when not needed but that dishonesty will happen to be the case in any walk of life. The great majority of good oculists charge what sometimes appears a rather high stipend but it is tedious work of a high order and almost anyone of them are just as glad to give you a negative as a positive answer. Select a good oculist and abide by his decision. Do not allow any little eye defect to go unnoticed. Itching eye lids, constant redness of lids, "Blood shot" eyes; occasional crossing, failure to see plainly, headaches on reading, holding book close, twitching nerves, frowning,—all call for examination. Don't take the advice of neighbors. Go to an oculist. If he says "Glasses," get them. Use them.

TONSILS AND ADENOIDS.

Whatever children were in other days, makes little difference in the fact that a very large number have these organs diseased today. The chances are they were not noticed and the "brain fever" and other unnamed diseases were the after effect of disease from these organs. You often hear that too many are removed. Mistakes are made but not very often in proportion to the great number affected.

Put your finger on the nostril of a child. Stop the breathing in that side. Does he breathe through the other? Does he snore or is he a mouth breather? Is his face pinched and drawn? Is he drowsy? In some cases slow to learn? Does he have running of the nose? Earache? (Remember a little tube passes from back of the tonsil up to the middle ear). Does he talk through his nose? If he has these look out for adenoids. These are little growths in a part of the nose and throat you can't see. He might just as well have two or three little balls of cotton or gauze there as far as obstruction goes. Not only that, their being infected spreads it elsewhere and makes it easy to "catch" other diseases. By a peculiarly shaped little instrument they can be quickly scraped off. They may come back. It does not matter. They must then be removed a second time. See a competent adviser.

THE TONSILS.

It is unfortunate but nevertheless a fact that although you can see the *tonsils* you cannot make sure they are diseased. For many a tonsil is diseased at the bottom or underneath, while the top appears normal. If you could go in an operating room where they are removed you would see this statement verified many many times. Many diseases of an inflammatory nature can receive their start from what is lurking in the bottom of tonsils that you cannot see. Acute *Rheumatic Fever*, growing pains, valvular leakage of heart, earache and middle ear disease, neuritis, nephritis (Kidney disease), many troubles with digestive canal, St. Vitus Dance, decay of teeth, have their origin in an infection of tonsils slowly and stealthily planted in various remote regions by the blood current. A tonsil is full of little long pockets like a bee hive. Honey can be at the bottom or top of a comb and likewise so can infection in the tonsil. All forms of disease germs can find a comfortable home in these crypts. Then on occasion flare up and seek other locations in the body. While removal of the tonsil necessarily is attended by some bleeding it soon stops as does that following extraction of teeth. Consult a competent physician and always be sure your child has a "coagulation test" to see how his blood clots before the operation is done.

TEETH.

Your grandfather may say "teeth" were not bad when he was a boy. It may have been so then, it is not now, and we live in today and tomorrow. Do not wait for toothache to appear as a warning. Pain often warns us too late in

many conditions of the body. Look for discolorations. Look at crooked, irregular teeth and then decide that you will have teeth constantly inspected while they are evidently good. Each tooth is worth hundreds of dollars to any boy or girl. The X-Ray is a big help.

"Focal Infection" is a prominent factor in the cause of disease as seen today. It has been found that there are not so many different diseases as we thought but it is more likely that germs located in foci or spots in tonsils, teeth and adenoids are carried in the blood current (like salts of minerals are carried by brooks and streams and deposited on stones) and lodging in various organs "Hatch out" by the millions in these new locations and set up a new inflammation. Your child has a "Mastoid" which is acute inflammation in little closed bony cells back of the ear. You say what Disease is that? It is not a new disease. Germs from some infected teeth were washed there by the blood. Found a haven started the usual process of inflammation. Operation is required to get them out. Likewise your child develops inflammation of the kidney. Where did he get it? Perhaps from an infected tooth or tonsil. But you say his mouth appeared all right to you. Perhaps so. It may take an X-Ray to show the abscess in the tooth. Even such a disease as *Biliousness* may have its origin in an infected tonsil. There are two small sinuses or caverns in the head connected with the nose or ear by a small canal admitting a very small wire. There are some in the bones of the forehead, another set back of the bridge of the nose, and some in cheek bone. These too may become infected and be focal areas. Chronic Diseases of these or of tonsils or teeth are serious. So have your child inspected now and then, "for a stitch in time saves nine."

HEARING.

Nearly all of the ear troubles start from the mouth up through the eustachian canal into the middle ear. Some come by the blood current. Frequent examination alone will prevent them but after they have done permanent damage it is exceedingly hard to bring back the hearing. Avoid indiscriminate washing of ears with various washes, the composition of which you do not know. Ear troubles are best prevented by drugs dropped into the nose.

DEFORMITIES.

Orthopedics—the science of correcting deformities has disclosed many of them. Watch early for deficient motion in limbs. Keep your children's feet in shoes that are not tight. Throw shoes away if they hurt. If any deformity appears seek the best man in your vicinity who follows the specialty.

NERVOUSNESS.

Do not say that this is merely tempermental until you are sure of it. Children should not be nervous. This does not mean that "gritting their teeth" means worms, or crying out in the night tends to epilepsy. Neither of these are true. But if child "wets the bed" at night, jerks his head or eyes, or has ever so slight a condition known as "fits" consult a competent adviser. Whether the cause is the "movies" or lack of sleep, it is nevertheless a fact that nervousness in children is on the increase.

TUBERCULOSIS.

Children should not be exposed in the same household to a tubercular patient. Nor should they drink milk from cows not tested against tuberculosis. These are the two common causes of the disease.

Probably one third of all children have a slight attack of this disease sometimes in their lives. Children who have had other chest diseases are especially prone to it.

Underweight, lack of desire to go and play, "kernels" in the neck, fever (very low), night sweats, condition known as "scrofula" or "debility"—these are all early symptoms. It is sometimes thought that much of the tuberculosis in grown ups is only a return of tuberculosis they had when a child.

Rest. Fresh air. Good plain every day food. Sunlight. These are the treatment in the beginning. Later, exercise selected and moderate.

CONTAGIOUS DISEASES.

Most diseases are caused by direct contact, although some may be air borne. Many people have germs in their bodies which have become harmless to them but are still dangerous to other people. They are called "Carriers." Germs need moisture and warmth and tissues like the human body. Unless one has the resistance against them they will enter and start to grow and live wherever they can.

MEASLES.

A very dangerous disease and very much under rated. You know how severe it appears from the outside, then recall it is appearing similar to that in the respiratory tract, namely the wind pipe and lungs. Pneumonia is what is to be feared. Running eyes and nose, a nutmeg grater cough, dry skin, and at times little blush white spots along teeth and on gums, *Koplik's Spots*, are the earliest signs. Your child is most dangerous to others during this time. Measles leaves the child in rather impaired condition—a fruitful soil for other diseases. Middle ear disease is quite common.

WHOOPING COUGH.

Whooping cough carries a fatal termination in many more cases than it is generally supposed. Nor is it the heart so often that suffers as it is the weakened condition generally speaking that follows. The whoop is due to the action of the diaphragm. It is not absolutely necessary as a symptom. If child grasps chair and coughs at the same time and vomits long ropy mucus, holding its breath and has been exposed, suspect it whether he whoops or not.

SCARLET FEVER.

Probably in its severe form the most dreaded disease of modern times. Yet it can occur in so mild a form as scarcely to be noticed. It is infectious in either case and very much so in its beginning, not so much its scaling stage. *All*

of these diseases with rash and cough that belong peculiarly to children begin with headache, tired feeling, aching of bones, some fever and intestinal disturbance. Eating food that does not agree with your particular digestive system, paw paw, peanuts, cabbage, etc., may give you a short term red rash. They do not have sore throats. All discharges from every where should be regarded as catching, or should be destroyed.

Doctors suspect, although they do not know for sure, that the germ that causes this, causes blood poison, therefore it leaves all the organs especially the kidneys and middle ear in poor condition. Both should be closely watched. Through the discovery by two investigators, the Dicks, has come a Dick test and the serum. The one enables you to tell whether you are susceptible or not, while the serum bids fair to eliminate scarlet fever as diphtheria has been. Do not conflict this *Dick Test* for scarlet fever with the *Schick Test* for diphtheria. They are entirely separate.

DIPHTHERIA.

Formerly a very fatal disease, while now if intelligently handled, is very mild. Intelligently handled means getting an early diagnosis as well as an early injection of antitoxin into the patient. Delay is the worst condition in this malady. The fatalities used to be 35 percent, now they are hardly one percent. Suspect every sore throat. It is the only way. Nor can you tell by looking at it alone. Some cases of ordinary tonsilitis appear worse than mild diphtheria. In general, diphtheria looks like a grayish white smear of velvety looking paint. The membranes stick tight. If in least doubt obtain physician or a nurse who will make a culture. This is not in the least harmful. It merely means obtaining some of the discharge and membrane and examining it under the microscope and also letting it hatch out like eggs in an incubator. The Schick Test is a test which shows whether a child is susceptible to the disease. There is an antitoxin which protects against the disease, and this antitoxin coupled with the antitoxin the patient developed himself overwhelms the poison. Horses in prime condition if given the disease throw it off, and just at the point where their system is getting the ascendency, their blood is taken. The horses do not suffer, they usually survive. The clear part of the blood is then strained off, and is rendered free from any tendency to spoil. The patient is doing this when he has diphtheria, only it comes on so gradually that he cannot manufacture his own fast enough. So doctors give the horses serum to the patient and together they cure the patient. Some times people break out in hives after the use of the horses serum. This comes from mixing two kinds of blood together, and soon wears off. Gargles help to keep the mouth clean, but when the membranes get in the throat the wind pipe will have to be opened or a tube by way of mouth inserted. If you have an early diagnosis, plenty of antitoxin, these severe measures never will be necessary.

GERMAN MEASLES.

A mild disease with a short term rash like measles.

MUMPS.

Mumps, no rash but a swelling down on face in front of ears. Keep patient quiet, give ordinary nursing care. In boys watch for complications of the testicles.

SMALL POX.

An obsolete disease which has been made so by vaccination. The unpleasant features of vaccination scabs are very often mixed infections due to germs of the pus family getting in. Every child should be successfully vaccinated.

TYPHOID.

Caused by a peculiar germ found in water and milk. Can be prevented by having three injections of a vaccination serum. If in doubt about its nearness boil all water and even the milk if necessary. Have your water supply examined.

INFLUENZA.

A disease resembling measles but with no rash. It is likewise really a form of pneumonia, of the broncho pneumonia type. Prostration is an early sign. It comes into the body by the way of the nose and throat.

PNEUMONIA.

The king of diseases comes in by way of nose and throat. Give attention to them and keep the body as near fit as possible, avoid exposure, especially for long periods, with insufficient clothing protection and little food. Pneumonia is catching; be sure to have enough fresh air and avoid close, ill ventilated places where many people congregate. This disease depends on one's so called existence as to its outcome.

INFANTILE PARALYSIS.

Comes into the body by way of nose and throat.

When one case has been made out, all other children should be protected. It is a highly contagious disease. If you have a child that has had it consult the best crippled children expert you can find to obtain proper correction. Consult him before deformities appear.

HOOK WORM.

Found in southern climates. Very great pallor lazy disposition. Backwardness at school and distention of abdomen. The worm or egg can be found in stools. Sanitation is needed while the drug thymol is an antidote.

HAY FEVER.

We have a proteid balance in our body. Some people have this easily disturbed by eating or in handling even minute quantities they are sensitive to. Some people can not eat eggs. The dandruff of a dog upsets others; but by far the most offensive is the pollen of plants such as rag weed, timothy, rose pollen, all can cause it as can many others. Injections of protective extract can be made into the body if you know which one is the offensive. Hay fever is caused by these various irritating substances from these plants and foods.

LOCK JAW TETANUS.

Found in dirt, dust, fire crackers, blank cartridge wads, manure, hair, etc. It gets into the body through a wound. It thrives best if wound seals itself because it cannot grow in the presence of fresh air. The symptoms do not appear until later, so a wound produced by an old dirt covered nail or from the above mentioned causes should be well opened, thoroughly cleaned and at the time of injury a protective dose of antitoxin given. Do not wait for the spasm of the muscles to develop; it is then often too late. Remember it is not the rust of an old nail, it is the germ hidden in the rust away from the air that does the damage. Call a physician at once.

TRACHOMA.

Very infectious disease of the eyelids; granular lids that persist must always be looked at by competent eye physician.

PEDICULOSIS. LICE.

Well recognized as little white nit on hair: comb with fine comb, apply kerosene or larkspur after thoroughly shampooing; leave on over night.

SCABIES ITCH.

Anybody who has red, irritated areas with little marks like a fine needle scratch, face, arms, fingers or abdomen which suddenly appear should consider scabies, especially, if one after another develop it. Sulphur ointment is a cure. Disinfect all articles of bedding and clothing.

IMPETIGO.

Large clusters of thick crust with reddened base, exuding water-like discharge, contagious. Use sulphur, zinc, or amoniated mercury ointment, the last must be handled carefully.

RING WORM.

If inflammation of the skin occurs in circles, consult a doctor.

HEAD COLDS.

Only a word to say they must not be neglected or left to run their course unmolested.

RICKETS.

A disease caused by lack of sunshine and a diet lacking in mineral and vitamines. Sunshine, a balanced diet cure it. The bones are soft and easily curved and bend under weight.

SCURVEY.

Child pale, skin not clear. Later red spots and bleeding gums, caused by faulty diet. Lacking in fruits and vegetables.

PELLAGRA.

Brown, dirty looking splotches on the face, neck and knees. It is a nutritional disease and needs a balanced diet.

GOITRE.

Enlargement of the thyroid gland of the neck coming on about puberty, although may exist before. Iodine administered in chocolate tablets or otherwise is its cure. This is now usually given in the school and no parent should object to its intelligent use. Iodine like iron is needed in your system. Iodine given thus, is not a drug, it is a necessary constituent of the body. Cod liver oil also contains iodine.

ACCIDENTS.

Almost all articles or objects we come in contact with are covered with germs. Any laboratory can demonstrate this at any time. Most of them do no damage to the unbroken skin. Unfortunately there is no way of telling where the really dangerous ones are located. A thousand common pins may have nothing on them of a dangerous character but the one next to it may have on its point the streptoccus, the fatal germ of blood poison. These germs are as different as varieties of snakes and under the miscroscope are as different as a rattlesnake is from a garter snake. The only thing you can do is to promptly take care of all wounds however trivial. Turpentine or peroxide of hydrogen will not do this. Use iodine, also solutions of bichloride of mercury, lysol, creolin and *Dakin* solution. In the eye and ear some of the silver salts or boric acid may be used if proper directions have been given. "Drawing" with fat meat, application of dirty cobwebs or tobacco are of no value and carry germs.

HYGIENE.

II

The definition of Hygiene is the science of health and its preservation.

Periodic Health Examinations should be made if one expects to ward off many of the ills of life. It should be done like the teeth are examined or one's automobile is gone over. Nor is it necessary to have some big organization do it, there are in nearly all sections of the country medical men who are capable of doing this. All that is required is that they be trained as well as honest. This advice applies to babies as well. The average loss to each person in loss of time each year is seven days. Over two percent of American wage earners are constantly ill. In the war over half the recruits had defects which caused some trouble. A stitch in time saves nine.

INFANT HYGIENE.

A baby should be registered not only for vital statistics but as a matter of lawful record. A new baby should have silver in some form put in its eyes at birth to prevent blindness. Mothers milk is of course best for the baby. Nature no doubt has the better idea of just what it requires. No doubt properties the mother possesses are passed on to the baby to fight off disease. Not nearly so many breast fed babies die as bottle fed. Beside if the nipple is cleansed the milk is certainly clean. If the mother has a communicable disease such as tuberculosis then it should not be fed by her from breasts.

Mothers milk may not be in sufficient quantity. Drinking more water by mother and massaging the breast may help. The baby's sucking them stimulates them as well. The baby should be nursed at regular intervals. Some

prefer 3 hours, others 4. Whatever is decided on should be strictly adhered to. Arousing the baby up when asleep can do no harm. It immediately falls asleep again. One feeding at night from one to two A. M.

Three hours or over is selected because it takes that long to empty a baby's stomach. A baby should be breast fed up to ten to twelve months. If persisted in too long, the baby obtains milk similar to the so-called "strippings" from a cow. Orange or lemon juice or tomato or spinach water should be given in order to insure the so-called vitamine element. Up to four months one teaspoonful strained with water is given daily.

WEANING.

It should be partially attempted as early as six to 10 months. Baby trained to use bottle or cup. There can be no set rules of feeding for any baby. They all require attention in special ways. The following is taken from a Health Bulletin.

6:00 A. M. Breast feeding.
9:00 A. M. Orange juice—two teaspoonsful.
10:00 A. M. Well cooked cereal, breast feeding.
2:00 P. M. Breast feeding.
6:00 P. M. Well cooked cereal, breast feeding.
10:00 P. M. Breast feeding.

At seven months:

6:00 A. M. Breast feeding.
9:00 A. M. Orange juice—two tablespoonsful.
10:00 A. M. Well cooked cereal, breast feeding.
2:00 P. M. Vegetable soup, hard toast or zwieback, breast feeding.
6.00 P. M. Well cooked cereal, breast feeding.
10:00 P. M. Breast feeding.

At eight months:

6:00 A. M. Breast feeding.
10:00 A. M. Orange juice or raw cabbage juice, cereal, toast or zwieback, breast feeding.
2:00 P. M. Vegetables (one tablespoon), toast, broth, breast feeding.
6:00 P. M. Cereal, toast, breast feeding.
10:00 P. M. Breast feeding.

At nine months:

6:00 A. M. Breast feeding.
10:00 A. M. Orange juice, cereal, two ounces milk (boiled one minute), toast, butter, breast feeding.
2:00 P. M. Broth, fresh vegetables (two tablespoons), baked potato, butter, fruit, zwieback or cracker.
6–6:30 P. M. Cereal, two ounces milk, (boiled one minute), breast feeding.

If the baby cannot have breast milk then cow's milk modified must be used. Cow's milk and mother's milk are not the same. Modification means bringing cow's as near as possible to mother's milk.

Pasturized milk means milk that has been brought to a certain heating point considerably short of the boiling point, but enough to kill or greatly inhibit the growth of bacteria. Many diseases a child is later heir to as well as the cause of its many ailments during infancy are due to germs of bacteria in milk. It is the duty of parents to spend some time and care in finding out the character and source of their infant's milk.

Numerous preparations of artificial milk are to be had. Some of these contain too much sugar. Some of them are merely milk with the water extracted and come as a powder or in condensed form. Many of them are merely added to milk as modifiers. There are times when they are very excellent additions or even substitutes but they should be selected by a physician to suit the needs of a baby. Corn syrup is at times admissable. All of them should be prescribed and not used blindly depending on advertisements. Everything entering into the procedure of feeding a baby must be clean.

A baby's bowels should move at least once or twice a day. Water given regularly will aid this. If some evidence of clogging up arises, a syringe (baby) of warm water as an enema will probably be sufficient. This should not be required often. A safe and sane laxative in the drug line has as yet not been found that could be given indiscriminately.

Soft material in dressing baby. An abdominal band is not required after second week. It frequently causes crying because it is on too tight (after feeding).

A baby should gain over half an ounce a day in first six months. After this a little less. It is interesting and helpful to weigh it daily. At the same time it is no cause for worry if at times it fails to do this every day.

A baby needs its full share of oxygen. Growing it needs a good deal. It should get it. This does not mean to put it where it can kick the covers off and be in a direct draft. Drafts cause the rapid conduction of heat away from body like blowing on hot soup cools it. The modern theory of sunlight makes it an absolute necessity. Rickets, one of the worst of children's diseases is prevented as well as cured by sunlight. Babies properly protected should go out in cold weather. Babies out of doors or on porches in all kinds of weather naturally develop a hardiness.

A baby's greatest requirement besides food is sleep. This should be regular and free from interruption. This should be 18 to 20 hours in first six months. A little less after that.

A baby should lie flat, and if it is properly fed the use of pacifiers and the like are not necessary. Insects not only interrupt regular sleep but carry disease. Colic is either caused when the baby is really hungry or else by overfeeding. Overfeeding is usually the result of irregular feeding.

Summer is not any more dangerous than any other time if the baby is fed reliable milk and its usual habits observed. The fact that summer is the time of vacations and parents usually travel around, makes the above a little difficult to observe. Nevertheless they should be if your baby is ill or is not gaining weight you should consult a competent adviser at once.

VITAL INFORMATION CONCERNING THE PREVENTION

DIVISION OF COMMUNICABLE DISEASES

DISEASES	EARLY SIGNS AND SYMPTOMS	SOURCE OF INFECTION	INCUBATION PERIODS	MODE OF TRANSMISSION	PERIODS OF COMMUNICABILITY
Cerebro Spinal Meningitis	Rapid onset, headache, stiffness of neck, and vomiting. Temperature 102°. Positive Kernig, Herpes Labiales.	Naso-pharyngeal discharges.	2 to 10 days	Contact, droplet infection from sneezing or coughing of carriers or cases.	So long as meningococcus persist in naso-pharynx—carriers more common than supposed.
Chickenpox	Usually occurs in children under 12 years of age. Onset usually gradual with mild fever The symptoms may be mild or lacking. The rash appears on the second day as small raised pimples which shortly become filled with clear fluid.	Discharge from skin and mucous membrane.	14 to 21 days	Contact with patients or articles soiled by discharges from lesions.	While primary scabs are present on mucous membranes and skin. Discharge from nose and throat. Most infection during early stage of disease.
Diphtheria	The onset may be gradual or rapid. The early signs are those of croupy cough, fever and sore throat with grayish-white patches on the throat, palate or tonsils. The glands of the neck near the angle of the jaw may be swollen. Later there may be profound prostration.	Discharges from throat, nose, vagina, and wound surfaces—persistent carriers often show virulent bacilli in tonsilar crypts.	2 to 5 days	Contact with discharges from cases or carriers—milk and milk products are vehicles of infection.	While virulent organisms are present in secretions and lesions. Well persons carry diseases for months.
German Measles	While the onset is sudden the malady is usually mild. The rash may be the first sign noticed. Ordinarily there is no "cold in the head" as there is in measles,	Oral and nasal discharges.	10 to 21 days	Direct contact with patient or with fresh oral and nasal secretion.	Eight days from onset, and especially during catarrhal stage.
Influenza	The onset is abrupt with fever, chills, pain in the head, back and limbs as well as a "cold in the head." Lassitude or profound depression are characteristic symptoms.	Oral and nasal discharges.	2 to 5 days	Direct contact with fresh discharges. Droplet infection—sneezing and coughing, improper sterilization of Mess gear, common drinking cups, towels, etc.	Unknown. Probably until four days after temperature is normal.
Measles	Begins like a "cold in the head," with running nose, watery, inflamed eyes and sneezing The rash, consisting of small, irregular groups of dull-red, slightly raised spots appears about the third day.	Oral and nasal discharges.	7 to 18 days Usually 14 days	Direct contact with fresh discharges of persons coming down with disease.	During period of catarrhal symptoms and while there are abnormal mucous membrane secretions.
Mumps	The onset may be sudden or gradual with slight fever, nausea, pain and swelling about the angle of the jaw.	Secretions from mouth and possibly nose.	4 to 25 days Usually 18 days	Direct contact with cases or articles freshly soiled with secretions of mouth.	From onset and one week after disappearance of swelling.
Scarlet Fever	The onset is usually sudden. Vomiting, sore throat, headache or fever may be early symptoms. In the beginning of the disease the eyes are not watery or congested as in measles. The rash usually appears within 24 hours upon the neck and upper part of the chest. It appears as fine bright-red and evenly diffused spots. Later the skin peels in scales, flakes or large pieces. In the early stages of the disease the tongue is often of a characteristic strawberry type, the red papilae of the tongue showing through the white fur.	Discharges from nose, throat, ears, and broken down glands and any open lesion.	2 to 7 days Usually 3 or 4 days	Direct contact with cases or articles soiled by infectious discharges or by contaminated milk.	Twenty-eight days from onset, without regard to desquamation and while there are abnormal discharges or open sores.
Whooping Cough	The disease is highly infectious and sometimes assumes a virulent type. A malady that is particularly infectious during the first few weeks and is accompanied by a high mortality among very young children.	Discharges from bronchial and laryngeal mucous membranes.	Within 14 days	Direct contact and with articles freshly soiled by discharges.	During catarrhal stages.

SCABIES OR ITCH

An infectious eruption found most frequently on palm of hand and between fingers. The usual treatment is to wash affected parts thoroughly with warm water and soap and then anoint with a diluted sulphur ointment. Child should be kept seperate until cured. Sleep alone. All clothing and bed linen should be boiled for one-half hour. Quite contagious, especially to others in same family. Exclude child until eruption has entirely disappeared.

PEDICULOSIS OR HEAD LICE

Light gray insects. Lay eggs or "nits" in the hair at the nape of the neck and about the ears. Symptoms are irritation and itching of the scalp. The usual treatment is to soak hair in kerosene or in turpentine, wash thoroughly with soap and hot water. Repeat three successive nights. Scrupulous care and cleanliness are sufficient to prevent recurrence. Exclude child until head is free from lice. Entire family must be deloused.

AND CONTROL OF COMMUNICABLE DISEASES

WEST VIRGINIA STATE DEPARTMENT OF HEALTH

LABORATORY DIAGNOSIS	RULES FOR SCHOOL ATTENDANCE	SPECIAL FEATURES	PERIOD OF QUARANTINE AND METHOD OF CONTROL
Examine cultures from pharynx of carriers or spinal fluid turbid and under pressure organisms can be found intra and extracellular.	Children from houses infected shall be excluded from school during the quarantine period or may be permitted to attend school after being removed from infected house and kept under observation for 10 days together with obtaining negative pharyngeal cultures.	Most prevalent in winter and spring months. Over-crowding is a factor in the spread of the disease.	Quarantine and isolate for 14 days—isolate carriers until pharyngeal cultures negative 2 to 4 times. Prevent overcrowding and deficient ventilation.
Chief inoculation (Lymph) rabbit's cornea negative for Guarnieri's bodies as against variola.	Sick child can not attend school. Exclude contacts to known cases from school for period of 14 days unless satisfactory proof of their having had the disease is furnished.	A mild disease with few after-effects but readily transmitted. The most dangerous period is during the onset of the disease. Papules, vesicles, postules and crust present at same time due to successive crops of the eruption.	Notify health authorities having jurisdiction and isolate patient for 14 days from beginning of the disease, and until all abnormal discharges have ceased.
Cultures throat, nose or other affected surfaces. Examine for B. Diphtheria.	Sick child must be excluded from school until two negative cultures, taken not less than 24 hours apart, are obtained from the nose and throat. Children remaining in infected home may be released 5 days after quarantine is lifted, 1 negative culture and freedom from disease. Exposed children living in other homes may be released after 1 negative culture and freedom from disease. Children exposed to disease should be removed from infected premises and kept under observation for a period of 5 days. At end of this period secure 1 negative culture before releasing.	A very serious disease, varying greatly in its forms and frequently escaping detection. Mild cases should be particularly sought after as they are fully as infectious as the more apparent ones. All children under 5 years of age should be immunized against diphtheria by injection of toxin-anti-toxin. All children over 5 years of age should receive the Schick test; those reacting positively should be immunized. Daily inspection of children for fever, sore throat or croupy cough is recommended during the prevalence of the disease.	Quarantine and isolate case until two negative cultures are obtained from nose and throat taken 24 hours apart. In absence of laboratory test, cases should be quarantined for 21 days from beginning of disease. Wage earners of patient's family should be released from quarantine immediately after one negative culture each from nose and throat is obtained.
None.	Same for measles.	Usually a mild disease with few or no after-effects. Precautions should not be neglected.	Isolate patient 10 days—Concurrent disinfection.
None.	Sick child can not attend school until 4 days after temperature becomes normal and abnormal manifestations have disappeared. Well children from infected homes can not attend school.	An exceedingly infectious malady frequently followed by serious after-effects. The patient should be kept in a recumbent position until 4 days after the temperature has become normal or longer if necessary.	Prevent the promiscuous transference of saliva.
None.	Sick child can not attend school. Children from infected homes who have had measles may attend school. Well children from infected homes who have not had measles may not attend school.	A malady which is infectious even before the rash appears. Complications such as broncho-pneumonia, middle ear disease, weakness of the eyes and even tuberculosis may ensue. The after-effects are much more serious than the disease itself.	Quarantine and isolate cases for 14 days—concurrent disinfection.
None.	Sick child can not attend school until 2 weeks after onset of disease and 1 week after disappearance of swelling. Well children from infected homes may not attend school until 21 days after last exposure to known cases.	Because of the infectiousness of the disease attempts should be made to observe early symptoms and exclude immediately persons showing symptoms.	Isolate patient until parotid glands return to normal. Contacts should be excluded from public gatherings for 21 days from date of last exposure.
Marked leukocytosis in severe cases. May be some eosinophilia. Urine may show albumen.	Sick child must be excluded from school for at least 6 weeks and until membranes are normal and discharges have ceased. Well children may be admitted to school after 7 days of exclusion, provided they have been removed from infected home during that period and are free from the disease.	When the disease is present a daily inspection of the school children should be made for the purpose of detecting early cases. Sore throat, fever or feeling of illness should be deemed sufficient for the exclusion of a child from school. The disease is dangerous both during and after the attack. Complications are frequent. A certain percentage of cases of scarlet fever do not have a distinct rash. Quite an additional number of cases have only a slight rash on some parts of the body, the rash disappearing within a few hours. The failure to recognize these obscure cases is undoubtedly responsible for the occurrence of many additional cases.	Quarantine and isolate cases for 28 days from beginning of disease or until all discharges from ears or glands have ceased without regard to desquamation. Contacts should be isolated for 7 days. Disinfect all discharges. Pasteurize milk.
Primary leukocytosis, then lymphocytosis, then eosinophilia. Examine smear from sputum of early stages and culture same.	Sick child must be excluded from school at least 8 weeks after onset. Well children from same home may attend school provided they are removed from infected premises for period of 14 days.	Whooping cough is especially infectious during its early stages. The disease is particularly fatal to children under 5 years of age and may cause prolonged debility at all ages.	Isolate child 2 weeks after whoop.

EXCLUSION FROM SCHOOL

Teachers should send home at once any pupil with a severe cough, a severe cold, itch, lice or other vermin or any contagious skin disease; also children who are filthy in body or clothing, or who have any dangerous contagious or infectious disease.

IMPETIGO "CONTAGIOUS SORE"

Sores which soon form loose scales. Appear principally on face, also may appear on back of hands. The usual treatment is to apply ammoniated mercurial ointment (10% strength). Child should use separate towels. Very contagious, especially in the spring. Exclude child until sores have disappeared.

Nervous System.

MEDICAL TERMS

Ab—meaning From. The word abnormal meaning behaving or acting from the normal which is to say different from the regular.

Acute—Used in two ways. One meaning sharp, stinging, disturbing, equal to directing all attention to it, biting such as acute pain, or toothache. 2. What is short, or new, or recent by acquired. An acute disease is one just "caught" in an organ not before affected. An acute appendicitis is one that has just become diseased in an organ supposed to be normal.

Bacteria.

Coccus—Bacteria that are round or in the shape of a ball.

Bacillus—Bacteria that have the shape of rods or straight lines.

Spirillum—Bacteria that have a coil-like form that are stiff.

Spirochaete—Bacteria that are in the form of wavy hair and are flexible.

Chronic—Applied to inflammations and other conditions that have been acute and instead of going on to cure have become continuously affected or diseased. They may apparently have recovered as regards symptoms and still have remained diseased. A patient may have an "acute appendix." Pain, tenderness, nausea, vomiting, fever and all these subside. Repeated attacks with intervals of seeming good health will however reveal the disease has become chronic.

Cesarean Section—Delivery of child by a laparotomy.

Diagnosis—The art of telling the points of difference that one disease has from the others and in that way arriving at the nature of the affection with which any given case may be diseased.

Clinical Diagnosis—That obtained at the bedside based on the symptoms present during life, usually in conjunction with the past experience of the doctor; and not taking in account the laboratory or other such findings.

Differential Diagnosis—Telling one disease from another which is different.

Exclusion—Ruling other out.

Laboratory—Obtained by tests of blood, urine, sputum, and the examination of bacteria.

Pathological—Founded on the texture of a removed piece of a diseased organ. Also its microscopic aspect.

En—Usually refers to the condition as within or inside the membranes covering (Walls) Encephalitis. Inflammation of the inside of the brain itself.

Endo—Means on the inside as well. Endocarditis, an inflammation on the inside of the heart or in its cavity.

Ecto—A term meaning without.

Ectomy—Usually means in following a name, to cut out—Gastrectomy—to cut out stomach: Appendectomy—to cut out appendix: Cystectomy—to cut out a cyst. Although it usually applies to a bladder, it furthermore usually refers to the Gall Bladder.

Filterable Virus—Toxins or poisons which slip through all the barriers at present known to collect such material. It is as though you were using a sieve and some of the particles were still too small to be collected by the mesh.

Immunity—The ability to "not take or catch" a disease. It is of two main kinds.

NATURAL IMMUNITY—The one we have within our own bodies, so to speak.

ACQUIRED IMMUNITY—The one we induce in ourselves when we are vaccinated or have protective serum injected into our bodies. This may be done in gradually increasing small doses as in the injection against "Hay Fever" or in one dose to protect other members of the family when a single case of Diphtheria has developed.

Itis—This means an inflammation of the part of the body to whose name it happens to be attached. For instance Tonsil. The small organ at the back part of the throat. Inflammation of it is called Tonsillitis. Mastoid—Mastoiditis. Appendix—Appendicitis.

Laparotomy—A term now used to mean any opening through into the abdominal organs. An operation for Appendicitis is a Laparotomy. As is also one for the removal of an Ovary.

Peri—Means around. For instance if the tonsilar inflammation extends around the tonsil as well as in the organ itself, it is called Peritonsilar Abscess or a Peritonsillitis. Pericardium means around the heart. Periosteum—around the bone.

Normal—The way healthy organs were when they were born subject to the usual and prescribed rules of growth. That is the usual composition and structure of the tissues of the body as they exist when unaffected by disease or injury, and are performing their functions in the regular manner.

Pneumococcus—Coccus or bacteria of Pneumonia. Streptococcus occurs in chains, the germ of virulent Blood Poisoning.

Staphylococcus—Coccus in the clusters like grapes when preceded by the word pyogenes—means they form pus.

ALBUS—White pus.

AUREUS—Golden yellow pus.

CITREUS—Lemon yellow pus.

It is well to recall these names, difficult as they first appear on reading them, because each one of them have characteristics as different as one species of dog has from another.

Streptococcus—A much dreaded organism. Its introduction through a wound is what usually causes the short infections of blood poisoning that quickly terminate in death. The Staphylococcus, Aureus and other forms are virulent but not so violent usually in their activities. Whenever you get a wound and it has violent symptoms of inflammation with red-

dish streaks running up a limb or away from the scene of injury, you will do well to at once repair to a competent authority and find out just which one of these organisms has been the cause.

Serum—This is the plasma or serum obtained from animals who have been given a disease and as they arrive at the condition where they "throw it off" then their blood is withdrawn. In many diseases, the bacteria attack the human body with such vigor that the natural fighting machinery of the blood cannot make antitoxin fast enough to act as a complete antidote to the attacking poison. When you give antitoxin of any kind you are only adding the fighting antitoxic serum of a horse or other animal to that of the sick person's—it is like the slang phrase "Every little bit added to what you got, makes a little bit more." Say you could measure it in ounces (which of course you cannot) and you had a child with Diphtheria. Say the poison was two ounces. The child's resistance in antitoxin one ounce. Now you add two ounces of a horse's antitoxin. That would make three against two and the child would get well. The only thing to remember is not to mix animal and human blood together very often. If you do a condition of serum sickness or anaphylaxis will follow.

Tests:

Wasserman Test—To determine the presence of Syphilis from blood or spinal fluid.

Fehlings Test—A test for sugar in the urine. Used in Diabetes.

Albumin Test—A test for albumin in urine. Used in Brights Disease or to determine poor kidney function.

Specific Gravity—Comparing the urine with that of distilled or pure water.

Reaction—Testing any liquid to see if it is acid or alkaline.

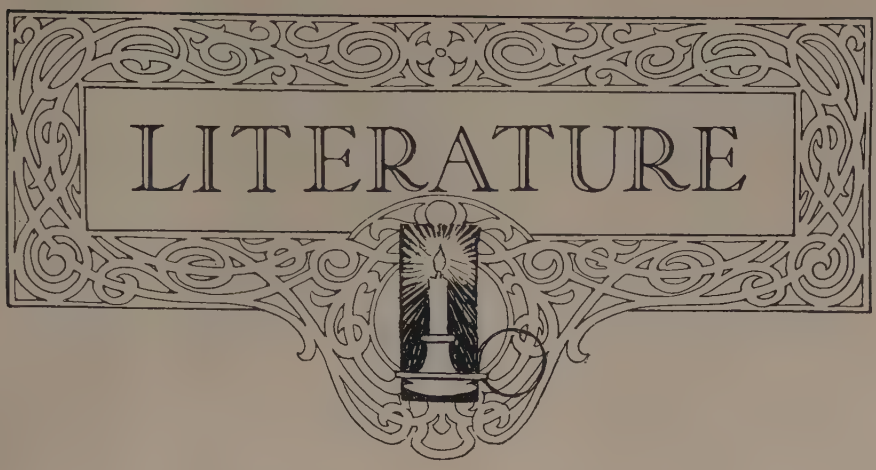
Basal Metabolism—A test with a special apparatus which measures the composition of the ventilation products of the air in the lungs and gives you an idea how the body is burning up its energy.

Microscopical Examination of Urine—Putting the urine through a centrifuge, which whirls out the sediment. This is examined for casts, bacteria, pus, blood, urea, uric acid and the cells of the kidney and bladder.

Twilight Sleep—Formerly extensively used but not now so common. Use of Morphine and a drug called SCOPOLAMIN to render patient as acting to stimulus of pain but not keeping it in her memory when in labor.

Vaccine—The well known clear fluid taken from cowpox blister or vesicle which inoculates against smallpox. This is now prepared in elaborate laboratories, the very last word in cleanliness and is taken from inoculated calves whose antecedents are proven healthy. Vaccines are also prepared against other diseases. They are however obtained after inoculation with bacteria and themselves. Typhoid is the chief disease protected against. This is a highly successful procedure and made Typhoid Fever almost a negligible disease in the late war.

Common colds, aches, boils and many others have a vaccine. They have not been altogether accepted by all physicians but that of Typhoid as a preventive not as a cure is a efficacious as vaccination against smallpox.



LITERATURE OF THE NATIONS
OUTLINE OF THE WORLD'S LITERATURE
LITERARY PLOTS
DICTIONARY OF PSEUDONYMS
DICTIONARY OF MYTHOLOGY
BOOK REVIEWS
RHETORICAL TERMS
LIST OF BOOKS FOR THE FAMILY LIBRARY

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BIRTHPLACES OF FAMOUS AUTHORS

Longfellow's Home, Cambridge, Mass.
"Sunnyside," Washington Irving's Home

Whittier's Birthplace, Haverhill, Mass.
"Wayside," The Home of Nathaniel Hawthorne, Concord, Mass.

BOOK IX.

LITERATURE.

Mural Painting in the Congressional Library, Washington.
By H. O. Walker.

HISTORY OF LITERATURE OF ALL NATIONS. OUTLINE IN CHART FORM OF THE LITERATURE OF THE WORLD, SHOWING CONTEMPORARY WRITERS IN THE SEVERAL COUNTRIES. DICTIONARY OF MYTHOLOGY. DICTIONARY OF PEN NAMES AND REAL NAMES. OUTLINE OF INTERESTING BOOKS. LITERARY TERMS AND DEFINITIONS. USEFUL BOOKS FOR MOTHERS AND TEACHERS, FOR CHILDREN, FOR HIGH SCHOOL. COLLLEGES AND UNIVERSITIES.

Babylonian and Assyrian Literature.—The majority of modern students of language consider that it is very probable the Sumerian language, spoken by the earliest inhabitants of the valley of the Euphrates, is the oldest language of which we have any knowledge. In that locality recent excavations have revealed a great quantity of clay tablets bearing characters written in the peculiar wedge-shaped letters known as cuneiform inscriptions. These have been deciphered and are found to be records in the Sumerian language, which seems to have persisted in written records long after the people themselves had merged with the Babylonian races. Only a very slight fraction of the great wealth of the early literature that is buried along this locality has yet been discovered, but sufficient is known to render it very probable that the first place in which written records were made, of which we have any knowledge, is among the Babylonians. The language was Semitic, and the Babylonian differed from the Assyrian only in a few variations of dialect. Everything points to a common Aryan origin; in no sense did the Babylonians borrow from the Egyptians. Clay was used as an ordinary writing material among the earliest Babylonians, but they inscribed upon stone the records which they desired to be permanent. Assurbanipal, a king of Assyria, caused copies of this earlier literature to be made, and some of it dates back earlier than 2000 B. C. It comprises hymns, prayers, incantations, myths, legends, and poems. Among the records are a great many commercial and legal cabinets, which are abundant in European and American museums. These range all the way from 3000 B. C. down to 200 B. C., and are exceedingly valuable as throwing light upon the history, manners, and customs of the people during many of the past centuries. There is every prospect that the gaps in the complete record will all be filled up by discoveries of new material which the excavations are constantly yielding. So important has this great mass of literature been to the students of past history that since 1890 it has been possible to almost wholly reconstruct the records of early Babylonian and Assyrian history from them. Under the patronage of the Assyrian kings the great library at Nineveh, instituted by the removal hither of that at Cabah, obtained a wonderful collection of tablets and books systematically arranged in every known department of knowledge. This library was destroyed in 625 B. C. when Nineveh fell. Nebuchadnezzar formed a great royal library, of which we have probably exaggerated accounts, and this, too, disappeared with the fall of Babylon. The contents of these libraries were private property of the kings.

EGYPTIAN LITERATURE.

Such papyri as we now possess are sufficient to show that ancient Egyptian literature was very extensive. The pyramids of the VI. and VII. dynasties bear rock-cut inscriptions of a religious nature. These are generally magical, for the religion of ancient Egypt was saturated with belief in magic. The famous *Book of the Dead* is, in its earlier chapters, little more than a series of incantations and assurances to the soul of the dead of its future welfare. Translation of hieroglyphics shows a complete absence of any works of a philosophical or speculative character. The nearest approach to this department of literature is a number of moral maxims or proverbs, all of an extremely practical nature. Such are the *Proverbs of Ptah-hotep* and the *Prescriptions of Ani*. The same practical vein runs through their works on science. The *Rhind Papyrus*, preserved in the British Museum, is the most important work on Egyptian mathematics which we have. It is a collection of arithmetical and geometrical solutions of problems of a very practical sort.

The *Papyrus Ebers*, written about 1550 B. C., is an extensive medical work. It deals only with the treatment of disease, and the prescriptions which it contains are in many cases disgusting and always empirical. Magical incantations play an important part in increasing the efficacy of the treatment prescribed. A fuller collection of these religious and medical incantations has been preserved in the *Harris Magical Papyrus*.

The *Turin Papyrus* gives an admirable and interesting illustration of civil and criminal law procedure, especially as no code or collection of Egyptian laws has come down to us. The *Abbott Papyrus* further illustrates these in describing the procedure in an investigation into tomb robberies in the reign of Rameses IX. (about 1100 B. C.).

Egyptian poetry is modeled upon that of the XII. dynasty. The only epic poem which remains describes the victory of Rameses II. over the Hittites at Kadesh on the Orontes. Lyric poetry abounds in the form of many really fine hymns and a few love-songs.

In the narration of tales and stories the Egyptians excelled all other Oriental nations, and the professional story-teller appeared in public places in ancient Egypt just as he does in Cairo to-day. The *Papyrus Westcar* contains a collection of stories dating from the Middle Empire. The story of the *Fated Prince* which is contained in the *Papyrus Harris*, though incomplete, is interesting in its treatment of a theme common in the folklore of all nations. The *Tale of Two Brothers* contained in the *Orbiney Papyrus* is complete. The story of the *Shipwrecked Mariner* gives play to the Egyptian love of adventure in simple, unaffected narrative, while the *Story of Sinuhe* and that of the *Eloquent Peasant* are heavily laden with a florid and ornate style and filled with rhetorical extravagances. Later Egyptian fiction, however, returns in the Ptolemaic era to the simple narrative, where the plot is essential and quick movement is the rule.

CHINESE LITERATURE.

The history of Chinese literature goes back, perhaps 18 or 20 centuries B. C. We do not find in China any lasting monuments like those of Babylon and Assyria upon which by inscriptions the early writings might be recorded. The earliest gathering together of the Chinese literature that we know of was in the sixth century B. C. when Confucius edited the famous *Ching* or *King*, a sacred canon. From this we know that already a great mass of both prose and poetry existed in China. This classic stands in a unique position among the early writings of the world in that it has exerted a marvelous influence upon the manners, morals, and customs of the nation down to the present day. It forms as interesting a literary collection as can be found anywhere among ancient writings. Thousands of volumes of commentary and discussion have been based upon this work which for over 3,000 years has been the model of literary style, the means of preserving the form of their remarkable language, and of prescribing the social life and the government of so many millions of people. As a record of authentic ancient history China is easily in the first rank of the Asiatic nations for reliable information concerning the early ages. Mencius, the greatest follower of Confucius, adds to the work and gives an elaborate exposition of the teachings of Confucius and sets forth the principles of his philosophy in what is known as the *Book of Mencius*. This group of works has dominated the minds of the people and has subordinated all other teachings, making it the backbone of extreme conservatism of the nation in all of the departments of national life. When, in 213 B. C., the emperor Chin found his reforms opposed by this spirit of conservatism which the writings of Confucius imposed upon the people, he ordered the destruction of all books in the hope that he would in this way be able to overcome the opposition of the *literati*. The only books spared were those upon science, agriculture, and divination. This thorough destruction of literature forms an epoch in Chinese history. But Chin's reign was short, and the Han dynasty (200 B. C.—200 A. D.) which succeeded instituted one of the most zealous revivals of learning that history has ever witnessed. In this revival there was a remarkable development of poetical and historical writing which is in distinct and marked contrast with the severe canonical restrictions of the age of Confucius. It is to this period that the work of Sze-ma Ch'ien (born 145 B. C.) belongs. His *Historical Record* gives the history of China from the beginning down to the author's own times in 526,500 words, all originally scratched with a stylus upon bamboo sheets. So thoroughly and devotedly has this work been studied that it forms even to this day the model of style for all historical treatises. Each succeeding dynasty caused the records of its rule to be added faithfully to the original record, so that in 1747 the work consisted of 219 volumes in which the national history had been revised and condensed. Other noted Chinese historians are Sze-ma Kwang, who wrote a history in 360 volumes in the eleventh century, and Chu Fu-tz', who wrote an abridgment in 55 volumes in the twelfth century.

Among the comparatively few works of foreign travel, for which the Chinese were never noted, are the accounts of the Buddhist pilgrims, Fa Hsien in the fourth century, and Hsuan Tsang

in the seventh century. These record travel in India and preserve much Buddhist literature which would otherwise have been lost in the extinction of India.

The intellectual life of China reached its zenith in the T'ang dynasty (600-900 A. D.), The names of the poets of this period are legion, and a "Complete Collection" was published in 1707. It contains 50,000 poems in 900 books. The most noted names of this period are Li Po (705-762) and Tu Fu (712-770), both court favorites and very popular among all classes. Their names have been household words in China for more than a thousand years. Han Yu (768-824) is a name venerated for nobility of character, probity and ability in high office, and refinement and excellence of literary style. Parts of his works are even now read at Chinese funeral exercises and others form an important part of the repertoire of school and public readers.

While there is a marked and rapid decline in the originality and power of the writers after the great golden T'ang period of Chinese literature, yet several noted names appear in the tenth and eleventh centuries. Valuable historical works were written by Sze-ma Kwang (1019-1086) and Chu Hsi (1130-1200). The latter was one of the most remarkable men of his country. He was not only a historian of ability but as a philosopher he interpreted the work of Confucius into that system or code which is now known to the outside world as Confucianism.

The invention of block printing in the tenth century caused a great increase in bookmaking and in the formation of libraries. While the Mongols added nothing to the intellectual life of China, it was during the period of their control that the Chinese drama was evolved and developed, and novels and short stories were introduced. Chinese plays are not long, as is erroneously supposed in the West. They are short and the plot often ingenious and melodramatic, but never complicated. The sessions at the playhouses are long, but a number of plays are presented in rapid succession without scenery. During the Ming (1368-1644) and present dynasties novels have developed with increasing and absorbing interest, though the plot is often too complicated and the characters too numerous to suit the Western ideas. Chinese short stories are admirable and some of them rank among the world's best, such as *Strange Stories* published in 1679.

Chinese later literature abounds in dictionaries and encyclopedias—one of the latter being complete in 5,600 volumes. No other country can present anything to compare with China in this department; but they can hardly be classed as literature.

Taken as a whole, Chinese intellectual development is most praiseworthy and creditable to any nation. More attention is being devoted to its study by Western scholars and every year reveals much to be admired in it, though through the difficulties of the language it suffers in translation more than the literature of other nations.

The labors of various European travelers and students have given us specimens of almost every description of Chinese literature. In legislation, we have a translation of the penal code of the Empire; in politics and morals, the sacred books of Confucius, and his successor Mencius; in philology and belles-lettres, a well-executed dictionary of the language; several translations and abstracts of history; and selections from the drama, criticism, and romance. Among the most successful explorers of the field of Chinese literature, we may mention Staunton, Davis, Morrison, Klaproth, and Rémusat, who have followed up the earlier researches of the Jesuits at Peking, and elucidated a subject which had been supposed to be inaccessible.

HEBREW AND JEWISH LITERATURE.

The earliest known writings in Palestine are the Tel el-Amarna letters which date about 1400 B. C. It is, however, probable that a knowledge of writing was general among the Hebrews about 1000 B. C. The greater part of ancient Hebrew literature which is known to us is contained in the Old Testament, which covers a period of about 900 years,—from 1000 B. C. to about 100 B. C. There are in addition some apocryphal books, such as the *Book of Ecclesiasticus*, written by Jesus Sirach about 180 B. C. A large portion of the originals of this work has recently been discovered. The oldest portions of this literature are the poetical portions, such as the *Song of Deborah* in Judges v., the *Fable of Jotham* in Judges ix., and the *Elegy of Saul and Jonathan* in II. Samuel i. The earliest collections of traditions and legends date from the tenth and ninth centuries B. C. Legal codes, such as are to be seen in the *Book of the Covenant* in Exodus xxi. and xxii., date from the tenth century B. C. The discourses of the prophets date from the eighth century B. C., while the latest sections are of the third century B. C. The great body of the religious poetry such as the *Psalms* and such philosophical productions as the Books of *Ecclesiastes* and *Job* were written after the return from exile. At that time a college of learned men under the direction of Ezra gathered together the remains of Hebrew literature, and from their labors we have received the books of the Old Testament in their present form.

This period of literary activity is considered the first period of Jewish literature as distinguished from the ancient Hebrew literature. The second period of Jewish literature dates from 143 B. C. to 135 A. D. In this period the *Midrash*, or inquiry into the meaning of the Old Testament, was divided into the *Halacha*, or authoritative and binding civil and religious law, and the *Haggada*, which was a free poetical dissertation on the whole body of the Old Testament. The *Midrash* was the center of all Jewish mental activity for over 1500 years. To this second period also belong all of the *Apocrypha* and the earliest Jewish writings on Christianity. Josephus, Philo, Hillel, Shammai, Johanan ben-Zakkai, Gamaliel, Eleazar ben-Hyrcan, Joshua ben-Hananya, Ishmael, and Akiba are among the great names of the second period. To the third period (175-475) belong the flourishing schools of Galilee, Syria, Rome, and Babylonia in which instruction was given in the *Halacha* and the *Haggada*. The masters of the *Mishna*, the body of "oral law," and the *Talmud*, the comprehensive compilation of laws and ceremonial regulations pertaining to rabbin-

ical Judaism and the discussion of the same, were Eleazar ben-Jacob, Jehuda, Jose, Meir, Simeon ben-Yehai, Jehuda the Holy, Nathan, Hiyya, Rab, Samuel, Johanan, Hunna, Rabba, Rava, Papa, Ashe, and Abina. In 340, Hillel II. fixed the Jewish calendar. The fourth period extended from 475 to 740. During this time the Jews adopted the language of the country in which they lived and the greatest part of the literature is of translation of the *Talmud* and other works into the several languages. Little remains of the works of the eminent physicians of the period. In the fifth period, from 740 to 1040, the Oriental Jews were stimulated by the great activity of the Arabs, and names of many physicians, astronomers, grammarians, commentators, and historians are famous in the literature of this period. The oldest prayer book was drawn up in 880, and the first Talmudic dictionary in 900. In this period are such names as Saadia (died 942), famous in nearly all departments of knowledge; Sherira (died 998) and his son Hai (died 1038) who wrote a dictionary. Spain and Egypt became the great seats of Jewish literature after the suppression of the Babylonian schools in 1040. In the eighth century Hebrew rhyme was produced. The sixth period, which extended from 1040 to 1204, was the most splendid in Jewish medieval literature. The Jews in Spain devoted their energies to almost every branch of literature and wrote in Arabic, rabbinical Hebrew, and ancient or classical Hebrew. The greatest names among them were Samuel Halevi, the great doctor (died 1055), and the celebrated Maimonides, who died in 1204. The French and German Jews attained very great fame. The seventh period (from 1204 to 1492) shows distinctly the influence of Maimonides. The most famous writers of this period lived in Spain, and, later, in Portugal, Provence, and Italy. The first Hebrew books ever printed were produced in Italy between the years 1475 and 1477. The eighth period extended from 1492 to 1755. The ninth period includes the years from 1755 to the present time. In these two periods the names of brilliant Jewish writers increased so that it is impossible to give even the names of the most illustrious. But it may be safely said that there is no civilized country which is not proud to record the names of eminent Jews among the great literary men of every department of literature. Everywhere they take a leading part in the intellectual progress of the age; and there is hardly a university of note which does not number Jews among the most learned professors.

SANSKRIT LITERATURE.

Sanskrit literature, like the language, may be divided into two periods: the Vedic and the Sanskrit. The chief point of difference is that the literature of the Vedic period is always sacred and that of the Sanskritic period is nearly always profane. The *Vedas* are the oldest books of the Hindus and, in the opinion of great philologists, date back to the fifteenth century B. C. They are the sacred books or the Bible of the Hindus written in poetry in the most ancient form of the Sanskrit language. The *Vedas* are three in number: first the *Rig-Veda*, containing hymns and mystic prayers; second the *Yajur-Veda*, containing the religious rites; and third the *Sama-Veda*, composed of prayers in the form of hymns or psalms. These writings are believed to be inspired. They treat of the 33 gods of the heavens, of the air, and of the earth; of the creation of all things; of the relation of the gods to each other; of the relations and duties of men to each other and to the gods; of surgery, medicine, music, dancing, war, architecture, mechanical arts, astronomy, astrology, grammar, poetry, etc. The *Vedas* were first translated into English by Sir William Jones, about 1790. The individual writers of the Vedic literature are practically unknown, as the books are the work of families of poets or schools of religious learning. The *Brahmanas* are divisions of Vedic literature which relate to prayer and sacrifice. They are of a later period than the hymns. The *Upanishads* are speculations of a philosophical and theological nature found usually at the end of the *Brahmanas*. The earliest of the *Upanishads* can hardly be dated later than the year 600 B. C.

Sanskrit literature includes epic, lyric, didactic, dramatic, and narrative. The great epic is the *Mahabharata* or the story of the *Bharatas*. It is a composite work dating in the form in which it has come down to us from about 200 B. C. with additions from time to time down to 100 A. D. It consists of 18 books of 100,000 stanzas. The Bharata war which the epic describes is thought to have occurred in the twelfth century B. C. The *Ramayana* is the second of the two great epics of India. Unlike the works which precede it, this epic is mainly the work of one poet, Valmiki. It ranks with the great epics of the world and is to-day the favorite poem of the Hindus. In its 50,000 lines it describes the youth of Rama, the incarnation of the god Vishnu, and his banishment and residence in central India. The *Puranas* are a mixture of the epic, didactic, and cosmogonic, dating from the sixth to the fourteenth centuries A. D. They are 18 in number and relate chiefly to mythological legends. They form a sort of religious manual for the people and deal almost exclusively with the worship of Siva and Vishnu. Epic poetry reaches its highest perfection in the works of the great poet Kalidasa in the sixth century A. D. *The Birth of the War God* and the *Race of Raghu* are his most artistic epic poems.

In Sanskrit lyric poetry also Kalidasa is the leader. His elaborate long lyrics, the *Cloud Messenger* and the *Cycle of Seasons*, are famous examples. Short lyric verses were a favorite form of poetry for which Bhartrihari is the most famous. He lived in the seventh century A. D. and is the most remarkable Sanskrit poet after Kalidasa. Amaru, who wrote the *Century of Amaru*, is perhaps better known than Bhartrihari, because of his mastery of the erotic phase of lyric verse. But Hindu poetry and prose is always marked by the presence of speculative and reflective expression so that much of the writing is at once capable of classification in several departments of literature. The proverb is a favorite form of expression in Hindu writing and more than 8000 stanzas of this nature have been collected from Sanskrit writings. Such is largely the work of Bhartrihari; Silhana in his *Century of Tranquillity;* and the *Hamer of Folly*.

In didactic literature the most famous examples are the *Pancatantra* and the *Hitopadesa*. The *Pancatantra* is the great collection of beast-fables of the Hindus. It dates from the fifth century A. D., and is the work of probably many hands. The *Hitopadesa* or *Book of Good Counsel* is a collection of fables which have passed into the literatures of the whole world.

The chief dramatic writer, too, of India is Kalidasa, at once a master of the epic, lyric, and dramatic. One drama antedates his work. It was written at the court of King Sudraka, probably by Dandin. Later than Kalidasa are the works of King Harsha in the seventh century; Bhavabhuti, who ranks next to Kalidasa in the drama, and Viskhadatta, both in the eighth century.

The most interesting phase of Sanskrit writings is the fable and the fairy tale. Besides the *Pancatantra* and the *Hitopadesa*, which deal with fables, there is the *Oceans of Rivers of Stories* composed by Somadeva, a Kashmirian poet about 1070, which is the most famous collection of fairy tales. There are also the *Seventy Stories of the Parrot*, the *Twenty-five Tales of the Vampire*, and the *Thirty-two Stories of the Lion-Seat or Throne*.

In prose romance there are the works of Dandin who wrote the *Adventures of the Ten Princes* in the sixth century A. D.; of Subandhu, a little later; and of Bana, a writer of novels in the seventh century A. D.

Indian literature abounds in works of science, from the grammars of Panini, one of the greatest grammarians of all time, and from his commentators, Katyayana and Patanjali, down through the gift of the so-called Arabic numerals to the Arabs, to the medical works of Caraka, chief physician to King Kanishka, in the first century A. D.

PERSIAN LITERATURE.

The literature of Persia falls into four divisions: (1) The Old Persian cuneiform inscriptions of the Achæmenian kings; (2) the *Avesta*, including the more ancient Gâthâs, believed to date from the time of Zoroaster; (3) the Pahlavi literature; and (4) the post-Mohammedan or "Modern Persian" literature, which latter is generally what is understood as "Persian Literature." The Achæmenian inscriptions may be regarded rather as historical than literary monuments, and we may pass to the one classic which represents the literature of ancient Persia. This is the *Avesta*, of which only a fragment has come down to us, and which embodies the religious system of Zarathustra (Zoroaster).

The language of the *Avesta* is termed Avestic, but is often improperly called Zenda. The misleading term, *Zend Avesta*, really means "Avesta and Zend," that is, the original text of the Zoroastrian scripture, and the Zend or "Explanation" (translation and commentary) which accompanies it. The Zend is written in the Pahlavi language, different altogether from that of the text. By analogy it is as if some old Anglo-Saxon fragment had been "explained" in the middle English of Chaucer.

The Pahlavi literature consists chiefly of translations of Avesta texts, and of a number of religious works and commentaries of Pahlavi texts. Of non-religious subjects only 11 works have come down to us, containing not more than 41,000 words altogether. Pahlavi was essentially the Persian literature of the Sâsânian period, though it continued to about the ninth or tenth century. No poetry has come down to us from Sâsânian times, and scholars are not agreed as to whether such poetry ever existed.

In 641 the Persians were defeated by the Arabs at the battle of Nehavend, and with the fall of Merv in 651, the Moslem conquest was complete. The growth of a national literature was retarded, for during the Arab dominion Arabic was the chief medium in Persia, both for prose and poetry. Under the semi-independent dynasties, the Saffârids, Sâmânids, and earlier Tâhirids, the use of Persian was revived as a literary language.

The oldest poem written in modern Persian that has come down to us is a short ode by Abbas of Merv, at the beginning of the ninth century. The founder of the new school of Persian literature proper was the blind poet Rudagi, who died about 950, and who was pronounced by his contemporaries as "peerless amongst the Arabs and Persians." The language of Rudagi and his followers was surcharged with Arabic words, and their poems were but echoes of Arabic poetry.

The famous Sultan Mahmud of Ghazni, who reigned from 998 to 1030, was the greatest patron of literature that Persia had hitherto known. His court was the home of 400 poets, of whom one was elected as "King of the Poets," or laureate—an office which has continued to the present day.

The works of these poets consisted chiefly of occasional odes and panegyrics, with a sprinkling of lyrics in honor of some imaginary beauty. These were arranged in *divans* or collections, and were for the most part modeled on the *ghazal* of the Arabs. The ghazal is a form of poetical composition, consisting usually of 12 couplets, into the last of which the poet invariably introduces his nom de plume. The Arabic *kasida*, corresponding to the Greek *idyllium*, or our elegy, was also freely copied. It was at the court of the great Mahmud that Firdausi flourished, the Homer of Iran, and the author of the great Persian national epic, the *Shâhnâma*, or "Book of Kings," completed in the year 1010 and containing about 60,000 couplets. Though not the founder of the epic style in Persian he was its greatest exponent.

The epic was foreign to Arabic poetry, and was essentially Persian in growth and origin. The national spirit, though suppressed, was not extinguished by the flame of Islam. Firdausi's famous epic recorded the old legendary story of Iran from the creation of the world to the fall of the Sâsânian dynasty in 641. In the field of pure romance the greatest figure is Nizami (died 1203), who composed five romantic poems. The last of this school and the last poet of the classical period was Jami (1414-1492).

Not only the epic but the *ruba'i* or quatrain (from Arabic *raba'a*, four) was native to the Persian genius; the examples best known to the West are the quatrains of Omar Khayyam (died 1123). The other great lyrist was Hafiz, noted for his famous ghazals. Among his many imitators the most prominent was Baba Fighani of Shiraz (died 1516 or 1519), known as "the

minor Hafiz." In the Persian lyric proper, love and wine are the predominating themes; but in reading these poems the esoteric or Sufiistic meaning must ever be borne in mind.

Parody is closely allied to the lyric, and in this connection must be mentioned Abu Ishak (died 1427), who sang of gastronomical glories. Still more closely related to lyric poetry is the religious and didactic poetry, equally permeated by the spirit of Sufiism. The foremost writer of the mystic poetry was Jalal-ud-Din Rumi (1207-1273), whose *Divan* and *Mathnavi* are among the most important sources for the study of Sufiism. His greatest predecessor was undoubtedly Farid-ud-Din Attar (died 1229), whose *Mantig ut-Tair* (*Bird Parliament*) is a noble allegory of the struggle of the soul to be one with the Infinite. To this class of writing also belongs the great name of Sâdi (died 1291), whose *Gulistán* or *Rose Garden*, and *Bustán* or *Flower Garden* are among the finest didactic poems of the Orient, and Mahmud-Shabistari (died 1317), the writer of the well-known *Gulsán-i-Ráz* or *Rose Garden of Mystery*.

The prose literature is meager in extent, and indifferent in quality, very few of the great writers making use of prose at all. The oldest specimens of prose are Muwaffak's work on pharmacology and Balami's translations of Tabari, both written in the tenth century. The principal historical works are the *Chronicles of Wassaf*, the *Marrow of the Chronicles*, by Khaswini, in 1370, and the *Rauset Essafa*, by Mirchond, written about 1450.

During the last century Persia has produced three poets of a high order of genius, Kaani of Shiraz, Yaghma of Khorasan, and Mirza Serush of Ispahan, all of whom, both in style and diction, rank almost equal with Hafiz and Sâdi. Kaana in particular is noted for his charm of language, and many of his poems are unexcelled in the Persian tongue.

Apart from the miracle play of *Hasan and Hosein*, the drama of Persia is of recent development and unimportant as literature. The present state of Persian literature cannot be called flourishing, and, save in the field of philosophical speculation, serious studies are rarely attempted.

GREEK LITERATURE.

Greek literature is the source from which all European literature has mainly sprung; nor is its quickening energy abated by the centuries. In ethics and logic, as in geometry, the Greeks laid the foundation of all modern thought. Their literature is preëminently original, as befits a race remarkable for its creative genius. The beauty of the mind expressed itself in beauty of form and language. In poetry the Greeks perfected for us the principal types—the epic, lyric, and dramatic; in prose they fashioned well-defined types to suit particular needs—historical, oratorical, philosophical.

Greek literature may be divided into three periods: (1) the Early Literature, from Homer to 475 B. C.; (2) the Attic Literature, from 475 B. C. to 300 B. C.; and (3) the Literature of the Decadence, from 300 B. C. to 529 A. D.

I. The Early Literature. During the early period of Greek literature epic poetry flourished. There are no extant records of any poetry previous to the immortal poems of Homer—the *Iliad* and the *Odyssey*. But these epics were not the crude efforts of a primitive race struggling to record its minstrelsy in the vulgar tongue. They are the finished products of a poetic age, and reveal the skill of a consummate artist. The earliest stages of Greek poetry were closely allied to religion—hymns to the gods, festive marriage hymns, dirges for the dead. In time, poetry assumed a more secular character, and the minstrel (*aoidos*) sang of the deeds of warriors and the clash of war. Narrative or epic poetry gradually took form and became identified with hexameter verse.

The *Iliad* describes one of the final stages in the ten years' siege of Troy, and centers around Achilles and his "wrath." The theme of the *Odyssey* is the return of Odysseus (or Ulysses as he was called by the Romans). It is more domestic than military, and is filled with the wonderful legends that stirred the popular imagination. Little is known of the illustrious bard who wove these legends, lays, and superstitions into an artistic whole. Whether or not the *Iliad* and the *Odyssey* are the work of one poet has been often challenged, but the question admits of no positive proof.

The second author whose works have come down to us is Hesiod. His most important writings are his *Works and Days*, the earliest didactic poem extant, the *Theogony* or *Origin of the Gods*, and the *Catalogues of Women*, of which the well-known *Shield of Heracles* was supposed to be a fragment, although the latter is now held to be of later date. A collection of thirty-three so-called Homeric Hymns has descended to us; these consist of epic preludes designed for the use of the rhapsodists.

As is natural to all literatures, the lyric is of later growth than the epic; the poetry of reflection is of later unfoldment than the poetry of observation. In this early epoch of Greek literature elegiac and iambic poetry arose and the lyric had its birth. Archilochus (670 B. C.) is regarded as the father of lyric poetry. Other noted names are Simonides of Amorgus (660 B. C.), and the famous elegists Callinus, Tyrtaeus, Mimnermus, Solon the great lawgiver, Theognis, Phocylides, Xenophanes the founder of the Eleatic philosophy, Simonides of Ceos (480 B. C.), more celebrated as a lyrist, and Hipponax the outcast of Ephesus.

As lyric poetry was inseparable from music its development kept pace with that of the sister art; for in ancient Greece music formed part of a liberal education. The Æolian School of lyric poetry was rendered famous by the works of Alcaeus, Sappho (610 B. C., a woman of surpassing genius), and Anacreon. The most prominent figures of the Dorian School are Alcman, Stesichorus ("marshal of choruses," whose real name was Tisias), Arion, and Ibycus (540 B.C.). Lyric poetry was Dorian in form but national in spirit. With Simonides of Ceos commenced a new era. Pindar (522 B. C.) became the national lyrist of Greece, and with him lyric poetry culminated. The fragments of his work which have come down to us represent every form of lyrical poem including hymns, panegyrics, dirges, choral dance-songs, and *scolia* or festive songs. The only complete poems of Pindar extant are his *Epinicia* or triumphal odes

celebrating the victories gained respectively in the Olympian, Pythian, Nemean, and Isthmian games. During this early period prose writing began among the Ionian Greeks of Asia Minor, though in a crude form.

II. Attic Literature. During the Attic period, from 475 to 300 B. C., dramatic poetry reached its perfection both in tragedy and comedy. Popular devotion to the drama brought about a decline in lyric poetry, though the dramatic art could not be entirely divorced from the lyric, for the songs of the chorus were an essential feature of the Greek drama. The drama attained its highest excellence in the works of the great trilogy of Greek tragic artists—Æschylus the true founder of tragedy, Sophocles, and Euripides. Besides "satyric" dramas 70 tragedies are attributed to Æschylus, 113 to Sophocles, and 92 to Euripides. Only seven of the tragedies of Æschylus now remain to us: *Prometheus, Seven against Thebes, Agamemnon, Choephori, Eumenides,* the *Supplicants* and the *Persians.* Sophocles was the most perfect tragic writer of classic times. His dramas are marked by skillfully woven plots, clearly delineated characters, and artistic development of the stories. He introduced improvements into the Greek drama, increasing the number of actors from two to three, which was the greatest number allowed on the stage at any one time. His extant plays are: the trilogy of *Oedipus the King, Oedipus at Colonus,* and *Antigone;* the *Death of Ajax;* the *Maidens of Trachis;* the *Philoctetes;* and the *Electra.* These plays of Sophocles give expression to the age of Pericles on its higher moral and intellectual side. Euripides (480 to 406 B. C.) introduces a new order of ideas. His characters are essentially natural and his dramas are marked by great pathos combined with elegance of language; they however lack the artistic finish of the plays of Sophocles. His leading tragedies are *Alcestis, Medea, Iphigenia among the Tauri, Hippolytus, Hecuba,* and *Ion.* The *Cyclops* is the only specimen of a satyric drama that has come down to us.

Like tragedy, Greek comedy originated from the worship of Dionysus. Attic comedy began to take artistic form about 470 B. C., and in the hands of the three great dramatists, Cratinus, Eupolis, and Aristophanes, it reached its highest perfection. The comedies of Aristophanes form a satire on the daily life of the Athenians, and partake somewhat of the nature of burlesque. Aristophanes was great not only as a satirist but as a poet. After his death comedy became more purely social than political, and was represented by Antiphanes, Alexis, and Philippus. The "New" comedy, which flourished chiefly from 320 to 250 B. C., is represented by the poets Menander, Philemon, and Diphilus.

Literary prose was late in being developed, and until the time of the Persian wars the epic was found all-sufficient. During the Attic period the Greeks perfected a prose literature in history, oratory, and philosophical dialogue, and with this new development, coincidental with the passing away of political freedom, strictly creative art is left behind, and we enter an era of learned productions in science and literature. Herodotus, who lived in the fifth century B. C., is regarded as the "father of history," as he was also the first artist in prose. Thucydides may be styled the first philosopher of history. The third historian of the period is Xenophon, whose principal works are the *Anabasis,* the *Cyropaedia,* and the *Memorabilia.*

The most finished specimens of prose are contained in the works of the Attic orators: Antiphon, Andocides, Lysias, Isocrates—the founder of literary rhetorical prose, Isaeus, and Demosthenes—the greatest orator the world has ever produced. The chief contemporaries of Demosthenes were Æschines, Lycurgus, Hypereides, Deinarchus, and Demades. The decline of oratory began with Demetrius Phalereus, who flourished about 318 B. C.

The Greeks were the first nation to separate philosophy from religion. The untrodden field of philosphical thought was entered by Thales of Miletus and his successors, Anaximander and Anaximenes, about six centuries before Christ. The Pythagorean and the Eleatic schools still further grappled with the mysteries of existence. The doctrines of the atomistic philosophers were followed by those of Anaxagoras and the sophists. Then the master mind of Socrates introduced a new method into the inquiry. Socrates left no writings, but fragments of his teachings are preserved for us in the works of his disciples, more especially Xenophon, and the most celebrated philosopher of any age—Plato (429-347 B. C.). No "profane" teacher held a purer conception of God, nor has any writer embodied his thoughts in language more exquisite. His *Republic, Phaedrus, Timaeus, Critias,* and his famous Dialogues, are all masterpieces of literary genius.

The first of Greek scientists, Aristotle (384-322 B. C.), presents us with concise and unadorned reasoning. He was the founder of logic, and discovered the syllogism. His *Ethics* and *Politics* and his conceptions of what is now termed biology have exercised a far-reaching influence on Western thought. After Aristotle the productive energy of Greek philosophy began to decline. Various schools of philosophy flourished about the beginning of the third century B. C.: the minor Socratic schools (Megarics, Cynics, and Cyrenaics), the Epicureans, and the Stoics.

III. The Literature of the Decadence. This may be subdivided into two periods: the Alexandrian, 300-146 B. C., and the Graeco-Roman, 146 B. C.-529 A. D. When the glory departed from Athens after the conquests of Philip of Macedon and Alexander the Great, the city of Alexandria became the center of literature and art. The poetic Pleiades which assembled there consisted of Lycophron, Aratus, Nicander, Theocritus, Philiscus, Æantides, and Homerus. Poetry became artificial in style and derivative in character. Prose held a prominent place but was devoted chiefly to works of science and learning. Theocritus, the pastoral poet, was the greatest of the Pleiades, while with Apollonius Rhodius, Bion, and Moschus, the "silver age" of Greek poetry passed away. The "golden age" had perished with Pindar and his great contemporaries.

Science and learning are represented by Zenodotus, Aristophanes of Byzantium (200 B. C.), Aristarchus, Apollodorus, Euclid, Archimedes, Eratosthenes, the founder of scientific chronology, and the historians Manetho and Berosus.

The first part of the Graeco-Roman period, that is, from the Roman conquest of Greece to the end of the Roman Republic (146-30 B. C.), was devoted to literary and scientific research, and produced a number of histories, lexicons, miscellanies, and the like. The most talented of the historians was Polybius, who ranks next below Herodotus and Thucydides. During the latter part of this era, namely, from Augustus to Justinian (30 B. C.-529 A. D.), a number of writers arose, many of them being more remarkable for industry than for literary merit: Dionysius of Halicarnassus; Plutarch, whose celebrated *Lives* are of undying popularity; Strabo and Pausanias, the geographers; Josephus, the Jewish historian who wrote in Greek; Athenaeus, author of the *Deipnosophistae;* Lucian, Longinus, Libanius, and Heliodorus, noted names in rhetoric and belles lettres; Epictetus, Marcus Aurelius, and the Neoplatonists Plotinus, Porphyry, and Iamblichus, who represent the philosophic thought of the epoch.

No poetry of high merit was produced during these years of decadence. Æsop's fables were versified by Babrius; other notable writers of verse were Oppian, Nonnus, and Quintus Smyrnaeus. The so-called *Sibylline Oracles* and the *Greek Anthology* contained the remainder of all that is interesting or pleasing in the verse of this age. In 529 the schools of heathen philosophy were closed by order of Justinian, and the edict emphasized the fact that the old literature of Greece was dead.

LATIN LITERATURE.

Though all divisions are arbitrary, it will be found that Latin literature divides naturally into six periods, viz.:—

I. A period of crude beginnings, before literature was established, extending from the founding of Rome to the end of the First Punic War (240 B. C.). These beginnings are limited to simple and often coarse ballads, farces, and mimes, popular among the rustics at fairs and merrymakings. It was not until the Romans came into closer contact with the cultured Greeks who lived in the cities of southern Italy that they became aware of their great literary inferiority.

II. A second period, which for lack of a better name may be called the early period of Roman literature, extends from 240 B. C. to 80 B. C. After Rome had conquered for the time her arch-enemy, Carthage, in the First Punic War, she found time to devote herself to the arts of peace. The leisure class turned to a study of Greek culture, and for a time, at the beginning of this period, the literature of Rome consisted chiefly of translations of Greek models into Latin. Livius Andronicus (about 284-204 B. C.), a Greek captive from the taking of Tarentum in 272 B. C., translated Homer's *Odyssey*, fragments of which remain. But the real founder of Latin poetry was Gnæus Nævius (died 204 B. C.), who wrote tragedies and comedies that were very popular with his countrymen. Titus Maccius Plautus (about 254-184 B. C.) displays the greatest genius and a surprising mastery over the difficulties and limitations of the Latin language in his comedies. While we have only very few fragments of the works of his predecessors, we have no fewer than 20 plays from his pen. Great names in Latin literature now follow very rapidly. Quintus Ennius (239-169 B. C.), more popular than Plautus, was styled "the Father of Roman Poetry" and is memorable for his *Satires* and *Annales*. Quintus Fabius Pictor (born about 254 B. C.) was the first important prose historian. The familiar Marcus Porcius Cato (234-149 B. C.), or Cato the Censor, among other great literary qualities was the first Latin orator to write down his speeches. Alimentus (prætor in 210 B. C.) wrote his annals in Greek. The six plays of Terence (about 185-159 B. C.), derived from Greek sources, are faultless in diction and full of merit. Gaius Lucilius (180-103 B. C.) is called "the Father of Roman Satire." The last of the great Latin tragic poets, Lucius Attius (170-94 B. C.), closed the school of the old character-drama. Lucius Afranius closed the old Latin comedy school. Nor must the Gracchi be forgotten in the department of oratory, though their chief characteristic was vehemence.

III. The third period is known as the Golden Age, the Classical Period, or the Ciceronian Period (87-43 B. C.). The latter part is known as the Augustan Age, in which a new spirit is exhibited in Roman literature. In didactic poetry Lucretius surpassed his Grecian masters by the force of thought and the splendor of diction which characterize his great philosophical poem on the origin of the universe. Catullus attempted various styles of poetry, in all of which he obtained eminent success. His lyric and elegiac poems, his epigrams and satires, are marked by singular versatility of feeling, frequent flashes of wit, and rare felicity of expression. Among the elegiac poets, of whose genius we still possess the remains, the highest distinction was gained by Tibullus, Propertius, and Ovid. The former of these poets was pronounced by Quintilian to be the greatest master of elegiac verse; Ovid possessed an uncommon fertility of invention and ease of versification; while Propertius tempers the voluptuous cast of his writings with a certain dignity of thought and vigorous mode of expression. The great lyric poet of the Augustan age is Horace, whose graceful and sportive fancy, combined with his remarkable power of delicate and effective satire, continues to make him a favorite with all who have the slightest tincture of classical learning.

The noblest production of this period, however, is the *Æneid* of Virgil, which, with his elaborate poem on rural affairs, the *Georgics*, and his sweet and tender pastorals, or *Eclogues*, fairly entitles him to the position, which has been given him by universal consent, of the most gifted epic and didactic poet in Roman literature.

The writings of the Latin prose authors, taken as a whole, betray a higher order of genius and cultivation than the works of the poets. In this department the pre-eminence belongs to Cicero, whose various productions in eloquence, philosophy, and criticism are among the most valuable treasures of antiquity. In history, Cæsar, Sallust, and Livy are the most prominent names, who, each in his own peculiar style, have left models of historical composition which have been the admiration of every subsequent age. The literature of the Augustan

period partook of the general character of the Roman people. Devoted to the realization of practical objects, with slight tendencies to the ideal aspect of things, and absorbed in the exciting games of politics and war, the Romans had little taste either for abstract speculation or for the loftiest flights of poetical fancy. Hence no new system of philosophy was produced in their literature; their best poets were essentially imitative; and of all branches of study, those connected with popular eloquence were held in the greatest esteem.

IV. The fourth period, to mark the decline and its inferiority to the period immediately preceding, is often called the Silver Age. It is post-classical, and receives many important contributions from Spain. It is counted as extending from 17 B. C. to about 130 A. D. While more of the writings of authors of this period survive, they are of only secondary importance. The two Senecas, Mela, Lucan, Columella, Quintilian, Martial, and others were of Spanish origin. The despotic Tiberius (reigned 14-37) exercised a markedly depressing effect upon Roman literature by discouraging it so that men dare not praise the deeds of the past nor record those of the present. Yet the fables of Phædrus in adaptation of those of Æsop, and the great medical work of Celsus belong to this reign. The greatest writings of the succeeding reigns were the philosophical works of Seneca (4 B. C.-65 A. D.). The greatest writer of Vespasian's reign was Pliny the Elder, whose zeal for scientific research caused his death in the destruction of Pompeii by the eruption of Vesuvius. Martial, the court poet of the Emperor Domitian, is the creator of the epigram as we know it, for he invented the use of the sting which the real epigram carries with it. Sextus Julius Frontinus (40-103) was perhaps the most scientific writer of all the Romans. The noblest literary works of the whole period of the Roman Empire are those of the reign of Nerva and Trajan, covering the period from 96 to 117. It is graced by the names of Tacitus, Juvenal, and Pliny the Younger.

V. The fifth period covers the time of the Middle Empire during the second century, marked by the writings of authors of African origin and those of the Early Christian writers. Gaius Suetonius Tranquillus (75-160), author of *Lives of the Caesars*, Florus, Fronto (about 100-175), and Gaius the Jurist (about 110-180) were the chief writers in the reign of Hadrian. Aulus Gellius, author of *Noctes Atticae;* Lucius Apuleius, the rhetorician and philosopher; and the earliest literary work in Latin on Christianity, the *Octavius* of Felix, are of greatest interest in the reign of Marcus Aurelius. In the reigns of Commodus and Severus, Tertullian of Carthage (about 150-230), the defender of Christianity, and Papinian the Jurist are the greatest names.

VI. The sixth and closing period, covering the years from the third to the sixth centuries, marks one of decline in literature from a purely literary point of view. Interest in the numerous writers of the period attaches to subjects upon which those learned men wrote. Saint Cyprian, Bishop of Carthage; the Christian poet Commodius; Lactantius; Avienus; Ausonius; Prudentius; Saint Ambrose, Bishop of Milan; Hieronymus or Saint Jerome; Donatus, the grammarian; Claudianus; Saint Augustine; Bishop Hippo; Apollinaris Sidonius, Bishop of Clermont; Dracontius; Boethius the philosopher; and Cassiodorus, author of the *World-Chronicle*, are among the last names memorable in the department of Latin literature.

ITALIAN LITERATURE.

There is no existing record to show that Italian—the latest developed of the Romance languages—was used for literary purposes before the thirteenth century. Unlike those of France and Germany, the beginnings of Italian literature were not simultaneous with the struggles of a rising people. The nation was versed in the art of expression in other tongues, which accounts for the rapid development of the literature when once the vernacular became a medium for the master minds. At the outset Italy drew mainly from the literature of France, and imitated the lyrics of the troubadours and the heroic songs of the trouvères. Italy had no national epic of its own. The first awakening of Italian poetry was in Sicily in the time of Frederick II., the great patron of letters. Soon afterward religious poetry flourished in Umbria, due to the rise of the two orders of St. Francis and St. Dominic. The drama sprang into being from the same impulse; the *Laude Spirituali* gradually developing into the *Devozione* and the *Rappresentazione*. Meanwhile the poets of Tuscany, stimulated by the influence of Provençal poetry, founded a less conventional school of writing, and established the preëminence of the Tuscan dialect. Three poets are worthy of mention in connection with this school: Guinicelli (1220-1276) the founder, Cavalcanti, and Cino da Pistoja. Of early prose writings the oldest specimen extant is a register of household expenses by Matasala di Spinello of Siena, which, however, cannot be classed as literature. The letters of Guittone d' Arezzo are the earliest existing monument of literary prose; but the first writer of any considerable work was Malespini, who wrote a history of Florence to the year 1282. The real founder of Italian literature is Dante (1265-1321), for previous to him there is not an author of the first or even the second rank. Out of the crudest materials this mighty artist fashioned a monument whose sublimity of conception is equaled by the grandeur and delicacy of his art. The destiny of Italian literature was fixed and defined by his great epic, the *Divina Commedia*, and the era of the Renaissance was ushered in. In this world's classic, **Dante** voices the beliefs and aspirations of the Middle Ages. Guided by Vergil, he makes a visionary journey through the dread regions of the Inferno and the circling abodes of Purgatory; thence led by the saintly Beatrice he beholds with a seer's vision the manifold glories of Paradise. The greatness of the poem was instantly recognized, and time will never sully the brightness of its fame. Two more names—Petrarch, the greatest Italian lyrist, and Boccaccio, the father of Italian prose—complete the *triumvirate*. Petrarch (1304-1374), "the laureat poete," as Chaucer called him, was the first to place Italy in the van of European literature. He revived the study of the Greek and the Latin authors and restored

the republic of letters. His fame now rests not on his Latin works but on his *Canzoniere* or lyrical poems, inspired by his love for Laura. The exquisite beauty and perfection of these poems place him only a little lower than Dante himself. Boccaccio (1313-1375) by his *Decameron* endowed Italy with a classic prose and earned the distinction of being the first modern novelist.

The century from the death of Boccaccio to the rise of Lorenzo de' Medici is the most barren in the history of Italian literature. Attention, however, was given to the development of the drama and the romantic epic. The most famous of the early dramatists are Feo Belcari (1410-1484), Castellani, Antonia (wife of Bernardo Pulci), Rosselli, and the author of the first classical Italian drama, Angelo Poliziano (1454-1494). The first to raise the literature from the low estate into which it had fallen was Lorenzo de' Medici, named "the Magnificent" (1448-1492), who gave a great impetus to the study of the vernacular. and himself led the way with many graceful poems. His court was the home of artists and men of letters. Among them were Boiardo, author of the *Orlando Innamorato*, and Pulci, author of the epic, *Morgante Maggiore*. One of the features of the times was the founding of the academies of Florence, Naples, and Rome.

In the literary epoch following that of the Renaissance every form of art was perfected, and the Italian character of the language was combined with classicism of style. This Golden Age lasted from 1494 to about 1560. Of the prose writers two figures tower above their contemporaries—Machiavelli and Guicciardini, the chief originators of the science of history based on observation. Machiavelli (1469-1527) is the Thucydides of Italy, as the great Florentine historian Villani in the previous century is her Herodotus. He holds a position in prose similar to that of Dante in poetry. His three most famous works are *The Prince*, *The Art of War*, and the *History of Florence*. No book has aroused more controversy than *The Prince*. By many it has been regarded as a manual for tyrants, and true it is that no book has wrought more harm, for it was the daily companion of the most noted despots of Europe. Yet it was nothing more than the dream of a philosophical patriot for the restitution of liberty to his country. Less illustrious but of a more practical genius is the historian Guicciardini (1482-1540), whose *History of Italy* is one of the most valuable works in the language. Of lesser historians of this period Nardi, Segni, Camillo Porzio, and Cardinal Bembo may be noted. A characteristic product of the age, due to the study of Plato, is the dialogue; and the most typical example of these polished didactic colloquies is the *Cortegiano* of Castiglione (1478-1529). Ariosto (1474-1533) is a great and essentially national poet, who assimilated the romance of chivalry to the style and models of classicism. His great poem, *Orlando Furioso*, the result of ten years' toil, eclipses all previous romances, and has never since been equaled. Its success inspired many imitations, the two most important of which were the *Girone il cortese* of Alamanni and the *Amadigi* of Bernardo Tasso, both of them feeble productions. Not more successful was Trissino (1478-1500) who in his *L'Italia Liberata* made the first attempt to write Italian epic poetry in blank verse. Torquato Tasso published his famous work *Jerusalem Delivered* in 1581. It is a poem of faultless beauty, and is the finest of all epics after the *Aeneid* and *Paradise Lost* (for *Orlando Furioso*, to which it is commonly compared, is not really an epic at all). Tasso achieved immediate success with *Aminta*, a pastoral masque which attracted a host of imitators. The best of these was Guarini, the author of the *Pastor Fido* (1537-1612).

From 1559 began a period of decadence, known in the history of Italian literature as the *Secentismo*. Lyric poetry was represented by mediocre rhymesters. Galeazzo di Tarsia, Vittoria Colonna and her sister poet, Gaspara Stampa, are amongst the noteworthy names. Though in pure literature the age was one of decline, it was an era famous for the advance of natural science, and incidental reference may be made to the names of Galileo, Cassini, Renieri, Torricelli, Valisnieri, Viviani, Bellini, and Redi. The chief name in Italian literature during the seventeenth century is that of Tassoni (1565-1635), whose masterpiece, *La Secchia Rapita*, is a poem of European reputation. Of the minor poets who emulated the extravagances of Marini (1569-1625), the most famous were Guidi, Testi, Ciampoli, Menzini, and Filicaja. Some of the poems of Filicaja reach a high degree of excellence, and his name recalls the famous sonnet, *Italia, Italia, a cui feò la sorte*. A mania for rhyming seized the nation, and dates from the inauguration of the "Arcadian Academy" in 1692. But the Arcadians, the last of whom was Frugoni (1692-1768), replaced with effeminacy the bombast of the Marinists, and only succeeded in impoverishing the literature. But one department of the fine arts, the opera or musical drama, achieved distinction through the genius of Metastasio (1698-1782), who was both a consummate playwright and a true lyric poet. The only other writer of the first rank during this period is Goldoni, the reformer of Italian comedy. Voltaire said of him that he had rescued Italy from the hands of the harlequins. His great rival, Count Carlo Gozzi, won success on the Venetian stage by his *fiabe* or dramatized fairy-tales. Alfieri (1749-1803) swept Italian tragedy with his drastic reforms. Though his writings display what Matthew Arnold calls a "narrow elevation," his style is manly, and he is undoubtedly one of the grandest figures in Italian literature since Tasso. Giuseppe Parini is interesting as being the first Italian poet who shows decided traces of English influence. His *Giorno* is suggestive of Thomson's *Seasons*, but the satire is worthy of Pope. Parini opened the way to the fine school which was now to arise, that of Foscolo, author of the lyrical masterpiece, *I Sepoleri;* Monti, whose *Bassvilliana* gave him rank as the first epic poet of his time; Pindemonte, whose best work is his *Antonio Foscarini;* Manzoni, the representative of the romantic and mediæval reaction of the post-Napoleonic age, and the author of the world-famed *I Promessi Sposi;* Leopardi, whose blank verse is the finest in Italian literature; Niccolini, renowned as a poet and a classical dramatist; Giusti, the Tuscan satirist; Gioberti,

author of the great book, *Il Primato d'Italia;* Pellico, the writer of the famous work, *Le Mie Prigioni.* Love of country is the dominant thought of the nineteenth century writers; and though these include no name of premier rank, yet the pervading spirit of liberty and patriotism lends to the literature of the period a unity and dignity which command our admiration. Aleardo Aleardi (1812-1878) has failed to retain his popularity. His poems are graceful and full of feeling but lack force. Prati (1815-1884), called by Carducci "the last of the troubadours," produced several volumes of lyrics, whose fluency borders on improvisation. Gabriele Rossetti (1783-1854) was the most noted poet in southern Italy. His greatest compositions are *Iddio e l'Uomo* and *L'Arpa Evangelica.* Carducci (1835-1907) is the foremost Italian poet of the past half century, and the greatest force in recent Italian literature. Many of his lyrics are widely known, and the admirable translations of the American, Mr. Sewall, have done much to increase their popularity. Carducci is a critic, too, of no mean order. Zanella (1820-1889) is a poet whose fame has gone on increasing. *The Vigil,* a meditation on evolution, is perhaps his masterpiece. His lyrics are exquisite. D'Annunzio (born 1864) is a second Marini, but his naturalism too often borders on extravagance. In his sonnets he has enriched Italian poetry with one new form of beauty, the *rima nona.* The poet of the social revolution is Mario Rapisardi, a Sicilian; while the woes of the poor are expressed by a lady, Ada Negri. Arnaboldi excelled in grave and dignified lyric, not unlike Matthew Arnold. Arturo Graf, Fogazzaro, Panzacchi, Edmondo de Amicis (celebrated as a traveler), Capuana, Marradi—translated specimens of these and other contemporary poets may be read in G. A. Greene's *Italian Lyrists of To-Day.*

The serious drama is represented by the tragedies of Cavallotti and the New Testament trilogy of Giuseppe Bovio; and the humorous by the comedies of Roberto Bracco and Giacinto Gallina.

Lengthy story-telling seems to be foreign to the genius of the people, and the novelists are mostly of inferior rank. One or two, such as Matilda Serao, Barrili, and Farini have acquired a wider reputation. Two names stand out, however, as masters of fiction, the poet, D'Annunzio, author of *La Vergine della Rocce,* and Giovanni Verga, whose novels reflect the social history of Sicily. In the field of literary criticism the two chief names are Settembrini and De Sanctis. Of modern historians, Villari, the biographer of Savonarola and Machiavelli, and Comparetti, author of *Virgilio nel Medio Evo,* have won a lasting reputation as writers. We cannot conclude without a reference to Giuseppe Mazzini (1805-1872), that "swift, yet still, Ligurian figure; merciful and fierce; true as steel, the word and thought of him limpid as water," as Carlyle finely portrays him. His writings greatly influenced the destinies of his beloved Italy.

SPANISH LITERATURE.

Spanish literature has its root in the old heroic songs and *fabliaux* of early France and Italy. No texts of earlier date than the twelfth century have come down to us. The two oldest extant specimens of Castilian verse are the *Poema del Cid,* and the *Misterio de los Reyes Magos.* The *Cid* is national in tone, and is an epic or *chanson de geste* of about four thousand lines, celebrating the adventures of the great national hero, Ruy Diaz de Bivar (died 1099), better known by the Arabic surname of the Cid. His exploits are also recounted in the *Rhymed Chronicle,* which some suppose to be of older date than the *Poema.* In the thirteenth century religious and didactic poetry grew up, the most noted representative of which is Gonzalo de Berceo (1198-1268). Under Alfonso the Learned (1226-1284) the language became a polished literary medium. Alfonso, like Bacon, took all knowledge as his domain, and in every branch he shone preëminent. He was the creator of Castilian prose. The second great prose-writer was his nephew, Don Juan Manuel, who brought the language to perfection. His best known work is *Conde Lucanor,* a collection of 51 didactic tales. Juan Ruiz (1300-1350), better known as the Archpriest of Hita, is the most original mediaeval Spanish poet. His *Libro de Cantares* gives us a highly-colored picture of the manners of the age. The *Rhymed Chronicle of Alfonso XI.,* discovered in 1573 by Diego Hurtado de Mendoza, was written by Rodrigo Yañez, who is the first to use lines of eight syllables for the purpose of epic narrative. A writer who did not come under the prevailing influence of Provençal and Italian poetry is Pedro López de Ayala (1332-1407), whose best-known work is the *Rimado de Palacio.* He is equally distinguished as a writer of prose. A representative writer of the fifteenth century is Iñigo López de Mendoza, Marqués de Santillana, who wrote both in prose and verse, and was an imitative rather than an original genius. The official court-poet of the time of Juan II. was Juan de Mena, known to his own age as the "Prince of Castilian poets." In contrast to the artificiality of such writers as these is the celebrated elegy of Jorge Manrique on the death of his father, known as the *Coplas de Manrique.* This imperishable poem has been admirably translated by Longfellow. The fifteenth century finds the chivalrous romance established in Spain, and the best example is *Amadis de Gaula.* The introduction of printing presses in 1474 inaugurated an era of translation. Nebrija (1444-1522), the greatest of Spanish humanists, printed his Spanish-Latin dictionary in 1492. It is worthy of note that the first Greek text of the New Testament ever printed was produced by Nebrija at the University of Alcala de Henares, in 1514. Versions of foreign classics were in all men's hands.

With the reign of Charles V. we reach the Golden Age of Spanish literature. Juan Boscán is chiefly noted as having naturalized the Italian eleven-syllable verse. He is seen at his best in the allegorical poems, the *Octava Rima.* In point of merit he is eclipsed by his comrade, Garcilaso de la Vega (1503-1536), a poet of refinement and distinction, whom both Cervantes and Lope de Vega agreed in calling the first of Castilian poets. He certainly is one of the greatest of Spanish poets. As a reproducer of the cadences of the Vergilian Eclogue, his success is unique. Diego Hurtado de Mendoza

(1503-1575), one of the chief figures in the history of Spanish politics and letters, cultivated both the national and the Italian forms of poetry, but lent his weight to the supremacy of the latter. He is the author of two historical works: The *History of the Rebellion and Chastisement of the Moriscos* and the *Guerra de Granada*. Amongst the greatest Spanish poets few, if any, rank higher than Fernando de Herrera (1534-1597). He is the first purely lyrical poet of Spain. Another eminent poet was his contemporary, Luis Ponce de León (1529-1591), who was no less great in prose. The greatest of all Spanish mystic books, *Los Nombres de Cristo*, together with his translation of the Song of Solomon, give him rank with the masters of Castilian prose. The moral and mystic writings of Santa Teresa (1515-1582) have justly won a reputation which is world-wide. She is a sublime figure in the annals of religious thought, and is the only woman who stands as an unchallenged equal with the great writers of literature. Crashaw's famous line will be recalled:—

"O 't is not Spanish but 't is Heaven she speaks."

Her masterpiece is the *Castillo interior*.

At the close of the sixteenth century, Spanish literature, with the exception of the drama, had become stereotyped; the Italian influence had set its seal on form and matter; the chivalresque romance was on the wane; the picaresque novel, modeled on the unclaimed *Lazarillo de Tormes*, was losing its freshness; and until the appearance of Cervantes no genius had arisen to introduce any new type. Miguel de Cervantes Saavedra (1547-1616) is the most illustrious figure in Castilian literature. He is a great creative genius and a universal humorist. He ignored the conventions of the times, and, drawing closely to humanity, he created types which are eternal. As a dramatist he is seen at his best in the tragedy of *Numancia*, and in his comedy, *Trato de Argel;* but it is as the author of the immortal *Don Quixote* that his fame is sung throughout the world. This work is by no means a model of literature, nor does it show Cervantes at his best as a writer of prose; but the strong human interest that underlies its humor is the reason for its greatness. It is a masterpiece of unsurpassed invention, and is a work for all times and all nations. A great creative writer, but lacking the universal note of Cervantes, is his contemporary, Lope Felix de Vega Carpio (1562-1635). Lope was the creator of the modern drama. He was a prodigy of learning and inventiveness, and was the most voluminous writer of ancient and modern times. The great authors of other nations drew upon the treasures of his art; his plays have been treated as models by all later Spanish writers, and his influence has been unique. As a poet he achieved fame, though not greatness. Many of his carols (*villancicos*) treating of the childhood of Jesus are very beautiful. The miscellaneous works of this versatile writer fill more than twenty large volumes. The most eminent of the minor poets of this epoch was Góngora (1561-1627), whose earlier verse is marked by fine workmanship and rare lyrical melody. But he was the founder of a school which is known as *culteranismo*, and Gongorism soon become synonymous for all that savors of bad taste, affectation, and euphemism. A more widely gifted writer is Quevedo (1580-1645), who attained some measure of success in almost every branch of literature, though never reaching the first rank in any one of them. The chief writers of the so-called Aragonese school were the brothers Lupercio and Leonardo de Argensola, whose works are scholarly but artificial. Less exclusively classical is Manuel de Villegas, an Anacreontic poet.

Turning to the historians, a new epoch is marked by the production of the *Anales de la Corona de Aragon* by the learned Gerónimo de Zurita. This is the most trustworthy authority on the period, though it is hardly distinguished as literature. Very different is the *History of Spain* by the greatest of Spanish historians, Juan de Mariana. It bears the defects and limitations of the age, but its prose is above criticism.

Calderón (1600-1681) is the greatest Spanish dramatist by reason of his being the greatest poet who espoused the drama. He created no new forms but developed the seeds sown by Lope. His published works consist of about 120 plays and 80 autos or mystery-plays, besides some light interludes and occasional verses. His best known plays are the *Principe Constante*, *El Pintor de su Deshonra*, and the two philosophical dramas *La Vida es Sueño* and *El Mágico Prodigioso*. As a writer of autos he stands supreme. He is not an universal dramatist, but the most representative Spaniard of the seventeenth century. A notable dramatist of the Golden Age is Gabriel Téllez, better known by his pseudonym "Tirso de Molina" (1571-1648). His most famous play is the *Burlador de Sevilla*, which is based upon the legend of Don Juan. The religious side of the Spanish character is represented in *El Condenado por Desconfiado*, while Tirso's mastery in lighter comedy is shown in his *El Vengonzoso en Palacio*. His fame, like Lope's, is growing every day. During a period of one hundred years the fertility of the dramatic authors is unparalleled. Plays dealing with the problems of human life or studies in human character are foreign to the Spanish genius, but the form in which Spain excels is the play depending for interest entirely on its plot, and the masterly combinations of stock characters. The "sword and cloak" plays were dear to the hearts of the people. The period of Spanish literary glory coincided, as in other countries, with the most brilliant epoch of military glory and national activity. But when reverses came, Spanish literature decayed. The old ideals were still clung to, but they were no longer in keeping with the spirit of the times.

The best attempt at formal epic in Spanish is the *Araucana* of Ercilla, written during the campaign against the Araucanian Indians in Chile. There is little in it however that merits the name of poetry.

With the succession of the Bourbons, French influences became dominant in Spain. The old traditions were dead, and the ground was cleared for fresh developments. When Spain awoke from her lethargy, the eighteenth century was dead, the old literature was gone, the foreign influences had not taken root, and the vacant field was about to be occupied by the romantic

school and the modern novelist. During the age of the Bourbons, one of the foremost figures was the poet Luzán, whose *Poética* sets out his destructive criticism. Other reformers were Feijoo, Sarmiento, Isla, and Meléndez. Isla was the greatest prose writer of his time.

Under the unifying influence of the French wars Spanish literature responded to the renewed activities of the nation. During the struggle for independence, the verses of Manuel José Quintana (1772-1857) stirred the depths of patriotism. Yet even his *Call to Arms against the French* is written in the French classical style, and is Spanish only in sentiment. The classical poets of the early years of the nineteenth century number many other names of minor rank. The two chief poets of the Romantic school are the Duque de Rivas (1791-1865), who wrote *Al Faro de Malta* and *El Moro Expósito*, and José de Espronceda (1810-1842), the greatest Spanish poet of the last century. Espronceda modeled his verse on that of Byron, and was the hero of his own writings. His famous ode *To Jarifa*, his fragmentary *Diablo Mundo*, and his patriotic odes *A la Patria* and *Al Dos de Mayo*, are the most notable of his compositions. His successor, Zorrilla (1817-1893), is more widely known by his plays, *Don Juan Tenorio*, *El Zapatero y el Rey* and *Traidor, Inconfeso, y Mártir*. Among his more prominent contemporaries may be noted A. G. Gutierrez, the author of *El Trovador;* J. E. Hartzenbusch, who wrote the popular play, *Amantes de Teruel;* Manuel Tamayo y Baus, whose best and most ambitious play is *Un drama nuevo* (1867); and Gustavo Becquer (1836-1870), who is represented by three volumes of prose legends and *Rimas*. Some of the latter are beautiful and full of pathos.

Spain has not contributed much to modern philosophy; but her theologians have always been of good repute. Two names suggest themselves: Don Jaime Balmés, author of the famous *Cartas á un Escéptico*, and Don Juan Donoso Cortes, whose most celebrated work is *An Essay upon Catholicism, Liberalism, and Socialism*. One of the most brilliant masters of prose is Mariano José de Larra (1809-1837). An essayist of somewhat the same stamp is Serafín Estébañez Calderón (1799-1867); but more popular is Mesonero Romanos, author of *Escenas Matritenses*. Cecilia Böhl von Faber, better known by her pseudonym, "Fernán Caballero" (1796-1877), is the writer of *La Gaviota*, a novel many times translated.

Of more recent writers, the most eminent are Campoamor, who devised a new poetic *genre* under the name of *doloras, humoradas,* or *pequeños poemas;* Valera, whose *Pepita Jiménez* marks the renaissance of the Spanish novel; Pereda and Galdós, the novelists; Alas ("Clarín"), the critic and writer of one of the best modern novels, *La Regenta;* Emilia Pardo Bazán (b. 1851), the best authoress of the century; and the orator Castelar, who wrote an Italian story called *La Hermana de la Caridad*. The best of the modern dramatists is José Echegaray (b. 1832), who wrote *La Esposa del Vengador* and *O Locura ó Santidad*. The political poet, Gaspar Nuñez de Arce, the Cuban poetess Doña Gertrudis de Avallaneda, and the eminent critic, Marcelino Menendez y Pelayo (b. 1856), author of the remarkable *Historia de las Ideas estéticas en España*, are the last names that call for special mention.

The most exhaustive survey of the subject will be found in George Ticknor's great *History of Spanish Literature*, first published at Boston in 1849. This may also be read in the Castilian version of Pascual de Gayangos and Enrique de Vedia (1851-1856), or in the German of Nikolaus Heinrich Julius (Leipzig, 1852).

PORTUGUESE LITERATURE.

The Portuguese language and literature had their birth in the same era as the kingdom. There is no great Portuguese epic like the *Cid*. The earliest monuments we possess are fragments of the poems of Hermiguez and Egaz Moniz, two knights of Alfonso I. These uncouth ballads are barely distinguishable as Portuguese. For the next two centuries such poetry as existed was imbued with the Provençal spirit, due to the troubadours and jongleurs of Provence, who flooded the peninsula with their minstrelsy. Macias, known as El Enamorado, Cristovão Falcão, João de Menezes, and the more eminent Bernardin Ribeyro, are the first Portuguese poets of any importance. These writers flourished in the fifteenth century, by which time the language began to assume the characteristics of modern Portuguese, and pastoral poetry laid its hold upon the affections of the people. Ribeyro has also left us a fragment of a prose romance entitled *Menina e Moça*. At the beginning of the sixteenth century the wealth and greatness of the nation had reached their zenith, and at this opportune moment appeared Sá de Miranda to stamp his genius on the poetry of his country. Miranda (1495-1558) laid the foundations of a national literature, and gave to poetry a nobler aim and a wider sympathy. Much of his best work is in the Castilian tongue, but his Portuguese writings consist of eclogues, sonnets, epistles, and two comedies. Of these, his epistles, written in flowing verse, are perhaps his most important contribution to literature. His influence was very marked, and, having rescued the national literature almost from barbarism, he was esteemed and imitated by a host of writers. Foremost among these was Antonio Ferreira (1528-1569), who rivals his master in the mark which he has left on the literature of his country. His style is more classical and more polished, and he wrote no single line except in Portuguese. His epistles and odes have won for him the title of the Portuguese Horace. His greatest work, and also the best tragedy in the Portuguese tongue, is *Castro*, based on the tragic history of the Lady Inez de Castro. These two great poets ushered in the most glorious period of Portuguese literature, an age which gave birth to the poets Pedro de Andrade Caminha, Diego Bernardes, Rodriguez de Castro, and Lobo de Soropita, and which culminated in the *Lusiad* of Camoëns.

The genius of Camoëns (1525-1580) looms large in his country's literature, so much so that the two great names, Miranda and Ferreira—the Chaucer and Dryden of Portugal—are almost overlooked even by their countrymen. His great masterpiece, the *Lusiad* (called by the Portuguese *Os Lusiadas*, or the *Lusitanians*), is a magnifi-

cent conception inspired by a lofty patriotism. It recounts the conquests in the Indies and the glory of the Portuguese arms and achievements. This famous epic is almost the only specimen of Portuguese poetry known outside the kingdom. Camoëns wrote a number of sonnets, canzoni, and eclogues, eloquent of the sorrow and melancholy of his life. One of his most noted contemporaries was Gil Vicente, a dramatic author, who may be considered the founder of the Spanish theater, in that he served as a model for Lope de Vega and Calderon. The rage for pastoral compositions reached its height in the time of Rodriguez Lobo, the author of a book on philosophy, besides pastoral romances and fugitive poems. His *Winter Nights* greatly influenced the writers of Portuguese prose, and its Ciceronian style was freely imitated. During the same period flourished Jeronymo Cortereal, who wrote a ponderous epic on the misfortunes of the celebrated Manuel de Sousa Sepulveda. Two other specimens of the Portuguese epic must be noted: the *Ulysses* of Castro, and the *Malacca Conquistada* of Francisco de Sa y Menesez.

The Augustan age saw the beginnings of a new branch of Portuguese literature. The historians vied with the poets in recounting the exploits and conquests of their countrymen. Foremost among them is John de Barros (1496-1571), author of the monumental work, *Asia Portugueza*, and one of the founders of Portuguese prose. His history was continued by Conto. Other noted historians are Castenheda and Bocarro, who dealt with the Portuguese conquests in India; Affonso d'Albuquerque, author of a series of *Commentaries;* Bernardo de Brito (1570-1617), whose reputation rests on his *Monarchia Lusitana*, an incomplete history of Portugal "from the creation of the world" to the rise of the monarchy; Osorio, Bishop of Sylvez (1506-1580), the historian of the troublous reign of King Emanuel. The most voluminous writer of this epoch was Manuel de Faria. He wrote largely in Castilian, but in his native writings he has won distinction by his *Portuguese Europe*, and a number of sonnets and eclogues. His commentary upon Camoëns and his dissertations on the art of poetry established his reputation as a critic. During the national decline following the subjugation of Portugal by Philip II. of Spain, a number of lesser poets abounded, the most notable among them being Antonia Barbosa Bacellar (1610-1663), Andrada, Simão Torezão Coelho, Duarte Ribeiro de Macedo, and Sister Violante do Ceo. Bacellar was the first to devise the *saudade*, a sort of elegy combining love, remembrance, and regret. The eighteenth century opens with the name of Francisco Xavier de Menezes, Count of Ericeyra (1673-1744), a disciple of Boileau, whose *Art of Poetry* he had rendered into Portuguese verse. Ericeyra's most ambitious work is the *Henriquéide*, an epic poem relating the exploits of Henry of Burgundy (the founder of the Portuguese monarchy) against the Moors. Antonio Correa Garçao and the Countess de Vimieiro, author of the tragedy *Osnia*, did their best to revive a moribund drama. The most eminent of the early nineteenth century poets are Antonio Diniz da Cruz e Silva, J. A. da Cunha, and F. M. de Nascimento. The Romantic movement began with Garrett (1799-1854) and Herculano (1810-1877). The latter is more famous as a historian, his *History of Portugal to the End of the Reign of Alfonso III.*, and later, the *History of the Origins and Establishment of the Inquisition*, establishing his reputation as the leading historian of the Peninsula. An ultra-romantic school of poetry was started by Castilho (1800-1875), and included such lyric poets as João de Lemos (1819-1889), Soares de Passos (1826-1860), and Thomaz Rebeiro (1831-1901), author of the patriotic poem, *D. Jayme.* Belonging to no school, and a true son of the people, is João de Deus (1830-1895), one of the chief lyric poets of Portugal. His *Campo de Flores* is remarkable both for its spontaneity and simplicity, and contains a number of such exquisite gems as *A Vida* and *Rachel.* Four more poets call for mention, each of whom is distinguished by a weighty reflection and the influence of foreign models: Anthero de Quental (1842-1891), author of more than one hundred sonnets; Guerra Junqueiro, whose *Death of Don Juan* and *Patria* prove him a master of satire, while his quasi-philosophical *Os Simples* shows him to be a really great poet; Gomez Leal, who wrote the *Claridades do Sul;* and Antonio Nobre (1867-1900), whose lyrics created a sensation by their freshness and lofty inspiration. In comedy the two chief names in modern times are Fernando Caldeira (1841-1894), author of *A Mantilha da renda* and *A Madrugada*, and Gervasio Lobato (1850-1895), whose most popular plays are *O burro do Sr. Alcaide*, *O Valete de Copas*, and *O testamento da Velha.* The novel shares with poetry the leading place in modern Portuguese literature, and three at least of their novelists are of first rank, viz., Camillo Castello Branco (1825-1890), Gomes Coelho ("Julio Diniz"), and Eça de Queiroz (1843-1900), the greatest of the three, and the founder of the Naturalist school in Portugal. The best novels of Queiroz are *Cousin Basil*, *Os Maias*, *The Relic*, and *The City and the Mountains.* As a creator of characters he can hold his own with any European novelist of his day. The leading art critic of recent years is Ramalho Ortigão, who will be remembered chiefly for his *Farpas*, a series of satirical sketches of society written in collaboration with Queiroz. Nor must we overlook the philosophic *Historia de Portugal* and *Portugal Contemporaneo* of the gifted writer, Oliviera Martins (1845-1894). It will be seen that, the drama alone excepted, Portuguese literature during the last century reaches a high level of excellence. That their more eminent writers are not more widely known and appreciated is due to the language being little understood by foreigners generally.

FRENCH LITERATURE.

The earliest literary monument of the French language is found in the Strassburg Oaths of 842, famous alike in history and literature. Few manuscripts, however, have come down to us from before the twelfth century. The form of the language and the trend of the literature were largely determined by two events: the conquest of Normandy by Philip Augustus, and the Crusades which terminated under his grandson. During the twelfth and thirteenth centuries almost every form of literature was attempted.

Since poetry invariably develops before prose in the literature of any nation (for the imagination of infancy precedes the growth of reason), we find *cantilènes*—short historical ballads—and epic poems in abundance. The French Epic is of German origin, the Teuton spirit in a Romance form; and like that of all other nations it had its birth in native minstrelsy. The *Chansons de Gestes*, so called from the *Gestes* or heroic families of early France, were sung by the *Trouvères* and *Jongleurs* to the accompaniment of the *veille*. The *Chanson de Roland*, the MS. of which is in the Bodleian Library, Oxford, is the most famous of these poems, and represents the first real development of French literature. To France we owe the origin of the epic of Arthur, the satire of Reynard the Fox, and the allegory of the Rose. The epic and romance were not so popular in the south, and the lyrics of the troubadours are the chief feature of Provençal poetry. Blondel de Nesle (known by his legendary connection with Richard I.) and Thibaut of Navarre were the most noted lyrists of the Provençal school. The drama, too, was begun in all its varieties, tragedy, comedy, and opera; while history, vernacular homilies, and satire were equally prolific. The oldest extant historical work on contemporary events is Ambroise's *L'Estoire de la Guerre Sainte*, which relates to the Third Crusade (1189-1192). The Fourth Crusade is dealt with in the famous memoirs of Villehardouin (about 1160-1213), the first author of distinction who used French prose as a medium of expression. His *Conquête de Constantinoble* has been called a *chanson de geste* in prose. What Villehardouin is to the twelfth century *Jean de Joinville* (1224?-1317) is to the thirteenth and Froissart to the fourteenth. Joinville, in 1309, produced his *Histoire de Saint Louis*, in which he gives an account of the things he had "oralement veues et oyes." During the reign of St. Louis the first French translation of the whole Bible was written at the University of Paris. This became the standard French version of the Scriptures.

The fourteenth century saw a change come over the spirit of the literature; romance was checked, and the *chansons de gestes* were converted into prose. Didactic literature dethroned the tales of chivalry and adventure. Few writers need be noted: Alain Chartier (1386-1440), poet and historian, whose best work is his *Quadriloge*, but who is known to modern readers by the story of Margaret of Scotland's Kiss; Christine de Pisan (1363-1431), whose chief works are her *Cents Ballades*, and the *Livre du chemin de longue étude* directed against the *Roman de la Rose;* Eustache Deschamps (1328-1415), the most prolific poet of his time; Charles d'Orleans (1391-1465), the last of the trouvères, and an admirable poet; Villon (1431-1485), the most important figure of French literature before the Renaissance, and whose poems foreshadow the modern poetry; and Froissart (1335-1410), the celebrated chronicler and lyrist, whose *Chroniques* deal with the history not only of France but of England, Italy, Germany, Spain, and Portugal. Froissart has been well named "the knight-errant of history." The fifteenth century was more remarkable for its prose than its poetry, and Comines (1447-1511) was its most illustrious writer. In reading his *Mémoires* one is struck with the progress the language has made since Froissart. The French Chronicle before Comines was practically only gossip, with random gleams of genius. No abstruse or political work of importance was attempted in French prose before the beginning of the sixteenth century; for the vernacular, though rich in volume, was not flexible or precise enough for serious prose. Latin had stunted the expansion of the language, and a critical spirit had not as yet shown itself. As a molder of French prose, Antoine de la Salle (1398-1462), the chief writer of fiction before Rabelais, deserves to rank with the great chroniclers. Poetry was at a low ebb, and the verses of Crétin and Coquillart may be taken as typical of the fifteenth century.

The sixteenth century witnessed the grand upheaval of the Renaissance and the Reformation, and in no country was the literary result more striking than in France. No later period can show a finer array of poets and prose writers: Calvin, St. Francis de Sales, Montaigne, Du Vair, Bodin, D'Aubigné, Brantôme, Pasquier, Rabelais, Des Periers, Herberay des Essarts, Amyot, Garnier, Marot, Ronsard and the rest of the Pléiade, and the polished satirist Regnier. These created a language and a style able to give expression to their genius. Calvin's *Institution de la religion chrétienne* (1540) is the first really great composition in argumentative French prose. The Pléiade, whose two brightest stars were Ronsard and Du Bellay, revolutionized the language; and in spite of their classical eccentricities they laid the foundations of modern French. The dramatic works of Etienne Jodelle (1532-1573) mark an epoch in the history of the drama. With his *Cléopâtre* he founded modern French tragedy, and modern comedy with his *Eugène*. Literature, in fact, became organized. But the pride of the early Renaissance is Rabelais, whose *Gargantua and Pantagruel* is the work of a great creative mind, and a master of literature. Montaigne, whose *Essays* have never lost their popularity, was a writer of the purest French, and his work is of supreme importance in the history of French prose.

The seventeenth century is the golden era of the French drama and French prose; but, excluding the dramatists, there is not a single poet who belongs to the first rank. Malherbe and Boileau are the two most prominent poets of the latter half of the century, the former being a radical reformer of the language and literature. The most illustrious group of the "Grand Siècle" of Louis XIV. consisted of Descartes, Corneille, Pascal, St. Evremond, La Rochefoucauld, Bossuet, Madame de Sévigné, La Fontaine, and Molière; and these have scarcely a rival in prose, or in the measured verse, half poetry, half prose, which the dramatists affected. In 1635 a great service was rendered to literature by the founding of the *Académie française* by Richelieu. "Le grand Corneille" (1606-1684) is the greatest tragic dramatist of France in the classical style, and as a writer of dramatic verse his place is amongst the giants of the world's literature. The *Cid* and the *Menteur* are respectively the first examples of French tragedy and comedy, which can be termed modern. His masterpieces, *Horace*, *Cinna*, *Polyeucte* (the greatest of all Christian tragedies), and *Rodogune* (perhaps the finest of his works), strictly conform to the classical model. Molière (1622-1673) stands foremost in the history of French comedy. He

alone amongst dramatists recognized the value of the stage as a lay pulpit, and his wit enshrined a wholesome moral. The heights of his genius are seen in *Tartufe* and the *Misanthrope;* while his influence on all subsequent writers of comedy is most marked. The tragic masterpieces of Racine (1639-1699) reveal a perfection of workmanship never before attained. The purity and melody of his style and his masterly skill are seen at their best in his *Andromaque* and *Athalie.* But like Molière he ignores the complexity of human character, and his dramatis personæ might well be labeled with some particular type or trait—puppets of the stage and not creatures of the world. This distinguishes the classical dramas from the plays of Shakespeare, and is largely due to the rigid adherence to the Aristotelian unities. No century surpasses the seventeenth in the beauty and precision of its prose. As finished gems, what can excel a peroration of Massillon, a letter of Madame de Sévigné, a maxim of La Rochefoucauld, a *caractère* of La Bruyère, a *pensée* of Pascal, an *oraison* of Bossuet, when each writer is seen at the best? But the first complete model for classical prose was supplied by the *Discours de la Méthode* of Descartes, which was not only an epoch-making book of philosophy but also of French style. The essays of Jean Guez de Balzac (1594-1655) and the *Recherche de la Vérité* of the philosopher Malebranche (1631-1715) were remarkable contributions to French literature. The most popular narrative of France, the *Télémaque* of Fénelon, was produced in this period; so too were the writings of the great wit, St. Evremond, which influenced Voltaire and through him all later literature.

The eighteenth century was dominated by the Academy, to which every French author strove to belong. The effect at first was salutary, but in time the Academy acted as a check on spontaneous genius; hence the eighteenth century is not eminent in belles lettres, but only in serious branches of study. The most important French literary production was the *Encyclopédie* edited by Diderot. Voltaire (1694-1778), one of its contributors, won fame in almost every branch of letters. As a dramatist his three best works are *Zaïre, Mérope,* and *Tancrède.* As a writer of short tales he excels, and in the use of satire and *persiflage* he is a past master. Many of his phrases are now household words. As a historian his best work is the *Siècle de Louis Quatorze.* Chénier (1762-1794) is the greatest poet of the century; while Crébillon the Elder, Beaumarchais (author of the *Barbier de Séville* and the *Mariage de Figaro*), and Lesage are its most noted dramatists. Diderot the encyclopædist was not at his best in his plays. The first and greatest novelist of the century is Lesage, whose *Gil Blas,* a work which resembles Fielding, is by reason of its style and language one of the classics of French literature. Marivaux (1688-1763) may claim to have invented the novel without a purpose, aiming simply at amusement. Jean Jacques Rousseau (1712-1778), the celebrated novelist and *philosophe,* became the teacher of Europe, and was a greater force in life, letters, and education than any other writer of the age. His *Emile* (whose sub-title is *L'Education*) and *La Nouvelle Héloïse,* though not perfect as novels, have had a mightier influence than any other novel in the world. The greatest man of letters of the eighteenth century was undoubtedly Montesquieu (1689-1755), a writer of greater depth and originality than Voltaire. His three chief works are the *Lettres Persanes,* the *Grandeur et Décadence des Romains,* and his masterpiece *Esprit des Lois.* A notable follower of Rousseau was Bernardin de St. Pierre, whose *Paul et Virginie* is now a well-known schoolbook. In philosophy we must note the names of Turgot, Condorcet, Volney, and Condillac, as well as the moralists Helvétius, Thomas, Vauvenargues, Chamfort, and Rivarol. Among the *philosophes* was an antitheistic school, whose opinions may be gathered from that remarkable book, the *Système de la Nature,* believed to be the work of Baron d'Holbach. The chief of the scientific writers is Buffon (1707-1788), whose great work is the *Histoire Naturelle,* a book of 36 volumes, written in an inflated style. Buffon is the author of the well-known phrase, "Le style c'est l'homme." Rouget de Lisle deserves mention for his one famous poem, the *Marseillaise* (1792).

The greatest name at the beginning of the nineteenth century is unquestionably Chateaubriand (1768-1848), whose literary influence can hardly be exaggerated, and who has justly been called "the father of the romantic movement." So charmed was Joubert (whose *Pensées* prove him the most illustrious successor of Pascal and Vauvenargues) with the brilliance of Chateaubriand's style, that he called him "l'enchanteur." Of his miscellaneous works the most remarkable are *Les Martyrs, René, Génie du Christianisme,* his *Itinéraire,* and his autobiography, *Mémoires d'Outre Tombe.* Madame de Staël (1766-1817) is an important figure during this epoch. Her principal novel is *Corinne,* but her greatest achievement is her book *De l'Allemagne.* Xavier de Maistre (1764-1852) is best known by his *Voyage autour de ma Chambre,* a model of French style. Courier (1772-1825) deserves mention for his unique Letters, which in his own words reveal "peu de matière et beaucoup d'art." Chief amongst the transitionists from the *philosophe* era to the new romantic and eclectic movements are Béranger, the song writer of the people; Lamartine, distinguished both in prose and verse; Lamennais, the gifted theologian and journalist; Cousin, the eclectic; Henri Beyle, who wrote under the name of De Stendhal; Nodier, and the two dramatists Soumet and Delavigne. The triumph of the literary revolution is centered in Victor Hugo (1802-1885), the king of modern French literature, foremost then and foremost still. In him all the romantic characteristics are embodied and expressed. The fine tragedy *Hernani,* that masterpiece in prose *Notre Dame de Paris,* his matchless odes and ballads, and that remarkable book *Les Quatre Vents de l'Esprit* all show the greatness of his genius. The seven other names which sum up the greatness of the romantic movement are Sainte-Beuve, the greatest of French critics; Dumas the Elder, the celebrated novelist and dramatist; Honoré de Balzac, a novelist of great originality, given to minute psychological analysis; George Sand (Lucile Aurore Dupin), a novelist of rare imagination and improvising power; Mérimée, a novelist of the first rank and a master of French prose; Théophile Gautier, poet, critic, and novelist, a master of the ornate style of modern

French; and, lastly, Alfred de Musset, the gifted poet, dramatist, and novelist. Three stars of lesser magnitude must be noted: Alfred de Vigny, an original thinker among poets, and a prose writer of some distinction; Auguste Barbier, eloquent in his vigorous satires, the *Iambes;* and Gérard de Nerval, a less known writer of poetic prose. The romantic was followed by the naturalistic movement, itself divided into the Impressionists (represented by the two Goncourts, Alphonse Daudet, and, in a sense, Pierre Loti) and the Realists (led by Flaubert, Zola, and Guy de Maupassant). The Realistic School abolished all conventions and sunk deep into the baser side of human character. Though the works of Zola contain an element of grandeur, it is a grandeur in which no Soul is immanent. A reactionary movement against this school was begun by Paul Bourget (born 1852), aided by Brunetière, Lemaitre, and Anatole France.

Among women authors, by far the most talented is "Gyp" (Countess de Martel de Janville), who was born in 1850.

Of the most recent poetry the "Parnassian School" is the most noteworthy. It was founded by L. Xavier de Ricard and Catulle Mendès. Its most prominent members are Sully-Prudhomme (a French Matthew Arnold) and François Coppée. Of names distinguished in other fields of literature, the most notable are Comte and Proudhon, constructive philosophers; Montalembert, Lacordaire, and Rénan, theological writers; the brothers Thierry, Guizot, Thiers, Michelet, Quinet, Tocqueville, and Taine—a band of the greater modern historians.

For volume and merit, the literature of France is second to that of no other country; but for individual works of striking preëminence we may look in vain. Judged by the verdict of other nations, no French writer reaches the level of Dante or Shakespeare. There is no truly great epic in French, few great tragedies, little prose like Milton's, little verse like Spenser's or Shelley's. But there are the finest short tales in prose and verse, the most polished gems of thought and wit, songs of exquisite grace and charm, and, above all, a store of narrative fiction surpassing all other nations in art and originality.

GERMAN LITERATURE.

The history of German literature may conveniently be divided into three periods:—

I. Old High German Literature, 600-1100, from the rise of the Franks to the Crusades.

II. Middle High German Literature, 1100-1500, from the Crusades to the Reformation.

III. New High German Literature, 1500 to the present day.

1. The beginnings of the literature may be traced almost to the dawn of the Christian era, and although no remains have come down to us there are references to German poetry which was in existence during the first six centuries. The development of epic poetry from the old heroic songs was closely connected with the migration of the German tribes. The heroic period was succeeded by an age of culture and Christianity in which the whole tone of literature was revolutionized by the infusion of new ideals. In the fourth century Bishop Wulfila (or Ulfilas) made a translation of the Bible into Gothic. The oldest monument extant of Christian poetry is the *Wessobrunner Gebet*, a Saxon poem, written in the beginning of the ninth century. A copy of the pagan poem, *Hildebrandslied*, though of much earlier origin, has come down to us from the same period. A great impetus was given to the literature by Charlemagne, aided by his Anglo-Saxon adviser, Alcuin. The poems *Ludwigslied* and *Der Heliand* mark the transition from paganism to Christianity. The former was written by Otfried, who was the first to write in rhyme. He also wrote the sacred epic, *Krist*. The first German poetess was the nun Hroswitha von Gandersheim (920-968), who was also the first dramatist after the Romans. In the second half of the ninth century we trace the beginnings of prose, the first efforts being in the form of tales (*Märchen, Novelle, Schwänke*) and legends. In the tenth century Notker Labeo translated the psalms into German prose.

2. The hundred and fifty years from 1150 to 1300 are called the "erste Blütezeit"—the first Golden Age of German literature. The brilliancy of this period is due to four causes: (1) The influence of the Crusades; (2) the patronage of the Hohenstaufen dynasty; (3) the spirit of chivalry; and (4) the introduction of models from France. The language used was Middle High German. The epic romances presented an idealized picture of the virtues of knighthood. The priest Konrad wrote the *Rolandslied* in imitation of the *Chanson de Roland;* another priest, Lamprecht, wrote the *Alexanderlied*. Greater than either of these was Heinrich von Veldeke, the first of the poets who may claim to rank as German trouvères. His great work was the *Eneit*, based on Vergil's *Aeneid*. The greatest production of the Middle Ages is the *Nibelungenlied*, an epos which embraces the hero-songs of the leading German tribes. These songs had been recited for generations by the wandering minstrels, to an accompaniment on the zither or the harp. The second national epic is the *Gudrunlied*, which embodies the legends of the North Sea. While the sagas of the minstrels formed the foundation of these two epics, the poetry of the Court was inspired largely by the legends of other nations. Chief amongst these were the Arthurian Legend, the Spanish Legend of the Holy Grail, the Classical Legends of the Trojan War, the deeds of Alexander the Great and Charlemagne. The greatest poet of this era is the Bavarian knight, Wolfram von Eschenbach, whose *Parzival* is a masterly conception. The greatest of his contemporaries is Gottfried von Strassburg, who died at the beginning of the thirteenth century. The age of chivalry was remarkable for its lyrics. Poets of this class were called Minnesänger because their theme was "Minne," or the ideal Love. The chief of these writers of Minnepoesie was Walther von der Vogelweide, who died in 1227. The lyrics of Ulrich von Lichtenstein rank next in order of merit. His *Frauendienst*, 1255, is the oldest German autobiographical work extant. As the national and courtly epic began to decay about the middle of the thirteenth century, narrative poetry became more general, and the longer romance gave place to the short tale. The chief didactic work of this period was Freidank's *Bescheidenheit*, a word which appears to have meant worldly wisdom, rather than "modesty"—its modern meaning.

The use of prose was encouraged by the *Sachsenspiegel* and the *Schwabenspiegel*, two great collections of local laws; but preaching did more to establish it. From 1300 to 1500 was a period of literary dearth. After the fall of the Hohenstaufen dynasty, the age of chivalry came to an end. Driven from the strongholds of princes and nobles, literature took refuge in the cities. Guilds of poetry were formed amongst the burghers, but there is hardly a "Meistersänger" worthy of note. Heinrich von Meissen, surnamed "Frauenlob," was the first of the Meistersingers. Lyricism found its expression in the popular ballads (*Volkslieder*). During this age of decadence, prose became the universal medium, and a plain narrative prose style began to be cultivated in the Chronicles. But there were no prose writers of distinction in this period of gloom; no Villehardouin or Joinville, no Boccaccio or Roger Bacon. Not till after the early Italian Renaissance and the culture of the Humanists had spread beyond the Alps, did the Germans rise to the need of universities to form a groundwork for their literature. The rise of the drama from the sacred plays was similar to its development in other European countries. Gradually the comic element increased, until in the fifteenth century the secular drama or comedy arose alongside of religious tragedy.

3. With the Reformation the Germans awoke from their lethargy; and Luther (1483-1546), the dominant figure in literature as in religion, placed his countrymen in the van of European progress. His translation of the Bible gave the nation for the first time a literary language. Luther is the greatest of German hymn writers, and led the way with that fine battle hymn, "Ein feste Burg ist unser Gott." Ulrich von Hutten (1488-1523), a writer of satirical poems and prose dialogues, was a prominent disciple of Luther's. Hans Sachs (1494-1576), the leading German poet of the sixteenth century, composed in all 6,048 poems, among them many excellent hymns. His best works are his *Shrove Tuesday Plays*. The greatest satirist of this epoch was Johann Fischart, who was also one of the best masters of diction. Jacob Ayrer, a writer of plays, is best remembered for his *Singspiele*, the parent of the opera. The Thirty Years War (1618-1648) paralyzed German literature, and religious lyrics alone survived amid the general decay. The beginnings of modern German poetry may be said to date from the publication of the critical *Buchlein von der deutschen Poeterei*, of Martin Opitz, 1624. Paul Fleming (1609-1640) is the only secular poet of the seventeenth century endowed with true genius. Opitz and his followers are called the First Silesian School of Poetry. Marking the transition from this to the Second Silesian School is Andreas Gryphius (1616-1664), who was the first German dramatist to divide his tragedies into five acts. During the greater part of the seventeenth century Germany produced few prose works of eminence, and the language became more and more corrupt. Grimmelshausen's romance *Simplicissimus*, 1659, is a masterpiece of its time; while the name of Christian Thomasius (1655-1728) is noteworthy in connection with the first German periodical. During this dismal period Germany gave birth to one of her most brilliant thinkers, the philosopher Leibnitz (1646-1716). Poetry is represented by the names of Wernicker, Günther, and Brockes, the first German poet who displayed acquaintance with English literature. With Frederick the Great came a revival of letters. Gottsched (1700-1766) did good work for German literature by his "Critical Art of Poetry" (*Kritische Dichtkunst*). The poet and fabulist, Gellert, is the most popular figure of these times. His most important work is *The Swedish Countess*, the first social novel in German literature. It was modeled on Richardson's *Pamela*. Haller, Hagedorn, and "Vater Gleim" deserve note as poets; but greater than these is Klopstock (1724-1803), who, under the influence of the English nature poets, created the modern German lyric. His *Messias*, a sacred epic, is his greatest achievement. Gessner (1730-1788) is best known by his *Idylls*, which, until the appearance of *Werther*, was the most popular book in Europe. Among prose writers Moses Mendelssohn, Nicolai, and Forster stand out among their contemporaries.

The foundations of the classical literature, which reached its zenith by the beginning of the nineteenth century, were chiefly laid by Klopstock, Wieland (1733-1813), and Lessing (1729-1781). Wieland stands somewhat apart from the writers of his time. He represents the Latin element in the literature, and his work helped to counterbalance the excessive nature worship of Rousseau, which later swept through Germany. His masterpiece is the romantic poem *Oberon*, which won the applause of Goethe. In a letter to Lavater, July 3, 1780, Goethe wrote: "Sein 'Oberon' wird so lang Poesie Poesie, Gold Gold, und Crystall Crystall bleiben wird, als ein Meisterstück poetischer Kunst geliebt und bewundert werden." Wieland was the first to popularize Shakespeare in Germany, and translated 22 of his plays, thus contributing to the development of the German drama, which was soon to burst forth into unrivaled splendor. Lessing was the founder of æsthetic criticism in Germany, and the pioneer of the modern German drama. Macaulay styles him "the first critic of Europe." The greatest of his critical writings is the *Laokoon*. Lessing is still a living influence, and unsurpassed as a master of style. His *Minna von Barnhelm*, 1767, is the first masterpiece of German comedy. The tragedy, *Emilia Galotti*, followed in 1772, and his third and greatest dramatic work, *Nathan der Weise*, in 1779. The Second Golden Age of German literature was now reaching its highest glory in every field of thought. A new and vigorous movement began in Germany known as the "Sturm und Drang" (a name adopted from one of Klinger's plays); and the watchword of its leading spirits was "Originality and genius." Herder (1744-1803) is the greatest intellectual force of this new epoch, and forms the link between Lessing and Goethe and Schiller. As a linguist and translator he stands alone. His best prose work is *Ideen zur Philosophie der Geschichte der Menschheit*. Goethe, to use his own words in reference to Shakespeare, "is not for an age but for all time." His name is enrolled amongst the foremost poets of all nations, and *Faust*, his masterpiece, will live as long as the German tongue. Goethe sprang into European fame with the publication of his *Werther*,

and soon afterwards joined the illustrious group at the court of Weimar. With Wieland, Herder, Goethe, and Schiller banded together, it was indeed a "Court of the Muses." Goethe's famous dramas *Iphigenie, Egmont, Torquato Tasso,* besides his immortal *Faust,* give him rank as the greatest of German dramatists; while his matchless lyrics prove him the foremost lyric poet of Germany. The range of his activity was extraordinary, but the main secret of his power was his combination of realism and idealism. Schiller (1759-1805) is a truly national poet, second only to Goethe. He is an idealist expressing his noble sentiments and ideas by means of his dramatic creations. *Don Carlos, Wallenstein, Die Jungfrau von Orleans, Maria Stuart,* and his masterpiece, *Wilhelm Tell,* reveal the greatness of his dramatic genius. His ballads are loved by every reader of the language.

The Romantic School which now arose left its influence on every branch of literature and science. The prophet of this school was Friedrich von Hardenberg, better known as Novalis (1772-1801); its critical leaders were the brothers Schlegel, and its most productive writer was Ludwig Tieck. Affected too by this wave of romanticism were the brothers Grimm, whose fairy tales are dear to every child; Alexander von Humboldt, the natural philosopher; and Jean Paul Richter (1763-1825), usually called "Jean Paul," a master of satire gifted with what Carlyle called a "vast World-Maelstrom of Humour." Richter's two best works are *Titan* and the unfinished *Flegeljahre.* He was a power in his generation, but his influence is on the wane. Among the contemporary poets must be named Bürger, whose *Lenore* and *Der wilde Jäger* are translated by Scott; Voss, best known for his poem *Luise;* the brothers Stolberg; Matthisson, Miller, and Claudius. The deepest current in the intellectual life of Germany during the nineteenth century was philosophical speculation. The eminent philosopher, Kant, was succeeded by Fichte, Schelling, and Hegel, and these in turn by Strauss, Feuerbach, and Schopenhauer. One of the most celebrated story writers of the Romantic School was E. T. Amadeus Hoffmann (1776-1822), whose *Die Serapions-Brüder* and *Nachtstücke* are characteristic of his weird imagination. Friedrich de la Motte-Fouqué (1777-1843) is remembered best by his well-known fairy tale *Undine.* One of the great lyrical poets of modern times is Chamisso (1781-1838), who also wrote the romance of *Peter Schlemihl.* The lyrics of Heine (1797-1856) are amongst the best in German literature, and his ballads are known in every home. Except Goethe, no other German poet achieves his effects by such simple means. Rückert (1788-1866) wrote a number of poems inspired by the Napoleonic wars; but a more picturesque figure is Theodor Körner (1791-1813), whose well-known battle songs and the drama *Zriny* show great promise. Patriotism likewise inspired Kleist (1777-1811), who wrote many lyrics and excellent short stories. His two great patriotic dramas are *Prinz Friedrich von Homburg* and the *Hermannsschlacht.* Platen, Arndt, and Max von Schenkendorf also stand among the greater poets of the period. The Swabian group of nature poets included Uhland (1787-1862), the writer of some of the most charming songs and ballads; Gustav Schwab; Justinus Kerner, who was of a more tragic cast; and Eduard Mörike. Of more recent poets Fallersleben (1798-1874), Freiligrath (1810-1876), Kinkel (1815-1882), and Giebel (1815-1884), are the most distinguished; while Hebbel and Karl Gutzkow are highly-gifted dramatists. The German novel has not kept pace with other departments of literature. Freytag, author of *Soll und Haben* ("Debit and Credit"), is one of the best German novelists. Hauff's *Lichtenstein,* Scheffel's *Ekkehard,* Dahn's *Kampf um Rom,* Ebers' *Homo sum,* Auerbach's *Tales of the Black Forest,* Spielhagen's *Problematische Naturen,* and Paul Heyse's *Die Kinder der Welt,* are amongst the best of modern German fiction. Heyse is a master of style, as is also Hermann Sudermann, the dramatist of the successful play, *Die Ehre.* Sudermann's two best novels are *Frau Sorge* and *Der Katzensteg.* The greatest modern humorist of Germany is Fritz Reuter, author of *Ut mine Stromtid;* while the most original dramatist is Hauptmann (born 1862). The field of history is dominated by the great names of Niebuhr, Ranke, Von Sybel, Von Treitschke, and Mommsen. The most original thinker in the latter half of the nineteenth century was Friedrich Wilhelm Nietzsche (1844-1900), whose philosophy may be gathered from his great book, *Also sprach Zarathustra,* one of the masterpieces of modern literature. German is essentially a literature of individualism; the personal note is clear in every German masterpiece, and even the drama is not objective. The dramatic literature is thus rich in initiative and originality; nor have letters, as in England, become divorced from the stage. In the last generation nothing is more marked than the improvement of the prose style. Both scholars and thinkers are paying more heed to the form, and are cultivating greater force, simplicity, and directness of speech.

RUSSIAN LITERATURE.

The literature and the people of Russia stand apart from the Western European world. The great movements, from the Crusades to the Revolution, which left their mark on Western nations, did not arouse Russian literature from its lethargy. The epic age, beginning with the *bilinas* or heroic tales, continued till the opening of the nineteenth century. The *bilinas* (literally "songs of the past"), unlike the national epics of other nations, are an apotheosis of the laborer instead of the knight. Instead of an Arthur or a Roland, they glorify Mikula and Ilia, both heroes of the plow. The age of chivalry which succeeded this primitive era is known as the Kief cycle, and its central figure is Vladimir, who introduced Christianity into Russia; yet the heroic *mujik,* Ilias de Moron, the giant Cossack, is well to the fore. With the spread of Christianity the paladins disappeared, and the literature assumed a religious cast. Two Greek brothers, Cyril and Methodius, translated the Gospel into the Sclavonic tongue; and in the eleventh century epistles, sermons, and moral writings began to pour forth. Nestor the monk, who died in 1116, Nicephorus, and Cyril the Golden-Mouthed were the chief writers of the time. Nestor's *Chronicle* is the first book on Russian history ever written. The twelfth century produced the *Song of the Host of Igor,* a

mixture of pagan and Christian marvels, written to please the Russian nobles. The Tatar invasion in the thirteenth century checked the course of lay literature, and not till the fifteenth century did the oral tales really enter into the domain of literature. In 1564 the printing press was established in Moscow, and on the first of May *The Acts of the Apostles*, the first book printed in Russia, made its appearance. The first regular press and the first periodical (1705) were founded by Peter the Great, who gave a great impetus to the Russian language and literature. Peter revived the theater and established the academy. In his reign there arose the first Russian writer of note, Lomonosof, who refined and perfected the language for his successors. Till the middle of the eighteenth century, though many writers appeared, their works were chiefly of an utilitarian nature. Tatichtchev (1685-1750) produced a *History of Russia*, while the only poet of distinction was Kantémir, with whom modern Russian poetry practically begins.

Under the influence of the Empress Catherine letters made great progress. A literary Pleiad arose, which numbered such names as Von-Vizine, the first original Russian dramatist; Derzhavin, the official bard; Kheraskoff, the pseudo-classic author of the *Rusiada;* Sumarakov, the first dramatist whose plays were put upon the stage; and the poets Bogdanóvich and Petróv. Russian literature owes much to Catherine, for by her writings and her influence she familiarized her people with the best thought of Europe. Translations from the *Spectator*, the *Guardian*, and the *Tatler* had a salutary effect on Russian letters. In the eighteenth century we find hardly a trace of anything original; imitations of foreign models alone abound. Other writers worthy of mention are Princess Dolgoroukaïa (1713-1770), Prince Chakhofskoï (1705-1772), Joukovski (1786-1852), and the prose writers Nóvikov, Tatíshchev, Shcherbátow, and Radíshchev. But during this epoch little seriousness was shown in literary pursuits, and prose naturally suffered more than poetry. The best records of the eighteenth century are found in the memoirs, for the restrictions of free speech gave an incentive to this class of literature, which was not originally intended for publication. Karamzin (1766-1826), the "Titus Livius of Russia," the historian and novelist, first freed the popular style from the fetters of a pseudo-classicism, and exercised a humanizing influence on Russian literature. His direct literary heirs were the poets Dmitriev and Oziérov. The fables of the satirist Krylov are stamped with his own personal genius, and have been translated into twenty-one languages.

With the name of Pouchkine (1799-1837) we enter upon the most glorious epoch in Russian literature. Pouchkine is a lyrist of the first rank. His chief works, *The Prisoner of the Caucasus, The Fountain of Baktchissaraï; The Gipsies, and Eugène Onièguine,* have won for him European reputation. He was moreover a finished prose writer, and the author of a most interesting novel, *The Captain's Daughter*. The two poets who stand nearest to him are his contemporaries, Baratinski, whom Pouchkine called "our first elegiac poet," and Lermontoff, the Russian Byron, whose poems are the high-water mark of romanticism in Russia. Pouchkine, Lermontoff, and Tolstoy, each in his own way, have sung the regenerative virtue of the snow-capped Caucasus. The creator of the Russian novel, Gogol (1809-1852), put an end to romanticism with his masterpiece, *Dead Souls* (a kind of Russian *Don Quixote*), and established the school of modern realism. One of the foremost writers of this school is the novelist, Turguéniev (1818-1883), a finished artist whom Ernest Renan pronounced the incarnation of the Russian people. His best known works, *First Love, A Sportsman's Sketches*, and *A Lear of the Steppes* so filled Taine with enthusiasm that he regarded their author as one of the most perfect artists the world has seen since the days of the ancient Greeks. Of his rival, Gontcharov (author of *Oblomov*), the visionary Dostoïevski, the gifted propagandists Herzen and Chtchédrine, the novelist Pissemski (whose best novel is *A Thousand Souls*), the poet of freedom, Nékrassov, and the author of the *Family Chronicle*, Aksakov, we can merely find space for their names. The most famous Russian novelist, Tolstoy, was born in 1828. A nihilist and a mystic, he formulated the idea of a return to Nature, for which the way was already paved by Schopenhauer, and in his writings Russian naturalism would seem to have culminated. A less known, though remarkable novelist is Liéskov (1831-1895), author of *The Priests*, the first description in the national literature of the life of the orthodox clergy. Of the writers of a younger generation only Tchékhov seems to be known out of Russia. The reason is that Russian intellectual vigor is at a low ebb. There is no national ideal, either in ethics or æsthetics, and at the present time Russian literature subsists chiefly on translations.

POLISH LITERATURE.

Compared with Russia and Servia, Poland is extremely poor in legendary poetry and national songs. The earliest specimen of the Polish tongue is the so-called Psalter of Queen Margaret, discovered in 1826 at the convent of St. Florian, and which was presumably written about the middle of the fourteenth century. A more famous monument is the ancient battle hymn, *Picsn, Boga Rodzica* (1408), addressed to the Virgin. This is supposed to have been written by St. Adalbert. The next extant monument is the Bible of Queen Sophia or *Bible of Szaroszpatak*. The introduction of Christianity into Poland did nothing to foster the native literature, for Latin was exclusively the organ of the new faith. Not till the sixteenth century, when Polish became the language of Sigismund's court and of polite society, did the national literature come into being. From Rey of Naglowic (1505-1569), who is the earliest poet of repute and who first fixed the idiom of the language, the poets of Poland follow in an unbroken line. Rey, who is a contemporary of the celebrated Pole, Copernicus, is best known by his didactic poem, *The Mirror of an Honest Man*. The period from 1548 to 1606 is called by Poles their Golden Age. To this era belong Grochowski, author of 32 Polish works; Miaskowski, the best religious poet; Zabczyc, a song-writer and satirist; Zbylitowski, a didactic poet; Bielski, author of the *Kronika Polska*, the first historical work in Polish; Szymonowicz and Zimorowicz,

writers of pastorals; and Kochanowski (1530-1584), called the prince of Polish poets, whose most popular work is his *Treny* or "Lamentations," and who is the author of the first regular play, *The Despatch of the Greek Ambassadors.*

From 1606 to 1674 is known as the macaronic period, during which the literature and language declined, owing to the pedantic and frivolous studies introduced by the Jesuits. The poets were for the most part mere rhymesters, and the only writers worthy of notice are Potocki, noted for his epigrams; Twardowski, a most prolific poet; Opalinski, a bitter satirist; and Kochowski, one of the best Polish lyrists.

The literature found a regenerator in the last Polish king, Stanislaus Poniatowski, a zealous patron of letters and education. In this second great period of the development of Polish literature French taste was all-dominant; and though the language was enriched, it lost much of its national character. The most celebrated poet was Bishop Krasicki (1735-1801), a keen satirist, who wrote an elaborate epic on *The War of Chocim.* His fame now rests chiefly on his comic tales and fables. Another bishop-poet, Naruszewicz, succeeded better as an historian, and his *History of the Polish Nation* stands out as one of the finest examples of Polish prose. His contemporary, Kniaznin, ranks with the best of his country's lyrists. The more conspicuous names of this era are that "gifted child of nature," Elizabetha Druzbacka, the poetess; Trembecki, a court poet, whose chief work is a contemplative poem called the *Zofiowska;* Wenzyk, whose *Glinski* and the *Boleslav* are the finest tragedies in the language; Kropinski, best known by the tragedy of *Ludgarda;* Felinski, who wrote the historical tragedy of *Barbara Radziwill;* Godebski and Tropinski, writers of miscellaneous verse; Niemcewicz, author of the *Historical Lives of Poland;* and Tomaszewski, the bucolic epic poet.

With the appearance of Mickiewicz (1798-1855), a romantic movement was inaugurated, and Poland, which had remained untouched by mediæval romanticism, was swept by the newer thought of England and Germany. Mickiewicz eclipses all Polish poets. His longest poem, by many regarded as his masterpiece, is *Pan Tadeusz;* but he is also the author of many beautiful sonnets, such as *The Storm, Bakchiserai,* and *The Grave of the Countess Potocka.* The second great poet of the romantic school is Slowacki (1809-1849), who, influenced by the writings of Byron and Hugo, produced his famous pieces, *The Monk, Hugo,* and *Lambro Beniowski.* One of the most entertaining dramatists Poland has produced is Fredro (1793-1876), who has given us many excellent comedies, modeled on those of Molière. Of more recent writers, few names call for special mention. Brodzinski, who has translated the *Lay of the Last Minstrel,* is a truly national poet. His best known poem, *The Legionist,* is touched with real genius. A further development of romanticism was marked by the Ukraine School of poets, chief amongst whom are Malczewski, Goszczynski, and Zaleski. But none of these can aspire to the mantle of Mickiewicz. Two names in fiction have attained European rank, Kraszewski and Sienkiewicz; the latter especially coming into prominence in 1896 with his sensational *Quo Vadis?*

DUTCH LITERATURE.

No national hero inspired the earliest writers of the Netherlands: the literature was mainly nurtured in the lap of commerce. Dutch literature had its birth in the thirteenth century. The oldest prose monuments extant are the charters of the towns of Flanders and Zealand, 1249, 1251, and 1254; these are in Middle Dutch. A translation of the Old Testament was made about 1300, and there is a *Life of Jesus* written about the same time. No genuine folk-tales of Dutch antiquity have been bequeathed to us, but there are some interesting prose translations of the stories of Arthur and Charlemagne recited by the wandering *jongleurs.* The first original Dutch author was Jakob van Maerlant (1235?-1300?), whose *Flowers of Nature*—a collection of moral and satirical addresses—forms an epoch in Dutch literature. No longer was literature the handmaid of the classes, but gave expression to the prosperity and growing independence of the burghers. A Dutch version of *Reynard the Fox* was made about 1250 by Willem the Minstrel. The first lyrical writer was John I., Duke of Brabant; while the earliest collection of Dutch folk-songs was published in 1544. The fourteenth century opens with the famous rhymed chronicles, the *Brabantsche Yeesten,* of Jan van Brendale (1280-1365); but the most important work of this period is the *New Doctrine* by De Weert, which by the boldness of its phrase foreshadows the Reformation.

The chivalric spirit came once more into vogue about the middle of the fourteenth century; though it was foreign to the literary genius of the Hollanders, who from the first sought to express themselves in a homely and utilitarian manner. During the Bavarian period (1349-1433) very little original work was produced—Van Aken wrote the romance of *Heinric en Margriete;* while with Dirk Potter's *Der Minnen Loep,* the last traces of the chivalric element disappeared, and poetry was left to the school of Maerlant. As in most European countries the religious drama occupies a prominent place. The earliest existing relic is part of a *Limburg-Maestricht Passover Play* of about 1360. The latest Dutch miracle play is the *Mystery of the Holy Sacrament,* by one Smeken, and performed at Breda in 1500. Besides these theological dramas there were produced moralities known as *Abelespelen* and *Sotternieën,* and in these we find the first signs of that genius for low comedy which culminated in the dramas of Brederôo. Out of the various theatrical companies and the wandering poets or *sprekers* there arose the "Chambers of Rhetoric" (for poetry was then styled the "Art of Rhetoric"), and these literary guilds greatly flourished during the fifteenth and sixteenth centuries. Meanwhile the growth of the native literature was retarded by the fact that the greatest Dutch intellects had recourse to the Latin tongue. Erasmus, Grotius, Arminius, Lipsius, and Vossius are well-known names to students of history, but their writings are entirely in Latin.

Modern Dutch literature virtually begins with Anna Bijus, who stands out amid the rhetoricians and psalm-writers of the sixteenth century as a poet of true genius. In her the middle Dutch period terminates and modern Dutch begins. Marnix (1538-1598), the author of the

famous *Wilhelmuslied*, the national hymn of Dutch independence, is also the writer of an epoch-making prose work, the *Biencorf* or Beehive of the Church of Rome. His contemporary, Coornheert, is best known by his *Zedekunst*, a prose treatise on ethics. Spieghel and Visscher form the link between the sixteenth and seventeenth centuries, and stand at the threshold of the Dutch Renaissance. At a time when the republic of the United Provinces rose to the first rank among European nations, with Amsterdam as the center of all literary enterprise, we encounter the greatest names in Dutch literature—Hooft, Vondel, Cats, Huygens. The tragic and lyric poet Hooft (1581-1647) is the founder of native tragedy. He is even more celebrated as a prose writer, for his masterpiece, the *History of Holland*, gives him rank with the foremost of European historians. His influence on his native tongue cannot be overestimated. Vondel (1587-1679) is the greatest of all Dutch writers. His fame rests chiefly on his numerous tragedies, the best of which are *Gysbreght van Aemstel* and, the more exalted in conception, *Lucifer*. The two daughters of Visscher, Anna (1584-1651) and Tesselschade (1594-1649), won distinction by their poems, and many writers of their time gathered around them. Brederôo (1585-1618) is the greatest comic dramatist Holland has produced. His best work is *Jerolimo, the Spanish Brabanter*. He created no school, but is a solitary figure in the literature of his country. "Father" Cats (1577-1660), as his countrymen affectionately call him, was a voluminous writer of didactic and descriptive poems written in a prosaic style. Though always popular with the people, he has really had a baneful influence on the literary art of Holland. Huygens (1596-1687) was not great as a poet, though a consummate metrical artist. His most famous poem is *Batava Tempe*, written in praise of The Hague. Among the lyrists the chief name is Starter (an Englishman by birth), who wrote the exquisite *Friesche Lusthof*.

After 1687 the literature declined. The more noted names are those of Poot, a rustic poet of undoubted genius; Langendijk, Holland's only comic poet; Hoogvliet, the author of the poem *Abraham;* De Marre, one of the best writers of tragedy; the brothers Van Haren, two celebrated poets; and Heemskerk, whose *Batavian Arcadia* is the first original Dutch romance. Towards the end of the eighteenth century the turning point was reached when the ladies, E. B. Wolff and Agatha Dekken, began to collaborate. In 1782 appeared their first novel, *Sara Burgerhart*, in imitation of Richardson. This was followed by *Willem Leevend*, 1785, and *Cornelia Wildschut* in 1792. The real creator of a new epoch was Willem Bilderdyk (1756-1831), the most impressive figure of his time. He excelled in every kind of poetry, except tragedy; his masterpiece is the unfinished epic, *De Ondergang der eerste Wereld*, of which his country is justly proud. In spite of Bilderdyk's opposition the new romantic movement made headway in Holland. Van Alphen (the children's poet), Feith, and Kinker are the chief poets of this school. The foremost prose writer of the nineteenth century is Van der Palm, an historian of decided genius. His greatest achievement was the translation of the Bible. No very great genius has arisen in any branch of letters since Bilderdyk and Van Alphen. Loosjes wrote an historical romance, *Charlotte van Bourbon*. Among more recent authors we may mention Tollens and Loots, the patriotic poets; Van Walré and Van Halmaal, dramatic poets of distinction; and Bogaers, the most prominent poet and romance writer of the time, author of the famous poem *Jochebed*, though more beautiful is his *Voyage of Heemskerk*, in which his genius attains its height.

Flemish literature came once more into existence with the independence of Belgium, and has produced three writers of note: the poet Ledeganck (1805-1847), the popular novelist Hendrik Conscience, and the gifted writer De Laet. The use of the French tongue by Flemish authors has, however, deprived the national literature of much that is meritorious.

SCANDINAVIAN LITERATURE.

From an intellectual standpoint the Scandinavian nations, which consist of the people of Denmark, Norway, Sweden, and Iceland, form a national unity imbued by the same spirit. Down to the Middle Ages they spoke the same tongue, and even to-day the differences between the three chief languages, Danish, Norwegian, and Swedish, are very slight. The development of Northern literature is one of the most striking phenomena in the history of the world. The poetry and the sagas of the North were inspired by the highest ideals, and gave utterance to the deepest thoughts of the Teutonic race. The early literature of the North divides itself into two great categories—(1) the Lays, usually called the Eddic Poetry, and (2) the Sagas or Prose Histories. There are two Eddas: *The Elder* or Sæmund's Edda, consisting of 39 poems, was collected from oral tradition in Iceland between 1050 and 1133; *The Younger* or Snorre's Edda is the work of different writers, both of prose and verse, and was doubtless intended as a handbook for Skalds. The Eddas embrace a number of semi-historical narratives, dealing with the lives and deeds of Norse heroes, chief of whom is Sigurd, the champion of the Volsungs, besides mythic poems remarkable for their range and depth of thought. The skaldic poetry extends back to prehistoric times, but not till the time of the Norwegian king, Harold Fairhair, at the end of the ninth century, can we name any skald with historical certainty. The two most famous poets of the reign of Harold—himself a skald—are Thjodolf of Hvin and Thorbjorn Hornklofe. Of greater renown is Eyvind Finnson, who celebrates King Hakon in one of the finest songs bequeathed to us—*Hakonar-mál*. This poem seems to have been modeled on the earlier *Eiriksmál*, which was chanted at the funeral of King Erik Bloodaxe (d. 952). The most famous Icelandic skalds, descendants of Norse emigrants, were Egil Skallagrimsson, a great warrior-poet who has left us three long *drapas* or songs of praise besides a number of songs; Kormak and Gunlaug Ormstunga, whose lives are told in sagas; Snorre Sturlason, the celebrated poet and historian, and his two nephews, Olaf Hvitaskald and Sturla Thordarson. Sturla was the last to compose drapas in honor of Norse kings. After the fourteenth century, when Christianity gradually made itself felt, the poetry assumed a

religious tone. The most noted of these early religious poems is *The Lily* by the monk Eystein, a poem which marks the close of the skaldic period and the beginning of the *Rima* or ballad. The saga is a kind of prose epic centering round a single figure or group of characters. The Sagas may be divided into three groups: (1) The Icelandic Sagas dealing with life and character in Iceland, e. g., *Njala*, *Gretla*, *Laxdaela*, the *Eyrbyggia*, and *Egil's Saga*, all works of great literary merit; (2) The Historic Sagas, e. g., the renowned *Heimskringla*, or "the Sagas of the Kings of Norway" to the year 1177, by Snorri Sturlason; (3) The Mythical or Romantic Sagas, e. g., The *Volsung* and the *Saga of Gunlaug Serpent-Tongue*.

After the union with Denmark, intellectual activity in Norway almost ceased. A few Norsemen with literary ambitions settled in Copenhagen, and their works became incorporated in Danish literature. Swedish letters, however, entered upon an independent course. Among the more eminent names are Saxo Grammaticus, whose *Chronicle of Denmark* is the greatest intellectual effort of Denmark in the Middle Ages; Messenius (1579-1637), whose chief work is the *Scondia Illustrata*, a history of Sweden partly in prose and partly in verse; the chancellor Axel Oxenstjerna (1583-1654), who began a history of Gustavus Adolphus; Olof Rudbeck the Elder (1630-1702), whose *Atlantika* tries to prove that Plato's Atlantis and Paradise were no other than Sweden; Georg Stjernhjelm (1598-1672), a great literary reformer, who, in his epic-didactic poem *Hercules* and other poetic works, laid the foundation of an artistic literature; Rydelius (1671-1738), the first great Swedish philosopher; Swedenborg (1688-1772), the mystic writer who founded the remarkable theosophical system which bears his name; Holberg (1684-1754), who wrote a number of comedies in the style of Molière, and whose influence was so great that he must be regarded as the founder of modern Danish literature; Ewald (1743-1781), one of the greatest lyric poets of Scandinavia, whose best work is *The Fishermen;* and Wessel (1742-1785), the witty satirist and the second great poet of this period. During the latter half of the seventeenth century Swedish poetry modeled itself chiefly on the pseudo-classical French, the transition between this period of imitation and the golden age of Swedish poetry being marked by the writings of Olof von Dalin (1708-1763), and Fru Hedvig Charlotta Nordenflycht (1718-1763). The first Swedish novelist was Jacob Henrik Mörk (1714-1763), whose great novels, *Adalrik och Göthilda* and *Thecla*, are amongst the best prose works of this era. Another novelist, Jacob Wallenberg (1746-1768), is still popular in Sweden by reason of his rollicking novel *Min Son pa Galejen*. This period produced many eminent men of science, the greatest of whom is Karl von Linné (1707-1778), "the king of botanists." Swedish poetry attained its highest glory in the reign of Gustav III., himself a man of great literary ability, and the founder of the national theater in 1782 and the Swedish Academy in 1786. The most famous poets of this Gustavian period are Kellgren, Karl Gustav af Leopold, J. D. Valerius, Lidner, Thorild, and the greatest of all, Karl Michael Bellman (1740-1795). Historiography in the first half of the nineteenth century claims three eminent names, Geijer, Strinnholm, and Fryxell. The most widely known Swedish poet is Esaias Tegnér (1782-1846), the author of *Frithjof's Saga*, *Axel*, and a poem made famous by Longfellow's translation—*The Children of the Lord's Supper*. Of the romantic poets or Phosphorists (so called from their periodical, the *Phosphoros*), the greatest was Atterbom (1790-1855), and his disciples, Dahlgren, Börjesson, Julia Kristina Nyberg ("Euphrosyne"), and Grafström. In the field of fiction Sweden is to the fore, and is particularly rich in historical novels. Count Sparre, Zeipel, Kullberg, Crusenstolpe, and the Finlander Zachris Topelius, have each given us important historical novels. A writer well known in the United States, which she once visited, is Fredrika Bremer, who wrote an appreciative *Life in the New World*, besides the romances, *The President's Daughters*, *Nina*, *Home*, and *The Neighbors*. Somewhat like her in his appreciation of all the features of an everyday life is Wetterbergh ("Uncle Adam"), whose novels *Genre Pictures*, *The Four Signatures*, *The Core of Society*, etc., give us a vivid picture of Swedish life and customs. Two other novelists, both women, are worthy of note, Sofia Knorring, and Emilie Flygare-Carlen, both of whom have left faithful portrayals of popular life. The greatest poet that has ever used the Swedish tongue is Runeberg, the Finlander (1804-1877). His chief work, *Fänrik Stals sägner*, is a collection of masterpieces throbbing with intense patriotism, and has won for him the title of national poet, both of Finland and Sweden. His exquisite idyl, *The Elk-Hunters*, marks an epoch in Swedish literature on account of its minute realism. One of the foremost writers of modern times is Viktor Rydberg, whose historical romance, *The Last Athenian*, has been translated into several tongues.

During the first fifty years of last century Danish literature shone forth with a new splendor. Oehlenschläger (1779-1850) was the first to rouse the nation's interest in the treasures of the past, and he revived the skaldic heroes in a series of historic tragedies, *Earl Hakon*, *Baldur the Good*, *Palnatoke*, *Hagbarth and Signa*, the heroic romance of *Helge*, and the fine dramatic poem, *Aladdin*. The versatile Baggesen belongs to the opening years of the century. Both his prose and verse are marked by a graceful style. He has been called "the poet of the graces." In the field of the drama there are P. A. Heiberg, a writer of operettas and comedies; Hauch, a true romanticist and author of many successful plays; and Henrik Hertz (1798-1870), the father of the new comedy in Denmark. The study of antiquities was further developed by Müller, author of the critical *Sagabibliothek;* Petersen, Werlauff, K. F. Allen, and the Icelander, Finn Magnusson (1781-1846), who traced the discovery of New England by Bjorne in the tenth century. The chief name in natural science is Oersted (1771-1851), author of a brilliant work, *Aanden i Naturen* (The soul in Nature). A race of intellectual giants came to a close with four Danish poets, each eminent in his own line—Grundtvig, Bödtcher, Andersen, and Paludan-Müller. Grundtvig (1783-1872) is the people's poet and his spirited songs are the joy of the poor. His influence on the literature of his country has been

considerable. Bödtcher (1793-1874) is one of the most finished poets of the North. His finest poem is *The Meeting with Bacchus.* The world-famed Hans Christian Andersen (1805-1875) was one of the most versatile writers, but his *Fairy Tales* are the flower of his remarkable genius. Their charm and freshness are not equaled by his *Improvisatoren* and *The Story of My Life.* Paludan-Müller (1809-1876), the social satirist, has won fame by his great epic, *Adam Homo,* though his lyrical drama, *Kalanus,* possesses more cosmopolitan interest. The excellent critic, Georg Brandes, whose *Danske Digtere* (1877) is known to every Scandinavian student, says of *Adam Homo* that it is "a piece of Denmark, a piece of our history, a piece of living cloth cut out of the web of time."

It was not till Norway regained her independence in 1814 that her literature became distinct from the Danish. At first her poets sang with harsh and hearty note, but amongst these patriotic versifiers three men, who have been called the Trefoil, were much admired in their day—Schwach, Bjerregaard, and M. C. Hansen. Rising far above these is the noble figure of Wergeland (1808-1845), who aggressively advocated the building of a literature upon national history and traditions. His most ambitious work is the symbolic epic, *Creation, Man, and Messiah,* but *The English Pilot* is his last and greatest poem. Welhaven (1807-1873) maintained a contrary opinion, and did his utmost to introduce new canons of criticism from abroad. He has left behind him several fine lyrics, while his prose writings are the most brilliant in Norwegian literature. A book which has exercised a great influence on later poets is the *Norwegian Popular Tales,* by the joint authors Jörgen Moe and the gifted zoölogist, P. C. Asbjörnsen. We now pass to the greatest name among the poets of the new realistic school, Henrik Ibsen, who has risen higher and higher as an artist till he now ranks with the foremost writers of the nineteenth century. His most famous work is the Puritan opera of *Brand.* Of his many dramas none have excited so much controversy as *A Doll's House.* Ibsen is an original thinker and an unsparing satirist. To him literature is a mighty agency for the amelioration of the race. His great rival, Björnson, poet, novelist, and dramatist, is famous throughout Europe and America. Björnson's works are imbued with the life and thought of his native land, and he has achieved what to Wergeland was only a fond hope. Stimulated by Ibsen and Björnson, a vigorous school of novelists has arisen, the most distinguished writers being Jonas Lie and Kielland, whilst among minor novelists may be noted Magdalene Thoresen, Camilla Collett, Dilling, Glöersen, and Paulsen.

JAPANESE LITERATURE.

In reviewing the voluminous literature of the Japanese, three features are particularly noteworthy: (1) the prominence of women writers; (2) the lack of any great epic or didactic poem; and (3) the absence of any great dramatist or imposing figure of any kind in the whole twelve centuries of their literary history. From the earliest times literature was the pastime of the mikado and his courtiers, and took the form chiefly of poetry and the writing of diaries. There were few works of a popular nature. China supplied both the inspiration and the models, while India, through the humanizing energies of the Buddhist missionaries, left its impress on the rising literature. The oldest extant monument is the *Kojiki,* or "Record of Ancient Matters" (712); but, though containing a number of Japanese songs, its interest is more archæological than literary. Of a similar character, though of greater historical importance, is the *Nihongi,* or "Japanese Record," in which Chinese influence is very marked. The *Norito,* or Shinto liturgies, are written in prose containing many of the elements of Japanese poetry.

The poetry is very restricted in its scope and form. Love and wine, absent and lamented friends, the joys of home and life's uncertainty, and withal the manifold beauties of nature, these are the themes most favored by the poets. War and religion seem foreign to the native muse, nor do we meet with any political, philosophical, or satirical poems. The most ancient collection is the *Manyôshiu,* or "Collection of a Myriad Leaves," which was prepared at the beginning of the ninth century. This anthology covers a period of about 130 years, and contains more than 4,000 poems, of which the greater part are *Tanka,* or short stanzas of 31 syllables. Still better known is the *Hiaku-nin-is-shiu,* or "Collection of One Hundred Persons," each author being represented by a single poem. This was compiled about 1235 by a courtier named Sadaiye, and has been translated into English by F. V. Dickins.

The Chinese influence, which was so great in the tenth century that the development of the Japanese language and literature was left almost entirely to the ladies of the court, became even more pronounced during the Tokugawa-Shōgunate (1603-1867). This period was productive of many writings, more remarkable for their pedantry and extravagances than for their literary merit. Considerable attention was given to the geography of Japan, as well as to matters pertaining to art. The drama has never held the same place as in European countries, and no classic author has arisen. The plays are always of a popular character. Another large portion of the literature consists of romances and fairy stories. The foremost novelist in Japan is Kiokutei Bakin (1767-1848), whose most famous novel is *Hakkenden.* One of the greatest literary undertakings was the *Dai Nihonshi* in 240 books, prepared under the patronage of the celebrated Mitsukuni, daimio of Mito (1622-1700). This is a history of Japan from the reign of the first mikado, Jimmu Tennō, 660 B. C., to the abdication of Go Komatsu, 1413, and is written in a concise and polished style. This standard work was first printed in 1851.

The downfall of the Shōgunate in 1867 gave a decisive blow to Chinese influence. As in other departments of Japanese national life, European models were set up in place of the Chinese, and were studiously copied and adopted. A band of new writers came forward who popularized the life and institutions of Europe. Of these authors the most conspicuous was Fukuzawa, whose *Seiyō Jijō* ("Things European") was issued in 1866. Many English books were translated, and about 1872 a new impetus was given to the spread of European knowledge by

the rise of a magazine and newspaper press. The influence of Europe on Japanese literature proper dates from the translation of Lytton's *Ernest Maltravers* in 1879. Gradually a reaction set in against the high-flown style and the drawn-out stories of the older writers. The leader of this salutary movement was Tsuboüchi Yuzō, whose *Shōzetsu Shinsui* ("Spirit of Fiction") is a merciless attack on the methods of Bakin and his school. Bimyōsai, author of *Natsu Kadachi*, and the realistic novelist Kōyō, introduce the colloquial dialect, which differs very considerably from the literary language. The most popular and voluminous writer of the present day is "Rohan" (Kōda Nariyuki). Fiction holds a very prominent place in modern Japanese literature, and these are only a few names out of a host of writers.

ENGLISH LITERATURE.

I. Its Beginnings (600-1066).—The story of English literature, from its rise in a barbaric age to the splendor of its manhood, is one that has kept pace with the nation's progress, and reflects the growth and greatness of the Anglo-Saxon race. Though no prose has come down to us from before the reign of Ælfred, we have the remains of many of the earlier poems, written in that strong, unpolished tongue from which our language has been evolved. There is *Widsiþ*, the fargoer; *Deor's Complaint*—the earliest English lyric; *The Wanderer; The Seafarer; The Fates of Men; The Ruined City;* and that famous, though unfinished epic, *Beowulf*. These were the songs of prehistoric bards, who, like the rhapsodists of Homeric times, journeyed from court to court, chanting their wild lays of "battle and bale," and rousing their hearers with the stirring minstrelsy of the sea.

The introduction of Christianity, and with it the use of the Latin tongue, bade fair to stifle all native song. But in virile Northumbria, the "scops" or gleemen clung to the language dear to their heart, and shaped the course of a national literature. It is remarkable that for long after the North became Christianized, the ritual of the church was in the native tongue. But a new spirit entered into English song, and the minstrel sang of the deeds and battles of the triumphant King of kings. The theme alone was changed; the form and the fervor remained the same. Cædmon, the aged Yorkshire bard, sang the story of Genesis and Exodus, and told of Christ and the life to come. These were the first really English poems, but their fame alone has survived. About the year 1650 Junius (Francis Dujon), a scholar of Amsterdam, published a manuscript which he believed was the work of Cædmon. The *Genesis* is worthy of the "Anglo-Saxon Milton," and is believed to have inspired that greatest of English epics—*Paradise Lost*. To another Northumbrian, Bæda, we owe the beginnings of English prose. Bæda's earlier writings were in Latin, and his *Historia ecclesiastica gentis Anglorum* is the chief authority for early England. By his scholarship he raised the standing of the English tongue, and translated into English *The Gospel of St. John*. The story of Bæda's death told by his pupil, Cuthbert, is the first record of English prose writing. Cynewulf, the greatest of the Northumbrian singers, flourished about a century after Cædmon, and was the first of the Old English poets who signed his verse. His name appears in runic letters in four of his religious poems: *Elene, The Crist, Juliana*, and *Fates of the Apostles*. Under King Ælfred, English became the language of letters, and the *English* or *Anglo-Saxon Chronicle* rose to the dignity of a national history. The *Chronicle* preserves for us that fine war poem, *The Song of Brunanburh* (937), as well as many songs of the time. Ælfred was truly the father of English prose; and as Yorkshire is the cradle of English verse, so is Winchester of our prose. The *Chronicle* lived on till the death of Stephen (1154); and at its close, we catch the last strains of Old English minstrelsy, and see in its quaint historical records the last traces of Old English prose.

II. From the Conquest to Elizabeth (1066-1558).—For a century and a half after the coming of the Normans, English literary history is a barren waste. French became the language of court and cloister; and English singers and writers became outcasts in their own land. But the tongue lived on among the masses and in time absorbed the Norman speech, until in the reign of Edward I. English literature was again supreme. The Normans brought with them their Chroniclers; and these Latin historians, the greatest of whom was William of Malmesbury, paved the way for historic romance and English story-telling. Geoffrey of Monmouth recounted the half-mythical tales of Arthur and Merlin, the stories immortalized in the *Idylls of the King*. From the Latin, Geoffrey's "History" (as he humorously styled it) was translated into French, and next put into English garb in Layamon's *Brut*. Layamon, who flourished about 1250, is the first English poet after the Norman Conquest. About 1300 story-telling gave rise to historical poems, and Robert of Gloucester penned his *Rhyming Chronicle* from Brutus to Edward I. Within the next 50 years French and Latin words streamed into our language, and the spirit of French romance pervaded the writings of those times. The reign of Edward III. not only saw the consolidation of the English people, but the fixing of the standard of the English tongue. The "King's English" became the language of court and letters. It was the East-Midland dialect that prevailed—the tongue of Oxford and Cambridge, of London and the heart of England. Langland's *Vision Concerning Piers Plowman* was, however, written in a dialect, and so was Wiclif's translation of the Scriptures. But both these works were meant to reach the hearts of the simple masses, and were given to them in words they well could understand. The Bible was read eagerly in every corner of the land, and did much to mold the style of mediæval writers.

The courtly Gower wrote little of value, and we turn from the dreariness of the *Confessio Amantis* (written in English verse) to Geoffrey Chaucer, "the morning star of English song." Chaucer wrote many poems which are colored by his sojourn first in France, and afterwards in Italy. Of such are the *Compleynt unto Pite, Troilus and Criseyde*, the *House of Fame*, and the *Legende of Good Women*. But it is as the author of the *Canterbury Tales* that Chaucer

is loved and remembered best. Like Dante, he wrote in his native tongue and made it at once the tongue of literature. A popular book in its day was that strange mixture of fact and fancy, the *Voiage and Travaile of Sir John Mandeville*. With the death of Chaucer in 1400, the brilliance of the dawn was followed by a century of almost total eclipse. Imitators of the great master arose, such as Thomas Hoccleve and John Lydgate; but these feeble rays only deepened the darkness. The coming of Caxton with his printing press worked a silent revolution in England's intellectual life. The first book printed in England was *The Game and Play of the Chesse*, 1474; but the first book bearing the imprint of William Caxton is *The Dictes and Sayings of the Philosophers*. Caxton was not only a printer, but an editor and translator; and, by his enterprise and zeal, saved the English of Chaucer from further degradation. His most important publication was *La Morte d'Arthur* of Sir Thomas Malory, the greatest masterpiece of prose before the revival of learning. What fixed our language once for all was Tyndale's *Translation of the New Testament* (1525). Tyndale's Bible, revised by Coverdale and issued as *Cromwell's Bible*, 1539, and in the following year as *Cranmer's Bible*, was set up in every church in England. After its revival in 1611, this same Bible was brought by the Puritan Fathers to New England, and fixed the standard of English in the New World. No book ever published has had so great and lasting an influence on the purity of language and the style of prose. The *English Prayer Book*, 1549-1552, edited by Cranmer, also gave balance to the English tongue. Not in Tyndale alone, but also around Sir Thomas More and Roger Ascham did the new learning center. More's most famous work is the *Utopia*, written in Latin, 1516, but afterwards translated by Ralph Robinson in 1551. More also wrote many works in English, his most valuable being the *Life of Richard III.* and the *Life of Edward V.* Ascham's most important works are the *Toxophilus*, or Lover of the Bow, and *The Scholemaster*, both written "in the English tung, for English men." The Renaissance in Italy was far reaching, and in the lyrics of Wyatt and Henry Howard, Earl of Surrey, we see the Italian sentiment wedded to the English tongue. Wyatt and Surrey gave us a new kind of poetry, and heralded the dawn of the Elizabethan splendor. The *Miscellany* of Richard Tottel, 1557, contains a number of poems by Wyatt, Surrey, and "Uncertain Authors." This is the first English anthology, and marks an epoch in the history of English verse.

III. The Golden Age (1558-1625).—The Elizabethan era presents a galaxy of genius far outshining the glory of any other age. Seldom have such giants of intellect been crowded into so short a span. The creative spirit overshadowed the nation: the poets burst forth into immortal song, and from the old Mysteries and Morality plays rose the drama to swell the triumph of the age. To merely name the poets, dramatists, and great prose writers of this period is to tell the brightest stars in the firmament of English literature. Spenser, Sidney, Shakespeare, Ben Jonson, Beaumont and Fletcher, Raleigh, Bacon,—what age has produced their like? At the threshold of this new era stand two well-known figures: Spenser, "the poets' poet," gazing dreamily backward, and Sidney, the "jewell of his times," living devotedly in the present; both destined to shape the age, of which they also were the product. Spenser's two greatest works, *The Shepheard's Calendar*, in 1579, and that exquisite allegory, the *Faerie Queene* (1590), delighted the England of his day as they have charmed true lovers of poetry ever since. Spenser sang of the ideal and the spiritual, and out of this subtle substance he wrote for England her first great ideal poem. His influence on all later poetry has been considerable. He was the originator of the English Spenserian stanza—a form of poetry only inferior in individual beauty to the sonnet, and which has been used with such telling effect by Thomson, Shelley, and Tennyson. The impress of Sidney on English poetry is very clear. Sir Philip Sidney, who died in the heyday of his fame, 1586, produced more artistic prose than any previous author; but it is as a writer of verse he excels, and his matchless sonnets by their influence created the greatest sonnet era in the history of English literature.

It was an age of action, and looked to the drama for an expression of national life. Shakespeare's was the master mind which seized the occasion and shaped it to his will. Whatever Shakespeare wrote he impressed with his titanic individuality. He settled forever the form of the English tongue and the English drama. Beginning in 1589 with *Love's Labour's Lost* (though the dates and order of his plays are not known with exactness), we can trace the growth of his skill and power in the *Comedy of Errors*, the *Two Gentlemen of Verona*, and the *Midsummer Night's Dream*. His dramas are preëminently human, and show us every side of human life, thought, and passion. He voiced the nation's patriotism in that grand series of historical plays, beginning with *Richard II.*, *Richard III.*, *Henry IV.*, and *King John*. In the *Merchant of Venice* the mastery over his art has become complete, and then follow his four great tragedies, *Hamlet*, *Othello*, *Macbeth*, and *King Lear*, each overtowering the one before in dramatic strength and grandeur of conception. In *King Lear* he reaches the summit of his tragic power. The grand development of his genius, from the first imperfect efforts to the sublime achievements of his riper years, has led some critics to believe that Lord Bacon, and not the man of humble birth, was the author of the plays; but such a conjecture is idle and baseless. His minor works include the poems, *Venus and Adonis*, and *Lucrece*, besides a collection of sonnets which reach the high-water mark of English poetry. Shakespeare is the greatest poet of our modern world. He is a literature in himself. Not only is his imagination complete, but all the elements of his many-sided strength are evenly adjusted. His is the one towering figure amid a band of giants; and this is as true to-day as 300 years ago. Such is Shakespeare, and such is his influence.

"Rare Ben Jonson" (1573-1637), the other leading dramatist of the Golden Age, stands out in striking contrast to Shakespeare. Jonson's was a mighty intellect, but void of passion. His

chief success was in comedy, his best works being *Every Man in His Humour* (1596), *The Alchemist*, *The Silent Woman*, and *Volpone the Fox*—the finest play he ever wrote. His tragedies are *Sejanus* and *Catiline*. Jonson's masques mark the beginning of the reaction against the imaginative school. They are material and not spiritual, and appeal to the intellect and not to the heart, thus sounding the first notes of the decadence of the drama. As a lyrist he excelled, and such songs as "Drink to me only with thine eyes" led the way for such as Herrick. Beaumont and Fletcher, the "twin stars," who ruled the drama after Shakespeare and Jonson had quit the stage, are striking examples of the creativeness of the times. Of their 52 collaborated plays the best known are *The Two Noble Kinsmen* (in which the hand of Shakespeare is evident), *The Maid's Tragedy*, and *Philaster*. "Beaumont," as Lowell has it, "contributed the artistic judgment and Fletcher the fine frenzy." Their plays, though brilliant, bore no message, and pandered to the coarseness of a declining age. That lovely pastoral, *The Faithful Shepherdess*, is by Fletcher alone, and anticipates the *Comus* of Milton. The Elizabethan age produced many distinguished dramatists whose fame has been eclipsed by the brilliance of the masters. The four most important writers in the earlier years are Peele, Greene, Kyd, and Marlowe. Marlowe (1564-1593) was the greatest of these, and may be said to have created the English tragic drama, laying the corner stone for the temple of Shakespeare. He wrote *Doctor Faustus* and *Edward II.*, and is the author of that beautiful lyric, "Come live with me and be my love." Other contemporaries of Shakespeare are Middleton, Marsden, Chapman, Heywood, and Dekker, whilst belonging more exclusively to the reign of James are Webster, Ford, and Massinger. The literary fame of the ill-fated Raleigh (1552-1618) rests not so much on his poems as on his *History of the World*, written during his 13 years' imprisonment in the Tower. This work shows an English historian for the first time looking beyond the British Isles.

The Renaissance left its influence on English prose. On the borderland between the old style and the new—between the strong, rugged writings of Tyndale and Latimer and the smoother periods of the later stylists — Raleigh and Hooker are the two chief figures. Hooker's *Laws of Ecclesiastical Polity* laid the foundations of moral and political science. The era of modern prose is ushered in by one predominant name—Francis Bacon (1561-1626). Unlike the writers of the Renaissance, who wrote only for the present, Bacon wrote for the future. His one desire was immortal fame; "a cosmopolitan philosopher writing for all ages and all nations." To this end he wrote principally in Latin, and even his English works he translated into Latin, "the universal language"; for he had no faith in the permanence of the English tongue. Of his Latin writings only the *Novum Organum* is of present importance (and this mainly academic); but his English works, especially the *Essays* and *The Advancement of Learning*, are read wherever the English language is known. The word "essay" was borrowed from Montaigne, and Bacon meant by it an attempt to record in compressed form his "dispersed meditations." He was not an investigating scientist, but a seer and idealist pointing the way. In the words of Macaulay, "he moved the intellects which have moved the world." Bacon was strangely lacking in passion. The cold rhetoric of his *Essay on Love* compared with the impassioned eloquence in Shakespeare's plays, reveals a striking contrast between these two vast intellects.

The crowning achievement of the age was the production of the Authorized Version of the Bible in English (1604). The King James Version—the greatest prose masterpiece of any age or language—fixes the standard of English prose for all time. No book in the history of the world has had so great an influence on life and letters. The Bible is the epic of the English-speaking race, and is woven into all that is noblest in our literature.

IV. The Age of Milton and Dryden (1625-1700). — Milton (1608-1674), though born in the reign of James, was really an Elizabethan, fired with the poetic zeal of the age just closed. The first 30 years of his life were productive of many fine lyrics, and amongst them those five immortal poems, *L'Allegro*, *Il Penseroso*, *Arcades*, *Comus*,—the last and greatest of English masques,—and *Lycidas*, in which shone the final rays of Elizabethan inspiration. For the next 20 years Milton laid aside the lyre, and hurled his fierce invective against the foes of the Commonwealth. Style was cast to the winds in the bitter fight for liberty; and, except his *Areopagitica* and the *Letter to Hartlib*, none of these prose writings command notice as literature. From 1660 to his death, Milton, blind and outlawed, turned once more to his art. Then grew that sublime, imperishable epic, *Paradise Lost*, magnificent in its conception, intensity, and unworldliness. This inspired poem, reflecting the loneliness of him "whose soul was like a star and dwelt apart," stands in our literature like some stately cathedral upon a heaven-rapt mount. Two other poems followed: *Paradise Regained* and *Samson Agonistes*, but both these fall short of the sublimity of his masterpiece. Milton is the greatest English poet save Shakespeare, and his strong personality is stamped on every line.

Of the many writers of this period, though dwarfed into insignificance by the side of Milton, may be mentioned those five religious poets of the "Caroline" period: Crashaw, Herbert, Vaughan, Wither, and Quarles, and the last of the lyric writers—Robert Herrick. Then there is Jeremy Taylor, "the Shakespeare of the pulpit"; Hobbes, author of that philosophic treatise, the *Leviathan*; and Sir Thomas Browne, who wrote *Religio Medici*. These are the three leading prose writers. In 1678 Bunyan published his famous *Pilgrim's Progress*, a book which draws its power almost entirely from the Bible, and which inspired a plenteous crop of religious allegorical works.

With the Restoration the old ideals were swept away; "the age of prose and reason," of artificiality and hypercriticism, was entered upon. Prose began to take the place of poetry; whilst poetry no longer voiced the emotions, but lent itself to satire and the play of intellect. A new interest in individual life gave birth to

numerous biographies. The new school began with the poems of Waller, Denham, and Cowley, the immediate precursors of that literary autocrat, whose iron rules cramped English poetry for over 100 years,—John Dryden.

Dryden (1631-1700) was the first leader of the new critical and didactic school. His first noted poem, the *Annus Mirabilis*, appeared in 1667, but not till he was 50 years of age did he produce that foremost of English satires, *Absalom and Achitophel*. This was the first great example of political verse, which grew so fierce and personal in the hands of Pope. It was a gallery of ruthless portraits, and was followed in 1682 by the *Medal*, a diatribe against Shaftesbury. The *Hind and Panther* (1687) is a religious satire aimed at the foes of the Church of Rome. In the same year he produced the *Song for St. Cecilia's Day*, and 10 years later, for the same occasion, he wrote that beautiful ode, *Alexander's Feast, or the Power of Music*. This Macaulay deems "his greatest work." First in poetry, so was he also first in prose. In his essays *On the Historical Poem*, on *Heroic Plays*, and on *Dramatic Poesy*, we catch the first notes of modern literary criticism. Dryden wrote several plays, but few survived his life. His best known are his tragedies, the *Indian Queen*, *All for Love*, and *Don Sebastian*, and his comedy, the *Spanish Friar*. It is in his satires, translations, allegories, and prologues that his fame will abide. His mastery over heroics is unequaled. His poetry is not of the highest kind; but in the sweep and variety of versification, in argument, in satire, in fiery spontaneity, and in declamatory splendor, Dryden stands supreme and unapproached.

The philosopher, John Locke (1632-1704), belongs to this period. His celebrated *Essay Concerning the Human Understanding* constitutes him the founder of the analytical philosophy of mind.

V. From Pope to Johnson (1700-1784).—On the death of Dryden, literature was in a state of stagnation. The comic drama, represented by Congreve, Cibber, Vanbrugh, and Farquhar, alone showed signs of vitality. For the first time in the history of English literature, poetry became wholly subordinated to prose. Not that verse was inactive; elegiac, didactic, and occasional poems poured forth in plenty; but the divine afflatus was gone, and poetry, dethroned from its high estate, became the wanton of the imagination. Literature was the instrument of party strife and unbridled slander. With the triumph of prose, the critic came into prominence; and, influenced by French writers of the period, introduced into England the Aristotelian criticism of imaginative literature. The effect on prose was healthy. Elegance, perspicuity, and brevity adorn the prose of the "Augustan Age" (a time-honored misnomer); a finished style was achieved by the leading writers, and prose became a worthy vehicle for the worthiest thoughts.

During this whole period no "great" poet arose to claim the mantle of the Elizabethan singers. Pope (1688-1744) stands first among his contemporaries. As a metrical artist he is unrivaled, and, until the rise of Wordsworth, his verse set the fashion for two generations. His *Essay on Criticism* appeared in 1711. The next year gave us the *Rape of the Lock*, a masterpiece of most exquisite beauty. The writings of the great French satirist, Boileau, the "Lawgiver of Parnassus," had been closely studied by Pope and his school; but the *Rape of the Lock* marks the turning point of English deference to French ideals, and henceforward England gives models to the world at large. Pope was imitated in every country in Europe, while in England for 30 years he may be said to have represented the poetry of his time, unchallenged and supreme. His *Dunciad* was issued in 1728, and shortly afterward appeared his celebrated *Essay on Man*. This poem of the English classical school, though weak in philosophy, has enriched our daily speech by countless lines and phrases. "Dear Mat Prior's easy jingle," as Cowper somewhere speaks of it, adds sparkle to these early years. Gay, now best remembered by his *Fables*, contributed between 1713 and 1726 a sprightly flow of songs, epistles, and short pastorals. The first reaction against the dictatorship, begun by Dryden and continued by Pope, was made by Thomson, who is the true pioneer of the whole romantic movement which culminated in Wordsworth. Thomson's *Seasons* inaugurated a new intellectual era. After writing two or three tragedies, the chief of which is *Sophonisba*, 1730, he produced the *Castle of Indolence*, 1748, a poem in the Spenserian stanza. His masque, *Alfred*, 1760, is noteworthy as containing the British national song of *Rule Britannia*. To mention Thomas Gray is to at once recall his *Elegy Written in a Country Churchyard*, which Wolfe declared he would rather have written than take Quebec. This exquisite poem, and the Odes which every schoolboy knows, now rank with the classics of our language. Gray's influence on Europe was delayed but certain, and in the *Elegy* both Chateaubriand and Lamartine found inspiration. William Collins, whose *Ode to Evening* must be numbered with the best lyrics of the century, was, like Gray and Thomson, a herald of a fairer dawn. Goldsmith disdained these innovations, and reverted to the old didactic couplets of Pope. *The Traveller* and *The Deserted Village* are perfect examples of the descriptive poem in heroics. His verse has infinite grace and charm, but marks no forward step in the art of poetry. Goldsmith's best known comedies are *The Good Natur'd Man* and *She Stoops to Conquer*. The latter is one of the great comedies of the world. His *Vicar of Wakefield* will live as long as the English tongue. Turning once more to the prose writers, Defoe in 1719 gave us the first great English novel, *Robinson Crusoe*, written at the age of 58. The most conspicuous figure in the beginning of the eighteenth century is Jonathan Swift (1667-1745), born in Dublin of English parents. He was the greatest satirist of the age, and wielded a vast influence over the essayists and prose writers of the period. Swift created a school of rhetorical diatribe on its better side. His prose is characterized by great originality, simplicity, mordant wit, and savage satire. *The Tale of a Tub*, the *Battle of the Books*, and that sinister but inimitable masterpiece, *Gulliver's Travels*, are his best known works.

Bishop Berkeley, the greatest English thinker between Locke and Hume and a pure metaphy-

sician of the foremost rank, clothed his philosophy in prose of classic beauty. His famous dialogue of *Hylas and Philonous* was published in that celebrated year, 1713, when Pope, Swift, Addison, Steele, were all at the summit of their power and fame. One of the landmarks in the history of literature is the date, April 12, 1709, when Steele issued the first number of the *Tatler*. This, though not the first English newspaper, marked the creation of modern journalism. Addison joined forces with Steele, and on March 1, 1711 (two months after the collapse of the *Tatler*), the *Spectator* appeared, only to die an early death at the close of 1712. But during this short time the periodical essay was created. Steele began it and contributed 188 out of the 271 numbers of the *Tatler;* 42 were by Addison, 36 by both conjointly, and 3 by John Hughes (1677-1720), a minor writer, author of *The Siege of Damascus*. But in the *Spectator* the polished pen of Addison took the lead. Of the 555 numbers, Addison wrote 274, Steele 236, Hughes 19, and Pope 1 (*The Messiah*). Addison was a great master of style, and was one of the first English prose authors to aim deliberately at beauty of execution and purity of language. In this way his style is often superior to his matter. His share in perfecting our prose, and spreading culture amongst the middle classes of his time, was very considerable. Recent biographers incline to do greater justice to Steele at the expense of Addison; but these illustrious colleagues were the natural complement of each other, and we may love them both. In the 49th *Tatler* occurs that famous phrase of Steele's, where, speaking of Lady Elizabeth Hastings, he says that "to love her is a liberal education."

The period was rich in letter-writers. Walpole, Gray, and Chesterfield excelled all their contemporaries in this department of letters. The name of Lady Mary Wortley Montagu (1689-1762) must be added; but her keen wit and breadth of view are too often marred by the freedom of her language. With the decay of the drama, and the need for new intellectual amusement, came the conception of the modern novel. In 1740—a memorable date in the history of literature—Richardson, the first great novelist, gave to the world his famous *Pamela*. Eight years later appeared his *Clarissa*, which created a great sensation both in England and France. Rousseau frankly copied it, and Alfred de Musset has called it the best novel in the world. The *History of Sir Charles Grandison* was published in 1754. Other great novelists made bids for fame. Fielding, the greatest of them all, produced his *Joseph Andrews* (1742), *Jonathan Wild* (1743), *Amelia* (1751); but it was in *Tom Jones* (1749), his masterpiece, that for the first time an attempt was made to portray the life of a normal person. Sterne has left us two incomparable works: *Tristram Shandy* and a *Sentimental Journey*, unrivaled in style, originality, and pathos. Smollett, inferior to the three great novelists, has given us three books worthy of note: *Roderick Random*, confessedly modeled on *Gil Blas*, *Peregrine Pickle*, and *Humphrey Clinker*. The type of the first English novels remained for over half a century the sole model for continental fiction.

Meanwhile a new dictator had arisen to wield the scepter of Pope and Dryden. Samuel Johnson (1708-1784), though not the greatest writer, is the most colossal figure in English literature; a man of wholesome humor and fearlessness, majestic in intellect and noble of heart, Johnson was the center of the literary life of his day. He tried his skill at every kind of composition—poetry: he wrote *London* and *The Vanity of Human Wishes;* the drama: *Irene* is his one attempt; periodical essays: he contributed to the *Rambler* (1750-1752) and afterward to the *Idler*. In 1755 appeared the *Dictionary of the English Language*, a monument of industry and scholarship. His famous letter to Chesterfield struck the final blow at patronage, and made Johnson the first literary man to find in the public the only paymaster. His *Rasselas* introduced the didactic novel. The *Lives of the English Poets* is his *magnum opus*, and lifts biography into a loftier place in English literature. This brilliant though inaccurate work brings the criticism of the eighteenth century to a close.

This was the age of the historians Hume, Robertson, and Gibbon, the founders of a school of history of purely English growth. History now became a branch of creative literature, no longer to be classed with the "good old prattle" of the chronicles of Bishop Burnet. Hume (1711-1776), the philosopher and the greatest utilitarian of the age, led the way with his *History of England* from the union to his own time. The work was a new departure, but, though brilliant and lucid in style, it lacked the thoroughness of the later historians, and is no longer regarded as authoritative. Hume's success inspired Robertson (1721-1793), who wrote a *History of Scotland*, a *History of America* (1777), and a *Disquisition on Ancient India*. His style is colorless and lacks the graces of his predecessors, but the success of his books was phenomenal. But a greater than either of these now appeared, a brilliant exponent of modern historical research—Edward Gibbon (1739-1794). That stupendous work, the *Decline and Fall of the Roman Empire*, which Freeman regards as "the grandest of all historical designs," was launched in 1776 and completed in 1788. Gibbon's style is one of ornate splendor, and his treatment is broad and accurate. His work is raised on such solid foundations that it can never become obsolete or unnecessary. In the words of the historian Freeman: "Whatever else is read, Gibbon must be read, too."

One or two more names call for attention during this period: Edward Young (1683-1765), whose reputation as a poet rests almost entirely on his *Night Thoughts*, a work which inspired many imitators both in England and Germany; Adam Smith, the founder of the science of political economy, whose *Wealth of Nations* was published in 1776; Sir William Blackstone, whose *Commentaries on the Laws of England* appeared from 1765 to 1768; and Joseph Butler, the author of the famous *Analogy of Religion*, 1736.

A striking characteristic of this era is that literature is no longer the preserve of a leisured clique, but becomes the privilege of the multitude. Culture spreads beyond the pale of the metropolis, and for the first time English literature, breaking away from its long insularity, forms the taste of cultured Europe.

VI. The Age of Wordsworth and Byron (1784-1837).—Poetry once more came suddenly to the front and threw off the fetters of an uncompromising classicism. The revival of romanticism shadowed forth by Collins, Gray, and Thomson set free the spirit of true poetry. Men's ideals were ennobled and broadened; no longer was poetry treated as an exact science void of all passion, imagination, and feeling, but it again rang true with the melody and fervor of the soul. The vast political upheaval on the continent, and the wide acceptance of revolutionary teachings, left their mark on the literature of the day. Romanticism swept over Europe like an overwhelming wave. The voice of Rousseau rang out like a prophet; the oneness of man and nature was proclaimed, and the underlying law of Love was revealed. The harmonies between man and external nature, which Rousseau had perceived, were widened and spiritualized by Wordsworth, Keats, and Coleridge. The Romantic poet rekindled the "naturalness" of the past and combined it with the art of the present, standing toward his brother man as a seer and interpreter of life and nature. Clinging to the old traditions, but voicing the new ideals, Cowper is the leading poet of the transition. The unity of the race first found expression in his verse. His greatest work is the *Task*, 1785, which marks an epoch in modern English literature. His *Table Talk*, and the well-known ballad, *John Gilpin*, are his best known works. Crabbe and Blake in England and Burns in Scotland, each in his own way, promoted the new ideals. Burns (1759-1796), the poet of passion and spontaneity, has left us some immortal ballads—glimpses of his wasted genius. Burns gives expression to the brotherhood of man, and love lives blithely in his songs. He is the national poet of Scotland, and as a writer of Scottish verse he holds the foremost place.

The false canons of the rhetorical school were finally broken down by Wordsworth (1770-1850), who, in the words of Macaulay, "was the high priest of a worship in which Nature was the idol." Both in Nature and in man Wordsworth perceived the "hiding places of infinite powers." He was a true son of the human race, and voiced its inmost needs and strivings. He is a poet of childhood, for in the child the bond with nature is more perfect. "The Child is father of the Man," and the instinctive communion with nature should not be outgrown with childhood. Coleridge placed Wordsworth "nearest of all modern writers to Shakespeare and Milton, yet in a kind perfectly unborrowed and his own." Though he has not the vastness of Shakespeare nor the sublimity of Milton, no poet since the Elizabethan era has added so much to the lasting wealth of English verse. He has sounded the depths of the soul, and gives us strength, purpose, and peace. His philosophy is outlined in that noble poem, *Ode on Intimations of Immortality from Recollections of Early Childhood*. This is one of the few great odes of English literature, and would alone place Wordsworth among our greatest poets.

The fame of Coleridge (1772-1834) rests on his poems rather than on his prose. The *Rime of the Ancient Mariner* and *Christabel* are matchless specimens of poetic realism. Like his friend Wordsworth, Coleridge was a prophet of nature inspired by the impulses of the times. The weird, the supernatural, and tumultuous he interpreted with power and subtle insight. As a metaphysician he is a spent influence, but as a great poet his fame is undiminished. The friend of these two master poets, Robert Southey, can hardly claim rank as a writer of verse, though pulsing with the true poetic instinct. Southey's fame must rest on his *Life of Nelson* and *Life of Wesley*. The former is one of the most perfect biographies, on a small scale, known to modern literature. Scotland produced one more lyrist, Thomas Campbell, whose name will be preserved by such poems as *Ye Mariners of England*, *The Battle of the Baltic*, and *Hohenlinden*. Though no admirer of the Lake Poets, he was a romanticist, and a sturdy ally in the fight against didactic classicism. Even Samuel Rogers, whose *Pleasures of Memory* appeared in 1792, felt called upon to swell the growing choir when the romantic movement was at its height. His *Italy* was written in 1822, but though containing some fine phrases, can hardly rank as poetry. A melodious singer of this epoch, and one to whom modern criticism is perhaps unjust, is Thomas Moore, the Irish lyrist. Moore wrote a number of songs and ballads, but his most ambitious work is *Lalla Rookh*, for which Longmans paid him 3,000 guineas. Romanticism was further popularized by the great "Wizard of the North," Sir Walter Scott (1771-1832), whose *Lay of the Last Minstrel* in 1805 aroused the enthusiasm of Europe. *Marmion* followed in 1808, the *Lady of the Lake* in 1810, and the *Lord of the Isles* in 1815, besides other epical narratives which were less successful. As Wordsworth phrased it, Scott was "the whole world's darling"; but when Byron sprang into universal fame, Scott laid aside the harp to join in the praises of the greater poet. But the love of ancient chivalry welled up within him, and found expression in the world-famed series of *Waverley Novels*. *Waverley*, his first novel, was published in 1814; and his last, *Count Robert of Paris* and *Castle Dangerous*, in 1831. History lives in the deathless pages of these novels. His greatest results are wrought by the simplest means, and in this consummate mastery over his art Scott is excelled only by Shakespeare, and rivaled only by Goethe. His poetry is rich in color, and owes its force to its simplicity and vividness of phrase. But beneath this power of description and stirring narrative there are no depths that call to our deepest nature; there are no heights which bid our souls to soar. The age needed poetry throbbing with the passions and promises of the present. An unintelligible world hungered for a voice to express its hopes, its bitterness, and its rage; and turned with eagerness to the wild, unbridled verse of Byron. The pent-up spirits of the revolutionary era at last found an outlet, and England fell at the poet's feet dazzled by his brilliance and his daring. On the publication of *Childe Harold's Pilgrimage* Byron (1788-1824) "awoke one morning and found himself famous." His popularity was increased by the *Giaour* and the *Bride of Abydos*, 1813, and the *Corsair* and *Lara*, 1814; "and at twenty-four," writes Macaulay, "Byron found himself on the highest pinnacle of literary

fame, with Scott, Wordsworth, Southey, and a crowd of other distinguished writers at his feet." A reaction was caused by his domestic delinquencies, and Byron left England, in April, 1816, never to return. In temperament he was reactionary, but, as he was the hero of his own poems, he was a Romantic in spite of himself. The *Vision of Judgment*, *Beppo*, and *Don Juan* belong to the last six years of his life. *Don Juan* is considered his masterpiece, and reveals to perfection his many-sided power. In the words of a Quarterly Reviewer (October, 1871), "it forms the copestone of Byron's fame." Byron must be numbered with the greatest English poets. Modern criticism decries his art and his faulty meters; but he was a writer of force and passion, hurling his riotous numbers in proud defiance of all convention. Though not an original thinker, he imbibed the ideas of his age, and flung them wide in storm-swept verse. His poetry never reaches the sublime, and its influence on English verse is inappreciable. Prose writers, like Bulwer, it directly inspired; whilst on the continent, a legion of poets were fired by its spirit. The revival of Polish and Russian literature is due to Byron's influence, and the romantic writers of France worshiped at the altar of his genius.

Unlike Byron, Shelley (1792-1822) was a poet of supreme imaginative power. Like his own skylark he soared in the boundless realms of imagination, filling the heavens with the glory of his song. His fine lyrical drama, *Prometheus Unbound*, portrays a regenerated universe when the love in man and nature shall be all in all, and stands alone in modern poetry for the splendor of its conception and the beauty of its form. Who will forget his *Adonais* or the charm of his matchless lyrics? The *Ode to a Skylark* is the most perfect lyric of modern literature. As a prose-writer, too, Shelley holds a distinguished place. The sadness of his music slowly died, and the love he sang lifted his soul to the Fount of Love; until near his untimely death we find him writing an essay in praise of the Christ he once had despised.

The close of the revolutionary movement is marked by Keats (1795-1821), who, unmoved by the spirit of his age, sought inspiration from Spenser and the minor poems of Shakespeare. His *Endymion* and *Hyperion* are exquisite poems, rich in promise. His every ode is "a thing of beauty." The influence of Keats on English poetry has been considerable. He was the unconscious founder of the school of ornate and artistic poetry, which holds that art exists only for its own sake, and that beauty and loveliness alone are worthy to be worshiped.

Mention must be made of Leigh Hunt (1784-1859), a graceful poet and an essayist of the *Spectator* school; Walter Savage Landor (1775-1864), best known for his *Imaginary Conversations of Greeks and Romans*, and *Pericles and Aspasia*, as well as some dainty "occasional pieces"; Felicia Dorothea Hemans (1793-1835), whose poetry was long deservedly popular; and James Montgomery (1771-1854), author of the *West Indies*, the *Pelican Island*, and other poems.

Turning once more to the prose writers, the eighteenth century closed with the brilliant orations, the trenchant and melodious prose of Edmund Burke (1729-1797). His most powerful works are the *Reflections on the French Revolution*, 1790, *Letter to a Noble Lord* (the Duke of Bedford, who had attacked him for taking a pension), 1795, and the *Letters on a Regicide Peace*, 1796. His famous *Essay on the Sublime and Beautiful* belongs to the days of Johnson and Goldsmith. The close of the century gave us the inimitable *Life of Johnson*, by Boswell, and henceforward biographies came into great prominence. We must pass over the "School of Terror," founded by Mrs. Radcliffe, M. G. Lewis, Beckford, and William Godwin, in whose romances fear was the dominant passion; Miss Burney, a social satirist, whose *Wanderer* was produced simultaneously with *Waverley*, 1814; and Maria Edgeworth, whose delightful sketches of Irish life and manners charmed the readers of the first half of the last century. But the name of Jane Austen (1775-1817) bids us pause. Amongst the creators of literature Jane Austen takes a foremost place. Her six immortal novels, the best of which is perhaps *Pride and Prejudice* (the MS. of which went a-begging for nearly 20 years), were issued between 1811 and 1818. She wrote "with an exquisite touch which renders commonplace things and characters interesting from truth of description and sentiment"; and in her own province she has never been surpassed. Her influence on English fiction was wholesome and lasting. This is the age, too, of Hallam, Mill, and Mitford, the historians; of Paley, Hall, and Chalmers, the theologians; of Hazlitt, Broughton, Jeffrey, and Sydney Smith, the most celebrated of that brilliant coterie which gathered round the newly-founded critical organs—the *Edinburgh* and the *Quarterly Reviews*. William Gifford was the first editor of the *Quarterly*, 1808 to 1824. His most celebrated successor was J. G. Lockhart, whose biographies of Scott, Burns, and Napoleon are well known. The *London Magazine* came out in 1820, and in its pages first appeared Lamb's *Essays of Elia*, De Quincey's *Opium Eater*, and, later, Carlyle's *Life and Writings of Schiller*. De Quincey was one of the most brilliant writers of modern prose, a dreamer of exquisite dreams, though too rarely is the substance worthy of the style which enshrines it. Autobiography — impassioned, psychological, minute—was made by him a fertile branch of literature. The death of Byron was followed by a host of writers of "fashionable" novels, chief amongst whom were Edward Lytton Bulwer (afterwards Lord Lytton) and Benjamin Disraeli. Bulwer's *Pelham* (1828) and Disraeli's *Vivian Grey* (1826) were the beginnings of the "Dandy School" of fiction. A new era in criticism was begun in 1825 when Macaulay contributed his essay on Milton to the *Edinburgh Review*. This was the first of those famous essays, which now are "known to every schoolboy," and which have done so much to raise the level of cultivation. Such was literature when Queen Victoria came to the throne.

VII. The Modern Era.—In the lull which followed the outburst of the Byronic period, the voice of Thomas Carlyle thundered a newer message to a generation not yet ready to receive it. His *The French Revolution* burst upon the world in 1837, and the despised *Sartor Resartus* appeared in the following year. As an historian he had carved out a new path, laying bare

the minutest facts, and probing into the very souls of men. Herein lies his greatness. The "Seer of Chelsea," rugged and stern like an Alpine peak, was the greatest force in the literature of his day. His mission was to reconstruct, and *Sartor*, his most original and in some respects his greatest work, grappled with the perplexities of the times, and offered a grim solution. Walt Whitman aptly remarked that the army of British thought during this period with Carlyle left out "would be like an army with no artillery." His influence now is well-nigh spent, but his was the cry that stirred the blood of men like Ruskin. His later style was a deliberate creation by which to thrust home his gospel. The critics branded it as a chaos of capitals, compounds, and broken English; but, though Teutonic in form and in its labyrinthian periods, it was well fitted to his turn of thought. In striking contrast to Carlyle, though like him in his fundamental conception of history, is the ever-popular Macaulay. His *History of England* began to appear in 1848, and here his style is seen at its best. The accuracy of the *History* has been challenged; but Macaulay's weakness lay in too often drawing biased conclusions from statements too incomplete. His philosophic endowment was unequal to the immensity of his literary genius. The minstrelsy of Macaulay is as well known as that of Scott. The *Lays of Ancient Rome* were published in 1842. There is an unfading charm in the dash and swing of the noble lines, the clash of steel and the lust of battle. From two great prose writers we now turn to two great poets—Tennyson and Browning, both true descendants of the romantic school, both swayed in turn by Byron and Wordsworth, Shelley and Keats. Tennyson's one desire was to excel in epic narrative. The *Idylls of the King* are surpassed only by *Paradise Lost* as examples of non-dramatic blank verse in our language. Tennyson cannot equal the sublime stateliness of Milton, but to no other poet can the creator of the Idylls be compared. His *In Memoriam* (1850), a series of short poems woven together by a common sentiment, contains the most perfect representation of his genius, and is, moreover, a complete expression of the spirit of his age. His noblest work is pervaded by the true religious spirit. The Unseen is to him intensely real, and, gazing into "the abysmal deeps of personality," he is ever conscious of the greatness and immortality of the soul. In his tenderness and reverence towards woman Tennyson has never been excelled. As a dramatist, except in *Becket* (1885), he was not successful. From the death of Wordsworth to his own death, he wielded a vast power over English letters, and none challenged his supremacy as the greatest poet of his time. He lacks the inward strength of Milton, and the consummate ease of Wordsworth. It was Emerson who gave it as his opinion that the latter was *the* poet of modern England, and that "other writers have to affect what to him is natural."

We turn now to a greater mind, though not to so great an artist—Robert Browning. He is the Carlyle of poetry, and heeds not the form that bears his message. Strength to him is more than beauty. His style—rugged, condensed, involved—is the stumbling-block to the multitude; but his poetry has influenced the minds of the few, and these the leaders of the world of thought. His masterpiece, the *Ring and the Book*, is the most stupendous work of genius of our time; while his *Paracelsus* is one of the greatest poems in our literature. Elizabeth Barrett Browning, his wife, ranks as a great poet, though her writings are of uneven merit. *Sonnets from the Portuguese* and *A Child's Grave at Florence* are her best efforts. *Aurora Leigh*, an ambitious metrical romance, was extravagantly praised by Ruskin as the greatest poem of the century. The marriage of these two poets is one of the most beautiful unions in the history of any literature.

Among the dwellers on the slopes of Parnassus place must be found for Matthew Arnold and the three "pre-Raphaelite" poets, Rossetti, Morris, and Swinburne. Arnold (1822-1888) is at his best in his elegies, and his *Thyrsis* is no unworthy second to Milton's *Lycidas*. A purely intellectual poet, he speaks to the mind and never to the heart. Romanticism left him untouched and unmoved. He figured as a prose writer to a later generation, and his clear, classical style is seen to advantage in his *Essays on Criticism*, published in 1865. No poet in recent years has so greatly influenced the trend of verse as Dante Gabriel Rossetti (1828-1882). The excellence of his ballads, *The King's Tragedy* and *Rose Mary*, almost equals the beauty of his well-known sonnets. His sister, Christina Rossetti (1830-1894), "the soul whose breath among us was a heavenward song," is less great, though possessed of greater spontaneity. Most of her poems are of a devotional nature. Her sonnets, as in *Monna Innominata*, are almost perfect. The greatest work of William Morris (1834-1896) is *The Earthly Paradise*, modeled on the art of Chaucer, but lacking the master's spirit. Morris modestly describes himself as "the idle singer of an empty day." Algernon Charles Swinburne (1837-1909), a great metrical artist, enriched English literature by his *Atalanta in Calydon* (1865), a fine drama on the Greek model. His *Poems and Ballads* (1866), many of which are unworthy of him, at once "raised a storm, and founded a school." The lesser lights need not detain us long. Philip James Bailey's commonplace poem *Festus* came out in 1839. The following year Barham published his *Ingoldsby Legends*, the most popular of any humorous verse of the century. Of Hartley Coleridge, his sister, Sara Coleridge, Henry Taylor (author of *Philip Van Artevelde*), R. H. Horne (best-known by *Orion, an Epic Poem*), C. S. Calverley (the witty writer of *Verses and Translations* and *Fly Leaves*), the dramatists, T. N. Talfourd and J. W. Marston, A. H. Clough, Jean Ingelow, and the graceful writer, Adelaide Anne Procter (daughter of the poet "Barry Cornwall"), we can only make the barest mention.

The melodious paraphrase of the *Rubaiyat* of Omar Khayyám published by Edward Fitzgerald in 1859 must be noted in passing. The school of poetry nicknamed by the Scotch poet Aytoun (1813-1865) "the Spasmodic," calls for little attention. Sydney Dobell (1824-1874) and Alexander Smith (1829-1867) were its two chief members, all of whom were better endowed with passion than intellect. The mystical lyrist, Cov-

entry Patmore (1823-1896), has more originality. His greatest work is *The Angel in the House*. His odes, *The Unknown Eros*, are well known. "Owen Meredith," the second Lord Lytton, published his *Clytemnestra and other Poems* in 1855. A better, though unrecognized poet, was J. B. Leicester Warren (Lord de Tabley), whose first volume of importance, *Praeterita*, was issued in 1863 under the pen name of "William Lancaster." His *Poems Dramatic and Lyrical* appeared in 1893.

The earlier works of fiction were characterized by naturalness, spontaneity, and absence of any underlying "purpose." The writers were content to unfold a tale. The evolution of the novel is not marked by well-defined shapes; but it may be noted that romantic fiction culminated in Scott, domestic fiction had its origin in Jane Austen, the "purpose" novel came into being with Thackeray, while with Dickens the spirit of humanitarianism and democratic sympathy first entered into fiction. Thackeray (1811-1863) created a new school; for his philosophy of life permeated his writings. Not only was he a great novelist, but one of the greatest masters of style in English literature. Thackeray wrote in all 26 volumes, but his fame must rest on his five great novels: *Vanity Fair*, *Pendennis*, *Esmond*, *The Newcomes*, and *The Virginians*. Closer to the nation's heart was his great contemporary, Charles Dickens (1817-1870). Dickens was a true lover of his fellow men, and his novels reveal his sympathies. The range of his creative genius was immense. *Pickwick*, *Oliver Twist*, *Nicholas Nickleby*, *The Old Curiosity Shop*, *Martin Chuzzlewit*, *David Copperfield*—these are household words; for truly has Dickens peopled our imagination with the creatures of his art. It is the fashion to magnify his faults and limitations; but his genius is bound up with the life of the race, and his name is among the immortals.

We now turn to the Brontë sisters, Charlotte (1816-1855), Emily (1818-1848), Anne (1820-1849), children of the wind and the Yorkshire moorland. Anne wrote *Agnes Grey* and *The Tenant of Wildfell Hall*, but these were eclipsed by the novels of her greater sisters. Charlotte owes her fame to three great stories, *Jane Eyre*, *Shirley*, and *Villette*. Emily's only novel is *Wuthering Heights*, a work of genius, though artistically faulty. Each wrote in a poet's prose, strong with passion. Charlotte Brontë undoubtedly ranks with the foremost novelists of the century. Another woman writer, George Eliot (Mary Ann Evans, 1819-1880), brings the race of giant novelists to a close. Her *Scenes from Clerical Life*, considered by some critics her masterpiece, appeared in 1856; and was followed by *Adam Bede* (her most popular novel), *The Mill on the Floss*, *Silas Marner*, *Romola*, *Felix Holt*, *Middlemarch*, *and Daniel Deronda*. Though her art is too often marred by weight of learning and philosophy, she is a great creative artist, great in mind and nature, and her place in literature is well secured. One of the most prominent writers of genius is Charles Reade (1814-1884), whose masterpiece is *The Cloister and the Hearth*. His popular book, *It is Never Too Late to Mend*, is one of the best examples of the novel of purpose. Charles Kingsley (1819-1875) shares with Reade a leading place in the secondary rank of novelists. His best novel is *Westward Ho!* In this, as in his *Alton Locke* and other novels, he preaches his "Muscular Christianity." Kingsley wrote some charming poems; *The Three Fishers*, *The Sands of Dee*, and *Oh, That We Two Were Maying* strike a note of rare genius. A writer of less pretension is Anthony Trollope (1815-1882), a portrayer of middle-class life in provincial England. His best work is *Barchester Towers*. Among the romancers of later days Robert Louis Stevenson (1850-1894) holds a place apart. His novels, *Treasure Island*, *Kidnapped*, and *Catriona*, though frankly written for boys, have won a permanent place in literature by their abiding charm and the beauty of their style. His poems, essays, and familiar letters all bear the stamp and glamour of his personality. The impulse given by Stevenson to the new romantic movement is seen in the novels of many writers of to-day, notably Stanley Weyman, "Anthony Hope," Max Pemberton, "Q" (A. T. Quiller-Couch), and Conan Doyle, the creator of *Sherlock Holmes*. One of the greatest and most intellectual novelists of recent times was George Meredith (1828-1909), who was a great poet expressing himself in prose. *The Ordeal of Richard Feverel* and *The Egoist*, both rich in satire and humor, are considered his best novels; but, owing to the style of this "Browning of novelists," his works were for many years caviare to the general reader. Less polished, but of striking originality, are the works of Thomas Hardy (1840-1928), some of which have been dramatized for the stage. Of his many books five are worthy of high place in English fiction: *Far From the Madding Crowd*, *The Return of the Native*, *The Woodlanders*, *The Mayor of Casterbridge*, and *Tess of the D'Urbervilles*. These two novelists have left their impress on almost all recent English fiction. Not far below them is R. D. Blackmore (1825-1900), author of *Lorna Doone*, a quasi-historical novel of the West of England, popular on both sides of the Atlantic.

The influence of Dickens is apparent in the novels of Wilkie Collins (1824-1886), the chief exponent of the "sensational" school, and in the works of those three *amuseurs*, James Payn (1830-1898), William Black (1841-1898), and Sir Walter Besant (1836-1901). The latter's *All Sorts and Conditions of Men* gave the idea for the People's Palace in the East End of London, opened by Queen Victoria in May, 1887. Of women novelists during this epoch, not the least distinguished is Mrs. Gaskell, whose *Cranford* and *The Life of Charlotte Brontë*, 1857, are likely to delight many generations. Two of the most remarkable religious novels are by women: *Robert Elsmere* by Mrs. Humphry Ward, whose best novel is *Marcella;* and the *Story of an African Farm* by Olive Schreiner. George Macdonald and J. H. Shorthouse, author of *John Inglesant*, also deal with religion from different standpoints. Amongst writers for children two names deserve more than passing notice: "Lewis Carroll" (Rev. C. L. Dodgson), author of *Alice's Adventures in Wonderland*, 1865, with its sequel, *Through the Looking-Glass*, 1872, and Andrew Lang, that versatile writer whose fairy-tales enchant the younger generation. There are many writers of deciduous fame, whose names are all too prominent in our lending libraries; writers who reflect the prevailing versatility and

want of thoroughness, and whose popularity is determined by their ability to amuse rather than their genius to create.

In the domain of criticism one name stands out preëminent. The enthusiasm of John Ruskin (1819-1900) has fired more minds to the quest of beauty than has been effected by any other writer in the history of the world. His sympathies, though at times violent and paradoxical, are well-nigh universal. He has written on art, literature, morals, economics, society, and almost everything; but as an art critic he will be best remembered. Ruskin is the greatest prose writer of modern times, and one of the most perfect masters of style and language that has ever lived. His three greatest works are *Modern Painters* (1843), *Seven Lamps of Architecture* (1849), and *Stones of Venice* (1851-1853). His social and economic writings are not always marked by soundness of thought or sobriety of judgment, but the nobility of their aim can never be gainsaid. Besides Ruskin and Matthew Arnold, another Oxford man calls for notice as a great critic. Walter Pater (1839-1894), whose genius was grudgingly recognized, has become a force in contemporary literature. He has been called "the most rhythmical of English prose writers," and his *Renaissance: Studies in Art and Poetry* and *Appreciations* give him high rank among modern writers. Benjamin Jowett (1817-1893), the celebrated master of Balliol, won his place in literature by his brilliant translations of Plato, Thucydides, and *The Politics* of Aristotle.

Of scientific writers. Charles Robert Darwin (1809-1882), the father of evolution, demands attention in a survey of literature. His epoch-making works, the *Origin of Species* (1859) and *The Descent of Man* (1871), have revolutionized thought, not only in regard to biology, but in philosophy, religion, literature, and literary criticism. John Tyndall (1820-1893), the physicist, was known as a popularizer of scientific truths rather than as an original investigator. Thomas Henry Huxley (1825-1895), the distinguished biologist, was a man of great literary power; and, besides winning fame for his original research, was a vigorous defender of the pioneers of evolution. He loved to "war upon the lions in the wood." Herbert Spencer (1820-1903) made a deep impression on the world's thought, and his philosophy is the most comprehensive application of the evolutionary principle that has ever been attempted. John Stuart Mill (1806-1873), the famous empirical philosopher, is no longer the stimulating force he once was. His reputation chiefly rests on his *System of Logic* and *Political Economy* (1848). Mill was assisted in his *Logic* by Alexander Bain (1818-1903), best known for his book on *Mental and Moral Science*. The leader for many years of the Hegelian school of philosophy at Oxford was Thomas Hill Green (1838-1882), whose *Prolegomena to Ethics* appeared after his death. One of the best-known scientific writers of his time was Sir John Lubbock, author of *Prehistoric Times, The Origin of Civilization and the Primitive Condition of Man* (1870), and the *Pleasures of Life*, a collection of miscellaneous essays whose popularity far exceeds their intrinsic merit. The name of Friedrich Max Müller (1823-1900) is known to every student of philology and ethnology. His most popular books are his *Lectures on the Science of Language*, and *Chips from a German Workshop*.

Of the many eminent historians who belong to the modern era, space will only permit of the barest mention. George Grote's *History of Greece* was published between 1846 and 1856. Dean Milman's *History of Christianity* (1840) and its continuation, the *History of Latin Christianity* (1854-1856), are still valuable books of reference. Froude's great work, the *History of England, from the Fall of Wolsey to the Defeat of the Spanish Armada*, is distinguished by the brilliance of its style, but unfortunately marred by inaccuracy and partisanship. In striking contrast to Froude is the greater historian, Freeman (1823-1892), who combined a remarkable breadth of historic view with the most scrupulous accuracy. William Stubbs, born at Knaresborough, Yorkshire, in 1825, published his monumental work, *The Constitutional History of England* in the years 1874 to 1878. He illuminated the byways of history, and as Regius Professor of Modern History at Oxford he gave a lasting stimulus to historical study and research. Sir Thomas Erskine May traced the growth of the English Constitution from where Hallam left off, and, by his *Constitutional History of England since the Accession of George III.*, made a valuable contribution to historical literature. Maine's great work on *Ancient Law* was produced in 1861, and established the author's name as an original thinker. Mandell Creighton's great work, *A History of the Papacy from the Great Schism to the Sack of Rome*, is of the highest value. The *Short History of the English People*, by John Richard Green, made a sensation on its appearance in 1874. It treated history in a new vein, and was written in a picturesque style of poetic beauty and brilliance. Green expanded the *Short History*, but the larger work as a literary effort was not so successful. Of Samuel Rawson Gardiner, Sir John Seeley, W. E. H. Lecky, and James Bryce, as historians, and Walter Bagehot, the great authority on banking and finance, we must be content with recording their names. With a reference to four lesser poets of our own times we must conclude this sketch. Edwin Arnold popularized the story of Gautama Buddha by his *Light of Asia*. This was followed by *The Light of the World*, a poem dealing with Christ and Christianity. Austin Dobson, author of *Vignettes in Rhyme* and *Proverbs in Porcelain* is a worthy successor of Hood and Barham. Alfred Austin (poet laureate, 1896-1913) wrote *The Golden Age*, *Savonarola*, and many prose works. His writings have no special claim to distinction. Rudyard Kipling's poems of Indian soldier life struck a new vein in English poetry, while his stories of Indian life captivated the reading world. Robert Bridges, poet laureate (1913-), has the imagination and the art of a true poet. The Victorian age has undoubtedly held its own in pure literature; and certainly no former period has produced so vast an output. In the Drama and Theology the accomplishment has not been great from the literary side; but this has been counterbalanced by the growth of the Novel, which to-day holds the place once occupied by the Epic, the Drama, and the Sermon, and which combines their attractions and appeals.

AMERICAN LITERATURE.

There is a tendency among many writers on the history of American literature to include in the survey everything in the nature of a book. In this way they seek to show that the literature of the country is extensive and they measure the literary growth and progress in quantity only. But the day has long passed by when it was at all, if ever, necessary to bolster up the national achievements by such padded methods. It is infinitely better to measure the literary activity of our country by the same methods which are applied to the study of the literature of other though much older countries, and see in the accomplishments of its literary forces the promise of greater things yet to be done.

It is not at all strange that there is little worthy of record prior to the year 1700. From 1608, when John Smith's *True Relation* was published in London, until 1639, when Stephen Daye set up his first printing press in Cambridge, Mass., such books as were written by those who lived in America were printed in England. While Milton and Shakespeare were producing their glorious works in England, their fellow-countrymen in America were writing nothing of the slightest æsthetic value in their new homes across the seas. Their writings are of value to the historian and the antiquarian only. Captain Smith's contribution to the history of Virginia, William Strachey's story of the wreck of Sir Thomas Gates, Colonel Norwood's account of the wreck of Governor Berkeley, Governor Berkeley's share in the *Burwell's Papers*, John Hammond's *Leah and Rachel*, George Anson's *Character of the Province of Maryland*, Daniel Denton's *Brief Description of New York*, and Gabriel Thomas's *Account of Pennsylvania and New Jersey* are all that the South and Middle American colonies contributed to the literature of America before 1700.

But in New England there was no dearth of literary contributions. Governor Bradford of Plymouth and Governor Winthrop of Massachusetts in history; Thomas Hooker, Thomas Shepard, John Cotton, and Peter Bulkley in religion and theology; Roger Williams, one of the greatest of the early Americans; Daniel Gookin on the Indians; Nathaniel Ward in satire; John Josselyn in adventure; the *Bay Psalm Book* of 1640; Mrs. Anne Bradstreet, Michael Wigglesworth, Peter Folger, and Rev. Urian Oakes in poetry are the chief names in New England literature in the seventeenth century. Early in the next century are the famous and voluminous writers Increase and Cotton Mather, Judge Sewall's *Diary* (1673-1729), Mrs. Sarah Kemble Knight's *Diary* of a horseback ride from Boston to New York (1704), and the verse of Rev. Mather Byles and Joseph Green. The history by Rev. Thomas Prince and the *Summary* by William Douglass are notable works of the early eighteenth century. In metaphysics, Jonathan Edwards, who ranks as the most original theologian and metaphysician America ever produced, is famed alike for his *Freedom of the Will* (1754) and his awe-inspiring sermons, such as the famous one of Enfield, Conn. Benjamin Franklin, with all of his contributions to the study of natural science, politics, and homely moral philosophy, gave us in his *Autobiography* the only truly literary classic which America produced before the nineteenth century. John Trumbull, the author of *McFingal*, and his companion satirist, Francis Hopkinson; Thomas Godfrey, who gave us in *The Prince of Parthia* our first real poetical tragedy; Joel Barlow's *Columbiad;* Thomas Hutchinson, historian and dramatist; Mrs. Mercy Otis Warren; Phillis Wheatley, the negro poetess; the "Hartford Wits"; Mrs. Susanna Haswell Rowson, author of *Charlotte Temple;* Thomas Paine, who contributed much towards the spirit of '76; and Crèvecœur in his *Letters from an American Farmer* (1784); Royall Tyler, with the first important American comedy, *The Contrast* (1786); the philologists, Noah Webster and Lindley Murray; and our first novelist, Charles Brockden Brown, with his *Wieland, Ormond,* and *Arthur Mervyn,* published 1797-1800, are noteworthy at the close of the eighteenth century. Glancing over these names, which are only a few of the most prominent, it is hard to understand the statement that has sometimes been made by writers that practically nothing worth while had been done in literature in America until after 1800. It is well to modify that criticism and to say that, while every one recognizes that the best in American literature was done after 1800, there was much good work accomplished in those early days while a great nation was being built by practical, resolute men with little leisure to devote to æsthetic development.

The nineteenth century begun with John Marshall's *Life of Washington* (1804); Washington Irving's *History of New York;* the poetical works of Washington Allston, John Pierpont, and Mrs. Sigourney; and the dramas of John Howard Payne. The *North American Review*, founded in 1815, and the publication of *Thanatopsis* by Bryant in 1816 were important literary events; and before the first twenty years of the century had elapsed we had the works of Joseph Rodman Drake, author of *The Culprit Fay,* and the poems of Fitz-Greene Halleck.

Then followed James Fenimore Cooper, whose *Leatherstocking Tales* were the event of the third decade. They gave him a world-wide fame such as has been achieved by few American writers. Contemporary were James Gates Percival, Edward Coate Pinkney, Jared Sparks, George Ticknor, Lydia Maria Child, Edward Everett, Channing the elder, and Bronson Alcott. Webster's reply to Hayne belongs also to this time. From 1830 to 1840 is a period of beginnings. The *Liberator* was founded by William Lloyd Garrison in 1831 and the anti-slavery movement began with this and his association with Whittier, who published his first book in this decade. Nathaniel Parker Willis was the most representative man of letters in New York. Simms, Kennedy, and Bird were writing their romances in the South, and George Bancroft was beginning his career. In the early forties the Transcendental movement began in New England. This is the most important literary event in America before the Civil War. Apart from the literary excellence of the work of that school, it marks the transfer of the center of the most brilliant activity from New York to New England. The very names of Thoreau, Emerson, Hawthorne, and Poe mark this era as the most important in American literature. It is strange

that in America Hawthorne, through his *Scarlet Letter* (1850), and Emerson, as philosopher and poet, vie in the public minds as the foremost man of letters; yet, in Europe, that place is unhesitatingly given to Edgar Allan Poe, whose haunting poems and tales have gained a higher place abroad than has the work of any other American writer. At home, however, he is refused a niche in the Hall of Fame by his countrymen.

Of Longfellow's work it is almost sufficient to speak of its great cultural influence upon the American people. The question of literary merit or demerit or of relative rank pales before the recognition of his great value as the man who above all others taught the people of the country to love poetry. It has been for years more or less the fashion in literary circles to depreciate the genius of this best loved of American writers. That this criticism has been carried too far there is no doubt, and it is equally certain that in the inevitable reaction he will measure up at least nearly the equal of his greatest contemporary. Oliver Wendell Holmes has broken through the panoply of local fame and is attaining to national fame commensurate with his great gifts. James Russell Lowell's *Biglow Papers* (1848) gave him first place as poetical humorist and satirist among the antebellum writers. He afterwards became one of our foremost literary critics and letter writers. Between 1850 and 1860 those estimable historians, William H. Prescott and John Lothrop Motley, were building their fame, which is, perhaps, only excelled by that of their brilliant rival, Francis Parkman. Among these greatest names one must not lose sight of Richard Henry Dana, Jr., with his *Two Years before the Mast* (1840), and Herman Melville, writers of our best books of adventure; nor of Bayard Taylor, Donald G. Mitchell, Richard Grant White, James T. Fields, Thomas Wentworth Higginson, Charles Eliot Norton, George William Curtis, E. P. Whipple, Paul H. Hayne, Henry Timrod, Harriet Beecher Stowe, and Walt Whitman. Between 1860 and 1870, that period of tremendous national disturbance, we find, strangely enough, that prince of humorists, "Mark Twain," who at this day is probably the one American writer who enjoys a world-wide fame. Edward Everett Hale's *Man without a Country* appeared in 1863 at a time most fitted to develop a loyalty to the Union. To this time also belonged those two writers cut off in their early success, Theodore Winthrop and Sidney Lanier. From 1870 dates the rise of Francis Bret Harte, whose *Luck of Roaring Camp* (1868) ushered in that peculiar form of short story which deals with local phases of national life in all parts of the country. Previous to this time literature was centralized; New York and New England dominated the literary realm. The change is now perceptible and a score of names present themselves in other sections—names which have since become inseparably connected with the nation's literature. There are Joel Chandler Harris from the South with his *Uncle Remus* creation; Edward Eggleston with the *Hoosier Schoolmaster;* George W. Cable with his tales of Creole life around New Orleans; Mary Noailles Murfree ("Charles Egbert Craddock") with stories of the mountain whites of Tennessee, Kentucky, and Georgia; Harold Frederic from western New York state; Hamlin Garland from the Northwest; James Lane Allen from Kentucky; Mary E. Wilkins Freeman with her delightful delineations of New England life; and Frank Stockton's *Rudder Grange* pictures of a composite American country life. This was the beginning of the widespread literary activity and of the end of that literary supremacy which New England had so long enjoyed.

The work of such naturalists as John Burroughs gave way in popularity before the newer animal story writers, of which Ernest Thompson Seton was the pioneer. The immense popularity of General Lew Wallace's *Ben Hur* (1880) is a peculiar phase of literary appreciation. Francis Marion Crawford gave us the dramatic novel; William Dean Howells created the novel of American social life; Henry James planned novels so subtly psychological and of a style so refined as to be hard reading; the romantic novel was introduced by Anthony Hope Hawkins, an English writer, and rapidly taken up by such writers as Winston Churchill, Mary Johnston, Charles Major, Maurice Thompson, S. Weir Mitchell, Paul Leicester Ford, and others; and novels dealing with an individual struggle against social obligations, as Robert Grant's *Unleavened Bread*, Elizabeth Stuart Phelps's *A Singular Life*, and Booth Tarkington's *A Gentleman from Indiana*, were extremely popular. Such works have sold in hundreds of thousands and have caused it to be said that the reading of light fiction predominates at the present time in America.

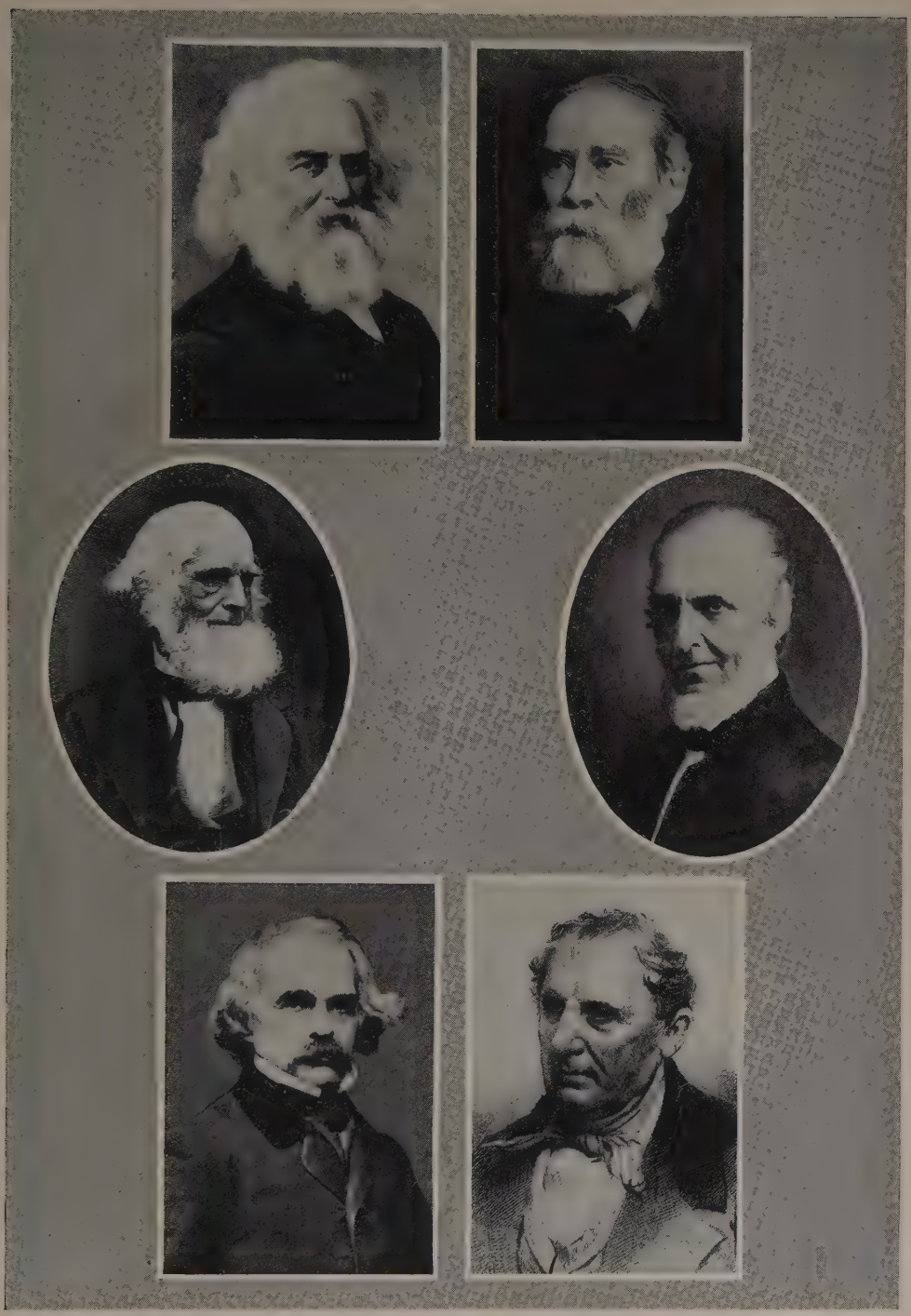
Few names are really important in American poetry since the Civil War. Edmund Clarence Stedman, Richard Henry Stoddard, Thomas Bailey Aldrich, Richard Watson Gilder, H. C. Bunner, Richard Hovey, Bliss Carman, and Madison Cawein are among the few whose poetical work may be considered unusually excellent.

In history such writers as John Fiske, John Bach McMaster, Woodrow Wilson, James Ford Rhodes, and William M. Sloane have followed the modern method of writing history from the standpoint of the development of the people.

While good work has been done in literary criticism no one has yet been found worthy to take Lowell's place in that attractive field. How far the fact that the essay has declined as a means of purely literary expression may have caused this it is impossible to estimate; but there is no doubt that it has been harder to gain the favor of the public by that medium than it was formerly. William Dean Howells, Hamilton Wright Mabie, Henry James, George E. Woodberry, and William C. Brownell have done excellent work in this department.

The dialect poems by James Whitcomb Riley, a genuine poet of childhood, in their "Hoosier" humor and pathos, and the simplicity, sincerity, and beauty of his pure English compositions are dear to the hearts of the people. Eugene Field, the widely known poet of childhood, shares with Riley this empire of love, and Field also ranks as a scholarly humorist. The *Little Lord Fauntleroy* of Frances Hodgson Burnett (1886) was in its way one of the most important additions to American literature of children.

Of the maze of books and magazines with which the twentieth century period confronts a student of American literature it is yet impossible to speak critically



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FAMOUS AMERICAN WRITERS—I

Henry Wadsworth Longfellow
William Cullen Bryant
Nathaniel Hawthorne
James Russell Lowell
John Greenleaf Whittier
James Fenimore Cooper

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FAMOUS AMERICAN WRITERS—II

Ralph Waldo Emerson
William Dean Howells
Mary Roberts Rinehart

Oliver Wendell Holmes
Winston Churchill
Edward Bok

Washington Irving
James Whitcomb Riley
Gene Stratton Porter

CANADIAN LITERATURE.

For a young nation whose early life was a constant battle for existence, Canada holds a prouder place in the republic of letters than any other British colony. The germs of a national literature are steadily unfolding, and, although no towering genius has yet arisen, there are a legion of writers who have interpreted their native land with distinction. But first we must notice the writings of the old French explorers and missionaries. Seventeen years before the *Mayflower* sighted these shores, Samuel de Champlain produced his work on the Indian tribes, and ten years later his well-known *Voyages*. The first poems written in the New World were *Les Muses de la Nouvelle France* by Lescarbot, who records the founding of Port Royal on the Bay of Fundy in 1605. The romantic history of New France has attracted such able writers as Charlevoix, Abbé Ferland, Garneau, and others. In the domain of poetry many French-Canadian writers have won considerable distinction. We may mention Casgrain, author of *Les Légendes;* Tassé, who wrote *Les Pionniers de l'Ouest;* Crémazie, author of the fine elegy *Les Morts;* Le May, Sulte, and Fréchette. The latter, who is a brother-in-law of W. D. Howells, the American novelist, was honored in 1880 by the French Academy.

Of the earlier Canadian writers who made English their vehicle none is more famous than Judge Haliburton, whose immortal *Sam Slick, the Clockmaker* (first published in Joseph Howe's newspaper, the *Nova Scotian*), is treasured wherever true wit and humor are appreciated. John Galt, by his *Lawrie Todd, Bogle Corbet,* and other books dealing with Canadian life, is, though only a three years' sojourner in the country, a worthy contributor to Canadian letters. Charles Heavysege (1816-1876) wrote a number of poems, novels, and tragedies; but it is as the author of *Saul*—a noble theme nobly treated—that he is best remembered.

The poets of Canada have drawn their inspiration largely from the motherland; but many writers have arisen who have voiced the patriotism of their native country. *Dominion Day,* by John Reade, is one of the best of these patriotic poems. More popular, though of less poetic value, is *The Maple Leaf Forever,* which has been set to music by the author, Alexander Muir. The versatile writer, Charles G. D. Roberts, has given us some polished verse of a similar character. Like most Canadian poets he has found his greatest inspiration in the lavish wealth which nature has provided. We see this in such of his poems as *Resurrection* and *Kinship.* William Alfred Campbell drew from the same source, but perhaps the foremost nature-poet is Archibald Lampman. His work is uneven, but some of his poems, such as *April in the Hills* and the sonnet *Midsummer Night,* are marked by strength and originality. His biographer, Duncan Campbell Scott, is fired by the same muse, and his *Labor and the Angel* have a calm and freshness of their own. The poems of Alexander McLachlan, who has been called "The Burns of Canada," and William Edward Hunt, are in true accord with nature. Wilfred Campbell. the "Lake Poet of Canada," is best known by his *Lake Lyrics,* although *The Dread Voyage* and *Mordred and Hildebrand* have been widely commented upon in America and England. The first native poet whose verses met with recognition by the leading English critics was George Frederick Cameron (1854-1885). His defiant *What Reck We of the Creeds of Men?* will not be forgotten. Though every true Canadian is a lover of nature, with a due appreciation of what is noble and sublime, yet other themes have been sung by many of the most successful poets. The romance of Canadian history has not unnaturally fired the native bards, and the heroic deeds of Champlain, Cartier, Montcalm, Daulac, Wolfe, Brock, Tecumseh, and Laura Secord, have been enshrined in noble verse. George Murray's *How Canada Was Saved,* M. J. Ratzmann Lawson's *The Battle of Grand Pré,* Sarah Ann Curzon's *The Loyalists,* and Frederick George Scott's *In Memoriam,* are amongst the best poems of this description. Perhaps Canada's greatest lyrist and most original verse writer is Bliss Carman. His *Low Tide on Grand Pré* and *Behind the Arras* reveal a true poetic genius wedded to a fine technique. Space will not allow of more than the briefest mention of other poets, whose healthy verse is helping to mold a truly national literature. Francis Sherman, whose work recalls that of William Morris, aspires to the first rank with his idyllic *Matins;* Arthur Weir's *The Snowflake, and Other Poems,* contains much that is meritorious; Theodore H. Rand is associated with all that is best in Canadian poetry; John Stuart Thomson shows exceptional talent in his *Estabelle* and *A Day's Song;* Arthur J. Stringer has given us some lyrics of rare promise and originality; Charles Mair, author of the drama *Tecumseh,* has written some fugitive poems of undoubted talent; John Henry Brown's *Poems Lyrical and Dramatic* are deserving of wider attention; Bernard McEvoy's *Away from Newspaperdom* are pregnant with human interest; William T. James is the author of *Rhymes Afloat and Afield;* William Douw Lighthall has written some vigorous verse; E. B. Brownlaw has produced some scholarly lines; Dr. Thomas O'Hagan has contributed his two books of poems, *In Dreamland* and *Songs of the Settlement;* while the ever-popular Dr. W. H. Drummond, who stands in a class alone, has given us a number of French-Canadian poems combining humor, pathos, and picturesqueness in no stinted measure. In embodying the speech and thought of the *habitant* he has struck a rich and original vein. Of the women writers who have courted the muse, the most distinguished are Isabella Valancy Crawford, best remembered by her lyrics, *The Master Builder* and *The Axe of the Pioneer;* S. Frances Harrison ("Seranus"), the author of many poems descriptive of French-Canadian life; Ethelwyn Wetherald, Jean Blewett, Agnes Maule Machar ("Fidelis"), Elizabeth Roberts MacDonald, Mrs. McLeod, and Pauline Johnson—a lady with Mohawk blood in her veins—these have contributed freely to the great wealth of Canadian verse.

Of the prose writers Gilbert Parker has won an international reputation by the brilliancy of his works. His best known volumes are *Pierre and His People, Tales of the Far North, An Adventurer of the North, A Romany of the Snows, A Lover's Diary, The Trail of the Sword,*

The Seats of the Mighty, The Trespasser, and *The Battle of the Strong.* William Kirby is the author of the remarkable historical novel, *The Chien d'Or.* Another novel of Quebec is *The Bastonnais,* by John Lesperance. Among other story writers may be mentioned Major John Richardson, G. M. Adam, Susanna Moodie (sister of the accomplished Agnes Strickland), Lily Dougall, Miss M. M. Saunders, William McLennan, W. A. Fraser, Sara Jeannette Duncan (Mrs. Cotes), Jean McIlwraith, E. W. Thomson, Ralph Connor, Ernest Thompson Seton, and Grant Allen (a Canadian by birth though usually counted amongst English authors).

In the more serious departments of letters, such as science, history, and philosophy, Canada can boast of many able writers. Sir William Logan, the eminent geologist, is the first Canadian scientist to take European rank. Sir J. W. Dawson and his son, Dr. G. M. Dawson, have worthily maintained the tradition, and are numbered amongst the greatest scientists of modern times. Among historians, besides the world-famed Goldwin Smith, must be noted Sir John Bourinot, Sir James Lemoine, Dr. Kingsford, C. G. D. Roberts, Robert Christie, James Hannay, George Bryce, J. C. Dent, Doughty, whose six volumes on Wolfe's campaign is an important contribution to Canadian history, Dr. Todd, author of the authoritative *Parliamentary Government in England,* and Dr. Theal, famous for his monumental *History of South Africa.* Sir John Murray, who was born at Coburg, Ontario, is the great authority on oceanography; while Dr. Crozier, who has settled in England, is one of the most original thinkers to whom Canada has given birth.

LATIN-AMERICAN LITERATURE.

The literature of South America has not received the attention from the North that it certainly has merited; yet there is no country south of the Rio Grande but what can boast of an extensive literature and men of letters whose work commands a wider recognition. Long before Harvard opened its doors to students, colleges and universities flourished in the Spanish settlements. The University of the City of Mexico was founded in 1553, and the University of San Marcos at Lima in Peru in 1555. The best of Spanish culture was carried to the New World, and a community of intellectual interests was maintained between Spain and her colonies so long as the political ties existed. But this continental influence was not without its drawback on the native-born product, for the deterioration of letters in Spain followed by the corruption of taste known as Gongorism, was reflected in the Spanish-American literature of the seventeenth and eighteenth centuries.

In due course the influence of the Encyclopedists and of Rousseau began to be felt; while the scientific expeditions of José Celestino Mutis (1760), also of Humboldt and Bonpland (1799-1804), revived an interest in the physical sciences, and exercised a salutary influence on South American culture. Independence of thought was stimulated and a race of native writers arose whose continuity has never been broken.

The most noted poet of the revolutionary period was José Joaquin Olmedo of Ecuador (1781-1847), whose chasteness of style and magnificence of rhetoric earned for him the title of "the American Pindar." The impress of romanticism is apparent in the verse of the Guatemalan José de Batres and of the Cuban J. M. Heredia, whose *Ode to Niagara* is justly celebrated.

The foremost name in the history of Spanish-American literature is unquestionably that of the illustrious Andrés Bello (1781-1865), one of the greatest masters of Castilian verse. Much admired are his *Agricultura en la Zona Torrida* and *Oración por Todos,* the latter of which was inspired by Hugo's *Prière pour Tous.* Another revolutionary hero and writer was Carlos Maria de Bustamante (1774-1848), whose greatest literary achievement was the history of the Mexican revolution. Meanwhile in Brazil Domingo Borges de Barros, Viscount of Pedra Branca (1783-1855), established himself as the favorite poet with his pleasure-breathing *Poesias offerecidas ás Senoras Brazileiras.*

In Latin-America politics and letters have gone hand in hand, and it is the rule rather than the exception for public men to be also writers. No branch of literature has been more assiduously cultivated than criticism. Among the leading critics may be mentioned Calixto Oyuela, Torres Caicedo, Miguel Luis Amunátegui, Rafael M. Merchán, Martin Garcia Mérou, and Garcia Velloso.

The novel was not seriously attempted till the latter half of the nineteenth century. The Colombian poet, Jorge Isaaks, is well-known by his *Maria,* and his compatriot, Julio Arboleda, has written a bright romance, *Casimiro el Montañés.* Mexico has produced four novelists of distinct merit: José T. del Cuellar, I. M. Altamirano, Orozco y Berra, author of *Escenas de Treinta Años,* and Dr. J. J. Fernández Lizardi, better known by his nom de plume "El Pensador Mexicano." The Argentine historian, Vicente Fidel Lopez, has written a stirring historical novel entitled *La Novia del Hereje;* his compatriot José Mármol is the author of a really fine romance *Amalia.* Among the more noted Chilean novelists are Vicente Grez, Ramón Pacheco, Alberto del Solar, and the poetess Rosario Orrego de Uribe. Brazil has produced three eminent writers of fiction, Martiniao Alencar, Joaquin Manoel de Macedo, and Bernardo Guimaraes.

The output of poetry has always been enormous, due chiefly to the ease with which the Spanish and Portuguese languages lend themselves to versification. The names of the poets are therefore legion. In Mexico four names will serve to represent the different styles of poetry cultivated: Fernando Calderón, Manuel Carpio, J. J. Pesado, and Manuel Acuña. One of the finest examples of South American verse is *Gonzalo de Oyón* by the Colombian Julio Arboleda (1817-1862). Among modern poets and dramatists may be mentioned Silveria Espinosa de Rendón and A. J. Restrepo, of Colombia; Estebán Echeverria (1809-1851), M. Coronado Adán Quiroga, Rafael Obligado, of Argentina; Arnaldo Márquez, M. N. Corpancho, Clemente Althaus, and Numa Pompilio Llona, of Peru; C. W. Martinez, and G. B. Gana, of Chile; F. Javier de Acha, of Uruguay; J. Batrés y Montufar, M. Cordoba and Garcia Goyena, of Guatemala; Antonio G. Dias and D. J. G. Magalhaes, of Brazil.

OUTLINES OF THE WORLD'S LITERATURE.

A CONTEMPORANEOUS AND CONSECUTIVE ARRANGEMENT OF BOOKS AND AUTHORS FOR REFERENCE AND STUDY.

Alphabet.—The earliest form of written description, or thought transference, was by means of pictures. This has been used by nearly all primitive people from the early Egyptians to the North American Indians. The latter, however, never developed a written language. The picture language, or hieroglyphic form, succeeded the ideogram, or picture, and gave rise to the alphabetic or sign form. The hieroglyphic form was used by the Egyptians (until 700 B.C.), Chinese, Babylonians, and Mexicans. In 700 B.C. the hieroglyphic form in Egypt was superseded to some extent by the demotic or popular form of writing. Hieroglyphics are so called because the form was largely confined to the priestly class. The Babylonian took the form of wedge-shaped or cuneiform signs.

Cuneiform or wedge-shaped writing is one of the earliest forms of the alphabet. It originated in Mesopotamia and spread even to Armenia and Egypt. The earliest texts are at least 6,000 years old. The characters were impressed on soft clay with a tool, but a chisel was used for the rock-cut inscriptions. The most remarkable inscription is cut on the almost perpendicular side of Mount Behistun over 300 feet from the ground. It records the reign of Darius I. (521 B.C.) and is in three languages: the Old Persian, Babylonian, and the New Susian.

The Assyro-Babylonian alphabet is the most important and complicated of all. In 1887, at Tel-el-Amarna on the Nile, about 180 miles south of Memphis, were discovered 320 bricks with inscriptions, some so minute that there were six lines to the inch and had, evidently, been cut with the aid of a magnifying glass. The tablets vary in size from nine inches by six inches to one inch square.

Other cuneiform alphabets are in the New Susian, the Armenian, and the Old Persian languages.

The oldest inscription in the Phœnician language is on the Moabite Stone, detailing the wars of Mesha and Ahab about 853 B.C., found at Dibon in Moab in 1868. This and the inscription at the pool of Siloam, telling how the tunnel was cut through, are in the North-Semitic languages.

The Phœnicians, who were the early world-traders, first developed the alphabet and gave it to the world about 1000 B.C. From the Greeks all Europe derived their alphabets, either directly as the Russian, or through the Latin.

A peculiar form of writing known as Runes, or Runic writing, was used by the early Germanic tribes and communicated by them to Denmark, Norway, Sweden, Ireland, Germany, Great Britain, France, Spain, and Roumania. Its origin is obscure, but is believed to date from about the second century A.D., though some place it as far back as 600 B.C. It is an adaptation of the Greek alphabet and was much used in carving inscriptions on stone, metal, and wood.

Materials.—The earliest literature was engraved on stone or on baked brick or on metal. In the temple of Nippur tablets were discovered which are believed to have been written 6000 B.C. They are in the Chaldean language, and measure nine inches by six and one-half inches. They are hymns and invocations used in worship in the temple.

The earliest Egyptian literature other than the inscriptions on certain tombs is the "Book of the Dead," which was placed in tombs and in mummy-cases. This is a collection of prayers, hymns, psalms, and magical incantations. These date back to about 2500 B.C.

The earliest Chinese is about 1150 B.C. The book is called the Y-King, the Book of Metamorphoses or of Developments.

The Ten Commandments were written on tablets of stone.

The Laws of Solon (about 594 B.C.) were inscribed on wooden planks.

The skin of goats dressed on one side only came into early use and was the first step toward parchment.

Papyrus was used as far back as 3600 B.C. It was made into rolls from the pressed pith of a species of reeds. The plant is from 3 to 10 feet high. The sheets of papyrus seldom exceeded 15 inches wide, though from 8 to 12 inches is very commonly met with. One roll measured 144 feet in length. It was soft, easily mutilated, and the wonder is that any have survived.

The earliest extant Greek papyrus belongs to the fourth century B.C.

Parchment was known as early as 500 B.C. In Rome the manufacture of parchment rose to great importance in the first century B.C. This was the medium for writing until the invention of paper by the Chinese at an early unknown date. The first paper mill in Europe was erected in Fabriano, Italy, in 1150.

Parchment that has been used a second time by erasing the original writing is called a palimpsest.

B.C.	EGYPT, BABYLONIA, INDIA, CHINA.
4000	"Book of the Dead." Some portions profess to date back so far, though the greater part was written 10 centuries later. "Proverbs" as contained in the Prisse Manuscript, attributed to a writer of the III. Dynasty about 4000 B.C. **King Athothis**, also a physician, wrote anatomical works.
3700	**Seneferu**, first of the pyramid kings, the earliest Egyptian monarch to leave behind an inscription, which is at Wady Magharah.
3300	A papyrus on "Ethics," written during the reign of Tat-ka-ra by **Ptah-hotep**, probably the oldest manuscript in the world.
3000	Biographical inscription of Una, found on a slab in the cemetery of Abydos, about 3000 B.C. Hymn to Usertesen III., about 3000 B.C.
2800	"Story of the Shipwrecked Sailor," author unknown, written about 2800 B.C. Manuscript in St. Petersburg.
2500	"Story of Sanehat," author unknown, written about 2500 B.C. Manuscript in Berlin. "Teaching of Amenemat," author unknown, written about 2500 B.C.
2200	Code of **Hammurabbi**, king of Babylonia, engraved on stone about 2200 B.C., contains 280 edicts in four columns.
2000	"Songs to the Harp," a collection dating back to 2000 B.C. Egyptian.
1700	Hymns to Amen Ra, written about 1700 B.C. Egyptian.
1700	Rhind papyrus in the British Museum, a mathematical work. "Directions for Obtaining Knowledge from all Dark Things," copied before 1700 B.C. by Ahmes, an Egyptian scribe, from a treatise written in 2500 B.C.
1650	**Pentaour**, "epic poet," celebrates the deeds of Rameses II. Public library founded at Thebes and copies of manuscripts made.
1600	Chronology of Kings of Egypt, made by direction of **Thothmes III.**
1500	Papyrus Ebers, a hieratic or sacred treatise on medicine, written about 1500 B.C., discovered by Ebers in 1872. One of the best preserved Egyptian papyri in existence. Vedas of India, more than 100 books, extending over centuries of time, but begun about 1500 B.C., shortly after the Aryan migration into India. The three divisions are the Rig-Veda, Yajur-Veda, and Sama-Veda. They consist of Hymns, Psalms, Prayers, Melodies, Blessings, and Curses.
1500	"Maxims of Any," written about 1500 B.C. Egyptian.
1450	"Story of the Doomed Prince," written about 1450 B.C. Manuscript in the British Museum. Egyptian. "Hymn to the Aten," **King Akhenaten**, written about 1450 B.C. Egyptian.
1400	The Tel-el Amarna letters: 320 bricks or tablets found south of Memphis in Egypt in 1887. Written about 1400 B.C. **Abdi-chiba** (1403-1385 B.C.), Governor of Jerusalem, wrote at least six of them. They are state documents.
1300	"Story of the Two Brothers," written about 1300 B.C. "Story of Setna," written about 1300 B.C. Egyptian.
1200	**Wen Wang**, the founder of the Chow dynasty in China, wrote the "Book of Changes."
1100	The Abbott papyrus containing a full account of the tomb robberies in Egypt in the reign of **Rameses** IX.; written about 1100 B.C.

B.C.	GREECE	INDIA, EGYPT, PERSIA, CHINA
1000	"Iliad" and "Odyssey" written by **Homer**, the first name in the literature of Europe. Herodotus places him at 850 B.C. Moderns locate him between the eleventh and ninth centuries B.C. He wrote also 34 Homeric hymns which have come down to us.	"Laws of Manu," a code attributed to a more or less mythical personage named Manu, a Hindu.
800		Inscription in honor of King Pianky, one of the longest in existence. Found in the temple of Gebel Barkal, written about 800 B.C. Egyptian. "Brahmanas," the second of three great divisions of Vedic literature, are commentaries on the Veda with much legend and philosophy and are attached to the Vedas. They are supposed to date not later than 800 B.C. Persian.
700	"Works and Days," the earliest known didactic poem, "Theogony," and "The Shield of Heracles," written by **Hesiod** of Ascra about 700 B.C. Poetry set regularly to music first by Terpander about 675 B.C. Fragments by Callinus of Ephesus, about 675 B.C. Fragments of satirical verse by **Archilochus** of Paros, about 650 B.C. One of the foremost Grecian lyric poets, whose fame ranked with that of Homer. "Ninno," a collection of elegies, models of form and style, by Mimnermus, about 625 B.C. Fragments of erotic and bucolic verse by **Alcman**, about 670 B.C. Fragments of political elegies and marching songs by Tyrtæus, about 650 B.C.	Hindus could write in the seventh century B.C., but used the writing in rock-cut inscriptions. It was criminal to write any portion of the Sacred Vedic writings until the third century B.C. The literature lived in the memories of especially trained priests. Scholars from Greece welcomed to Egypt, 650.
600	"Destruction of Troy" and fragments of lyric verse by Stesichorus, about 640-555 B.C. Laws and fragments of Ionic verse by Solon of Athens, about 639-559 B.C. Fragments of political songs, hymns, drinking and love songs by **Alcæus**, about 600 B.C. Fragments of philosophical works, "On Nature," "Satires," and others by **Xenophanes** of Colophon, born about 570 B.C. Poems and fragments of lyric poems by **Anacreon**, 561-476 B.C., one of the most esteemed of the Greeks. Poems are paraphrased in English by Thomas Moore. Fragments of eighteen didactic poems by Phocylides of Miletus, about 560 B.C. Fragments of pathetic dirges, epigrams, hymns, and poems; "Lament of Danæ," by Simonides of Ceos, 556-468 B.C. The first tragedy, written in 554 B.C. by Thespis, "the inventor of the tragedy." "Capture of Miletus," a tragedy written by Phrynicus, about 540-476 B.C. Fragments of erotic poems written by Sibycus of Rhegium about 540 B.C. Fragments of iambic poems and parody by **Hipponax**, "the inventor of parody," about 550 B.C. Songs and elegies by Theognis about 540 B.C., consisting of 1389 verses in two books.	The Avesta, or Zend-Avesta, the sacred writings of the Persians, a prayer book rather than a bible, is the remnant of the teachings and writings of **Zoroaster** (660-583 B.C.), whose followers were the Magi, to which sect the "three wise men of the East" belonged. Pliny tells of 2,000,000 verses composed by Zoroaster; Tabari, the Arab historian, describes the writings of Zoroaster committed to 12,000 cowhides. Two complete copies were made, one deposited in the palace at Persepolis and burned when Alexander the Great destroyed the city, the other falling into the hands of the Greeks and translated by them. Fragments were collected and pieced out 500 years later. Cuneiform inscription on a cylinder, recently found, giving the lineage of Cyrus the Great (about 600-529 B.C.). Persian. **Confucius** in the sixth century edited the famous sacred canon, the Ching King, or the "Five Classics" and the "Four Books." Chinese. "Institutes of Gautama," a Hindu teacher and law giver. The "Upanishads," a commentary on the Vedas, begun not later than 600 B.C., are religious and philosophical in character. Over 275 Upanishads are known. They are a part of the Vedic writings of India. The "Sutras," or manuals of rules, a sort of resume of scientific knowledge. They are the last of the Vedic writings—some of which date from the sixth century B.C. Behistun inscription by Darius I (568-489 B.C.), begun by him 514 B.C. It is cut on the almost perpendicular face of a limestone hill (1,700 feet high) at a distance of 300 feet from the ground. It gives the genealogy and narrates the triumphs of Darius I. It is trilingual, written in Old Persian, Babylonian, and the New Susian. There are five tablets of 410 lines.

B.C.	GREECE	INDIA, EGYPT, PERSIA, CHINA
600	Seven tragedies, the "Suppliants," the "Persians," the "Seven against Thebes," "Prometheus Bound," and the trilogy, "Agamemnon," "Choephori," and "Eumenides" by **Æschylus**, 525-456 B.C.	
500	Four books of exquisite hymns in honor of victors at national games and many fragments by **Pindar**, about 522-443 B.C.	"Book of Mencius" written by **Mencius**, a mirror of the life and teachings of Confucius. Chinese.
	"On Nature," a philosophical work by **Anaxagoras**, 500-428 B.C.	
	Seven out of 120 plays with fragments of eighty or ninety others by **Sophocles**, about 495-406 B.C., include "Ajax," "Antigone," "Electra," "Œdipus Tyrannus," "Trachiniæ," "Œdipus at Colonus."	
	"History" and "Travels" of **Herodotus**, about 484-424 B.C. "The father of history."	
	Eighteen complete plays and 1100 fragments of plays by **Euripides**, about 480-406 B.C., including "Alcestis," "Andromache," "Bacchæ," "Hecuba," "Helena," "Electra," "Hippolytus," "Iphigenia Aulidensis," "Iphigenia Taurica," "Ion," "Cyclops," "Medea," "Orestes," "Troades," "Phenissæ."	
	Fifteen of sixty orations by **Antiphon**, earliest of the Ten Attic Orators, 480-411 B.C.	
	Socrates (469-399 B.C.) left no writings.	
	"History of the Peloponnesian War," covering twenty-one years of the conflict, by **Thucydides**, about 460-399 B.C., the greatest historian of antiquity.	
	Forty-four titles of plays, comedies by **Aristophanes** (about 450-385 B.C.), including eleven which have come down to us: "The Acharnians," "The Knights," "The Clouds," "The Wasps," "Peace," "The Birds," and "The Frogs."	
	"Anabasis," the march of Cyrus; "Memorabilia of Socrates," "The Hellenica," a continuation of Thucydides' history of the Peloponnesian war; "Cyropædia," the education of Cyrus, by Xenophon, about 430-355 B.C.	
	Three speeches: "On His Return," "On the Mysteries," "On the Peace," by **Andocides** (about 440 B.C.), the least of the Ten Attic Orators.	
	"The Republic," "The Laws," "The Dialogues," "Phædrus," "Gorgias," "Symposium," "Crito," by **Plato**, about 427-347 B.C., set forth the teachings of Socrates.	
	Fragments of comedies by Cratinus, died about 421 B.C., including "Archilochoi" and "Wineflask."	
	Fragments of comedies by Eupolis, about 446-411 B.C. Seven of his plays won the first prize.	
400	Twenty-one orations and ten letters with the "Panegyricus" by **Isocrates** (436-338 B.C.), one of the Ten Attic Orators.	"Sanskrit Grammar" in eight books of 3,996 stanzas by **Panini**, the greatest of all grammarians of India, written in the fourth century B.C.
	Speech "Against Leocrates," one of fifteen delivered by Lycurgus (about 395-323 B.C.), one of the Ten Attic Orators.	Cuneiform inscription of 60 lines, and two texts of 24 lines each of Darius at Naks-i-Rustam, six miles from Persepolis, and others relating to Xerxes and the three Artaxerxeses, 350 B.C. Persian.
	The "Philippics," "On the Crown," three "Olynthiacs," and other speeches by **Demosthenes** (about 385-322 B.C.), the greatest orator of the ancient world.	Ptolemy I. Soter founded the famous library and museum at Alexandria, 320.
	Three speeches, "Against Timarchus," "On the False Embassy," and "Against Ctesiphon" by **Æschines** (389-314 B.C.), second only to his great rival Demosthenes.	Ptolemy I. founded an Academy at Alexandria, 315. Egyptian.

B. C.	GREECE.	INDIA, EGYPT, PERSIA, CHINA.
400	Works on logic, metaphysics, natural science ethics, politics, rhetoric, and poetics, published now in over 30 volumes, by **Aristotle** (384-322 B.C.), the founder of the Peripatetic school of philosophy.	
	The "History of Plants," "Theoretical Botany," fragments of "On Mineralogy," "On Fire," "On the Senses," "On Metaphysics," a book of sketches called "characters," by **Theophrastus** (about 372-287 B.C.), the successor of Aristotle.	
	Two complete comedies and numerous fragments, by **Philemon** (about 361-263 B.C.), a popular Greek comic poet.	
	Over a thousand fragments of comic plays by **Menander** (342-291 B.C.), the most famous of the poets of the Attic New Comedy, and rival of Philemon.	
	Philosophic writings, by **Epicurus** (342?-270 B.C.), who left in all about 300 volumes. We have three letters and a large number of fragments contained in badly mutilated manuscripts.	
	Six hymns, 64 fragments, and some translations of the works of **Callimachus** (about 310-240 B.C.), an Alexandrine poet and grammarian.	
	Thirty-one poems and numerous epigrams by **Theocritus** (about 310 to about 245 B.C.), the first and greatest of the Greek bucolic poets.	
	Seventeen short poems and the "Lament for Adonis" (the model for Shelley's Adonais), by **Bion** (310-245 B.C.), a Greek bucolic poet.	
	"Elements," "Data," "Phenomena," "Optics," "Reflection," "Division of the Scale," by **Euclid** (who flourished at Alexandria and was most active about 300 B.C.), the most famous of the Greek writers on geometry.	
300	Fragments of works of geography, geometry, and astronomy, by **Eratosthenes** (about 275-195 B.C.), who flourished in Alexandria under Ptolemy Euergetes.	Emperor Che-wang-te of China (213 B.C.) decreed the destruction of all books excepting those on science, agriculture, and divination.
	"Egyptian History," the only work in Greek based on a knowledge of Egyptian sources, by **Manetho**, who wrote about 273 B.C.	"Commentary on Panini's Sanskrit Grammar," by **Katyayana**, third century B.C.
	An astronomical epic, "Diosemeia," by **Aratus** (born about 270 B.C.).	Ptolemy Philadelphus founded a library at Alexandria, 280 B.C.
	"Alexandra," an obscure poem, by **Lycophron** (about 270 B.C.).	Septuagint version of Hebrew scriptures written.
	Dramatic pictures of common life, by **Herondas** (about 250 B.C.).	Demetrius Phalerius (345-283 B.C.), librarian at Alexandria.
	An epic, "Argonautica," one of the best of the period, by **Apollonius Rhodius** (about 295-215 B.C.).	**Manetho** wrote history of Ancient Egyptian kings.
		Euclid, head of Mathematical school at Alexandria

B.C.	GREECE.	INDIA, EGYPT, PERSIA, CHINA.
200	Forty books of "History," of which we have five complete and considerable portions of 18 others, by **Polybius** (about 205-120 B. C.), the chief Greek historian of his period. Medicinal and didactic epics, by **Nicander** (about 150 B.C.).	"Commentary on Panini's Sanskrit Grammar," by **Patanjali** (probably second century B.C.), founder of the Yoga system of philosophy. "Mahabharata," the great epic of India, an account of the great war of the Bharatas, written by several authors about 200 B.C. Han dynasty (200 B.C.-200 A.D.) gave increased attention to literature and caused the revival of learning in China. **Sz-ma Ch'ien** (b. 145 B.C.). The "Historical Record" is the history of China from the beginning to 150 B.C. It contains 526,500 words, which were all originally scratched on bamboo tablets. It was translated into 219 volumes in 1747.
100	"Geography" in 17 books; "History" in 43 books; and other fragments, by **Strabo** (about 63 B. C.-24 A. D.). The "Library," originally of 40 books, of which we have several, a book of universal history and travels of **Diodorus Siculus**, who died about 20 B. C.	Cæsar burns library at Alexandria with 400,000 MSS Antony replaces the burned library of Alexandria by one brought from Pergamos in Asia Minor.
A. D.	"History of the Jewish War" in seven books; "Jewish Antiquities" in 20 books; "Autobiography," by **Flavius Josephus** (37-later than 100). "Lives," "Morals," "Table Talk" in nine books, by **Plutarch** (about 46-about 125). About 80 extant orations by **Dion Chrysostomos** (about 50-about 117), rhetorician and philosopher.	
100	"Discourses of Epictetus" in eight books; "Manual of Ethics"; "Conversations of Epictetus" in 12 books; "Anabasis of Alexander the Great" in seven books; "The Indica," a geographical work; and several fragments, by **Arrian** (about 95-175). "History of Rome" in 24 books; 11 of which have come down, by **Appian** (flourished about 150). "History of Rome" in 80 books, by **Dion Cassius Cocceianus** (about 150-235). "Periegesis or Guide-book to Greece" in 10 books, by **Pausanias**, the Periegite (about 160). Of great value in Greek art and topography. Works on medicine and logic (said to have numbered over 500, of which we have 83 known to be genuine), by **Claudius Galenus**, known as **Galen**, born about 130 and lived at Rome after 170. "Syntaxis," an astronomical and mathematical work, by **Claudius Ptolemaeus**, known as **Ptolemy**, in which the Ptolemaic theory of the universe was enunciated. Lived in the first half of the second century. The continuation of his work is the "Almagest" of the Arabians. "Halieutica," a poem on fishing; and other poetical works, by **Oppian** (latter part of second century).	

B.C.	ROME.
200	Twenty out of 130 comic plays by **Titus Maccius Plautus** (about 254-184 B.C.), the greatest comic poet of ancient Rome.
	Fragments of the "Annals," a history by **Quintus Fabius Pictor** (about 254 B.C.), the first writer of Roman history in prose.
	Fragments of tragedies, comedies, satires, and "Annals," by **Quintus Ennius** (239-169 B.C.), "the father of the Roman epos."
	Fragments of several of the 150 orations and "De Agri Cultura," and "De Re Rustica," by **Marcus Porcius Cato**, known as Cato the Censor, Cato Major (Cato the Elder), or Cato Priscus (234-149 B.C.), a Roman statesman and orator.
	Six comedies by **Publius Terentius Afer** (known as Terence) (about 185 to about 159 B.C.).
	800 fragments of satires (the longest with only 13 verses) by **Gaius Lucilius**, the originator of Latin satirical composition (149-103 B.C.).
	750 lines, fragments of 40 tragedies written by **Lucius Attius** or **Accius** (about 170-90 B.C.), perhaps the greatest of the Roman tragic writers.
100	"De Re Rustica Libri III," the most important treatise on ancient agriculture known to us; "De Lingua Latina," a grammatical work originally in 24 books—of which we have 6 by **Varro** (Marcus Terentius), "the most learned of the Romans" (116-27 B.C.)
	Fifty-seven orations, the most famous being the four against Catiline, the fourteen philippics against Antony, the orations on behalf of L. Murena and Marcus Cælius; his treatises including "De Senectute" (concerning Old Age), "De Amicitia" (concerning Friendship), and others by **Cicero** (Marcus Tullius), Rome's greatest orator and an illustrious man of letters and statesman (106-43 B.C.).
	"Commentaries on the Gallic and Civil Wars" by **Cæsar** (Gaius Julius), one of the most remarkable men of all time (100-44 B.C.).
	"De Rerum Natura," a poem in six books, 7,500 lines, by **Lucretius** (Titus Lucretius Carus) (about 99 to about 55 B.C.), a Roman poet of the first rank.
	Twenty-five biographies of warriors and statesmen, mostly Greeks, by **Nepos** (Cornelius), a Roman historian (about 99 to about 24 B.C.).
	116 poems by **Catullus** (Gaius Valerius), the greatest of the Roman lyric poets (about 87 to about 54 B.C.).
	"Catilinia," or "Bellum Catilinarium," descriptive of Catiline's Conspiracy in 63 B.C.; "Jugurtha," describing the Jugurthine War, by **Sallust** (Gaius Sallustius Crispus), a Roman historian (86-34 B.C.).
	The "Æneid," or wanderings of Æneas after the siege of Troy; ten "Eclogues" or "Bucolics," the "Georgics," by **Vergil** (Publius Vergilius Maro), one of the most celebrated of Roman poets (70-19 B.C.).
	"Odes," "Epistles," "Satires," "Liber de Arte Poetica" ("Art of Poetry"), by **Horace** (Quintus Horatius Flaccus), the greatest Latin poet of his time after Vergil (65-8 B.C.).
A.D.	"History of Rome" in 142 books of which 35 have come down to us, by **Livy** (Titus Livius Patavinus), the great Roman historian (59 B.C.-17 A.D.).
	"Epistles" on moral subjects and philosophical treatises; ten tragedies and "Satires," by **Seneca** (Lucius Annæus), or Seneca the Elder (about 4 B.C. to about 65 A.D.).
	"Metamorphoses," a treatise on all the transformations recorded in legend from the Creation to the time of Julius Cæsar; the "Heroides" and several other poems, by **Ovid** (Publius Ovidius Naso) (43 B.C.-18 A.D.).
	"Historia Naturalis," comprising all the natural sciences, divided into 37 books on 20,000 subjects by **Pliny the Elder** (Gaius Plinius Secundus) (23-79).
	"Epigrammata" in 14 books, by **Martial** (Marcus Valerius Martialis), the first of the Roman epigrammatists (about 40 to about 104).
	"Annals" and histories by **Tacitus** (Publius Cornelius Tacitus), an important historian of Rome (about 55-117).
100	Sixteen "Satires" by **Juvenal** (Decius Junius Juvenalis), a satirist of indignation, well translated by Dryden and others (38-120).
	"Epistulæ," or ten books of letters; "Panegyricus," an adulation of the Emperor Trajan, by **Pliny the Younger** (Gaius Plinius Cæcilius Secundus), a nephew of Pliny the Elder (62-110).
	"Lives of the Cæsars," "Lives of Eminent Grammarians," "Lives of Eminent Rhetoricians," by **Suetonius Tranquillus** (75 to about 160), an eminent historian of Rome.
	Two "Apologies for the Christians," "Dialogue with Tryphon the Jew," by **Justin Martyr** (about 100 to about 165), a Christian writer and philosopher.
	"Institutes," and other legal works of **Gaius the Jurist** (about 110 to about 180). From these 535 extracts were taken for the "Institutes" of Justinian. Gaius is the chief source of our knowledge of Roman law.
	"Apologia," "Metamorphoses," or the "Golden Ass," a novel or romance, by **Lucius Apuleius**, a satirist of Rome (born about 125).
	"Proscription of Heretics," "Apology to the Nations," "Against the Jews," "Against Marcion," "Against the Valentinians," "Against Praxeas," and many tracts on morals and church discipline, by **Tertullian** (Quintus Septimius Florens Tertullianus), one of the earliest of the Latin Church Fathers (about 150 to about 230).

A. D.	LATER LATIN AND GREEK WRITERS.
100	"Dialogues of the Gods," "Dialogues of the Dead," "Auction of Philosophers," "Timon," and the "Veracious History," by **Lucian of Samosata** (about 120–about 200), a famous satirist and humorist.
	"Against Heresies," a valuable history of doctrine and fragments of other theological works, by **Saint Irenæus** (about 130-202), one of the leading Church fathers of the West.
	"Exhortation to the Greeks," the "Instructor," "Stromata" or miscellanies, by **Clement of Alexandria** (Titus Flavius Clemens, about 150–about 215), a celebrated Greek father of the Church.
	Rhetorical treatises by **Hermogenes** (second half of the second century), the greatest technologist of his times.
to	A Roman history (180-238) by **Herodianus**, a Greek resident in Italy; born about 170; died about 240.
	"Hexapla," "Tomoi," "De Principiis," "Against Celsus," by **Origen** (about 185-254), called also **Adamantius**, the most famous Christian writer of the third century.
	Lives of the Greek philosophers in 10 books, very valuable, by **Diogenes Laertius**, who lived about 200.
	Eighty-two letters, and treatises on "Unity of the Church," "Dress of Virgins," "Lapsed," "Lord's Prayer," "Vanity of Idols," "Against the Jews," and other very instructive works, by **Saint Cyprian** (Thascius Cæcilius Cyprianus, about 200-258), the great leader, as Bishop of Carthage, of the African Church.
	"Enneads," philosophical works, by **Plotinus** (204-270).
200	Works of criticism and philosophy (and, perhaps, the essay "On Sublimity") by **Longinus** (210-273), tutor at the court of Zenobia.

	GERMANY.	FRANCE.
	Translation of the Bible into Gothic by **Ulfilas**, Bishop of the Goths (about 311 to about 381). This is preserved in part in the Codex Argenteus, written with silver letters on purple parchment, now in the library of the University of Upsala. Ulfilas invented the Gothic alphabet, taking his letters from the Greek, adding some letters from the Latin and from the Runes.	
600	Fragments of the songs of warrior gods and heroes are among the earliest German literature extant.	
	"Hildebrandslied," a fragmentary Old High German poem, descriptive of the duel between Hildebrand and his son Hadubrand, who, unrecognized by each other, fight after years of separation. It is the oldest specimen of German heroic poetry.	
700	The Saga-cycles, describing the deeds of Ermenrich, Theodoric the Goth, Attila the Hun, Gunther of Burgundy, and Siegfried.	
	"Heliand," an alliterative poem, based on the Gospels, written evidently at the request of Louis the Pious (778-840), the youngest son of Charlemagne, author unknown.	

A. D.	LATER LATIN AND GREEK WRITERS.
200	"Against the Christians" (15 books), "Life of Plotinus," "Life of Pythagoras," "On Aristotle," by **Porphyry** (about 233-about 305), a teacher of philosophy at Rome.
	Autobiography, letters, and numerous philosophical works, orations, and declamations, by **Libanius** (born about 314), the best known sophist of the fourth century.
	"Life of Pythagoras," "Exhortation to Philosophy," and many mathematical and philosophical works, by **Iamblichus** (died about 330).
	Six volumes of theological works by **Saint Ambrose** (about 340-397), Bishop of Milan, and one of the most celebrated of the ancient fathers of the Church, one of the four doctors of the Western Church.
	"Translation of the Bible," the best up to its time, "Illustrious Men," more than one hundred "Letters" and "Epistles," by **Saint Jerome** (Hieronymus, about 340-420), the most learned of the early fathers of the Roman Church.
to	Ten books of "Letters" and the fragments of nine orations by **Symmachus** (Quintus Aurelius, about 345-about 405), a distinguished Roman orator, scholar, and statesman.
	"Daily Rounds, or Cathamerinon," a collection of twelve lengthy hymns: "The Soul's Conflict, or Psychomachia," or religious allegories; "The Crowns, or Peri Stephanion," fourteen hymns in praise of martyrs, two books "Against Symmachus"; and more poems, by **Prudentius** (Aurelius Clemens Prudentius, 348-about 405), the greatest Christian poet of the early Latin Church.
	"Confessions," an autobiography; "City of God," in 22 books; "Retractions"; 270 "Epistles" and numerous treatises by **Saint Augustine** (354-430), Bishop of Hippo in northern Africa, the greatest of the Latin fathers, and most celebrated of the four doctors of the Western Church.
400	Nine books of "Letters" of great value; twenty-four poems by **Apollinaris Sidonius** (430-487), Roman author, political leader, and Bishop of Clermont.

A. D.	ENGLAND.	PERSIA, ARABIA, ETC.
	The Anglo-Saxon Period (449-1100).	
	Anglo-Saxon invasion of Britain drove the bards to the hills. They gave us their songs and the Arthurian legend (449).	
500	"De Excidio Britanniæ" (about 556-560) and "Epistola," by **Gildas** (493?-570?), the first national historian of the Britons.	"Moallakat" ("the suspended ones"), a collection of seven Arabic poems, the first of which was written by **Amru-el-Kais** (Amrulcais or Amru'l-Kais), by some esteemed the greatest of Arabian poets (570?-630?).
	From the songs of the scop, or maker of poetry, and the gleoman, or minstrel, was evolved the great Anglo-Saxon epic, "Beowulf," which dates back to the sixth century.	One of the "Moallakat" written by **Tarafah**, one of the six great pre-Islamic poets (about 560).
	The first written laws of Saxon England made by **Ethelbert**, king of Kent (about 552-616).	One of the "Moallakat" written by **Labid ibn Rabia** (about 560 to about 661), a popular poet.
		One of the "Moallakat" written by **Antar** or **Antara**, a black slave poet (died about 560).
		Other disputed writers of the three remaining poems are: **Zuhair, Amr ibn Kulthum, Al-Harith, Nabighah,** and **Asha.**
600	"Paraphrase of Creation and Early Biblical Events" and a "Hymn," by **Cædmon** of Northumbria (about 675).	Poetical tournaments were held at Okaz near Mecca before Mohammed's time. Fragments of the works of more than 200 poets of the pre-Islamic times were collected in the tenth century. The Arabs thus acquired considerable poetical proficiency.
	Ecclesiastical works by **Aldhelm** (about 640-709), a famous scholar, abbot of Malmesbury (676), bishop of Sherborne (705).	"The Koran" (about 657).
	"Ecclesiastical History of England" in five books, "The Six Ages of the World," written in Latin, by **Bede** or **Bæda**, called the Venerable Bede, the greatest name in the literature of Saxon England (about 673-735).	
700	Letters, theological, political, philosophical, mathematical, and poetical works by **Alcuin** (about 735-804), the most distinguished scholar of the eighth century.	"Arabic Grammar," the first written, by **Abd al-Rahman ibn Hormuzd** (about 730).
		"Arabic Grammar," by **Abu al-Walid al Duali**, the inventor of diacritical points (about 750).
		"Code of Laws," still in force in many parts of the Ottoman Empire, by **Abu Hanifah**, one of the Church fathers (702-772).
	Anglo-Saxon poems, comprising "Juliana," "Elene," "Crist," "Fates of the Apostles," "Andreas or the Legend of St. Andrew," and others, by **Cynewulf**, a writer of some of the best Anglo-Saxon verse (about 750-825).	"Kitab al-Ain," the first Arabic lexicon, by **Al-Khalil**, the founder of Arabic metrics (about 750).
		"Al Muwatta," code of laws, based on the decisions of the school of law of Medina founded in the seventh century, compiled by **Malik ibn Anas**, a distinguished jurist (about 785). Code still in force in Tunis, Algeria, Morocco, and the Hejaz.
		"Biography of Mohammed," written by **Mohammed ibn Ishak** (768), the earliest historian.
		"Grammar," an extensive work, by **Sibawaihi** (796).

A.D	GERMANY.	FRANCE.
800	"Krist," the first German rhymed verse, based on the Gospels, of 15,000 verses, by **Otfried** (about 800 to about 870).	The first Romanic text extant is the oaths interchanged at Strassburg in 842 between the grandsons of Charlemagne, Louis the German, and Charles the Bald, against their brother Lothair.
	"Ludwigslied," a political ballad celebrating the victory of Louis III. over northern tribes, the reconciliation of Atho I. and his brother Henry, written late in the ninth century, author unknown.	
900	Numerous religious writings, visions of judgment, lives of saints, epic gospel narratives, harmonies, and a few political compositions fill up the tenth century.	
1000	German translations of Boethius's "Consolation of Philosophy," Aristotle's "Categories and Hermeneutics," and of the Latin Psalter, by **Notker Labeo**, a monk of St. Gall (about 950-1022)	"Chansons de Gestes," long poems on the heroic deeds of Christian knights, composed and sung by troubadours and trouveres; later by jongleurs and menestrels. These are arranged in cycles. (1) "Cycle de France," songs of French heroes, the central figures being Charlemagne and twelve chief barons. The most ancient, beautiful, and famous is the "Chanson de Roland," composed at the end of the eleventh century, describing the death of Roland and his eleven peers with 20,000 followers at the battle of Roncesvalles and the later vengeance of Charlemagne.

A.D.	ENGLAND.	PERSIA, ARABIA, ETC.
800	"Historia Britonum," under the name of **Nennius**, of whom nothing is known. The book is a compilation from various sources, and consists of eight parts, the first of which appears to have been written about 822. The "Anglo-Saxon Chronicle," a record of events kept in a loose way in monasteries from some uncertain period, but not perfected until Alfred's time. Philosophical works by **John Scotus** or **Erigena** (died 875). Translation into English of Boethius's "Consolation of Philosophy," Orosius s "History of the World," Gregory the Great's "Pastoral Care," Bede's "Ecclesiastical History," a compilation of "Laws," and the consolidation of the "Anglo-Saxon Chronicle," by **Alfred the Great**, king of Wessex (871-901).	"Medicine" and "Astrology," remains of 200 works on science and philosophy, by **Al-Kindi** or **Alchindius** (about 800). "Biography of Mohammed," by **Ibn Hisham** (821). "Biography of Mohammed," by **Mohammed al-Wakidi** (823). In the ninth century the three sons of the librarian **Musa ibn Shakr** calculated accurately the diameter of the earth and the precession of the equinoxes. "Astronomica Encyclopedia," by **Al-Farghani** (ninth century), translated into Latin by Johannes Hispalensis. "History," in 105 monographs, including histories of Mecca and Medina, by **Abu Ubaidah** (824). "History and Genealogy," by **Al-Kalbi** (about 819). "Code of Laws," by **Al-Shafi** (died 820). "Pre-Islamic Songs" by **Abu Tamman** (846). "Code of Laws" by **Ahmad ibn Hanbal** (855). "Collection of traditions of Mohammed," by **Al-Bukhari** (died 870), **Muslin** (died 874). "Universal History" by **Abu Jafar al-Tabari**, a Persian (838-923), first of its kind in Arabic. "Early conquests by the Arabs," by **Ibn Kutaibah** (892) and **Al-Tabari** (died 923).
900	"Homilies," "A Treatise on the Old and New Testaments," "Latin Grammar," and the "Colloquium," by **Aelfric** the Grammarian (about 950-1021).	"Astronomy," by **Thabit ibn Kurrah** (901). "Commentary on the Koran," by **Al-Tabari** (died 923). "Arabian Lexicon" by **Ibn Duraid** (died 934). Fragments of poems and a translation of the fables of Bidpai, by **Rudagi** or **Rudaki** (died 945?), the earliest of the great Persian poets. "Book of Kings," a poetical history of Iran, by **Daqiqi**, who flourished in the tenth century. "Book of Kings," a poetical history of Iran from 3600 B. C. to 641 A. D., by **Firdausi**, one of the foremost poets in all literature (about 935-1020). "Philosophy," studied in Latin in the Middle Ages in the universities of Europe, by **Al-Tarabi** (960). **Al-Battani** (Albatagnius) introduced the use of trigonometry, and observed the obliquity of the ecliptic in the tenth century. "Geography," by **Ibn Hisham** (?), **Khurdhadbah Masudi** (912), **Ahmad ibn Fadlan** (921), **Abu Ishak al-Istakhri** (950), **Ibn Haukal** (977), **Al-Mukaddasi** (985). "Diwan" of 289 poems, by **Al-Mutanabbi** (965), one of the greatest and most widely read. "Arabian Lexicon," by **Ismail al-Sahib** (died 995).
1000	During the tenth and eleventh centuries the Anglo-Saxon or English language was undergoing such radical grammatical changes that it was not a suitable literary medium. The great authors of these two centuries in England are those who wrote in Latin as being intelligible to the learned, for whom they wrote.	Rhymed prose, by **Ahmad al-Hamadhani** (1007). "Commentary on the Koran," by **Al-Hasan al-Nisaburi** (died 1015). "History," by **Ibn Maskawai** (1030). "Philosophy," by **Ibn Sina** (Avicenna 980-1037), a text-book for European universities. "Geographical Dictionary," by **Al-Bakri** (1094).

A. D.	GERMANY.	FRANCE.
1100	"Rolandslied," descriptive of Roland at Roncesvalles and of Charlemagne. "Alexanderlied," on the deeds of Alexander. Both epic poems by unknown authors prior to 1130. "Tagelieder" (Dawn-songs), "Parzival," the basis of Wagner's "Parsifal, Story of the Holy Grail"; by **Wolfram von Eschenbach** (about 1165 to about 1220). "Kreuzlied," in celebration of the Crusade of Frederick II., by **Walther von der Vogelweide** (about 1165 to about 1230), a Middle High German minnesinger. Peasant lyrics, forerunners of the Volkslied, by **Neidhart von Reuenthal** (about 1180 to about 1240).	(2) "Cycle de Brétagne." The chief poet is **Chretien de Troyes.** The motive is love. It deals with the search for the Holy Grail, King Arthur and the Round Table, the romance of "Tristan and Iseut." In this cycle are "Lays of Bretagne," by **Marie de France,** the earliest French poet. Poem of 2,300 lines on St. Patrick's Purgatory, animal fables called "Ysopet"; the "Lais" of 14 narrative poems each from 100 to 1,200 lines; loves of "Tristan and Iseut"; "Eliduc"; "Le rossignol" (the nightingale); "Les deux amants"; "Yonec," a fairy tale of the bluebird and Lanval, by **Marie de France.** (3) "Cycle Antique" deals with the ancient heroes of Greece and Rome; the "Roman d'Alexandre" with 12,000 verses of 12 syllables, by **Alexandre de Bernay** (twelfth century), the "Roman de Thebes," and the "Roman de Troie," by **Benoist de Sainte-Maure,** "Roman de Rou, et des ducs de Normandie," by **Wace** (1100-1175). "Conquéte de Constantinople" and particulars of the Fourth Crusade, by **Geoffroi de Villehardouin** (1155-1213).
1200	"Tristan and Isolde," the subject of Wagner's opera, a poem in 19,552 verses, by **Gottfried von Strasburg** (about 1200). "Nibelungenlied" (Song of the Nibelungs). A great High German epic, by an unknown poet at the beginning of the thirteenth century. Ten complete manuscripts are known. The Iliad of Germany. "Gudrun," chief of the Low German epic sagas, preserved in a High German poem, by an unknown author, at the beginning of the thirteenth century. The Odyssey of Germany. "Eneit," by **Heinrich von Veldeke,** father of Middle High German courtly poetry. "Sermons," by **Berthold von Regensburg,** a German Franciscan preacher (about 1220-1272). "Poems," mainly mocking and sensuous, excepting one, "Penitential Ode" by **Tannhauser,** a German knight and minnesinger (died about 1270). Sermons and philosophical works by **Johannes Eckhart** or **Eckhardt,** a mystic and reformer (about 1260-1327). "Autobiography," "Book of Everlasting Wisdom," and poems, by **Heinrich Suso** or **Seuse,** a German mystic (about 1295-1366).	Lyric poems, by **Thibaut,** Count of Champagne and King of Navarre (1201-1253). "Le roman du Renart" of 32,000 verses of satires. "Le roman de la rose," by **Guillaume de Lorris** (about 1215 to about 1240), of 4,000 verses, left unfinished. An addition of 18,000 verses in an entirely different vein was made by **Jean de Meun** in 1277. There are over 300 MSS. of this extant. "Histoire de St. Louis" (Louis IX.), "Credo," by **Jean de Joinville** (1225-1317). Lyric poems, by **Colin Musset,** a wandering minstrel (about 1250). "Le miracle de Théophile," a miracle play; numerous satirical poems, by **Ruteboeuf;** real name unknown. Mass sung at the coronation of Charles V. (1364); collection of poems; by **Guillaume de Machault** or **Machaut** (about 1284-1370), a poet and musician.

	ENGLAND.	FRANCE.
1300	**John Wiclif** (about 1320-1384). Two treatises, "Concerning Human Lordship," and "Concerning the Lordship of the Church," and a translation of the Bible into English. **John Gower** (1325-1408). Poems. **William Langland** (about 1332-1400?). The greatest poet of the century excepting Chaucer. "Piers Plowman," an allegorical poem descriptive of human life. **Geoffrey Chaucer** (about 1340-1400). The first great English poet. "Legende of Good Women," "Troylus and Crysede," "The House of Fame," "Palamon and Arcite," and "Canterbury Tales." **James I.** of Scotland (1394-1437). Poems.	"Chroniques," or Chronicles in four books of history; poems: "The Little Thane of Love," "Meliador," a lengthy poem on chivalry and legend, by **Jean Froissart** (about 1338-1410). "De l'art de dicter," by **Eustache Deschamps** (about 1350). "Oeuvres poétiques," "Life of Charles V.," by **Christine de Pisan** (about 1363-1431). "Miroir de mariage," of 13,000 lines; ballad to Chaucer. "History of Charles VII.," "Bréviaire des Seigneurs," "Lay de la belle dame sans merci," and other lovers' poems, by **Alain Chartier** (about 1390-1440). Poems of Love and Spring, written during twenty-five years' imprisonment in England, by **Charles of Orleans,** father of Louis XII. of France (1391-1465). The last of the French mediæval poets.
1400	**William Caxton** (1412-1492). "The Game and Playe of the Chesse." **William Dunbar** (1460-1530?). Poems. **William Tyndale** (1484-1536). Translation of the Bible. **Miles Coverdale** (1488-1568). Translation of the Bible. **Sir David Lindsay** (1490-1557). Poems and comedy. **Hugh Latimer** (1491-1555). Sermons.	"Poems," "Le petit testament," "Le grand testament," a "Codicille" of ballads, "Le jargon," a "Dialogue," and a "Monologue," "Le franc archier de Bagnolit," by **Francois Villon** (1431-1484). "L'avocat Panthelin," first masterpiece of French comic theater, author unknown (about 1475). "Mémoires," a complete political review of the times, by **Philippe de Comines** (1445-1509). "Prognostication Pantagrueline," "Gargantua," "Pantagruel," by **Francois Rabelais** (1495-1553). "Letters," "Poems," "Marguerites de la marguerite," "Dernières poésies," and parts of the "Heptaméron" by **Marguerite of Navarre** (1492-1549). Collection of fables, epistles, epigrams, and songs, by **Clement Marot** (1495-1544).

A. D.	ENGLAND.	PERSIA, ARABIA, ETC.
1100	"Ormulum," a paraphrase of scripture, by **Orm** (1187-1237).	Astronomical tables, reforming the calendar; a treatise on algebra—extracting the square and cube roots, on cubic equations, and on expanding a binomial; three books on natural science and three on metaphysics; the Rubaiyat (rhymed quatrains, translated by Edward Fitzgerald), by **Omar Khayyam** (about 1045-1123). "Surgery," by **Abu-l-Kasim** (1107). "Philosophy," a text-book in the Middle Ages in European universities, by **Al-Ghazali** (1058-1111), and similar works by **Ibn Badjah** or Avenpace (1138), **Ibn Tufail** (died 1185), and **Ibn Roshd** or Averroes (1153-1198). "Mantig ut-Tair," or parliament of birds, an allegorical poem, the most famous of the works of **Farid-ud-Din Attar** (about 1119-1229), who in his 110 years left over 120,000 couplets of poetry. One of the most famous mystics and Sufis.
1200	The "Brut," a metrical chronicle of Britain, describing the founding of Britain by Brutus, great grandson of Æneas, the history to the death of Cadwalader, last of the Celtic kings; the deeds of King Arthur; Cymbeline, King Lear; written 1200 and 1250. The older MS. contains 32,243 lines, written in Anglo-Saxon and containing not more than one hundred French words. The author was **Layamon**, who flourished about 1200. "Opus Majus," a work on philosophy, by **Roger Bacon** (1214-1294). "Ancren Riwle" (the Rule of Nuns), by an unknown author, appeared in 1220. "Historia Major," by **Matthew Paris** (died 1259). "Havelok the Dane," "The Gest of King Horn," "Bevis of Hampton," and "Guy of Warwick," by an unknown writer, appeared in 1280. "Willie Grice," "The Owl and the Nightingale," in poetry, by an unknown writer, appeared in 1280. "Summer is y-comen in," author unknown. "The Land of Cockayne," by **Michael of Kildare.** "Martyrdom of Thomas à Becket," by **Robert of Gloucester** (1255-1307).	**Jabir ibn Aflah** in 1196 constructed the first observatory at Seville. "Divan," and five great poems: "The Book of Alexander" (Iskander-Namah), "The Storehouse of Mysteries," "Khosrau and Shiran." "Majnun and Laila," and "The Seven Fair Faces," by **Nizami** (1141-1203), one of the seven epic poets of Persia. "Euclid," by **Nasir ed-Din al-Tusi** (about 1150). History of religious and philosophical sects, still the chief authority on the subject, by **Mohammed al-Shahrastani** (1153). "Medicine" by **Abd al-Malik ibn Zuhr** (1162). Histories of Damascus, by **Ali ibn Asakir** (1175). "Bustan" (Flower Garden) or "Sadinâma" (Book of Sadi), a didactic poem in 10 cantos, "Gulistan" (Rose-Garden), still highly esteemed in Persia; lyric poems, eulogies, elegies, ghazals, and a number of prose works by **Sadi** (about 1184 to about 1291), one of the greatest of Persian poets. "Mathnavi," a collection in 40,000 couplets in 6 books of tales and moral precepts; a "Divan" of lyrics by **Jalal-ud-Din Rumi** (1207-1273), the greatest of all the mystics of the East and the most important of the Persian Sufis. Ghazals or love poems, oriental odes making up the "Divan" or collection of poems, by **Hafiz** (?-about 1389), one of the world's greatest names in lyrical poesy.

	GERMANY.	ITALY, SPAIN, AND PORTUGAL.	SCANDINAVIA AND RUSSIA.
1300	"Book of Spiritual Poverty," and "Sermons," by **Johann Tauler**, a German mystic (1300-1361). "Limburg Chronicle" (1336-1398), "Alsace Chronicle" (about 1430), all of great historical value, authors unknown. University of Prague founded, 1348. University of Vienna founded, 1365. University of Heidelberg founded, 1386. University of Cologne founded, 1388.	"Divina Commedia" by **Dante Alighieri** (1265-1321). Italian. Prose writings by **Don Juan Manuel** of Spain (1282-1349). Poems by **Juan Ruiz de Hita** of Spain (1300-1350). "Canzoniere," and many works in Latin, by **Petrarch** (1304-1374), Italian. "Decameron" by **Giovanni Boccaccio** of Italy (1313-1375). Spanish poems by **Pedro Lopez de Ayala** (1332-1407). "Amadis de Gaula," written by a Portuguese, **Vasco de Lobeira** (about 1360-1403). Chronicles of Alfonso XI. in Spanish verse by **Rodrigo Yanez** (fourteenth century). Spanish sonnets by **Inigo Lopez de Mendoza**, Marquis of Santillana (1398-1458).	The Eddas were collected in the eleventh and twelfth centuries. **Henrik Harpestrings** (died 1244). Danish medical writer. Danish ballads by unknown writers between 1300-1500. **St. Bridget** (1302-1373), Revelations. "Act of Union at Calmar," by an unknown writer, published in 1397.
1400	University of Leipzig founded, 1409. University of Rostock founded, 1419. "Sermons," by **Geiler von Kaysersberg**, famous preacher (1445-1510). University of Greifswald founded, 1456. The "Ship of Fools" (a mirror of the times), a remarkable book, by **Brant** or **Brandt**, (about 1458-1521). The first printed book that dealt with contemporary events and living persons, instead of old German battles and French knights. Work on "Fortification," "Measuring with a Compass," and "Four Books of Human Proportion," by **Durer** (1471-1528). Sermons, religious poems, and "Eulenspiegel," a sort of chap book. "Translation of the Æneid," by **Murner** (1475-1537). University of Tübingen founded, 1477.	Spanish poems by **Juan de Mena** (1411-1456). Italian poems by **Luigi Pulci** (1431-1487). Spanish poems by **Juan de la Enzina** (1468-1534). Historical and political works (Italian) by **Niccolo Machiavelli** (1469-1527). "Orlando Furioso" (Italian verse) by **Ludovico Ariosto** (1474-1533).	**Johannes Budde** (d. 1484) translated the Bible into Swedish. University of Upsala founded (1477). **Christian Pedersen** (1480-1554) translated the Bible into Danish and wrote "Karl Magnus" and "Ogier the Dane." First Swedish Book printed, 1495. **Niels**, a monk, is credited with a history of Denmark and rhymed Danish verse, which was the first Danish book printed (1495). **Olaus Petri** (1497-1552) wrote a Swedish chronicle of history.

A. D.	ENGLAND.	FRANCE.
1400		"Commentaires," and "Mémoires," by **Blaise de Montluc** (1502-1577). "Poems, Epigrams, and Anagrams," written in Latin, by **Jean Daurat** or **Dorat** (1508-1588). "Institutes of the Christian Religion," with the famous preface to Francis I., "De Necessitate Reformandae Ecclesiae," "Commentaires sur la concordance ou harmonie des évangélistes," "In Novum Testamentum Commentarii," and others, by **John Calvin** (1509-1564). Translation of "Plutarch's Lives," and "Plutarch's Morals," and of several Greek romances, by **Jacques Amyot** (1513-1593).
1500	**Sir Thomas Wyatt** (1503-1542). Poet. **Roger Ascham** (1515-1568). Essayist. **John Foxe** (1516-1587). Theology. **Henry Howard** (Earl of Surrey) (1517-1547). Poems. **Thomas Sackville** (1536-1608). Poet and dramatist. **Sir Walter Raleigh** (1552-1618). Historian and poet. **Edmund Spenser** (1552-1599). Poet. **Richard Hooker** (1553-1600). Theology. **Sir Philip Sidney** (1554-1586). Poet. **John Lyly** (1554-1606). Essayist. **George Chapman** (1557-1634). Translation of Homer. **Robert Greene** (1560-1592). Poet. **Francis Bacon** (1561-1626). Essayist and philosopher. **Michael Drayton** (1563-1631). Poet. **Christopher Marlowe** (1564-1593). Poet and dramatist. **William Shakespeare** (1564-1616). Dramatist and poet. **Sir Henry Wotton** (1568-1639). Poems. **Ben Jonson** (1573-1637). Poems. **Thomas Heywood** (1575?-1650?). Poems. **Robert Burton** (1577-1640). Essays. **John Fletcher** (1579-1625). Poems. **Philip Massinger** (1583-1640). Poems. **William Drummond** (1584-1649). Poems. **Francis Beaumont** (1584-1616). Poems. **John Ford** (1586-1639). Poems. **George Withers** (1588-1667). Poems. **Thomas Hobbes** (1588-1679). Philosophy. **Robert Herrick** (1591-1674). Poems. **Francis Quarles** (1592-1644). Poems. **George Herbert** (1593-1633). Poems. **Izaak Walton** (1593-1683). Essays.	Theological writings, including a translation of the New Testament into Latin; editions of the Greek Testament; biography of John Calvin, first ever written; and "Codex Bezae," an uncial MS. of the New Testament, presented to the University of Cambridge, by **Theodore Beza**, properly **de Beze** (1519-1605). "Odes," "Amours," "Hymnes," "Franciade," by **Pierre de Ronsard** (1524-1585). "La défense et l'illustration de la langue française," "Poems," "Sonnets," "Les regrets," "Les jeux rustiques," "Lettres," by **Joachim du Bellay** (1524-1560). "Petites inventions," "Bergeries," "Amours et nouveaux échanges de pierres précieuses," "La reconnue" (Recognition), a rhymed comedy, by **Remy Belleau** (1528-1577). "Thesaurus Linguae Graecae," by **Henricus Stephanus** or **Estienne** (1528-1598). "Traité de la servitude volontaire," "Contr'un," by **Etienne de la Boetie** (1530-1563). "Discours politiques et militaires," and "Correspondance," by **Francois de la Noue** (1531-1591). Collége Royal de France (now Collége de France), established by Francis I., 1531. "Cléopâtre captive," "Didon se sacrifiant" (tragedies), "Eugène" (comedy), by **Etienne Jodelle** (1532-1573). "Poésies choisies," "Mimes, enseignments, et proverbes," by **Jean Antoine de Baif** (1532-1589). "Apologie de Raimond Sebond," his most famous essay in skepticism, "Essays," by **Michel Eyquem de Montaigne** (1533-1592). "Vies des hommes illustres et des grands capitaines français," "Vies des dames illustres," "Vies des dames galantes," "Anecdotes touchant les duels," "Rodomontades et jurements des Espagnols," by **Pierre de Bourdeilles, Abbe de Brantome** (about 1540-1614). "Traité des trois vérités," "Traité de la sagesse," and "Sermons," by **Pierre Charron** (1541-1603). "Poems," "Contr'une nuit trop claire," "Rosette pour un peu d'absence," sonnets and elegies, by **Philippe Desportes** (1546-1606). "Les tragiques," a poem in seven cantos, "Histoire universelle," "Confession catholique du Sieur de Sancy," "Aventures du Baron de Foeneste," by **Theodore Agrippa d'Aubigne** (1550-1630). Nine prose comedies by **Pierre de Larivey** (about 1550-1612). "Works" consisting of 125 poems, "Commentaire sur Desportes," translation of letters, "Ode of Consolation," by **Francois de Malherbe** (1555-1628). "Astrée," a most popular novel, by **Honore d'Urfe** (1568-1625). Sixteen satires, including "Le goût décide de tout," "L'honneur ennemi de la vie," "L'amour qu'on ne peut dompter," "Régnier apologiste de lui-même," "La folie est générale," and "Le mauvais lieu" by **Mathurin Regnier** (1573-1613). "La satire Ménippée," by **Leroy, Gillot, Passerat, Rapin, Chrestien, Pithou,** and **Durant,** published in 1594. "Discours de la méthode," "Meditationes de prima Philosophia," "Principia Philosophiae," "Géométrie," "De l'homme," and other philosophical works, by **Rene Descartes** (1596-1650).

GERMANY.	ITALY, SPAIN, AND PORTUGAL	SCANDINAVIA AND RUSSIA.
Hymns, including "A Mighty Fortress is our God," numerous theses, religious and political, and translation of the Bible, by **Luther** (1483-1546).	Historical works in Spanish, by **Las Casas** (1474-1566).	**Mikkel**, a priest at Odense, wrote, "Rose Garden of Maiden Mary," "The Creation," and "Human Life."
Sermons and contributions to Reformation literature, by **Zwingli** (1484-1531).	Historical and political (Italian) works, by **Francesco Guicciardini** (1482-1540).	**Laurentius Petri** (1499-1573). Psalms in Swedish.
Latin poems, letters, and orations, dialogues and letters in Latin and German, "Epistolæ Obscurorum Virorum," by **Hutten** (1488-1523), scholar, poet, and reformer. Satirical letters published in the furtherance of the Reformation at Hagenau in 1505. The cleverest satire of the period.	Portuguese dramas, by **Gil Vicente** (1485-1577).	
Collection of German proverbs, native humor, morality, and patriotism, which endeared him to the heart of scholarly Germany, by **Johann Agricola** (1492-1566).	Poems and burlesques (It.), by **Francesco Berni** (1490-1536).	
Hymns, fables, allegories, merry tales, dialogues, comedies, Shrovetide plays, by **Hans Sachs** (1494-1576), 6,300 pieces, best and most prolific of the meistersingers.	Prose satires (It.), by **Pietro Aretino** (1492-1557).	
A universal history (first attempt), and "Sprichwörter," by **Sebastian Franck** (1499-1542), reformer and humorist.	Poems (Sp.), by **Juan Boscan Almogaver** (1493-1543).	
	Poems (Sp.), by **Cristobal de Castillejo** (1494-1556).	
	Epistles in verse, by **Francisco de Miranda** (1495-1558). Portuguese.	
	History (Port.), by **Joao de Barros** (1496-1571).	
"Schweizerchronik," valuable still, and "Gallia Comata," by **Ægidius** (or **Gilg**) **Tschudi** (1505-1572), Swiss antiquarian.	Poems (Sp.), by **Garcilaso de la Vega** (1503-1536).	**Martin Bielski** (1500-1576). Polish historian.
	History and poems (Sp.), by **Diego Hurtado de Mendoza** (1503-1575).	
	Ascetic and mystic treatises, meditations, and letters (Sp.), by **Santa Teresa** (1515-1582).	**Rey of Naglowice** (1505-1569). Father of Polish poetry.
	Novels (Port.), by **Jorge de Montemayor** (1520-1561).	
	"Lusiad," Portuguese epic, by **Luiz de Camoens** (1525-1580).	**John Kochanowski** (1530-1584) Polish poet.
	Antonio Ferreira (1528-1569). Portuguese poet.	
	Luis Ponce de Leon (1529-1591), Spanish poet and prose writer.	**A. G. Vedel** (1542-1616). Danish philologist. He translated Saxo Grammaticus.
"True Christianity," "Garden of Paradise," by **Arndt** or **Arnd** (1555-1621).	"La Araucana" (Sp.), by **Alonzo de Ercilla y Zuniga** (1533-1595).	**Hieronymus Rauch** (?-1607). Danish biblical tragedies.
	Lyric poems (Sp.), by **Fernando Herrera** (1534-1597).	
	Historical works (Sp.), by **Juan de Mariana** (1536-1623).	**Peder Claussen** (1545-1623). Danish geographer.
	"Jerusalem Delivered" and other poems (It.), by **Torquato Tasso** (1544-1595).	
	"Don Quixote," Spanish romance, by **Miguel de Cervantes Saavedra** (1547-1616).	**Tycho Brahe** (1546-1601). Danish astronomer.
Collected poems by **Georg Rudolf Weckherlin** (1584-1653).	**Vicente Espinel** (1551-1634). Spanish poems and novels.	
	Luis de Gongora y Argote (1561-1627). Spanish poems.	**Arild Hvitfeld** (1549-1609). Danish Chronicles.
	Lope de Vega Carpio (1562-1635), Spanish dramas.	
	Galileo Galilei (1564-1642). Italian scientific works.	Printing press set up in Moscow (1564).
	Allesandro Tassoni (1565-1635). Italian poet.	
	Giambattista Marini (1569-1625). Italian poet.	**Johan Messenius** (1579-1637). Swedish historian and poet.
Witty and realistic works, by **Johann Laurenberg** (1590-1658), satirist.	**Guillen de Castro** (1569-1631). Spanish dramas.	
	Diego Arduarte (1570-1637). Spanish history.	**Joost van den Vondel** (1587-1679). Dutch poet.
	Gabriel Tellez (1571-1648). Spanish dramas.	
	Francisco Gomez de Quevedo y Villegas (1580-1645). Spanish satirist.	**Anders Arreboe** (1587-1637). Danish poet.
	Juan Ruiz de Alarcon y Mendoza (1588?-1639). Spanish dramas.	**Gustavus Adolphus** (1594-1632), king of Sweden. Speeches.
	Manuel de Faria (1590-1649). Portuguese-Spanish historian and poet.	
Three volumes of poetry, including the words of the oldest German opera, "Dafne," by **Martin Opitz** (1597-1639).	**Manuel de Villegas** (1596-1669). Spanish lyrics.	**Georg Stjernhjelm** (1598-1672). Swedish philologist and poet

A. D.	ENGLAND.	FRANCE.	GERMANY.
1600	**Sir Thomas Browne** (1605-1682). Theology.	"La comédie des comédiens," "La mort de César," "Arminius," "Alaric," by **Georges de Scudery** (1601-1667).	"Book of Visions," by **Moscherosh** (160 1669), satirist.
	Edmund Waller (1605-1687). Poet.	"Le Cid," from which modern French drama dates, "Horace," "Cinna," "Polyeucte," "Rodogune," "La mort de Pompée," "Théodore," and many other dramas, by **Pierre Corneille** (1606-1684).	
	Thomas Fuller (1608-1661). Theology.	"Ibrahim," "Artamène, ou le Grand Cyrus," "Clélie," "Almahide," "Mathilde," by **Madeleine de Scudery** (1607-1701).	Collection of epigrams by **Logau** (1604-1655).
	John Milton (1608-1674). Poems.	"Roman comique," "Nouvelles tragi-comiques," by **Paul Scarron** (1610-1660).	
	Sir John Suckling (1609-1642). Poems.	Ten plays, the best of which are: "La mort de Mithridate," "Bradamante," "Jeanne d'Angleterre," "Le comte d'Essex," "Edouard, roi d'Angleterre." Three novels: "Cassandre," "Cléopâtre," "Faramonde, histoire de France," by **Gauthier de Costes de la Calprenede** (1610-1663).	Hymns, "O Sacred Head once Wounded," "Commit Thou all Thy Griefs," and "Jesus, Thy Boundless Love for Me," and many others, by **Paulus** (or **Paul**) **Gerhardt** (1607-1676), after Luther the greatest hymn writer of Germany.
	Edward Hyde, Earl of Clarendon (1609-1674). Historian.	"De la fréquente communion," "Théologie morale des Jesuites," "La perpetuité de la foi de l'église catholique défendue," "L'impiéte de la morale des Calvinistes," and other works, in over 100 volumes, by **Antoine Arnauld** (1612-1694).	
		"Maximes" ("Réflexions ou sentences et maximes morales"), "Mémoires," "Lettres," by **Francois la Rochefoucauld** (1613-1680).	Collected poems by **Paul Fleming** or **Flemming** (1609-1640).
		"Works," principally memoirs, by **Cardinal de Retz** (1614-1679).	
	Samuel Butler (1612-1680). Satires.	"Le pédant joué," a comedy, "Histoire comique des états et des empires du soleil," by **Savinien Cyrano de Bergerac** (1619-1655).	
	Jeremy Taylor (1613-1667). Theology.	"L'école des femmes," "Don Juan," "L'amour médecin," "Le misanthrope," "Le médecin malgré lui," "L'avare," "Le bourgeois gentilhomme," "Psyché," "Les femmes savantes," "Le malade imaginaire," and other plays by **Moliere**, pseudonym of **Jean Baptiste Poquelin** (1622-1673).	
	Richard Baxter (1615-1691). Theology.	"Lettres provinciales," 18 in controversy with the Jesuits, "Pensées sur la religion et sur quelques autres sujets," "Apologie de la religion chrétienne," "Geometry of Conics" written at 16, by **Blaise Pascal** (1623-1662).	**Andreas Greif** or **Gryphias** (1616-1664). First to introduce regular five-act tragedy into German.
	Sir Richard Lovelace (1618-1658). Poems.	"La logique, ou l'art de penser," "Essais de morale," by **Pierre Nicole** (1625-1695).	
	Abraham Cowley (1618-1667). Poems.	Theological works: "Exposition de la doctrine de l'église catholique sur les matières de controverse," "Histoire des variations des églises protestantes," "Discours sur l'histoire universelle jusqu'à l'empire de Charlemagne," "Politique tirée de l'Ecriture Sainte," "Select Sermons and Funeral Orations," "Sermon on the Mount," "Méditations," by **Jacques Benigne Bossuet** (1627-1704).	Love lyrics by **Hofmannswaldau** (1617-1679).
	Andrew Marvell (1620-1678). Poems.		"Rosamond of the Adriatic," novel of adventure, also grammar and verse, by **Zesen** (1619-1689), poet and romancer.
	John Evelyn (1620-1706). Diary.	"Le siècle de Louis le Grand," a poem; "Parallèle des anciens et des modernes," answers to the attacks of Boileau; two studies of "Les hommes illustres qui ont paru en France pendant ce siècle," and "Mother Goose" stories of Sleeping Beauty, Little Red Riding Hood, Bluebeard, Puss in Boots, Cinderella, and Tom Thumb, by **Charles Perrault** (1628-1703).	
	George Fox (1624-1690). Journal.		"Simplicissimus," the only German fiction of the seventeenth century that can be read now with pleasure, by **Grimmelshausen** (about 1625-1676), the author's adventures in the Thirty Years' War.
	John Bunyan (1628-1688). Allegory.	"Sermons and Moral Discourses," "Married Life, Its Obligations, Trials, etc.," by **Louis Bourdaloue** (1632-1704).	
		"Oraisons funèbres," "Carmen Eucharisticum," "Circus Regius," "Mémoires sur les grand jours de Clermont," by **Valentin Esprit Flechier** (1632-1710).	
		"La princesse de Clèves," a novel; "Mlle. de Montpensier," a short story; "Zayde," a novel; "La Comtesse de Teude," a short story; and "Mémoires," by **Marie Madeleine Pioche de la Vergne, Comtesse de la Fayette** (1634-1693).	
	John Dryden (1631-1700). Poems.	"Lettres," by **Madame Francoise d'Aubigne, Marquise de Maintenon** (1635-1719).	
	Samuel Pepys (1632-1703). Diary.	"L'art poétique," "Dialogue des héros de roman," "Réflexions critiques sur Longin," "Le lutrin," a mock-heroic poem, and many other poems, by **Nicholas Boileau-Despreaux** (1636-1711).	Lyrics, tragedies, and a long novel, by **Lohenstein** (1635-1683).
	John Locke (1632-1704). Metaphysics.	"Recherche de la vérité," "Conversations metaphysiques de chrétiennes," "Traité de la nature et de la grâce," "Réponses de Malebranche à Arnauld." by **Nicolas Malebranche** (1638-1715).	
	Sir Isaac Newton (1642-1727). Philosophy.	"Andromaque," "Phèdre," "Iphigénie," "Athalie," "Esther," "Bérénice," "Bajazet," "Mithridate," "Les plaideurs," by **Jean Racine** (1639-1699).	Theological works (180) by **Spener** (1635-1705), founder of the German Pietists.

ITALY AND SPAIN.

Hieronomo de Contreras (1600-1648). Spanish poet and novelist.

Pedro Calderon de la Barca (1600-1681). Spanish dramas.

Francisco de Zorrilla (1607-1660). Spanish dramas.

Antonio de Solis y Ribadeneira (1610-1686). Spanish historian and dramatist. Author of "Conquest of Mexico."

Manuel de Melo (1611-1666). Portuguese historian and poet.

Salvator Rosa (1615-1673). Italian painter. Wrote satires, odes, and letters.

Agustin Moreto y Cabana (1618-1669). Spanish dramas.

Lorenzo Magalotti (1637-1712). Italian prose writer.

Vincenzo da Filicaja (1642-1707). Italian lyric poet.

SCANDINAVIA AND RUSSIA.

Erik Pontoppidan (1616-1678). Danish grammarian.

Rosenhane (1619-1684). Swedish poet and sonneteer.

Waclaw Potocki (1622-1697). Noted Polish poet.

Clas Arrhenius (1627-1695). Swedish historian.

Olaf Rudbeck (1630-1702). Swedish physiologist and botanist.

Thomas Kingo (1634-1703). Danish divine. Wrote psalms and hymns.

AMERICA.

"A True Relation of Such Occurrences and Accidents of Note as hath Happened in Virginia," by **John Smith**, published in London (1608).

"A True Reportory of the Wrack and Redemption of Sir Thomas Gates, Knight, upon and from the Islands of the Bermudas, his coming to Virginia and the Estate of that Colony then and after under the Government of the Lord La Ware," by **William Strachey**, published in London in 1610. Possibly suggested "The Tempest" to Shakespeare.

"A Map of Virginia, with a Description of the Country, the Commodities, People, Government, and Religion," by **John Smith**, Oxford (1612).

"Good News from Virginia," by **Alexander Whitaker**, London (1613).

"A Description of New England," by **John Smith**, London (1616).

"Mayflower Compact," written by the Pilgrim Fathers in 1620.

"New England's Trials," by **John Smith**, London (1620).

"A Relation or Journal," by **Bradford** and **Winslow**, covering the period from November 9, 1620, to December 18, 1621. London (1621), and long known as "Mourt's 'Relation.'"

"Sin and Danger of Self-Love," the first published discourse delivered in New England, by **Robert Cushman**, London (1624).

"Good News from New England," by **Edward Winslow**, London (1624).

"Nova Anglia," in Latin verse and English pentameter paraphrase, by **William Morrell**, London (1625).

"Translation of the Fifteen Books of Ovid's Metamorphoses," by **George Sandys**, London (1626).

"New England's Plantation," by **Francis Higginson**, London (1629).

"History of Plymouth Plantation," by **William Bradford**, written from 1630 onward, and first published in full in 1856.

"The History of New England," by **John Winthrop**, written between March 29, 1630, and November, 1648, first published in full in 1825 and 1826.

"The Humble Request of his Majesty's Loyal Subjects, the Governor and the Company lately gone for New England, to the Rest of the Brethren in and of the Church of England," by **John Winthrop** and others, published in 1630.

"True Travels, Adventures, and Observations," by **John Smith**, published in 1630.

"Advertisements for the Inexperienced Planters of New England," by **John Smith**, published in 1631.

"The Soul's Preparation; or, a Treatise of Contrition," by **Thomas Hooker** (1586-1647), published in 1632.

"New England's Prospect," with map. by **William Wood**, published in 1634.

"The Soul's Implantation," and "The Soul's Humiliation," by **Thomas Hooker**, in 1637.

"New English Canaan," by **Thomas Morton**, published in 1638.

Several religious treatises, by **Thomas Hooker**, published in 1638.

"New England's Teares for Old England's Feares," by **William Hooke**, published in 1639.

"An Almanac for 1639; calculated for New England," by **William Pierce**, and printed by Daye at Cambridge (Mass.). **Stephen Daye** set up the first printing press in America in 1639 at Cambridge.

"Freeman's Oath," the first product of the press in America, printed by Daye in 1639.

"The Whole Book of Psalms Faithfully Translated into English Metre," by **Richard Mather**, **John Eliot**, and other "Chief Divines in the Country," known as the "Bay Psalm Book," the first English book printed in America (1640).

"The Way of Life," in four treatises, by **John Cotton**, London (1641).

"The Sincere Convert, Discovering the Paucity of True Believers and the Great Difficulty of Saving Conversion," by **Thomas Shepard** (1641).

"The Body of Liberties," compiled by **Nathaniel Ward** (1641).

"An Abstract of the Laws of New England" (1641).

"A Catechism Agreed upon by the Elders at the Desire of the General Court" (1641).

"A Brief Exposition of the Book of Canticles," by **John Cotton** (1642).

"Plain Dealing; or, News from New England," by **Thomas Lechford** (1642).

"Theses of the First Graduates of Harvard College" (1642).

A. D.	ENGLAND.	FRANCE.	GERMANY.
1600	**Jeremy Collier** (1650-1726). Sermons.	"Caractères," "Pensées," "Discours," "Lettres," by **Jean de la Bruyere** (1645-1696).	Works of originality and power in mental science and mathematics by **Leibnitz** (1646-1716).
	Thomas Otway (1652-1685). Dramas.	"Historical and Critical Dictionary," "Pensées sur la comète," "Critique générale sur l'histoire du Calvinisme du Père Maimbourg," and many philosophical treatises, by **Pierre Bayle** (1647-1706).	
	Daniel Defoe (1661-1731). Tales and essays.	"De l'éducation des filles," "Fables," "Dialogues des morts," "Abrége des vies des anciens philosophes," "Vie de Charlemagne," "Maximes des saints," "Télémaque," by **Francois de Salignac de la Mothe Fenelon** (1651-1715).	
	Matthew Prior (1664-1721). Poems.		Odes, satires, and elegies, by **Canitz**, poet and statesman (1654-1699).
	Jonathan Swift (1667-1745). Tales and essays.	"La Provençale," a novel; "Le joueur," "Le distrait," "Démocrite," "Les folies amoureuses," "Les Ménechmes," and other plays, by **Jean Francois Regnard** (1655-1709).	First German magazine by **Thamasius** (1655-1728).
		"Histoire des oracles," "Entretiens sur la pluralité des mondes," "Dialogues des morts," by **Bernard le Bovier Fontenelle** (1657-1757).	
	William Congreve (1670-1729). Dramas.	"Traité des études," an educational work; "Histoire ancienne," "Histoire romaine," by **Charles Rollin** (1661-1741).	
	Sir Richard Steele (1671-1729). Essays.	"Le notaire obligeant," "Le chevalier à la mode," and other plays; a metrical version of the Psalms and a sacred tragedy, by **Florent Carton Dancourt** (1661-1725).	Theological and pedagogical works by **Franke** (1663-1727), educator and philanthropist.
	Joseph Addison (1672-1719). Essays and poems.	Funeral orations and sermons in 15 volumes, by **Jean Baptiste Massillon** (1663-1742).	
	George Farquhar (1678-1708). Dramas.	"Turcaret," a comedy; "Gil Blas," a novel; and other works, by **Alain Rene Le Sage** (1668-1747).	
		Thirteen volumes of works comprising "Lettres inédites" and political and legal utterances, by **Henri Francois d'Aguesseau** (1668-1751).	Philosophy and mathematics by **Wolf or Wolff** (1679-1754), disciple of Leibnitz.
	Bishop Berkeley (1684-1753). Philosophy.	Epigrams, satires, and lyric poems in 5 volumes, by **Jean Baptiste Rousseau** (1670-1741).	
	Edward Young (1684-1765). Poems.	"Idoménée," "Atrée et Thyeste," "Electre," "Rhadamiste et Zénobie," "Pyrrhus," and other plays, by **Prosper Jolyot de Crebillon** (1674-1762).	
	Allan Ramsay (1686-1758). Poems.	"Mémoires," by **Louis de Rouvroy, Duc de Saint-Simon** (1675-1755).	
	John Gay (1688-1732). Fables and poems.	"Le dissipateur," "Le glorieux," "Le philosophe marié," "La faussée Agnes," and other plays by **Philippe Nericault Destouches** (1680-1754).	Collection of poems (13 vols.), "Translation of Thomson's Seasons," by **Brockes** (1680-1747).
	Alexander Pope (1688-1744). Poems.	"Arlequin poli par l'amour," "Les surprises de l'amour," "Le triomphe de Plutus," "Le legs," "Les fausses confidences," and other plays; "Marianne," and other novels, by **Pierre Carlet de Chamblain de Marivaux** (1688-1763).	
	Samuel Richardson (1689-1761). Novels.	"Lettres persanes," "Considérations sur les causes de la grandeur et la décadence des Romains," "Dialogues de Sylla et d'Eucrate et de Lysimaque," "Esprit de lois," by **Charles de Secondat, Baron de la Brede et de Montesquieu** (1689-1755).	Collection of poems by **Gunther** (1695-1723), lyric poet, most gifted poet of an unpoetic age.
	Lady Mary Wortley Montagu (1690-1762). Letters.	"Arlequin Deucalion," a monologue in three acts: "La métromanie," and other plays in 7 volumes, by **Alexis Piron** (1689-1773).	Translation of Milton's "Paradise Lost" by **Bodmer** (1698-1783), poet and critic.
	Bishop Joseph Butler (1692-1752). Theology.	"Oedipe," a tragedy; "Poëme de la Ligue," "Le pour et le contre"; "La Henriade," a poem; "Brutus," "Zaïre," "Sémiramis," tragedies; "Histoire de Charles XII., roi de Suede," "Letters Concerning the English Nation," "Lettres philosophiques," "Contes philosophiques," "Candide," "Tancrède," by **Voltaire**, name assumed by **Jean Francois Marie Arouet** (1694-1778).	
		"Mémoires d'un homme de qualité," "Manon Lescaut," and other novels, by **Antoine Francois Prevost d'Exiles** (1697-1768.)	
1700	**James Thomson** (1700-1748). Poems.	"Histoire de Louis XI.," "Considérations sur les moeurs de la règne de Louis XIV.," "La régence et le règne de Louis XV.," by **Charles Pinot Duclos** (1704-1772).	Literary criticism amounting almost to a dictatorship, by **Gottsched** (1700-1766), in drama and poetry.
	Henry Fielding (1707-1754). Novels.		"Physiological Elements of the Human Body," by **Haller** (1708-1777), scientist and poet.
	Samuel Johnson (1709-1784). Dictionary and essays.	"Natural History" in 44 volumes, "Discours sur le style," by **Georges Louis Leclerc, Comte de Buffon** (1707-1788).	Unparalleled progress in letters under **Frederick II.** (1712-1786).
		"Vert-vert," "Chartreuse," "Carême impromptu," "Lutrin vivant," "Edouard III.," "Sydney," "Le méchant," and other plays, by **Jean Baptiste Louis Gresset** (1709-1777).	**Rabener** (1714-1771), satirist.
	Thomas Reid (1710-1796). Philosopher.		"Des Frühling," "Gedichte," by **Kleist** (1715-1759), eminent nature poet.
	David Hume (1711-1776). Historian.	Contributions to the Encyclopedia of Diderot and 24 volumes, principally of political science, including "Entretiens de Phocion," "Doutes proposés aux philosophes économistes," "Observations on the laws and government of the United States of America," by **Gabriel Bonnot de Mably** (1709-1785).	Poems, didactic and religious, fables, stories, very popular in their day, 10 vols. of works by **Gellert** (1715-1769).
	Laurence Sterne (1713-1768). Novelist.		Songs and collected poems and modern glees by **Hagedorn** (1718-1754).
	Thomas Gray (1716-1771). Poet.		Collection of witty and caustic epigrams, "Sinngedichte," by **Kastner** (1719-1800).
		"Confessions," "Discours sur l'inégalite," "Discours sur les sciences et les arts," "Letter on Providence," "Du contrat social," "La nouvelle Héloïse," "Emile," "Lettres écrites de la montagne," "Dialogues," by **Jean Jacques Rousseau** (1712-1778).	"Preussische Kriegslieder von einem Grenadier," vigorous and thrilling (Seven Years' War), by **Gleim** (1719-1803).
	Gilbert White (1720-1793). Naturalist.		"Allgemeine Theorie der schönen Künste," by **Sulzer** (1720-1779).
	William Collins (1721-1756). Poet.		

ITALY AND SPAIN.

Alessandro Guidi (1650-1712). Italian lyric poet.

Pier Jacopo Martelli (1655-1727). Italian poet and dramatist.

Giovanni Battista Vico (1668-1744). Italian historian.

Apostolo Zeno (1668-1750). Italian dramatist.

Ludovico Antonio Muratori (1672-1750). Italian annalist.

Count of Ericeyra (Francisco Xavier de Menezes) (1673-1744). Portuguese historian.

Niccolo Forteguerri (1674-1735). Italian satirist.

Francesco Scipione Maffei (1675-1755). Italian poet, archæologist, and dramatist.

Francisco Benito Feyjoo y Montenegro (1676-1764). Spanish essayist and critic.

Antonio Conti (1677-1749). Italian poet and philosopher.

Pietro Metastasio (1698-1782). Italian poet and dramatist.

Ignacio Luzan (1702-1754). Spanish poet

Don Juan de Yriarte (1702-1771). Spanish proverbs.

Carlo Goldoni (1707-1793). Italian dramatic and comic author.

Carlo Gozzi (1722-1806). Italian dramatist

Giuseppe Parini (1729-1799). Italian poet.

Giralamo Tiraboschi (1731-1794). Italian literary historian.

Ramon de la Cruz (1731-1795). Spanish dramatist.

SCANDINAVIA AND RUSSIA.

First book printed in Norway, an almanac, 1643.

Peder Dass (1647-1708). Norwegian poet.

Gustaf Adlerfeld (1671-1709). Swedish historian.

Eric Benzel (1675-1743). Swedish moralist.

Ludwig Holberg (1684-1754). Danish historian and dramatist.

Vasili Tatishcheff (1686-1750). Russian historian.

Emanuel Swedenborg (1688-1772). Philosopher, founder of Swedenborgianism.

Hans Adolphus Brorson (1694-1764). Danish hymns.

Stepkn Konarski (1700-1773). Polish essayist,

Prince Chakhofskoi (1705-1772). Russian poet.

Johan Ihre (1707-1780). Swedish dictionary.

Olof Dalin (1708-1763). Swedish historian and poet.

Mikhail Lomonosoff (1711-1765). Founder of Russian literature.

Princess Dolgoroukaia (1713-1770). Russian poet.

Jacob Henrik Mork (1714-1763). Swedish novelist.

Charlotte Nordenflycht (1718-1763). Swedish poet.

Johann Ernest Gunnerus (1718-1773). Norwegian botanist.

Alexander Sumarokoff (1718-1777). Russian prose and verse.

C. B. Tullin (1728-1765). Danish poet.

AMERICA.

"A Looking-Glass for the Times," by **William Hubbard** (1621-1704).

"Church Government and Church Covenant," by **Richard Mather** (1643).

"An Help to the Language of the Natives in New England" (verse and prose), by **Roger Williams** (1643).

"New England's First Fruits. In respect, first, of the Indians. Second, of the Progress of Learning in the College at Cambridge" (1643).

"The True Use of Synods," by **Richard Mather** (1644).

"A Short History of the Rise, Reign, and Ruin of the Antinomians, Familists, and Libertines that Infested the Churches of New England," by **Thomas Welde** (1644).

"Queries of Highest Consideration," "The Bloody Tenet of Persecution for the Cause of Conscience," by **Roger Williams** (1644).

"The Way of the Churches of Christ in New England," by **John Cotton** (1645).

"The Sound Believer," by **Thomas Shepard** (1645).

"Christening makes not Christians," by **Roger Williams** (1645).

"A Declaration of Passages and Proceedings Between the English and the Narragansetts," by **Governor Winthrop** (1645).

"The Gospel Covenant," by **Peter Bulkley** (1646).

"Concerning the Power of Magistrates and Synods," by the Cambridge Synod (1646).

"Milk for the Spiritual Nourishment of Boston Babes in Either England," by **John Cotton** (1646).

"Simplicitie's Defence against Seven-headed Policie," by **Samuel Gorton** (1646).

"Hypocrisie Unmasked," by **Edward Winslow** (1646.)

"The Grounds and Ends of the Baptism of the Children of the Faithful," and "Singing of Psalms a Gospel Ordinance," by **John Cotton** (1647).

"The Day Breaking if not the Sun Rising of the Gospel with the Indians in New England," by (probably) **Thomas Shepard** (1647).

"The Simple Cobbler of Agawam," by "Theodore de la Guard," *nom de plume* of **Nathaniel Ward.** Ran through three editions in 1647.

"New England's Salamander," by **Edward Winslow** (1647).

"Way of Congregational Churches Cleared," by **John Cotton** (1648).

"Survey of the Summe of Church Doctrine," by **Thomas Hooker** (1648).

"Responsio ad Totum Questionem Syllogen a Clariss. Viro Gulielmo Apollonio Propositam (circa Politiam Ecclesiasticam in Anglia)," by **John Norton** (1648). The first Latin book written in New England.

"A Platform of Church Discipline," by the Cambridge Synod, in 1649.

"The Controversy Concerning Liberty of Conscience in Matters of Religion," by **John Cotton**, in 1649.

"The Glorious Progress of the Gospel among the Indians," by **John Eliot** and others, in 1649.

"Theses Sabbaticæ; or, the Doctrine of the Sabbath," by **Thomas Shepard**, in 1649.

"Disturbances made in New England by Samuel Gorton and his Accomplices," by **Edward Winslow**, in 1649.

"The Tenth Muse lately Sprung up in America," a book of poems, by **Anne Bradstreet**, published in London in 1650.

"Astronomical Calculations," by **Urian Oakes**, in 1650.

"A Catechism," by **Richard Mather**, in 1650.

"The Day of Doom; or a Poetical Description of the Great and Last Judgment"; "Meat Out of the Eater," by **Michael Wigglesworth** (1631-1705).

Several religious works, by **Increase Mather** (1639-1723).

A natural history of New England and other scientific works, by **John Josselyn** (died about 1680).

"New England's Crisis" (in verse on King Philip's War), by **Benjamin Thompson** (about 1650).

Several religious and poetical works, by **Cotton Mather** (1663-1728).

"A Journal of One Thousand Miles of Travel among the Indians," and a "Description of Carolina," by **John Lawson** (?—1712).

"A Two Years' Journal in New York," by **Charles Woolley** (about 1680).

"History of Virginia," by **Robert Beverley** (1675-1746).

A. D.	ENGLAND.	FRANCE.	GERMANY.
1700	**Mark Akenside** (1721-1770). Poet. **Tobias Smollett** (1721-1771). Novelist. **William Robertson** (1721-1793). Historian. **Sir William Blackstone** (1723-1780). Jurist. **Adam Smith** (1723-1790). Economist. **Oliver Goldsmith** (1728-1774). Essays, poems, and plays. **Bishop Percy** (1728-1811). Poet. **Edmund Burke** (1729-1797) Speeches and essays. **William Cowper** (1731-1800). Poet. **James Macpherson,** "Ossian" (1736-1796). Poet. **Edward Gibbon** (1737-1794). Historian. **James Boswell** (1740-1795). Biographer. **William Paley** (1743-1805). Theologian. **Hannah More** (1745-1833). Novelist and poet. **Jeremy Bentham** (1748-1832). Philosopher and essayist. **Richard Brinsley Sheridan** (1751-1816). Speeches, plays, and poems. **Thomas Chatterton** (1752-1770). Poet. **Frances Burney** (1752-1840). Novelist. **Dugald Stewart** (1753-1828). Philosopher. **George Crabbe** (1754-1832). Poet. **William Blake** (1757-1827). Poet. **Robert Burns** (1759-1796). Poet. **William Cobbett** (1762-1835). Essayist. **Joanna Baillie** (1762 - 1851). Poet. **Samuel Rogers** (1763-1855). Poet. **Isaac D'Israeli** (1766-1848). Literary essayist. **Maria Edgeworth** (1767-1849). Novelist. **James Hogg,** "The Ettrick Shepherd" (1770-1835). Essayist and poet. **William Wordsworth** (1770-1850). Poet. **Sir Walter Scott** (1771-1832). Novelist and poet. **Sydney Smith** (1771-1845). Sermons, essays, and satires **James Montgomery** (1771-1854). Poet. **John Lingard** (1771-1851). Historian. **David Ricardo** (1772-1823). Political economist. **Samuel Taylor Coleridge** (1772-1834). Essayist, poet. **Robert Southey** (1774-1843). Poet and biographer. **Charles Lamb** (1775-1834). Essayist. **Walter Savage Landor** (1775-1864). Essayist. **Jane Austen** (1775-1817). Novelist. **Henry Hallam** (1777-1859). Historian. **Thomas Campbell** (1777-1844). Poet. **William Hazlitt** (1778-1830). Essayist. **Thomas Moore** (1779-1852). Poet.	"Encyclopédie," "Le fils naturel," and "Le père de famille," plays; and many essays, by **Denis Diderot** (1713-1784). Contributions to Diderot's "Encyclopédie," "Révolution d'Amerique," by **Guillaume Thomas Francois Raynal** (1713-1796). "Introduction à la connaissance de l'esprit humain," "Réflexions," "Maximes," by **Luc de Clapier, Marquis de Vauvenargues** (1715-1747). Contributions to Diderot's "Encyclopédie," "De l'esprit," "De l'homme, ses facultés intellectuelles, et son éducation," by **Claude Adrien Helvetius** (1715-1771). "Traité de dynamique," "Réflexions sur la cause générale des vents," Contributions to Diderot's "Encyclopédie," by **D'Alembert**, the name assumed by **Jean Le Rond** (1717-1783). "Le philosophe sans le savoir," "La gageure imprévue," and "Oeuvres choisies," in three volumes, by **Michel Jean Sedaine** (1719-1797). Contributions to Diderot's "Encyclopédie," "Système de la nature," by **Paul Henri Thyry, Baron d'Holbach** (1723-1789). "Contes moraux," "Bélisaire," "Les Incas," popular novels; "Denys le tyran," "Aristomène," tragedies; contributions to Diderot's "Encyclopedie," and "Mémoires," by **Jean Francois Marmontel** (1723-1799). Contributions to Diderot's "Encyclopédie," "Le petit prophète de Boehmischbroda," "Correspondance littéraire, philosophique, et critique," by **Friedrich Melchior, Baron Grimm** (1723-1807). "Le barbier de Séville," "Le mariage de Figaro," "Eugénie," "Les deux amis," and other plays; "Mémoires," by **Beaumarchais**, a name assumed by **Pierre Augustin Caron** (1732-1799). "Voyage à l'Ile de France," "Etudes de la nature," "Paul et Virginie," "La chaumière indienne," "Harmonies de la nature," by **Jacques Henri Bernardin de Saint-Pierre** (1737-1814). Translation of Vergil's "Georgics," "Les jardins ou l'art d'embellir les paysages," "L'homme des champs en les georgics françaises." Translation of "Paradise Lost," "La pitié," Vergil's "Enéide," "L'imagination," "La conversation," and other poems, by **Jacques Delille** (1738-1813). "La jeune indienne," "Maximes et pensées," by **Sebastien Roch Nicolas Chamfort** (1741-1794). "Considérations sur la France," "Essai sur le principe générateur des constitutions politiques," "Du pape," "De l'église gallicane," "Lettres," "Mémoires," by **Joseph de Maistre** (1754-1821). "Galatée," "Numa Pompilius," "Estelle," "Gonsalve de Cordoue," "Fables," by **Jean Pierre Claris de Florian** (1755-1794). "Les révolutions de France et de Brabant," "Jeu de paume," a Pindaric ode; "A Versailles," "A Fanny," "Jeune captive," and other lyric poems, by **Andre Marie de Chenier** (1762-1794). "Voyage autour de ma chambre," "Les prisonniers du Caucase," "Le lépreux de la cité d'Aoste," "Prascovie, ou la jeune Sibérienne," and essays, by **Xavier de Maistre** (1763-1852). "Charles IX.," "Tableau historique de progrès de la litterature française," and the poems, "Chant du départ," "Sur la mort de Mirabeau," "Sur l'oligarchie de Robespierre." Also the satires, "Lettre à Voltaire," "Epître sur la calomnie," by **Marie Joseph de Chenier** (1764-1811). "Les Natchez," "Atala," "René," "Essai sur les révolutions," "Les martyrs," "Les aventures du dernier des Abencérages," "Itinéraire de Paris à Jerusalem," "De Buonaparte et des Bourbons," "Translation of Paradise Lost," "Mémoires d'outre tombe," by **Francois Rene Auguste, Vicomte de Chateaubriand** (1768-1848). **Georges Leopold, Baron de Cuvier** (1769-1832). Naturalist. **Francois Fourier** (1772-1837). Sociologist (Fourierism). **Jean Baptiste Biot** (1774-1862). Philosopher and mathematician.	"Patriotische Phantasien," "Osnabrückische Geschichte," by **Moser** (1720-1794), historian. "Sieg des Liebesgottes," "Poetische Schriften," by **Uz** (1720-1796), poet. "Der Messias," "Art of Poetry," 12 vols. of works, by **Klopstock** (1724-1803), poet. "Critique of Pure Reason" and an immense number of metaphysical works, by **Kant** (1724-1804). "Lieder der Deutschen," "Lyrische Blumenlese," by **Ramler** (1725-1798). Lyrics and books for children—the first to appeal to them, by **Weisse** (1726-1804). "Der junge Gelehrte," "Literatur Briefe," "Minna von Barnhelm," "Laokoon," "Nathan der Weise," by **Lessing** (1729-1781), Father of German criticism. "Pope, ein Metaphysiker," "Briefe über die Empfindungen," "Ueber die Evidenz in die metaphysischen Wissenschaften," "Phädon," "Jerusalem," and "Morgenstunden," by **Mendelssohn** (1729-1786), philosopher. "Tibullus," editions of Latin and Greek authors, and reviews of books, by **Heyne** (1729-1812), classical scholar. "Der Tod Abels," "Idyllen," and "Daphnis," by **Gessner** (1730-1788). "Sebaldus Nothanker" and literary reviews, by **Nicolai** (1733-1811). "Oberon," an epic, "Translations of Horace," "Letters of Cicero," "Dialogues of Lucian," 53 volumes of complete works, by **Wieland** (1733-1813). "Vom Verdienste," "Vom Tod für's Vaterland," by **Abbt** (1738-1766), author and mathematician. "Fragmente über die neuere deutsche Litteratur," "Kritische Wälder," "Ueber den Ursprung der Sprache," "Ideen zur Philosophie der Geschichte der Menschheit," 60 volumes, by **Herder** (1744-1803), critical works. "Lenore," a ballad, "Der wilde Jäger," "Leonardo und Blandine," by **Burger** (1747-1794), poet. Poetical works by **Holty** (1748-1776). "Wilhelm Meister," "Faust," "Dichtung und Wahrheit," by **Goethe** (1749-1832), greatest German writer, one of the greatest in the world. "Der Hofmeister," and short poems, by **Lenz** (1751-1792), dramatic poet. "Julius von Tarent," drama, by **Leisewitz** (1752-1806). "Geschichte der Schweizer," "Darstellung des Fürstenbundes," "Briefe zweier Domherren," by **Muller** (1752-1809), historian. "Die Zwillinge," tragedy; "Sturm und Drang," and "Faust" by **Klinger** (1752-1831). Die Räuber," "Don Carlos," "Der Taucher," "Der Handschuh," "Das Lied von der Glocke," "Wallenstein," "Maria Stuart," "Die Jungfrau von Orleans," "Wilhelm Tell," by **Schiller** (1759-1805). "Critique of all Revelation," "Doctrine of Science," "Science of Rights," "System of Ethics," etc., by **Fichte** (1762-1814). "Schulmeister Wuz," "Quintus Fixlein," "Hesperus," and pedagogical works by **Richter** (1763-1825), humorist. Poems, "Spanish Theater," and southern lyrics, by **Schlegel** (1767-1845), critic, poet, orientalist. "Philosophy of Mind," "Logic," "Philosophy of Right," "Philosophy of Religion," "Philosophy of History," "History of Philosophy," by **Hegel** (1770-1831). "Heinrich von Ofterdingen," "Hymnen an die Nacht," by **Novalis** (1772-1801). "History of Greek and Roman Poetry," "Lucinde," by **Friedrich von Schlegel** (1772-1829). "Volksmärchen," "Romantische Dichtungen," translations of Shakespeare and Don Quixote, by **Tieck** (1773-1853), novelist, translator, and critic. "Identitats-Philosophie," etc., by **Schelling** (1775-1854). "Die Elixire des Teufels," "Lebensansichten des Katers Murr," "Nachtstücke," "Der Goldene Topf," by **Hoffmann** (1776-1822).

ITALY AND SPAIN.

Giovanni Meli (1740-1815). Sicilian poet.

Alessandro Verri (1741-1816). Italian novelist.

Gaspar Melchor Jove-Llanos (1744-1811). Spanish prose.

Felix Maria de Samiengo (1745-1801). Spanish fables.

Alessandro Volta (1745-1827). Italian scientist.

Vittorio Alfieri (1749-1803). Italian poems and dramas.

Tomas de Yriarte (1750-1791). Spanish poet and translator.

Tomas Jose Gonzales Carvahal (1758-1834). Spanish poems.

Juan Melendez Valdez (1754-1817). Spanish poet.

Ippolito Pinde Monte (1754-1825). Italian poet.

Vincenzo Monti (1754-1828). Italian poems.

Leandro Moratin (1760-1828). Spanish dramas and poems.

Antonio Cesari (1760-1828). Italian editor.

Carlo Botta (1766-1837). Italian historian.

Juan Bautista de Arriaza (1770-1837). Spanish poems.

Manuel Jose Quintana (1772-1857). Spanish poet.

Jean Charles de Sismondi (1773-1842). Swiss historian.

Jose Maria Blanco (1775-1841). Spanish philosopher.

SCANDINAVIA AND RUSSIA.

Peter Frederik Suhm (1728-1798). Danish historian.

Gustaf Philip Creutz (1731-1785). Swedish poet.

Adam Naruszewicz (1733-1796). Polish poet and historian.

Mikhail Kheraskoff (1733-1807). Russian epic poet.

Ignacy Krasicki (1735-1801). Polish poet.

Johan Clemens Tode (1736-1806). Danish medical writer.

Karl M. Bellman (1740-1795). Swedish poet.

Johan Herman Wessel (1742-1785). Danish dramatist and poet.

Johan Ewald (1743-1781). Danish poet.

Gabriel Romanovitch Derzhavin or **Derjavine** (1743-1816). Russian lyric poet.

Hans Werner Frederic Abrahamson (1744-1812). Danish critical writer.

Ivan Ivanovitch Khemnitzer (1745-1784). Russian fabulist.

Claus Fasting (1746-1791). Danish poet.

Johan Oxenstjerna (1750-1818). Swedish poet.

Gudmund G. Adlerbeth (1751-1818). Swedish poet, dramatist, and translator.

Niels Treschow (1751-1833). Norwegian philosopher.

Anna Maria Lenngren (1754-1817). Swedish poet.

Johan Henrik Kellgren (1757-1795). Swedish lyric poet.

Thomas Thorild (1759-1808). Swedish critic.

Knud Lyne Rahbek (1760-1830). Danish novelist.

Jens I. Baggesen (1764-1826). Danish humorous poet.

O. C. Olafsen (1764-1827). Danish geographer and economist.

Nikolai Mikhailovitch Karamzin (1765-1826). Russian historian, novelist, and poet.

Ivan Andreyevitch Krylov (1768-1844). Russian fabulist.

Adolph Schack-Staffeldt (1769-1826). Danish poet.

Franz Franzen (1772-1847). Swedish poet.

Countess Gyllembourg-Ehrensvard (1773-1856). Danish novelist.

AMERICA.

History of the Pirates on the Island of Providence,' by **Charles Johnson** (about 1700).

"Freedom of the Will," "Original Sin," "Sermons," and other religious works, by **Jonathan Edwards** (1703-1758).

The Boston *News-Letter*, established on April 24, 1704, was the first and, for fifteen years, the only newspaper in what is now the United States; it continued until 1776.

"Poor Richard's Almanac," "Essays," Scientific, Moral, and Ethical papers, by **Benjamin Franklin** (1706-1790).

"History of the Province of Massachusetts Bay," by **Thomas Hutchinson** (1711-1780).

Boston *Gazette*, established on December 21, 1719; incorporated in 1741 with the New England *Weekly Journal*.

The American *Weekly Mercury* established at Philadelphia, on December 22, 1719; discontinued soon after.

"Catalogus Librorum Bibliothecæ Collegii," published by Harvard College in 1723; the first library catalogue published in this country.

The New York *Gazette*, established in 1725; the first paper of New York City.

The *Weekly Rehearsal*, established in Boston in 1731; followed by the Boston *Evening Post*, which was discontinued in 1775.

"Rights of Man," by **Thomas Paine** (1737-1809). His "Age of Reason" was published in 1794-1796.

"Battle of the Kegs" and "Rising Glory of America," in verse, by **Francis Hopkinson** (1738-1791).

"Modern Chivalry," by **H. H. Brackenridge** (1748-1816).

"McFingal," by **John Trumbull** (1750-1831), was published between 1775 and 1782.

Poems by **Phillis Wheatley** (Peters) (about 1753-1794), a negress born in Africa.

"The Vision of Columbus," "Hasty Pudding," and "The Columbiad," by **Joel Barlow** (1755-1812).

New Hampshire *Gazette* established in 1756.

"American Spelling Book," by **Noah Webster** (1758-1843), issued in 1783.

"Charlotte Temple," by **Susanna Rowson** (1762-1824).

Georgia *Gazette* established at Savannah in 1763.

"American Ornithology," begun by **Alexander Wilson** (1766-1813), and finished by **Charles Lucien Bonaparte** (1803-1857).

"Hail, Columbia," written in 1798, by **Joseph Hopkins** (1770-1842).

"Wieland," "Ormond," "Arthur Mervyn," "Edgar Huntley," "Clara Howard," and "Jane Talbot," by **Charles Brockden Brown** (1771-1810).

"The Invention of Letters," "The Ruling Passion" "Adams and Liberty," and "The Steeds of Apollo," by **Robert Treat Paine** (1773-1811).

Philadelphische Zeitung, the first German paper in America, established in 1773.

"The Declaration of Independence," by **Thomas Jefferson**, issued in 1776.

A. D.	ENGLAND.	FRANCE.	GERMANY.
1700	**James Henry Leigh Hunt** (1784-1859). Poet and essayist.	**Pierre Jean de Beranger** (1780-1857). Lyric poet.	"Ueber die Religion," "Monologe," "Glaubenslehre," by **Schleiermacher** (1768-1834).
	James Sheridan Knowles (1784-1862). Poet and playwright.	**Amable Barante** (1782-1866). Historian.	"Römische Geschichte," "Griechische Heroengeschichte," "Lectures on Ancient History," by **Barthold Georg Niebuhr** (1776-1831), historian.
	Henry Kirke White (1785-1806). Poet.	**Francois Guizot** (1787-1874). Historian.	Dramas, "Der zerbrochene Krug," "Die Familie Schroffenstein," and others; and "Michael Kohlhaas," a story, by **Kleist** (1777-1811).
	John Wilson, "Christopher North" (1785-1854). Essays and poems.	**Alphonse de Lamartine** (1790-1869). Historian.	"Sigurd der Schlangentödter," "Des Zauberring," "Jahreszeiten," "Undine," and "Sintram" by **Fouque** (1777-1843), novelist and poet.
	Thomas De Quincey (1785-1859). Essayist.		
	Sir William Napier (1785-1860). Historian.		"Des Knaben Wunderhorn," a compilation of German ballads, comedies, and fairy tales, by **Brentano** (1778-1842), novelist and poet.
	George Noel Gordon, Lord Byron (1788-1824). Poet.	**Abel Francois Villemain** (1790-1870). Historian and educator.	Numerous histories by **Friedrich von Raumer** (1781-1773), historian.
	Richard Harris Barham, "Thomas Ingoldsby" (1788-1845). Poet.	**Augustin Scribe** (1791-1861). Dramatist.	"Der Wintergarten," "Die Gräfin Dolores," "Halle und Jerusalem," "Die Kronenwächter," by **Ludwig Joachim von Arnim** (1781-1831), novelist and poet.
	Mary Russell Mitford (1787-1855). Novelist and dramatist.	**Antoine E. Genoude** (1792-1849). Historian.	"Peter Schlemihl," "Frauenliebe und- Leben," "Lebens-Lieder und- Bilder," by **Chamisso** (1781-1838), poet and naturalist.
	Sir William Hamilton (1788-1856). Philosopher.	**Victor Cousin** (1792-1867). Philosopher and metaphysician.	"Correspondence of Goethe with a child," letters, by **Bettina von Arnim** (1785-1859).
	Charles Wolfe (1791-1823). Poet.	**Jean Delavigne** (1793-1843). Poet and dramatist.	"*Le Balance*," "Menzel der Franzosenfresser," "Denkrede auf Jean Paul," by **Borne** (1786-1837).
	Henry Hart Milman (1791-1868). Historian.		"Deutsche Grammatik," by **Jakob Grimm** (1785-1863); "Altdanische Heldenlieder," by **Wilhelm Grimm** (1786-1859); "Deutsches Wörterbuch," "Deutsche Sagen," "Kinder- und Hausmärchen," and other works, by the Brothers **Grimm** in collaboration.
	Charles Knight (1791-1873). Historian.	**Charles Paul de Kock** (1794-1871). Novelist and dramatist.	
	Percy Bysshe Shelley (1792-1822). Poet.		
	Captain Frederick Marryat (1792-1848). Novelist.	**Jacques N. Augustin Thierry** (1795-1856). Historian.	Ballads and romances: "Der wirten Töchterlein," "Der gute Kamerad," "Das Schloss am Meer," etc., "Gedichte und Dramen," by **Uhland** (1787-1862).
	Sir Archibald Alison (1792-1867). Historian.	**Francois Mignet** (1796-1884). Historian.	"Aus dem Leben eines Taugenichts," and poems, translations, and criticisms, by **Eichendorff** (1788-1857).
	Felicia Hemans (1793-1835). Poet.	**Amedee Thierry** (1797-1873). Historian.	
	Anna Jameson (1794-1860). Essayist.		"Die Welt als Wille und Vorstellung," "Ueber die vierfache Wurzel des Satzes vom zureichenden Grunde," and other philosophical works, by **Schopenhauer** (1788-1860).
	George Grote (1794-1871). Historian.	**Louis Adolphe Thiers** (1797-1877). Historian.	
	Thomas Arnold (1795-1842). Histories, essays, and sermons.	**Auguste Comte** (1798-1857). Philosopher.	Fifty-four volumes of history including history of the Reformation and the "Weltgeschichte," by **Ranke** (1795-1886).
	Thomas Carlyle (1795-1881). Historian and essayist.	**Joseph Xavier Boniface Saintine** (1798-1865). "Picciola."	"Der Jesuit," "Der Jude," "Der Invalide," "Der Vogelhändler von Imst," by **Spindler** (1796-1855).
	John Keats (1795-1821). Poet.		"Gedichte" (Poems), "Lyrisches Intermezzo," "Heimkehr" and "Nordsee"; "Harzreise," "Reisebilder," "Buch der Lieder," "Romanzero," by **Heine** (1797-1856).
	Agnes Strickland (1796-1874). Historian.	**Jules Michelet** (1798-1874). Historian.	
	Samuel Lover (1797-1868). Novelist and poet.	**Honore de Balzac** (1799-1850). "Comedies of Human Life."	"Walladmor," "Schloss Avalon," "Cabanis," "Der falsche Waldemar," "Ruhe ist die erste Bürgerpflicht," by **Wilhelm Haering** (Wilibald Alexis) (1798-1871).
	Thomas Hood (1798-1845). Poet and humorist.		
		Alfred Victor Vigny (1799-1864). Novelist and poet.	"Geschichte der Deutschen," "Die Geschichte Europas," "Rübezahl," "Narcissus," "Furore," "Deutsche Litteratur," by **Wolfgang Menzel** (1798-1873).

ITALY AND SPAIN.	SCANDINAVIA AND RUSSIA.	AMERICA.
Nicolo Ugo Foscolo (1777-1827). Italian poems, etc.	**Bishop Mynster** (1775-1854). Danish theologian.	"Sylphs of the Season," "Monaldi," "Lectures on Art and Poems," by **Washington Allston** (1779-1843).
	Peter Thun Foersen (1777-1817). Danish translator of Shakespeare.	"Salmagundi" (with Irving), "The New Pilgrim's Progress," "The Dutchman's Fireside," "Westward, Ho!" "Life of Washington," "The Old Continentals," and "The Backwoodsman," by **James Kirke Paulding** (1779-1860).
Juan Gallego (1777-1853). Spanish poet.	**Hans Christian Oersted** (1777-1851). Danish scientist.	
	Johan Olaf Wallin (1779-1839). Danish national poet and divine.	"The Visit of St. Nicholas," by **Clement Clarke Moore** (1779-1863).
	Johan Berzelius (1779-1848). Swedish chemist.	Alsop, Dwight, Hopkins, Trumbull, Barlow, and others were known as the "Hartford Wits."
Giovanni Niccolini (1782-1861). Italian dramas.	**Adam Gottlob Oehlenschlager** (1779-1850). Danish dramatist and poet.	
	Esaias Tegner (1782-1846). Swedish poet.	"The Birds of America" and "The Quadrupeds of North America," by **John James Audubon** (1780-1851).
Alessandro Manzoni (1784-1873). Italian novels and dramas.	**Steen Steensen Blicher** (1782-1848). Danish novelist and poet.	
	Erik Gustav Geijer (1783-1847). Swedish historian and poet.	The first English Bible published in America was printed at Philadelphia in 1782.
	Christian Molbech (1783-1857). Danish dictionary.	"Thirty Years' View," by **Thomas Hart Benton** (1782-1858), published in 1856.
Gabrielle Rossetti (1785-1854). Political writer.	**Nikolai F. S. Grundtvig** (1783-1872). Danish theologian and poet.	"Diedrich Knickerbocker's History of New York" (1809), "Sketch Book" (1819), "Bracebridge Hall" (1822), "Tales of a Traveler" (1824), "Life of Columbus" (1828), "Conquest of Granada" (1829), "Alhambra" (1832), "Tour on the Prairies" (1835), "Astoria" (1836), "Adventures of Captain Bonneville" (1837), "Oliver Goldsmith" (1849), "Wolfert's Roost" (1855), and "Life of Washington" (1855-1859), by **Washington Irving** (Geoffrey Crayon) (1783-1859).
	Julia Kristina Nyberg (1785-1854). Swedish poet.	
	Swedish Academy founded, 1786.	
	Rasmus E. Rask (1787-1832). Danish grammarian and philologist.	
Cesare Baldo (1789-1853). Italian historian and publicist.	**Wilhelm F. Palmblad** (1788-1852). Swedish novelist and biographer.	"Champions of Freedom" and poems, by **Samuel Woodworth** (1785-1842).
	Joachim F. Schouw (1789-1852). Danish botanical geographer.	"The Pilgrim Fathers," "Passing Away," and other poems, by **John Pierpont** (1785-1866).
	Mikhail Zagoskin (1789-1852). Russian novelist and dramatist.	The Constitution of the United States, issued in 1787.
Silvio Pellico (1789-1854). Italian dramatist, poet, novelist.	**Thaddeus Bulgarin** (1789-1859). Russian novelist.	"The Idle Man," "The Buccaneers," by **Richard Henry Dana** (1787-1879).
	Bernhard S. Ingemann (1789-1862). Danish poet and novelist.	"Percy's Masque" and other poems, by **James A. Hillhouse** (1789-1841).
	Gustav Gaemelius (1789-1877). Swedish historian and novelist.	"The Spy" (1821), "The Pioneers," "The Pilot" (1823), "Last of the Mohicans," "The Prairie" (1827), "The Pathfinder" (1840), "The Deerslayer" (1841), "Red Rover," "The Water-Witch," and other novels (1841), by **James Fenimore Cooper** (1789-1851).
Gioacchino Belli (1791-1863). Italian sonnets.	**Peter Daniel Atterbom** (1790-1855). Swedish poet and literary historian.	
	Johan Borjesson (1790-1866). Swedish poet.	"New England Tale," "Redwood," "Hope Leslie," "The Linwoods," by **Catherine Maria Sedgwick** (1789-1867).
Angel de Saavedra, Duque de Rivas (1791-1865). Spanish dramatist.	**Kasimierz Brodzinski** (1791-1835). Russian poet.	
	Karl Johan Dahlgren (1791-1844). Swedish poet and novelist.	
	Adolf Ivar Arwidsson (1791-1858). Swedish poet.	"Twilight," "Fanny," and other poems, by **Fitz-Greene Halleck** (1790-1867).
Gino Capponi (1792-1876). Italian historian.	**Johan Ludvig Heiburg** (1791-1860). Danish poet.	"Moral Pieces in Prose and Verse," and many poems, by **Lydia Huntley Sigourney** (1791-1865).
	Niels M. Petersen (1791-1862). Danish historian and philologist.	"Home, Sweet Home" (1813), written by **John Howard Payne** (1792-1852). This is a song in "Clari; or, The Maid of Milan."
	H. A. Bjerregaard (1792-1842). Norwegian poet and dramatist.	
Cecilia Bohl von Faber (Fernan Caballero) (1797-1877). Spanish novels.	**Erik Johan Stagnelius** (1793-1823). Swedish poet and dramatist.	Thirty-six stories and several schoolbooks, by **Samuel Griswold Goodrich** (Peter Parley) (1793-1863).
	Jan Kollar (1793-1852). Czech poet.	"Principles of Political Economy," "The Credit System," "Principles of Social Science," by **Henry Charles Carey** (1793-1879).
	Alexander Fredro (1793-1876). Polish playwright.	Poems by **William Cullen Bryant** (1794-1878).
Giacomo Leopardi (1798-1837). Italian poet.	**Karl Jonas Ludwig Almqvist** (1793-1866). Swedish novelist.	"The Culprit Fay," "The American Flag," and other poems, by **Joseph Rodman Drake** (1795-1820).
	Anders Fryxell (1795-1881). Swedish historian.	Poems by **James Gates Percival** (1795-1856).
	Bernhard von Beskow (1796-1868). Swedish dramatist and poet.	"Swallow Barn," "Horseshoe Robinson," "Rob of the Bowl," "Quod Libet," and other works, by **John P. Kennedy** (1795-1870).
Serafin Estebanez Calderon (1799-1867). Spanish essayist.	**Christian Winther** (1796-1876). Danish pastoral poet.	"Ferdinand and Isabella" (1838), "The Conquest of Mexico" (1843), "The Conquest of Peru" (1847), "Philip II. of Spain" (1855-1858), and other works, by **William H. Prescott** (1796-1859).
	Adam Mickiewicz (1798-1855). Polish poet.	
	Henrik Hertz (1798-1870). Danish poet and dramatist.	"History of New England," in five volumes, by **John Gorham Palfrey** (1796-1881).
Terenzio Mamiani (1799-1885). Italian poet.	**Karl August Nicander** (1799-1839). Swedish poet.	"Farewell Address," by **Washington**, in 1796.
	Alexander Pushkin or **Pouchkine** (1799-1837.) Russian poet.	"Law of Business," "Deus Homo," "Infinite and Finite," and "Religion and Philosophy of Sweden borg," by **Theophilus Parsons** (1797-1882).

A. D.	ENGLAND.	FRANCE.	GERMANY.
1800	**Thomas Babington Macaulay** (1800-1859). Historian, essayist, and poet. **George Payne Rainsford James** (1801-1860). Novelist. **Hugh Miller** (1802-1856). Geologist. **Harriet Martineau** (1802-1876). Essays, histories, and novels. **Sir Edward Bulwer Lytton** (1803-1873). Novelist. **Francis Mahony,** "Father Prout" (1804-1866). Poet. **Benjamin Disraeli,** Lord Beaconsfield (1804-1881). Novelist. **Charles Lever** (1806-1872). Novelist. **John Stuart Mill** (1806-1873). Philosopher and political economist. **Elizabeth Barrett Browning** (1806-1861). Poet. **Samuel Warren** (1807-1877). Novelist. **Charles Darwin** (1809-1882). Scientist. **Alexander William Kinglake** (1809-1891). Historian. **Alfred Tennyson,** first Lord Tennyson (1809-1892). Poet. **Mary Cowden Clarke** (1809-1898). "Concordance to Shakespeare." Poet. **Martin Farquhar Tupper** (1810-1889). Poet. **William Makepeace Thackeray** (1811-1863). Novelist. **Charles Dickens** (1812-1870). Novelist. **Robert Browning** (1812-1889). Poet. **Samuel Smiles** (1812-1904). Miscellaneous writer. **Arthur Helps** (1813-1875). Essayist and historian. **Charles Reade** (1814-1884). Novelist. **Anthony Trollope** (1815-1882). Novelist. **George Rawlinson** (1812-1902). Historian, Orientalist, and theologian. **Charlotte Bronte** (1816-1855). "Jane Eyre" and other novels. **George Henry Lewes** (1817-1878). Essayist and philosopher. **James Anthony Froude** (1818-1894). Historian and biographer. **Charles Kingsley** (1819-1875). Novelist and poet. **George Eliot** (Marian Evans Cross) (1819-1880). Novels and poems. **John Ruskin** (1819-1900). Art critic and writer. **John Tyndall** (1820-1893). Scientist. **Herbert Spencer** (1820-1903). Philosopher and essayist. **Henry Thomas Buckle** (1821-1862). History of civilization in England. **Matthew Arnold** (1822-1888). Poems, critiques, and essays. **Friedrich Max Muller** (1823-1900). Essays on philology and religion. **Edward A. Freeman** (1823-1892). Histories. **Thomas Hughes** (1823-1896). Tom Brown series of novels, etc. **William Wilkie Collins** (1824-1889). Novels. **George MacDonald** (1824-1905). Novelist and poet.	**Frederic Bastiat** (1801-1850). Political economist. **Victor Hugo** (1802-1885). "Les Misérables," "Toilers of the Sea," "Notre Dame," and other novels. **Alexandre Dumas pere** (1803-1870). "Monte Cristo," "Three Musketeers," and other novels. **Prosper Merimee** (1803-1870). Historian, literary critic, archaeologist, and novelist. **Edgar Quinet** (1803-1875). Historian, philosopher, and poet. **Marie Joseph Sue** (better known as Eugene) (1804-1857). "Mysteries of Paris," "Wandering Jew," etc. **Charles Augustin Sainte-Beuve** (1804-1869). Literary criticisms. **Jules Gabriel Janin** (1804-1874). Novels and critiques. **Mme. Dudevant** (George Sand) (1804-1876). Novelist and playwright. **Alexis Charles Henri de Tocqueville** (1805-1859). "Democracy in America." **Alphonse Karr** (1808-1891). Novels. **Francisque Michel** (1809-1887). Essays. **Alfred de Musset** (1810-1857). Novels, dramas, and poems. **Charles Forbes R. Montalambert** (1810-1870). Historian, orator, and publicist. **Bon Louis Henri Martin** (1810-1883). French history. **Theophile Gautier** (1811-1872). Novels, poems, and criticisms. **Leonard Sylvain Jules Sandeau** (1811-1885). Novelist and dramatist. **Jean Victor Duruy** (1811-1894). Histories of Rome and of modern times. **Louis Blanc** (1811-1882). Essays. **Elie Bertrand Berthet** (1815-1891). Novels. **Eugene Labiche** (1815-1888). Dramas. **Arsene Houssaye** (1815-1896). Novels. **Paul Henri Corentin Feval** (1817-1887). Novelist. **Charles Marie Leconte de Lisle** (1818-1894). Poems. **Emile Auguste Deschanel** (1819-1904). Essays. **Guillaume Victor Emile Angier** (1820-1889). Dramas. **Gustave Flaubert** (1821-1880). Novels. **Octave Feuillet** (1821-1890). Novels and dramas. **Emil Erckmann** (1822-1899) Novels. **Charles Baudelaire** (1821-1867). Romanticist. **Edmond de Goncourt** (1822-1896). Novels. **Henri Lavedan** (1822-1892). Novels and dramas. **Theodore de Banville** (1823-1891). Poems. **Joseph Ernest Renan** (1823-1892). "Life of Christ," etc. **Alexandre Dumas fils** (1824-1895). Novels. **M. Alexandre Chatrian** (1826-1890). Novels in collaboration with Erckmann. **Charles Loyson, Pere Hyacinthe** (1827-1912). Sermons and pulpit orations. **Hippolyte Adolphe Taine** (1828-1893). "History of English Literature," etc.	"Pfefferrösel," "Hinko," "Die Günstlinge," "Der Glöckner von Notre Dame," "Die Frau in Weiss" (Wilkie Collins, Woman in White), "Die Waise von Lowood" (Jane Eyre), by **Charlotte Birch-Pfeiffer** (1800-1868). "Märchenalmanach," "Der Mann im Monde," "Lichtenstein," by **Hauff** (1802-1827). "Nibelungenlied," "Parzival," "Reinecke Fuchs," "Edda," and modifications, etc., by **Simrock** (1802-1876). "Holland in 1831-1832," "Latest Literature," by **Wienbarg** (1803-1872). "Geschichte der deutschen Dichtung," "Shakspere," in 4 vols., "Händel und Shakspere," "Händel's Oratorientexte," by **Gervinus** (1805-1871). "Uhlrich," "Zwei Frauen," by **Ida Hahn-Hahn** (1805-1880). "Volkslieder aus Krain," "Robin Hood," "Der letzte Ritter," "Spaziergänge," by **Anton Alexander von Auersperg** (Anastasius Grün) (1806-1876). "Das junge Europa," "Das Glück," "Der Prätendent," "Gottsched und Gellert," "Graf Essex," "Montrose," by **Laube** (1806-1884). "Geschichte der hellenischen Dichtkunst," "Ueber Shakspere's dramatische Kunst," "Das Grundprincip der Philosophie," "System der Logik," "Gott und die Natur," "Gott und der Mensch," by **Ulrici** (1806-1884). "Griseldis," "Der Adept," "Camoens," "Der Sohn der Wildniss" (Ingomar the Barbarian), "Der Fechter von Ravenna," "Wildfeuer," by **Karl von Halm** (1809-1882). Translations of Longfellow, Shakespeare, and Burns, "Ca ira," "Löwenritt," "Prinz Eugen," "Der Blume Rache," by **Freiligrath** (1810-1876). "Wally, die Zweiflerin," "Richard Savage," "Zopf und Schwert," "Das Urbild des Tartüffe," "Die Ritter vom Geiste," "Der Zauberer vom Rom," by **Gutzkow** (1811-1878). "Der Stellvertreter," "Klementine," "Jenny," "Nella," "Stella," "Für und wieder die Frauen," "L'Arrabbiata," "Kinder der Welt," "Im Paradeise," "Ueber allen Gipfeln," "Thekla," by **Fanny Lewald** (1811-1889). "Das Judentum und die neueste Litteratur," "Spinoza," "Dichter und Kaufmann," "Schwarzwälder Dorfgeschichten" (Village Tales), "Auf der Höhe," by **Auerbach** (1812-1882). Librettos of his operas by **Wagner** (1813-1883). "Friedrich der Grosse und sein Hof," etc., by **Klara Mundt** (Luise Muhlbach) (1814-1873). "Gedichte," "Die Amazone," "Das Haus des Barneveldt," by **Dingelstedt** (1814-1881). "Griechische Geschichte," "Attische Studien," "Altertum und Gegenwart," by **Ernst Curtius** (1814-1896). "Gedichte," "Otto der Schütz," "Die Altchristliche Kunst," "Nimrod," "Tanagra," by **Kinkel** (1815-1882). "Gedichte," "Juniuslieder," "Gedichte und Gedenkblatter," "Brunhild," by **Geibel** (1815-1884). "Soll und Haben," "Die verlorene Handschrift," "Die Technik des Dramas," "Die Ahnen," "Bilder aus des deutschen Vergangenheit," by **Freytag** (1816-1895). "Metaphysik," "Logik," "Mikrokosmus," "Geschichte der Aesthetik in Deutschland," by **Lotze** (1817-1881). "Liederbuch dreier Freunde," "Volkbuch," "Immensee," "Auf der Universität," "Die Regentrude," by **Storm** (1817-1888). "Die Kinder Gottes," "Verirrt und Erlöst," "John Milton und seine zeit," "Götter und Götzen," "Sieg der Liebe," by **Ring** (1817-1901). "De Collegiis et Sadaliciis Romanorum," "Die unteritalischen Dialekte," "Römische Geschichte," "Corpus Inscriptionum Latinarum," by **Mommsen** (1817-1903).

ITALY, SPAIN, AND PORTUGAL.

Manuel Breton de los Herreros (1800-1873). Spanish dramatist, over 150 dramas.

Antonio Castilho (1800-1875). Portuguese poet.

Vincenzo Gioberti (1801-1852). Italian controversialist.

Tommaseo Niccolo (1802-1874). Italian author.

Giuseppe Mazzini (1805-1872). Italian political author.

Cesare Cantu (1804-1895). Italian historian and novelist.

Pier Angelo Fiorentino (1806-1864). Italian novelist.

Michele Amari (1806-1889). Italian historian.

Patricio de la Escosura (1807-1878). Spanish novelist, poet, and dramatist.

Mariano Jose de Larra (1809-1837). Spanish satirist and dramatist.

Giuseppe Giusti (1809-1850). Italian satirist.

Juan Donosa Cortes (1809-1853). Spanish essayist.

Don Jose de Espronceda (1810-1842). Spanish poet.

Jaime Balmes (1810-1848). Spanish critic.

Antonio Carlo Napoleone Gallenga (1810-1895). Italian historian.

Luigi Carlo Farini (1812-1866). Italian historian.

Aleardo Aleardi (1812-1878). Italian poet.

Paolo Emiliani Giudici (1812-1872). Italian literature and history.

Giuseppe Ferrari (1812-1876). Italian philosopher and historian.

Giovanni Prati (1815-1884). Italian verse.

Ramon de Campoamor (1817-1901). Spanish poet and philosopher.

Jose Zorrilla y Moral (1817-1893). Spanish lyric poet.

Giacomo Zanelli (1820-1889). Italian poems.

SCANDINAVIA AND RUSSIA.

Emil Aarestrup (1800-1856) Danish poet.

Per Wieselgren (1800-1877). Swedish literary historian and poet.

Fredrika Bremer (1801-1865). Swedish novelist.

Niels Henrik Abel (1802-1829). Norwegian mathematician.

Gustaf Henrik Mellin (1803-1876). Swedish novelist.

Johann Ludvig Runeberg (1804-1877). Swedish poet.

Maurycy Mochnachi (1804-1835). Polish critic.

Michal Grabowski (1805-1863). Polish critic.

Adam Gurowski (1805-1866). Polish poet.

Hans Christian Andersen (1805-1875). Danish fairy tales.

Johan Sebastian Cammermeyer Welhaven (1807-1873). Norwegian poet.

Karl Vilhelm Bottiger (1807-1878). Swedish poet.

Henrik Arnold Wergeland (1808-1845). Norwegian poet.

Nikolai Gogol (1809-1852). Russian novelist.

Juliusz Slowacki (1809-1849). Polish poet of note.

Frederik Paludan-Muller (1809-1876). Danish dramatic poet.

University of Christiania founded, 1811.

Gothic Society (Swedish) formed, 1811.

Karl Ferdinand Allen (1811-1871). Danish historian.

Alexander Hertzen (1812-1870). Russian novelist and sociologist.

Zygmunt Krasinski (1812-1859). Distinguished Polish poet.

UNITED STATES AND CANADA.

"History of the United States to 1789," by **George Bancroft** (1800-1891). This work appeared between the years 1834 and 1884.

Lyrics, including "Woodman, Spare that Tree," "When We Were Boys Together," by **George P. Morris** (1802-1864).

Catherine Parr Traill (1802-1899). Canadian naturalist author.

"Nature and the Supernatural," "Moral Use of Dark Things," by **Horace Bushnell** (1802-1876).

"Essays" (first and second series), (1841 and 1844), "Representative Men" (1850), "English Traits" (1856), "Conduct of Life," and several poems, by **Ralph Waldo Emerson** (1803-1882).

Juvenile Tales, such as the Rollo Books, etc., by **Jacob Abbott** (1803-1879).

Poems and numerous tales, by **William Gilmore Simms** (1806-1870).

"Compendious Dictionary of the English Language," by **Noah Webster** (1758-1843) published in 1806.

"Outre-Mer" (1835), "Hyperion" (1839), "Voices of the Night" (1839), "Wreck of the *Hesperus*" (1841), "Spanish Student" (1843), "Evangeline" (1847), "Golden Legend" (1851), "Hiawatha" (1855), "Miles Standish" (1858), and other poems, by **Henry Wadsworth Longfellow** (1807-1882).

"History of the United States to 1821," by **Richard Hildreth** (1807-1865).

Prose and verse, by **Nathaniel P. Willis** (1807-1867).

"Mogg Megone" (1836), "Voices of Freedom" (1841), "Songs of Labor" (1848), "Old Portraits" (1850), "Ballads," "Home Ballads," "In War Time" (1863), "Snow-Bound" (1865), and other poems, by **John Greenleaf Whittier** (1807-1892).

"Amir Khan and Other Poems," by **Lucretia Maria Davidson** (1808-1825).

"My country, 'tis of thee" and "The morning light is breaking," by **Samuel Francis Smith** (1808-1895).

"Earlier Poems" (1830-1836), "Old Ironsides," "The Chambered Nautilus" (1858), "The One-Hoss Shay" (1858), "Autocrat of the Breakfast Table" (1858), "Professor at the Breakfast Table" (1860), "Elsie Venner" (1861), "Poet at the Breakfast Table" (1872), by **Oliver Wendell Holmes** (1809-1894).

Edgar Allan Poe (1809-1849). Stories and poems.

Henry James (1811-1882). Essayist and philosopher.

John William Draper (1811-1882). Historian.

James McCosh (1811-1894). Essayist and philosopher.

Harriet Beecher Stowe (1812-1896). Novelist.

George Ticknor Curtis (1812-1894). Historian.

John Lothrop Motley (1814-1877). Historian.

"The Star-Spangled Banner," by **Francis Scott Key** (1779-1843), written in 1814.

The North American Review, founded in Boston, in May, 1815; bi-monthly until November, 1818, quarterly to 1877; bi-monthly in 1877-1878; monthly 1879-1894.

Richard Henry Dana, Jr. (1815-1882). Travels and adventure.

John G. Saxe (1816-1887). Poet.

Charles Heavysege (1816-1876). Canadian poet.

Samuel Austin Allibone (1816-1889). Bibliographer.

Bryant's "Thanatopsis," published in *The North American Review* in 1817.

"Dictionary of the English Language," by **Joseph Emerson Worcester** (1784-1865), published in 1817.

Henry D. Thoreau (1817-1862). Naturalist.

James Thomas Fields (1817-1881). Essays and poems.

A. D.	ENGLAND.	FRANCE.	GERMANY.
1800	**Thomas Henry Huxley** (1825-1895). Scientific works.	**Edmond Francois V. About** (1828-1885). Novels.	"Geschichte der Philosophie," "Römische Geschichte," "Metaphysik," by **Albert Schwegler** (1819-1857).
		Jules Verne (1828-1905). "Twenty Thousand Leagues Under the Sea," "Round the World in Eighty Days," etc.	"Gedichte," "Der grüne Heinrich," "Die Leute von Seldwyla," "Romeo und Juliet auf dem Dorfe," "Der Schmied seines Glücks," "Sieben Legenden," by **Gottfried Keller** (1819-1890).
	Dinah Maria Mulock (Mrs. Craik) (1826-1887). "John Halifax, Gentleman," etc.		"Poetische Ukranie," "Lieder de Mirza-Schaffy," translations of Shakespeare, by **Friedrich Martin von Bodenstedt** (1819-1892).
		Adolphe Belot (1829-1890). Novels and dramas.	"Gedichte," "Balladen," "Vor dem Sturm," "Der Stechlin," "Meine Kinderjahre," "Von Zwanzig bis Dreissig," by **Theodor Fontane** (1819-1898).
	Richard D. Blackmore (1826-1900). "Lorna Doone" and other novels.	**Charles Victor Cherbuliez** (1829-1899). Novels.	"Iridische Phantasien," "Schaum," "Demiurgos," "Die Nibelungen," by **Wilhelm Jordan** (1819-1903).
		Jules de Goncourt (1830-1870). Novels.	"Völkerwanderung," "Vaterlandische Balladen," "Die Walkyren," "Neue Gedichte," "Meine Lebensreise," by **Lingg** (1820-1905).
	Dante Gabriel Rossetti (1828-1882). Poems.	**Victorien B. Sardou** (1831-1908). Dramas.	"Deborah" (Leah the Forsaken), "Der Sonnenwendhof," "Die lustigen Weiber von Windsor," "Die Königin von Saba," by **Salomon Hermann Mosenthal** (1821-1877).
	George Meredith (1828-1909). Novels and poems.		"Das Lied vom neuen deutschen Reich," "Amaranth," "Odilo," "Hermann Stark," "Philippine Welser," by **Oskar von Redwitz** (1823-1891).
		Antoine Gustav Droz (1832-1895). Novels.	"Gedichte," "Carlo Zeno," "Pitt und Fox," "German National Literature of the Nineteenth Century," "Im Banne des schwarzen Adlers," "Portraits und Studien," by **Rudolph von Gottschall** (1823-1909).
	Samuel R. Gardiner (1829-1902). Histories.		"Geschichte der neuern Philosophie," "Kants Leben und die Grundlagen seiner Lehre," "Schiller als Philosoph," "Goethe-Schriften," by **Ernst Kuno Berthold Fischer** (1824-1907).
		Andre Theuriet (1833-1907). Poems and novels.	"Die zwölf Apostel," "Goldelse," "Die zweite Frau," "Reichsgräfin Gisela," "Heideprinzesschen," by **Marlitt** (Eugenia John) (1825-1887).
	Jean Ingelow (1830-1897). Poems.	**Ferdinand Fabre** (1833-1898). Poems and novels.	"System der Logik," "Grundriss der Geschichte der Philosophie," by **Friedrich Ueberweg** (1826-1871).
		Ludovic Halevy (1834-1908). Dramas.	Der Trompeter von Säckingen," "Ekkehard," "Gaudeamus," by **Joseph Victor von Scheffel** (1826-1886).
	Justin McCarthy (1830-1912). Histories and novels.		"Problematische Naturen," "Durch Nacht zum Licht," "Die von Hohenstein," "Sturmflut," "Der neue Pharao," "Freigeboren," by **Friedrich Spielhagen** (1829-1911).
		Paul B. du Chaillu (1835-1903) Travel and geographical explorations.	"Francesca da Rimini," "Die Bruder," "Urica," "Das Buch der Freundschaft," by **Johann Ludwig Paul Heyse** (1830-1914).
	Edward Robert, Earl of Lytton, "Owen Meredith" (1831-1891). Poems and biography.	**Mme. Juliette Lamber Adam** (1836-). Journalist.	"Erzählungen," "Dorf- und Schlossgeschichten," "Ein kleiner Roman," "Miterlebtes," "Gesammelte Schriften," by **Baroness Marie von Ebner-Eschenbach** (1830-1916).
		Leon Louis Lucian de Rosny (1837-). Orientalist.	"Ein Frühling," "Der heilige Born," Der hunger Pastor," "Abu Telfan," by Wilhelm Raabe (1831-1910).
	Edmund H. Yates (1831-1894). Novels.		"Die Könige der Germanen," "Poems, Ballads, and Songs," "Odhins Trost," "Der Kampf um Rom," by **Felix Dahn** (1834-1912).
		Louis Marie Ernest Daudet (1837-1921). Histories and novels.	"Der Aufstand in Gent unter Karl V.," "Das Vermächtnis Kains," by **Sacher-Masoch** (1835-1895).
	Edwin Arnold (1832-1904). Poems.		"Regum Egyptorum," "Aegypten in Wort und Bild," "Uarda," "Homo Sum," "Die Schwestern," "Eine ägyptische Königstochter," "Der Kaiser," "Serapis," by **Georg Moritz Ebers** (1837-1898).
		Rene Francois Sully-Prudhomme (1839-1907). Poet.	"Adams Söhne," "Hermann Ifinger," "Der Dornenweg," "Schleichendes Gift," "Feuerblumen," "Villa Maria," "Der Graf von Hammerstein," "Die Maler," "Jugendliebe," "Nathalie," by **Wilbrandt** (1837-1911).
	Philip G. Hamerton (1834-1894). Essays.		
		Theodule Armand Ribot (1839-1914). Psychology.	
	William Morris (1834-1896). Poems.		
		Marie Therese Blanc, "Th. Bentzon" (1840-1907). Journalist and novelist.	
	George du Maurier (1834-1896). "Peter Ibbetsen," "Trilby," and other novels.	**Jules Claretie** (1840-1913). Dramatist.	

ITALY, SPAIN, AND PORTUGAL.

Joao de Lemos (1819-1889). Portuguese poet.

Pietro Cavallotti (1824-1898). Italian dramatist.

Camillo Castello Branco (1825-1890). Portuguese novelist.

Alessandro Arnaboldi (1827-1898). Italian lyric poet.

Juan Valera (1824-1905). Spanish novelist.

Pasquale Villari (1827-1919). Italian historian.

Lopez de Ayala (1828-1879). Spanish dramatist.

Ruggiero Bonghi (1828-1895). Italian essayist.

Antonio Canovas del Castillo (1828-1897). Spanish historian.

Manuel Tomayo y Baus (1829-1898). Spanish dramatist.

Joao de Deus (1830-1895). Portuguese lyric poet.

Luigi Cossa (1831-1896). Italian political economist.

Thomaz Rebeiro (1831-1901). Portuguese poet.

Pedro Antonio de Alarcon (1833-1891). Spanish novelist.

Adolfo Bartoli (1833-1894). Italian literary historian.

Jose .Echegaray (1833-1916). Spanish dramatist.

Gaspar Nunez de Arce (about 1834-1903). Spanish poet and dramatist, the "Spanish Tennyson."

Jose Maria de Pereda (1834-1906). Spanish novelist.

Alessandro d'Ancona (1835-1914). Italian literary historian.

Domenico Comparetti (1835-). Italian philologist.

Gustavo Adolfo Becquer (1836-1870). Spanish poet.

Giosue Carducci (1836-1907). Italian poet.

Cesare Lombroso (1836-1909). Italian criminologist.

SCANDINAVIA AND RUSSIA.

Aleksey Koltsoff (1808-1842). Russian lyric poet.

Solomon Drier (1813-1842). Danish zoölogist.

Soren A. Kierkgaard (1813-1855). Danish philosopher.

Camilla Collett (1813-1895). Norwegian novelist.

Ivar Andreas Aasen (1813-1896). Norwegian philologist, botanist, and poet.

Mikhail Lermontoff (1814-1841). Russian poet.

Nicholas Ivanovitch Kostomaroff (1817-1885). Russian historian.

Ivan Sergeyevitch Turgueniev (1818-1883). Russian novelist.

Jens Christian Hostrup (1818-1892). Danish poet and dramatist.

Zachris Topelius (1818-1898). Finnish poet and novelist.

Meyer Aaron Goldschmidt (1819-1887). Danish publicist and novelist.

Magdalena Thoresen (1819-1903). Danish novelist.

Feodor Mikhailovitch Dostoyevski (1821-1881). Russian novelist.

Karl Andersen (1828-1888). Danish lyric and epic poet.

Henrik Ibsen (1828-1906). Norwegian dramatist, poet, and essayist.

Count Lyeff or Lyoff (Leo) Tolstoy (1828-1910). Russian novelist, social reformer, and religious mystic.

Viktor Rydberg (1829-1895). Swedish historian and novelist.

Bjornstjerne Bjornson (1832-1910). Norwegian novelist, essayist, and dramatist.

Jonas Lie (1833-1908). Danish sea stories.

UNITED STATES AND CANADA.

William Kirby (1817-1906). Canadian author.

John Bigelow (1817-1911). Editor.

Josiah Gilbert Holland (1819-1881). Novelist, essayist, and poet.

Julia Ward Howe (1819-1910). Essays and poems.

Edwin Percy Whipple (1819-1886). Essayist

James Russell Lowell (1819-1891). Poet.

Walt Whitman (1819-1892). Poet.

William Kingsford (1819-1898). Canadian author.

John Mercier McMullen (1820-). Canadian historian.

Thomas Buchanan Read (1822-1872). Poet.

Richard Grant White (1822-1885). Essayist.

William Taylor Adams, "Oliver Optic" (1822-1897). Juvenile writer.

James Parton (1822-1891). Biographer.

Donald G. Mitchell, "Ik Marvel" (1822-1908). Essayist.

Edward Everett Hale (1822-1909). Essayist.

George H. Boker (1823-1890). Poet.

Francis Parkman (1823-1893). Historian.

Thomas Wentworth Higginson (1823-1911). Historian and essayist.

Goldwin Smith (1823-1910). Canadian essayist

George William Curtis (1824-1892). Essayist, orator, and journalist.

John Foster Kirk (1824-1904). Historian.

Adeline D. T. Whitney (1824-1906). Novelist and poet.

Bayard Taylor (1825-1878). Travels, essays, and poems.

Richard Henry Stoddard (1825-1903). Poet and critic.

Stephen Collins Foster (1826-1864). Songs and poems.

The Youths' Companion, established in 1827.

Rose Terry Cooke (1827-1892). Poet.

Lew Wallace (1827-1905). Novelist.

Charles Dudley Warner (1829-1900). Essayist.

Godey's Lady's Book, established in Philadelphia, in 1830.

Daniel Webster's reply to Hayne, in 1830.

Mary Virginia Terhune, "Marion Harland" (1830-1922). Stories.

John Esten Cooke (1830-1886). Novels and essays.

Paul Hamilton Hayne (1831-1886). Essays.

Justin Winsor, (1831-1897). Historian.

Louisa May Alcott (1832-1888). Stories.

David R. Locke, "Petroleum V. Nasby" (1833-1888). Humorist.

Edmund Clarence Stedman (1833-1908). Poet and literary essayist.

Frank R. Stockton (1834-1902). Stories and novels.

Alexander Muir (1834-1906). Canadian poet.

The *Congressional Globe* (the forerunner of the *Congressional Record*), established in 1834.

The New York *Herald*, established in 1835.

Harriet Prescott Spofford (1835-1921). Novels.

Moses Coit Tyler (1835-1900). Literary historian.

Samuel L. Clemens, "Mark Twain" (1835-1910). Humorist.

Lyman Abbott (1835-1922). Sermons and essays.

Thomas Bailey Aldrich (1836-1907). Novels and poems.

John Burroughs (1837-1921). Naturalist.

A. D.	ENGLAND	FRANCE.	GERMANY.
1800	**S. Baring-Gould**, (1834-1924). Hymns, folk-lore, novels. "Iceland," "Curious Myths," "Lives of the Saints."	**Alphonse Daudet** (1840-1897). "L'Evangeliste," "Sapho," "Tartarin de Tarascon." Novels, poems, dramas.	**Wilhelm Jensen** (1837-1911). Novelist. "I der Fremde," "Vom Morgen zum Abend," "Gesammelte Gedichte."
	John Richard Green (1837-1883). "History of the English People," "The Making of England."	**Emile Zola** (1840-1902). "L'Assommoir," "Pecheur d'Islande," "Ramuntcho," and other novels.	**Ludwig Anzengruber** (1839-1889). Dramatist. "Meineidbauer," "Gewissenwurm," "Der Doppelselbstmord."
	Algernon Charles Swinburne (1837-1909). "Atalanta in Calydon," "Bothwell," "Mary Stuart," "Tristram of Lyonese."	**Francois Coppee** (1842-1908). "Les Humbles," poems, dramas, stories.	
	Walter Besant (1838-1901). "Dorothy Forster, "All Sorts and Conditions of Men," other novels and histories.	**Stephane Mallarme** (1842-1898). "Poesies," "Le Coup de des," "Le Musique et les Lettres."	**Paul Lindau** (1839-1919). Journalist and dramatist. Of 60 works, some are "Dramaturgische Blatter," "Herr and Frau Bewer," "Spitzen" (novel), "Der Abend."
	John Morley (1838-1893). "Edmund Burke," "Rousseau," "Studies in Literature," "Life of Gladstone."	**Paul Verlaine** (1844-1896). "Fetes galantes," "Romances sans Paroles," "Choix de Poesies," and other poems.	**Karl R. E. Hartmann** (1842-1906). Philosopher. "Philosophy of the Unconscious," "Ethical Consciousness," "The Ghost," "Theory in Spiritism."
	James Bryce (1838-1922). "The Holy Roman Empire," "The American Commonwealth," "Studies in Contemporary Biography."	**Anatole France** (Jacques Anatole Thibault) (1844-1924). Novelist and critic "Le Crime de Sylvester Bonnard," "Thais," "L'Etui de Nacre," "L'Ile des Pinguins," and many other imaginative works.	**Peter K. Rosegger** (1843-1918). Novelist. "Zither und Hackbrett," "Die Schriften des Waldschulmeister," "Peter Mayr."
	William E. H. Lecky (1838-1903). "History of England in the Eighteenth Century," "Democracy and Liberty."	**Leon Bloy** (1846-1917). Novelist and critic. "Mon Journal," "Le Femme Pauvre," "Le Salut par les Juifs."	**Frieda von Sutner** (1843-1914). Novelist. "Ein Manuscript," "Die Wassen neider."
	Thomas Hardy (1840-1928). "Far from the Madding Crowd," "Tess of the D'Urbervilles," "Wessex Tales."	**Joris-Karl Huysmans** (1848-1907). Novelist. "A Rebours," "Le Cathedral."	**Friedrich W. Nietsche** (1844-1900). Philosopher. "Thus Spake Zrathustra." (Eng. trans.) "Herrenmoral."
	William Black (1841-1898). "A Daughter of Heth," "A Princess of Thule," "Judith Shakespeare."	**Octave Mirbeau** (1848-1917). Dramatist. "Le Jardin des Supplices," "Les Affaires sont les Affaires," "Dingo."	**"Carmen Sylvia"** (Elizabeth, Queen of Romania) (1843-1916). Works in German. "Leidens Erdengang," "Handwerkerlieder."
	Robert S. Bridges (1844-). "Nero," "Return of Ulysses," "Shorter Poems," "Essay on John Keats," and other poems, dramas, and criticisms.	**Frederick Brunetiere** (1849-1906). Critic. "Etudes Critiques sur l'Histoire de la Litterature Francaise," "Le Roman Naturaliste," and other studies in history and literature.	**Detlev von Liliencron** (1844-1909). "Nebel und Sonne," "Der Machen," "Poggfred," and other novels and poems.
	Andrew Lang (1844-1912). Miscellaneous author of many books. "Ballads in Blue China," "Blue Fairy Tale Book," "Custom and Myth," "Historical Mysteries," "Odyssey" (trans. with S. H. Butcher).	**Guy de Maupassant** (1850-1893). "Boule de Suif," "Une Vie," "Notre Coeur," novels. Short stories, *Odd Number* (Eng. trans).	**Ernst von Wildenbruch** (1845-1909). Dramatist. "Harold," "Der neue Herr," "Das edle Blut."
	William F. DeMorgan (1837-1917). "Joseph Vance," "Alice-for-Short," and several other novels.	**Pierre Loti** (M. Julien Viaud). (1850-1923). Novels, etc. "Le Mariage de Loti," "La Mort de Philae," "Un Pelerin d'Angkor."	**Karl Emil Franzos** (1848-1904). Novelist. "Junge Liebe." "Die Juden von Barnow," "Tragische Novellen."
	John Watson (Ian Maclaren), (1850-1907). "Beside the Bonnie Brier Bush," "Days of Auld Lang Syne."	**Paul Bourget** (1852-). Novelist and critic. "Essais de psychologie contemporaine," "Le Disciple," "Le Demon de Midi."	
	Robert Louis Stevenson (1850-1894). Novels like "Treasure Island," "David Balfour," "The Master of Ballantrae"; "New Arabian Nights" and "Merry Men," etc., short stories; "Child's Garden of Verses."	**Jules Lemaitre** (1853-1914). Critic and dramatist. "Les Contemporains," "Impressions de Theatre," "En Marge des Vieux Livres."	**Gustav Falke** (1853-). Poet. "Mynheer der Tod," "Mit dem Leben."
	Hall Caine (1853-). Novelist and critic. "The Christian," "The Eternal City," "The Deemster."	**Francois de Curel** (1854-1928). Dramatist. "Les Fossiles," "La Nouvelle Idol," "La Danse devant le miroir."	**Lola Kirschner** (1848-1904). "Ehre," "Unter uns," "Gloris Victis."
	H. Rider Haggard (1856-1925). Novels like "King Solomon's Mines," "She."	**Edouard Rod** (1857-1910). Novelist. "Michel Teyssir."	
	Henry A. Jones (1851-). Dramatist and essayist. "Michael and his Lost Angel," "Mrs. Dane's Defense," "Mary Goes First," "Foundation of a National Theatre."	**Eugene Brieux** (1858-). Journalist and dramatist. "La Robe Rouge," "Les Avaries," (Damaged Goods), "La Francaise."	**Hermann Sudermann** (1857-1928). Dramatist and novelist. "Die Ehre," "Frau Sorge," "Der Katzensteg," "Sodoms Ende," "Heimat," "Es lebe das Leben."
	Arthur W. Pinero (1855-). Playwright. "Second Mrs. Tanqueray," "Iris," "A Seat in the Dark."	**Paul E. Hervieu** (1857-1915). Essayist and dramatist. "L'Inconnu," "La Course du flambeau."	**Rudolph Herzog** (1859-). Novelist. "Die Wiscottens," "Der Graf von Gleichen," "Die Burkinder."

ITALY, SPAIN, AND PORTUGAL.

Giovanni Verga (1840-1922). Italian novelist. "Rusticane," (source of Mascagni's "Cavalleria Rusticana"), "Medda."

Antonio Foggazaro (1842-1911). Italian poet, novelist. "El Santo," "Misteria del Poeta."

Mario Ripsardi (1844-1912). Sicilian poet. "Catullo e Lesbia," "Manfred," "Elegie."

Olindo Guerrini ("Lorenzo Stecchetti") (1845-1918). "Postuma," "Polemica," "Brandelli."

Edmondo de Amicis (1848-1908). Italian writer on travel. "Bozetti della Vita Militare," "La Spagna," "Memorie," "Ultima Pagine."

Salvatore Farini (1846-1912). Italian novelist. "Il Signor Jo," "Il Tesoro di Donnino," "Il Numero 13."

Arturo Graf (1848-1912). Italian poet. "Medusa," "Poemetti Dramatici."

Giovanni Pasoli (1855-1912). Italian classical poet. "Myrical," "Poemetti."

Madame Matilde Serao (1856-1927) Italian novelist. "Fantasia," "Le Conquista di Roma."

Gabriele D'Annunzio (1864-). Italian poet, dramatist, and critic. "San Pantaelone," "Chimera," "Il Piocre," "La Giaconda," "Francesca di Rimini."

Benedetto Croce (1866-). Italian philosopher and critic. "Esthetica," "European Literature in the Nineteenth Century," "History."

E. A. Butti (1875-1910). Italian comic dramatist. "Fiamme nelé ombra."

Giovanni Papini (1881-). Editor and critic. "Tragic of Every Day," "History of Christ."

Benito Perez Galdos (1845-1920). Spanish novelist and dramatist. "La Tintana de Oro," "Trafalgar," "Leon Roch."

Emilia Pardo-Bazan (1851-1921). Spanish novelist. "La Pazo de Ulloa," "La Revolucion y la Novel en Russia."

Leopoldo Alas (1852-1901). Spanish critic. "Sir Unico hijo," "Pipa," "La regenta."

Armando Palacio-Valdes (1853-). Spanish novelist. "La Espuna," "La Fe," "La Hornana san Sulpicio."

Marcelino Menendez y Palayo (1856-1912). Spanish critic and essayist. "Historia de los heterodoxos espanoles," "Calderon y su teatro."

Juan A. Cavestany (1861-). Spanish playwright. "El esclavo de su cupla," "El casimo," "La noche antes."

SCANDINAVIA AND EASTERN EUROPE.

Yngvar Nielson (1843-1916). Norwegian historian. "Del Halve Kongerie."

Alexander L. Kielland (1849-1906). Norwegian novelist. "Garman og Worse," "Skipper Worse."

Knut Hamsun (1859-). Norwegian novelist and dramatist. "Sult," "Mysterier," "Redaktor," "Lynge," "Victoria."

Karl J. Snoilsky (1841-1903). Swedish poet. "Digte og Sange," "Orchideer," "Unge Viser."

Johan A. Strindberg (1849-1912). Swedish dramatist and novelist. "Red Room," "The Confessions of a Fool," "Toward Damascus," "The Father."

Verner V. Heidenstam (1859-). Swedish novelist. "Karolinerna," "Endymion."

Selma Lagerlof (1858-). Swedish story teller. "Gosta Berling Saga," "From a Swedish Homestead," "Legends of Christ."

T. F. Troels-Lund (1840-1921). Danish historian. Voluminous histories of Denmark.

Georg Brandes (1842-1927). Danish critic. "Main Literary Currents of the Nineteenth Century," "Danish Poems," "Essays," and "Shakespeare."

Holgar Drachman (1846-1908). Danish dramatist, poet and novelist. "Daempe der Melodier," "Den Nellige Iid," "Forskrevet."

Alexander Glowacki (1847-1912). Polish novelist. "Early Tales," "Placowa," "The Children."

Henrik Pontoppidan (1857-). Danish Novelist. "Muld," "Domens Dag," "Lykke Per."

Karl A. Gjellerup (1857-1919). Danish novelist. "En Idealist," "Der unge Denmark," "Pastor Mors."

Julian Klaczko (1828-1906). Polish critic. "Die deutschen Hegemon," "Causeries florentines."

Eliza Orzeszko (1842-1910). Polish novelist. "The Modern Argonauts."

Henryk Sienkiewicz (1846-1916). Polish novelist. "Quo Vadis?" "Knights of the Cross," "The Deluge."

Vitezslav Halek (1835-1874). Bohemian poet. "The Black Flag," "The Heirs of the White Mountain," "The Tatra Maiden."

Svatopluk Cech (1846-1908). Czech poet. "Lestinsky Kovan (The Smith of Lesetin)," "Besne otroka (The Songs of a Stone)."

UNITED STATES AND CANADA.

William Dean Howells (1837-1920). Prose author. "The Rise of Silas Lapham," "Italian Journeys," "The Parlor Car," "Literary Friends and Acquaintances."

Edward Eggleston (1837-1902). Novelist and historian. "Hoosier Schoolmaster."

F. Bret Harte (1839-1902). "Luck of Roaring Camp," "Tales of the Argonauts," and other volumes of stories.

Joaquim Miller (1841-1913). Poet. "Songs of the Sierras."

Sidney Lanier (1842-1881). Poet and critic. "Poems," "English Novel," "Boy's Froissart."

John Fiske (1842-1901). "The Unseen World," "The Discovery of America," "The Beginnings of New England," and other historical and critical works.

Henry James (1843-1916). "Daisy Miller," "The American," other novels; many short stories.

G. W. Cable (1844-1925). "Old Creole Days." "The Grandissimes," and other novels and stories of life in Louisiana.

Joel Chandler Harris (1848-1908). "Nights with Uncle Remus," and other vols. of similar folk fables.

Sarah Orne Jewett (1849-1909). "Deephaven," "The Tory Lover," and other New England stories.

James Ford Rhodes (1848-1927). Histories of the United States in several volumes.

Mary N. Murfree (Charles Egbert Craddock), (1850-1922). "In the Tennessee Mountains," "Prophet of the Great Smoky Mountains," and other long and short stories.

Robert Grant (1852-). "Unleavened Bread," "The Chippendales" and other novels.

Thomas Nelson Page (1853-1922). "In Ole Virginia," other short stories and novels.

F. Marion Crawford (1854-1909). "Mr. Isaacs," "Saracinesca," and other novels.

Kate Douglas Wiggin (1857-1923). "The Bird's Christmas Carol," "Rebecca of Sunnybrook Farm," other novels.

Margaret W. Deland (1857-). "Old Chester Tales" and several other vols. of short stories; "John Ward, Preacher," and other novels.

Alice Brown (1857-). "Tiverton Tales," "Country Neighbors," other stories; "Children of Earth," ten thousand dollar prize drama.

Mary E. Wilkins-Freeman (1862-). "New England Nun," "Silence," "Wind in the Rose Bush," and other volumes of short stories.

	ENGLAND.	FRANCE.	GERMANY.
1900	Lady Augusta Gregory (1853-). "Gods and Fighting Men," "Kiltartan History Books," "Seven Short Plays."	Remy de Gourmont (1858-1915). Poet and dramatist. "Chemin de Velpurs," "Physique de l'Amour," "Le Pelerin du Silence."	Gerhardt Hauptmann (1862-). "Die Weber," "Die versunkene Glocke," "Der arme Heinrich," and other dramas.
	G. Bernard Shaw (1856-). Dramatist, critic. "Man and Superman," "Candida," "Press Cuttings," "Fanny's First Play."	Jean L. Jaures (1859-1914). Critic. L'Armee nouvelle, Etudes Socialistes.	
	Joseph Conrad (1857-1924). Born in Poland. "Lord Jim," "Youth," "Typhoon," "A Set of Six," "Chance," "Victory," "The Arrow of Gold," and other short stories and romances.	Albert Samain (1859-1900). Poet. "Au Jardin de l'Infante," "Le Chariot d'Or."	Ludwig Fulda (1862-). Dramatist and poet. "Das verloren Paradies, "Der Talisman," "Der Dummkopf."
		Henri Bergson (1859-). Critic and philosopher. "L'Evolution Creatrice."	
	A. Conan Doyle (1859-). "A Study in Scarlet," "Sign of the Four," "Adventures of Sherlock Holmes," "Last Bow," "Lost World," and other detective and mystery tales.	Jules Laforgue (1860-1887). Poet. "Poesies," "Moralties Legendaries."	Arthur Schnitzler (1862-). Austrian dramatist. "Paracelsus," "Lebendige Stunden," "Der Ruf des Lebens."
	James M. Barrie (1860-). "A Window in Thrums," "Little Minister," "Peter Pan," "What Every Woman Knows," and other sketches, novels, stories, and plays.	Paul Adam (1862-1920). Novelist. "La Force," "Le Trust."	
	Maurice Hewlett (1861-1923). Novelist. "The Forest Lovers," "Little Novels of Italy."	Maurice Barres (1862-1923). Man of Letters. "Le Jardin de Bernice," "La Cultede Moi," "La Colline inspiree."	Richard Dehmel (1863-1920). Poet. "Aber die Liebe," "Lucifer," "Michel Michael."
	Anthony Hope (Hawkins), (1863-). "The Prisoner of Zenda," "Rupert of Hentzau, "Dolly Dialogues," and other fiction.	Marcel Prevost (1862-). Novelist. "Les Demi-Vierges," "Lettres a Francoise."	
	Israel Zangwill (1864-1926). "Children of the Ghetto," "Ghetto Tragedies," "Comedies," "The Melting Pot," plays and stories.	Maurice Maeterlinck (1862-). Belgian poet and dramatist. "Le Tresor des Humbles," "La Sagesse et la Destinee," "Monna Vanna," "La Mort," "Pelleas and Melisande."	Arno Holz (1863-). Dramatist. "Buch der Zeit," "Phantasus I und II."
	Rudyard Kipling (1865-). "Plain Tales from the Hills," "Soldiers Three," "Day's Work," "Jungle Book," "Just So Stories," "Barrack Room Ballads," "Kim," stories, novels, and poems.	Henri de Regnier (1864-). Poems. "Les Medailles d'Argile," "Le Bon Plaisir," "Vestigae f'lammae."	Gustav Frenssen (1863-). Novelist. "Die Sandgrafin," "Die drei Getreuen," "Peter Moors Fahrt nach Sudwest."
	William Butler Yeats (1865-). Stories and Celtic plays. "Wanderings of Oisin," "Celtic Twilight," "Cathleen ni Houlihan," "Deirdre," "Hour Glass."	Marcel Schwob (1867-1905). Poet. "Le Roi au masque d'or," "Le Lampe de Psyche."	
	Herbert G. Wells (1866-). "The War of the Worlds." "New Worlds for Old," "Mr. Britling Sees it Through," "Outlines of History," and other works.	Charles Maurros (1868-). Critic and journalist. "Le Chemin de Paradis," "L'Avenir de l'Intelligence."	Ricarda Huch (1864-). Poet and novelist. "Der Kampf um Rom," "Neue Gedichte."
		Edmond Rostand (1868-1920). Playwright. "Les Romanesques," "Cyrano de Bergerac."	
	Arnold Bennett (1867-). "Old Wives' Tale," "Matador of the Five Towns," "Cupid and Common Sense," and various others.	Romaine Roland (1868-). Biographer. "Vie de Beethoven," "Jean-Christophe."	Otto J. Bierbaum (1865-1910). Man of letters. "Erlebte Degichte," "Stella und Antonie."
	John Galsworthy (1867-). "Fraternity," "Five Tales," "The Forsythe Saga," "The White Monkey," and plays.	Paul Claudel (1868-). Poet. "Cinque Grandes Odes," "Deux Poemes d'ete."	
	Stephen Phillips (1868-1915). Poetic Dramatist. "Ulysses," "Nero," "Herod."	Andre Gide (1869-). Poet mainly. "Les nourritures terrestres," "Le Caves du Vatican," "Pretextes."	Ludwig Thoma (1867-). "Agricola," "De Lokalbahn," "Tanta Frieda."
	John Millington Synge (1871-1909). Irish playwright. "Playboy of the Western World," "Well of the Saints," "Shadow of the Glen," "Riders to the Sea."	Georges Duhamel (1884-). Poet. "Vie des martyrs," "Civilization," "Elegies."	Stefan George (1868-). Novelist, poet. "Die Fibel," "Hymnen," "Das Jahn der Seele."
	Gilbert K. Chesterton (1875-). Critic and wit. "Dickens," "Irish Impressions," "What I Saw in America," and many others.	Jules Romains (1885-). (Pseud. of Louis Farigoule). Poet. "Mort de quelqu'un," "Odes et Prieres," "Les Copains," "Europe."	
	John Masefield, (1875-). Poet. "Salt Water Ballads," "Reynard the Fox," "The Locked Chest."	Roland Dorgeles (1886-). Novelist. "Les Croix de bois."	Hugo von Hofmansthal (1874-). Dramatist and poet. "Der Tod des Tizian," "Elektra," "Der Rosenkavalier."

ITALY, SPAIN, AND PORTUGAL.

Raphael Altamira y Crevea (1861-). Spanish critic. "De Historia y Arte."

Juan Menendez Pidal (1861-1915). Spanish critic and philosopher. "Dios y el Cesar," "Poesia Popular."

Jacinto Benavente (1866-). The Spanish Shakespeare. "Autumnal Roses," "The Evil Doers of Good," "Princess Bebe," and translations of Shakespeare.

Vincute Medina (1866-). Spanish dramatist. "Obras Completos," (1923).

Ramon Menendez Pidal (1869-). Spanish philologist. "Grammatica Historica Espagnola," "El Romancero Espagnol."

Thomas A. Robeiro-Ferreira (1831-1901). Portugese poet. "Vesperos," "Don Jaime," "Dissonancios."

Arthuro de Quental (1842-1891). Portugese poet. "Odes Modernos," "A Poesia na Actual Idade."

Jose M. Eca de Queiros (1843-1900). Portugese poet. "O Defunto," "A Suave Milagre."

Theophilo Braga (1843-1924). Portugese poet, scholar, and statesman. "Historia de Poesia Popular Portugueza," "Alma Portgueza," and a Life of Camoens.

SCANDINAVIA AND EASTERN EUROPE.

Emil B. Frida (1853-1912). Czech poet. "At the Chasm."

Vladimir Korolenko (1853-1921). Russian novelist. "The Vagrant and other Tales," "The Blind Musician," "Makar's Dream."

Volvolod M. Garshin (1855-1888). Russian novelist. "The Signal and other Tales," "Four Days," "The Red Flower," and others.

Anton Chekhov (1860-1904). Russian story writer. "Black Monk," "The Cherry Garden," "The Kiss," and other short tales.

Maxim Gorki (Alexei M. Pyeshkov). (1868-). Short story writer and novelist. "Chelkash," "Konovalov." His "At the Lowest Depths," is a powerful play.

Ivan Bunin (1870-). Russian poet. "Spring," "The God of the Moon."

Alexander I. Kuprin (1870-). Russian story writer. "Stories for Children," "Humorous Tales," "The River of Life."

Leonid M. Andreev (1871-1919). Russian novelist. "The Red Laugh" "The Seven Who were Hanged."

Valery Brusov (1873-). Russian novelist. "The Trust," "Benediction," "Eventide."

Michael Artsybashev (1878-1927). Russian novelist and short story writer. "Sanin," "Tales."

Alex Blok (1880-1921). Russian poet. "The Unknown Woman," "Russia," "Scythians."

Sergey Gorodetzky (1884-1921). Russian poet. "Yarila," "The Birch Tree."

UNITED STATES AND CANADA.

Edith Wharton (1862-). Novelist and short story author. "The Greater Inclination," "House of Mirth," "Crucial Instances."

James Whitcomb Riley (1853-1916). Poet. "Neighborhood Poems," "Green Fields," and many others.

Hamlin Garland (1860-). Novelist, short story writer, historian. "Main Traveled Roads," "Son of the Middle Border," "Daughter of the Middle Border."

Richard Harding Davis (1864-1916). War correspondence, short stories. "Gallegher and other other Stories," "Van Bibber and Others."

Clyde Fitch (1865-1909). Dramatist. "Beau Brummel," "The Girl with the Green Eyes," "The Last of the Dandies," and many other plays.

"O. Henry" (William Sidney Porter). (1867-1910). "Cabbages and Kings," "The Four Million," and ten other volumes of clever stories.

William Allen White (1868-). Novelist, short story writer, journalist. "A Certain Rich Man," "The King of Boyville," prize editorials.

Boothe Tarkington (1869-). "The Gentleman from Indiana," "Monsieur Beaucaire," "Penrod," and other stories and plays.

Mary Johnston (1870-). "To Have and to Hold," "Audrey," "Pioneers of the Old South," and other novels.

Jack London (1876-1916). Novelist. "Call of the Wild," "The Sea Wolf," "The Game," and other novels; "John Barleycorn," and other discussions.

Palmer Cox (1840-1924). Canadian artist and story teller. "The Brownies, Their Book," and other "Brownie" books; "How Columbus Found America," "Queer People with Wings and Stings."

William Henry Drummond (1854-1907). Canadian "habitant" poet. "Habitant," "Voyageur," and other poems.

C. G. D. Roberts (1860-). Canadian poet. "In Divers Tones," "By the Marshes of Minas," and many other poems.

Bliss Carman (1861-). Canadian poet. "Low Tide at Grand Pre," " Pipes of Pan," "Songs from Vagabondia" (with Richard Hovey), and many other volumes.

"Ralph Connor" (Chas. William Gordon) (1860-). Novelist. "Sky Pilot," "Black Rock," and others.

Duncan C. Scott (1862-). Canadian poet. "Magic House," "New World Lyrics," "Beauty and Life."

Gilbert Parker (1862-). Canadian novelist and story teller, now living in England. "Pierre and his People," "Right of Way," "Seats of the Mighty."

Robert Service (1876-). Canadian poet. "Rhymes of a Rolling Stone," "Rhymes of a Red Cross Man," "Ballads of a Bohemian."

A DICTIONARY OF MYTHOLOGY.

A'BAS. A king of Argos, son of Lynceus and Hypermnestra, grandson of Danaüs, father of Acrisius, and grandfather of Perseus.

ABSYR'TUS. Brother of Medea.

ACHELO'US. A son of Oceanus and Terra. He had the power of assuming all shapes, and in a conflict with Hercules he turned himself into a serpent, and then into a bull, but he was finally defeated, and he then turned himself into a river, which has since been called Achelous.

ACH'ERON. One of the rivers of the infernal regions to which the spirits of the dead resorted, and waited there till Charon the ferryman took them over.

ACHIL'LES. The most valiant of the Greek heroes in the Trojan War. He was the son of Peleus, king of Thessaly. His mother, Thetis, plunged him, when an infant, into the Stygian pool, which made him invulnerable wherever the waters had washed him; but the heel by which he was held was not wetted, and that part remained vulnerable. He was shot with an arrow in the heel by Paris, at the siege of Troy, and died of his wound.

ACIDA'LIA. A name given to Venus, from a fountain in Boeotia.

A'CIS. A Sicilian shepherd, loved by the nymph Galatea. One of the Cyclops who was jealous of him crushed him by hurling a rock on him. Galatea turned his blood into a river—the Acis at the foot of Mount Etna.

ACTAE'ON. The son of Aristaeus, a famous huntsman. He intruded himself on Diana while she was bathing, and was changed by her into a deer, in which form he was hunted by his own dogs and torn in pieces.

ADO'NIS. The beautiful attendant of Venus, who held her train. He was killed by a boar, and from his blood sprang the anemone.

ADRASTAE'A. Another name of Nemesis, one of the goddesses of justice.

ADSCRIPTI'TII DII. The gods of the second grade.

AE'ACUS. Son of Jupiter and Aegina; one of the judges of the infernal regions, who was appointed to judge the Europeans.

AECAS'TOR. An oath used only by women, referring to the Temple of Castor.

AED'EPOL. An oath used by both men and women, referring to the Temple of Pollux.

AEGE'ON. A giant with 50 heads and 100 hands, who was imprisoned by Jupiter under Mount Etna.

AEGIP'ANS. Rural deities who inhabited the forests and mountains, the upper half of the body being like that of a man, and the lower half like that of a goat.

AE'GIS. The shield of Jupiter, so called because it was made of goat skin; used as a defensive armor in his war with the Titans; afterwards intrusted by him to Minerva.

AE'GLE. The fairest of the Naiads.

AEL'LO. The name of one of the Harpies.

AENE'AS. The son of Anchises and Venus. He was one of the few great captains who escaped the destruction of Troy. He behaved with great valor during the siege, encountering Diomed, and even Achilles himself. When the Grecians had set the city on fire Aeneas took his aged father, Anchises, on his shoulders, while his son, Ascanius, and his wife, Creusa, clung to his garments. He saved them all from the flames. After wandering about during several years, encountering numerous difficulties, he at length arrived in Italy, where he was hospitably received by Latinus, king of the Latins. After the death of Latinus, Aeneas became king.

AE'OLUS. The god of the winds. Jupiter was his reputed father, and his mother is said to have been a daughter of Hippotus.

AESCULA'PIUS. The god of physic, was a son of Apollo. He was physician to the Argonauts in their famous exped tion to Colchis.

AE'SON. Father of Jason, and was restored to youth by Medea.

AE'TES. A king of Colchis, was father of Medea.

AGAMEM'NON. The son of Plisthenes and brother of Menelaus. He was king of the Argives. His brother's wife was the famous Helen, daughter of Tyndarus, king of Sparta; and when she eloped with Paris, Agamemnon was appointed leader of the Greeks in their expedition against Troy.

AGANIP'PIDES. A name of the Muses, derived from the fountain of Aganippe.

AGLA'IA. One of the Three Graces.

AG'NI. The Hindu god of fire.

A'JAX. One of the bravest of the Greek warriors in the Trojan War. His father was Telamon, and his mother Eriboea. Some writers say that he was killed by Ulysses; others aver that he was slain by Paris; while others again assert that he went mad after being defeated by Ulysses, and killed himself. Another Ajax, son of Oïleus, also took a prominent part in the Trojan War.

ALCES'TIS. Wife of Admetus, who, to save her husband's life, died in his stead, and was restored to life by Hercules.

ALCI'DES. One of the names of Hercules.

ALCME'NA. The mother of Hercules, was daughter of Electryon, a king of Argos.

ALEC'TO. One of the Furies. She is depicted as having serpents instead of hair on her head, and was supposed to breed pestilence wherever she went.

ALEC'TRYON. A servant of Mars, who was changed by him into a cock because he did not warn his master of the rising of the sun.

AL'FADUR. In Scandinavian mythology the Supreme Being—Father of all. One of the names of Odin.

AMAL'THAE'A. The goat which nourished Jupiter.

AM'AZONS. A nation of women-soldiers who lived in Scythia. Hercules totally defeated them, and gave Hippolyte, their queen, to Theseus for a wife. The race seems to have been exterminated after this battle.

AMBARVA'LIA. Festivals in honor of Ceres, instituted by Roman husbandmen to purge their fields. At the spring festival the head of each family led an animal, usually a pig or ram, decked with oak boughs, round his grounds, and offered milk and new wine. After harvest there was another festival, at which Ceres was presented with the first fruits of the season.

AMBRO'SIA. The food of the gods.

AMPHI'ON. The son of Jupiter and Antiope. He was greatly skilled in music; and it is said that, at the sound of his lute, the stones arranged themselves so regularly as to make the walls of the city of Thebes.

AMPHITRI'TE or SALATIA. The wife of Neptune, was a daughter of Nereus and Doris. She was the mother of Triton, a sea god.

AMY'CUS. King of Babrycia. He was a son of Neptune, and was killed by Pollux.

ANCAE'US. A son of Neptune, who left a cup of wine to hunt a wild boar, which killed him, and the wine was untasted. This was the origin of the proverb —"There 's many a slip 'twixt cup and lip."

ANCIL'IA. The 12 sacred shields. The first Ancile was supposed to have fallen from heaven in answer to the prayer of Numa Pompilius. It was kept with the greatest care, as it was prophesied that the fate of the Roman people would depend upon its preservation. An order of priesthood was established to take care of the Ancilia, and on March 1 of each year the shields were carried in procession, and in the evening there was a great feast called Coena Saliaris.

ANDROM'EDA. The daughter of Cepheus, king of the Ethiopians, was wife of Perseus, by whom she was rescued when she was chained to a rock and was about to be devoured by a sea monster.

ANEM'ONE. Venus changed Adonis into this flower.

ANGERO'NIA. Otherwise Volupia, was the goddess who had the power of dispelling anguish of mind.

ANNA PEREN'NA. One of the rural divinities.

ANTAE'US. A giant who was vanquished by Hercules. Each time that Hercules threw him the giant gained fresh strength from touching the earth, so Hercules lifted him off the ground and squeezed him to death.

AN'TEROS. One of the two Cupids, sons of Venus.

ANTIC'LEA. The mother of Ulysses.

ANTI'OPE. Daughter of Nycteus, king of Thebes, and mother, by Zeus, of Amphion and Zethus.

ANU'BIS or HERMAN'UBIS. "A god half a dog, a dog half a man." Called *Barker* by Vergil and other poets.

AON'IDES. A name of the Muses, from the country Aonia.

APH'RODI'TE. A Greek name of Venus.

A'PIS. A name given to Jupiter by the inhabitants of the Lower Nile. Also the miraculous ox, worshiped in Egypt.

A'PIS. King of Argivia. Afterwards called Serapis, the greatest god of the Egyptians.

APOL'LO. This famous god, sometime king of Arcadia, was the son of Jupiter and Latona. He was known by several names, but principally by the following: Sol (the sun); Cynthius, from the mountain called Cynthus in the Isle of Delos, and this same island being his native place obtained for him the name of Delius; Delphinius, from his occasionally assuming the shape of a dolphin. His name of Delphicus was derived

from his connection with the splendid Temple at Delphi, where he uttered the famous oracles. Some writers record that this oracle became dumb when Jesus Christ was born. Other common names of Apollo were Didymaeus, Nomius, Paean, and Phoebus. The Greeks called him Agineus because the streets were under his guardianship, and he was called Pythius from having killed the serpent Python. Apollo is usually represented as a handsome young man without beard, crowned with laurel, and having in one hand a bow, and in the other a lyre. The favorite residence of Apollo was on Mount Parnassus, a mountain of Phocis, in Greece, where he presided over the Muses. Apollo was the accredited father of several children, but the two most renowned were Aesculapius and Phaëton.

APOTHE'OSIS. The consecration of a god. The ceremony of deification.

ARACH'NE. A Lydian princess, who challenged Minerva to a spinning contest, but Minerva struck her on the head with a spindle, and turned her into a spider.

ARCA'DIA. A delightful country in the center of Peloponnesus, a favorite place of the gods. Apollo was reputed to have been king of Arcadia.

AR'CAS. A son of Calisto, was turned into a he-bear; and afterwards into the constellation called Ursa Minor.

AREOP'AGI'TAE. The judges who sat at the Areopagus.

AREOP'AGUS. The hill at Athens where Mars was tried for murder before 12 of the gods.

ARETHU'SA. Was one of the nymphs of Diana. She fled from Alpheus, a river god, and was enabled to escape by being turned by Diana into a rivulet which ran underground. She was as virtuous as she was beautiful.

AR'GONAUTS. This name was given to the 50 heroes who sailed to Colchis in the ship Argo under the command of Jason, to fetch the Golden Fleece.

AR'GUS. Was a god who had a hundred eyes which slept and watched by turns. He was charged by Juno to watch Io, but, being slain by Mercury, was changed by Juno into a peacock.

ARIAD'NE. Daughter of Minos, king of Crete. After enabling Theseus to get out of the labyrinth by means of a clew of thread, she fled with him to Naxos, where he ungratefully deserted her; but Bacchus wooed her and married her, and the crown of seven stars which he gave her was turned into a constellation.

ARI'ON. Was a famous lyric poet of Methymna, in the island of Lesbos; rescued from drowning by a dolphin.

ARISTAE'US. Son of Apollo and Cyrene, was the god of trees. He also taught mankind the use of honey, and how to get oil from olives. He was a celebrated hunter. His most famous son was Actaeon.

ARMA'TA. One of the names of Venus, given to her by Spartan women.

AR'TEMIS. This was the Grecian name of Diana, and the festivals at Delphi were called Artemesia.

ARUS'PICES. Sacrificial priests.

ASCAL'APHUS. Was changed into an owl, the harbinger of misfortune, by Ceres, because he informed Pluto that Proserpine had partaken of food in the infernal regions, and thus prevented her return to earth.

ASCA'NIUS. The son of Aeneas.

ASCOL'IA. Bacchanalian feasts, from a Greek word meaning a leather bottle. The bottles were used in the games to jump on.

ASO'PUS. A son of Jupiter, who was killed by one of his father's thunderbolts.

ASSABI'NUS. The Ethiopian name of Jupiter.

ASTAR'TE. One of the Eastern names of Venus.

ASTE'RIA. Daughter of Caeus, was carried away by Jupiter, who assumed the shape of an eagle.

ASTRE'A. Mother of Nemesis, was the goddess of justice. She returned to heaven when the earth became corrupt.

ATALAN'TA. Daughter of Caeneus. The oracle told her that marriage would be fatal to her, but, being very beautiful, she had many suitors. She was a very swift runner, and, to get rid of her admirers, she promised to marry any one of them who should outstrip her in a race, but that all who were defeated should be slain. Hippomenes, however, with the aid of Venus, was successful. That goddess gave him three golden apples, one of which he dropped whenever Atalanta caught up to him in the race. She stopped to pick them up, and he was victorious and married her. They were both afterwards turned into lions by Cybele, for profaning her temple.

A'TE. The goddess of revenge, also called the goddess of discord and all evil. She was banished from heaven by her father Jupiter.

ATHE'NA. A name obtained by Minerva as the tutelary goddess of Athens.

AT'LAS. King of Mauritania, now Morocco, in Africa. He was also a great astronomer. He is depicted with the globe on his back, his name signifying great toil or labor. For his inhospitality to Perseus that king changed him into the mountain which bears his name of Atlas. A chain of mountains in Africa is called after him, and so is the Atlantic Ocean.

AT'REUS. The type of fraternal hatred. His dislike of his brother Thyestes went to the extent of killing and roasting his nephews, and inviting their father to a feast, which Thyestes thought was a sign of reconciliation, but he was the victim of his brother's detestable cruelty.

AT'ROPOS. One of the three sisters called "The Fates," who held the shears ready to cut the thread of life.

A'TYS. Son of Croesus, was born dumb, but when in a fight he saw a soldier about to kill the king, he gained speech, and cried out, "Save the king!" and the string that held his tongue was broken.

A'TYS. A youth beloved by Aurora, and was slain by her father, but, according to Ovid, was afterwards turned into a pine tree.

AUG'EAS. A king of Elis, the owner of the stable which Hercules cleansed after 3,000 oxen had been kept in it for 30 years. It was cleansed by turning the river Alpheus through it. Augaeas promised to give Hercules a tenth part of his cattle for his trouble, but, neglecting to keep his promise, Hercules shot him.

AU'GURY. This was a means adopted by the Romans for forming a judgment of futurity by the flight of birds, and the officiating priest was called an augur.

AURO'RA. The goddess of the morning, "whose rosy fingers ope the gates of day." She was daughter of Sol, the sun, and was the mother of the stars and winds.

AUS'TER. The south wind, a son of Jupiter.

AVER'NUS. A poisonous lake, referred to by poets as being at the entrance of the infernal regions, but it was really a lake in Campania, Italy.

AVERRUN'CUS DEUS. A Roman god, who could divert people from evil doing.

BA'AL. A god of the Phoenicians.

BA'AL-PE'OR. A Moabitish god, associated with licentiousness and obscenity. The modern name is Belphegor.

BACCHAN'TES. The priestesses of Bacchus.

BAC'CHUS. The god of wine, and the son of Jupiter and Semele. He is said to have married Ariadne, daughter of Minos, king of Crete, after she was deserted by Theseus. The most distinguished of his children is Hymen, the god of marriage.

BA'LIOS. A famous horse given by Neptune to Peleus as a wedding present, and afterwards given to Achilles.

BASSAR'IDES. The priestesses of Bacchus were sometimes so called.

BELISA'MA. A goddess of the Gauls. The name means the Queen of Heaven.

BELLER'OPHON. A hero who destroyed a monster called the Chimaera.

BELLO'NA. The goddess of war, and wife of Mars. The 24th of March was called Bellona's day, when her votaries cut themselves with knives and drank the blood of the sacrifice.

BE'LUS. The Chaldean name of the sun.

BERECYN'THIA. A name of Cybele, from a mountain where she was worshiped.

BI'FORMIS. A name of Bacchus, because he was accounted both bearded and beardless.

BO'NA DE'A. "The bountiful goddess," whose festival was celebrated by the Romans with much magnificence.

BO'NUS EVEN'TUS. The god of good success, a rural divinity.

BO'REAS. The north wind, son of Astraeus and Aurora.

BRAH'MA. The great Indian deity, represented with four heads looking to the four quarters of the globe.

BRIS'AEUS. A name of Bacchus, referring to the use of grapes and honey.

BRONT'ES. One of the Cyclops. He is the personification of a blacksmith.

BUBO'NA. Goddess of herdsmen, one of the rural divinities.

BUD'DHA. The founder of Buddhism; later supposed to be the manifestation of the Vishnu of the Hindus.

BYB'LIS. A niece of Sol, mentioned by Ovid. She shed so many tears for unrequited love that she was turned into a fountain.

CAB'IRI. The mysterious rites connected with the worship of these deities were so obscene that most

writers refer to them as secrets which it was unlawful to reveal.

CAC'ODAE'MON. Greek name of an evil spirit.

CA'CUS. A three-headed monster and robber.

CAD'MUS. One of the earliest of the Greek demigods. He was the reputed inventor of letters, and his alphabet consisted of 16 letters. It was Cadmus who slew the Boeotian dragon, and sowed its teeth in the ground, from each of which sprang up an armed man.

CADU'CEUS. The rod carried by Mercury. It has two winged serpents entwined round the top end. It was supposed to possess the power of producing sleep, and Milton refers to it in *Paradise Lost* as the "opiate rod."

CALLI'OPE. The Muse who presided over epic poetry and rhetoric. She is generally depicted using a stylus and wax tablets, the ancient writing materials.

CALLIS'TO. An Arcadian nymph, who was turned into a she-bear by Jupiter. In that form she was hunted by her son Arcas, who would have killed her had not Jupiter turned him into a he-bear. The nymph and her son form the constellations known as the Great Bear and Little Bear.

CAL'PE. One of the pillars of Hercules.

CALYP'SO. Queen of the island of Ogygia, on which Ulysses was wrecked, and where he was persuaded to remain seven years.

CA'MA. The Indian god of love and marriage.

CAMIL'LUS. A name of Mercury, from his office of minister to the gods.

CAN'ACHE. The name of one of Actaeon's hounds.

CANO'BA. The Indian Apollo.

CANO'PUS. The Egyptian god of water, the conqueror of fire.

CAP'IS or **CAP'ULA.** A peculiar cup with ears, used in drinking the health of the deities.

CAPITOLI'NUS. A name of Jupiter, from the Capitoline hill, on the top of which a temple was built and dedicated to him.

CAPRIP'EDES. Pan, the Aegipans, the Satyrs, and Fauns were so called from having goats' feet.

CASSAN'DRA. A daughter of Priam and Hecuba, who was granted by Apollo the power of seeing into futurity, but having offended that god he prevented people from believing her predictions.

CASSIOPE'IA. The Ethiopian queen who set her beauty in comparison with that of the Nereides, who thereupon chained her daughter Andromeda to a rock and left her to be devoured by a sea monster, but she was delivered by Perseus.

CASTA'LIA. One of the fountains in Mount Parnassus, sacred to the Muses.

CASTALI'DES. A name of the Muses, from the fountain Castalia or Castalius.

CAS'TOR. Son of Jupiter and Leda, twin brother of Pollux, noted for his skill in horsemanship. He went with Jason in quest of the Golden Fleece.

CAU'THER. In Mohammedan mythology, the lake of paradise, whose waters are as sweet as honey, as cold as snow, and as clear as crystal; and any believer who tastes thereof is said to thirst no more.

CELE'NO. One of the Harpies, progenitor of Zephyrus, the west wind.

CEN'TAUR. A huntsman who had the fore part like a man, and the remainder of the body like a horse. The Centauri lived in Thessaly.

CEPH'ALUS. Married to Procris, whom he accidentally slew by shooting her, while she was secretly watching him, he thinking she was a wild beast. Cephalus was the type of constancy.

CERAU'NIUS. A Greek name of Jupiter, meaning The Fulminator, from his thunderbolts.

CER'BERUS. Pluto's famous three-headed dog, which guarded the gate of the infernal regions, preventing the living from entering, and the inhabitants from going out.

CE'RES. Daughter of Saturn, the goddess of agriculture, and of the fruits of earth. She taught Triptolemus how to grow corn, and sent him to teach the inhabitants of the earth.

CES'TUS. The girdle of Venus, which excited irresistible affection.

CHA'OS. Allegorically represented the confused mass of matter supposed to have existed before the creation of the world, and out of which the world was formed.

CHAR'ON. The son of Nox and Erebus. He was the ferryman who conveyed the spirits of the dead, in a boat, over the rivers Acheron and Styx to the Elysian Fields. "Charon's toll" was a coin put into the mouth of the dead with which to pay the grim ferryman.

CHARYB'DIS. A dangerous whirlpool on the coast of Sicily. Personified, it was supposed to have been a woman who plundered travelers, but was at last killed by Hercules. Scylla and Charybdis are generally spoken of together to represent alternative dangers.

CHE'MOS. The Moabitish god of war.

CHIMAE'RA. A wild illusion, personified in the monster slain by Bellerophon. It had the head and breast of a lion, the body of a goat, and the tail of a serpent. It used to breathe forth fire.

CHI'RON. The centaur who taught Achilles hunting, music, and the use of medicinal herbs. Jupiter placed him amongst the stars, where he appears as Sagittarius the Archer.

CHLO'RIS. The Greek name of Flora, the goddess of flowers.

CHOU. An Egyptian god corresponding to the Roman Hercules.

CHRO'NOS. Time, the Greek name of Saturn.

CIR'CE. The daughter of the sun. The knowledge of poisonous herbs enabled her to destroy her husband, the king of the Sarmatians, for which act she was banished. When Ulysses landed at Aecea, where she lived, she turned all his followers into swine.

CISSE'TA. The name of one of Actaeon's hounds.

CITHER'IDES. A name of the Muses, from Mount Citheron.

CLI'O. One of the Muses, daughter of Jupiter and Mnemosyne. She presided over history.

CLOACI'NA. The Roman goddess of sewers.

CLO'THO. One of the Fates. She was present at births, and held the distaff from which was spun the thread of life. See ATROPOS and LACHESIS.

CLOWNS OF LY'CIA, THE. Changed into frogs by Latona, because they refused to allow her to drink at one of their streamlets.

CLUACI'NA. A name of Venus, given to her at the time of the reconciliation of the Romans and the Sabines, which was ratified near a statue of the goddess.

CLYTEMNES'TRA. Wife of Agamemnon, slew her husband and married Aegisthus. She attempted to kill her son Orestes, but he was delivered by his sister Electra, who sent him away to Strophius. He afterwards returned and slew both Clytemnestra and Aegisthus.

CLYT'IE. A nymph who was changed into a sunflower because her love of Apollo was unrequited. In the form of this flower she is still supposed to be turning towards Sol, a name of Apollo.

CNEPH. In Egyptian mythology the creator of the universe.

COCY'TUS. The river of lamentation. One of the five rivers of the infernal regions.

COE'CULUS. A violent robber, a son of Vulcan.

COE'LUS. Also called Uranus (or Heaven), the most ancient of the gods.

COLLI'NA. One of the rural deities, the goddess of hills.

CO'MUS. The god of revelry. He presided over entertainments and feasts.

CON'CORD. The symbol of concord was two right hands joined, and a pomegranate.

CONCOR'DIA. The goddess of peace. One of the oldest Roman goddesses. She is represented as holding a horn of plenty in one hand, and in the other a scepter, from which fruit is sprouting forth.

CONSUA'LIA. Games sacred to Neptune.

CON'SUS. A name given to Neptune as being the god of counsel.

COPHET'UA. A legendary king of Africa, who disliked women, but ultimately fell in love with a "beggar-maid," as mentioned in *Romeo and Juliet*.

CO'PIA. The goddess of plenty.

CO'RAN. One of Actaeon's hounds was so named.

CORO'NIS. A consort of Apollo and mother of Aesculapius. Another Coronis was daughter of a king of Phocis, and was changed by Athena into a crow.

CORYBAN'TES. Priests of Cybele. They obtained the name because they were in the habit of striking themselves in their dances.

CORY'DON. A silly love-sick swain mentioned by Vergil.

CORY'THAIX. A name given to Mars, meaning Shaker of the Helmet.

COTYT'TO. The Athenian goddess of immodesty.

CU'PID. The god of love, the son of Jupiter and Venus. He is represented as a naked, winged boy, with a bow and arrows and a torch. When he grew up to be a man he married Psyche.

CUVE'RA. The Indian god of wealth, corresponding to the Greek Plutus.

CYB'ELE. The mother of the gods, and hence called Magna Mater. She was wife of Saturn. She is sometimes referred to under the names of Ceres, Rhea, Ops, and Vesta.

CY'CLOPS or **CY'CLOPES.** The gigantic, one-eyed workmen of Vulcan, who made Jove's thunderbolts.

Hesiod gives their names as Arges, Brontes, and Steropes.

CYG'NUS. The bosom friend of Phaëton. He died of grief on the death of his friend, and was turned into a swan.

CYL'LAROS. One of Castor's horses. The color is mentioned as being coal black, with white legs and tail.

CYL'LO. The name of one of Actaeon's hounds, which was lame.

CYLLOP'OTES. A name given to one of Actaeon's hounds, which limped.

CYN'OSURA. One of the nurses of Jupiter, turned by the god into a conspicuous constellation, Ursa Minor.

CYPARIS'SUS. A boy of whom Apollo was very fond; and when he died he was changed, at Apollo's intercession, into a cypress tree, the branches of which typify mourning.

CY'PRIA. A name of Venus, because she was worshiped in the island of Cyprus.

CYTH'ERA. A name of Venus, from the island to which she was wafted in the shell.

DACTY'LI. Priests of Cybele. They were given the name because, like the fingers, they were 10 in number.

DAED'ALUS. A great architect and sculptor. He invented the wedge, the axe, the level, and the gimlet, and was the first to use sails. Daedalus also constructed the famous labyrinth for Minos, king of Crete.

DA'GON. A god of the Philistines, half man, half fish, like the mermaid. Milton describes him as "Upward man and downward fish."

DA'HAK. The Persian devil.

DAI'TYAS. In Hindu mythology the devils or evil gods.

DAN'AE. A daughter of Acrisius and Eurydice. She had a son by Jupiter, who was drifted out to sea in a boat, but was saved by Polydectes and educated.

DANA'US. King of Argos. The father of 50 daughters, who, all but one, at the command of their father, slew their husbands directly after marriage. For this crime they were condemned to the task of forever trying to draw water with vessels without any bottoms.

DAPH'NE. The goddess of the earth. Apollo courted her, but she fled from him, and was, at her own request, turned into a laurel tree.

DAR'DANUS. A son of Jupiter, who built the city of Dardania and by some writers was accounted the founder of Troy.

DEIANI'RA. Daughter of Oeneus, wife of Hercules. See HERCULES.

DE'LIUS. A name of Apollo from the island in which he was born.

DEL'PHI. A town on Mount Parnassus, famous for its oracle, and for a temple of Apollo.

DEL'PHOS. The place where the temple was built from which the oracle of Apollo was given.

DE'MARUS. The Phoenician name of Jupiter.

DE'MOGOR'GON. The tyrant genius of the soil or earth, the life and support of plants. He was depicted as an old man covered with moss, and was said to live underground. He is sometimes called the king of the elves and fays.

DEUCA'LION. One of the demigods, son of Prometheus and Clymene. He and his wife, Pyrrha, by making a ship, survived the deluge which Jupiter sent on the earth (about 1503 B. C.).

DIAN'A. Goddess of hunting and of chastity. She was the sister of Apollo, and daughter of Jupiter and Latona. She was known among the Greeks as Diana or Phoebe, and was honored as a triform goddess. As a celestial divinity she was called Luna; as a terrestrial, Diana or Dictynna; and in the infernal regions, Hecate.

DICTYN'NA. A Greek name of Diana as a terrestrial goddess.

DI'DO. A daughter of Belus, king of Tyre. It was this princess who bought a piece of land in Africa as large as could be encompassed by a bullock's hide, and, when the purchase was completed, cut the hide into strips, and so secured a large tract of land. Here she built Carthage; and Vergil tells that when Aeneas was shipwrecked on the neighboring coast, she received him with every kindness, and at last fell in love with him. But Aeneas did not reciprocate her affections, and this so grieved her that she stabbed herself.

DI'ES PA'TER. Father of the Day, a name of Jupiter

DII SELEC'TI. Composed the second class of gods. They were Coelus, Saturn, Genius, Oreus, Sol, Bacchus, Terra, and Luna.

DINDYME'NE. A name of Cybele, from a mountain where she was worshiped.

DIOME'DES. The cruel tyrant of Thrace, who fed his mares on the flesh of his guests, was overcome by Hercules, and was given to the same horses as food.

DIO'NE. A poetic name of Venus.

DIONY'SIA. Festivals in honor of Bacchus.

DIONY'SUS. A name of Bacchus, either from his father Jupiter (Dios), or from his nurses, the nymphs called Nysae.

DIOS'CURI. Castor and Pollux, the sons of Jupiter.

DI'RAE. A name of the Furies.

DIS. A name of Pluto, god of Hades, signifying riches.

DISCOR'DIA. Sister of Nemesis, the Furies, and Death, was driven from heaven for having sown discord among the gods.

DODO'NA. A celebrated oracle of Jupiter.

DODONAE'US. A name of Jupiter, from the city of Dodona.

DOLA'BRA. The knife used by the priests to cut up the sacrifices.

DOOR'GA. A Hindu goddess.

DO'RIS. Daughter of Oceanus, and sister and wife of Nereus. From these two sprang the several tribes of water nymphs.

DO'TO. One of the Nereids or sea nymphs.

DRA'CO. One of Actaeon's hounds.

DRAGON. Seven headed. See GERYON.

DRY'ADS. Rural deities, the nymphs of the forests, to whom their votaries offered oil, milk, and honey.

DWEUR'GAR. Scandinavian god of the Echo—a pigmy.

EB'LIS. The Mohammedan evil genius.

ECHID'NA. A woman having a serpent's tail.

ECHNO'BAS. One of Actaeon's hounds.

ECH'O. A nymph who fell in love with Narcissus. But when he languished and died she pined away from grief and died also, preserving nothing but her voice, which repeats every sound that reaches her.

"Oft by Echo's tedious tales misled."—*Ovid.*

EGE'RIA. A nymph who is said to have suggested to Numa all his wise laws. She became his wife, and at his death was so disconsolate, and shed so many tears, that Diana changed her into a fountain.

E'GIL. The Vulcan of northern mythology.

ELEUSIN'IAN MYSTERIES. Religious rites in honor of Ceres, performed at Eleusis in Attica.

ELYS'IUM or the **ELYSIAN FIELDS.** The temporary abode of the just in the infernal regions.

EMPYRE'AN, THE. The fifth heaven, the seat of the heathen deity.

ENDYM'ION. A shepherd who acquired from Jupiter the faculty of being always young. One of the lovers of Diana.

ENY'O. The Grecian name of Bellona, the goddess of war and cruelty.

E'OS. The Grecian name of Aurora.

E'OUS. One of the four horses which drew the chariot of Sol. The word is Greek, and means red.

EPH'IAL'TES. A giant who lost his right eye in an encounter with Hercules, and the left eye was destroyed by Apollo.

ER'ATO. One of the Muses, the patroness of light poetry. She presided over the triumphs and complaints of lovers, and is generally represented as crowned with roses and myrtle, and holding a lyre in her hand.

ER'EBUS. Son of Chaos, one of the gods of Hades, sometimes alluded to as representing the infernal regions.

EREC'THEUS. Fourth king of Athens, the son of Vulcan.

ERGA'TIS. A name given to Minerva. It means the work-woman, and was given to the goddess because she was credited with having invented spinning and weaving.

ERIN'YS. A Greek name of the Furies. It means Disturber of the Mind.

ERISICH'THON. He was punished with perpetual hunger because he defiled the groves of Ceres and cut down one of the sacred oaks.

ER'OS. The Greek god of love.

EROS'TRATUS. The rascal who burned the temple of Diana at Ephesus, thereby hoping to make his name immortal.

ERYCI'NA. A name of Venus, from Mount Eryx in Sicily.

ERYTHRE'OS. The Grecian name of one of the horses of Sol's chariot.

E'THON. One of the horses which drew the chariot of Sol. The word is Greek and signifies hot.

ET'NA. A volcanic mountain, beneath which, according to Vergil, there is buried the giant Typhon, who breathes forth devouring flames.

EU'DROMOS. The name of one of Actaeon's hounds.

EUME'NIDES. A name of the Furies, meaning

mild, and referring to the time when they were approved by Minerva.

EUPHRO'SYNE. One of the three Graces. See GRACES.

EU'RUS. The east wind. A son of Aeolus.

EURY'ALE. One of the Gorgons, daughter of Phorcus and Ceto.

EURYD'ICE. Wife of Orpheus, who was killed by a serpent on her wedding night.

EURYTH'ION. A seven-headed dragon. See GERYON.

EU'TERPE. One of the Muses, the patroness of instrumental music. The word means agreeable.

EU'VYHE. An expression meaning "Well done, son." Jupiter so frequently addressed his son Bacchus by those words that the phrase at last became one of his names.

FAME. A poetical deity, represented as having wings and blowing a trumpet. A temple was dedicated to her by the Romans.

FATES or PARCAE. The three daughters of Necessity. Their names were Clotho, who held the distaff; Lachesis, who turned the spindle; and Atropos, who cut the thread with the fatal shears.

FAUNS. Rural divinities, half man and half goat. They were very similar to the Satyrs. The Fauns attended the god Pan, and the Satyrs attended Bacchus.

FAVO'NIUS. The wind favorable to vegetation, that is, Zephyr—the west wind.

FE'BRIS (fever). One of the evil deities, worshiped that she might not do harm.

FEB'RUUS. A name of Pluto, from the part of the funeral rites which consisted of purifications.

FERO'NIA. The Roman goddess of orchards; was patroness of enfranchised slaves. Some authors think Feronia is the same as Juno.

FI'DES. The goddess of faith and honesty, who had a temple in the Capitol of Rome.

FLATH'IN'NIS. In Celtic mythology, Paradise.

FLEECE, GOLDEN. See GOLDEN FLEECE, ARGONAUTS, and JASON.

FLO'RA. Goddess of flowers and gardens; was wife of Zephyrus. She enjoyed perpetual youth. Her Grecian name was Chloris.

FLORA'LIA. Licentious games instituted in honor of the goddess Flora.

FORTU'NA. The goddess of fortune, who had a temple erected to her by Servius Tullius. She was supposed to be able to bestow riches or poverty on mankind, and was esteemed one of the most potent of the ancient goddesses.

FRAUD. One of the evil deities; was represented as a goddess with a human face and a serpent's body, and in the end of her tail was a scorpion's sting. She lived in the river Cocytus, and nothing but her head was ever seen.

FREY. The Scandinavian god of fertility and peace. The patron god of Sweden and Iceland.

FREY'JA. The Scandinavian Venus. The goddess of love.

FRI'GA. The Saxon goddess of earthly enjoyments. The name Friday is derived from her. In Scandinavian mythology she is the goddess of marriage.

FRO. The Scandinavian god of tempests and winds.

FURIES, THE. The three daughters of Acheron and Nox. They were the punishers of evil doers. Their names were Tisiphone, Megaera, and Alecto, and were supposed to personify rage, slaughter, and envy.

GABRIEL. In Jewish mythology, the prince of fire and thunder, and the angel of death to the favored people of God.

GALATAE'A. A sea nymph. Polyphemus, one of the Cyclops, loved her, but she disdained his attentions and became the lover of Acis, a Sicilian shepherd.

GAL'LI. Priests of Cybele who used to cut their arms with knives when they sacrificed, and acted so like madmen that demented people got the name of Gallantes.

GAN'ESA. The Indian Mercury. The god of wisdom and prudence.

GANGA. One of the three Indian river goddesses.

GAN'YMEDE. A beautiful Phrygian youth, son of Tros, king of Troy. He succeeded Hebe in the office of cupbearer to Jupiter. He is generally represented sitting on the back of a flying eagle.

GAUTA'MA. The name of Buddha most used in Burmah.

GENII. Domestic divinities. Every man was supposed to have two of these genii accompanying him; one brought him happiness, the other misery.

GEN'ITOR. A Lycian name of Jupiter.

GE'RYON. A triple-bodied monster who lived at Gades, where his numerous flocks were guarded by Orthos, a two-headed dog, and by Eurythion, a seven-headed dragon. These guardians were destroyed by Hercules, and the cattle taken away.

GLAU'CUS. A fisherman who became a sea god through eating a seaweed, which he thought invigorated the fishes and might strengthen him.

GLAUKO'PIS. A name given to Minerva, because she had blue eyes.

GNOMES. A name given by Plato to the invisible deities who were supposed to inhabit the earth.

GNOS'SIS. A name given to Ariadne, from the city of Gnossus in Crete.

GOLDEN FLEECE, THE. A ram's hide, sometimes described as white, and at other times as purple and golden. It was given to Phryxus, who carried it to Colchis, where King Aetes entertained Phryxus, and the hide was hung up in the grove of Mars. Jason and 49 companions fetched back the golden fleece.

GOPY'A. Indian mythological nymphs.

GOR'GONS, THE. Three sisters, named Stheno, Euryale, and Medusa. They petrified every one they looked at. Instead of hair, their heads were covered with vipers. Perseus conquered them, and cut off the head of Medusa, which was placed on the shield of Minerva, and all who fixed their eyes thereon were turned into stone.

GRACES, THE. The attendants of Venus. Their names were Aglaia, so called from her beauty and goodness; Thalia, from her perpetual freshness; and Euphrosyne, from her cheerfulness. They are generally depicted as three cheerful maidens with hands joined, and either nude or only wearing transparent robes,—the idea being that kindnesses, as personified by the Graces, should be done with sincerity and candor, and without disguise. They were supposed to teach the duties of gratitude and friendship, and they promoted love and harmony among mankind.

GRADIV'US. A name given to Mars by the Romans. It meant the warrior who defended the city against all external enemies.

GRA'GUS. The name by which Jupiter was worshiped in Lycia.

GRAP'SIOS. A Lycian name of Jupiter.

HA'DA. The Babylonian Juno.

HADES. The Greek name of Pluto, the god of the lower world, the word signifying hidden, dark, and gloomy; the infernal regions; sometimes written **ADES.**

HALCY'ONE. One of the Pleiades; was a daughter of Atlas and Pelione.

HAL'CYONS. Sea birds, supposed to be the Greek kingfishers. They made their nests on the waves, and during the period of incubation the sea was always calm. Hence the modern term "Halcyon days."

HAMADRY'ADS. Wood nymphs, who presided over trees, with which they lived and died.

HAROE'RIS. The Egyptian god, whose eyes are the sun and moon.

HAR'PIES. Animals with the heads and breasts of women, the bodies of birds, and the claws of lions. Their names were Aello, Ocypete, and Celeno. They were loathsome creatures, living in filth and poisoning everything with which they came in contact.

HARPI'KRUTI. The Egyptian name of the god Harpocrates.

HARPOC'RATES. Son of Isis; was the god of silence and meditation. He is usually represented as a young man holding a finger of one hand to his lips, while in the other hand he holds a cornucopia.

HA'ZIS. The Syrian war god.

HE'BE. The goddess of youth. She was cupbearer to Jupiter and the gods, until she had an awkward fall at a festival, and so displeased Jupiter that she was deprived of her office, and Ganymede was appointed in her stead.

HEC'ATE. There were two goddesses known by this name, but the one generally referred to in modern literature is Hecate, or Proserpine, the name by which Diana was known in the infernal regions. In heaven her name was Luna, and her terrestrial name was Diana.

HEC'UBA. The mother of Paris; was allotted to Ulysses after the destruction of Troy, and was afterwards changed into a hound.

HELEN. When a child was so beautiful that Theseus and Perithous stole her, but she was restored by Castor and Pollux. She became the wife of Menelaus, king of Sparta, but eloped with Paris, and thus caused the Trojan War. After the death of Paris she married Deiphobus, his brother, and then betrayed him to Menelaus. She was strangled by order of Polyxo, king of Rhodes.

HE'LIADES. The daughters of Sol, and the sisters of Phaeton, at whose death they were so sad that they

stood mourning till they became metamorphosed into poplar trees, and their tears were turned into amber.

HEL'ICON. A mountain in Boeotia sacred to the Muses, from which place the fountain Hippocrene flowed.

HELICO'NIDES. A name of the Muses, from Mount Helicon.

HELIOP'OLIS. In Elysium; was the city of the sun.

HE'LIOS. The Grecian sun god, who went home every evening in a golden boat which had wings.

HEL'LE. Drowned in the sea, into which she fell from off the back of the golden ram, on which she and Phryxus were escaping from the oppression of their stepmother Ino. The episode gave the name of the Hellespont to the part of the sea where Helle was drowned, and it is now called the Dardanelles.

HEMPH'TA. The Egyptian god Jupiter.

HEPHAES'TOS. The Greek Vulcan.

HE'RA. The Greek name of Juno.

HER'CULES. The son of Jupiter and Alcmena. The goddess Juno hated him from his birth, and sent two serpents to kill him, but though only eight months old he strangled the snakes. As he became older he was set by his master Eurystheus what were thought to be 12 impossible tasks, which have long been known as the "Twelve Labors of Hercules." They were:—

First, To slay the Nemean Lion.

Second, To destroy the Hydra which infested the marshes of Lerna.

Third, To bring to Eurystheus the Arcadian Stag with the golden horns and brazen hoofs.

Fourth, To bring to his master the Boar of Erymanthus.

Fifth, To cleanse the stable of King Augeas, in which 3000 oxen had been kept for 30 years, and which had never been cleaned out.

Sixth, To destroy the Stymphalides, terrible carnivorous birds.

Seventh, To capture the Bull that was desolating Crete.

Eighth, To capture the mares of Diomedes, which breathed fire from their nostrils, and ate human flesh.

Ninth, To procure the girdle of Hippolyte, queen of the Amazons.

Tenth, To bring to Eurystheus the flesh-eating oxen of Geryon, the monster king of Gades.

Eleventh, To bring away some of the golden apples from the garden of the Hesperides.

Twelfth, To bring up from Hades the three-headed dog, Cerberus.

All these tasks he successfully accomplished, and, besides, he assisted the gods in their wars with the giants.

HER'MAE. Statues of Hermes (Mercury), which were set up in Athens for boundaries, and as direction marks for travelers.

HERMATHE'NAE. Statues of Mercury and Minerva placed together.

HER'MES. A Greek name of the god Mercury.

HERMI'ONE. Daughter of Mars and Venus, who was turned into a serpent, and allowed to live in the Elysian fields. There was another Hermione, daughter of Menelaus. She was betrothed to Orestes, but was carried away by Pyrrhus, the son of Achilles.

HE'RO. A priestess of Venus, with whom Leander was so enamored that he swam across the Hellespont every night to visit her, but at last was drowned, when Hero threw herself into the sea and was drowned also.

HESPER'IDES. Three daughters of Hesperus, king of Italy. They kept in their garden the golden apples which Juno gave Jupiter on their wedding day.

HES'PERUS. Brother of Atlas; was changed into the evening star.

HES'TIA. The Greek name of Vesta.

HIL'DUR. The Scandanavian Mars.

HIPPOCAM'PUS. The name of Neptune's favorite horse.

HIPPOCRE'NIDES. A name of the Muses, from the fountain of Hippocrene (the horse fountain), which was formed by a kick of the winged horse Pegasus.

HIPPOLY'TE. Queen of the Amazons, daughter of Mars. Her father gave her a famous girdle, which Hercules was required to procure (see HERCULES). She was conquered by Hercules, and given by him in marriage to Theseus.

HIPPOLY'TUS. Son of Theseus and Hippolyte. He was killed by a fall from a chariot, but was raised to life again by Diana, or, as some say, by Aesculapius.

HIPPO'NA. A rural divinity, the goddess of horses.

HO'RAE. The daughters of Sol and Chronis.

HORAE'A. Certain sacrifices offered to the goddesses of the seasons to invoke fair weather for the ripening of the fruits of the earth.

HORTEN'SIS. A name of Venus, because she looked after plants and flowers in gardens.

HO'RUS. A name of Sol, the Egyptian day god.

HOSTIL'INA. A rural divinity; goddess of growing corn.

HYACIN'THUS. A boy greatly loved by Apollo, but he was accidentally slain by him with a quoit. Apollo caused to spring from his blood the flower Hyacinth.

HY'ADES. Seven daughters of Atlas and Aethra, who form a constellation which, when it rises with the sun, threatens rain.

HY'DRA. A famous monster serpent, which had many heads. It was slain by Hercules.

HYGE'IA. The goddess of health, a daughter of Aesculapius and Epione. She was represented as a young woman feeding a serpent, which is twined round her arm.

HY'LAS. A beautiful boy beloved by Hercules. The nymphs were jealous of him, and spirited him away while he was drawing water for Hercules.

HY'MEN. The Grecian god of marriage, either the son of Bacchus and Venus, or, as some say, of Apollo and one of the Muses. He was represented as a handsome youth, holding in his hand a burning torch.

HYPE'RION. Son of Coelus and Terra. The model of manly beauty, synonymous with Apollo. The personification of the sun.

HYPERMNES'TRA. One of the 50 daughters of Danaus, who were collectively called the Danaides. She was the one who refused to kill her husband on the wedding night.

IAP'ETUS. Son of Coelus and Terra, husband of Clymene. He was looked upon by the Greeks as the father of mankind.

IC'ARUS. Son of Daedalus, who, with his father, made himself wings with which to fly from Crete. They were fixed to the shoulders by wax. Icarus flew too near the sun, and the heat, melting the wax, caused the wings to drop off, and he fell into the sea and was drowned.

ICHNOBA'TES. One of Actaeon's hounds. It means tracker.

IDAE'A. A name of Cybele, from Mount Ida, where she was worshiped.

IDAE'AN MOTHER. Cybele was sometimes so called.

IDA'LIA. A name of Venus, from Mount Idalus.

IMPERA'TOR. A name of Jupiter, given to him at Praeneste.

IN'ACHUS. One of the earliest of the demigods or heroes.

IN'CUBUS. A Roman name of Pan, meaning The Nightmare.

INDIG'ETES. Deified mortals, gods of the fourth order. They were peculiar to some district.

IN'DRA. The Hindu Jupiter. His wife was Indrant, who presides over the winds and thunder.

IN'NUS. A name of Pan, the same as Incubus.

I'NO. Second wife of Athamas, king of Thebes, father of Phryxus and Helle. Ino had two children, who could not ascend the throne while Phryxus and Helle were alive. Ino therefore persecuted them to such a degree that they determined to escape. They did so on a ram, whose hide became the Golden Fleece (see PHRYXUS and HELLE). Ino destroyed herself, and was changed by Neptune into a sea goddess.

INO'A. Festivals in memory of Ino.

I'O. A daughter of Inachus, and a priestess of Juno at Argus. Jupiter courted her, and was detected by Juno, when the god turned Io into a beautiful heifer. Juno demanded the beast of Jupiter, and set the hundred-eyed Argus to watch her. Jupiter persuaded Mercury to destroy Argus, and Io was set at liberty, and restored to human shape. Juno continued her persecutions, and Io had to wander from place to place till she came to Egypt, where she became wife of King Osiris, and won such good opinions from the Egyptians that after her death she was worshiped as the goddess Isis.

IOLA'US. Son of Iphicles; assisted Hercules in conquering the Hydra, by burning with hot irons the place where the heads were cut off; and for his assistance he was restored to youth by Hebe. Lovers used to go to his monument at Phocis and ratify their vows of fidelity.

IO'THUN. Celtic mythological monsters, or giants.

IPH'ICLUS. Twin brother of Hercules, and father of Iolaus.

IPHIGENI'A. A daughter of Agamemnon. He made a vow to Diana which involved the sacrifice of Iphigenia, but just at the critical moment she was spirited away by the goddess, and taken to Tauris, and a beautiful goat was found on the altar in her place.

I'RIS. Daughter of Thaumas and Electra; was the attendant of Juno, and one of the messengers of the gods. Her duty was to cut the thread which detained

expiring souls. She is the personification of the rainbow.

I'SIS. Wife of Osiris.

I'TYS. Killed by his mother Progne when six years old, and given to his father Tereus as food. The gods were so enraged at this that they turned Itys into a pheasant, Progne into a swallow, and Tereus into an owl.

IXI'ON. Son of Phlegyas, king of the Lapithae. For attempting to produce thunder, Jupiter cast him into Hades, and had him bound to a wheel, surrounded with serpents, which is forever turning over a river of fire.

JAN'I. A place in Rome where there were three statues of Janus, and it was a meeting place for usurers and creditors.

JA'NITOR. A title of Janus, from the gates before the doors of private houses being called Januae.

JA'NUS. A king of Italy said to have been the son of Coelus, others say of Apollo. He sheltered Saturn when he was driven from heaven by Jupiter. Janus presided over highways, gates, and locks, and is usually represented with two faces.

JA'SON. Son of Aeson, king of Iolcos. He was brought up by the centaur Chiron. His uncle Aetes sent him to fetch the Golden Fleece from Colchis (see ARGONAUTS). He went in the ship Argo with 49 companions, the flower of Greek youth. With the help of Juno they got safe to Colchis, but the King Aetes promised to restore the Golden Fleece only on condition that the Argonauts performed certain services. Jason was to tame the wild fiery bulls, and to make them plow the field of Mars; to sow in the ground the teeth of a serpent, from which would spring armed men who would fight against him who plowed the field of Mars; to kill the fiery dragon which guarded the tree on which the Golden Fleece was hung. The fate of Jason and the rest of the Argonauts seemed certain; but Medea, the king's daughter, fell in love with Jason, and with the help of charms which she gave him he overcame all the difficulties which the king had put in his way. He took away the Golden Fleece and Medea also. The king sent his son Absyrtus to overtake the fugitives, but Medea killed him, and strewed his limbs in his father's path, so that he might be delayed in collecting them, and this enabled Jason and Medea to escape. After a time Jason got tired of Medea, and married Glauce, which cruelty Medea revenged by killing her children before their father's eyes. Jason was accidentally killed by a beam of the ship Argo falling on him.

JOCAS'TA, otherwise **EPICASTA.** Wife of Laius, king of Thebes, who in after life married her own son, Oedipus, not knowing who he was, and, on discovering the fatal mistake, hanged herself.

JOVE. A very general name of Jupiter.

JUDGES IN HADES, THE. Rhadamanthus for Asiatics; Aeacus for Europeans. Minos was the presiding judge.

JUGATIN'US. One of the nuptial deities.

JU'NO. Daughter of Saturn and Ops, alias Cybele. She was married to Jupiter, and became queen of all the gods and goddesses, and mistress of heaven and earth. Juno was the mother of Mars, Vulcan, Hebe, and Lucina. She prompted the gods to conspire against Jupiter, but the attempt was frustrated, and Apollo and Neptune were banished from heaven by Jupiter. Juno is the goddess of marriage, and the protectress of married women; and she had special regard for virtuous women.

JU'PITER. Son of Saturn and Cybele (or Ops); born on Mount Ida, in Crete, and nourished by the goat Amalthaea. When quite young Jupiter rescued his father from the Titans; and afterwards, with the help of Hercules, defeated the giants, the sons of earth, when they made war against heaven. Jupiter was worshiped with great solemnity under various names by most of the heathen nations. The Africans called him Ammon; the Babylonians, Belus; and the Egyptians, Osiris (see JOVE). He was represented as a majestic personage seated on a throne, holding in his hands a scepter and a thunderbolt; at his feet stood a spread eagle.

KA'LI. A Hindu goddess, after whom Calcutta is named.

KA'LOC. One of the chief of the Mexican gods.

KAM'A. The Hindu god of love.

KEB'LAH. The point of the compass to which worshipers look during their invocations. Thus the Sol or Sun worshipers turn to the east, where the sun rises, and the Mohammedans turn towards Mecca.

KE'DERLI. In Mohammedan mythology, is a god corresponding to the English St. George, and is still invoked by the Turks when they go to war.

KI'UN. The Egyptian Venus.

KNEPH. An Egyptian god, having a ram's head and a man's body.

KRISH'NA. An Indian god, the revenger of wrongs; also called the Indian Apollo.

KRO'DO. The Saxon Saturn.

KU'MA'RA. The war god of the Hindus.

KU'VERA. The Hindu god of riches.

LA'BE. The Arabian Circe, who had unlimited power of metamorphosis.

LACH'ESIS. One of the three Fates or Parcae. She spun the thread of life.

LACTU'RA. One of the goddesses of growing corn.

LA'DON. The dragon which guarded the apples in the garden of the Hesperides. Also the name of one of Actaeon's hounds. Also the river to which Syrinx fled when pursued by Pan, where she was changed into a reed, and where Pan made his first pipe.

LAE'LAPS. One of Diana's hunting dogs, which, while pursuing a wild boar, was petrified. Also the name of one of Actaeon's hounds.

LAKSH'MI. Hindu goddess of wealth and pleasure. One of the wives of Vishnu.

LAM'IA. An evil deity amongst the Greeks and Romans, and the great dread of their children, whom she had the credit of constantly enticing away and destroying.

LAM'PUS. One of Aurora's chariot horses.

LAOC'O-ON. One of the priests of Apollo, who was, with his two sons, crushed to death by serpents, because he opposed the admission of the wooden horse to Troy.

LAOM'EDON. Son of Ilus, a Trojan king. He was famous for having, with the assistance of Apollo and Neptune, built the walls of Troy.

LAP'IS. The oath stone. The Romans used to swear by Jupiter Lapis.

LAP'ITHUS. Son of Apollo. His numerous children were called Lapithae, and they are notorious for their fight with the centaurs at the nuptial feast of Perithous and Hippodamia.

LA'RES AND PENA'TES. Sons of Mercury and Lara, or, as other mythologists say, of Jupiter and Lamida. They belonged to the lower order of Roman gods, and presided over homes and families.

LATO'NA. Daughter of Coeus and Phoebus, mother of Apollo and Diana. Being admired so much by Jupiter, Juno was jealous, and Latona was the object of the goddess's constant persecution.

LAVER'NA. The goddess of thieves.

LE'DA. The mother of Castor and Pollux, their father being Jupiter, in the shape of a swan. After her death she received the name of Nemesis.

LEM'URES. The specters of departed souls. Milton, in his *Ode to the Nativity*, says "Lemures moan with midnight plaint." They are sometimes referred to as the Manes of the dead.

LER'NA. The lake near Argos where Hercules conquered the Hydra.

LE'THE. One of the rivers of the infernal regions, of which the souls of the departed are obliged to drink to produce oblivion or forgetfulness of everything they did or knew while alive on the earth.

LEUCOTH'EA. The name of Ino after she was transformed into a sea nymph.

LEVA'NA. The deity who presided over newborn infants.

LIAK'URA. Mount Parnassus.

LIBITI'NA. The chief of the funeral deities.

LIB'YSSA. Queen of fays and fairies.

LIGE'A. A wood nymph, dryad.

LI'LITH. In Jewish myth, a great enemy to newborn children. She was said to have been Adam's first wife, but, refusing to submit to him, was turned from Paradise and made a specter.

LI'NA. The goddess of the art of weaving.

LIN'DOR. A lover in the shape of a shepherd, like Corydon; a love-sick swain.

LO'FEN. The Scandinavian god who guards friendship.

LOF'UA. The Scandinavian goddess who reconciles lovers.

LO'KI. The Scandinavian Satan, the god of strife, the spirit of evil.

LO'TIS. A daughter of Neptune, who fled from Priapus, and only escaped from him by being transformed into a lotus plant.

LU'CIAN. The impersonation of folly, changed into an ass.

LU'CIFER. The morning star.

LUCI'NA. The goddess who presides at the birth of children. She was a daughter of Jupiter and Juno.

LUD. In ancient British mythology the king of the Britons.

LU'NA. The name of Diana as a celestial divinity. See DIANA and HECATE.

LU'PERCUS or **PAN.** The Roman god of fertility. His festival day was 15th February, and the festivals were called Lupercalia.

LYCAON'IAN FOOD. Execrable viands, such as were supplied to Jupiter by Lycaon. To test the divine knowledge of the god he served up human flesh, which Jove discovered, and punished Lycaon by turning him into a wolf.

LYCIAN CLOWNS. Turned into frogs by Latona or Ceres.

LYMNI'ADES. Nymphs who resided in marshes.

LYN'CEUS. One of the Argonauts. The personification of sharp-sightedness.

LYRE. This musical instrument is constantly associated with the doings of the ancient deities. Amphion built the walls of Thebes by the music of his lyre.

MAEN'ADES. Priestesses of Bacchus.

MAHA'SOOR. The Hindu god of evil.

MA'IA. The mother of the Grecian Mercury.

MAM'MON. The money god.

MA'NES. The souls of the departed. The god of funerals and tombs.

MA'NU. The Hindu god of law.

MARI'NA. A name of Venus, meaning sea foam, from her having been formed from the froth of the sea.

MARS. The god of war, the son of Jupiter and Juno. Venus was his favorite goddess, and amongst their children were Cupid, Anteros, and Harmonia. In the Trojan War Mars took the part of the Trojans, but was defeated by Diomede.

MAR'SYAS. The name of the piper who challenged Apollo to a musical contest, and, being defeated, was flayed to death by the god. He was the supposed inventor of the flute.

MA'RUT. The Hindu god of tempestuous winds.

MATU'RA. One of the rural deities who protected the growing corn at time of ripening.

MAX'IMUS. One of the appellations of Jupiter, being the greatest of the gods.

MEDE'A. Wife of Jason, chief of the Argonauts.

MEDU'SA. One of the Gorgons. Minerva changed her beautiful hair into serpents. She was conquered by Perseus, who cut off her head, and placed it on Minerva's shield. Every one who looked at the head was turned into stone.

MEGAE'RA. One of the three Furies.

MELLO'NA. One of the rural divinities, the goddess of bees.

MELPOM'ENE. One of the Muses, the goddess of tragedy.

MEN'DES. An Egyptian god like Pan. He was worshiped in the form of a goat.

MENELA'US. A Spartan king. The elopement of his wife Helen with Paris was the origin of the siege of Troy.

MER'CURY. The son of Jupiter and Maia; was the messenger of the gods, and the conductor of the souls of the dead to Hades. He was the supposed inventor of weights and measures, and presided over orators and merchants.

ME'RU. The abode of the Hindu god Vishnu. It is at the top of a mountain 80,000 leagues high. The Olympus of the Indians.

MI'DAS. A king of Phrygia, who begged of Bacchus the special gift that everything he touched might be turned into gold. The request was granted, and as soon as he touched his food it also was turned to gold, and for fear of being starved he was compelled to ask the god to withdraw the power he had bestowed upon him. He was told to bathe in the river Pactolus. He did so, and the sands which he stood on were golden forever after. It was this same king who, being appointed to be judge in a musical contest between Apollo and Pan, gave the Satyr the palm; whereupon Apollo, to show his contempt, bestowed on him a pair of asses' ears. This gave rise to the term "Midas-eared," as a synonym for ill-judged, or indiscriminate.

MI'LO. A celebrated Croton athlete, who is said to have felled an ox with his fist, and to have eaten the beast in one day.

MIMALLO'NES. The "wild women" who accompanied Bacchus, so called because they mimicked his actions.

MI'MIR. In Scandinavian mythology the god of wisdom.

MINER'VA. The goddess of wisdom, war, and the liberal arts; is said to have sprung from the head of Jupiter fully armed for battle. She was a great benefactress of mankind, and patroness of the fine arts. She was the tutelar deity of the city of Athens.

MI'NOS. The principal of the three judges of the lower world, before whom the spirits of the departed appeared and heard their doom.

MIN'OTAUR. The monster, half man, half bull, which Theseus slew.

MITH'RA. A Persian divinity, the ruler of the universe, corresponding with the Roman Sol.

MNEMOS'YNE. Mother of the Muses and goddess of memory. Jupiter courted the goddess in the guise of a shepherd.

MOAK'IBAT. The recording angel of the Mohammedans.

MO'LOCH. A god of the Phoenicians to whom human victims, principally children, were sacrificed. Moloch is figurative of the influence which impels us to sacrifice that which we ought to cherish most dearly.

MO'MUS. The god of sarcasm. The god who blamed Jove for not having made a window in man's breast, so that his thoughts could be seen. His bitter jests occasioned his being driven from heaven in disgrace.

MONE'TA. A name given to Juno by those writers who considered her the goddess of money.

MOON. The moon was, by the ancients, called Hecate before and after setting; Astarte when in crescent form; Diana when in full.

MOR'PHEUS. The god of sleep and dreams, the minister of Somnus.

MORS. Death, a daughter of Nox.

MUN'IN. The Scandinavian god of memory, represented by the raven that was perched on Odin's shoulder.

MUSCA'RIUS. A name given to Jupiter because he kept off the flies from the sacrifices.

MU'SES, THE. Nine daughters of Jupiter and Mnemosyne. They presided over the arts and sciences, music and poetry. Their names were Calliope, Clio, Erato, Thalia, Melpomene, Terpsichore, Euterpe, Polyhymnia, and Urania. They principally resided in Mount Parnassus, at Helicon.

MY'THRAS. The Egyptian name of Apollo.

NAI'ADS, THE. Beautiful nymphs of human form who presided over springs, fountains, and wells. They resided in the meadows by the sides of rivers. Vergil mentions Aegle as being the fairest of them.

NAN'DI. The Hindu goddess of joy.

NARA'KA. The name of the infernal regions amongst the Hindus.

NARA'YANA. The mover of the waters. The Hindu god of tides.

NARCIS'SUS. Son of Cephisus and the Naiad Liriope; a beautiful youth, who was so pleased with the reflection of himself which he saw in the placid water of a fountain that he could not help loving it, imagining that it must be some beautiful nymph. His fruitless endeavors to possess himself of the supposed nymph drove him to despair, and he killed himself. There sprang from his blood a flower, which was named after him, Narcissus.

NAS'TROND. The Scandinavian place of eternal punishment, corresponding with Hades.

NA'TIO. A Roman goddess who took care of young infants.

NEM'ESIS. The goddess of vengeance or justice, one of the infernal deities. Her mother was Nox. She was supposed to be constantly traveling about the earth in search of wickedness, which she punished with the greatest severity.

NEPHA'LIA. Grecian festivals in honor of Mnemosyne, the mother of the Muses.

NEP'TUNE. God of the sea, a son of Saturn and Cybele, and brother of Jupiter and Pluto. He quarreled with Jupiter because he did not consider that the dominion of the sea was equal to Jupiter's empire of heaven and earth; and he was banished from the celestial regions, after having conspired with Pluto to dethrone Jupiter.

NERE'IDES, THE. Aquatic nymphs. They were daughters of Nereus and Doris, and 50 in number. They are generally represented as beautiful girls riding on dolphins, and carrying tridents in the right hand.

NERE'US. A sea deity, husband of Doris. He had the gift of prophecy, and foretold fates; but he had also the power of assuming various shapes, which enabled him to escape from the importunities of those who were anxious to consult him.

NES'SUS. The name of the Centaur which was destroyed by Hercules for insulting Deianira.

NES'TOR. A grandson of Neptune, his father being Neleus, and his mother Chloris. Homer makes him one

of the greatest of the Greek heroes. He was present at the famous battle between the Lapithae and the Centaurs, and took a leading part in the Trojan War. He was the wise counselor of the Greeks.

NID'HOGG. In Scandinavian mythology the dragon which dwells in Nastrond.

NIF'LHEIM. The Scandinavian hell. It was supposed to consist of nine vast regions of ice beneath the North Pole, where darkness reigns eternally. See NASTROND.

NI'OBE. A daughter of Tantalus, and the personification of grief. By her husband Amphion she had seven sons and seven daughters. By the orders of Latona the father and sons were killed by Apollo, and the daughters (except Chloris) by Diana. Niobe, being overwhelmed with grief, escaped further trouble by being turned into a marble statue.

NO'MIUS. A lawgiver; one of the names of Apollo. This title was also given to Mercury for the part he took in inventing beneficent laws.

NORNS. Three Scandinavian goddesses, who wove the woof of human destiny.

NOX. The daughter of Chaos, and sister of Erebus. She personified night, and was the mother of Mors, Nemesis, and the Fates.

NUN'DINA. The goddess who took charge of children when they were nine days old—the day on which the Romans named their children.

NUPTIA'LIS. A title of Juno. When the goddess was invoked under this name, the gall of the victim was taken out and thrown behind the altar, signifying that there should be no gall (bitterness) or anger between married people.

NU'RIEL. In Hebrew mythology the god of hailstorms.

NYCTE'LIUS. A name given to Bacchus, because his festivals were celebrated by torchlight.

NYMPHS. This was a general name for a class of inferior female deities who were attendants of the gods. Some of them presided over springs, fountains, wells, woods, and the sea.

NY'SAE. The names of the nymphs by whom Bacchus was nursed.

NY'SEUS. A name of Bacchus, because he was worshiped at Nysa.

NY'SUS. A king of Megara who was invisible by virtue of a particular lock of hair. This lock his daughter Scylla cut off, and so betrayed her father to his enemies. She was changed into a lark, and the king into a hawk, and he still pursues his daughter, intending to punish her for her treachery.

OAN'NES. An Eastern god, represented as a monster, half man, half fish. He was said to have taught men the use of letters in the daytime, and at night to have retired to the depth of the ocean.

OBAM'BOU. A devil of African mythology.

OCEAN'IDES. Sea nymphs, daughters of Oceanus and Tethys. Their numbers are variously estimated by different poets, some saying there were as many as 3000, while others say there were as few as 16. The principal of them are mentioned under their respective names, as Amphitrite, Doris, Metis, etc.

OCE'ANUS. Son of Coelus and Terra, and husband of Tethys. Several mythological rivers were called his sons, as Alpheus, Peneus, etc., and his daughters were called the Oceanides.

OCRID'ION. A king of Rhodes, who was deified after his death.

OCY'PETE. One of the Harpies, who infected everything she touched. The word means swift of flight.

OCY'ROE. A daughter of Chiron, who had the gift of prophecy. She was metamorphosed into a mare.

O'DIN. In Scandinavian mythology the god of the universe, and reputed father of all the Scandinavian kings. His wife's name was Friga, and his two sons were Thor and Balder.

OED'IPUS. A son of Laius, king of Thebes, best known as the solver of the famous enigma propounded by the Sphinx.

OENO'NE. Wife of Paris, a nymph of Mount Ida, who had the gift of prophecy.

OGYG'IA. An island, the abode of Calypso, in the Mediterranean Sea. It was so beautiful in sylvan scenery that even Mercury (who dwelt on Olympus) was charmed with the spot.

OLE'NUS. A son of Vulcan, husband of Lethaea, a woman who thought herself more beautiful than the goddesses, and as a punishment she and her husband were turned into stone statues.

OLYM'PIUS. A name of Jupiter, from Olympia, where the god had a splendid temple, which was considered to be one of the seven wonders of the world.

OLYM'PUS. The magnificent mountain on the coast of Thessaly, 9000 feet high, where the gods were supposed to reside. There were several other smaller mountains of the same name.

OLY'RAS. A river near Thermopylae, which, it is said, attempted to extinguish the funeral pile on which Hercules was consumed.

OMOPHA'GIA. A Bacchanalian festival at which some uncooked meats were served.

OM'PHALE. The queen of Lydia, to whom Hercules was sold as a bondsman for three years for the murder of Iphitus. Hercules fell in love with her, and led an effeminate life in her society, wearing female apparel, while Omphale wore the lion's skin.

ONA'RUS. A priest of Bacchus.

ONU'VA. The Venus of the ancient Gauls.

OPA'LIA. Roman festivals in honor of Ops, held on 14th of the calends of January.

OPS. Mother of the gods, a daughter of Coelus and Terra. She was known by the several names of Bona Dea, Rhea, Cybele, Magna Mater, Proserpine, Tellus, and Thya; and occasionally she is spoken of as Juno and Minerva. She personified labor, and is represented as a comely matron, distributing gifts with her right hand, and holding in her left hand a loaf of bread. Her festival was the 14th day of the January calends.

ORBO'NA. The goddess of parents bereft of their children.

O'READS. Mountain nymphs, attendants on Diana.

ORGIES. Drunken revels. The riotous feasts of Bacchus were so designated.

ORI'ON. A famous handsome giant, who was blinded by Oenopion for a grievous wrong done to Merope, and he was expelled from Chios. The sound of the Cyclops' hammers led him to the abode of Vulcan, who gave him a guide. He then consulted an oracle, and had his sight restored, as Longfellow says, by fixing

"His blank eyes upon the sun."

He was afterwards slain by Diana and placed amongst the stars, where his constellation is one of the most splendid.

ORITHY'IA. A daughter of Erechtheus, whose lover, Boreas, carried her off while she was wandering by the river Ilissus. Her children were Zetes and Calais, two winged warriors who accompanied the Argonauts.

OR'MUZD. In Persian mythology the creator of all things.

O'ROS. The Egyptian Apollo.

OR'PHEUS. Son of Apollo and the muse Calliope. He was married to Eurydice; but she was stung by a serpent, and died. Orpheus went down to Hades to claim her, and played so sweetly with his lute that Pluto allowed Eurydice to return to the earth with Orpheus, but on condition that he did not look behind him until he had reached the terrestrial regions. Orpheus, however, in his anxiety to see if she were following him, looked round, and Eurydice disappeared from his sight, instantly and forever.

OSI'RIS. The Egyptian god of the sun. He was worshiped under the form of an ox.

OS'SA. The mountain which the giants piled on the top of Pelion to enable them to ascend to heaven and attack the gods.

PACTO'LUS. The river in Lydia where Midas washed himself by order of Bacchus, and the sands were turned to gold.

PAE'AN. A name given to Apollo, from *paean*, the hymn which was sung in his honor after he had killed the serpent Python.

PALAE'MON or **MELICERTA.** A sea god, son of Athamas and Ino.

PA'LES. The goddess of shepherds and protectress of flocks. Her festivals were called Palilia.

PALLA'DIUM. A famous statue of the goddess Pallas (Minerva). She is sitting with a spear in her right hand, and in her left a distaff and spindle. Various accounts are given of the origin of it. Some writers say it fell from the skies. It was supposed that the preservation of the statue would be the preservation of Troy; and during the Trojan War the Greeks were greatly encouraged when they became the possessors of it.

PAL'LAS or **MINERVA.** The name was given to Minerva when she destroyed a famous giant named Pallas.

PAN. The Arcadian god of shepherds, huntsmen, and country folk, and chief of the inferior deities; usually considered to have been the son of Mercury and Penelope.

PANDO'RA. According to Hesiod, the first mortal

female. Vulcan made her of clay, and gave her life. Venus gave her beauty; and the art of captivating was bestowed upon her by the Graces. She was taught singing by Apollo, and Mercury taught her oratory. Jupiter gave her a box, the famous "Pandora's Box," which she was told to give to her husband, Epimetheus, brother of Prometheus. As soon as he opened it there issued from it numberless diseases and evils which were soon spread all over the world, and from that moment they have afflicted the human race. It is said that Hope alone remained in the box.

PAN'THEON. The temple of all the gods, built by Agrippa at Rome, in the reign of Augustus.

PAP'REMIS. The Egyptian Mars.

PAR'CAE, THE. Goddesses who presided over the destiny of human beings. They were also called the Fates, and were three in number, Atropos, Clotho, and Lachesis.

PARIS. Son of Priam, king of Troy, and his mother was Hecuba. It had been predicted that he would be the cause of the destruction of Troy, and his father therefore ordered him to be strangled as soon as he was born; but the slave who had been intrusted with this mission took the child to Mount Ida, and left it there. Some shepherds, however, found the infant and took care of him. He lived among them till he had grown to man's estate, and he then married Oenone, a nymph of Ida. At the famous nuptial feast of Peleus and Thetis, Discordia, who had not been invited, attended secretly; and when all were assembled, she threw amongst the goddesses a golden apple, on which was inscribed, "To the fairest." This occasioned a great contention, for each thought herself the fairest. Ultimately, the contestants were reduced to three, Juno, Pallas (Minerva), and Venus; but Jove himself could not make these three agree, and it was decided that Paris should be the umpire. He was sent for, and each of the goddesses courted his favor by offering all sorts of bribes. Juno offered him power, Pallas wisdom, and Venus promised him the most beautiful woman in the world. Paris gave the golden apple to Venus. Soon after this episode Priam owned Paris as his son, and sent him to Greece to fetch Helen, who was renowned as being the most beautiful woman in the world. She was the wife of Menelaus, king of Sparta; but during his absence Paris carried Helen away to Troy, and this gave rise to the celebrated war between the Greeks and the Trojans, which ended in the destruction of Troy. Paris was among the 676,000 Trojans who fell during or after the siege.

PARNAS'SIDES. A name common to the Muses, from Mount Parnassus.

PARNAS'SUS. The mountain of the Muses in Phocis, and sacred to Apollo and Bacchus. Any one who slept on this mountain became a poet. It was named after one of the sons of Bacchus.

PAR'THENON. The temple of Minerva (or Pallas), at Athens. It was destroyed by the Persians, and rebuilt by Pericles.

PAR'THENOS. A name of Juno, and also of Minerva.

PASIPH'AE. The reputed mother of the Minotaur killed by Theseus. She was said to be the daughter of Sol and Perseis, and her husband was Minos, king of Crete.

PASITH'EA. Sometimes there are *four* Graces spoken of; when this is so, the name of the fourth is Pasithea.

PA'VAN. Hindu god of the winds.

PEG'ASUS. The famous winged horse which was said to have sprung from the blood of Medusa when her head was cut off by Perseus. His abode was on Mount Helicon, where, by striking the ground with his hoof, he caused water to spring forth, which formed the fountain afterwards called Hippocrene.

PE'LEUS. A king of Thessaly, who married Thetis, one of the Nereids.

PE'LIAS. A son of Neptune and Tyro. He usurped the throne of Cretheus, which Jason was persuaded to relinquish to take the command of the Argonautic expedition. On the return of Jason, Medea, the sorceress, undertook to restore Pelias to youth, but required that the body should first be cut up and put in a caldron of boiling water. When this had been done, Medea refused to fulfill her promise.

PE'LIAS. The name of the spear of Achilles, which was so large that none could wield it but the hero himself.

PE'LION. A well-wooded mountain, famous for the wars between the giants and the gods, and as the abode of the Centaurs, who were expelled by the Lapithae.

PE'LOPS. Son of Tantalus, king of Phrygia. His father killed him, and served him up to be eaten at a feast given to the gods, who, when they found out what the father of Pelops had done, restored the son to life, and he afterwards became the husband of Hippodamia.

PENA'TES. Roman domestic gods.

PERSEPH'ONE. The Greek name of Proserpine.

PER'SEUS. A son of Jupiter and Danae, the daughter of Acrisius. His first famous exploit was against the Gorgon, Medusa. He was assisted in this enterprise by Pluto, who lent him a helmet which would make him invisible. Pallas lent him her shield, and Mercury supplied him with wings. He made a speedy conquest of the Gorgon, and cut off Medusa's head, with which he flew through the air, and from the blood sprang the winged horse Pegasus. As he flew along he saw Andromeda chained to the rock, and a sea monster ready to devour her. He killed the monster, and married Andromeda. When he got back, he showed the Gorgon's head to King Polydectes, and the monarch was immediately turned into stone.

PHA'ETON. A son of Sol, or, according to most mythologists, of Phoebus and Clymene. Anxious to display his skill in horsemanship, he was allowed to drive the chariot of the sun for one day. The horses soon found out the incapacity of the charioteer, became unmanageable, and overturned the chariot. There was such great fear of injury to heaven and earth, that Jove, to stop the destruction, killed Phaëton with a thunderbolt.

PHA'ON. A boatman, who received from Venus a box of ointment, with which, when he anointed himself, he grew so beautiful that Sappho became enamored of him; but when the ointment had all been used Phaon returned to his former condition, and Sapphe, in despair, drowned herself.

PHILOCTE'TES. Son of Poeas, and one of the companions of Jason on his Argonautic expedition. He was present at the death of Hercules, and received from him the poisoned arrows which had been dipped in the blood of the Hydra. These arrows, an oracle declared, were necessary to be used in the destruction of Troy, and Philoctetes was persuaded by Ulysses to go to assist at the siege. He appears to have used the weapons with great dexterity and with wonderful effect, for Paris was among the heroes whom he killed.

PHILOME'LA. A daughter of Pandion, king of Athens, who was transformed into a nightingale.

PHLEG'ETHON. A river of fire in the infernal regions. It was the picture of desolation, for nothing could grow on its parched and withered banks.

PHLE'GON (earth-loving). One of the four chariot horses of Sol.

PHLE'GYAS. Son of Mars and father of Ixion and Coronis. For his impiety in desecrating and plundering the temple of Apollo at Delphi, he was sent to Hades, and there was made to sit with a huge stone suspended over his head, ready to be dropped on him at any moment.

PHOE'BUS. A name of Apollo, signifying light and life.

PHOR'CUS. A son of Neptune, father of the Gorgons.

PHRYXUS. Brother of Helle. He escaped from his step-mother, Ino, on the back of the golden ram, which took him to Colchis. Phryxus sacrificed the ram to Jupiter and gave the golden fleece to Aetes. It was hung in the garden of Ares and guarded by a sleepless dragon.

PICUM'NUS. A rural divinity, who presided over the manuring of lands, called also Sterentius.

PI'CUS. A son of Saturn, father of Faunus; was turned into a woodpecker by Circe, whose love he had not requited.

PIER'IDES. A name of the Muses, derived from Pieria, a fountain near Mount Olympus, where they were supposed to have been born. Also, the daughters of Pierus, a king of Macedonia, who settled in Boeotia. They challenged the Muses to sing, and were changed into magpies.

PILUM'NUS. A rural divinity, who presided over the corn while it was being ground.

PIRITH'OUS. A son of Ixion and great friend of Theseus, king of Athens.

PI'THO. The goddess of persuasion, daughter of Mercury and Venus. She is sometimes referred to under the name of Suada.

PLEI'ADES, THE. Seven daughters of Atlas and Pleione. Their names were Electra, Alcyone, Celaeno, Maia, Sterope, Taygete, and Merope.

PLU'TO. King of the infernal regions. He was a son of Saturn and Ops, and husband of Proserpine, daughter of Ceres. He is sometimes referred to under the name Dis, and he personifies Hades. His principal attendant was the three-headed dog Cerberus, and about his throne were the Eumenides, the Harpies, and the Furies.

PLU'TUS. The god of riches; was son of Jason and Ceres. He is described as being blind and lame; blind because he so often injudiciously bestows his riches, and lame because fortunes come so slowly.

PLU'VIUS. A name of Jupiter, because he had the rain in his control.

PODALIR'IUS. A famous surgeon, a son of Aesculapius, who was very serviceable among the soldiers in the Trojan War.

POL'LEAR. Son of Siva, the Hindu god of wisdom.

POL'LUX. Twin brother of Castor. Their father was Jupiter and their mother Leda. He and his brother form the constellation Gemini. His Greek name was Polydeuces.

POLYBO'TES. One of the giants who made war against Jupiter.

POLYDEC'TES. Turned into stone when Perseus showed him Medusa's head.

POLYHYM'NIA. Daughter of Jupiter and Mnemosyne. One of the Muses, who presided over singing and rhetoric.

POLYPHE'MUS. One of the most celebrated of the Cyclops, a son of Neptune. He captured Ulysses and 12 of his companions, and it is said that six of them were eaten. The rest escaped by the ingenuity of Ulysses, who destroyed the Cyclop's one eye with a firebrand.

POLYX'ENA. Daughter of Priam, king of Troy. It was by her treachery that Achilles was shot in the heel.

POMO'NA. The Roman goddess of fruits and gardens.

PORTU'NUS (PALAEMON). Son of Ino; was god of harbors.

POSEI'DON. A name of Neptune.

PRAC'RITI. The Hindu goddess of nature.

PRI'AM. The last king of Troy.

PRIA'PUS. The guardian of gardens and god of natural reproduction; was son of Venus and Bacchus.

PRIS'CA. Another name of Vesta.

PRO'CRIS. Daughter of the king of Athens.

PROME'THEUS. Son of Iapetus and father of Deucalion. He presumed to make clay men, and animate them with fire which he had stolen from heaven. This so displeased Jupiter that he sent him a box full of evils, which Prometheus refused; but his brother Epimetheus, not so cautious, opened it, and the evils spread over all the earth. Jupiter then punished Prometheus by commanding Mercury to bind him to Mount Caucasus, where a vulture daily preyed upon his liver, which grew in the night as much as it had been reduced in the day, so that the punishment was a prolonged torture. Hercules at last killed the vulture and set Prometheus free.

PROS'ERPINE. A daughter of Jupiter and Ceres. Pluto carried her off to the infernal regions and made her his wife. She was known by the names of "the Queen of Hades," Hecate, Juno Inferna, and Libitina.

PRO'TEUS. A marine deity, who could foretell events and convert himself at will into all sorts of shapes.

PSY'CHE. The wife of Cupid. The name is Greek, signifying the soul or spirit.

PYGMA'LION. A famous sculptor, who had resolved to remain unmarried, but he made such a beautiful statue of a goddess that he begged Venus to give it life. His request being granted, Pygmalion married the animated statue.

PYLO'TIS. A Greek name of Minerva.

PYR'ACMON. One of the chiefs of the Cyclops.

PY'ROIS (luminous). One of the four chariot horses of Sol.

PY'THIA. The priestess of Apollo at Delphi, who delivered the answers of the oracle. Also the name of the games celebrated in honor of Apollo's victory over the Python.

PY'THON. A famous serpent killed by Apollo.

QUAD'RATUS. A surname given to Mercury, because some of his statues were four-sided.

QUAD'RIFRONS. Janus was sometimes depicted with four faces instead of the usual two, and he was then called Janus Quadrifrons.

QUI'ES. The Roman goddess of rest. She had a temple just outside the Collini gate of Rome.

QUIRI'NUS. A name given to Mars during war time; and Vergil refers to Jupiter under the same name.

RA'MA. A Hindu god, who was the terrestrial representative of Vishnu.

REM'BHA. The Hindu goddess of pleasure.

RHADAMAN'THUS. A son of Jupiter and Europa; was the judge of the Asiatics in the infernal regions.

RHAMNU'SIA. A name of Nemesis, from Rhamnus, a town in Attica, where she had a temple in which was her statue, made of one stone 10 cubits high.

RHE'A. The Greek name of Cybele.

RIM'MON. A Phrygian god of whom Milton says—

> ". . . Rimmon, whose delightful seat
> Was fair Damascus, on the fertile banks
> Of Abana and Pharpar, lucid streams."

ROM'ULUS. The traditional founder of Rome. He was a son of Mars and Ilia, and twin brother of Remus. The infants were thrown into the Tiber, but were miraculously saved and suckled by a she-wolf till they were found by Faustulus, a shepherd, who brought them up. Remus was killed in a quarrel with his brother, and Romulus became the famous emperor.

RUMI'A DEA. The Roman goddess of babes in arms.

RUNCI'NA. The goddess of weeding or cleansing the ground.

SA'GA. The Scandinavian goddess of history.

SAL'AMANDERS. The genii who, according to Plato, lived in fire.

SAL'II. The priests of Mars who had charge of the sacred shields.

SALMO'NEUS. A king of Elis who, for trying to imitate Jupiter's splendors, was sent by the god straight to the infernal regions.

SA'LUS. The Roman god of health.

SAPPHO. A celebrated poetess, a native of Lesbos, who flourished B. C. 610. Her only connection with the goddesses of the time is that the Greeks called her "the tenth Muse."

SAT'URN. King of the Universe; was father of Jupiter, Neptune, and Pluto. These gods quarreled among themselves as to the division of their father's kingdom, which ended in Jupiter having heaven and earth, Neptune the sea, and Pluto the infernal regions.

SATURNA'LIA. Festivals held in honor of Saturn about the 16th or 18th of December. Principally famous for the riotous disorder which generally attended them.

SATUR'NIUS. A name given to Jupiter, Neptune, and Pluto, as sons of Saturn.

SATYAVRA'TA. The Hindu god of law. The same as Menu.

SA'TYRS. The attendants of Silenus, who were similar in most respects to the Fauns who attended Pan.

SCYL'LA. A beautiful nymph who excited the jealousy of Neptune's wife, Amphitrite, and was changed by the goddess into a frightful sea monster, which had six fearfully ugly heads and necks, and who, rising unexpectedly from the deep, used to take off as many as six sailors from a vessel, and carry them to the bottom of the sea. An alternative danger with Charybdis.

SCYL'LA. A daughter of Nysus, who was changed into a lark for cutting off a charmed lock of her father's hair.

SEGES'TA. A rural divinity who protected corn during harvest time.

SEM. The Egyptian Hercules.

SEM'ELE. The mother of Bacchus, who was born in a miraculous manner after Jupiter had visited her, at her special request, in all his terrible splendor. She was deified after her death and named Thyone.

SEMI-DEI. The demi-gods.

SEMO'NES. Roman gods of a class between the "immortal" and the "mortal," such as the Satyrs and Fauns.

SEPTE'RION. A festival held in honor of Apollo, at which the victory of that god over the Python was grandly represented.

SERA'PIS. The Egyptian Jupiter, and generally considered to be the same as Osiris.

SERPENT. The Greeks and Romans considered the serpent as symbolical of guardian spirits, and as such it was often engraved on their altars.

SESHA or **ANANTA.** The Egyptian Pluto.

SILE'NUS. A Bacchanalian demi-god, the chief of the Satyrs. He is generally represented as a fat, drunken old man, riding on an ass, and crowned with flowers.

SI'RENS, THE. Sea nymphs, who by their music allured mariners to destruction. To avoid the snare when nearing their abode, Ulysses had the ears of his companions stopped with wax, and had himself tied to the mast of his ship. They thus sailed past in safety; but the Sirens, thinking that their charms had lost their powers, drowned themselves.

SIS'YPHUS. Son of Aeolus and Enaretta. He was condemned to roll a stone to the top of a hill in the infernal regions, and, as it rolled down again when he reached the summit, his punishment was perpetual.

SI'VA. In Hindu mythology the "changer of form."

SLEIP'NER. The eight-legged horse of Odin, the chief of the Scandinavian gods.

SOL. The sun. The worship of the god Sol is the

oldest on record, and though he is sometimes referred to as being the same as the god Apollo, there is no doubt he was worshiped by the Egyptians, Persians, and other nations long before the Apollo of the Greeks was heard of.

SOM'NUS. The god of sleep, son of Nox (Night). He was one of the infernal deities, and resided in a gloomy cave, void of light and air.

SOS'PITA. A name of Juno, as the safeguard of women.

SO'TER. A Greek name of Jupiter, meaning deliverer.

SPHINX, THE. A monster having the head and breasts of a woman, the body of a dog, the tail of a serpent, the wings of a bird, the paws of a lion, and a human voice. She lived in the country near Thebes, and proposed to every passer-by the following enigma: "What animal is that which walks on four legs in the morning, two at noon, and three in the evening?" Oedipus solved the riddle thus: "Man is the animal; for when an infant he crawls on his hands and feet, in the noontide of life he walks erect, and as the evening of his existence sets in he supports himself with a stick." When the sphinx found her riddle solved she destroyed herself.

STERCU'TIUS. The Roman god who invented the art of manuring lands. See PICUMNUS.

STER'OPES. One of the Cyclops.

STYMPHALI'DES. The carnivorous birds destroyed in the sixth labor of Hercules.

STYX. A noted river of Hades, which was held in such high esteem by the gods that they always swore, "By the Styx," and such an oath was never violated.

SUA'DA. The goddess of persuasion.

SURADE'VI. The Hindu goddess of wine.

SURY'A. The Hindu god corresponding to the Roman Sol, the sun.

SYLPHS. Genii who, according to Plato, lived in the air.

SYLVES'TER. The name of Mars when he was invoked to protect cultivated land from the ravages of war.

SYR'INX. The name of the nymph who, to escape from the importunities of Pan, was by Diana changed into reeds, out of which he made his celebrated pipes, and named them "The Syrinx."

TAC'ITA. The goddess of silence.

TAN'TALUS. Father of Niobe and Pelops, who, as a punishment for serving up his son Pelops as meat at a feast given to the gods, was placed in a pool of water in the infernal regions; but the waters receded from him whenever he attempted to quench his burning thirst. Hence the word tantalizing.

TAR'TARUS. An inner region of hell, to which the gods sent the exceptionally depraved.

TELCHI'NES. Priests of Cybele, who were famous magicians.

TEL'LUS. A name of Cybele, wife of Saturn.

TEMPLE. An edifice erected to the honor of a god or goddess, in which the sacrifices were offered.

TENTH MUSE. Sappho was so called.

TER'EUS. A son of Mars. He married Progne, daughter of the king of Athens, but became enamored of her sister Philomela, who, however, resented his attentions, which so enraged him that he cut out her tongue. When Progne heard of her husband's unfaithfulness she took a terrible revenge (see ITYS). Progne was turned into a swallow, Philomela into a nightingale, Itys into a pheasant, and Tereus into a hoopoo, a kind of vulture,—some say an owl.

TERGEMI'NA. A name of Diana, alluding to her triform divinity as a goddess of heaven, earth, and hell.

TER'MINUS. The Roman god of boundaries.

TERPSICH'ORE. One of the nine Muses. She presided over dancing.

TER'RA. The earth; one of the most ancient of the Grecian goddesses.

THALES'TRIS. A queen of the Amazons.

THALI'A. One of the nine Muses. She presided over festivals and comedy.

THALI'A. One of the Graces.

THAM'YRIS. A skillful singer, who presumed to challenge the Muses to sing, upon condition that if he did not sing best they might inflict any penalty they pleased. He was, of course, defeated, and the Muses made him blind.

THI'A. A daughter of Coelus and Terra; wife of Hyperion.

THE'MIS. A daughter of Coelus and Terra, and wife of Jupiter; was the Roman goddess of laws, ceremonies, and oracles.

THE'SEUS. One of the most famous of the Greek heroes. He was a son of Aegeus, king of Athens.

THE'TIS. A sea goddess, daughter of Nereus and Doris. Her husband was Peleus, king of Thessaly, and she was the mother of the famous Achilles, whom she rendered all but invulnerable by dipping him into the river Styx. See ACHILLES.

THOR. The Scandinavian war god (son of Odin), who had rule over the Aerial regions, and, like Jupiter, hurled thunder against his foes.

THOR'S BELT. A girdle which doubles his strength whenever the war god puts it on.

THOTH. The Mercury of the Egyptians.

THYA'DES. Priestesses of Bacchus, who ran wild in the hills, wearing tiger skins and carrying torches.

THYR'SUS. The staff of Bacchus.

TIME or **SATURN.** The husband of Virtue and father of Truth.

TISIPH'ONE. One of the Furies.

TI'TAN. Elder brother of Saturn, who made war against him, and was ultimately vanquished by Jupiter.

TI'TANS. The supporters of Titan in his war against Saturn and Jupiter.

TITHO'NUS. The husband of Aurora. At the request of his wife the gods granted him immortality, but she forgot at the same time to ask that he should be granted perpetual youth. The consequence was that Tithonus grew old and decrepit, while Aurora remained as fresh as the morning. The gods, however, changed him into a grasshopper, which is supposed to moult as it gets old, and grows young again.

TIT'YUS. A son of Jupiter. A giant who was thrown into the innermost hell for insulting Diana. He, like Prometheus, has a vulture constantly feeding on his ever-growing liver.

TRIPTOL'EMUS. A son of Oceanus and Terra. He was a great favorite of the goddess Ceres, who cured him of a dangerous illness when he was young, and afterwards taught him agriculture.

TRITERI'CA. Bacchanalian festivals.

TRI'TONS. Sons of Triton, a son of Neptune and Amphitrite. They were the trumpeters of the sea gods, and were depicted as a sort of mermen—the upper half of the body being like a man, and the lower half like a dolphin.

TROPHO'NIUS. One of Jupiter's most famous oracles.

TROY. The classic poets say that the walls of this famous city were built by the magic sound of Apollo's lyre.

TRUTH. A daughter of Time, because Truth is discovered in the course of Time. Democritus says that Truth lies hidden at the bottom of a well.

TUTEL'INA. A rural divinity—the goddess of granaries.

TY'PHON. A monster with a hundred heads who made war against the gods, but was crushed by Jove's thunderbolts, and imprisoned under Mount Etna.

TY'PHON. In Egyptian mythology the god who tried to undo all the good work effected by Osiris.

UL'LER. The Scandinavian god who presided over archery and duels.

ULYS'SES. A noted king of Ithaca, whose exploits in connection with the Trojan War, and his adventures on his return therefrom, are the subject of Homer's *Odyssey*. His wife's name was Penelope, and he was so much endeared to her that he feigned madness to get himself excused from going to the Trojan War; but his artifice was discovered, and he was compelled to go. He was of great help to the Grecians, and forced Achilles from his retreat and obtained the charmed arrows of Hercules from Philoctetes, and used them against the Trojans. He enabled Paris to shoot one of them at the heel of Achilles, and so kill that charmed warrior. During his wanderings on his homeward voyage he was taken prisoner by the Cyclops, and escaped, after blinding Polyphemus, their chief. At Aeolia he obtained all the winds of heaven, and put them in bags; but his companions, thinking that the bags contained treasure which they could rob him of when they got to Ithaca, cut them and let out the winds, and the ships were immediately blown back to Aeolia. After Circe had turned his companions into swine on an island where he and they were shipwrecked, he compelled the goddess to restore them to their human shape. As he passed the islands of the Sirens he escaped their allurements by stopping the ears of his companions with wax, and fastening himself to the mast of his ship. His wife Penelope was a pattern of constancy; for, though Ulysses was reported to be dead, she would not marry any one else, and had the satisfaction of having her husband return after an absence of about 20 years.

UN'DINE. A water nymph, or sylph.

UNX'IA. A name of Juno, relating to her protection of newly-married people.

URA'NIA. A daughter of Jupiter and Mnemosyne—one of the Muses, who presided over astronomy.

URA'NUS. The Greek name of Coelus. His descendants are sometimes called Uranids.

UR'GUS. A name of Pluto, signifying the Impeller.

UT'GORD LO'KI. In Scandinavian mythology the king of the giants.

VALHAL'LA. The Scandinavian temple of immortality, inhabited by the souls of heroes slain in battle.

VA'LI. The Scandinavian god of archery.

VALLO'NIA. The goddess of valleys.

VARU'NA. The Hindu Neptune—generally represented as a white man riding on a sea horse, carrying a club in one hand and a rope in the other.

VEJO'VIS. A god of the under world whose power to injure corresponded to that of Jupiter to help; sometimes identified with Apollo.

VE'NUS. The goddess of beauty, and mother of love. She is said to have sprung from the foam of the sea, and was immediately carried to the abode of the gods on Olympus, where they were all charmed with her extreme beauty. Vulcan married her, but she permitted the attention of others of the gods, and notably of Mars, their offspring being Hermione, Cupid, and Anteros. After this she left Olympus and fell in love with Adonis, a beautiful youth, who was killed when hunting a wild boar. Venus indirectly caused the Trojan War, for, when the goddess of discord had thrown among the goddesses the golden apple inscribed "To the fairest," Paris adjudged the apple to Venus, and she inspired him with love for Helen, wife of Menelaus, king of Sparta. Paris carried off Helen to Troy, and the Greeks pursued and besieged the city (see HELEN, PARIS, and TROY). Venus is mentioned by the classic poets under the names of Aphrodite, Cypria, Urania, Astarte, Paphia, Cythera, and the laughter-loving goddess. Her favorite residence was at Cyprus. Incense alone was usually offered on her altars, but if there was a victim it was a white goat. Her attendants were Cupids and the Graces.

VERTICOR'DIA. A Roman name of Venus, signifying the power of love to change the hard hearted. The corresponding Greek name was Epistrophia.

VERTUM'NUS. God of spring, or, as some mythologists say, of the seasons; the husband of Pomona, the goddess of orchards.

VES'TA. Daughter of Saturn and Cybele; was the goddess of fire. She had under her special care and protection a famous statue of Minerva, before which the Vestal Virgins kept a fire or lamp constantly burning.

VES'TAL VIR'GINS. The priestesses of Vesta, whose chief duty was to see that the sacred fire in the temple of Vesta was not extinguished. They were always selected from the best families, and were under a solemn vow of chastity, and compelled to live perfectly pure lives.

VIA'LIS. A name of Mercury, because he presided over the making of roads.

VIC'TORY. A goddess, the daughter of Styx and Acheron, generally represented as flying in the air holding out a wreath of laurel.

VI'DAR. A Scandinavian god, who could walk on the water and in the air. The god of silence (corresponding with the classic Harpocrates).

VIR'TUE. A goddess worshiped by most of the ancients under various names. The way to the temple of honor was through the temple of virtue.

VISH'NU. The Preserver; a principal Hindu god.

VUL'CAN. The god of fire; was the son of Jupiter and Juno. He offended Jupiter, and was by him thrown out of heaven. He was nine days falling, and at last dropped into Lemnos with such violence that he broke his leg, and was lame forever after. Vulcan was married to Venus. He is supposed to have formed Pandora out of clay. His servants were the Cyclops. He was the patron deity of blacksmiths.

VULCANA'LIA. Roman festivals in honor of Vulcan, at which the victims were thrown into the fire and burned to death.

WO'DEN. The Anglo-Saxon form of the Scandinavian god Odin; Wednesday is called after him.

XAN'THUS. The name of the wonderful horse of Achilles.

YA'MA. The Hindu devil, generally represented as a terrible monster of a green color, with flaming eyes.

YGDRA'SIL. The famous ash tree of Scandinavian mythology, under which the gods held daily council.

Y'MIR. The Scandinavian god corresponding to Chaos of the classics.

ZEPH'YR. The god of flowers, a son of Aeolus and Aurora; the west wind.

ZE'TES. With his brother Calais, drove the Harpies from Thrace.

ZE'THUS. Twin brother of Amphion.

ZEUS. The Greek name of Jupiter.

Distinctive Names of Gods and Goddesses.

Apollo, Canoba, Cynthius, Delius, Delphicus, Demarus, Horus, Khrishna, Mythras, Numius, Oros, Paean, Phoebus, Pythius, Sol.
Aurora, Eos.
Bacchus, Biformis, Brisaeus, Dionysus, Nyctelius, Nyseus.
Buddha. Gautama.
Ceres, Cybele, Hestia, Ops, Prisca, Rhea, Vesta.
Cupid, Eros, Kama.
Diana, Artemis, Dyctinna, Hecate, Luna, Phoebe, Proserpine, Tergemina.
Flora, Chloris.
Hercules, Alcides, Sem.
Juno, Hada, Hera, Moneta, Nuptialis, Parthenos, Sospita.
Jupiter, Ammon, Apis, Assabinus, Belus, Capitolinus, Ceraunius, Demarus, Dies Pater, Dodonaeus, Genitor, Gragus, Grapsios, Hemphta, Imperator, Indra, Jove, Maximus, Muscarius, Olympius, Osiris, Pluvius, Saturnius, Soter, Zeus.
Mars, Corythaix, Gradivus, Quirinus, Papremis, Sylvester.
Mercury, Camillus, Caresa, Hermes, Quadratus, Thoth, Vialis.
Minerva, Athena, Ergotis, Glaukopis, Pallas, Pylotis.
Neptune, Consus, Poseidon, Varuna.
Pan, Incubus, Innus, Mendes, Supersus.
Pluto, Dis, Februus, Hades, Shesa, Urgus.
Saturn, Chronos, Krodo.
Venus, Acidalia, Aphrodite, Armata, Astarte, Clucina, Cypria, Cythera, Dione, Erycina, Hortensis, Idalia, Onuva.
Vulcan, Hephaestos.

The Name of God in Forty-Eight Languages.

Ædian ..... Ilos	French ..... Dieu	Lithuanian ..... Diewas
Anglo-Saxon ..... God	Gaelic ..... Diu	Low Latin ..... Diex
Arabic ..... Allah	German ..... Gott	Mahrati ..... Deva
Armenian ..... Teuti	German, Old ..... Diet	Malay ..... Alla
Assyrian ..... Eleah	German, Old High ..... Got	Modern Egyptian ..... Teun
Chaldaic ..... Eiliah	Gothic ..... Guth	Norwegian ..... Gud
Chinese ..... Prussa	Greek ..... Theos	Norse, Old ..... Tiwar
Cretan ..... Thios	Gujarati ..... Khuda	Persian ..... Khoda
Danish ..... Gud	Hebrew ..... Eleah, Jehovah	Polish ..... Bog
Dorian ..... Ilos	Hindustani ..... Khuda	Portuguese ..... Deos
Dutch ..... God	Hindi ..... Brahmā	Punjabi ..... Deva
Egyptian, Old ..... Teut	Icelandic ..... Gud	Sanskrit ..... Deva
English ..... God	Italian ..... Dio	Spanish ..... Dios
Erse (Irish) ..... Dia	Japanese ..... Goezer	Swedish ..... Gud
Finnish ..... Jumala	Lapp ..... Jubinal	Tatar ..... Magatai
Flemish ..... God	Latin ..... Deus	Turkish ..... Allah

DICTIONARY OF PSEUDONYMS.

Comprising pen names of noted writers, and epithets applied to famous personages.

Abimelech Coody,	Gulian C. Verplanck.
Abraham, Brother,	Rev. Richard King.
Academicus,	Rev. Aulay Macaulay.
Achitophel, "Achitophel and Absalom,"	Earl of Shaftesbury (1621-1638).
Ackermann, Gottlieb,	Franz Xavier Mayer.
Acworth, John,	Rev. F. R. Smith.
Adams, Moses,	Geo. Wm. Bagley.
Adams, Stephen,	Michael Maybrick.
Addison of the North, "The Man of Feeling,"	Henry Mackenzie.
Adeler, Max, "Out of the Hurly Burly,"	Charles Heber Clark.
Admirable Doctor,	Roger Bacon.
Adonais, "Adonais,"	Keats (name given by Shelley).
Agate,	Whitelaw Reid.
Agläus,	Henry Timrod.
Akers, Elizabeth,	Mrs. E. M. Allen.
A. K. H. B.,	Rev. A. K. H. Boyd.
Alcaeus,	James Montgomery.
Alcibiades, *Punch*, 1846,	Lord Tennyson.
Alexander, Mrs.,	Mrs. A. F. Hector.
Alexander, Sir Drawcansir,	Tobias George Smollett.
Alexander the Coppersmith, LL.D.,	Thomas Erskine, Baron Erskine.
Alexander the Corrector,	Alexander Cruden.
Alexander of the North, The,	Charles XII. of Sweden.
Allen, F. M.,	Edmund Downey.
A. L. O. E. (i. e., A Lady of England),	Charlotte Maria Tucker.
Alte Fritz, Der,	Frederick the Great.
Amateur Casual,	James Greenwood.
Anacreon Moore,	Thomas Moore.
Anacreon of Painters,	Francesco Albani.
Anacreon of Persia,	Hafiz.
Anacreon of the Guillotine,	Bertrand Barrere.
Ane of that Ilk,	Prof. W. E. Aytoun.
Angler, An, "Salmonia,"	Sir Humphry Davy.
Anstey, F.,	Thomas Anstey Guthrie.
Apostate, Julian The,	Roman Emperor Julian.
Apostle of Germany,	St. Boniface.
Apostle of Ireland,	St. Patrick.
Apostle of Temperance,	Rev. Theobald Mathew.
Apostle of the English,	St. Augustine.
Apostle of the French,	St. Denis.
Apostle of the Frisians,	St. Wilbrord or Willibrod.
Apostle of the Gauls,	St. Irenaeus.
Apostle of the Goths,	Ulfilas.
Apostle of the Indians,	Rev. John Eliot.
Apostle of the North,	Anscharius or Ansgar.
Apostle of the North,	Bernard Gilpin.
Apostle to the Indies,	St. Francis Xavier.
Astrophel,	Sir Philip Sidney.
Attic Bee,	Sophocles.
Attic Muse,	Xenophon.
Atticus,	Joseph Addison (name given by Pope in "Prologue to the Satires").
Austrian Hyena,	Baron Julius Jakob von Havnau.
Autocrat, The,	Dr. Oliver Wendell Holmes.
Bab, "Bab Ballads,"	W. S. Gilbert.
Baba, Ali,	Alberigh Mackay.
Badinguet,	Napoleon III.
Balfour, Clara,	Mrs. Felicia Dorothea (Browne) Hemans.
Bard, The,	Edw. Jerningham.
Bard of Avon,	Shakespeare.
Bard of Ayrshire,	Robert Burns.
Bard of Rydal Mount, The,	Wm. Wordsworth.
Bayard, The Polish,	Prince Joseph Poniatowski.
Beau Brummel,	George Bryan Brummel.
Beauclerc,	Henry I. of England.
Beau Nash,	Richard Nash (also called "King of Bath").
Bede, Cuthbert,	Rev. Edward Bradley.
Bell, Acton,	Anne Bronte.
Bell, Currer,	Charlotte Bronte.
Bell, Ellis,	Emily J. Bronte.
Bell, Lilian,	Mrs. Arthur Hoyt Bogue.
Bell-the-Cat,	Archibald Douglas, Fifth Earl of Angus.
Belted Will,	Lord William Howard.
Benson, Carl,	Charles Astor Bristed.
Berwick, Mary,	Adelaide Anne Procter.
Bess, Good Queen,	Queen Elizabeth of England.
Bettina,	Elisabeth (Brentano) von Arnim.
Bibliophile,	L. A. Allibone.
Bibliophile, Jacob,	Paul Lacroix.
Bickerstaff, Isaac,	Sir Richard Steele.
Biglow, Hosea,	James Russell Lowell.
Billings, Josh,	H. W. Shaw.
Black Douglas,	(Generic name of Scotch family of Douglas.)
Black Prince, The,	Edward, Prince of Wales, son of Edward III. of England.
Blacksmith, The Learned, "Sparks from the Anvil,"	Elihu Burritt.
Blind Harry,	Henry the Minstrel.
Bluff Hal, or Harry,	King Henry VIII. of England.
Boisgilbert, Edmund,	Ignatius Donnelly.
Boldrewood, Rolf,	Thomas A. Browne.
Bon Gaultier,	Prof. W. E. Aytoun and Sir Theo. Martin.
Bouverie, Bartholomew,	Rt. Hon. W. E. Gladstone, M.P.
Boz,	Charles Dickens.
Bozzy,	James Boswell.
Braddon, Miss M. E.,	Mrs. John Maxwell.
Breitmann, Hans,	Charles Godfrey Leland.
Brown, Tom,	Thomas Hughes, Q.C., M.P.
Brown, Tom, the Younger,	Thomas Moore.
Burlington Hawkeye Man,	Robert Jones Burdette.
Byron, the Russian,	Alexander Sergeivitch Puschkin.
Cadenus,	Jonathan Swift.
Caliban,	Robert Buchanan.
Caliban,	Louis Jean Emmanuel Gonzalès.
Candidus,	Samuel Adams.
Carmen Sylva,	Elizabeth, Queen of Roumania.
Carroll, Lewis,	Rev. C. Lutwidge Dodgson.
Caskoden, Edward,	Charles Major.
Catholicus,	Cardinal John Henry Newman.
Cato,	Alexander Hamilton.
Chicot,	Epes Winthrop Sargent.
Chinese Gordon,	Maj. Gen. Charles George Gordon.
Citizen King,	Louis Philippe.
Cleisthbotham, Jedediah,	Sir Walter Scott.
Colman, R. W.,	James Hogg, the Ettrick Shepherd.
Common Sense,	Thomas Paine.
Condroux, Alfred,	Honoré de Balzac.
Confessor, The,	Edward III., King of Anglo-Saxons.
Connor, Ralph,	Rev. C. W. Gordon.
Conqueror, William the,	Duke of Normandy.
Conway, Hugh,	F. J. Fargus.
Coolidge, Susan,	Sarah C. Woolsey.
Cornwall, Barry,	Bryan Waller Procter.
Corrector, Alexander the,	Alexander Cruden.
Cotonnet,	Alfred de Musset.
Craddock, Charles E.,	Mary N. Murfree.
Crayon, Geoffrey,	Washington Irving.
Creyton,	J. T. Trowbridge.
Crichton, The Admirable,	James Crichton.
Croaker & Co.,	Joseph Rodman Drake, Fitz Greene Halleck.
Crowfield, Christopher,	Mrs. H. Beecher Stowe.
Cruiser, Benedict,	G. A. Sala.
Curate of Meudon (le Cure de Meudon),	Rabelais.
Curtius,	Noah Webster.
Damsel of Brittany,	Eleanora, granddaughter of Henry II. of England.
Danbury Newsman,	J. M. Bailey.
Davy,	Alexandre Dumas.
Dean, The,	Jonathan Swift.
Defender of the Truth,	Henry VIII. of England
Delorme, Joseph,	Chas. Augustin Sainte Beuve.

Democratic Tory, A,	"Benj. Disraeli: the Past and the Future," John Skelton.
Democritus, Junior,	"Anatomy of Melancholy," Robert Burton.
Dix, Dorothy,	Elizabeth M. Gilmer.
Doctor Angelicus,	Thomas Aquinas.
Doctor Authenticus,	Gregory of Rimini.
Doctor, The,	Robert Southey.
Doe, John,	Geo. Cavendish Bentinck.
Drapier, M. B.,	Jonathan Swift.
Duchess, The,	Mrs. Hungerford.
Dunshunner, Augustus,	Prof. Wm. Edmondstoune Aytoun.
Editor, The,	Ambrose Eccles.
Elia,	Charles Lamb.
Eliot, George,	Mrs. J. W. Cross, *née* Marian Evans.
Elmwood,	James Russell Lowell.
English Officer, An,	Lieut. Col. Alexander Jardine.
Enemy to Peace, An,	Jonathan Swift.
English Opium Eater,	Thomas De Quincey.
English Rabelais, The,	Dean Swift.
English Republican, An,	Algernon Chas. Swinburne.
English Roscius, The,	David Garrick.
English Tory,	Sir Richard Steele.
Englishman, An,	Thomas Paine.
Ettrick Shepherd,	James Hogg.
Expounder of the Constitution,	Daniel Webster.
Fancy, One of the,	Thomas Moore.
Fat Contributor, The,	W. M. Thackeray.
Father of Angling,	Izaak Walton.
Father of English Poetry,	Title given by Dryden to Chaucer.
Father of Epic Poetry,	Homer.
Father of His Country,	Given by Roman Senate to Cicero.
Father of His Country,	George Washington.
Father of His People,	Louis XII. of France.
Father of History,	Herodotus.
Father of Jests,	Joseph Miller.
Father of Letters,	Francis I., King of France.
Father of Letters,	Lorenzo de' Medici, Ruler of Florence.
Father of Medicine,	Hippocrates.
Father of Music,	Giovanni, Pierluigi da Palestrina.
Father of Tragedy,	Title bestowed by Athenians upon Aeschylus.
Federalist, A,	Noah Webster.
Fellow of the Royal Society, A,	Cotton Mather.
Female Howard,	Mrs. Elizabeth Fry.
Fern, Fanny,	Mrs. James Parton.
Fitz-Boodle, George,	W. M. Thackeray.
Fitznoodle,	B. B. Vallentine.
Fitzvictor, John,	Percy Bysshe Shelley.
Forrester, Frank,	Henry Wm. Herbert.
Foucher, Paul,	Victor Hugo.
Fra Diavolo,	Michele Pezza.
Fra Elbertus,	Elbert Hubbard.
France, Anatole,	Jacques Anatole Thibault.
Freeman, A,	Jean Joseph Louis Blanc.
Freeman, Mrs.,	First Duchess of Marlborough.
Froissart, Jean,	Alphonse Daudet.
Gaston, Marie,	Alphonse Daudet.
Gay, Mr. Joseph,	Alexander Pope.
Gazul, Clara,	Prosper Merimee.
Gentleman, A,	Edmond Hoyle.
German Milton, The,	Friedrich Gottlieb Klopstock.
German Plato, The,	Friedrich Heinrich Jacobi.
German Voltaire, The,	Christoph Martin Wieland.
Gladiolus,	Wm. Ewart Gladstone.
Good Gray Poet,	Walt Whitman.
Good Knight, without Fear and without Reproach, The,	Pierre de Terrail Bayard.
Goodwell, Godek,	Horace Greeley.
Gorky, Maxim,	A. M. Peshkov.
Goslett, Paul,	Chas. Lever.
Gower, The Moral,	John Gower.
Graduate of Oxford,	John Ruskin.
Grand, Sarah,	Miss Clarke; Mrs. Haldane McFall.
Gray, Maxwell,	Miss Tuttiett.
Great Commoner,	William Pitt.
Great Elector,	Frederick William, Elector of Brandenburg.
Gushington, Angelina,	Lady Dufferin.
Gyp, Gabrielle Sybille,	Comtesse de Martel.

"H. H.,"	Helen Hunt Jackson.
Hamilton, Gail,	Mary Abigail Dodge.
Harland, Marion,	Mrs. Mary V. Terhune.
Harlequin,	Robert Harley.
Helvidius,	James Madison.
Hero of the Nile,	Horatio Nelson.
Heron, E. and H.,	Mrs. Kenneth and Mr. Hesketh Prichard.
Harte, Bret,	Francis Bret Harte.
Hibernia,	Jonathan Swift.
Hierro,	Victor Marie Hugo.
Historicus,	George Grote.
Hobbes, John Oliver,	Miss Richards; Mrs. Craigie.
Hoffmann, Prof. Louis,	Angelo John Lewis.
Holm, Saxe,	Helen Hunt Jackson.
Honeycombe, Henry,	Leigh Hunt.
Hope, Anthony,	Anthony Hope Hawkins.
Hope, F. T. L.,	Dr. Farrar.
Huntington, Faye,	Theodosia T. Foster.
Ignatius, Father,	J. L. Lyne.
Inchiquin,	Robert Southey.
Incorruptible, The,	Robespierre.
Ingham, Col. Frederick,	Edward Everett Hale.
Ingoldsby, Thomas,	Rev. R. H. Barham.
Irish Gentleman, An,	Thomas Moore.
Iron Duke,	Duke of Wellington.
Iron Hand, The,	Gottfried von Berlichingen.
Iron, Ralph,	Miss Olive Schreiner; Mrs. Cronwright.
Ironside,	Edmund II. (989-1016).
Ironside, Nestor,	Sir Richard Steele.
Irrefragable Doctor,	Alexander of Hales.
Isa,	Mrs. Isa Craig-Knox.
J. S. of Dale,	Frederick J. Stimson.
Jacob Omnium's Hoss,	W. M. Thackeray.
James, S. T.,	Horace E. Scudder.
Jeames,	W. M. Thackeray.
Jean Jacques,	Jean Jacques Rousseau.
Jessamine, James,	Bryan Waller Procter.
Jessamy Bride,	Mary Horneck; Mrs. Gwyn.
Jewish Plato, The,	Philo Judaeus.
Jobber, A,	Daniel Defoe.
Josiah Allen's Wife,	Marietta Holley.
Kata Phusin,	John Ruskin.
Kerr, Sherrill,	Julia Magruder.
King Maker, The,	Richard Nevil.
King of Courts,	Quintus Hortensius.
Kit,	Prof. John Wilson.
Knickerbocker, Diedrich,	Washington Irving.
Lady, A,	Mrs. Julia Ward Howe.
Lady, A,	Jane Austen.
Lady of Massachusetts,	Mrs. Lydia Maria Child.
Laicus,	Rev. Lyman Abbott.
Langstaff, Launcelot,	Washington Irving.
Last of the Fathers,	St. Bernard.
Last of the Goths,	Roderick of Spain.
Last of the Romans,	Aetius, a Roman general.
Last of the Tribunes,	Cola di Rienzi.
Laughing Philosopher,	Democritus of Abdera.
Laurence Slingsby,	George Henry Lewes.
Lee, Vernon,	Violet Paget.
L. E. L.,	Letitia Elizabeth Landon; Mrs. Maclean.
Leviathan of Literature,	Dr. Samuel Johnson.
Liberator, The,	Simon Bolivar.
Light-Horse Harry,	General Henry Lee.
Lion of the North,	Gustavus Adolphus.
Little Comedy,	Catharine Horneck; Mrs. Bunbury.
Little Corporal,	General Bonaparte.
Little Giant,	Hon. Stephen A. Douglas.
Little Mac,	Gen. George B. McClellan.
Little Magician,	Hon. Martin Van Buren.
Little Master,	Hans Sebald Behan.
Little Thomas,	Thomas Moore.
Lothrop, Amy,	Anna B. Warner.
Loti, Pierre,	Louis M. J. Viaud.
Ludlow, Johnny,	Mrs. Henry Wood.
Luska, Sidney,	Henry Harland.
Lyall, Edna,	Miss Ada Ellen Bayly.
Lycidas,	Edward King.
Maartens, Maarten,	J. H. W. Van der Poorten Schwartz.
Maclaren, Ian,	Rev. John Watson.
Mad Anthony,	General Anthony Wayne.
Madman of the North,	Charles XII. of Sweden.
Maid of Orleans,	Joan of Arc.
Maid of Saragossa,	Augustina Zaragoza.
Maitland, Thomas,	Robert Buchanan.
Malachi Malagrowther,	Sir Walter Scott.
Malet, Lucas,	Mrs. Harrison.
Man of December,	Napoleon III.
Man of Destiny,	Napoleon Bonaparte.
Man of Ross,	John Kyrle.
Mantuan Swan,	Vergil.

Market Gardener, A,	R. D. Blackmore.
Marlitt, E.,	Henriette Eugenie John.
Mars, Victor de,	Joinville.
Marshal Forward,	Field Marshal von Blucher.
Marvel, Ik,	Donald Grant Mitchell.
Mathetes,	John Wilson.
Matthaeus, Thomas,	John Tindal.
May, Sophie,	Rebecca Sophia Clarke.
Meredith, Owen,	Lord E. R. Bulwer Lytton.
Merlin,	Lord Tennyson.
Merriman, Henry Seton,	Hugh S. Scott.
Merry Monarch,	Charles II. of England.
Merrypebble, Mr.,	Wm. E. Gladstone.
Mill-boy of the Slashes,	Henry Clay.
Miller, Joaquin,	C. H. Miller.
Miller, Olive Thorne,	Harriet Mann Miller.
Moderator,	Thomas Chatterton.
Modern Messalina,	Catharine II. of Russia.
Monk, Lewis,	Matthew Gregory Lewis.
Morley, Mrs.,	Queen Anne.
Morning Star of the Reformation,	John Wiclif.
Morris, Peter,	John Gibson Lockhart.
Mother Ann,	Ann Lee.
Muhlbach, Luise,	Mme. Klara (Muller) Mundt.
Nasby, Petroleum V.,	David Ross Locke.
Nero of the North, The,	Christian II. of Denmark.
Nesbit, E.,	Mrs. Hubert Bland.
Noble Lord, A,	Lord Byron.
Nobleman, A,	Oliver Goldsmith.
North, Barclay,	William C. Hudson.
North, Christopher,	Prof. John Wilson.
Northern Herodotus,	Snorro Sturleson.
Novalis,	Friedrich von Hardenberg.
Octogenarian, An,	Walter Savage Landor.
O'Down, Cornelius,	Charles Lever.
Officer, An,	Major Alexander Jardine.
Ogilvy, Gavin,	J. M. Barrie.
O'Hara Family,	J. and M. Banim.
Old Bachelor, An,	George William Curtis.
Old Bard, The,	Edw. Jerningham.
Old Bullion,	Col. Thomas Hart Benton.
Old Ebony,	William Blackwood.
Old Hickory,	Gen. Andrew Jackson.
Old Noll,	Oliver Cromwell.
Old Public Functionary,	James Buchanan.
Old Rowley,	Charles II. of England.
Oldstyle, Jonathan.	Washington Irving.
Only, The,	Jean Paul Friedrich Richter.
Optic, Oliver,	William Taylor Adams.
O'Rell, Max,	Paul Blouet.
Oriana (*Oriens Anna*, The Dawning Anna),	Anne, queen of James I.
Otis, James,	James Otis Kaler.
Ouida,	Louise de la Ramee.
Pacificus,	Alexander Hamilton.
"Pansy,"	Isabella Macdonald Alden.
Papaverius, Thomas,	Thomas De Quincey.
Parley, Peter,	Samuel G. Goodrich.
Partington, Mrs.,	Benj. P. Shillaber.
Pathfinder of the Rocky Mountains,	Maj. Gen. John C. Fremont.
Pattieson, Peter,	Sir Walter Scott.
Paul,	Sir Walter Scott.
Paul, Jean,	Jean Paul F. Richter.
Peasant Bard,	Robert Burns.
Pellegrin,	Lamotte Fouqué.
Pendennis, Arthur,	W. M. Thackeray.
Pennsylvania Farmer,	John Dickinson.
Pfaal, Hans,	Edgar Allan Poe.
Philosopher of Malmesbury,	Thomas Hobbes.
Plon-Plon,	Prince Napoleon Joseph Charles Bonaparte.
Plymley, Peter,	Sydney Smith.
Polish Byron, The,	Adam Mickiewicz.
Poor Richard,	Benjamin Franklin.
Porcupine, Peter,	William Cobbett.
Pretender, The Old,	James Francis Edward Stuart.
Pretender, The Young,	Charles Edward Stuart.
Prince of Destruction,	Tamerlane, *or* Timour.
Protestant Pope,	Pope Clement XIV.
Prout, Father,	F. S. Mahony.
Q.,	Douglas Jerrold.
Q.,	Arthur T. Quiller-Couch.
Quad, M.,	Chas. B. Lewis.
Quaker Poet,	Bernard Barton.
Quaker Poet,	John Greenleaf Whittier.
Quarles,	Edgar Allan Poe.
Queen of the East,	Zenobia of Palmyra.
Quir, Peter de,	John Henley.
Quixote of the North,	Charles XII. of Sweden.
Quiz,	Charles Dickens.
Rail-splitter, The,	Abraham Lincoln.
Rare Ben,	Ben Jonson.
Republican, A,	Charles Pinckney.
Reybaud, Mme. Charles,	Henriette Arnaud.
R'Hoone, Lord,	Honoré de Balzac.
Rita,	Mrs. E. M. J. von Booth.
Rohan,	Koda Nariyuki.
Ross, Adrian,	A. Reed Ropes.
Rough and Ready,	General Zachary Taylor.
Roving Englishman,	Hon. E. C. Grenville-Murray.
Royal Martyr,	Charles I. of England.
Royce, Ashley Allen,	Nathaniel Hawthorne.
Runnymede,	Benjamin B. Disraeli.
Rupert of Debate,	Earl of Derby.
Rusticus,	J. K. Fowler.
Sailor King, The,	William IV. of England.
Salem, Hezekiah,	Freneau.
Samian Sage,	Pythagoras.
Sand, George,	Madame Dudevant.
Sand, Jules,	Jules Léonard Sylvain Sandeau.
Saunders, Richard,	Benjamin Franklin.
Sauzade, John S.,	James Payn.
Savonarola, Jeremy,	Francis S. Mahony.
Scottish Solomon, The,	James VI. of Scotland, and I. of England.
Scourge of God,	Attila, king of the Huns.
Scriblerus, Martinus,	Swift, Pope, and Arbuthnot.
Scriblerus Secundus,	Henry Fielding.
Semiramis of the North,	Margaret, daughter of Waldemar III. of Denmark.
Semiramis of the North,	Catherine II. of Russia.
Seraphic Doctor,	St. Bonaventura (1221-1274).
Sharp, Luke (Look Sharp!),	Robert Barr.
Single-speech Hamilton,	William Gerard Hamilton.
Slick, Sam,	Hon. T. C. Haliburton.
Slingsby, Philip,	N. P. Willis.
Smith, T. Carlyle,	John Kendrick Bangs.
Soldiers' Friend,	Frederick, Duke of York.
Sparks, Timothy,	Charles Dickens.
Stella,	Miss Esther Johnson (so called by Swift).
Stonewall Jackson,	Thomas Jonathan Jackson.
Subtle Doctor,	Duns Scotus.
Swan, Annie S.,	Mrs. Burnett Smith.
Swan of Cambrai,	Fenelon.
Swedish Nightingale,	Jenny Lind (Madame Goldschmidt).
Sweet Singer of Israel,	King David.
Sword of God,	Khaled (582-642).
Sylvander,	Robert Burns.
Syntax, Dr.,	Wm. Combe.
Templeton, Laurence,	Sir Walter Scott.
Teufelsdrockh,	Thomas Carlyle.
Thanet, Octave,	Alice French.
Thomas, Karl,	Karl Thomas Richter.
Thurston, Henry T.,	Francis Turner Palgrave.
Tippecanoe,	General W. H. Harrison.
Titcomb, Timothy,	J. G. Holland.
Titmarsh,	W. M. Thackeray.
Toby,	Chas. Dickens.
Toby,	Jonathan Swift.
Twain, Mark,	S. L. Clemens.
Two Brothers,	Alfred and Charles Tennyson.
Uncle Remus,	Joel Chandler Harris.
Uncommercial Traveller,	Chas. Dickens.
Universal Doctor,	Thomas Aquinas.
Upper Servant, An,	Jonathan Swift.
Vagabondia,	Frances Hodgson Burnett.
Valens,	Richard Burke.
Vandergrift, Margaret,	Margaret T. Janvier.
Venerable Nestor Ironsides,	Richard Steele.
Viator Vacuus,	Thomas Hughes.
Vicar of Bray,	Rev. Symon Symonds.
Violinist, A,	Eric Mackay.
Virgin Queen, The,	Queen Elizabeth.
Voltaire,	François Marie Arouet.
Wagstaff, Simon, Esq.,	Jonathan Swift.
Ward, Artemus,	Charles F. Browne.
Wetherell, Elizabeth,	Susan Warner.
Winter, John Strange,	Mrs. Henrietta E. V. Stannard.
Wizard of the North,	Sir Walter Scott.
Yellowplush, Charles, Esq.,	W. M. Thackeray.
Yendys, Sidney,	Sydney Dobell.
Yorick,	Laurence Sterne.
Z. Z.,	Louis Zangwill.
Zeta,	J. A. Froude.

OUTLINES OF INTERESTING BOOKS.

Often it is necessary to know something about a certain book before one begins to study it. The outlines given below are not designed to include all the world's great books, but some of those best adapted to the general reader. Many of them are well known to students in our schools, and others may be used for home or supplementary reading. Great care has been exercised in the choice of titles for interest, adaptability to young and old readers alike, and genuine moral and educational worth. Not all the books in the list could be called English classics; for many have been noticed because of their human appeal and easy readability. Only those foreign works have been mentioned which all the world acknowledges as beyond the narrow interests of one nation or one people. The main purposes of the selection may be thus summarized:

1. To introduce growing youths to some of the best literature.
2. To provide interesting books for reading outside of school.
3. To guide older persons to good reading for their leisure hours away from the office and the manufactory.
4. To summarize only those works, characters, and plots that have genuine human appeal.
5. To represent the great moral forces of the world, excluding every word that is not educational and character building.
6. To show in brief outline what the books themselves contain.
7. To exalt above everything else wholesome character, heart and soul interest, and appeal to a large circle of readers.
8. To enable the student, to gain the important facts of each synopsis easily, the writer's nationality, when he lived, why famous. To learn why his work was famous, as, his style, why his work is significant, to learn the type, the character of the work with ease.

Abbott, The, by Sir Walter Scott, combines history with romantic fiction. The historical portions describe the virtual imprisonment of Mary Queen of Scots at Loch Leven Castle on an island in a lake north of Edinburgh. Apart from Mary, some of the main characters are Roland Graeme, a noble stripling; his mysterious mother, who plays the part of sibyl; Catherine Seyton, Mary's waiting maid; and George Douglas, who is romantically faithful to Mary. Some of the best scenes show the early life of Roland, the forced abdication of Mary by command of the Scotch nobles, the escape at dead of night from Lock Leven, and the final adandonment of the cause—when Mary leaves for France. Roland at times is greatly mystified, but, when his loyalty is confirmed by his actions, he shares the secrets of the flight of Mary, actively assists, and finally wins the love of the elusive Catherine.

Abou Ben Adhem, a short poem by Leigh Hunt, teaches the lesson of love for one's fellow man. When Abou first saw an angel writing the names of those who loved the Lord, he asked if his was in the angel's "book of gold." When the angel replied that it was not, Abou said, "Write me as one who loves his fellow men." The next night, when the angel opened the book, Abou's name led all the rest. The line just quoted is carved on the monument to Leigh Hunt in Kensel Green Cemetary in England.

Absalom is the symbolical name given the Duke of Monmouth by Dryden in *Absalom and Achitophel.* His father, Charles II, is named David, and the first Earl of Shaftsbury, called Achitophel, is described as trying to act as a false friend to David. Using this parallelism with the story of David and Absalom in the Scriptures, Dryden built up an elaborate satirical poem, one of the most brilliant, but also one of the most bitter in our language.

Absolute, Sir Anthony, is a crochety, overbearing, and suspicious character, outwardly, but at heart somewhat kind and generous, in *The Rivals,* a satirical drama by R. B. Sheridan. As a picture of such a type, this is admirable and often mentioned by lovers of the older drama of sentiment.

Acadia or Acadie, the old and now poetic name of Nova Scotia, was derived from one of the Indian names given to rivers. In 1755 the French inhabitants, charged with disloyalty, were removed by English soldiers and transported to various parts of the United States. This incident gave rise to the beautiful story of *Evangeline* as narrated by Longfellow.

Acres, Bob, a boastful but timid country fellow in Sheridan's comedy, *The Rivals,* who swears large genteel oaths but refuses to fight a duel with his rival to defend himself from the charge of cowardice.

Adams, Abraham, is as kindly a clergyman as he is impractical, in Fielding's *Joseph Andrews.* He makes numerous laughable and awkward blunders of speech and manner, but is truly lovable, generous, and simple as a child.

Adonais is a beautiful elegy written by Shelley in 1821, when he learned of the death of John Keats. It was then reported that certain harsh criticisms of the poetry of Keats hastened his death in Rome. Though this idea was largely erroneous, Shelley made it the basis of some noble invective in his poem. Our chief regard, however, is for the beautiful lyric spirit of the whole, the descriptions of Keats as a part of nature,—though objectionable as theology are pleasing as poetic sentiment—and of the final conclusion of Shelley that Keats is still "a presence to be felt in darkness and in light."

Aeneid, the great Latin epic by Vergil, gives a detailed account of the life of Aeneas, founder of Italy, after his escape from Troy following the defeat of Priam and his sons in the Greek war. In twelve books the author includes many old story fragments. In the confusion of flight, Aeneas loses his wife, but manages to bear away his aged father, Anchises, and his own son. After mistaking the import of an oracle at Delphi, the hero leaves Thrace for Crete, being driven finally on the shores of northern Africa at Carthage. Here he is hospitably received by Dido, to whom he recites the story of his previous wanderings. Book two tells of the capture of Troy through the device of the wooden horse of Sinon, in which soldiers were carried into the heart of the town. Book three brings up the story to the death of old Anchises and the landing of Aeneas at Carthage. Dido falls hopelessly in love with the visitor, but he departs on his travels, leaving her to die a suicide. Books five to seven describe the sojourn in Sicily, the visit to the infernal realm, and the arrival in Italy. At last he wins the love of the daughter of the king of the region, who has been betrothed to Turnus, a noble of the country. War now ensues between the armies of the two rivals. Turnus makes a spirited attack on the camp of Aeneas, burns the enemy ships, and finally challenges the Trojan to a moral combat, in which Turnus himself meets death. At the end of the epic, the death of Aeneas, too, is fully described when he is killed in a battle with the Rutulians, after having governed the country since the death of his wife's father. A simple outline of the plot gives little idea of the wealth of the descriptions, the vitality of the narrative, and the beauty of many noble passages.

Aladdin, son of a poor widow in China, falls into possession of a magic lamp and a wishing ring. Through these, aided by a genie, who appears at his command, he wins the daughter of the Sultan, builds a fine palace, and has everything that heart could wish. When he loses the lamp, the princess and their possessions are transported to Africa. Again the genie of the ring helps him reclaim the lamp and all that he has lost.

Alhambra, The, by Washington Irving, 1832, is a series of sketches and tales of the old Moorish palace at Granada in Spain. All the romance of the ancient days, and many legends of the castle and town, invest the whole with peculiar glamor and charm. Some of the wonderful pictures show the Hall of the Ambassadors in the Alhambra, the Court of Lions, the mysterious chambers, and the gala days of the old city. Among the enchanting legends are those of the Moor's Legacy, the Three Beautiful Princesses, and Governor Mancho and the Soldier. For graceful and romantic coloring, they have long been highly appreciated by critical readers.

Ali Baba and the Forty Thieves, like the story of Alladin, is one of the fascinating tales that now go under the name of the *Arabian Nights.* Kassim married a rich wife; his brother, Ali Baba, a poor one. To escape a band of robbers, Ali Baba, who was a wood chopper, once took refuge in a tree. While there he overheard the captain of the band informing others that a certain place in the hillside would open when one pronounced the magic words, "Open Sesame." Thus having the secret, he found a cave filled with gold and treasure, a share of which he took home with him that day. Kassim, the brother, learning part of the secret, went to the cave, but cried, "Open Barley," "Open Wheat," and so on, and never gained access to the robbers' cave. Yet he was discovered there and slain. The robbers, guessing that Ali Baba knew their secret, tried various schemes to punish him. These were all brought to naught by a female slave in the home of Ali Baba. All the robbers finally were decoyed to town and there slain by a clever device.

Alice in Wonderland is a whimiscal tale by Charles L. Dodgson, an English mathematician, writing under the name of Lewis Carroll. A normal English lassie follows a rabbit down his hole, and, after a time, finds herself in a wonderful country, in the midst of strange and droll adventures. She becomes acquainted with various beings, including the March Hare, a Mad Hatter, a Mock Turtle, a strange Caterpillar, Pig and Pepper, a cranky Duchess, and the King and Queen of Hearts, in their court with animated cards. Alice at last finds herself in a court, where the jury is investigating "who stole the tarts." Finally, someone suggests that sentence should be pronounced, after which a verdict may be reached. Alice protests that by this means the proceedings are reversed from those of well-regulated courts of justice. She remarks to the Queen of Hearts that the people around are only cards anyway. At this the whole pack rises in the air and tumbles upon Alice, and she awakens to find it all a dream. Through a Looking Glass, a sequel dream, takes Alice through a mirror to a land where the people are chessmen, moving up and down over the squares of turf as men of a real chessboard. At a climax to a new series of adventures, Alice is crowned queen, realizes the absurdity of it all, and again awakens.

Allan-a-Dale, according to an old ballad, desired to marry a fair dame, who was betrothed against her will to another suitor. Robin Hood and his men appeared at the wedding, displaced the bridegroom, led Allan to the altar, and married him and the lady, after Friar Tuck had pronounced the bans seven times, instead of the usual three. Allan, in Scott's *Ivanhoe,* is a harper to Robin Hood.

Allworthy, a kind country squire, is pictured by Fielding as the foster parent of Tom Jones. The author remembered a friend, Ralph Allen, in his good-natured and benevolent character study. See *Tom Jones.*

Alton Locke, a social novel by Charles Kingsley, illustrates the humanitarian movement of the nineteenth century. Published in 1851, it shows how a humble man rose from the ranks of the sweat shop to be a poet and leader of his fellows. Besides the hero, a noble group of unselfish friends makes profound impression on England for many years. Some of the realistic descriptions of workers in England are profoundly impressive, and many of them are deeply pathetic.

Amaryllis is the conventional name for a rustic lass or shepherdess in many nature and pastoral poems from Vergil to the present.

Amelia, a realistic novel by Henry Fielding, was published in 1751. The heroine, whom Thackeray pronounced "the most charming" feminine creation in our fiction, is strongly contrasted with her weak and ignoble husband. Some of the powerful scenes of the book show Booth, the husband, in jail or in his own home, drunk, surrounded by his little children playing innocently. While in prison, he has a notorious Miss Matthews as a companion, who was sentenced for murdering a man that betrayed her. Through the patient love and long-suffering labors of Amelia, he is reclaimed, and the family enjoys many days of happiness in better fortunes.

American, The. This novel by Henry James, published in 1877, is probably the most readable of his early long stories. Christopher Newman, a self-made American on vacation, is trying to acquire some culture in Europe. He is willing to buy any work of art that shows taste. Madame de Cintre, a beautiful widow who is half English and half French, attracts him powerfully. After a time the family of this lady in Paris consents to allow Newman to become a suitor, and finally to think of him as a member of the household. They desire his money, but at last decide that they cannot tolerate him, or indeed any man who has made money manufacturing wash tubs. Through an old servant Newman discovers that the mother of Madame de Cintre has helped her own husband out of this world. This knowledge he attempts to use to assist him to reclaim his betrothed, but she flees from him in consternation and enters a convent, out of fear of the members of her family. Newman returns to America. This story, like others by Henry James, contrasts the manners, customs, and ideals of a highly cultured with a virile but somewhat raw society.

Amoret, the type of faithful wife in Spenser's *Faerie Queen,* is imprisoned by a false enchanter, who has tricked her into his power. Through many trials she remains firm and true. The name is also found in Fletcher's pastoral, *The Faithful Shepherdess;* and the name *Amoretti* was chosen by Spencer for the group of sonnets written in honor of his wife.

Anabasis, The, tells the story of the retreat of the Greek army from Persia, 401–399 B. C. Cyrus, the younger, employed some Greek mercenaries to help unseat his brother, Artaxerxes, from the royal throne of Persia. After several battles, just as final success was assured, Cyrus was killed in the fight at Cunaxa, leaving his hosts leaderless. Nearly all the other generals were then killed in an ambush when they were summoned supposedly to confer with Artaxerxes regarding terms of peace. Xenophon, a Greek without military rank, volunteered to lead his countrymen to their homeland. Under his guidance the remnant of the army crossed the hot sands of Arabia, the snowy mountains of Armenia, and the plains infested by hostile Persians and Kurds, until at last they came to Trebizond. Many of the survivors finally reached Greece, but a large number took service in Asia Minor, helping to free some of the Greek cities from foreign domination. Xenophon, in his *Anabasis,* using the third person for the narrative, recounts the story of the cities, peoples, mountains, military adventures, and amusing incidents of the retreat. Many parts are fascinating and almost modern in spirit.

Ancient Mariner, The. In 1798 the poets Coleridge and Wordsworth brought out a collection of *Lyrical Ballads,* and reached the high-water mark of romantic feeling in the literature of the age. Coleridge's *Ancient Mariner* at once attracted both favorable and hostile attention, eventually becoming an acknowledged imaginative classic. The poet revived an old story such as found in the tales of the Flying Dutchman, the account of a sailor condemned to wander because of some sin. Thus the ancient sailor in the poem at times is compelled to unburden himself to anybody whom he can force to listen, while he holds his hearer spell-bound.

Everything goes well on board the mariner's ship until they drift into great fields of ice in the southern seas. Day after day an albatross follows in their path. Finally, in an idle moment of wickedness, the mariner shoots the bird with his cross bow. At once all his superstitious companions begin to hate him, because of the evil destiny that would follow their ship. They hang the bird around the mariner's neck. One by one all drop down dead on the deck, leaving the mariner all alone in the midst of living death. Everything else takes on life, while the ocean swarms with odd and uncanny creatures. In contrast to the mariner, these creatures seem happy. Distress of body, mind, and soul become terribly intense. At last two specters dice for the ancient mariner's soul. These are called Death and Death-in-Life, and the latter wins, while the mariner begins anew his living death. Everything now seems to rot; ghastly gleams flit about the ship, and ghosts appear at night; no rain falls for many, many days. Only at last is the spell broken by true repentance and prayer, when the mariner falls down in agony on the deck and begs forgiveness for killing one of God's fellow creatures. Then the albatross drops from his breast, beginning the restoration of something like normal life on board the ship. As the craft nears the shore, the dead men rise up, resume their stations, and the mariner leaps for joy on seeing lights along the land.

Few poems in English equal *The Ancient Mariner* in vivid and dramatic touches. Originality, picturesque diction, an atmosphere of mystery, a narrative forged white-hot are the main characteristics. Some of the figures of speech, flights of imagination, and romantic colorings make this poem also unique in our language.

Andrea del Sarto, a dramatic lyric by Browning, introduces us the life of artists and their works in the flowering of art in Florence. Andrea (son of a tailor) was called the faultless painter, because his drawing was so delicate and true. Yet the man himself lacked soul, and his works seem unreal and inhuman. Browning makes the painter explain his own failure. His wife is model for many of Andrea's best works, but she is soulless and unfaithful. Perfect in form, both she and the pictures

lack the finer essence of nobility. Andrea tries to explain his failure by charging it to his wife, but Browning shows that much of the fault lies in the painter himself. See Browning's other art poems, *Fra Lippo Lippi, Old Pictures in Florence, Pictor Ignotus.*

Annus Mirabilis by Dryden is our best poem in heroic stanzas,—four lines of five feet each, riming alternately. Gray in the *Elegy* and Byron in much of his work followed this form. For imagination, terseness of phrase, and ease of movement Dryden's poem excells. He describes the London fire and the Dutch war in the wonderful year, 1666.

Apologia Pro Vita Sua by John Henry, Cardinal Newman, was written to justify his change of faith from that of the Church of England to the Church of Rome. Having been attacked by Charles Kingsley, among others, for leaving the established church, Newman in 1865 gave the world this wonderfully frank and detailed history of his religious experiences. The *Apologia* is justly famous for its spiritual insight, logical arguments, and earnest vindication of Newman from any charge of being a mere turn-coat. In literary style the work keeps pace with the subject matter.

Apparition of one Mrs. Veal is a ghost story by Defoe, dating from 1706. To the readers who then believed in the return to our earth of departed spirits, this simple, honest narrative made a profound appeal. To us it shows the typical methods of Defoe in putting every touch on his work to make it seem truthful in all regards. Mrs. Veal, "a maiden gentlewoman," a victim of "fits" was living unhappily with her brother not far from the home of a certain Mrs. Bargrave, who afterward told the story. These religious ladies often spent hours together reading works of spiritual consolation. They held common beliefs of the hereafter. Finally, Mrs. Veal moved to a distant town, and Mrs. Bargrave saw little of her from that time until one day, not long after noon, her old friend came to call, but she seemed not quite herself, passing her hand over her eyes at times, and suddenly breaking off in her conversation. They talked together for some time. Afterward Mrs. Bargrave was amazed to learn that Mrs. Veal had died shortly before her ghost appeared for this parting visit.

Arabian Nights, The. Early in the eighteenth century a French scholar named Galland translated an Arabic manuscript of the *Thousand and One Nights.* From time to time certain oriental stories have been added in various editions. The time of the stories ranges from the eighth to the sixteenth century, but many of them undoubtedly go back several hundred years in oral tradition at least. They belong to the older type of frame collection,—a list of stories joined by some series of events connected with the time and manner of telling them. The *Nights* were supposed to be some stories told by a princess. She had married an eastern potentate to save her sisters; for this absolute monarch decreed that each wife should be executed on the second day after their marriage. To prolong her life, the princess began a story each evening, but never finished it till another night. After a thousand and one nights the emperor decreed that his entertaining wife should live forever, as she indeed does in these wonderful tales.

Arcadia, Sir Philip Sidney's lengthy pastoral romance, was published in 1590, four years after the author's death. Sidney was banished from the court in London to the home of his sister, the Countess of Pembroke, and for her he wrote this story, with no thought of publication. It is a long, rambling, unrevised narrative, but here the ancient and the modern world meet in vivid life. Both pagan and Christian heroes associate on terms of intimacy and friendship. The demi-gods of Greece appear in medieval dress, speak modern languages, and tilt with heroes of chivalry. Page after page succeeds in ever-changing delights. It is a book to be read at leisure, part by part, story by story, and not as a connected novel.

Archimago, a clever magician in *The Faerie Queen,* a poem by Edmund Spenser, separates the Red Cross Knight and Una through deceit. He appears in a number of disguises, to represent hypocrisy as opposed to truth and honor.

Areopagitica, which contains some of John Milton's best prose writing, is a "Speech on the Liberty of Unlicensed Printing." This was prepared as if spoken to Parliament in defense of printing without a government license. Some of the poet's own pamphlets were issued contrary to the wish of the official licenser. Milton argues with great eloquence and fervor that difference of opinions should not justify refusing a license to any work not contrary to the sense of morality or of political expediency. He cites classical works to show that only immoral doctrines and traitorous utterances, especially blasphemy against the gods, were forbidden. Mere party differences, or doctrines contrary to the party in power, or to the opinions of the majority, should not be allowed to throttle free speech.

Artful Dodger, The, is a criminal named John Dawkins who skilfully eludes the police at every turn. Dickens shows how this man with his fellows tries to make a criminal out of the hero in *Oliver Twist.*

Arthurian Cycle of Romances. This is a general name for a group of several different legends bound into a whole by some old English chroniclers. Though Arthur is the central knight, five or six other characters share the honors with him in the Round Table. The chief parts are the stories of Merlin, the magician; Gawain and other perfect knights like Galahad and Percival; the story of Lancelot and his romantic love affairs with Elaine and especially with the Queen, Guinevere; the religious legend of the Holy Grail, the cup from which our Lord, according to an ancient story, drank at the Last Supper; the tragic love tale of Tristram and Iseult, sometimes a part of the cycle. Malory's *Morte d'Arthur,* in prose, and Tennyson's *Idylls of the King,* in verse, represent both an old and a recent version of some of these tales, which have been used by many authors in both French and English.

Ashton, Lucy, tragic heroine of Scott's novel, *The Bride of Lammermoor,* which is described on a later page.

As You Like It, one of Shakespeare's most delightful comedies, is as fresh and simple as the Forest of Arden, in which some of the scenes are enacted. Though composed of three different elements, the plot is easily understood, fairly probable, and decidedly romantic. The old duke, banished from court by a usurping brother, lives in idyllic ease among the rangers and visitors who come to do him honor in his forest retirement. By his consent Rosalind, his beloved daughter, has remained at court as a companion for her cousin, Celia, daughter of the usurping Duke Frederick. A strong youth named Orlando, being hated by his brother, engages in a wrestling match with a champion, who has really been sent to put him out of the way. Orlando, because of a victory over this wrestler, is banished by his brother, but he has already won the favor of Rosalind. Duke Frederick, too, is furious, because Orlando is not to his liking, and he banishes Rosalind. Disguised as a shepherd, with Celia and Touchstone as companions, she at last arrives at the sylvan court of the banished Duke. Orlando has met them in the forest, but has not recognized the party. At last everything turns out well, including the repentence of Orlando's cruel brother and of the usurping duke.

Besides the artificial elements of the pastoral, this drama presents some real rustics in William, a simple fellow, who thinks he is to marry Audrey, a tittering wench, until Touchstone persuades him of his mistake. Jaques, a wilful man of wit and melancholy, makes wise comments on the vanity of human life; Touchstone, one of the funniest and also one of the wisest of the Shakespeare clowns, adds a delightful spirit of fun. Few dramas have such a pleasing out-of-door atmosphere.

Aurora Leigh, an ethical story in poetic form, issued by Mrs. Elizabeth Barrett Browning in 1857, reveals what the author called her "highest convictions on life and art." The moral and religious tone of the work of this lady was never so highly developed as in this noble poem. Aurora, a creature of wealth and society, has been brought up by a maiden aunt. She refuses to marry her rich cousin, Romney, because he has socialistic ideas. At last she is brought to realize that she should marry him when he accidentally becomes blind.

Autocrat of the Breakfast Table, a series of witty, rambling, and delightful conversations, brings out several typical characters, the chief one being the leader of the group, who is called the autocrat. Some of the others are the Schoolmistress, the Old Gentleman Opposite, the Landlady and her Daughter, the Young Man John, the Poor Relation, and the Divinity Student. O. W. Holmes, the author, illustrates many topics of interest in art, literature, science, and politics of the middle of the nineteenth century. For a number of years his collection of genial, personal essays in this volume set the fashion for discourses on many familiar subjects.

Baconian Theory, The, assigns the Shakespeare plays and other Elizabethan works to the authorship of Francis Bacon, a philosopher and politician, who wrote several learned treatises. Since the middle of the last century, the battle has raged, with the writing of many books and the spinning of many elaborate arguments. All of the evidence is negative. Advocates of the Baconian theory cite the small education of Shakespeare, the merit of

Bacon as a thinker, the dark problems of the *Sonnets*, which seem to fit into what we know of Bacon's life, and especially the piecing of various words and phrases into a so-called Bacon cypher that is claimed to reveal many secrets.

Bacon's Essays, fifty-eight in number in the last of several editions during the life of Francis Bacon, are indisputably his work. They summarize his opinions on many subjects in terse sentences, which more closely resemble modern forms of writing than those of Bacon's own time. Some of the essays are highly polished; others appear in what seems a rougher state of thought and language. Bacon's counsel on the reading of books should be framed for every schoolroom: "Some books are to be tasted, others to be swallowed, and some few to be chewed and digested." Many sentences stand out forever in one's memory, like this one: "Men fear death as children fear to go in the dark," or this: "Revenge is a sort of wild justice." Bacon writes best on subjects like Adversity, Atheism, Friendship, Riches, Studies, and Revenge.

Barkis, the diffident stage-driver, asks David Copperfield to bear a simple message to Clara Peggotty. He believes this will be understood as a proposal of marriage. The phrase has become proverbial for willingness in general. It is, "Barkis is willin'."

Battle of the Books. This amusing satirical story by Dean Swift was called forth by a controversy in his time as to the relative merits of ancient and modern authors. The Bee, flying straight, symbolizes the classics; the Spider, always involved in a web, represents the moderns. These creatures begin a dispute in St. James Library. At last all the books join in, and a lively battle results, with much scattering of dust. Though Swift does not tell how the contest results, it is perfectly evident that he sympathizes with the ancients. By great shafts of his wit and ridicule, he strikes down many authors of his generation, not sparing even Dryden.

Battle, Sarah, is a lady in one of Charles Lamb's whimsical essays. She speaks of playing whist as her destiny, her born duty in life, and of reading as a pleasant diversion after business, a mere incidental pursuit.

Bedivere, one of the earliest knights created by King Arthur, is the last companion to leave him, when all others flee after the breaking up of the order of chivalry. Just before Arthur returns to the mere from which, as a babe, he came, Sir Bedivere is entrusted with the task of throwing his sword, named Excalibur, into the lake, where a white hand from the bosom of the water rises up and receives it. Tennyson's *Passing of Arthur* tells the story in lines of great musical and imaginative beauty.

Beggar's Opera, composed by John Gay and first used in 1728, was the earliest of that kind of musical play called variously ballad, light, or comic opera. With its tuneful lyrics and sparkling dialogue, it struck the popular fancy at once, and long remained a favorite on numerous stages. It often rivaled the more serious, Italian "grand" opera. Speaking of Rich, the manager of the playhouse when Gay's opera first came into notice, one wit said, "It made Gay rich, and Rich gay."

Belle Dame Sans Merci, La. This being translated means "The beautiful lady without pity." Though the name was old, the poet John Keats first wrote this story in all its romantic coloring and music. The ballad narrates the wandering of a knight, who met a lady in the meads and became enchanted forthwith. She took him to an elfin bower, sang a song of love and devotion to him, promised to love him truly; but the knight at last found himself on a cold hillside alone.

Benedick, a bluff and witty soldier in Shakespeare's *Much Ado about Nothing*, vows that he will remain a bachelor. The vivacious and sarcastic Beatrice, in spite of apparent contradictions on both sides, attracts his notice. Finally, some friends of both arrange to allow Beatrice and Benedict to overhear them tell that one is madly partial to the other. When Benedict at last announces that he will marry, his old friends taunt him, and say, "Behold, Benedick, the married man." The name, now usually spelled Benedict, is often used synonymously of a recently married man.

Ben Hur, General Lew Wallace's tale of the Christ, represents the noblest type of historical fiction with oriental setting. Early in the novel the three wise men bring their gifts to the manger at Bethlehem. Fifteen years afterward, Judah Ben Hur, now grown up, is living at Jerusalem with his mother and sister. One day, when the Roman governor is passing, Ben Hur crowds too near the edge of the roof to see him. A tile falls off and lands at the side of the governor. At once Ben Hur is arrested and condemned to the galleys for life. Messalla, his closest friend, deserts him in his great need. Later Ben meets John the Baptist, and is converted to the faith by seeing a miracle performed by Christ himself. Many fine passages of description bring ancient times home to us with tremendous vitality. Two of the most vivid episodes are the sea fight and the chariot race in the arena.

Beowulf is the oldest long epic in our language, and structurally is one of the best of all the ages. Its single manuscript, containing 3183 lines, is somewhat incomplete at the close. There has been much discussion as to whether the background is that of our England or of some other northern shore to the eastward of Britain. The language of the poem is old English, the predecessor of the speech before the time of the Middle Ages. From this narrative one gains an intimate idea of how our ancient forefathers lived and felt. Little is said of agriculture, and much of warfare. The story falls into two large parts, with episodes in each, but the whole is fairly unified, except for a break of several decades between the first and second parts. Beowulf, a bold superman, comes across the sea to defend his English friends from the ravages of a terrible monster called Grendel, who comes forth from the moor at night to carry off the thanes of the Saxon Hall. Beowulf traps Grendel, a terrific battle ensues, in which much of the furniture of the hall is wrenched from place. Beowulf at last wins, and Grendel skulks off, leaving one arm behind. The noble hero now follows him to his lair under the mere, and then finds the mother of Grendel, whom he crushes. After being feasted by the joyful thanes, Beowulf departs for his own shores, bearing rich gifts from the king and his nobles.

Late in life he comes forth once more and slays a terrible fire-drake that is burning up huge patches of country. In this last encounter he is mortally wounded and soon dies. At the end of the poem a lofty funeral pyre has been erected, and a beacon to mark the resting place of the hero has been set in place on a rocky shore. The imaginative background is wild and primitive, unchristian, and essentially fatalistic and heathen. For richness of language and compression of form throughout, this is a notable world epic.

Beside the Bonnie Briar Bush, by Dr. John Watson writing as Ian Maclaren, reveals the wholesome joys and sorrows in small Scotch communities. All the parts, or stories, of this book are sentimental, suffused with richest feeling, and simply told with powerful effect. There is poor Geordie Howe, dedicated to the ministry, but dead before his mother's best dream could be realized. There is Dr. Willum Maclure, the country doctor, truly one of God's noblemen, who risks life and health and spends his small earnings that a patient may have the best medical and professional attention. He is worthy of the warm praise of the great Edinburgh specialist, whom he has called to assist in saving a poor man's wife from death. There is dear old Domsie, the village schoolmaster, who lives in his boys, especially those he sends to college; he is determined to have his town represented in the University by a "lad o' pairts." There are the Rev. Dr. Davidson and many other sturdy villagers.

Biglow Papers, The, by James Russell Lowell, have been considered his most original contributions to the thought of his age. They comprise more than twenty verse letters, all full of humor, Yankee dialect, and shrewd observations of men and politics. Hosea Biglow, a quaint rustic, writes letters in verse, some of which are interpreted by others, including the Rev. Homer Wilbur, Even Birdofredum Sawin, a volunteer from Massachusetts in both the Mexican and Civil wars, has something to say that is typical and interesting. Lowell expresses the strongest anti-slavery sentiment of his time in these letters.

Black Beauty, the autobiography of a horse, as told by Anna Sewall, always engages our sympathy in favor of kindlier treatment of domestic animals. Brutally crippled by a drunken groom, a finely bred horse is sold to the keeper of a livery stable. In succession he passes on to be a cab horse, a cart horse, and a cab horse once more, until he finally is sold to a farmer, who soon recognizes his worth, nurses him back to robust health, and gives him a happy old age.

Blatant Beast, a terrible monster with a hundred heads, as described by Spenser, typifies slanderous tongues, or the rabble crying with many discordant voices.

Blessed Damozel, The, is a romantic poem full of imagery and symbolism, written by Dante Gabriel Rossetti and published in 1851 in its first form. In this and other descriptions, the poet, who was also a painter, tried to fuse the methods of the two arts. Both musically and metrically the work interprets the heart and soul of a young girl in Heaven, who leans out over the golden boundary and sighs for her lover on earth.

Blithedale Romance, The. Hawthorne in this narrative, published in 1852, remembers some of the events of the celebrated Brook Farm community, of which he was for a time a member. Though highly idealized as a romantic picture of the life at Brook Farm, the story introduces a mysterious Zenobia, whom many have identified as a picture of Margaret Fuller, the American mystic and editor. Zenobia falls in love with the leader of the experiment, who is too practical and unromantic to notice her growing regard for him until it is too late. His lack of understanding and coldness lead to the suicide of his mysterious friend, who shows resemblances, also, to Miriam in *The Marble Faun* by Hawthorne.

Boniface, a name now given to a landlord, came from a drama by Farquhar, in which there is a realistic picture of an inn-keeper named Boniface.

Bower of Bliss is the home of the witch Acrasia on a floating island as described in Spenser's *Faerie Queen.* The knight, Sir Guyon, being sent to destroy the place, succeeds only by catching Acrasia in a net. This name also occurs in Tasso's *Jerusalem Delivered* as a pleasure garden; and more recently it has been applied to any beautiful or artistic enclosure.

Braggadoccio, a boastful coward in *The Faerie Queen,* has bequeathed the name *brag* to describe high-sounding talk.

Bride of Lammermoor, The, is one of the most tragic stories of literature. Though the plot of betrayed love is conventional, Sir Walter Scott in his romance has made it livid with new interest. After the death of his father, Edgar Ravenswood falls in love with Lucy Ashton, whose father was the inveterate enemy of the elder Ravenswood. Edgar and Lucy meet, break a coin between them as sign of their troth, and part while Edgar goes abroad on state business. His letters to Lucy are intercepted, and the family succeeds in persuading her to marry Sir Arthur Bucklaw, a wealthy fop, whose money is needed. Just after Lucy has signed the contract of marriage, Edgar bursts into the hall at Ashton castle, inquires if she has consented of her own free will, and is answered by Lady Ashton that she has. Lucy seems to assent. Edgar goes out to prepare his revenge. Soon afterward Lucy, in a sudden fit of madness, slays the bridegroom, and finally falls in death, calling on the name of Edgar. Ravenswood runs upon the point of his sword among the tombs of his ancestors near by. Like other novels by Scott, this fiction furnished the basis for good acting plays, and for the celebrated Italian opera by Cammarano and Donizetti, called *Lucia di Lammemoor.* In the fine Sextette the music rises to sublime heights.

Buzfuz, a pompous and pedantic lawyer for Mrs. Bardell, bullies all the witnesses for Mr. Pickwick, who is being sued by the widow for breach of promise of marriage. See *The Pickwick Papers.*

Caedmon, often called the father of English song, is the earliest English poet known to us by name. At a religious house of Whitby, in north England, he often went to the stable when others at the feast were making merry and improvising songs. He was an unlettered man, with no gift of riming, until a vision came to him and bade him sing the story of the Creation. Other works, formerly attributed to him, seem now to have been the work of imitators or poetic pupils.

Canterbury Tales are the mature work of Chaucer, the greatest English singer before the Elizabethan age. They belong to the third quarter of the fourteenth century. This gifted poet made a new English from the broken older language, minus the case endings, and from the introduction of Norman words into the vocabulary. The *Tales* consist of stories taken from a number of sources, foreign and native, and woven into a common frame. Thirty pilgrims are going from London to the shrine of St. Thomas a Becket at Canterbury. On the way, as proposed by the witty host and leader, each member of the party is to tell two stories and two on the return trip. Only twenty-seven or eight tales are complete, however. They range all the way from the story by the knight of the party, who tells of Palamon and Arcite, two old lovers enamored of the same maiden, to the burlesque poem by Chaucer in which he made fun of the romances of chivalry. For kindliness, gentle satire, knowledge of human nature, musical and imitative poetry, and a broad view of life and society, these verse stories contain some of the best work before Shakespeare. They throw some light on customs and types of character in 1400.

Camelot is the seat of the court of King Arthur, in the south of England, described in many old romances of chivalry, as in the Welsh *Mabinogion,* Malory's *Morte D'Arthur,* and in modern poems like Tennyson's *Idylls* and *Lady of Shalott.*

Cassandra, daughter of Priam of Troy, foretold the disastrous end of the war with the Greeks; but, by decree of Apollo, whom she had offended, none of her prophecies were believed. Her name is now given to any foreteller of calamity or improbable event.

Castle of Otranto, published in 1764 by Horace Walpole. describes many fantastic adventures at an old Italian castle; it set the fashion for what is now called the Gothic Romance. Stories of this type picture mysterious dungeons in old ruinous castles, youths and maidens imprisoned or at least deprived of their rightful fortunes by some usurper or tyrant, with supernatural machinery, rescues in the moonlight, and indeed all varieties of romantic scenery. In *Otranto* the prophecy was made that the castle would fall when the rightful heir became too large to inhabit it. This ambiguous doom led to various peculiar events. An old gentleman, for instance, gravely walks down from the frame of his picture. Mysterious hands and gusts close doors and frighten garrulous servants, who scamper about confusedly. A statue sheds blood from the nose, and a gigantic helmet falls down and crushes the reputed heir to the Otranto estates. Yet the castle has been stolen by a usurper, who finally comes to grief, and the rightful peasant is given his due possession. See *The Mysteries of Udolpho* for another gothic story.

Castle Rackrent, 1801, is an account of an old Irish estate, as told in a short fictitious narrative by Maria Edgeworth. Thaddy Quick, for years a servant of the Rackrents, tells of the gradual decay of the family and mortgaging of the estate. Sir Patrick Rackrent was a gay entertainer, famed for magnificent hospitality and a large funeral. He was followed by Sir Murtaugh, a man of abstruse legal knowledge (which never helped his tenants any) and for a wife, one of the Skinflint family, who maintained a charity school for children who spun gratis for her. Next came Sir Kit, worse spendthrift than Sir Patrick, who locked his Jewish wife in her room for seven years because she refused to part with her diamonds to him. Sir Condy, the last, died from quaffing a large horn of punch on a bet, having already used up the rest of the ready money and sold much of the estate. This tale gives a vivid picture of land conditions in Ireland about 1782. A companion story, *The Absentee,* shows how peasants were ground down by factors, or agents of landlords living in England, some of whom never had seen their own estates across the Irish Sea.

Chevy Chase, an ancient ballad, celebrates the Battle of Otterburn of the year 1388, without adhering strictly to the real events.

Childe Harold's Pilgrimage is the most notable poem by George Gordon, Lord Byron. Childe is an old term of honor or romance; in the poem it signifies Byron himself. The four cantos of this narrative give us a fairly good bird's eye view of Europe. Byron describes most clearly some of the old Roman ruins, notably the Colisseum. The best passages are the account of the battle of Waterloo, written for a second part of Childe Harold, the ball on the evening before the battle, Lake Leman, Venice and the Bridge of Sighs, old Rome, and the wonderful apostrophe to Ocean at the close of the fourth part. The poem is full of the spirit of past centuries, picturesque touches, unrestrained action, melancholy, and posing for favor among Byron's countrymen. He sometimes turns aside from a magnificent scene to bemoan his own lot or to speak of the unkindness of the public.

Children of the Ghetto is one of several works by Israel Zangwill, an English author of Hebrew parentage. These reveal the life of the Jewish people in London, with much of tragedy and comedy. *A Rose of the Ghetto,* an amusing short story, tells of the marriage customs of some of the people of the Ghetto. His drama, *The Melting Pot,* attempts to show how all nations may be fused into one people, as in free America.

Circumlocution Office is a term used by Dickens to characterize official delays and the unwinding of "red tape." The name is used in *Little Dorrit.*

Clarissa Harlowe, second of three long fictions by Samuel Richardson, father of the modern analytic novel, 1751, presents powerfully two main types of character,—a polished but scheming profligate, and a noble heroine, who is driven to apparent wrong by unfortunate conditions in her home. For a time Clarissa, according to family command, refuses to encourage Lovelace, until her father insists that she must marry a country bumpkin whom she never could admire. Not knowing what to do, Clarissa allows Lovelace to become her escort to London, but he

violates his pledges to her, though he tardily offers her marriage. In disgrace, and heart-broken because everybody repudiates her, Clarissa dies in a poor but respectable lodging house in London. Colonel Morden, a cousin, vindicates her on the field of honor by killing Lovelace. This story, one of the world's tragic narratives, is told in form of letters from Clarissa and her friends, and from Lovelace to his chief male confidant. For intensity of emotion, poignancy of despair, and final resignation because of her innocence, Clarissa set the standard of sentimental novels for a generation.

Lovelace, on his side, was drawn as too engaging a villain to be sent to perdition. While the novel was being published in parts, Richardson received many letters from ladies, who begged him to reform and spare such a polished society man. Having been censured for a like change in *Pamela,* his first novel, the author wisely refused all these pleas; but later composed a third novel, *Sir Charles Grandison,* to show a noble and perfect gentleman. Men like Dr. Johnson and Macaulay have praised Clarissa for being one of the noblest heroines in literature.

Clinker, Humphrey. This is a realistic novel by Tobias Smollett. The hero, a Methodist postilion, finally attracts the kindly attention of Matthew Bramble, a squire traveling for his health through England. The story describes watering places, with much comic insight. Winnifred Jenkins, a maid in the family, entertains us with her bad spelling and amusing religious ideas.

Complete Angler, 1653, by Isaac Walton, is a narrative giving an account of the proper ways of fishing. Besides the technical part, which is of interest still to anglers, the book contains quaint remarks on life and literature, a simple piety, and a joy of living in the out-of-doors. Many parts are a perpetual charm.

Comus, a masque by John Milton, was first enacted at Ludlow Castle, near the border of Wales, in 1634. This type of drama, including some historical, legendary, or fanciful scenes, tableaux, music, and sometimes dancing, formed a chief court entertainment in England in the reign of James I and later. Lawes, the eminent musician, arranged the music, and Inigo Jones, the celebrated artist, painted the scenes for *Comus.* Milton chose a theme quite familiar to him,—the conflict between good and evil. A Lady, Attendant Spirit, and Sabrina, the water nymph, embody the life of virtue and humanity; Comus, with his "rout of monsters, headed like sundry sorts of wild beasts," typifies materialism and the love of fleshly pleasures. Having lost her way in the forest, the Lady arrives at the abode of Comus, who endeavors to force her to drink a magic potion. She valiantly refuses, in spite of elaborate arguments by Comus, which represent the materialistic philosophy of Milton's age. Sabrina, the Attendant Spirit, and others, finally come to the rescue, and shame the false enchanter, who is described as a son of Circe. "Sweet echo, fairest nymph," and "Sabrina fair" were long popular among the songs of Comus.

Confessions of an English Opium Eater, published anonymously by Thomas DeQuincey, 1821, reveals the weaknesses and dreams of a man addicted to laudanum. The author bares his own heart and soul in many musical and intimate passages, so that this work soon won him recognition among the essayists of his age. Two of the best chapters in the *Confessions* are The Pleasures of Opium, and The Pains of Opium, showing the alternation of gorgeous dreams and high spirits with the utmost lassitude and depression of body and soul.

Cophetua, an African king, married an humble beggar maid because of her beauty and virtues. Percy's *Reliques,* a collection of old English poetry, quotes a ballad giving the story of the happy pair, which Tennyson repeats in his Beggar Maid.

Cotter's Saturday Night, The, a poem by Robert Burns, reveals the annals of the humble Scots peasant. The narrative tells of the return of the elder children to their father's house at the week-end, the coming of a suitor for their daughter, with the joy of the parents to find him "nae wild worthless rake," the simple fare around the board, and family prayers. "From scenes like these," says Burns, "old Scotia's grandeur springs."

Coverley, Sir Roger de, a lovable country squire, is one of the Spectator Club, a group of gentlemen said to be responsible for the papers written by Addison and Steele for the *Spectator.* Few descriptions of men in the eighteenth century are more delightful. Sir Roger is shown at church, at his country estate, at the club, at the theater, even in love, and finally in the last moments of his noble life. Before the novel came into being with Richardson in 1740, these papers, as near as anything else, anticipated modern analytic fiction in the kindly picture of Sir Roger and other men of the Club.

Cranford, a series of sketches by Elizabeth Gaskell, 1853, reveals the intimate affairs of a small English village, with kindly pictures of prim old ladies and their conventional and sedate ways. The story introduces us to Miss Matty Jenkins, her older sister, and various friends of theirs. There is a long-past love affair, the memory of which is as fragrant as old roses, with a romance of some young people of the town, and a return from India of Peter Jenkins, a long absent brother. The ladies of Cranford have their etiquet of calls, parties, teas, and the management of all the little affairs of life.

Damocles was an accomplished flatterer at the court of Dionysus of Syracuse. Tired of hearing of the fortunate condition of kings and princes, Dionysus had Damocles seated at a banquet, with a sword above his head hanging by a single hair. When the flatterer observed its keen edge, he decided it best to sing another song to the king. The phrase, the sword of Damocles, is now used for impending danger.

Darby and Joan, an old couple in England early in the eighteenth century, became known as a model husband and wife, who never had any quarrel or unpleasant words. Their happy life was described in a popular ballad, and they have become proverbial for contented married life.

David Balfour, a romantic novel by Stevenson and a sequel to *Kidnapped,* narrates the further adventures of a sturdy Scotch lad. He now succeeds in helping Allan Stuart to escape from England, but he himself gets into prison for trying to help Allan's brother, unjustly accused of murder. David has also fallen in love with Catriona Drummond, whose father is a scoundrel. After David's release from prison, for a time he and Catriona live in Holland, till they are separated by the scheming of her father. Eventually Allan Stewart assists them to meet and marry in Paris.

David Copperfield, published in 1850, was called by Dickens his "favorite child." This novel teems with interesting and droll characters, many of whom are sketches of persons known to Dickens in his London rambles. Though not strictly autobiographical, some of the chapters recall incidents in the early life of Dickens, such as the employment of David in Murdstone's warehouse.

Not a few of the characters of the book have taken their places in the gallery of life-like portraits in literature. The Peggotty group, in their humble kindliness, is made up of David's old nurse, who married the Barkis who was "willin';" her brother, a bluff, hearty old seaman, who adopted Ham and Little Emily, children of deceased relatives; and the housekeeper, Mrs. Gummidge, always crying for "the old one," as she described her late husband. David Copperfield's old schoolmate, James Steerforth, stole Little Emily away and broke her heart and ruined the entire family. Ham lost his life along the rocky shore trying in vain to rescue Steerforth from a wreck at sea. In the description of the tragedy of the Peggotty home, Dickens is at his best. The second group includes Micawber, famous for his long words and grandiloquent posing, the man who always waited for "something to turn up." Late in life he emigrated to Australia, taking Little Emily with him, and there they lived in peace and good cheer. The third group is composed of David, his kindly old aunt Trotwood, who once turned Mr. Murdstone, David's step-father out of her estate; David's weak but loving mother, who was completely subjected to Murdstone; his first child wife, Dora, a beautiful girl, but not a suitable companion; and his second wife, Agnes, who brought his success and urged him on to nobler endeavor.

This novel also contains the polished hypocrite, Uriah Heap, who is always assuming humility, and who all but wrecks the business of David Copperfield and his partners. Even the large group of subordinate persons is sketched with wonderful clearness and truth to nature,—the odd and humorous dwarf, Miss Mowcher; Mr. Mell and Mr. Creakle, the schoolmasters; Tommy Traddles, David's childhood friend and companion; the benevolent Dr. Strong; and the virulent Rosa Dartle, who tried in many ineffective ways to insinuate herself into the heart of David. All these portraits are drawn as only Dickens could touch them with life.

Davy Jones is the jocose name for the evil spirit of the sea, into whose "locker" the sailors fall when they die and are buried in the ocean, or perish in a great storm. Smollett's *Roderick Random,* contains an early reference, but the name must have been much older than the year 1751, when this nautical tale was published.

Decline and Fall of the Roman Empire, The, has frequently been mentioned as the most elaborate and scholarly historical work in English. Edward Gibbon, the

writer, spent many years in research in all the great cities of Europe, completing the last volume in 1787. For brilliance of conception and vividness of narrative, few similar works compare with the *Decline*. Except for a bias against Christianity, this work is almost faultless. Almost thirteen centuries are shown in bird's-eye view, ending with the fall of Constantinople to the Turks in 1453.

Dr. Jekyll and Mr. Hyde is Stevenson's tale of the double personality in mankind. This theme engaged his attention also in *A Lodging for the Night* and in *Markheim*, two short stories of almost faultless technique. Dr. Jekyll, a kindly and handsome physician, transforms himself by means of a secret powder into a dwarfish and malignant Mr. Hyde, whose sole desire seems to be wanton mischief. Gradually the latter type persists, so that larger doses of the drug have to be taken to effect the transformation back into the part of Dr. Jekyll. At last the powder fails to work and Hyde no longer can become the kindly doctor. In despair and cynicism he commits suicide. *Markheim* develops the power of conscience in rousing a man from his ignoble self. The character of Markheim is unstable. He kills a curio dealer of whom he is trying to buy a Christmas present, the motive being robbery, but Markheim is seized by an uncontrollable impulse because of the remarks of the dealer. He finally decides to give himself up to the police. *A Lodging for the Night* is a romantic account of an old French poet named Villon, who is both scholar and vagabond.

Deserted Village, The, by Oliver Goldsmith, 1770, is a delightful nature poem, describing an abandoned village in England. The past is contrasted with the present; the simple life of the old town with the luxury of modern cities. The parson, schoolmaster, children, the broken soldier living over his old campaigns by the fireside, and other simple folk, are described with sympathy and infinite charm. Many lines have passed into our store of quotations: "One only master grasps the whole domain" (the large landowner), "And passing rich on forty pounds a year," (the vicar), "In all the glaring impotence of dress" (stylish persons), "Well had the boding tremblers learned to trace The day's disasters in his morning face" (the awe of the children before the schoolmaster).

Dogberry, a conceited constable in Shakespeare's *Much Ado about Nothing*, makes peculiar blunders in the use of words, as he directs the watch to beware of prowlers in the streets at night.

Dolly Varden, a handsome and engaging miss, in *Barnaby Rudge*, by Dickens, dresses in the height of fashion. The name is now sometimes applied to a girl who dresses well and assumes a mincing and genteel manner.

Dominie Sampson, a learned private chaplain in the home of Guy Mannering, forgets to come to dinner, uses scraps of Latin most curiously, and often exclaims "prodigious." Though bashful and forgetful, he at times rouses himself to some noble deed, as when he assists Meg Merrilies to thwart the abduction of Henry Bertram. In the stage version of Scott's romance, the Dominie long held the center of interest as a comic foil to Meg Merrilies. See *Guy Mannering*.

Don Juan is a character like Faust, in old legends and literature, who sells himself to the devil to enjoy a life of base pleasures. He is a chief character in Mozart's operatic *Don Giovanni* and in a poem left incomplete by Lord Byron.

Don Quixote, a crack-brained hero of many droll and uncommon adventures, is the hero of a novel by the Spanish author Cervantes. He is shown as a Christian knight, learned and gentle, whose mind in unsettled by the reading of many old romances of chivalry. Seeing that the world is imperfect, he arrays himself in fantastic armor, chooses a raw and ignorant villager to be his squire, and sets forth on noble quests. The novel itself stands high among the great fictions of the world. By turning knight-errantry into ridicule, Cervantes diminished the reading of the tales of chivalry in his age. His great work was published in 1605, with a second part ten years later; and Cervantes died in the same month (some have thought on the same day), April, 1616, as Shakespeare.

Dry-as Dust, a learned clergyman, is a fictitious personage who was said to have been the editor of some of the Waverley novels. Not caring to attach his name to his romances, Scott adopted various expedients of attracting attention through Dry-as Dust, and later through a mysterious Jedediah Cleishbotham, another minister, the reputed author of some of the following novels. Until Scott made public acknowledgment at a dinner after the failure of his firm in 1827, not more than twenty-five people knew positively that he was the author of the novels, though it was a common conjecture. Dry-as Dust is now the name often applied to a pedantic critic, commentator, or author.

Duessa, a clever witch in Spenser's *Faerie Queen*, calls herself Fidessa, or the Faithful. She entices the Red Cross Knight into the lair of Orgoglio, a hideous giant. Duessa and Orgoglio live together in considerable splendor, while she dresses in gold and purple clothing, wears a crown, and rides on a monster having seven heads. When she is stripped at last of her false raiment, she becomes once more a hideous old hag and imposter. In a political sense, Duessa is allegorical for Mary Queen of Scots.

Dunciad, The, by Alexander Pope, is a mock heroic poem in form of an Iliad of the Dunces. The author vents his spite on the poor poetasters, who presumed to complete with him for laurels in the age of Queen Anne and later. In an early edition of *The Dunciad*, Bishop Theobald was made the monarch of all dunces, but subsequently Colley Cibber, a dramatist, was given this doubtful honor. Theobald had made some clever emendations of the text of Shakespeare in an edition that rivaled Pope's. The second book shows the nature of the whole. Certain booksellers engage in a race for a phantom poet. Then follows a contest in tickling and braying, until all the actors jump into the mud of Fleet Ditch. For punishment all of them have to listen to the reading of works by two voluminous authors, who put hearers into a profound sleep at last. Next, in his sleep the king is shown the entire history of Dullness in the fields of the shades. In the last book the goddess of the dull establishes her reign over Britain, to the end that all arts and sciences are blotted out; finally, she utters a mighty yawn, and all the earth reels back into chaos and night.

Dundreary is a lord that first attracted wide attention in a play by Tom Taylor called *Our American Cousin*. He is presented as a very aristocratic and genteel blunderer in speech and action. The part, created by the elder Sothern, more recently was revived by his son.

East Lynn, a sentimental romance by Mrs. Henry Wood, reached a wide vogue in both novel and stage versions after it was first published in 1861. In spite of obvious improbability, the plot is handled with skill and vitality. After Lady Isabel Vane is orphaned by the early death of her father, who was obliged to sell his estate of East Lynn, she is wooed by two suitors, one noble and the other a profligate. After her marriage to the more desirable lover, she is persuaded to elope, only to learn soon that she has been deceived by the base rival. Several years later, she returns to her old home as a nurse to her children. When her husband learns of her identity, he offers to forgive her. In the meantime, however, he has married, thinking his first wife dead. Unable to stand the shock of the tragedy, the innocent and wronged lady dies.

Elaine, who is called by Tennyson the lily maid of Astolat, dies of a broken heart after being deserted by Lancelot, bravest knight of all the Round Table. At her request she is placed in a beautiful barge, which is rowed down the stream to the city where Lancelot then is living. In one hand she holds a letter for him, in the other a lily; and in death she is so beautiful that even the heart of the faithless lover is touched with pity.

El Dorado was a fabled land in South America between the great rivers, where gold was so plentiful that the streets were paved with it, and precious gems were used as playthings. Several expeditions from England, including one by Raleigh, tried to find this region among the Indian tribes. As late as 1700 the average person believed in the reality of this paradise. The word is now a symbol of a land where plenty abounds. See Kingsley's *Westward Ho*.

Elegy Written in a Country Churchyard, as finally perfected by Thomas Gray, is the most famous elegiac poem in modern English. Few lyrics have so caught the sentiment and interest of all men. Like Goldsmith's *Deserted Village*, it glorifies the simple annals of the poor and humble peasants who live, love, and then pass into complete oblivion. Gray emphasizes also the common destiny of mankind; for even "the paths of glory lead but to the grave." Yet those whose resting place is not even marked by a simple slab or headstone have not lived in vain; they, too, are immortal in the progress of the world.

Elia is a name borrowed by Charles Lamb from a clerk in the India House, where Lamb for years was a clerk. The *Essays of Elia*, in two different collections dating from 1823 and 1833, embody the humor, kindliness, and whimsical thoughts of the most loved English essayist.

Lamb is most delightful when most discursive, and most human when he speaks of the love of children which a bachelor has missed and which he imagines in the tender sketch called *Dream Children*. For variety of subjects, Lamb offers us "Mrs. Battle's Opinions on Whist," "The Praise of Chimney Sweeps," "Witches," "Old China," "Poor Relations," and the account of how the flesh of animals came to be roasted in his *Dissertation on Roast Pig*, an elaborate, fantastic narrative.

Elsie Venner introduces minute analyses of life in a New England village, combined with many acute and witty observations, and the captivating love story of a young girl. This novel by Oliver Wendell Holmes shows how Elsie, a very odd girl, became the puzzle of the town and the despair of her father, a widower. She appears to be a mysterious combination of noble girlhood and subtle, serpent cunning. Only by a powerful love does Elsie awake to her best self.

English Humorists of the Eighteenth Century is a series of criticisms by W. M. Thackeray, delivered first as lectures and then published in 1853. The different parts reveal the temper of the age of Queen Anne as few similar works do, in their witty characterization of men like Swift, Addison, and Pope. Thackeray most admired the novelist Fielding, his literary model, as he admits in his vivid sketch of this English dramatist, novelist, and judge.

English Literary Reviews date from the age of Addison, but few attained wide fame before the founding of the *Quarterly* in 1800, the *Edinburgh* in 1802, *Blackwood's* in 1816, and the *London's Magazine* in 1817. The *Edinburgh* was as strongly Whig as the *Quarterly* was Tory in its politics. Critics unfortunately paid more attention to the party a man belonged to, to his education, and to his companions than to his actual merits as a poet. They judged according to rules of the past age, and therefore could never appreciate romantic authors like Wordsworth and Coleridge, though eventually they gave some others like Byron their due, especially after Byron had replied caustically in his brilliant poem, *English Bards and Scotch Reviewers*. Notable among the attacks by the critics was the scathing indictment of Wordsworth in a review beginning, "This will never do; the case of Mr. Wordsworth is now manifestly hopeless." Some of the writers advised Keats, who had studied surgery and medicine, to "go back to his pills and plasters." One article spoke of the Cockney School of Poetry, of which Leigh Hunt was pictured as the "hierophant" and leader. In derision they called Coleridge, Southey, and Wordsworth "Lakers," since they lived in the midst of the English lakes and wrote of them in their poems. Not until Lamb, De Quincey, Walter Scott, and Macaulay contributed many real critical articles did the reviews take on urbanity and tolerance. Yet the reviews, by paying authors for their articles, established a real school of literary criticism, for which the best could afford to write.

Enoch Arden is a narrative poem of domestic life by Tennyson. It is a real idyl in its simple treatment of a romantic story. Returning after an absence of several years, caused by a shipwreck, a seafaring man finds his wife happily married to another. She has thought him dead. Enoch withdraws and lives unknown in the town till the time of his death.

Eppie, child in *Silas Marner*, which title please see.

Essay on Man and **Essay on Criticism** are two verse discussions by Alexander Pope. The first gives an account of the nature of man, his relation to his fellows and to God, how happiness may be attained by not inquiring too deeply into the secrets of nature, and how everything is ordained for the best. "Whatever is, is right" is the prevailing sentiment. The *Essay on Criticism* suggests both a theory of forms and a few simple rules for judging. Pope tells us it is as great a fault to judge ill as to write ill; nature is the best guide to the formation of correct taste; the ancients should be our models; pride, partiality, and prejudice hinder true criticism, and the good critic must have candor, truth, modesty, and good breeding. Pope also discusses the varieties of metrical effect and satirizes conventional diction, always holding Aristotle up as a pattern to imitate.

Euphuism is the name for a fantastic kind of writing developed to a high degree in a romantic narrative by John Lyly in the age of Shakespeare. The hero discusses various questions of etiquet. Courtship is one of the favorite topics, with such questions as, Does the man or the lady fall in love first? This book was found in every fashionable home for many years after its publication in 1580. The style is fantastic, being a combination of balanced parts, in which other groups balance, in both sound and arrangement of words. Sidney's *Arcadia* is somewhat euphuistic, and some of Shakespeare's plays, like *Much Ado*, have the witty contrasts, puns, and other devices in a large degree.

Evangeline is Longfellow's graceful and pathetic narrative of the expulsion of the French from Nova Scotia by the English. The heroine wanders over a good part of the United States in search of Gabriel, the young man to whom she was betrothed. They meet at last, when Gabriel is brought to the hospital where Evangeline is a nurse. Just after recognition, he quietly passes away with a smile on his lips.

Evelina is a wonderfully realistic account of the introduction of a young lady into the society of England in the second half of the eighteenth century. The author, Frances Burney, succeeded in reproducing the little foibles, gentility, and conventionality of the age. Evelina is constantly humiliated by her vulgar relatives, who almost prevent Lord Orville from making a proposal of marriage. Her grandmother, Madame Duvall, somewhat frenchified, is held up to ridicule for her vanity and presumption. Many chapters are delightfully humorous. Like many of the fictions of the time, this novel is in letter form.

Everyman, an old morality play of unknown authorship and date, tells of the journey of every person from this world to the next. It is replete in subtle characterization, dignity of treatment,—though mixed at times with humor,—and underlying moral, not too strongly emphasized. All the friends and companions of Everyman, on learning that they cannot return from the long journey, refuse to accompany him. Only Good Deeds remains till the last breath, though Conscience and Religion approach very near the gates of death.

Faerie Queen, The. This elaborate allegorical poem by Edmund Spenser is one of many glorious literary monuments of the age of Elizabeth. It is impossible here to outline the many stories of the different parts. These narratives come from all ancient and modern sources known to the poet. The author originally planned twelve books, fashioned according to the moral virtues as named by Aristotle. Yet only six books, with two or three fragments, were completed, the first three in 1590, the remainder in 1595-6; but they contain thirty-six thousand lines. Each book has its pattern hero, who engages in various adventures in which many others join. The Red Cross Knight typifies Holiness; Sir Guyon, Temperance; Sir Calidore, Courtesy, for instance. Glorianna and Mercilla, two chief characters, are intended as graceful compliments to Queen Elizabeth, who is characteristically flattered. The initial plan was to marshall all the characters at the court in the last book, but the magnitude of the story was too large. Prince Arthur, appearing at some time in all six books, is the pattern of perfection. Some of the many great stories of the *Faerie Queen* are those of Una and the milk white lion; Britomart and her imprisonment in the enchanted castle; Acrasia and her vile Bower of Bliss; Artegal, who represents justice, and his iron flail; and the various devices and impostures of the false Duessa. Though few persons finish reading all of this epic, one may find interesting stories in every canto.

Falk is a sea captain in a story by Joseph Conrad of the same title. No more vivid picture of a man exists in the writings of this gifted Polish gentleman and sea captain, who adopted English as his literary language.

Fall of the House of Usher, The. Edgar Allan Poe in this short story reaches the summum bonum in temperamental and impressionistic narrative. The entire atmosphere is gloomy, mysterious, and supernatural. Roderick Usher, a melancholy nervous patient, summons his friend, if the latter would see him once more alive. Both in look and in action Usher has greatly changed. His sister, even now, is wasting away of some incurable malady. At last she is entombed in the depths of the castle. Some days later, while Roderick and his companion have reached a particularly imaginative passage in a book of magic, they hear noises in the cellar, and then suddenly the Lady Madeline bursts open the door, falling prostrate within the room. Roderick, now wrought to highest tension, staggers and falls, never to rise again. The friend escapes, but sees a great fissure in the side of the house gradually enlarge till the castle itself is tumbled in ruins. Poe throws in some hints to make us understand that the story is prompted by the neurotic imagination of Usher.

Faust is the great drama by the German poet, Goethe. According to a favorite story in the Middle Ages, a student sold himself to the Devil on condition that

he be allowed a certain time for any pleasure he might choose. At the end of the compact, the young man is carried away by Satan or one of his messengers. Marlowe, a dramatist of Shakespeare's time, used the same story in his *Dr. Faustus*, which rises to a high pitch of imaginative and poetic grandeur. Several later operas have used parts of the Faust legend.

Flying Dutchman is the subject of numerous tales in German and other modern languages. In one version a man is condemned to sail forever around Cape Horn without finding any safe harbor. Sailors claimed that it was an exceedingly bad omen to come in sight of the Flying Dutchman and his phantom ship. Scott once said that the ship originally was laden with bullion, and a plague broke out aboard as a punishment for a murder by one of the crew. Coleridge modified the idea to include punishment by drought and suffering for killing an albatros. Wagner based an opera on the legend.

Fortunatus, according to various folk tales since 1500, came into possession of a wishing-cap and purse that never became empty. Some version has appeared in many stories and dramas, notably in a romantic play by Thomas Dekker, a shoemaker and author of Shakespeare's age.

Forty Thieves. See *Ali Baba and the Forty Thieves.*

Frankenstein, a novel by the wife of the poet Shelley, tells the terrible mistake of a young medical student who created a sort of man monster out of fragments from the graveyard and dissecting room. By means of galvanism, he succeeded in endowing the creature with life, but eventually Frankenstein himself suffered. The monster at last became disgusted with its own deformity and wrought a terrible revenge on the student.

Gallegher, one of the best stories of atmosphere of the newspaper, tells how the young office "devil," hearing of a prize-fight, outwitted both his competitors and the police and brought back the story to make a "scoop" in a special edition. The author, Richard Harding Davis, a news correspondent, also wrote the Van Bibber stories of New York club life.

Gettysburg Address by Abraham Lincoln is a model of clear and effective English prose. Though it was written with deliberation, and not in haste as some have asserted, the few lines show the power of our great President in simple, homely diction. Edward Everett delivered a long and studied oration on the same day, but told Lincoln afterward that these few words would be remembered long after his own elaborate effort was forgotten. This prophecy has been fulfilled.

Gesta Romanorum (Deeds of the Romans) is a collection of many tales, dating from 1200 or shortly afterward. It includes stories besides those of classical times. Gower and Chaucer borrowed some of their plots from this work; and Shakespeare apparently drew some of the story of *King Lear* from it. It has indeed been a perennial store of plots for many authors.

Gold Bug, The. This is one of Poe's detective stories. Two men, sitting by a grate in a hut on Sullivan's Island, off Charleston, South Carolina, discover a mysterious writing on a parchment. One man makes a cipher which gives him the key to the meaning. By interpreting the parchment, he learns of a treasure buried by Capt. Kidd or some other pirate. A negro furnishes some grotesque humor in the story. Much of the narrative shows how the cipher was interpreted.

Golden Treasury of Songs and Lyrics, by F. T. Palgrave, is a celebrated collection of short poems in English from Shakespeare to Tennyson. Though now somewhat out-of-date, it still contains about the best collection of poetry of the last three centuries.

Grace Abounding, the autobiographic narrative by John Bunyan, tells much of the inner soul experiences of the great English preacher. Bunyan gives an account of his early years, his conversation, and spiritual history while he was confined in Bedford gaol, for preaching without a license. Forged red-hot out of a volcanic soul, this narrative abounds in picturesque words, as expressive as they are homely. It is a human document in the history of religious toleration.

Gradgrind, a man in Dickens' *Hard Times*, has become a name for a hard-fisted, practical man of affairs. In the novel he is always calling for "facts," which he treats as his pawns. He also fits people into his mechanical way of thinking. The rest of the Gradgrind family have their own peculiarities and humours.

Grail, The Holy, was always mentioned as the mysterious chalice out of which Christ drank at the Last Supper. According to legend, it was brought to England by Joseph of Arimathea. Through the spiritual fault of its keepers, the Grail suddenly disappeared and then became the quest of all knights of the Round Table. Only a man of perfect nobility and purity could see it. Tennyson tells the story in one of the *Idylls of the King.*

Grandison, Sir Charles, is a novel with a faultless hero in a trilogy of romances written by Samuel Richardson. He rescues a noble lady named Byron from the machinations of false suitors, yet he can not marry her because of an engagement with another. The second lady at last withdraws on account of religious and other differences, leaving the perfect knight to marry the lady he loves. Grandison has a high sense of honor, which is sometimes rather far-fetched.

Griselda is the type of patient wife in the literature of the Middle Ages. The story is told by Chaucer, who took it from Boccaccio or some other old Italian romancer. A prince, wishing to test the faithfulness of his wife, forces her to do all sorts of menial tasks, takes her children from her, treats her as a servant, and finally supplants her in the home by another woman. Griselda bears all this with angelic resolution and patience, until she wins the respect and full confidence of her husband. Doubtless this story is allegorical, and it may come from early ages. Griselda in old literature is often cited to wives for them to imitate.

Grundy, Mrs. One of the ladies in Morton's *Speed the Plow* frequently alludes to a certain Mrs. Grundy, whose opinions and conduct are worthy of attention. "What will Mrs. Grundy say?" is the common question, but the lady alluded to never appears in the open. The name is now used for public opinion, or the old lady who censures the conduct of all her neighbors, the personification of a critic of manners.

Grub Street in London, now called Milton Street, was once the resort of poor authors who wrote for their daily bread. Those who were not so dependent on their earnings looked down upon them. The phrase was used by Dr. Johnson of a hack author who turns out a certain amount of copy at a certain price, dependent on what the publisher will give him. Pope, Swift, and other satirists constantly allude to Grub Street men.

Gulliver's Travels, a powerful narrative satire by Jonathan Swift, violently ridicules "the beast called man." Capt. Gulliver, a retired ship surgeon, makes four remarkable voyages. First, he is shipwrecked on the coast of the Liliputians, a race of dwarfs hardly visible to man. Here he learns of their social customs, their controversies, and their warfare with neighbors. Next, he lands on the shores of Brobingnag, where men are sixty feet in height, and Gulliver seems utterly contemptible to them. On the third voyage, among fantastic places, he visits the floating island of cement, on which the philosophers wander about in a maze, thinking of impossible schemes like extracting sunlight from cucumbers. On his last voyage he finds himself in the land of the Houyhnhnms, a race of intelligent horses, much more capable than men on earth. They indulgently tolerate Gulliver as a rather fine specimen of a debased class of beings. Few books are more powerful in satire, more bitter because of the faults of humanity, or more the evidence of genuine creative genius, even though distorted.

Guy Mannering, second of the novels by Walter Scott, 1815, contains the romantic story of the abduction and recovery of Henry Bertram, last heir of the house of Ellangowan. Much of the interest of the novel derives from the faithful Meg Merrilies, an old gypsy, who thwarts the plots of smugglers and a rascally lawyer to put Henry Bertram to death. The story of two sets of lovers is not remarkable for interest or originality. Meg, though half crazed, moves about as the nemesis of the action. Daniel Terry, friend of Scott, with some assistance from the novelist himself, composed a drama in which Charlotte Cushman, the great American actress, won considerable fame in England, Scotland, and the United States. Dominie Sampson, a kindly but abstracted tutor, furnished much of the comic interest of the novel and play.

Hakim, the Soldan in disguise, is one chief character of Scott's novel, *The Talisman*, described elsewhere.

Hamlet, the most thoughtful tragedy and longest play by Shakespeare, is a story of the intellect, the soul, and the instincts of man. Hamlet learns from his father's spirit that Claudius, now his step father, instigated the

murder of the elder Hamlet. He devises a symbolical masque to touch the conscience of the guilty king and queen as played by a group of strolling actors. Hamlet kills a wise old courtier, who is eavesdropping, by a thrust of his rapier through the arras around the wall; he breaks off his engagement to Ophelia, a daughter, who drowns herself; and is at last sent to England by Claudius on a dangerous mission in charge of pirates who are instructed to make way with him on the voyage. He cleverly changes their written instructions, and escapes when the ship is attacked by pirates, who conduct him back to Denmark. There he is fatally wounded by a poisoned rapier in the hands of Laertes, the brother of Ophelia. Previously he has stabbed the king, after having forced Claudius to drink of a poisoned cup. Hamlet's soliloquies, hesitation, and general traits of character have given rise to much speculation, especially in regard to his sanity, which modern scholars do not doubt, since they believe he was feigning madness to effect his plans more surely.

Heart of Midlothian, The, a novel by Walter Scott, published in 1818, preserves for all time the heroism of a simple Scotch lassie, who would not lie to save even a sister from the gallows. Jeanie Deans, the heroine, however, walks all the way to London to secure a pardon from Queen Caroline. This romance has fewer characters than most novels by Scott, fewer passages of description, and yet the country of the Midlothian district, the Tolbooth or old jail in Edinburgh, and the scenes of Jeanie's trip to London are quite memorable. Madge Wildfire, a sybil type of crazed woman, helps the plot by rescuing Jeanie from impending harm, but she complicates it in other ways. Effie Deans, accused of murdering her child, at last is proved innocent, since it is shown that Madge stole the child away.

Henry Esmond by Thackeray takes us back to the age of Queen Anne, a period which is reproduced with historical fidelity. Henry is the real heir to the Castlewood estates, but he is brought up by a second cousin, the possessor, whose beautiful wife is eight years older than Esmond. When Lord Castlewood is slain in a duel, Henry learns that the property belongs to him by right, though he refuses to claim it or to make his secret known. On returning from the wars on a furlough, he falls in love with Beatrix Esmond and woes her for ten years, while she holds him in reserve in case she fails to make a larger conquest. Beatrix is involved in a friendship with the young Pretender, whom Henry and others seek to place on the throne when the Queen dies; but the Prince spoils all the plans by running off to see Beatrix at the critical moment, and so is not available when Anne breathes her last. Despite the seeming differences of age and training, Henry feels that he cares for Lady Castlewood, who consents to marry him. Leaving a son of his wife in charge of the estate, Esmond and his wife emigrate to Virginia. In a sequel, *The Virginians,* some of the further history of their descendants in the time of Washington is chronicled. Society and romance in Virginia are pictured with great vividness. One of Esmond's grandsons finally rescues the other from the baneful influence of the old Baroness Bernstein, an antiquated beauty who is none other than Beatrix, now grown fat and despicable in every way.

Heroes and Hero-Worship, a work by Thomas Carlyle, shows the place of great leaders in history. Every age, says the author, produces its eminent men, but some ages do not discover them at once. The hero as prophet is exemplified by Mahomet, the founder of Islam; as divinity by the Norse heroes; as poet by Dante and Shakespeare, each standing for different qualities and ages; as man of letters by Johnson, Rousseau, and Burns; as king by Cromwell and Napoleon, in quite opposite characteristics.

Hero and Leander, two tragic lovers, are much lamented in old song and story. Leander lived opposite to the shrine of Hero on the shore of the Hellespont, which he was in the habit of swimming to visit his beloved. One night he was seized by a cramp and sank to his death; and Hero desperately cast herself into the sea. Marlowe, the great Elizabethan poet and playwright, began a picturesque poem describing the two lovers, and it was completed after his early death by George Chapman.

Hiawatha, a poem by Longfellow, in imitation of the old Greek six-foot meter, embodies some of the primitive legends of the great chieftain, who is spoken of as the father of his people, the Six Nations or Iroquois. According to legend, Hiawatha departed to the land of the Hereafter when the white settlers arrived.

Highland Mary was a girl celebrated by Burns in several of his tenderest poems. Though still a subject of dispute, she is commonly believed to have been a young servant girl, to whom Burns pledged his faith as a lover, but who died before their marriage.

Hohenlinden, a martial lyric by Thomas Campbell, memorializes a battle near Munich in which some French defeated an Austrian army. The name, meaning "high linden trees," is the name of a village. Campbell also wrote many patriotic lyrics, two of which now well remembered are "Ye Mariners of England," and "The Battle of the Baltic."

Hoosier Schoolmaster, The, is an amusing narrative of primitive days in the state of Indiana. Ralph Hartsook, the village teacher, proves that he can handle a school in spite of opposition of boys older and larger than himself. Some of the memorable chapters include the story of the spelling bee, the visit of the "Hardshell" preacher to the schoolmaster, and the wooing of a fine-spirited girl whom Ralph finally makes his wife. This is one of our best early local color novels.

Horatio, the friend of Hamlet, is spoken of as a philosopher and gentle spirit.

House of Seven Gables, The, one of four long romances by Hawthorne, shows four cousins and others in a stern but romantic New England atmosphere at Salem. Old Judge Pyncheon, a wily and avaricious politician, is trying to commit his cousin, Clifford, to an asylum, after having been instrumental in keeping him in prison for years. Hephzibah, a sister of Clifford, lives in poverty and constant fear. To eke out her scanty living, she has set up a cent-shop, which is the resort of the children of the neighborhood. Phœbe, another cousin, lives in the house of seven gables, where there is also a lodger, who loves Phoebe and afterward tells the story, as recorded in the novel. The schemes of the judge are thwarted one day as a stroke of apoplexy cuts him off while he sits in Hephzibah's parlor, waiting for her to bring in Clifford for an interview. Then follows a wonderful chapter of apostrophe by Hawthorne, one of the finest in all our language. In the background of the entire narrative is the idea of an hereditary curse which has blighted the Pyncheon family for generations.

Huckleberry Finn, narrates the story of Tom Sawyer and his friend, as they journey down the Mississippi on an improvised raft. They are accompanied by an interesting negro, Jim, who assists them to weather many an adventure that might have swamped them. In this story, as in *Tom Sawyer,* Mark Twain shows that he well understands the country of the Mississippi basin.

Hudibras is a mock-heroic satire lampooning the Puritans in England in the second half of the seventeenth century. This work by Bishop Samuel Butler adopts the machinery and some of the incidents of Cervantes' *Don Quixote,* applying them to a Presbyterian and his squire, who fall into many absurd and peculiar adventures. All of these are described with dash, abandon of language and metrical form, and scathing wit, full of venom.

Iago, a villain in Shakespeare's **Othello,** is scarcely less than satanic in all his thoughts and actions. He preys on the credulity of Othello until he makes him believe that both his wife and his faithful lieutenant, Cassio, are untrue to him. By clever argument and insinuation, he works Othello up to such a pitch of insane fury that the Moor strangles Desdamona, his noble wife, without giving her any chance to prove the charges unfounded. In many of the gothic romances of the late eighteenth and early nineteenth centuries, Iago became the pattern for cruel and devilish tyrants.

Idylls of the King, thirteen narrative poems by Tennyson, form a group of stories of King Arthur and the knights of his Round Table. They date from 1859 and were completed in 1885. Many of the characters typify human beings, with their faults, virtues, and whims. Tennyson drew a large part of his material from the old prose romantic account by Malory called *Morte d'Arthur,* but he invested the entire number with a modern atmosphere and interpretation, quite foreign to the old chroniclers. Arthur is a noble, but cold monarch, who somewhat neglects his Queen and the sentiments of life. Guinevere, therefore, turns to Lancelot for sympathy, and they at last elope and disrupt the Round Table. Others make war on Arthur while the whole court falls into bloodshed and ruin. Percival and Galahad are described as perfect knights, but the latter only sees the Holy Grail, which is also beheld by Percival's sister. At the end Arthur is mortally wounded and asks to be returned to the sea from which he originally came. The last idyll describes how he is attended by Bedivere, a single faithful knight, who witnesses the coming of a barge with three white

ladies that receive the king for his last voyage. Every idyll of the entire group contains many nobly musical and imaginative lines. Some of the best versification of the nineteenth century is found in *The Passing of Arthur.*

Iliad, The, a Greek poem dating from about eight hundred years before the present era, contains many episodes taken from different sources and seemingly woven into a complete epic. It has been credited to Homer, a blind bard, who may have collected and polished existing material. Apart from some irrelevant details, the story describes the siege of Troy by the Greek armies, after the abduction of Helen from Greece by one of the sons of Priam of Troy. After three introductory books, describing the preparations for war, the coming of the invaders and some skirmishing, Paris and Menelaus, the husband of Helen, engage in a combat. The Trojan is wounded, but is carried off safely by Venus. Then the Trojans refuse to fulfil their compact to return the stolen wife if their champion should fall in the fight. In a succeeding attack on the city of Troy, the gods range themselves on one side or the other, with terrible slaughter as a result. Achilles, who at first sulked in his tent, now kills Hector, and old Priam comes to the Greeks to claim the body of his son. The entire epic concludes with an episode of the funeral rites over the slain hero. Vergil's poem, *The Aeneid,* takes up the narrative where the Greek epic ends.

Il Penseroso, a poem by Milton. See *L'Allegro.*

Inland Voyage describes a journey by Robert Louis Stevenson down the canals and rivers of France and Belgium to the sea. The different chapters abound in vivid accounts of the natives, odd adventures, and humorous comments. Even the trivial takes on a wealth of color and romantic charm. *Travels with a Donkey,* a companion narrative, outlines a trip made by Stevenson in the Cevennes in Spain.

In Memoriam, a series of one hundred thirty-one poems, reflects the scientific and religious trend of the nineteenth century as represented in the thought of the author, Tennyson. These lyrics were written in memory of Arthur Henry Hallam, son of the historian, who died while he was still a young man. For about fifteen years Tennyson dedicated many short meditative poems to this group, which is notable for sincere thought, beautiful nature descriptions, lines of musical charm, and a gradual development of thought from doubt to robust Christian faith. The series might almost be called an epitome of the religious questionings of the age.

Ivanhoe, one of the most popular of the novels by Scott, records the adventures of many characters. The chief group includes Wilfred of Ivanhoe, Rebecca and her father, (two Jews), Brian de Bois Guilbert and other knights of the cross, Richard the Lion Heart, just fresh from a crusade in Palestine, Robin Hood and his men, with a group in the home of Cedric, father of Ivanhoe, including Rowena, whom the hero at last marries. Many stirring events make up the different parts. Some of these are the coming of the Templar, the Unknown Knight, and others to the home of Cedric, to which also Isaac and Rebecca resort for protection; various humorous scenes in which Gurth and Wamba, domestics, play jokes and debate; the imprisonment of Rebecca and Isaac, and a most dramatic scene in which some black servants of their captors demand ransom in gold of Isaac; and the noble resistance of Rebecca when she is pursued by the unworthy Templar and forced to the edge of the parapet at Torquilstone Castle, before he would withdraw and leave her in peace. All rises to a climax when Rebecca, condemned as a sorceress, pleads for a champion, and Ivanhoe rides into the lists to engage and overcome Brian de Bois Guilbert. Robin Hood and his tuneful companions in the forest contribute some interesting melodies. As a picture of life in the early days, about 1200, this novel has been highly appreciated. Scott failed somewhat in making the marriage of Rowena, a palish damsel, and Ivanhoe seem reasonable, but he always stated that the times of the novel never would have permitted a Christian like the hero and a Jewess like Rebecca to marry, and, further, that poetic justice does not demand that all noble characters in fiction should be amply rewarded with some positive favor.

Jaques, the contemplative man in *As You Like It,* which please see.

Jane Eyre, one of our best autobiographic novels, written by Charlotte Bronte, one of three gifted sisters. The story reveals the terrible loneliness of an orphan girl in the midst of unsympathetic and even cruel relatives, her life in a charity school, where she suffered somewhat but enjoyed the companionship of other girls, and of her service as a governess in the home of an eccentric man, whom she afterwards marries. Most of the incidents seem as real as if the author herself actually lived in them. Mr. Rochester, the employer, has a wife living, but fails to notify Jane, though he considers himself morally freed, since the wife is a helpless maniac. Others arrive to separate Jane and Rochester at the altar: and then Jane escapes to resume her life as a school teacher. While she is absent, Mr. Rochester is stricken blind when he tries to rescue his wife as their estate is burning. His misfortune leaves him a chastened man, kindly disposed and wishing forgiveness for trying to deceive the one he loved best. Jane returns to him, and they continue to live at Mr. Rochester's smaller country estate.

Jarley, Mrs. is the proprietor of the traveling "wax works" as described in Dickens' novel *The Old Curiosity Shop.* The name is now used for tableaux in general as a form of entertainment.

Jarvie, Bailie Nicol, a droll, clannish, and opinionated Scotsman, is a companion and distant relative of Rob Roy in the novel by Scott. Scott himself warmly praised the stage character, as impersonated by Charles Mackay, which he said was realism itself.

Jerusalem Delivered, a great epic in twenty books, is the work of Torquato Tasso, an Italian poet of the sixteenth century. It relates the tale of the capture of Jerusalem by some of the late crusaders under Godfrey. One of the romantic elements is the love of Rinaldo, the great Christian champion, for Arminda, a lady sent from Damascus to beguile him. Godfrey at last persuades him to return to the conquest, and victory is then assured. Afterward he wins the love of Arminda, though in the meanwhile she has sought to cause his death by poison. With other romantic adventures, including two or three additional love stories, the poem concludes with a magnificent picture of the entry of the victorious hosts into the Holy City.

John Halifax, Gentleman, as written by Dinah M. Craik, is the story of the rise to fortune and fame of "one of nature's noblemen," as the title character has frequently been named. Becoming an orphan at eleven, John Halifax works for three years in the country, then engages himself to a Mr. Fletcher, who owns a tannery. His employer's invalid son, taking a fancy to him, teaches him and assists him to further his education. Ursula March is the chief feminine character. The main interest of the novel lies in its faithful portrait of true nobility, irrespective of success, wealth, or social status.

Julius Caesar, like other Roman plays by Shakespeare, came mostly from *Plutarch's Lives,* a work describing many old Latins. The dramatic events arise out of the death of Cæsar and the subsequent effect on the people of Rome. Mark Anthony, friend of the slain general, incites the populace to declare war on Brutus, who has aided in the conspiracy against Cæsar for patriotic reasons. Though departing from the story in some questionable details, the great dramatist has written a wonderful account of the effects of ambition on the heart and soul of Roman men. This play contains many noble lines of declamation,—such as the passages in which the superstitions of the mob are described; Anthony's oration over the dead Cæsar; the quarrel between Brutus and Cassius at Philippi; and the speech of the tribune Marcullus. Other interesting passages show the tenderness and fidelity of Portia, wife of Brutus, with her lamentable death; the scene in the last act at midnight, with the little page waiting before the tent of Brutus, when the general is troubled with visions and waking dreams; and the self-destruction of both Brutus and Cassius. In dramatic construction the play has obvious faults, but in characterization and force of action, it is one of Shakespeare's noblest.

Junius was the name signed to a series of polemical letters contributed to the *London Daily Advertiser* from late in 1768 to early in 1772. Apparently written by a lawyer, they show an intimate knowledge of men, politics, and social conditions of England in the time. Not a few speak in flaming terms against ministers of the Crown and even against the King himself at times. The anonymous author champions the cause of democracy and the good of the state as a whole, as opposed to the rule and interest of the few. He lays down this as one of his first theorems: "The admission of a free people to the executive authority of government is no more than compliance with laws which they themselves have enacted." These remarkable documents created a tremendous furor in the time, and even now they have a certain sting. At least thirty-five authors have variously been named as the writers of the series, which may not all have come from a single hand. Edmund Burke. Lord Temple, and Dr

Butler had their proponents. Sir Philip Francis was even then suggested as the probable author, and his grandson afterward offered certain conjectural proofs to support the view, but the subject is not yet wholly cleared of doubt. Macaulay said that enough evidence had been presented to convince any reasonable judge in a court that Francis was the author.

Kenilworth, thirteenth in order of publication in the Waverley novels by Sir Walter Scott, gives a clear picture of life in the age of Elizabeth. Like some other romances by Scott, this story introduces both historical and fictitious characters. The many events, as concerning Amy Robsart, have been taken out of their true setting and presented in a light not favored by historical research. The secret marriage of the Earl of Leicester with a daughter of Sir Hugh Robsart forms the central motive. Richard Varney, the villain, who resembles Iago in Shakespeare's *Othello,* is always seeking to persuade Leicester to allow him to claim Amy as his wife. He thus hopes to marry the Earl to the Queen, and to have Amy indeed for himself. Leicester prepares an opening for the tragedy when he delays acknowledging at court that Amy and he are truly man and wife. When the revelation comes, under most dramatic circumstances, in presence of the Queen herself, the monarch issues certain commands, and Leicester orders Amy put to death, thinking she is faithless to him. Though the Earl sends a quick countermand of his first wishes, Varney has seen that the death took place before the second message could reach Cumnor Hall, where Amy had been a virtual prisoner, and to which place she returned at once after her interview with Elizabeth. Apart from the narrative itself, the novel shows some of the customs, inns, statesmen, poets, and royal interests of Elizabeth as both woman and queen. Especially vivid and historical is the description of the visit of Queen Elizabeth to the castle of Leicester at Kenilworth.

Kidnapped, a romance of adventure by Robert Louis Stevenson, presents some scenes hardly equalled for tenseness in average books of fiction. It was first issued in 1886. David Balfour, a sturdy lad in Scotland, finds his uncle and guardian a miser and villain. David is finally shipped on board a vessel bound for America, where his uncle has planned to sell him into service. David, on the journey, falls into a friendship with Alan Stewart and other Highland Jacobites, with whom he joins in many hair-raising escapades. Eventually he returns to Scotland and foils his rascally uncle in his plan of stealing the lad's estate. Several fights in the story are memorable for dash and heroism.

Kubla Khan, a fragmentary poem by Coleridge, sets out to describe in detail the appearance and history of a "pleasure dome" erected by an Eastern potentate. The author said that the introduction to this came as a dream to him, and he was unable to complete the narrative in his waking moments. For rich musical effects, showing the power of sound to suggest vagueness and luxury, this gorgeous fragment has few compeers.

Lady of the Lake is a character in various old stories. In the metrical romance by Walter Scott, she is Ellen Douglas, daughter of an outlawed noble living on an island in Lake Katrine. An unknown huntsman, who calls himself Fitz-James, appears at the shore just as the Lady of the Lake is emerging from her boat. Old Douglas kindly receives him and assists him to continue his journey. A bold Highland chieftain, named Roderick Dhu, is chosen to lead the wanderer into the unfrequented paths of the north. The poem describes the entrancing beauty of the Highlands, the gathering of the clans for warfare, and the conflict between Fitz-James and Roderick Dhu, who is jealous of him and seeks to vanquish him in personal combat. At the end of many stirring events, Fitz-James is recognized as the King in disguise, who gives the Lady of the Lake to Malcolm Graeme and also pardons Douglas and his clan. To read this poem is almost like a visit to the old Highlands of Scotland in the days of chivalry.

Lady or the Tiger, The, is a puzzle story or hoax by Frank R. Stockton, an American author of numerous clever narratives. It gives a detailed account of a barbaric princess, in very early ages, whose lover is betrayed to her imperial father, and condemned to face the beasts of the arena. Yet, in a spirit of offering some chance, the emperor decrees that two doors shall be arranged so that out of one a beautiful lady shall come, and a tiger out of the other. In some way, by ingenuity or bribery, the princess learned which compartment sheltered the lady. If the lover should choose one door, he and the lady emerging through it would at once be married. Otherwise, he most certainly would be devoured by a ferocious tiger. The barbaric princess, therefore, nodded to the young man in the arena, giving him a signal as to which door to choose. Nobody but he saw her thus communicate. Now, the question is, which door did the young man choose? Each reader is left to judge for himself.

Lake Poets or "Lakers," as a contemptuous reviewer called Wordsworth, Southey, Coleridge, and their fellows, settled in the lake district of northwestern England to meditate, study nature, and write. In these simple surroundings, they broke away from some of the old traditions and conventionalities of the past age, expressing a love for simple themes, homely words, and sincere emotions.

Lallah Rookh, a somewhat fantastic oriental romance in verse by Thomas Moore, written in 1817, ran through six editions in a single year. When the *Edinburgh Review*, however, pronounced it "a public nuisance," Moore engaged Jeffrey, the writer of the article, to meet him in a duel, but both were arrested after they had arrived and were about to fire blank cartridges from their pistols. This affair led to a lasting friendship between them. The story of the poem is that of an eastern princess, to whom several tales are told, while she is journeying to the home of her husband in another land.

L'Allegro and the companion lyric, **Il Penseroso**, by Milton show the interests and studies of a man in different moods, or of two separate men. One is serious and meditative; the other is gay and companionable. *L'Allegro* reviews some of the simple pleasures from dawn to midnight. These include the early song of the lark and the clarion of the cock at daybreak, the coming of the farmer and the milkmaid, with a description of meadows, brooks, and trees, dinner in the shade at noon, sports later toward evening, and the studies and recreations of the home. *Il Penseroso,* the meditative and pensive man, begins with evening and concludes with the pleasures of the forenoon. It speaks of the nightingale, "most musical, most melancholy" of singing birds, of the ringing of the curfew, with reading of philosophy, drama, or one of Chaucer's works until the sun comes to "fling his flaring beams" across the world, and a final appreciation of music and the life of a student. The metrical form of these two poems is varied, graceful, and musical to a large degree.

Land of the Leal, in the beautiful poem by Lady Nairne, means the heavenly country. Once it meant any land where happiness, virtue, and valor were supreme, —a kind of no man's land of the poet's dreaming, or a haven of kindly sentiments.

Last Days of Pompeii, as a subject for a novel was suggested to Edward Bulwer, Lord Lytton, by the excavations in the old buried Roman city. The action of the book occurs at the time of the eruption of Vesuvius that overran the country roundabout. Glaucus and Ione, two lovers, are likely to be separated by the girl's guardian, who is a scheming man of base motives. Nydia, the blind flower girl, though also in love with Glaucus, leads the two lovers out of the burning city. Lord Lytton portrays here a beautiful and heroic soul. The romance is permeated with learning, contrasts of character, and fine descriptive scenes. Some of the notable ones that stand out in memory are the gladiatorial combat, the Roman banquet, with other domestic sketches, and the striking and terrible events during the time of the destruction of Pompeii. The novel was written in 1834.

Last of the Mohicans, a Leatherstocking Tale by James Fenimore Cooper, is a prose epic of the American forest in primitive times. Chingatchgook and his son Uncas, last of the tribe, share our admiration for the white hero, Hawkeye; while Magua, a bad redman, justly merits the punishment he gets for his baseness and treachery. Cooper, of course, idealized the Indian, making him at times better, at times worse than he really was. The story narrates the stirring events of a journey in the time of the French and Indian War near Lake Horicon in eastern New York. Constant vigilance against treachery by Indians in ambush, forced marches to the northward, solicitude for the ladies of the party, make up the chief interests.

Leatherstocking Tales, five novels by Cooper, are his tribute to the early pioneers who opened up the country west of the Hudson in New York. This series includes *The Deerslayer, The Last of the Mohicans, The Pathfinder, The Pioneers,* and *The Pirate,* ranging in date of writing from 1826 to 1841. The chief hero appears in different novels as Leatherstocking, Hawkeye, Natty Bumppo, and La Longue Carabine (The Long Rifle). He wanders over hundreds of miles of dark, unsettled forest, acting as trapper, guide, and agent of the government. Force, honesty, and absolute fearlessness are the main traits of this and other characters of the Leatherstocking group.

Leaf in a Storm, A, by Louise de la Ramée, better known as Ouida, is a tract against the inhumanities of war between nations. When the conflict with Germany broke out in 1870, many simple French peasants lived happily in a small hamlet toward the eastern part of France. Like a great unstayed tide the armies rush over them, leaving a burned town, many homes without fathers, and many sweethearts without their young men. Just as a leaf is blown before a storm, the cruel breath of war carries the noblest away never again to return. Ouida's story is fresh, vivid, and sympathetic. Another story from the same pen is *A Dog of Flanders,* one of our noblest animal short narratives.

Legend of Sleepy Hollow, The, a short tale by Washington Irving, was first published in 1819. It tells mainly of the startling adventure of one Ichabod Crane, who looked much like a scarecrow in his ungainly ugliness. Ichabod, the village schoolmaster, is interested in Katrina Van Tassel, daughter of a prosperous farmer, but he has at least one formidable rival, Brom Bones. On one occasion, as Ichabod returns home late at night, he is pursued by the Headless Horseman, a legendary rider of the neighborhood. Ichabod is speechless on seeing a head hanging at the saddle. The horseman finally rises in his stirrups and casts the head at Ichabod, who is so terrified that the region never afterward sees him. Later, when the story was told in the presence of Brom Bones, that gentleman was known to assume a peculiar, knowing look. Irving's tale, as well as the *Rip Van Winkle,* makes humorous use of local legends with singularly telling effect.

Les Miserables by Victor Hugo is one of the world romances of tremendous power. It describes the Paris of the nineteenth century, with the evils of the professional police system, and the fatalism which may pursue an innocent man when he is persistently hunted down by officers of the law. Jean Valjean, the hero, is an epitome of French peasant character, noble against odds and willing to undergo superhuman trials for those who will trust him. For stealing bread for his sister's starving children, Jean is condemned to the galleys for five years, a time eventually lengthened to nineteen because of his attempts to escape. When he is released at last, Jean persuades a Bishop to accept him as servant; but he cannot resist the temptation to steal the churchman's silver, since a long imprisonment has made him indifferent and cynical. Jean is brought back for identification by the police, but the good bishop, understanding the situation, swears that he has given Jean the things he has stolen. This unexpected kindness softens a heart made stony by injustice.

The police prefect, however, named Javert always pursued Jean, on the principle that a man once in prison must, of necessity, always remain a criminal. Through almost endless ramifications the story runs with increasing interest. Jean becomes a rich manufacturer, mayor of his town, and a friend of the poor and downtrodden. Yet the police pursue him, and he is recognized as a former convict, disgraced, and stripped of most of his old friends. He rescues from shame a girl named Fantine, who soon dies leaving a child named Cosette. Again Jean Valjean serves in prison for another man whom he resembles. He returns from the galleys in time to rescue Cosette, who is engaged to marry a young man named Marius. The latter misunderstands Jean Valjean, who goes away, so that no suspicion may fall on those he loves. Finally, Marius learns that Jean has really saved his life, but, when he at last finds his benefactor, it is almost too late; for Jean is at the point of death.

Besides the details of the narrative itself, forged white-hot out of a great imagination, Hugo introduces some famous descriptions of the battle of Waterloo; of the sewers of Paris, though which Jean flees with Marius; and of the barricade across the streets where many meet death and a French lad stands heroically gathering bullets as he is exposed to the enemy fire.

Lilliput is the land of diminutive men in Swift's *Gulliver's Travels.* The entire account of these people is a satire on the smallness of mankind. Swift narrates at length the story of the Big-endians and Little-endians, who fought for many years over the proper way of breaking an egg. "All true believers break their eggs on the convenient end," said their book of law. An ancient emperor, happening to cut his finger while breaking the large end of his breakfast egg, decreed that henceforth all the faithful must break the small end. Thus the controversy arose; many learned books added fuel to the flame; and at last some of the noblest of the tribe suffered martyrdom for their faith.

Little Nell, as described by Dickens in his *Old Curiosity Shop,* is among the most pathetic characters in literature. Driven by fear of a rascally man named Quilp and by the strange actions of her grandfather, an old man in his dotage, Little Nell finally persuades him to leave their home and wander forth in search of a better place. They live for a time in the fields and endure many hardships, until finally Little Nell comes to a sad deathbed among strange scenes.

Lochinvar, a bold Highlander in Walter Scott's *Marmion,* loved a lady, who was betrothed against her will to another, a man who is called a "laggard." He asked a dance of the bride at the wedding, and, before the astonished bridegroom and guests could interfere, lifted her up beside him on his horse, and dashed away. This story in Scott's poem revives an old ballad.

Locksley Hall and Locksley Hall Sixty Years After, two poems by Alfred Tennyson, were published in 1842 and 1886 respectively. The petulant hero of both declaims against his cousin, Amy, who forsook him, at command of her father, to marry a man of wealth. He takes refuge from his bitterness in the contemplation of the future of England and of science. "Thro' the shadow of the globe we sweep into a younger day, Better fifty years of Europe than a cycle of Cathay." In the second poem, with some bitterness left, the speaker recalls the death of Amy many years ago and now that of her husband, late master of Locksley Hall. Both lyrics have a wealth of description and considerable nervous energy.

Lord Jim is a picturesque romance in the best style of Joseph Conrad. Realizing that he has been a coward, a man finds a new life far off in a land of uncivilized tribes. They learn to trust and love him, and tragedy comes only when other white men arrive to disillusion the natives who have thought all men of their kind as noble as Tuan Jim, who is truly large and heroic, strong in death.

Lorna Doone is a brilliant romance of the country of Exmoor in Devon, west England. It is the masterpiece of R. D. Blackmore, being written in the style of the seventeenth century when the events are supposed to occur. John Ridd, a lad of fourteen, whose father has been slain by the wild Doones, ventures up a small stream in search of fish and meets with a fair young miss who says she is Lorna Doone. When he is older grown, he returns again, and from that day thinks of eventually rescuing Lorna from the cruel and vicious life that is common among her people in Doone Valley. For years nothing further happens, while the farmers of the region are content to leave the Doones alone, just so long as they do not steal too many cattle from the neighborhood. At last, during a great storm in winter, John succeeds in bearing Lorna out of the valley. As they stand at the altar of the little church not far away, a bullet from the gun of Carver, one of the last Doones, strikes Lorna down in apparent death. John rushes out to seek his revenge. He encounters Carver Doone on the edge of a morass, into which Carver sinks in trying to protect himself from the strength of his antagonist. Later John and Lorna live through many happy and peaceful years. Though the story is of cruel and bloody days, simple strength and unassuming beauty mark it as uncommonly attractive. An atmosphere of lyrical charm pervades almost every description and bit of story.

Luciad is the national epic poem of Portugal or Lusitania, as this land was once called. In form and spirit it resembles some of the old classic poems, with many noble passages.

Luck of Roaring Camp, The, is the title narrative of a volume of short stories by Bret Harte. It revives the days of the early rush for gold in the western part of the United States. The "Luck" is a baby, born to the only woman of the town, who soon dies, leaving the child to rude and lawless men. Through the child a new spirit settles among the entire population. At last both the babe and its keeper are drowned in a great flood.

Lycidas, the pastoral elegy by Milton, remembers the life and characteristics of his friend, Edward King, who had been drowned in attempting to cross the Irish Sea. Milton introduces the classical mythology into the poem, speaks of the days when he and King were students together, calls on the shepherds to weep for Lycidas, and introduces a celebrated flower passage, which was sharply criticized by Ruskin for being not true to nature. This lyric became the model for later poems of the type, such as Shelley's *Adonais* and Arnold's *Thyrsis.*

Lydia Languish, in Sheridan's comedy *The Rivals,* is a young miss who reads romantic novels from the circulating libraries, when Mrs. Malaprop, her aunt, thinks she is reading more solid books.

Mab, queen of the fairies, finds a place in several English poems and dramas. Usually she is mentioned

as the wife of Oberon. Both Shakespeare and Milton speak of her more than once, but Titania is the consort of Oberon in *Midsummer Night's Dream*. In Welsh legend Mab came at night and played pranks on slovenly housewives.

Macaulay's Essays, a miscellaneous series, began with the publication of the essay on Milton in the *Edinburgh Review* in 1825 and concluded with the brilliant account of the Earl of Chatham in 1844. With a great store of information and concrete details, they bring to popular attention many historical, literary, and social subjects of the nineteenth century. In style they are rich, compact, vivid, and often rhetorical, with many antitheses and other figures for emphasis.

Macbeth, Shakespeare's great tragedy, is notable for its picture of the decline of two human souls. Macbeth, a highly imaginative man, lacks force of character; his wife, quite the contrary, lacks no degree of will to carry her designs into action. Blinded by ambition, they conspire to kill the old king Duncan, while he visits them, and Lady Macbeth takes the lead in seeking to avoid the consequences of their rash act. Macbeth meets the three weird sisters, on different occasions; they lead him on to his own doom by means of ambiguous prophecies of fame and power. A fellow officer with Macbeth must needs be silenced to avoid suspicion. Macbeth, by means of agents, adds the murders of Banquo and Macduff to his list of crimes. Unable to bear the strain longer, Lady Macbeth breaks in mind and reveals some of their secrets while she walks as in a dream. After her untimely death, Macbeth is left alone with his remorse and further plans to make his throne secure. Gradually the tide rises against him, and at last he meets death in a great battle, being swept onward by his confidence in the false prophecies and by his own ambition. This drama stands among the great plays of human retribution for energy of the plot, consistency of the characters, and wealth of imagination. Though the witches and the ghosts in the play now cause some confusion to a modern reader, they undoubtedly suited popular taste and belief in Shakespeare's time.

Mac-Flecknoe, a satirical poem by John Dryden, was published in 1682. It lampoons Thomas Shadwell, a rival dramatist and poet, making him out a son of Richard Flecknoe, an obscure and petty rimer of the age. Shadwell is set up as king in the realm of dunces. Two memorable lines, somewhat typical of all, are these: "The rest to some faint meaning make pretense, But Shadwell never deviates into sense." Dryden is never as vindictive and personal as Pope in his satires, and yet this poem stings like a taskmaster's lash.

MacIvor, Fergus and Flora, a Highland chieftain and his haughty sister, entertain Edward Waverley on his visit to the north, as fully described by Scott in his novel, *Waverley*, the first written of the series of some twenty-seven long stories. Fergus plans that the English visitor shall marry Flora, but she and Edward think otherwise. One of the great scenes of the novel is the parting of the hero and Flora from Fergus, when the latter is led away to be executed for treason.

Malaprop, Mrs., is a presumptuous dame in Sheridan's *The Rivals*. She uses many real words in wrong senses, as when she speaks of a "nice derangement of epitaphs" for *arrangement of epithets;* "caparisons" when she means *comparisons;* and "positive conjunctions," when she should have said *positive injunctions*. At present a malapropism is the unintentional misuse of words as if by Mrs. Malaprop herself. Sheridan may have had Dogberry of Shakespeare's play in mind, though this blunderer makes somewhat different mistakes.

Manfred somewhat resembles Faust in literature. As characterized in Byron's poem bearing this name, he has seven spirits to do his bidding,—earth, ocean, air, night, winds, mountains, and the star of his own destiny. Yet Manfred dwells in proud isolation at his castle among the Apennines, being punished for selfishness and presumption. Once he is visited by Astarte, whom he loves, but she foretells his own death on the following day.

Man Without a Country, The, a didactic story by Edward Everett Hale, tells of the pathetic life of Philip Nolan. In the early days of the American Republic, young Nolan fell under the baneful influences of Aaron Burr, who designed to found a great empire west of the Mississippi. When Nolan was called into court for his part in these plans, he swore with an oath that he never wanted to hear of the United States again. The judge sentenced him to have the wish fulfilled. Nolan was accordingly sent aboard one ship after another till the end of his long life. After a number of years, nobody at Washington knew anything about his case, and he was never pardoned, though some attempts were made to restore him to his country. Whenever the vessel bearing him neared a shore of the United States, poor Nolan was transferred to another outward bound. Several tense and pathetic incidents developed. On his death bed Nolan was permitted to learn of the history of his native land since the time of his sentence. Previously any papers handed him were clipped if they mentioned the United States. He bequeathed a lesson of patriotism to the youth of America.

Marble Faun, one of Hawthorne's romances, tells a powerful story of human retribution for sin. This book, written while Hawthorne was abroad, is filled with the spirit of old Rome and the art of former ages. Some of the events in the narrative are dark and mysterious, quite in keeping with Hawthorne's methods of philosophical analysis.

Marse Chan, one of many short stories by Thomas Nelson Page, interprets life in Virginia in the period of the Civil War. An old negro servant, for years in the family, is the narrator. Young Massa Channing loves the daughter of Colonel Chamberlain, a neighbor. Differences in politics separate the two families, until Marse Chan enlists in the army and soon afterward is killed in battle. Anne Chamberlain is remorseful because she sent him out with a very cold good-bye. She comes to live with Channing's old parents, and remains till she too is buried in the little family plot. Besides a moving and pathetic story of separation, this introduces us to the characteristics and genuine dialect of an old negro, who is always sympathetic with the family he served. Even Marse Chan's lazy and fat old dog to him is almost sacred.

Marvellous Boy is an epithet applied to Thomas Chatterton, son of a poor teacher in Bristol, England, born in 1752. He wrote poetry at twelve, soon afterward forged various documents which people of his town thought real, and later claimed to have found in an old church certain manuscripts of one Thomas Rowley. These were pronounced spurious. Chatterton wrote many excellent poems of his own, went to London in the spring of 1770, had for a time some prospects until his patron died, and committed suicide in August, at the age of seventeen years and nine months.

Meg Merrilies, the old gypsy, is able to save Henry Bertram in Scott's *Guy Mannering* at the cost of her own life. See the account of the novel on a previous page.

Merchant of Venice, The, is the combination of three ancient tales in Shakespeare's comedy: the story of the merchant who thought his ships were lost; the story of the rich but vindictive Jewish money-lender; and the story of the winning of a wife through the wise choice among three caskets containing various articles. Antonio borrows money of Shylock, the Jew, to help his own friend, Bassanio, agreeing in a fit of confidence to allow a pound of flesh to be cut from the spot just over his heart, if the money is not returned on a specified day. When the ships are thought lost, and the money falls due, Shylock refuses to take anything from others, insisting on the literal fulfillment of the agreement, as "nominated in the bond." At last, appealing to a learned doctor of the law, they are notified by Portia (sweetheart of Bassanio in disguise) that Shylock may have the flesh, but not a single drop of Christian blood with it. With terrible groans, Shylock abandons his purpose, offering to pay almost any amount if they will free him from the charges of extortion and intent to kill. In the meanwhile, Jessica, his daughter and another friend of Antonio have eloped, taking the keys and much of Shylock's treasure with them. Bassanio has chosen the casket that contains Portia's picture, and hence the lovers are permitted to wed. At last Antonio learns that some of his ships have weathered the storm. Besides a plot, replete with incidents and minor elements, this drama pictures human character most truly. Shakespeare also tries to secure some measure of sympathy for old Shylock, in spite of his seeming cruelty, which was brought forth by real and fancied wrongs.

Midsummer Night's Dream, one of the playful comedies by Shakespeare, combines many elements loved by playgoers of 1600. There is romance, three sets of characters, confused identity, much humor, and some mild horse-play, reconciliation and restoration. Two groups of lovers wander in the forest, but Demetrius has forgotten his love for Helena and is seeking Hermia, the beloved of Lysander. Oberon, the king of the fairies, in pity for Helena, sprinkles some magic juice of the flower called love-in-idleness on the eyes of Demetrius, and thus restores his love for her. Puck meanwhile has caused amusing confusions, since he has anointed the eyes of the

wrong man by mistake. The fairies, too, confuse their identity. Titania, Oberon's queen, imagines she is beloved by an ass; while Bottom, the weaver, touched by the magic liquor offered by Puck, calls for oats and hay. There is also a lightsome plot of a play of Pyramus and Thisbe, as enacted by some rustics and artisans, with queer stage properties. For instance, Snout, the joiner, represents a wall as he stands holding some lime, plaster, and a stone in one hand, while he uses the other to represent a chink in the wall for the lovers to talk through. Altogether things happen as they might indeed if all the actors of the play were really victims of midsummer madness.

Miller, Daisy, as portrayed by Henry James in his novelet, is a young, innocent, but very unconventional American girl in Rome. Contrary to advice of friends, she does not "do as the Romans do" in social matters, but conducts herself in a careless, free manner as she would in her own small town in a western state. Her former friends, therefore, one by one desert her; and when those she most respects treat her coldly, she is deeply hurt. When she dies of a fever caught in the night air, while viewing the moonlight from the Colisseum, the narrator of her story feels that some injustice has been done her. The novelet, when first published, ranged many people on both sides, as to whether it is a correct picture of an independent American girl.

Mill on the Floss, The, by George Eliot, is a novel of English middle-class life in a small community. Out of unfavorable surroundings, the life of a young girl develops into pathetic tragedy. Maggie Tulliver, an impressionable "clever" girl, is misunderstood by all except by her father. Most of her relatives are stolid, matter-of-fact people, with no atom of romance in their souls. Her brother Tom is typical of the unimaginative, practical, harsh brother, though he has some rude affection for Maggie. George Eliot paints a realistic picture of the trials and sorrows of child life among these circumstances. At last Maggie becomes interested in Philip Wakem, a deformed and girlish young man, who is the son of Mr. Tulliver's chief enemy, a lawyer who has helped win various suits started by Maggie's father over water rights at his mill. On positive commands of Tom, after her father's death, she gives up all thought of marriage with Philip. Quite unconsciously and innocently she allows Stephen Guest, the avowed lover of a cousin, to become enamored of her. He takes her out on the Floss rowing, and before Maggie fully realizes, they have gone so far that it is the next day before they can return. Maggie is then suspected by all her acquaintances, and even Tom turns harshly against her. Independently she learns to make her living as a teacher. When a great flood rushes down the River Floss, Maggie and Tom are caught in its fury, and both go down forever, "living again in one supreme moment the days when they had clasped their hands in love and roamed the daisied fields together." This powerful novel raises the question of whether an author should make a story terminate happily. George Eliot, however, shows from the first chapter that all the conditions are tending toward a tragic ending. Apart from the plot itself, and the study of the characters of Maggie and Tom, various relatives on both sides of the house, leave little to be desired in intimate, realistic, and vital humanity.

Mr. Isaacs, earliest novel by F. Marion Crawford, is the history of a highly-born Persian, who lacks no noble quality save reverence for women. He thinks and speaks of his three wives with indulgent contempt. Paul Griggs, who tells us the tale, meets Mr. Isaacs at Simla, admires him from the start, but suggests at once that women indeed do have souls. Shortly afterward, Mr. Isaacs meets and admires a beautiful and frank English girl. Gradually they fall in love with each other. Through various refinements, the affection of Mr. Isaacs rises to a height of sublimity, which even the death of his beloved does not materially change. Though a much saddened man, he continues to live in a lively hope for the return of the golden days of his courtship; or, as he expresses it, he awaits "longingly the first faint dawn of the day eternal." Much of the atmosphere of the romance is that of the mysticism and spiritual longing of the yogis of India.

Modern Painters by John Ruskin began in 1841 as a defense of the art of the English painter, J. M. W. Turner. In succeeding volumes Ruskin enters into the entire history and principles of art since the days before Raphael in Italy. Many florid descriptions make the first editions of this elaborate work unusually attractive. In later forms, however, Ruskin omitted some of the vivid passages, and toned down his entire enthusiasm for the art of Turner.

Mosses from an Old Manse, written in 1846, is a collection of short stories by Hawthorne. Like the *Twice Told Tales,* they divide into several classes, according to subject and style of treatment. Some of the earliest are hardly more than descriptive sketches like *Sights from a Steeple,* a detailed report of what a man might witness from the high spire of the town church; *The Old Manse,* a description of the home of the ministers of the parish church of Concord, where Hawthorne lived as he wrote some of these stories; *A Rill from the Town Pump,* avowedly a temperance sermon preached by a town pump at high noon of a hot day in summer at Salem; *The Maypole of Merry Mount,* a picturesque incident of the early Plymouth days showing that some of the earlier settlers desired thoughtless mirth; and *The Gray Champion,* a sketch of the resistance of the Colonists to the encroachments of the governors before the time of the actual Revolution. Another class includes *The Great Stone Face,* an allegory of character; *The Birthmark* and *The Artist of the Beautiful,* both different phases of unwise and tragic ambition, carried to an extreme; and *Rappaccini's Daughter,* a subtle discussion of relationships between rumor and actual truth as to the girl whose breath was supposed to be poisonous because she was fed on drugs or breathed the odors of noxious flowers. These, with other gradations of history and romance, make up two fine collections of tales that always appeal to the imagination of young readers. Though deficient in the sense of reality, or of actual life, many of these stories introduce one to the moral realm and the soul of mankind as shown in reference to action.

Mother Goose's Melodies, that captivating series of rimes for the nursery, has influenced generations of children. Some of the verses go back to a French collection of 1628, which was known in England as early as 1729 and translated in 1760. A few of the stories in modern collections go back to the age of Shakespeare in England; and a few may also be of American origin. Once it was thought that Elizabeth Vergoose, mother-in-law of Thomas Fleet, a Boston printer, was the originator of the rimes. This ascription is now doubted in view of the previous collections containing some of the stories printed in Boston, where editions surely appeared as early as 1824. *Little Boy Blue, Baa, Baa, Black Sheep, Bye, Baby Bunting,* and *Patty Cake,* with scores of others, are well known to many children of our age. Such stories do not contain elements that set children against going into the dark, or turn them toward bad dreams while they sleep, as many of the books of fairy tales do.

Mysteries of Udolpho, the masterpiece of Mrs. Ann Radcliffe, 1795, belongs decidedly to the moonlight type of fiction. It was once cited as the best of the gothic romances,—those tales of wonder, secret underground dungeons and caves, music coming from mysterious sources, old papers and wills newly discovered, and love-lorn maids separated from noble lovers and enduring torments of soul while imprisoned in dark towers, or while imagining they heard the sounds of voices or footsteps. Emily St. Aubyn, an English girl imprisoned in a castle in the Apennines, is the hero of Mrs. Radcliffe's novel. She is held virtually a prisoner by the husband of her deceased mother, until she is liberated by the Chevalier Velancourt. Walter Scott once said of this romance that "Its magnificence of landscape, and dignity of conception of character, secure it the palm."

New England Nun, A, is the title of a volume of short stories by Mary E. Wilkins, now Mrs. Charles Freeman. A prim New England old maid has waited a number of years for her lover to return from making his fortune in Australia. At last, when they meet once more, she begins to realize that she greatly prefers to live her own life in the old manner and not to have an untidy man around the house. Out of a sense of honor, she still is ready to marry, but feels justified in breaking off her engagement when she learns that another stands higher in the regard of her betrothed than she does. This story introduces us to one type of New England maiden lady, of which there are others in various books by the same author. *The Revolt of "Mother"* by Mrs. Freeman tells a somewhat different story.

New England Primer, The, passed through many editions before the coming of the modern spelling and reading books. It combined the catechism with secular instruction of various sorts, with selections for memory, moral instruction, spelling, and even bits of arithmetic. Some of the old crude wood-cuts are eloquent of Puritanic ideals of early days. "Time cuts down all, Both great and small" is the legend under a picture of the Grim Destroyer mowing with an ancient scythe. Job with his loathesome sores is pictured as an example of resignation and obedience.

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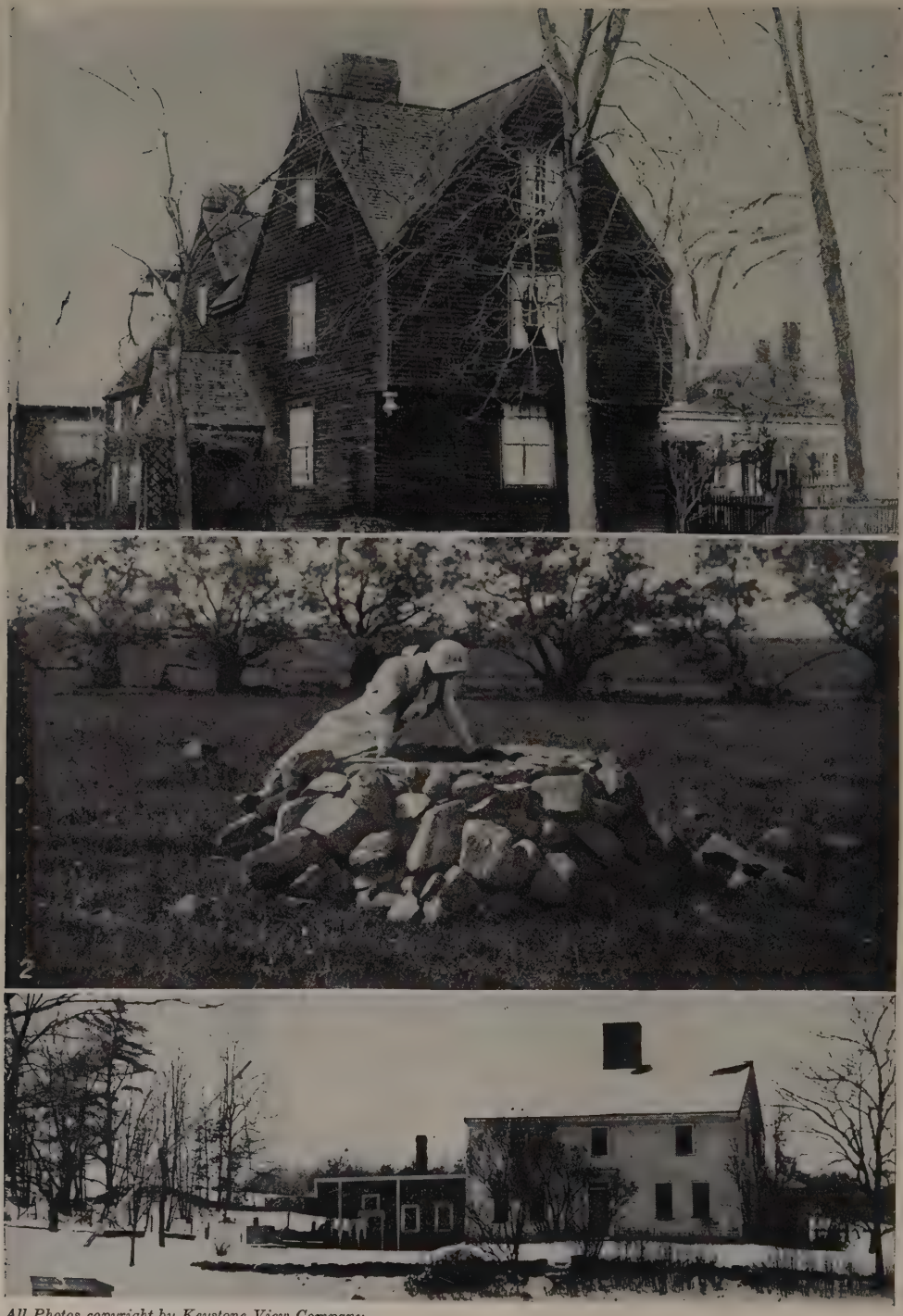
SCENES IMMORTALIZED IN WRITING—I

1 Old blacksmith shop, East Walpole, Mass., said to be the one which inspired Longfellow's "The Village Blacksmith," built in 1829. It is still in use. 2 Sleepy Hollow Road, Tarrytown, New York, along which Washington Irving depicted the ride of "The Headless Horseman."



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SCENES IMMORTALIZED IN WRITING—II

1 "House of the Seven Gables," Salem, Mass., scene of Hawthorne's now famous classic.
2 "Evangeline's Well," Nova Scotia, topic of Longfellow's masterpiece.
3 "Snowbound," Home of Whittier, Haverhill, Mass.

Nicholas Nickelby, a young man in a novel of that name by Dickens, suffers early neglect of his mother, a talkative woman, who would rather gossip and complain than do any useful service. She is the type of woman to exclaim, "Well, I expected as much" when anything extraordinary happens. Nicholas becomes an usher in a school kept by Mr. Squeers of Dotheboys Hall, where pupils are whipped, starved, and abused in almost every manner, by an ignorant, over-bearing pedagog of no character or ability. At last Nicholas leaves, followed by an admirer named Smike, a poor boy who later dies. Nicholas at last becomes a prosperous merchant. In this novel, as in *Oliver Twist,* Dickens spoke so bitterly of certain kinds of private schools that many in England were forced to close their doors.

Novum Organum, one of the prose works of Francis Bacon, outlines his ideas of the scientific method, or the process of logical induction as applied to experiments. Thus he developed at length the system of proceeding through observation of facts to draw general conclusions from them. His view of life was mainly naturalistic, as shown by one of his favorite aphorisms, "Man, the minister and interpreter of Nature, can do and understand only so much as he has observed in her: more he can neither know or do." Bacon speaks of four idols that stand in the road to progress: Idola Tribus, or custom; Idola Specus, individual prejudice; Idola Fora, wrong notions or traditions formed from speech and human actions; and Idola Theatri, fables and fictions.

Nut-Brown Maid, one of the old ballads, narrates the story of an outlaw who woes a maid, but tells her frankly of the many trials and misfortunes she may have to undergo. She gladly promises to share them all with him, if he will remain her true knight. Then he reveals himself as an earl's son, wealthy and famous.

Oberon, king of the fairies, appears under different names and disguises in world literature. One old story relates how he and Titania once lived in India, but came to Europe centuries ago to dance in the moonlight. Shakespeare pictures them fancifully in *Midsummer Night's Dream.*

Old Chester Tales interprets the small country village and its different inhabitants, with humor, much insight, and sympathy. Old Dr. Lavender, the town rector, appears in many of the stories, as do some of the other people. Mrs. Deland, the author, also wrote the novel, *The Awakening of Helena Ritchie,* besides other volumes of Chester stories.

Old Creole Days, by George Washington Cable, a group of short stories, introduces us to life in New Orleans in the days over a century ago. They are characterized by a romantic local color, feeling for the old families, and deep regard for human character. Some of the best stories tell us of old Jean ah Poquelin, a man who sheltered his brother who was a leper, at great risk and cost to himself; Posson Jone', a humorous old colored preacher; and 'Tite Poulette, a young girl in need of friends in a city.

Oliver Twist, a famous novel by Dickens, introduces us to at least twenty types of character. The hero is a lad born in the workhouse and named Twist because the keeper had arrived at the *T's* in naming the waifs under his charge. Little Oliver distinguishes himself and greatly amazes an attendant when he calls for a second dish of porridge, an unheard of bit of boldness in that home for orphans. He escapes at length, finds his way to London, and there falls into the hands of the Artful Dodger and other vicious men who endeavor to teach him to steal in a school for criminals kept by one Fagan, a Jew. Oliver refuses to become a pickpocket, escapes, but is returned to assist Bill Sykes, a notorious house-breaker. Nancy, living with Sykes, a woman of no reputation, takes pity on Oliver and treats him kindly. His later life, with some discouragements, is spent with honest people; while friends protect him from the police, until Oliver finds his sister, of whom he had not previously known. At last the gang of thieves all meet an end due their boldness and treachery. Dickens professed that his motive in such writing was to show vice and crime in their true repulsiveness.

Omar Khayyam, or the Rubaiyat of Omar Khayyam, a Persian poem of some uncertain date, was translated into English by Edward Fitzgerald in 1859. It consists of a string of meditative verses, some of which are musical and attractive. Man is likened to a pot of clay; life to a mere day's journey. Since existence is thus so short, why not enjoy it to the full while it lasts? This is the philosophy of *Omar Khayyam.*

Ossian or Oisin, an ancient Gaelic bard, according to James MacPherson, a Scotch teacher, left some manuscripts which were translated into modern English. The Ossianic poems, as given to the world by MacPherson, consist of rhapsodies in a measured prose, full of strangeness, repetition of epithets, wild scenery, and a moaning of old heroes. Dr. Johnson and others since his day have pronounced the poems as we have them a forgery, but many still believe that MacPherson had at least oral tradition, possibly some fragments, that he used in the various parts.

Painter's Palace of Pleasure, a collection of many narratives, published in 1566, became the storehouse from which dramatists and poets drew many tales and plots. Our chief interest lies in the fact that this work brought many of the best stories from the Orient, and contributed to Shakespeare some material for his *Timon of Athens, Romeo and Juliet,* and the main plot of *All's Well that Ends Well.*

Palamon and Arcite illustrates the stories that travel from age to age and country to country. Boccaccio gave it to Chaucer, and Chaucer bequeathed it to Dryden. Others also have used it as a whole or in parts. Arcite, a young knight of Thebes, is made prisoner and confined in a tower by Duke Theseus of Athens. One day, as they are viewing the scene in the yard below, he and Palemon, a fellow prisoner, notice a beautiful lady, who proves to be Emily, the king's sister-in-law. One man insists that Emily must be his bride, since he saw her first; the other, because he thinks he actually loved her first. After they are released, Theseus holds a tournament to determine the affair. Though Arcite wins in the combat, he dies of a fall from his horse; and so Palamon, after all, wins Emily.

Pamela, first of three romances by Samuel Richardson, is usually called our earliest novel of character and analysis. Before it was published in 1740, many long stories had been written, but few of them, if indeed any, covered more than the outlines of the plot. Richardson, a printer, conceived the idea of weaving a story into some familiar letters. He had a highly moral motive in mind, that of instructing the young in virtue and manners. His heroine, a serving girl, is pursued by the young man of the household. After many repulses, he finally offers to marry her, and Pamela consents. A second part describes the life of Pamela and her Mr. B. at their beautiful estate in the country. Many critics found fault with the conclusion of the story, saying it might teach all servants to try to win their masters. The change of motive in Mr. B. was not very convincing. This novel, however, set the fashion of long fictions for many years.

Paradise Lost, the sublimest epic poem in English was written by John Milton "to justify the ways of God to men." It contains some of our finest blank verse for musical effect, and was published in 1667. Book one opens with the awakening of the angels from the stupor into which they were cast when they fell for nine days from Heaven into a burning lake of marl. After a consultation, described with great poetic power, the demon hosts agree to send Satan as an emissary to spy out a new land called Earth, on which report says a new race called Man has been created. The rest of the first four books details the flight of Satan through the vast universe to the planet where man resides. The angel Raphael, in the second set of four books, describes the war in Heaven, bringing the account up to the time when the angels awoke upon the burning pool. The final four books describe in considerable detail and vividness the temptation of man by the serpent sent by Satan, his fall and expulsion from Paradise, and some of the plans for his final redemption.

Pickwick Papers, a long rambling narrative by Dickens, contains the experiences of the club founded and presided over by Mr. Pickwick. The gentlemen described as chief members travel through England, fall into many droll adventures, which culminate in the celebrated suit of Mrs. Bardell against Mr. Pickwick for breach of promise. Mr. Pickwick, a lodger with Widow Bardell, starts to inform her that he is about to change his condition by taking a man servant. Before he has time to explain, Mrs. Bardell thinks he is proposing to her, and afterward enters a suit for damages. The companions of Mr. Pickwick, overhearing only a part of the conversation, and putting some wrong constructions on Mr. Pickwick's acts, offer rather ambiguous testimony in court, and their chief loses in the suit. Sam Weller, man of all work for Pickwick, proves the star witness, provoking much amusement in the court room.

Pied Piper of Hamelin, originally a German folk legend, as used by Robert Browning, has become a popular story

for the young. A wandering musician for a reward agrees to rid the town of Hemel of its myriads of rats. He completes his task and claims the reward, which is withheld from him. In revenge he blows his horn once more, and all the little children of the place flock out and follow, as the rats have done, wherever he leads, until they enter the side of a mountain and never more return. Thus the ingratitude of the town is punished.

Piers Plowman is the work of an obscure poet in the time of Chaucer, who wrote what has been called "The Divine Comedy of the Poor." It is in form of a dream, descriptive of a fair field full of people, of all conditions of life. The author speaks against luxury, oppression of the poor by the wealthy, and announces himself as a champion of the oppressed working classes. William Langland or Lack-land is the name given as that of the author of this poem.

Pilgrim's Progress, the most imaginative allegory in English, is a prose narrative by John Bunyan, which was published in 1678. After forming a resolve to journey to the Celestial land, Christian sets forth from his home alone, all others having refused to accompany him. Many hard passages of the journey are traversed with great peril and pain, some of which are the Slough of Despond, the Hill Difficulty, the Castle of Giant Despair, the country where Appolyon stands guard, and at last over the ferry to the shores of the better land. Along part of the way, Interpreter offers him companionship and good advice. Many worldly people try to dissuade him or attract him to their own plans or pleasures. Faith, Hope, and Charity at last are his main reliance. Few works have charmed the imagination of old and young, rich and poor, lettered and unlettered, as has this simple story of Christian and his Progress.

Pilot, The, by James Fenimore Cooper, is one of the finest sea tales in English. Written by a man who knew the sea at first-hand, the narrative abounds in nautical terms, discourse on the management of a great schooner in a storm, and the fascinating story of a battle on the high seas. The pilot turns out to be John Paul Jones, founder of the United States Navy. Though there is romance in the novel, we turn away from the fine ladies and conventional lovers in all Cooper's books, and here we follow the fortunes of Long Tom Coffin, as true a tar as ever walked the deck. Long Tom is the Leather-stocking of the Navy. It has been asserted that this novel was called forth in 1823, when Cooper became disgusted with the descriptions in Scott's *Pirate*.

Pippa Passes is a lyrical drama by Browning. A little shop girl, out for her single holiday from work in the whole year, goes along the streets singing her happy song, "God's in his heaven, all's right with the world." Quite unconsciously she influences the lives of a number of careless and sinful people and makes them think of nobler deeds. At night Pippa returns homeward, feeling that she has enjoyed every minute of her holiday.

Pride and Prejudice by Jane Austin is a model of realistic style in a novel of country life. Published in 1813, but written in 1796, it shows how pride in a man and prejudice in a lady kept them both from realizing how much they cared for each other. Elizabeth Bennett thinks Mr. Darcy is conceited and proud; he believes her to be prejudiced and distant. Of the five sisters in the family, Elizabeth is preferred by her father, who is a humorsome, cynical man, given to tart remarks, but at heart a kind father. Mrs. Bennett is a busy-body, trying to marry off her daughters; and at times she does not seem to pick future husbands very wisely. She designs that Elizabeth shall marry a clergyman named Collins, who pays the family a visit and proves he is impossible from almost every angle, since he is a narrow, pedantic, patronizing man. Various balls and parties among the gentry of the region are described happily. Along with the interest in the progress of a seemingly impossible romance, one is charmed by the gentle satire and insight of the author. Some of the minor characters move in a clear sunlight. Jane Bennett, the eldest daughter, marries Mr. Bingley, a young man who has taken a neighboring place for a time. Finally, Mr. Darcy writes Elizabeth a proposal of marriage, and thus relieves a situation which looks almost hopeless up to that point.

Princess, The, a narrative poem by Tennyson brings out some of his thoughts on the education of women, management of business, and the franchise. Certain learned ladies founded a college, from which men are to be rigorously excluded; but the heart triumphs over the head, and the love of children and home come uppermost and break up the model community in which the college is situated.

Prisoner of Zenda, The, is one of our best adventure novels. Almost every page thrills with tense situations, plots, and counter plots. An Englishman named Rassendyl, happening to be in Ruritania when a new king is to be crowned, becomes an unwilling actor in many events. The king is a member of a drinking party, on the eve of his coronation day, is drugged, and cannot be made presentable at court. A wily brother hopes to steal the throne. The foreigner strikingly resembles the recreant monarch, and very reluctantly he assumes his place in the coronation exercises. All three men,—king, brother, and the visitor from England,—admire the Princess Flavia. She shows a decided partiality toward Rassendyl, thinking he is the king; and so new complications arise, for the Englishman constantly fears that she will detect that he is playing a part. After many narrow escapes, all events mold themselves so that the king is restored to his honors and to the affection of the Princess. *Rupert of Hentzau* is a sequel to *The Prisoner of Zenda*. Anthony Hope is the author.

Quentin Durward, a dramatic novel by Scott issued in 1823, is the characterization of Louis XI of France, a Scotch lad, and minor persons. Quentin Durward, on a visit to a relative in the King's guard of honor, is noticed by Louis, and later saves the monarch's life from an attack by a wild boar while the king is hunting. Louis sends two noble ladies to the court of the Duke of Burgundy, where they nominally belong. Quentin, chosen as their escort, runs through several puzzling adventures. It transpires later that Louis designed that the ladies should fall into the hands of William de la Marck, called the Wild Boar of the Ardennes. Quentin delivers the ladies into the care of the Bishop of Liege, whom William slays with his own hand most brutally. At last Louis XI pays a visit to the Duke of Burgundy, and in a tense situation, convinces the rival monarch that he is a faithful ally. In a tournament, proposed by the Duke, Quentin bears off the prize of the lists, with the help of his uncle. The fair Isabelle is that prize, and fortunately she already has a high regard for the Scotch youth. Despite a few historical errors, this novel revivifies the reign and character of the wily Louis in a manner that has greatly pleased the French themselves. The craft, superstition, and tremendous ability of this French king appear in true colors.

Rab and his Friends, one of our best dog stories, was written by a physician in England, Dr. John Brown. The faithfulness of a dog to his true friends is pathetically illustrated.

Rabbi Ben Ezra, Robert Browning's optimistic poem, celebrates the joys of growing old. "Grow old along with me, The best is yet to be,— The last of life, For which the first was planned," the first lines, give the sentiment of the lyric.

Ralph Roister Doister, our first native English comedy, shows in a humorous series of scenes the courtship of Ralph and a wealthy widow. Not being able to write, he employs a scrivener, who so contrives an epistle that it may be read two ways by varying the pauses. When it is read to the widow, much confusion results, which only the writer himself clears up when he takes the letter and reads it. The whole belongs to the comedy of manners, bordering on farce.

Rape of the Lock, The, by Alexander Pope, belongs to the literature of cleverness. Almost no other poem shows as vividly as this the fashionable society of the age of Queen Anne. In mock-heroic fashion it celebrates the theft of a lock of hair from the brow of a fair lady, called Belinda in the poem, but really Miss Isabella Fermor in life. Her friends insist that the lock must be returned. The partisans of the thief (Lord Petre in real life) stoutly deny the right to demand it. Pope was called into the controversy, and wrote the poem to reconcile the factions. Much negotiation back and forth followed with stubborn delay, until the lock mysteriously disappeared, or was carried into the air by the sylphs. In terse description, full of vivid strokes, Pope almost excells himself in the description of ombre, a fashionable card game of the period, and in the account of the toilet as made by the lady when she rose about noon.

Rasselas, a prose romance by Dr. Samuel Johnson, relates the adventures of a prince in Abysinnia, who stole away from court without his father's permission. After many experiences in different regions, he is perfectly willing to return home, for there happiness dwells. Like the two long poems by Johnson, this story teaches the lesson that happiness is most elusive when most eagerly sought.

Return of a Private, by Hamlin Garland, contrasts the going of volunteers to the Civil War and their return after the conflict. Mr. Smith (really Mr. Garland's

father) returns from the South to find his farm in a sad state of neglect, with the fences down, the buildings unrepaired, and everything else looking at its worst.

Rip Van Winkle, the story by Washington Irving, has been a favorite since 1819. Some of its elements of popularity are the descriptions of quaint old Dutch times, of the family life of the Van Winkles, of the dog and Rip, the little men on the mountain, and the return after Rip's long sleep of twenty years. Though not a real short story, in the narrow sense, because too many things are mentioned without sufficient emphasis on the main elements, it has been a model for later authors. Irving's urbanity and humor silver the whole plot. As played by Joseph Jefferson, in a dramatic version, Rip Van Winkle became known to thousands of delighted theatre patrons.

Rob Roy, a national romance by Sir Walter Scott, in both the novel and stage versions proved a perennial favorite in Scotland. It is replete with mystery, good descriptions of the Highlands, with their rugged passes, rocks, and mountain lakes, and fine delineations of interesting characters. The story centers in the attempts of Rashleigh, a cousin of Francis Osbaldistone, to steal the family fortunes and wreck the business house of Osbaldistone and Company. In the background are suggestions of the conflicts between religious sects in Scotland, and the warfare between freebooter and English troops. Rob Roy, pictured as a modern Robin Hood, assists in saving the fortunes of the Osbaldistones and in bringing Rashleigh to his death. He also assists Sir Frederick Vernon, who appears as Father Vaughan in a disguise; and at last helps Francis to escape from numerous dangers. Diana Vernon, daughter of Sir Frederick, finally consents to marry Francis, even though he is a Protestant. The chief humor of the play derives from the antics of Bailie Nicol Jarvie, a cousin of Rob Roy a number of times removed. One of the great scenes, when the character was impersonated by Charles Mackay, was the adventure in which the Bailie lost some of his coat-tails when others had to cut him from a tree into which he had fallen in trying to escape from English soldiers. The dramatic version made by Isaac Pocock was the most popular melodrama in Scotland for forty years or more.

Robinson Crusoe stands high among the greatest adventure stories of the world. The details are too familiar to be rehearsed here. Everything is so vividly told that one can hardly believe that the tale did not happen as Defoe tells it. Readers in his day were encouraged by a second part, including the alleged diary of Crusoe, to believe the account substantially that of the mariner himself. Alexander Selkirk, a sailor, had spent some time on an island west of South America, but Crusoe's home is now identified as the modern Tobago, near the mouth of the Orinoco. Yet Defoe's story, in spite of realism, was his own product.

Sartor Resartus, called by Thomas Carlyle, the author, a philosophy of clothes, discusses various subjects and affords a chance to reveal some of the current thought of the early nineteenth century. It is an original combination of narrative, discussion, and sketches. Carlyle calls nature the garments of God. In a biographical portion, the hero passes from the Everlasting No through the Center of Indifference to the Everlasting Yea, "wherein all doubts are solved." The conclusion is that man may do without happiness and find instead true blessedness. The philosophy itself glorifies the mysterious; for all life, says Carlyle, is based on wonder, and everything about us is inexplicable. The style and structure typify the best work of this great author.

Saul, a poem by Robert Browning, has often been called a spiritual tonic. Based on several verses in the Old Testament in which it is said that David called the king back from his melancholy, the poem shows how the lad awakened Saul from a trance by appealing to higher and higher themes, until he announced boldly the coming of the Messiah at some future date. Browning makes David understand fully the nature of the hope of mankind in a sacrifice beyond ordinary men.

Scenes from Clerical Life, are three short stories by George Eliot, in which the romance and the sorrow of a clergyman's life in a small community are faithfully revealed.

Scottish Chiefs, a glowing picture of the stirring days of Wallace and Bruce in Scotland, is historical in its main outlines. It shows how the patriots of the North felt in 1300 toward their southern neighbors beyond the Tweed, vividly retells the story of the wars of liberation, with the succeeding jealousy of the chiefs and the death of Wallace.

Sesame was the magic word used by Ali Baba in opening the door in the mountain where the treasure of the robbers was concealed. *Open sesame*, as a phrase, now means any magical or key word or means of solving some problem. See *Ali Baba and the Forty Thieves*.

Shakespeare's Plays. Several of Shakespeare's plays have been outlined already. Since readers and critics each have individual favorites, a condensed list for beginners is hardly possible. Altogether Shakespeare is credited with thirty-seven plays, three or four of which seem to be not entirely his own work, notably *Timon of Athens*, which has a large section inserted from another hand, and *Pericles*, which has considerable inferior workmanship in various places. Besides, not less than seventeen other plays, in part, have been assigned by some critics to the great dramatist. These are not now included in complete editions of the acknowledged dramas.

Nor is it entirely possible to determine the dates of many of the plays. Only the relative order may be assigned with any confidence, and in regard to this scholars still differ somewhat in minor details. *Romeo and Juliet*, possibly *Hamlet*, *Richard III*, and others in places, were revised and again put on the stage after first production. Many of the original texts are composite products as arranged by scholars from the various quartos and the first folio, or collection of all the plays, published in 1623 by two fellow actors of the dramatist. Textual and linguistic study of Shakespeare is almost a science in itself, but such details do not interest the casual reader, who likes to observe the works as we now have them. In the list printed below, those that apparently are the best are printed in capitals, but not all critics would agree as to the choices.

Shakespeare's work falls into four fairly well defined periods of authorship. These are:

1. From about 1590 to 1595 or 1596. This is the period of beginnings, showing the preparatory work. The dramas are comedies, histories (plays based on English or other chronicles), and tragedies. The technique is not certain, many rimes abound, the characterization and language are not yet perfected. These plays are fairly certain as belonging to this first period:

Henry VI, parts 2 and 3.
Henry VI, part 1.
RICHARD III, *Edward II*.
Comedy of Errors.
Titus Andronicus.
Taming of the Shrew.
Love's Labors Lost.
ROMEO AND JULIET.
MIDSUMMER NIGHT'S DREAM.
Two Gentlemen of Verona.
King John.

2. From 1596 to 1601. This is often called the period of the middle comedies. In three great humorous plays, Shakespeare perfected his characterization, beautified his poetry, and compacted his plots.

Richard II.
MERCHANT OF VENICE.
Henry IV, *part 1*.
Henry V, *part 2*.
JULIUS CÆSAR.
Merry Wives of Windsor.
AS YOU LIKE IT.

3. From 1601 to 1608. This is the period of the greatest tragedies, characterized by depth of insight, turning away from mere word artistry, and dark broodings on the mysteries of life and character.

HAMLET.
Twelfth Night.
Troilus and Cressida.
All's Well that Ends Well.
Measure for Measure.
OTHELLO.
MACBETH.
KING LEAR.
Anthony and Cleopatra.
CORIOLANUS.
Timon of Athens.

4. From 1608 to the end of his writing, about 1614. This is the period of the romantic and poetic comedies. It is characterized by a return to beautiful and leisurely description, poetic diction, and a most kindly view of life as a whole. The plots of the last plays are more simple and the stories less complicated than are those of the other periods.

Pericles.
WINTER'S TALE.
TEMPEST.
Henry VIII.

She Stoops to Conquer, a humorous comedy by Goldsmith, still retains its popularity whenever it is revived on the stage. It was first acted in 1773. Marlow, a diffident young man, is bound for the estate of a Mr. Hardcastle, whose daughter is recommended as an eligible partner for life. Tony Lumpkin, a frolicking ignoramus, the son of Mrs. Hardcastle by a former husband, points out the house of the Hardcastles as an inn for which Marlow and a friend inquire. Various mistakes arise from the mistake of treating Mr. Hardcastle as a landlord, his place as a public hotel, and his daughter as a supposed barmaid. Marlow throws off his supposed bashfulness when he makes love to Kate as the assumed character of daughter of the inn, and she leads him on by allowing him to suppose his early impression is correct. By thus stooping to conquer, she makes her conquest doubly sure. Many droll passages make the play humorous and quite human. Besides Tony, who plays several practical jokes, the servants of Mr. Hardcastle, while taking instructions as to how to appear well before company add a ludicrous part.

Sherlock Holmes, prince of modern detectives in fiction, solves many riddles through his common sense and "science of deduction" in the short stories written by Dr. A. Conan Doyle. When other means fail, and the professional police give up a strange case, somebody appeals to this great man, who smokes a few pipefuls, takes some mysterious liquid from a peculiar looking bottle, or some opiate by means of a needle, and then goes into a brown study. Dr. Watson, friend of Holmes, listens to his explanations and then reports them to the reader. Some of the most fascinating stories are *The Speckled Band, A Scandal in Bohemia, The Red Headed League, A Case of Identity, The Dancing Men,* and *The Copper Beeches.*

Silas Lapham, The Rise of, is by William Dean Howells, an American novelist of the realistic school. It traces the history of a strong New England man from his days of poverty to those of wealth, and from a small country town to Beacon Hill in Boston.

Silas Marner pictures with fine artistry the life of Raveloe, a small mid-England community. George Eliot, the author, was right at home in these surroundings, and gave us some of her best description and character study in this short novel. The main character is Silas, who many years before was driven out of another hamlet by false rumors as to his honesty. His best friend and his sweetheart turned against him. Now a saddened and hard-hearted man, he is living alone in his humble cottage, where he earns his living at the loom. All of his money has been saved, except a mere pittance for his few wants. Silas, soon after the story begins, returns home one night to find that his pile of gold has been stolen. He becomes more of a recluse than ever. At last one evening, as he sits dozing, he looks toward his hearth and sees something like his lost gold. When he becomes fully awake, he finds there a little golden-haired girl. This child gradually wins Silas back to himself again. He comes to regard the welfare of his foster child as much better than all the gold of the world. Refusing aid of all the neighbors, except for some advice from a kindly Mrs. Winthrop, Silas continues to rear Eppie, the child, until she is old enough to marry. Her own father, a prosperous farmer, now comes forward to claim her, but Eppie decides to remain with the man who brought her up rather than go to a fine house to live with the father who refused to acknowledge her all these years. Eppie marries the son of Mrs. Winthrop, and continues to live with Silas. An older brother of Godfrey Cass, her real father, has stolen the gold, which is found, along with his bones, when some stone quarries nearby are finally drained. Few novels describe as impressively as this the wonderful power of a child to transform hard, sodden, and selfish humanity.

Sir Patrick Spens, one of the many old English ballads, in forty-four simple, rugged lines, tells a story that is infinitely pathetic. Sir Patrick Spens, a bold mariner, was commissioned by the Scotch king to go across to Norway to bring home the daughter of the Norse monarch, who was to become the king's bride. The story is founded on a real event that happened in 1281. Sir Patrick knows that to go is almost to commit suicide, but he willingly obeys his king. On the return the boat founders in a great storm and all are lost. It is impossible to tell this plain tale in prose as it is brought out by swift, vivid, and strong diction in the ballad itself.

Sohrab and Rustum, a beautiful epic poem by Matthew Arnold, relates an incident in the warfare between two eastern armies. Sohrab and Rustum are chosen as champions to decide the contest in personal combat, while the armies look on from either side. The fight is described in simple, but most effective words. At last the younger man is wounded. It is only then that they discover that they are father and son. The grief and despair of the old father are powerfully touching.

Spectator, The, an essay in newspaper form, was founded by Joseph Addison and Richard Steele in 1711 and ran for about three years. Modern journalism dates from this foolscap journal, which was found at the breakfast table of many English homes of the period. Addison also set the taste for more than a hundred years for all sorts of genial and familiar essays. Washington Irving was called the American Addison because of his urbanity and graceful style, resembling that of the Spectator papers. Many subjects were treated, but the most celebrated describe the life of Sir Roger de Coverley and other gentlemen associated with him in the Spectator Club, as Addison called his company of friends. Johnson said that whoever would wish to "attain an English style, familiar, but not coarse, and elegant, but not ostentatious, should give his days and nights to the reading of Addison."

Stella was the name given to Esther Johnson by her old teacher and friend Swift. They exchanged tender and sentimental letters, which have led many to believe they were married, but Swift wished for some unknown reason or whim to keep their secret from the world. These epistles, now published though never intended for other eyes by the authors, reveal Swift as a tender and kind man beneath a harsh and overpowering exterior.

Tale of Two Cities, A, differs from the other novels of Charles Dickens, in that incidents are specially stressed, though Dickens here, too, shows his powerful technique as a delineator of human traits. The story affords a colorful picture of many events during the French Revolution, with a weaving of fact and romance in the lives of four people, one of whom pays a great price to save his friend. Dr. Manette for more than eighteen years has served in the Bastile on some unfounded charge. His daughter, Lucie, is now married to Charles Darney, who has also been in prison and has barely saved himself from death. Mr. Lorry, a solicitor of a London business house, and Sidney Carton are their friends, the latter because of a high regard for Dr. Manette and his daughter.

During these days of the Revolution, nobody knows from hour to hour who next will be charged with treason and who will be led to the guillotine because of the testimony of lying witnesses, fired with the zeal of getting rid of enemies of the state. Madame Dufarge and her husband, keepers of an inn, again have Darney, who is a nobleman, arrested on a trumped up charge. Carton realizes that little hope remains. His own life, as he reviews it, has been far from noble or successful; and he now decides to sacrifice all for the good of his friends. Accordingly, he secures access to the prison room of Darney, tries to persuade him, and finally uses other means to get him to leave the place. He quickly changes clothing with Darney who is conducted to freedom outside, and Carton goes to the guillotine, while the old French knitting women sit by and count the number of those executed that day. Darney finds a friend in a little French seamstress as both are on their way in the same batch for execution. The closing scenes of the novel are among the best in our fiction for interest, vividness, and nobility of purpose, in contrast with prejudice, hysteria, and cool inhumanity. Dickens also paints some good pictures of London and Paris throughout the book.

Tales from Shakespeare by Charles and Mary Lamb summarize for young readers the plots of the great dramas. Even for mature students they provide a convenient prose summary of the narratives.

Talisman, The, a romantic story of Walter Scott, outlines some of the incidents of the third crusade about 1200, with much of the imaginary. During a lull in the fighting in Palestine, a Scotch knight whose symbol is a couchant leopard on his shield, falls in love with Edith Plantagenet, nominally a ward of King Richard the Lion Heart. The chief crusader has been suffering of a mysterious malady. An Arab physician (really the Soldan in disguise) comes to Richard's tent and effects a cure by melting the precious talisman in liquid. This amulet or magic stone cures Richard, and Hakim, the reputed physician, leaves for his own abode. Later in the novel he and Richard battle in a personal combat before their armies. The Scotch knight (calling himself Kenneth) falls into disgrace while guarding the English banner from the jealous Austrians under Conrad, who finally tear it down. Richard now disgraces the Knight of the Leopard by sending him away under guard. Eventually, Kenneth proves his faithfulness when he saves Richard from the plots of an assassin, and Richard rewards him with the hand of Edith. The Soldan himself in person has requested Richard to spare this valiant knight. Many stirring scenes add to the vitality of the novel.

Tam O'Shanter, a convivial Scot, according to a poem by Burns, one dark night is returning from the inn to his home. He has to pass by Alloway Kirk, famed for being the haunt of midnight gatherings of witches and other sprites. Tom has been braced by good liquor and incautiously looks into the kirk to see the dance there. He is at once recognized. The whole crew chase him at furious speed till he arrives at the bridge over the River Doon. No witch could cross a running stream. Tom therefore escapes, but his old nag loses a considerable part of her tail in the hands of a witch.

Tanglewood Tales by Hawthorne, 1853, borrow some of the old classical stories and adapt them to young readers. He invests them all with his own peculiar charm of human appeal. Some of the best tales are those of the Minotaur of Circe, which turned men into pigs and was finally slain by Theseus, and of Jason and his companions who made a journey in quest of the Golden Fleece.

Tempest, The, by Shakespeare begins with a storm but ends with a decided romantic calm. It is one of the plays of his last period, when his view of life was kindly and most poetic. Though charming in many details, the plot is frankly that of a fairy story. A generous old magician, Prospero, with his daughter has been cast upon an island far from their realm, from which Prospero has been expelled by a brother, who usurped his throne. On the island are various creatures, chief of which are Caliban, a brutish half-man, who acts as servant to Prospero in doing rude tasks, and Ariel, who is servant in doing the lightsome tasks of the air. The ignoble duke and his party are cast upon the island by a storm. Prospero plays a number of practical jokes on different members of the party, through Ariel, and at last reveals himself to his astonished brother. The latter is willing to acknowledge that he has been punished enough and greatly wishes to restore to Prospero all his rights that he had usurped. For slightness of the plot, Shakespeare compensates with delightful play and kindly sentiment.

Thanatopsis, a didactic poem by William Cullen Bryant in noble blank verse, counsels us in regard to life and death.

Tinturn Abbey was written by William Wordsworth after he and some friends had taken a walk to the banks of the Wye. It contains some of his best blank verse, nature descriptions, and serious thoughts on life, and also illustrates his poetic creed in that the poem expresses "emotion recollected in tranquillity."

Tom Brown's School Days appeals to every red-blooded youth in his school age. This novel by Thomas Hughes explains how a young boy rose through the various "forms" or grades at Rugby, the famous English preparatory school, and finally attained fame at Oxford. For manliness, good nature, and sympathy with young life, this book has long been a classic in English literature. Some of the parts, like the bullying of Tom by older boys, the football match, and the boat race, never fail to charm all readers. There is also a fine portrait of Dr. Thomas Arnold, the great headmaster of Rugby for years.

Tom Jones has often been called the greatest realistic novel in our language. Henry Fielding, the author, admitted in the preface that this story contains no real hero, in the conventional sense, because Tom has numerous faults. Fielding was dissatisfied with the fine pictures of men in novels, which, in great degree, he said were quite untrue to life. Tom has many faults, but also several redeeming qualities, such as generosity, truthfulness, and a strong sympathy for right conduct. He is a foundling, brought up by Mr. Allworthy (as noble as his name intimates), and early in life he falls in love with Sophia Western, daughter of a neighboring squire. Both his guardian and Mr. Western object to the marriage, since Tom is thought to be too reckless and headstrong. In company with a tutor, who is a lovable, hearty man, Tom sets out to travel a bit about England. Before he returns he has covered many towns and has fallen into numerous adventures, some of which are not to his credit. His guardian and Squire Western at last overtake him and persuade him to return. Tom eventually marries Sophia. Two other characters drawn with great realism are Squire Western, an ignorant, blustering country squire and Blifil, foster brother of Tom's, who succeeds for a long time in deceiving Mr. Allworthy by his own hypocrisy and false reports of Tom.

Tom Sawyer is another boy's classic among our novels. Mark Twain (Samuel L. Clemens) in this has revived many of his boyhood days along the Mississippi River. Of all active boys in stories, Tom is one of the most interesting. His clever ruses are often laughable, as his plan to get the fence whitewashed by making out to his companions that the job was highly desirable, and even worth money for the privilege of attempting. Tom and Huck Finn, his less fortunate friend, survive many daring experiences, such as their visit to a cave not often explored by men.

Travels with a Donkey by R. L. Stevenson. See *The Inland Voyage*.

Treasure Island by Robert Louis Stevenson, 1883, is a fascinating adventure romance. Jim Hawkins, the youthful hero, is the son of an English tavern keeper, who inherits the plan and a map of some buried treasure from an old seaman, who finally dies at the inn. The landlord and his friends fit up a vessel, but some desperate men, learning of the venture, enlist among the crew and bring about a mutiny after the boat is well out at sea. Stevenson has painted several desperate characters with lifelike realism. Long John Silver, the cook with one leg, is the arch conspirator and greatest villain. Considerable blood is spilled in various hair-raising adventures, much in the manner of the blood-and-thunder novels. Throughout, however, the story is so well written as to be in a class almost by itself among the stories of breathless interest. At last the treasure is found, Jim Hawkins comes into his own and returns safely to his native land, and the guilty are punished as they deserve.

Twice Told Tales by Hawthorne. See *Mosses from an Old Manse*.

Two Years Before the Mast tells with truthful details the story of a voyage around Cape Horn to California in early days before the rush for gold in the West. It was published first in 1837, but a supplementary chapter was added in 1869. The joys, hardships, and brutalities are told in a way to win this novel a place along with *Roderick Random, The Pilot, Mr. Midshipman Easy*, and other celebrated tales of seafaring life. William Cullen Bryant, who secured the publication for Dana, pronounced the narrative equal to *Robinson Crusoe*, for interest and realism of details. This book was chosen by the British Board of Admiralty for distribution among all sailors of the English fleets. The author was a young Harvard graduate in search of health while he shipped as a common sailor before the mast. When he reached California, he left the original sailing vessel, spent some time as a trapper in the southern part of the territory, and later returned on another craft to the shores of the Atlantic.

Uncle Remus is the old colored man reputed to be the teller of various folk lore stories as written by Joel Chandler Harris. They have all the imagination, sympathy, and drollery of the negro dialect narratives. Uncle Remus usually has a little boy as his auditor, who listens and also asks questions while the ex-slave entertains him with accounts of Brer Rabbit, Brer Fox, and other animal creatures. Some of the stories in plot and moral resemble ancient narratives found in early fables. Many of them were collected by Mr. Harris from old legends and tales handed down from generation to generation among the colored folk of the South. Stories like *Brer Rabbit's Cradle, The Wonderful Tar Baby*, and *How Mr. Rabbit was too Sharp for Mr. Fox* are typical.

Vanity Fair, the masterpiece of William M. Thackeray, has been classed among the eminent novels that describe society in its varied aspects. The chief woman character is Becky Sharp, another Beatrix Esmond, or the kind of adventuresome woman found in several of the novels by the same author. Becky is resourceful, captivating, and thoroughly unprincipled in her numerous flirtations. She is shown gradually acquiring her subtle arts from the time she throws Dr. Johnson's *Dictionary* out of the window of the coach as she leaves school for the last time. Contrasted with her is poor Amelia Sedley, a pliable, faithful, and long-suffering wife of a nondescript husband. When one resigns, the other designs further conquests. Among the fine descriptions in the novel are those of various characters of the Sedley family, the battle of Waterloo, and the various schemes of Becky Sharp. All is mellowed by Thackeray's kindly but incisive satire, while no corner of society or no foible of human nature seems to escape his notice.

Vicar of Wakefield, The, one of the pleasantest books in literature, is a hearty tribute to human nature at its best. Goldsmith, the author, pictures the idyllic life and sentiments of an English vicar,—three men in one, "vicar, husbandman, and father of a family." Dr. Primrose is a modern Job: he loses his small property, his house by fire, and his daughter through a neighboring squire of doubtful character, but always maintains his calm and simple philosophy. Some of the outlines of the picture are probably borrowed from the traits of Goldsmith himself. Mrs. Primrose is trying to appear

genteel, takes great pride in her housekeeping, and often distresses the kindly husband with her worldly ideas. Peace, good luck, and happiness are at last restored through Sir William Thornhill, who marries one of the daughters, makes his nephew, who eloped with the other, behave himself like a gentleman, and builds up the family fortunes once more, securing the release of the vicar and his sons from the debtor's prison.

Vision of Sir Launfal, a beautiful poem by Lowell, tells the story of a knight who seeks a great adventure but, for a time, misses simple charity and christian kindness near at home. Only when his love and real humanity go out toward the beggar to whom he throws a crust does the face of the mendicant change to that of Christ.

Walden, a prose work by Henry D. Thoreau, still retains its interest after seventy years since publication. Thoreau built himself a hut, lived most humbly on the shores of Walden Pond, entertained callers, and watched the birds and animals in their native pursuits. His book makes all those simple events human and fascinative to lovers of nature.

Wandering Willie's Tale is one of five or six short narratives written by Sir Walter Scott. Steven or Steenie Stevenson, a poor tenant of the old lord Redgauntlet, by dint of borrowing scrapes enough money together to pay his rent. The violent old landlord, whom everybody fears, is seized by a paroxysm before he makes out a proper receipt after he receives the money from Steenie. From this attack, the old lord never recovers. Steenie rushes out, the money is lost sight of, and the new landlord demands either the receipt or the money. While Steenie is going home one evening, a strange black man meets him in the forest, offers to assist in finding the paper, and at last leads the astonished tenant into another world, where old Redgauntlet is found among his violent boon companions. By refusing to touch or taste anything, and only to demand his own receipt, he succeeds in getting the paper and returning to the outer world. The young son of the old laird accepts the receipt, but cautions Steenie not to tell of his adventure to any man. Scott adds some humorous touches to the story and introduces us to a racy and typical Scotch dialect.

Webster-Hayne Debate consists of speeches delivered in the United States Senate in 1830 by Daniel Webster and Robert Y. Hayne. Though the discussion arose out of a plan of dividing the public domain in certain western states, it grew into a somewhat broader discussion of the conflicting notions of North and South over the question of the extension of slavery into new states. Healy's celebrated painting to represent the audience at the time now hangs in Fanuel Hall in Boston.

Westward Ho, published by Charles Kingsley in 1855, glorifies the mariners of the age of Queen Elizabeth in England. Both real and fictitious persons are found in the novel. Sir Walter Raleigh, Francis Drake, Sir John Oxenham, Richard Grenvil, and Edmund Spenser appear among the historical persons. The real hero is Amyas Leigh, a lad who goes on several expeditions with famous mariners, one with Drake around the world, twice to South America, and to other places. One voyage is made to find Rose Salterne, an old friend of the Leigh family, now married to a Spaniard. The fight of Grenvil in the Atlantic, the defeat of the Spanish Armada, and the voyages to South America in quest of gold and revenge are described with lifelike color. In the background is always the idea of the maritime glory of England about 1600. Kingsley also wove into the story a romantic love plot.

Window in Thrums is one of the best examples of humor and pathos as combined by the Scotch author, James M. Barrie. In a series of intimate pictures of a simple Scots family in a mill town, the author reveals the heroism, kindliness, and nobility of humble folk. Jess, the cheerful shut-in, Jamie and Leeby, brother and sister, are friends that remain long in memory.

Wuthering Heights, a romantic tragedy in novel form by Emily Bronte, was first issued in 1848. Indeed the subject is dark and sometimes depressing for the book contains a vivid picture of hate and human retribution, with many touches of deep melancholy and pathos. Two families intermarry, but the almost devilish hatred of one man keeps several from enjoying any peace or happiness. At the end only two of the chief characters are left to enjoy their remaining days in kindness.

Youth, one of the many fascinating sea tales by Joseph Conrad, is an account of a voyage made by a young man in an old unseaworthy sailing craft. Contrasted with the age of the vessel is the inexperience of the boy just shipping on his first voyage. A cargo is being carried from England to Bangkok, Siam. Much of the narrative describes various means of combating a fire which breaks out while the ship is in mid-ocean. When Bangkok is practically in sight, the signal to abandon the ship is given, and the crew escapes through the kindness of another boat.

LITERARY TERMS AND DEFINITIONS.

Acrostic, a verse or set of verses in which the initial letters, taken in succession, form a word, phrase, or sentence. Sir John Davies, for example, wrote twenty-six poems, each one forming in its first letters the words *Elisabetha Regina*, Elizabeth, Queen. The form is very ancient.

Age of prose and reason is a phrase often used to characterize the period roughly from 1700 to 1750, when little poetry was written, and imagination and originality gave way to conversation and taste.

Allegory is a literary or artistic work in which a hidden meaning or likeness to some other subject, thought, person is intended. It has been called an extended metaphor. Some allegories in English literature are *Piers Plowman, Faerie Queen, Pilgrim's Progress.*

Anagram is a transposition of the words or letters of a phrase or word to make a new combination that has some related meaning. Like the acrostic it is an ancient device, and once highly regarded; but Addison once said it would be hard to discover which was "the greater blockhead," the man who invented the acrostic or the one who invented the anagram.

Apocalypse literally means a revelation, like the last book of the *Bible*. Many Hebrew writings, including certain parts of Isaiah, Ezekiel, and Daniel, are apocalyptic.

Apocrypha originally meant those books in Hebrew not considered genuine scriptures. Later it meant those books in the Greek and Latin manuscripts, but not in the Hebrew. Both Old and New Testaments have corresponding apocrypha, once printed in old Bibles, and now only in a separate volume. Anything not now thought genuine is called an apocrypha, as the Shakespeare Apocrypha, sixteen plays once ascribed to Shakespeare, but now known to be not wholly his work.

Apologetics are works written or spoken in defense of the Christian faith.

Apologue, a story resembling a fable, in which a moral truth is shown without direct mention. Many Middle Age stories took this form, as do some of the narratives of Hawthorne like *The Ambitious Guest*, in which the lesson intimated is one of the futility of earthly ambition, or in some of Kipling's stories like *.007*, and *The Walking Delegate*. Of late there has been a decided tendency to revive this form, as in some of the dramas of the Irish National Theatre.

Archaism is a word or expression out of date at the time it is used, as *yclept* for called, *whilom*, and similar words in poetry.

Assonance, a middle rime of vowel sounds, corresponding to regular or end rime, or initial or alliterative rime. *Shore* and *force*, *vast* and *waste* show assonance of the *o* and the *a* sounds respectively. Tennyson gives us many lines, like "The *bare black cliff clanged* round him."

Ballad is a narrative, poetical composition usually in irregular meter, vivid, spontaneous, and objective. All European literatures have these popular poems, commonly handed down by oral tradition. Whether they are communal and social in origin or individual is still debated. The English and Scottish popular ballads are celebrated for simple and rapid movements.

Bibliography is a list of the titles of books or other material bearing on a common subject. It is fast becoming a science almost in itself. A bibliography on Immigration would list all books and magazine articles one could find bearing on the general topic.

Climax, as a figure of speech, is an increasing emphasis on an ascending series of words, phrases, or ideas. In the study of the novel and the drama, however, it means the highest point of interest, the turning point of the

action, or the moment of intensest interest when something happens to change the course of the plot. After the climax comes the resolution or final clearing up of the story or action. In a play the climax usually comes before the end of the fourth act. Climax must not be confused with culmination or end of the plot or story.

Comedy once was said to be the form of drama that ridiculed the common man, while tragedy pictured the sufferings of the noble. Modern criticism confines the name to a play with a fortunate, happy, or pleasant turn of events, all of which are well foreshadowed from the start. Some plays begin as if they were to end in tragedy, then turn into comedies; and these are often named tragi-comedies, of which *The Merchant of Venice* is a good example in Shakespeare.

Criticism is judging the merits and defects of a work of art, be it painting, sculpture, or literature. Though somewhat formless in principles, it never should depend on caprice or mere personal liking, or on considerations outside the work being examined. For the average reader a good book on the subject is Winchester's *Principles of Literary Criticism*, or Shuman's *How to Judge a Book*.

Cycle in literature is a group of poems or prose works bearing on the same general topic, but written by different authors, at different times; or several poems, which have been fused into one related whole, the parts being somewhat individual. The *Niebenlungen Lied* is the great German cycle; the Charlemagne poems, the French; and the Arthur stories, the English.

Denoument is a French word, adopted into English, meaning the final stage of the unraveling of the complication of a plot, or the clearing up of the story after the climax has been reached. Another name is Resolution to explain approximately the same part. See *climax* above.

Drama is that form of art which shows persons as if in real life,—planning, thinking, and doing. For the various kinds of early dramas before Shakespeare's age, see the section on Language in this book. These include Miracle and Moral plays and Interludes.

Dramatic Unities are three in number in classical and later French plays. They are the unities of time, place, and action. All the action should occur within the space of a day or a little more, in the same general locality or city, and the characters should be consistent in what they do,—or, otherwise, "consistently inconsistent" as Aristotle said. In English the third unity is the only one rigidly followed. Some French dramatists added a fourth, the unity of style,—each play must be all tragic, or comic, or lyric, etc. Shakespeare consistently violated this canon in his alternation of grave and gay scenes.

Elegy is a lyric form of poem dealing with thoughts of melancholy or death that are real or imaginary. Milton, Gray, and Arnold wrote beautiful elegies, now justly famous. Tennyson's *In Memoriam* is a fine elegy.

Epic poetry. See section on Language in this book.

Essays in literature are discussions of topics in either a formal or informal manner. Montaigne, a French author in 1580, published his *Essais*, and he was followed in English by Bacon. Some attempt has been made to divide essays into two classes, scientific and familiar, but one class often overlaps upon the other. Cowley, Dryden, Addison, Johnson, Burke, Hazlitt, DeQuincey, Lamb, Emerson, Carlyle, Walter Pater, Macaulay, Bagehot, and Stevenson are some of the great English essayists.

Fables are now defined as stories with moral implications in which men are represented usually by animals and even inanimate objects like trees. Fables by Aesop, La Fontaine, Anderson, Grimm Brothers, and Joel Chandler Harris are among the best known in English, but the form is ancient and the literature is prolific. Once the word fable was used for story, plot, or deeper significance of a literary work. Dryden uses the word often in this secondary sense.

Fabliaux were groups of entertaining verse compositions of satirical and comic interest. They were often quite realistic and first became known in French literature in the middle periods.

Fallacy is often spoken of as a mistake in thought or some wrong opinion. In logic a fallacy is a mistake in reasoning from premise to conclusion. The kinds of fallacies are numerous and hard to distinguish, but the most common ones are hasty generalization, fallacy of mistaking an effect or a cause, if one is known and the other to be found, wrong analogy, arguing in a circle, and shifting ground by taking different positions in successive parts of an argument.

Farce is a variety of comic drama that is designed wholly to please. It has been defined as "improbable people doing impossible things." In a farce there is little attempt to present people or events in their true light. Many farces are accompanied by horse play or crude practical jokes.

Fiction, in its widest sense, is opposed to reality and fact. In a literary work it designates an imaginative composition, some parts of which may be based on reality. Though fiction is found in both poetry and prose, the word is popularly used to designate a prose story, novel or romance, short or long. See *novel* and *romance*.

Folio in printing is a sheet, approximately 17 by 22 inches, that is folded twice only; hence, a book of largest size, as distinguished from quartos, duodecimos, etc. In books used for keeping accounts, a folio is a single sheet thus folded, or two,—right and left hand,—numbered alike, and used for debtor and creditor sides of a ledger.

Free verse, a popular form of unrimed poetry, at present designated by considerable irregularities in metrical form, length of line, and other variations from conventional, regular poetry. Authors of free verse profess to depend more on beauty or nobility of thought than on metrical and musical graces.

Idyll is a poem in simple diction treating usually of rustic or pastoral themes. Some idylls are lyric poems in praise of nature; others are narrative or descriptive, with persons and emotions brought into the foreground. Tennyson's *Dora* and *The Gardner's Daughter* are true idylls, but his *Idylls of the King* are too ornate and artistic to be more than idylls in name.

Laureate as a name originated in the ancient classical custom of crowning with laurel a famous poet, or the victor in a literary contest. Chaucer was granted a pension in England and wrote court poems, as succeeding poets did, but the office of poet laureate was not formally established till it was given to Dryden by letters-patent in 1670. Of the numerous laureates since the eighteenth century, Southey, Wordsworth, and Tennyson are best remembered.

Lyric poetry expresses emotions, real or assumed, of the author himself. Epic poetry is almost wholly objective, and dramatic has been called a combination of the other two forms. See the article on *Prosody* in the section entitled *Language* in this book.

Masque is the name applied to a light, musical, allegorical play as represented in amateur theatres. In the age of James I the court allegory in masque form attained great vogue. With the rise of spectacular and musical or ballad operas, the form declined greatly. One of the celebrated masques in English is Milton's *Comus;* others were more imaginative and gay.

Melodrama flourished in France long before it was introduced into England by Thomas Holcroft about 1800. At first the name was applied only to a musical and spectacular play, full of peculiar and sudden effects. At present the word is usually applied to any play of strong situations, unmotived action, and startling changes of fortune. When the novels of Walter Scott were transferred to the stage shortly after 1815, melodrama drew largely on such prose romances for subjects. The songs, scenery, and highly emotional acting characterized such plays for a quarter of a century.

Meter and various verse forms are discussed in the section on *Prosody* elsewhere in this volume.

Metrical Romances grew up in the centuries at the end of the Middle Age in English literature. The long poems of Scott revived some of the main characteristics of the type. These really are novels or at least short stories in verse. They are notable for action, swift description, and strong pictures of people.

Mixed Metaphors are incongruous assortments of words and rhetorical figures of likeness. "I smell a rat, I see him floating in the air, I'll nip him in the bud" has been given as a sample of mixed metaphors from the halls of Parliament. The best metaphors are those that might be taken literally, without too much violence to reason or sense.

Novel, as a general term, is applied to all long prose fictions. In the narrow sense, the class falls into two divisions, novels proper and romances. In novels the story and characterizations follow human nature and actual or possible facts; in romances the persons are likely to be ideal and the events not probable to the same degree as they are in novels. Scott and Hawthorne are romancers, for instance; while George Eliot and Dickens are novelists.

Panegyric is an oration or prose writing that extols some person, event, or principle. Recently, however, the word has been broadened to include any laudatory account.

Pastoral poetry and drama show a real or ideal life in the country. Most of our pastorals in English literature are highly artificial, and written by men who lived in towns and knew the rural districts only at second hand. Men like Barnes, William Browne, and James Hogg, the Ettrick shepherd, approach toward reality in pastorals. Prose fiction, too, often has pastoral elements like Sidney's *Arcadia*, or the Spanish pastoral romances like the *Diana* of Montemayor. Shepherds named Lycidas, Coryfion, Daphnis, Chloe, Amaryllis appear in all pastorals since Theocritus, a Latin poet who lived three hundred years before Christ. Some of the fanciful pastorals in English are Spenser's *Shepherds Calendar*, Lodge's *Rosalynde*, in prose, from which Shakespeare got suggestions for his *As You Like It*, Jonson's dramatic *Sad Shepherd*, and Fletcher's *Faithful Shepherdess*, a romantic play. Pope, Ambrose Phillips, Gay, and Ramsey all wrote pastoral verses. Cowper, Wordsworth, and Tennyson in a few poems, wrote pastorals without much of the artificial elements. Elegies like Milton's *Lycidas*, Arnold's *Thyrsis*, and Shelley's *Adonais* are strongly marked by pastoral touches.

Poetry, its forms, and kinds are treated under *Prosody* on another page.

Polyglot strictly speaking is a book with several versions of the text in different languages printed side by each or in succession. Now the word is often used of many languages in general; or, a person who speaks several has been called a polyglot.

Realism as opposed to idealism more nearly approaches to realities, facts, events, and people as they actually exist in this world. Thus, the novel is realistic in that it closely simulates actual life and conditions that are probable. Whether the story is true or not is immaterial, so long as it might be true to human life and nature.

Refrain is the repetition of the same words, lines, exactly or approximately, from time to time in a poem. One form is the chorus in which all the hearers supposedly join with a soloist or reciter. Certain French stanza forms use beautiful refrains. The good refrain must seem spontaneous and musical.

Rhapsodists once in Greece wandered about singing their own poems. Later reciters use the works of others; and still later music was not used as an accompaniment. The word means literally, recital of poetry. In England the Anglo-Saxon scop was a reciting wanderer. So were the Welsh bards, the medieval minstrels. The minnie singers in Italy made popular modern romantic poetry. Probably the older ballads were sung by wandering bards.

Riddles, conundrums, and enigmas are ancient forms of entertainment. Samson propounded a celebrated riddle to the Philistines. Solomon and Hiram King of Tyre engaged in a guessing match with forfeits for not being able to guess the riddle. The Greek sphinx made riddles, and the sphinx of Thebes devoured those not able to solve them. In modern times the riddle has branched off into detective stories and simple stories with mysteries left unsolved at the end. Some of the oldest poems in English are in riddle form.

Runes are characters formed by arranging straight lines in various positions. Runic inscriptions are found in most of the countries of the north and west of Europe.

Satire attacks men, actions, and beliefs. It is an old form of the literature of criticism. Some of the old fables satirized the king, but were safe in that animals were the actors and doers. English satire dates from the time of Chaucer, whose writings have many sly hints and jokes of satirical import. Pope, Dryden, and other authors of the age between 1660 and 1800, developed satire to its highest point of perfection. For virulence Pope and Swift excell other satirists.

Short Story in its artistic form is not any narrative that happens to be short. Poe first gave us the theory of the short story, as a narrative to be read in one sitting, that rises from a beginning through a climax, to a swift and inevitable end. Poe says not a single word should be wasted in description or extraneous details. Unity of plot and unity of action are the chief marks of good short stories. As compared with the novel, the short story is just as complete in its own range, since nothing could be added, and nothing could be subtracted. In no sense, then, is a perfect short story a condensation. The novel is composed of many episodes, turns in character, and shifts of scene. The short story cannot afford to depart much from a straight line of plot or action.

Stanza is a group of lines or verses in a poem, a minor division of the whole. Incorrectly verse is often confused with stanza, but in reality, a verse is but a single line, a stanza a combination of two or more lines.

Tragedy is a form of literary art that shows how inevitable forces work to an end that is distressing or sad. A tragedy ends in defeat, misunderstanding, disaster, or even in death, but the last is not the main feature of a tragic story or drama. French classic tragedies are serious throughout; English, as imitating Shakespeare, sometimes have humorous or comic scenes in tragedies. Usually tragic emotions are those on a high plane, and the characters suffer nobly or with much strength of character, whether it be good or bad.

Tragi-comedy, a serious play that finally ends fortunately or happily. The dramas of Beaumont and Fletcher are good illustrations.

Verse, a single line of poetry, not a stanza or group of lines. Various English verse forms are described in the section on *Language*.

USEFUL BOOKS FOR THE STUDY OF ENGLISH.

A list of titles of useful books is given below to supplement the outlines and the discussion of English classics in the preceding pages. Those who wish to carry their studies in English further will find most of these books in any good library. Care has been taken to select only those texts best suited to the general reader. Prices are subject to some revisions.

Alden, Raymond M. "Introduction to Poetry." Holt, 1.50

Baker, Harry T. "The Contemporary Short Story." Heath, 1.50

Bates, Arlo. "Talks on the Study of Literature." Houghton, 1.50

Bennett, Arnold. "Literary Taste and How to Form It." Doran, 1.00

Brown, Rollo W. "How the French Boy Learns to Write." Harv. Univ. Press, 1.50

Burton, Richard. "How to See a Play." Macmillan, 1.50

Crawshaw, William H. "The Interpretation of Literature." Macmillan, 2.00

Cross, Wilbur L. "The English Novel." Macmillan, 1.90

Dixon, W. H. "Epic and Heroic Poetry." Dutton, 2.00

Emerson, Oscar F. "History of the English Language." Macmillan, 1.75

Esenwein, J. Berg. "The Study of Short Stories." Home Corr. School, Springfield, Mass., 1.75

Foster, William T. "Argumentation and Debating." Houghton Mifflin Co., 2.10

Garnet, Richard and Goss, Edmund. "English Literature; an Illustrated Record." 4 vols. Macmillan, 18

Gummere, Francis B. "Handbook of Poetics." Ginn, 1.25

Hitchcock, Alfred M. "Rhetoric and the Study of Literature." Holt, 1.50

Jespersen, Otto. "Growth and Structure of the English Language." G. E. Stechert, New York, 2.00

Jusserand, Jules J. "Literary History of the English People." Putnam, 5.00

Krapp, George P. "Modern English." Scribner, 1.50

Lounsbury, Thomas R. "English Spelling and Spelling Reform." Harpers, 1.50

Meikeljohn, J. D. M. "The English Language." Heath, 2.50

Moulton, Richard G. "The Modern Study of Literature." Univ. Chicago Press, 2.50

Pancoast, Henry S. "Introduction to English Literature." Holt, 2.00

Perry, Bliss. "A Study of Prose Fiction." Houghton, 1.50

Reed, Edward B. "English Lyrical Poetry." Yale Univ. Press, 2.25

Saintsbury, G. E. "The English Novel." Dutton, 1.50

Schelling, Felix E. "The English Drama." Dutton, 1.50

Slater, John R. "Freshman Rhetoric." Heath, 1.60

Smith, C. Alphonso. "What Can Literature Do for Me?" Doubleday, 1.25

Thorndike, Ashley H. and Neilson, William A. "The Facts About Shakespeare." Macmillan, 1.50

Ward, A. W., editor. "Cambridge History of English Literature." 14 vols. Putnams, each 3.50

White, H. A. "English Study and English Writing." Heath, 1.50

Woodberry, George E. "The Appreciation of Literature." Harcourt, 1.20

GRADED LIST OF TWO HUNDRED BEST BOOKS FOR CHILDREN

For home and supplementary school reading, grades one to eight inclusive, based on the experience and recommendations of the Carnegie Library of Pittsburgh, the Buffalo Public Library, and the Wisconsin Free Library Commission.

Thoughtful parents are constantly confronted with the problem of selecting the right books for their children. To aid in performing this important task, the following list has been prepared with extreme care, making use of the experience of several great libraries which have co-operated with parents and teachers for many years, as well as that of many teachers and library workers who have specialized upon the problem.

Object of List.—In order to make this list as valuable and useful as possible, three definite aims have been kept in view:—

First: To make a practical list of books, any one of which will be suitable for first purchase for the home, school, or community library.

Second: To include only books which the widest use has proved of greatest value.

Third: To include only books easily obtainable, giving publishers and price. More expensive editions of many of the books here listed are published, and, in a number of cases, less expensive ones also. But parents not infrequently make the mistake of buying children's books in too small type or so poorly illustrated or bound that their usefulness is annulled. In making this list the lowest-priced edition consistent with satisfactory service after purchase has been selected.

Method of Grading.—Many extremely helpful children's books are almost equally valuable for two or more grades. In order to prevent confusion and to avoid repeating the name of the same book under two or more grades, each book is listed under the earliest grade for which it is recommended. In a limited number of cases in the two highest grades, books are listed where the majority of authorities place them. In practice nearly all books in the list will be found almost equally suitable for children one or two grades more advanced. This overlapping of limits is so extensive in the sixth, seventh, and eighth grades that excellent authorities are inclined to place the books best adapted for them in one general group. However, even if some children in the sixth grade are capable of reading with profit books here listed under grade eight, they will do so with far greater benefit if they read those listed under grades six and seven first, and this list will prove of great value in indicating the order in which these books should be read. More advanced books will be needed on subjects about which a child's interest is keenest, a point to be kept in mind in making selections.

Since book prices at present are subject to some fluctuations, it is best to have your local bookseller consult his current catalog of published books to ascertain if any change has been made. Otherwise, you may communicate directly with the publisher or with any jobber or wholesaler of books.

FIRST GRADE

Blake, D. K., and Alexander, Georgia, compilers. "Graded Poetry Readers." First and second year. Merrill, .20

Burgess, T. W. "Old Mother West Wind." Little, .45

Coe, Ida, and Christie, A. J. "Story Hour Readers." First year, 2 vols. Am. Book, each .30

Cox, Palmer. "Brownies: Their Book." Century, 1.50

Dodge, Mrs. M., compiler. "New Baby World." Stories, pictures, and rhymes selected from St. Nicholas. Century, 1.50

Gaynor, Mrs. J. L. "Songs of the Child World," 2 vols. Church, each, 1.00

Greenaway, Kate. "Under the Window." Warne, 1.50

Grimm, J. L. and W. K. "Fairy Tales." Edited by S. E. Wiltse. 2 vols. Ginn, each, .35

Grover, E. O. "Overall Boys." Rand, .45

Grover, E. O. "Sunbonnet Babies' Primer." Rand, .40

Holbrook, Florence. "Hiawatha Primer." Houghton, .40

Ivimey, J. W. "Complete Version of Ye Three Blind Mice." Warne, .50

Lansing, M. F. "Rhymes and Stories." Well chosen nursery rhymes, nonsense tales, and folklore. Ginn, .45

Mother Goose. "Book of Nursery Rhymes." Arranged by Charles Welch. Heath, .30

Mother Goose. "Jolly Mother Goose Annual." Illustrated by B. F. Wright. Rand, 1.35

Mother Goose. "Our Nursery Rhymes." The original tunes harmonized by Alfred Moffat; illustrated by H. W. Le Mair. McKay, 1.50

Mott, S. M., and Chubb, Percival. "Indoors and Out." Nature and dramatic reader for primary grades. Scribner, .30

Norton, C. E., editor. "Heart of Oak Books," Vol. 1. Rhymes, jingles, and fables. Heath, .25

O'Shea, M. V., editor. "Six Nursery Classics." Contains The House that Jack Built, Mother Hubbard and Her Dog, Courtship of Cock Robin, Dame Wiggins of Lea, The Old Woman and Her Pig, and The Three Bears. Heath, .20

Parkinson, Ethel. "Dutchie Doings." Dodge, 1.00

Scudder, H. E., editor. "Book of Fables and Folk Stories." Houghton, .40

Van Sickle, J. H., and others, editors. "Riverside Readers." Houghton, Primer, .30; First Reader, .35

Wiltse, S. E. "Folk Stories and Proverbs." Well told and well illustrated with simple drawings. Ginn, .30

SECOND GRADE

Adelbourg, Ottilia. "Clean Peter and the Children of Grubbylea." Longmans, 1.25

Andersen, H. C. "Fairy Tales." Selected and edited by E. H. L. Turpin. Merrill, .40

Baldwin, James. "Fairy Reader." Adapted from Andersen and Grimm. Am. Book, .35

Baldwin, James. "Fairy Stories and Fables." Am. Book, .35

Bass, M. F. "Nature Stories for Young Readers: Animal Life." Heath, .35

Bass, M. F. "Nature Stories for Young Readers: Plant Life." Heath, .25

Beard, Lina and A. B. "Little Folks' Handy Book." Scribner, .75

Brooke, L. L. "Golden Goose Book," 4 pts.—Golden Goose, Three Bears, Three Little Pigs, Tom Thumb. Warne, 2.00

Caldecott, Randolph. Picture Books. 4 vols.
No. 1, "Diverting History of John Gilpin." "Three Jovial Huntsmen." "An Elegy on the Death of a Mad Dog."
No. 2, "The House that Jack Built." "Song of Sixpence." "The Queen of Hearts."
No. 3, "Hey Diddle Diddle." "Baby Bunting." "Ride a Cock Horse." "Where are you Going, My Pretty Maid." "The Frog he would A-wooing Go."
No. 4, "Come, Lassies and Lads." "The Fox Jumps Over the Parson's Gate." "Mrs. Mary Blaize." "The Great Panjandrum Himself."
Warne, each vol., 1.25

Chance, L. M. "Little Folks of Many Lands." Ginn, .45

Coe, Ida, and Christie, A. J. "Story Hour Readers." Second year. Am. Book, .35

Grover, E. O., and Chutter, F. E. "Art Literature Readers." "Each contains about 40 excellent reproductions of paintings, well chosen. The easy text, original or selected, fits the picture."—N. Y. Lib. Best Books. Atkinson, Book 1, .30; Book 2, .40

Jataka. "Jataka Tales." Edited by E. C. Babbitt. Century, .40

Johnson, E. L., and Barnum, M. D. "Book of Plays for Little Actors." Am. Book, .30

Mott, S. M., and Dunton, M. B. "Fishing and Hunting." (World at Work Series.) Stories of the Eskimos, Indians, Alaska, and the Philippine Islands. Am. Book, .30

Norton, C. E., editor. "Heart of Oak Books." Vol. 2. Fables and nursery tales. Heath, .25

Perkins, Mrs. L. "Dutch Twins." Everyday life of a Dutch brother and sister. Houghton, .50

Stevenson, R. L. "Child's Garden of Verses." Rand, .75

Van Sickle, J. H., and others, editors. "Riverside Readers." Second reader. Houghton, .40

THIRD GRADE

Æsop. "Child's Version of Æsop's Fables." With a supplement from La Fontaine and Krilof. Edited by J. H. Stickney. Ginn, .35

Andrews, Jane. "Seven Little Sisters Who Live on the Round Ball that Floats in the Air." Ginn, .50

Baldwin, James. "Fifty Famous Stories Retold." Am. Book, .35

Blake, D. K., and Alexander, Georgia, compilers. "Graded Poetry Readers." Third year. Merrill, .20

Carroll, Lewis. "Alice's Adventures in Wonderland," with 42 illustrations by Sir John Tenniel. Macmillan, 75

Coe, Ida, and Christie, A. J. "Story Hour Readers." Third year. Am. Book, .35

Eggleston, Edward. "Stories of American Life and Adventure." Am. Book, .50

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Fultz, F. M. "The Fly-aways and Other Seed Travelers." Public School Pub., .60

Grimm, J. L. and J. K. "German Household Tales." Riverside School Library. Houghton, .60

Lansing, M. F., editor. "Fairy Tales," 2 vols. Ginn, each, .35

Lucia, Rose. "Stories of American Discoverers for Little Americans." Am. Book, .40

Maeterlinck, Maurice. "The Blue Bird." For children. Arranged for schools by F. O. Perkins. Silver, .68

Morley, M. W. "Bee People." McClurg, 1.10

Norton, C. E., editor. "Heart of Oak Books," Vol. 3. Fairy tales, narratives, poems. Heath, .40

Shaw, E. R. "Big People and Little People of Other Lands." Describing home life, appearance, manners, and dress. Am. Book, .30

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Van Sickle, J. H., and others, editors. "Riverside Readers." Third reader. Houghton, .50

Wilson, G. L. "Myths of the Red Children." Folklore stories with description of the Indian implements. Ginn, .45

FOURTH GRADE

Aanrud, Hans. "Lisbeth Longfrock." Translated from the Norwegian by L. E. Poulsson. Ginn, .40

Andersen, H. C. "Stories." (Riverside Literature Series.) Houghton, .40
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Atkinson, G. F. "First Studies of Plant Life." Ginn, .60

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McDonald, Mrs. E. A., and Dalrymple, Julia. "Gerda in Sweden." (Little People Everywhere Series.) Little, .45

McDonald, Mrs. E. A., and Dalrymple, Julia. "Kathleen in Ireland." (Little People Everywhere Series.) Little, .45

Norton, C. E., editor. "Heart of Oak Books," Vol. 4. Fairy tales, ballads, poems. Heath, .45

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Scudder, H. E., editor. "Children's Book: a Collection of the Best and most Famous Stories in the English Language." Houghton, 2.25

Sewell, Anna. "Black Beauty." Educational Pub., 1.25

Spyri, Johanna, "Heidi." Charming story of child life in the Swiss Alps. Ginn, .40

Stein, Evaleen. "Gabriel and the Hour Book." Story of a French peasant boy who helped the monks make books in the middle ages. Page, 1.00

Stone, G. L., and Fickett, M. G. "Everyday Life in the Colonies." Heath, .35

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Alcott, L. M. "Little Women." Little, 1.35

Allen, N. B. "Industrial Studies: United States." Ginn, .65

Arabian Nights. "Arabian Nights' Entertainments;" edited by F. J. Olcott. Holt, 1.50

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"Perhaps the most popular of modern fairy tales." —Coussens.

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Moses, Belle. "Louisa May Alcott." Appleton, 1.25
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Interesting and reliable information concerning Indians.

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Collection of poetry for children.

Wyss, J. D. "Swiss Family Robinson." Edited by Stickney. Ginn, .45

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Blake, D. K., and Alexander, Georgia, compilers. "Graded Poetry Readers." Sixth year. Merrill, .20

Boy Scouts of America. "Official Handbook for Boys." Grosset, .50
Camp Fire Girls. "Book of the Camp Fire Girls." Doran, .25
Codd, M. J. "With Evans to the Pacific." Flanagan, .60
Davis, R. H. "The Boy Scout." Scribner, .50
Defoe, Daniel. "Robinson Crusoe." Houghton, .60
Drake, F. S. "Indian History for Young Folks." Harper, 3.00
The best history of the Indians for young people.
Eggleston, Edward. "Hoosier Schoolboy." Scribner, .50
Finnemore, John. "Story of Robin Hood and His Merry Men." Macmillan, 1.50
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Teaches European history as background for American history.
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Kipling, Rudyard. "Jungle Book." Century, 1.50
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Mackay, C. D. "Patriotic Plays and Pageants for Young People." Three pageants and eight one-act plays, with directions for costumes, dances, and music. Holt, 1.35
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Parkman, Francis. "Boy's Parkman." Compiled by L. S. Hasbrouck. Little, .60
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Adams, J. H. "Harper's Outdoor Book for Boys." Harper, 1.50
Alcott, L. M. "Eight Cousins." Little, 1.35
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Adventures among the Dutch of New Amsterdam in the days of Peter Stuyvesant.
Bishop, Farnham. "Panama, Past and Present." Century, .75
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An unusually fine story.
Ferryman, A. F. "Norway." (Peeps at Many Lands Series.) Macmillan, .55
Finnemore, John. "Japan." (Peeps at Many Lands Series.) Macmillan, .55
Gayley, C. M. "Classic Myths in English Literature and Art." Ginn, 1.60
Gibson, W. H. "Blossom Hosts and Insect Guests." Edited by E. E. Davie. Newson, .80
Goodrich, C. L. "First Book of Farming." Doubleday, 1.00
Guitteau, W. B. "Preparing for Citizenship." Houghton, .75
Emphasizes the ethical side of civic-political morality.
Lagerlof, S. O. L. "Wonderful Adventures of Nils." Translated by V. S. Howard. Doubleday, 1.35
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Mitton, G. E. "Book of Stars for Young People." Macmillan, 1.25
Norton, C. E., editor. "Heart of Oak Books." Book 6. Classic tales and masterpieces of literature. Heath, .55
Reinsch, P. S. "Civil Government." Sanborn, .60
Repplier, Agnes, compiler. "Book of Famous Verse." Houghton, .75
Richards, Mrs. L. E. "Florence Nightingale, the Angel of the Crimea." Appleton, 1.25
Rogers, J. E. "Trees that Every Child Should Know". Claflin, .50
Seelye, Mrs. E. E. "Story of Columbus." Appleton, 1.75
U. S. Department of Agriculture. "Fifty Common Birds of Farm and Orchard." Superintendent Documents, Washington, D. C., .15
Wheeler, C. G. "A. B. C. of Woodworking." Putnam, 1.50
Wiggin, Mrs. K. D. "Rebecca of Sunnybrook Farm." Grosset, .75
Wiggin, Mrs. K. D., and Smith, N. A., compilers. "Golden Numbers." Excellent poetry collection. Doubleday, 2.00

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Alcott, L. M. "Old-fashioned Girl." Little, 1.35
Baker, R. S. "Boy's Book of Inventions." Doubleday, 1.60
Blake, K. D., and Alexander, Georgia. "Graded Poetry Reader." Eighth year. Merrill, .20
Brown, John. "Rab and His Friends." Edited by C. W. French. Rand, .25
Bulfinch, Thomas. "Bulfinch's Mythology." An edition containing The Age of Fable, The Age of Chivalry, and Legends of Charlemagne. Crowell, 1.50
Bunyan, John. "Pilgrim's Progress." Illustrated by the Brothers Rhead. Houghton, .60
Caffin, C. H. "Guide to Pictures for Beginners and Students." Doubleday, 1.25
Cervantes-Saavedra, Miguel de. "Don Quixote." Edited by C. Johnson. Macmillan, .50
Chapin, A. A. "Story of the Rhinegold." Harper, 1.25
Clemens, S. L. (Mark Twain). "Tom Sawyer." Harper, 1.75
"Boys love it and broad-minded parents will put it into their hands before they borrow it."—Arnold.
Cooper, J. F. "Last of the Mohicans." Holt, 1.35
Cumnock, R. L., editor. "Choice Readings." McClurg, 1.50
Dana, R. H. "Two Years Before the Mast." Illustrated by E. Boyd Smith. Houghton, 3.50
Famous Adventures and Prison Escapes of the Civil War. Collected from the Century Magazine. Century, 1.50
Gillie, R. C. "The Story of Stories." A life of Christ written for young people. Macmillan, 1.50
Hale, E. E. "Man Without a Country." Little, 1.50
One of the best stories of patriotism ever written.
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Vol. 1. Colonial Children. .40
Vol. 2. Camps and Firesides of the Revolution. .50
Vol. 3. How our Grandfathers Lived. .60
Vol. 4. Romance of the Civil War. .60
Hughes, Thomas. "Tom Brown's School Days," illustrations by Louis Rhead. Harper, 1.50
The finest story of school life ever written for boys.
Irving, Washington. "Rip Van Winkle" and "The Legend of Sleepy Hollow." Macmillan, 1.50
Jewett, F. G. "Town and City." Hygiene series. Ginn, .50
Keeler, H. C. "Our Native Trees." Scribner, 2.00
Kipling, Rudyard. "Captains Courageous." Century, 1.50
Fishing schooner life on the Newfoundland banks as experienced by a boy washed overboard from an Atlantic liner.
Lane, M. A. L., and Hill, Mabel. "American History in Literature." Ginn, .50
Moffett, Cleveland. "Careers of Danger and Daring." Century, 1.50
Norton, C. E., editor. "Heart of Oak Books." Book 7. Classic tales and masterpieces of literature. Heath, .60

Pyle, Howard. "Men of Iron." Harper, 2.00
Boy's story of the time of Henry IV of England.

Pyle, Howard. "Story of King Arthur and his Knights." Illustrated by Howard Pyle. Scribner, 2.00

St. John, T. M. "How Two Boys Made their Own Electrical Apparatus." St. John, 1.00

Schauffler, R. H., editor. "Our American Holidays." 8 vols. Arbor day. Christmas. Flag day. Independence day. Lincoln's birthday. Memorial day. Thanksgiving. Washington's birthday. Moffat, each, 1.00

Stevenson, R. L. "Treasure Island." Grosset, .50

Toothaker, C. R., "Commercial Raw Materials." Ginn, 1.00

USEFUL BOOKS FOR MOTHERS AND TEACHERS.

This list embraces books for older persons to use with children, books to read aloud to children at home or at school, and also books from which to obtain suggestions for guiding children in their reading.

Mothers desiring to arouse the interest of children in home reading, in making things, in pictures or in nature study, will secure valuable assistance from these well tested books.

Teachers seeking readily available supplementary material of proved merit can make profitable use of the list.

Mothers and teachers engaged in promoting the mutual welfare of the home and school through co-operation in parent-teachers' associations will find the books on children's reading, story-telling, dramatics for children, plays and games, sex hygiene and citizenship, inspiring and instructive. Extensive use of the inexpensive publications issued by leading libraries, which have given special attention to this field, is recommended. Attention is also directed to the "Reading Course For Parents" conducted by the U. S. Bureau of Education, Home Education Division, Washington, D. C., which invites correspondence on the subject.

The full name and address of the publisher of each book may be found by consulting the key-list below. In case of library publications address the library direct.

Bailey, C. S. "For the Story Teller." Story telling and stories to tell. Bradley, 1.50

Boston Public Library. Finding List of Fairy Tales and Folk-stories. Published by the Library, Boston, Mass. .05

Brooklyn Public Library. "Books that Girls Like." Published by the library, Brooklyn, N. Y., .05

Bryant, S. C. "How to Tell Stories to Children." Houghton, 1.00

Cabot, Mrs. E., and others. "Course in Citizenship." Houghton, 1.25

Cabot, Mrs. E. "Ethics for Children." Houghton, 1.25

Chaucer, Geoffrey. "Stories of Chaucer's Canterbury Pilgrims," retold by K. L. Bates. Rand, .40
Excellent illustrated edition for teachers.

Cleveland Public Library. "Seventy Books of Adventure for Boys and Girls." Published by the library, Cleveland, O. .05

Fisher, Dorothy Canfield. "A Montessori Mother." Holt, 1.25

Forbush, W. B. "Manual of Play." Jacobs, 1.50

Hall, W. S. "From Youth to Manhood." Sexual physiology and hygiene for parents to use with boys. Assoc. Press, .50

Holton, M. A., and Rollins, A. F. "Industrial Work for Public Schools." Rand, .90
Practical both for mothers and teachers.

Houghton, Mrs. L. S. "Telling Bible Stories." Scribner, 1.25

Hurll, E. M. "How to Show Pictures to Children." Houghton, 1.00

McCormack, M. A. "Spool Knitting." Barnes, .75

Mackay, C. D. "How to Produce Children's Plays." Holt, 1.20

Morley, M. W. "Song of Life." McClurg, 1.10

New York Public Library. "Heroism." Published by the library. .05

Olcott, F. J. "The Children's Reading." Houghton, 1.00

Olcott, F. J., editor. "Good Stories for Great Holidays." 120 well selected stories. Houghton, 2.00

Olcott, F. J. "Story-telling Poems." Houghton, 1.00

Poulsson, Emilie. "In the Child's World." Stories for kindergarten, primary schools, and homes. Bradley, 2.00

Power, E. L. "List of Books for Older Girls." Public library, St. Louis, Mo. .05

Smith, N. M. "Three Gifts of Life." Sensible, easily understood sex hygiene for girls. Dodd, .50

Torelle, Ellen. "Plant and Animal Children." Heath, .50

Utica Public Library. "Books for Home Reading." Published by the library, Utica, N. Y., .05

Weed, C. M., and Emerson, Philip. "School Garden Book." Scribner, 1.25

Wiggin, Mrs. K. D., and Smith, N. A., compilers. "Story Hour; a Book for Home and Kindergarten." Houghton, 1.00

Wiggin, K. D., and Smith, N. A. "Children's Rights." Houghton, 1.00
The rights of a child; children's plays, stories, playthings, kindergarten, governing children, other people's children.

GOOD BOOKS FOR A HIGH SCHOOL LIBRARY.

For convenience the list is divided into two parts, non-fiction, and short stories and novels. Literary classics, such as those studied in school or familiar to all, are not included for obvious reasons. Prices are subject to revision. In some cases only strong, library bindings are recommended; in others the cheaper ones that may be easily replaced. Many publishers have cheaper editions of some of the books suitable for individual homes, but probably not durable for large libraries. The following list is compiled from publications of many libraries, the American Library Association, Bulletin of the Illinois Teachers of English, and the elaborate list published by the Department of Interior, Bureau of Education of the United States (Bulletin, 1917, No. 41).

Addams, Jane. "Spirit of Youth and the City Streets." Macmillan, 1.25

Alden, R. M., ed. "Essays, English and American." Scott, .90

Antin, Mary. "The Promised Land." Houghton, 2.50

Baker, E. K. "Stories from Northern Myths." Macmillan, 2.00

Baker, G. P. "Development of Shakespeare as a Dramatist." Macmillan, 2.60

Baker, G. P. "Modern American Plays." Harcourt, 1.72

Bartlett, John, comp. "Familiar Quotations." Little, 4.50

Bennett, Arnold. "How to Live on Twenty-four Hours a Day." Doran, .75

Bishop, Farnham. "Story of the Submarine." Century, 1.75

Bolton, Mrs. S. K. "Lives of Boys Who Became Famous." Crowell, 2.00

Bolton, Mrs. S. K. "Lives of Girls Who Became Famous." Crowell, 2.00

Bostwick, F. C. "Training of Wild Animals." Century, 1.75

Botta, Mrs. A. C. L. "Handbook of Universal Literature." Rev. ed. Houghton, 3.00

Boyle, Andrew. "Everyman's Encyclopedia." Dutton, 18.00

Brewer, E. Cobham. "Readers' Handbook." Lippincott, 3.00

Briggs, L. B. R. "School, College and Character." Houghton, 1.50

Bright J. W. and Miller, R. D. "Elements of English Versification." Ginn, 1.36

Bryce, James. "American Commonwealth," abridged ed. Macmillan, 3.00

Burroughs, John. "Birds and Bees." Houghton, 2.00

Burroughs, John. "Camping and Trapping with Roosevelt." Houghton, 1.50

Caffin, C. H. "How to Study Pictures." Century, 4.00

Camp, Walter C. "Book of Sports and Games." Crowell, 2.00

Campbell, W. W., comp. "Oxford Book of Canadian Verse." Oxford, 3.40

Chapman, F. M. "Bird Life." Appleton, 4.00

Chubb, Percival, and others. "Festivals and Plays in School." Harper, 2.25

Chubb, Percival. "Teaching of English in the Elementary Schools." Macmillan, 1.60

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PLANT LIFE

Geranium
Poinsetta
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Orange Blossoms
Azalea

Rhododendron
Mountain Laurel
Lady Banksia Rose

BOOK X.

SCIENCE.

THE ARTS AND SCIENCES.
Mural Painting in the Congressional Library, Washington.
BY KENYON COX.

AVIATION, AERONAUTICS, AERONAUTICAL TERMS, DICTIONARY OF PHYSICAL TERMS, PHYSICAL LAWS, MECHANICS, SOUND, HEAT, LIGHT, MAGNETISM, ELECTRICITY, AUTOMOBILE, RADIO, TELE-PHOTOGRAPHY, DICTIONARY OF CHEMICAL TERMS, CHEMICAL ELEMENTS, CHEMISTRY OF FOODS, GEOLOGY, MINERAL RESOURCES, MINERAL INDUSTRY BY STATES, BIOLOGY, BOTANY, CULTIVATED PLANTS, ZOOLOGY, DOMESTIC ANIMALS, DICTIONARY OF NATURAL HISTORY, PLANTS AND ANIMALS.

EARLY ATTEMPTS AT HUMAN FLIGHT.

No story of the *Arabian Nights* ever was more fascinating than the history of aviation. Man wanted to imitate the birds of the air for centuries. He wished to pass quickly from place to place without wasting time in slow travel; he also craved to behold the world from above the mountains and the lakes. Early literature is replete with legends of attempts to fly. Greece, Germany, the Norseland, England—indeed almost every land has produced some myth of man's attempt to conquer the air. The account of Daedalus, that ingenious Greek craftsman, who coated wings with wax and flew from Crete to Italy may have been more than a mere poetic fancy. So also may have been the sequel, when his daring son, disregarding his father's cautions, stole the machine, flew too near the sun, and crashed into the sea when the wax of the wings melted in the heat.

Dawning history records a host of characters who tried to rise into the air by means of wings. Simon the Magician at Rome is said to have tried to please his emperor by trying to glide through the air. So the Saracen of Constantinople likewise sought the favor of his monarch, only to fall to his death. Moors, other Saracens, even a legendary Briton all tried their hand at making primitive air craft. Since so many of these initial attempts proved fatal, the Middle Ages connected them with the black art, and named Satan as the father of all who desired to fly.

The learned Friar Roger Bacon imagined it possible to "beat the air after the manner of a flying bird." In such endeavors, several early experimenters came nearer to the possibility of success than they realized. Among those workers whose attempts were more than myths are probably the monk of Malmesbury in England who imitated the wings of Daedalus in 1065; a famous mathematician who tried to devise a mechanical eagle to greet Charles V on his entry into Nuremberg; one Italian named Danti, claimed by legend to have actually floated over Lake Trasamene, only to fall ignominously in his flight over Perugia in Italy; and John Damian, a doctor of the court of James IV of Scotland, who fixed a pair of wings to himself, jumped off the castle wall at Stirling, and "brake his thighbone."

Little, however, had been accomplished, even 250 years later, in 1742, when the Marquis de Bacqueville in France fell into the Seine in trying to fly from his house to another part of Paris by strapping planes to his legs. In the meantime some celebrated mathematicians attacked the problem, including Wilkins, Hooke, and other members of the English Royal Society. Even in 1648, before the Society existed, Wilkins discussed four ways of flying, that of a "flying-chariot" only being considered possible. In all this first period, however, man was trying to steal the secret of the birds, and he failed because he overemphasized certain features of the movements of the wings. Lana and Borelli, two Italian scientists, the latter in correspondence with the English Royal Society, made many observations. Borelli concluded that man could not fly by muscular power alone. In studying the flight of birds, however, he overestimated the importance of the downward motion of the wings in keeping the bird aloft.

HISTORY OF LIGHTER-THAN-AIR CRAFT.

Next we shall deal with the development of the balloon, at first uncontrolled. In 1670 Lana suggested suspension in the air by means of four globes, from which air could be exhausted so as to cause them to bear up the weight of men. To avoid the difficulty of making the globes strong enough to withstand external pressure when exhausted of air, Dr. Joseph Black of Edinburgh suggested a century later that the globes could be inflated with hydrogen gas, later recognized as the best gas for inflation. In 1783, the Montgolfier Brothers, makers of paper in Paris, amused themselves out of business hours by constructing small paper balloons, inflating them with hot air. One, ten feet in circumference, rose to the height of over a mile and floated for a mile and a half. Next followed a grand exhibition attended by some of the court of Louis XVI, together with the monarch and his consort, when a sheep, a cock, and a duck were sent up fifteen hundred feet. On Nov. 21, 1783, de Rozier and the Marquis of Arlandes, in the first human ascent by balloon, sailed over Paris at a height of three hundred feet for more than five miles. Two years later Rozier fell to his death in trying to steer a balloon across the English Channel, shortly after Blanchard had accomplished this feat without harm. One year later, an Italian named Lunardi floated continuously for some 24 miles in England. From this time on he and others popularized the sport, so that watching the movement of balloons became a great public spectacle, witnessed even by such notables as Dr. Samuel Johnson and Horace Walpole. Using coal gas for inflation, a balloon constructed by Green and Holland in 1836 flew for more than 500 miles.

All these primitive balloons were entirely uncontrolled. Man had not learned to steer them, to fit them with a rigid frame, or to propel them. He had to depend on the movements of air currents to blow him in a desired path or direction. It was only in 1852 that Giffard, a French inventor, realized a practical dirigible balloon or airship. He built a cigar shaped airship, equipped with a 5 horse power steam engine, driving an eleven-foot propeller and attaining a speed of 6 miles per hour. He was followed by other famous Frenchmen such as Dupuy de Lome and Renard. Another great pioneer was Santos Dumont of Brazil who spent much of his private fortune in building and sailing various types of balloons, making his first flight in 1898. By Sept. 6, 1901, he was using his sixth model, which flew almost seven miles in about one-half hour. Then he made several new designs, one of which—a racing model—flew sixteen miles an hour, and was directed without mishap into the hangar, a notable accomplishment for those days. Using still a more refined type of airship, he flew one just above the crowds of the Paris streets to his home for breakfast, which he took while attendants held the balloon outside, and then returned without accident to the hangar. All the models just mentioned were semi-rigid.

Either Speiss, an Alsatian, or Count F. von Zeppelin deserves the credit for making the first rigid balloon. As variously constructed, such a craft has an outer network of steel covering the gas bag, with rubberized cotton fabric covering the framework which is constructed of duralumin. Beginning in 1873 with the first design, by the end of the century Zeppelin made a memorable flight at the rate of nearly eighteen miles an hour. Five years later, in 1905, the Z3 landed successfully with all engines dead, but the wind then caught the framework and crumpled it. In 1906, another model covered 200 miles at twenty-eight miles an hour, and this was the record to that date for this type of airship.

The first large Zeppelin of 1900, with a length of 419 feet and a diameter of 38, contained 400,000 feet of gas, and had a net lift of 4.5 tons, somewhat less than half of which was available for passengers, baggage, and freight. Before the World War commercial airships had attained a length of 459 feet, a diameter of 49, a gas capacity of 670,000 cubic feet, a useful lift of 6 and a half tons, a speed of 24 miles an hour, and a passenger capacity of 24. As early as 1911 a regular schedule of service was established, and within three years five different airships were in commission. Without a single injury, between 1911 and 1914, these Zeppelins made over 1,500 flights, lasting over 3,100 hours, covering 107,000 miles, and carrying over 34,000 passengers.

Zeppelins developed with amazing rapidity during the World War. In one year 15 ships made 400 long flights and raided England some 30 times. At one time in October, 1917, a fleet of 11 made a concerted attack on some English cities, but they were driven off and some of them were wrecked in the return voyage. The English rigid airship, the R38, fell into the Humber River with a loss of forty-four men in 1921, but the R33, also modeled from a German rigid airship, after lying idle in England for almost seven years, successfully weathered a storm for 33 hours while it was driven from Pulham to Holland in 1925. In 1917, a Zeppelin had made a non-stop return trip from Bulgaria to Khartoum in Africa, with a total weight of 55 tons, flying some 4,200 miles in 95 hours. By 1918, the total gas capacity of these airships had risen to over two and a fourth million cubic feet, while the speed rose to nearly 60 miles an hour.

Other outstanding achievements of rigid and semi-rigid airships are the flight of the Los Angeles from Friedrichshafen, Germany, to Lakehurst, New Jersey, in October, 1924, a distance of over 5,000 miles in 81 hours; the successful trip of the semi-rigid *Norge* from Spitzbergen to Point Barrow, Alaska, in May, 1926, a total of 3,200 miles before landing; and the round trip of the *Graf Zeppelin*, the 127th of the type to be built, from Germany to Lakehurst in 1928. This last, after 28 years of building Zeppelins, is the firm's greatest achievement. It is a craft 776 feet long, 100 feet in diameter, with a gas capacity of 2,750,000 cubic feet, 5 reversible 530 horse power Maybach engines, and is capable of cruising 12,600 miles with 50 aboard.

England is planning a similar airship to carry 100 passengers for 4000 miles at 75 miles an hour, using 6 Rolls-Royce Condor engines of 700 horse power each. The *Los Angeles* is now the only very large airship in the United States since the fatal accident to the sister craft, the *Shenandoah*.

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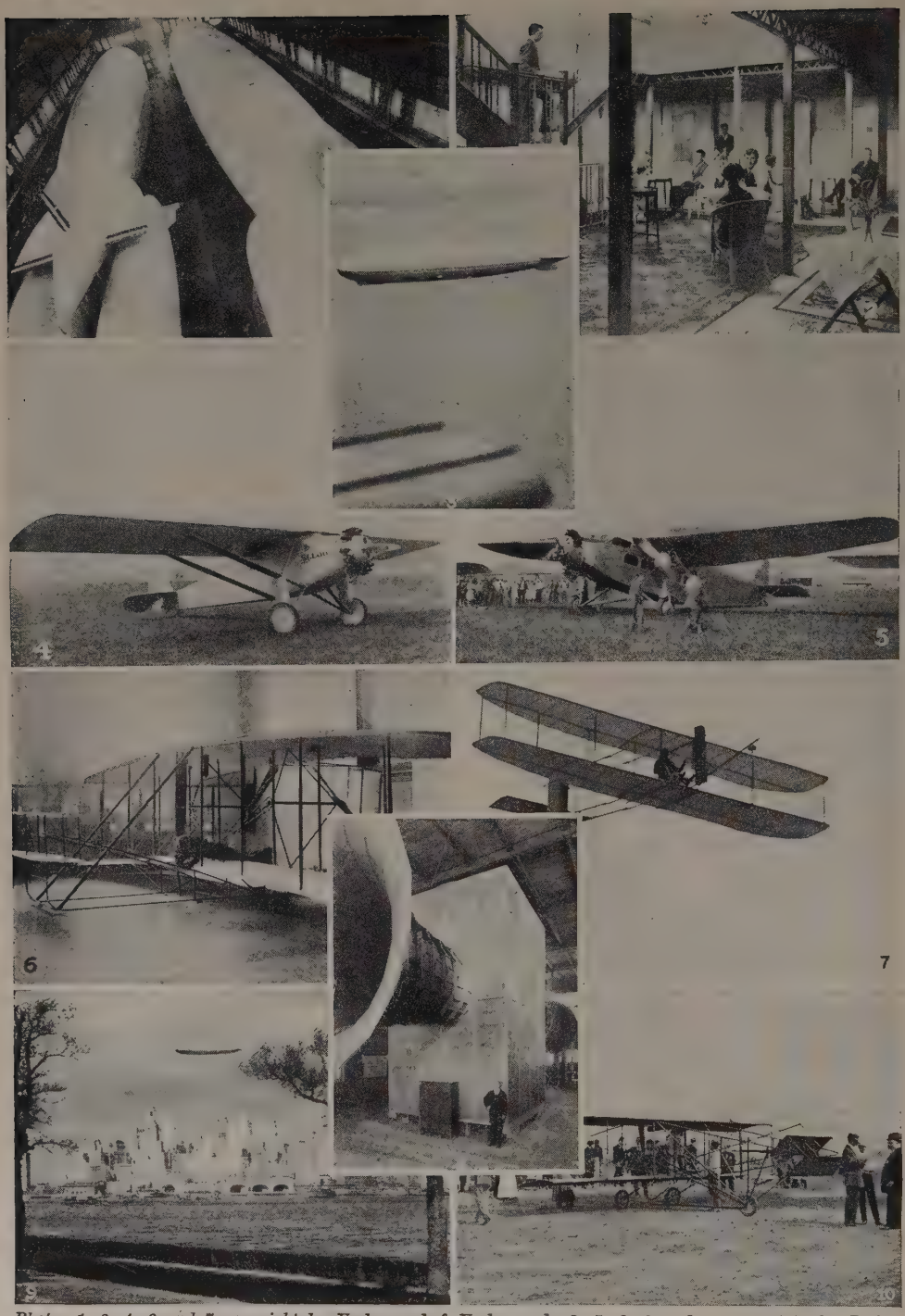
AERONAUTICS—I

1 Helicopter (Pateras-Pescara). 2 Chardon Glider. 3 Martin Naval Torpedo plane (wings folded) and U. S. Mail Planes. 4 Sampaio-Correra Seaplane, which made New York-Rio de Janeiro flight. 5 Martin Torpedo Plane with wings extended and torpedo in sling. 6 The Shenandoah, Navy Dirigible, moored to U. S. S. "Patoka." 7. The Los Angeles, Navy Dirigible, moored to mast. 8 ZR-1, now the Los Angeles, entering hangar, Lakehurst, N. J.



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AERONAUTICS—II

1 Zeppelins in hangar at Lakehurst, N. J. 2 Grand Salon of British Air Liner, R-100. 3 Graf Zeppelin in flight. 4 Spirit of St. Louis. 5 Tri-motored, all metal Airplane used by the Byrd Antarctic Expedition. 6 Wright Brothers' Plane now in London Museum. 7 Wright Plane at Kitty Hawk, N. C. 8 Wind Tunnel for testing stability of models. 9 Graf Zeppelin, flying above Lower Manhattan Skyline. 10 Curtiss Biplane at First American Aviation meet.

Wreck of the Shenandoah.

On September 3rd, 1925, while on a trip to the Middle West, the Shenandoah was caught in a line storm near Ava, Ohio, thirty-six miles west of Wheeling, W. Va., and completely wrecked. Fourteen of her officers and crew, including Lieutenant Commander Zachary T. Lansdowne, were killed. The giant ship was broken in two, the forward end drifting nearly ten miles before coming to earth.

The Shenandoah, designed and erected in America, was supposed to be the last word in dirigible construction. The metal framework was of duralumin, a composition of aluminum, copper and manganese, having the strength of steel and of only one-third its weight. Twenty gas bags enclosed the supporting helium gas. Five 6-cylinder, 300 H. P. gasoline engines furnished power. Total capacity of gasoline used as fuel was 8,000 gallons. This was carried in tanks in the keel of the ship.

The general characteristics of the Shenandoah follow: length 680 feet, diameter 78 feet, height 96 feet, gas capacity 2,150,000 cubic feet, total lift (helium) about 130,000 pounds, dead weight about 75,000 pounds, speed about 65 miles per hour; cruising radius without stopping over 4,000 miles.

Two airships are now under construction in the United States, which will be larger than those now nearing construction in England. These have been ordered by the Navy from the Goodyear-Zeppelin Corporation. These two ships will have the enormous capacity of 6,500,000 cubic feet. They will incorporate many new features, such as swivelling airscrews which will help the ships to rise quickly, a new type of girder construction, and possibly a new fuel which will be carried in the gas bags and consumed as the journey continues. In this way as the fuel is consumed, the buoyancy will diminish and there will be no need to let out and waste the expensive helium gas. One of the most important features of the new airships will be the storage space for five completely assembled airplanes, situated about one-third the ship's length from the bow. Collapsible doors in the floor will cover a T-shaped opening through which a trapeze with an airplane attached may be hoisted or lowered. The airships will therefore be airplane carriers, and their fast planes will ward off attacks by enemy craft.

Recent experiments with American airships include landing on the top of a building, picking up supplies from a moving truck, landing on the deck of a steamer out at sea and other interesting feats.

GLIDERS AND THE EARLY HISTORY OF THE AIRPLANE.

Returning now to the history of the heavier-than-air machine, we find that as early as 1500, the Italian artist, Leonardo da Vinci, declared that "a bird is an instrument working in accordance with mathematical law, which instrument it is within the capacity of man to reproduce." He even touched upon subjects that are of great importance today, like the "center of resistance" and equilibrium of the center of gravity with the "center of resistance," and designed a model which actually ascended straight upward with some success. A practical helicopter, or vertically-rising plane, is still the dream of modern aeronautics.

Sir George Cayley, a great pioneer of the early part of the nineteenth century, agreed with Borelli that man is not muscular enough to propel a machine capable of bearing his own weight. Like some of his predecessors, he realized that the reaction of the air should be utilized to keep

a machine in the air. Early experimenters had thought that the flapping of birds' wings should be imitated. Cayley stated that it was necessary to have a plane surface which will "support a given weight by the application of power to the resistance of the air." Some years even before Cayley, however, a Karlsruhe architect had estimated that a machine to carry 200 pounds must have a total wing surface of about 126 square feet. It was this principle of dynamic reaction which the Wright Brothers were able to study and apply on a scientific basis nearly a century later.

John Stringfellow, with preliminary assistance from W. S. Henson and some others, possibly had, by 1848, perfected a machine of the monoplane type which actually flew when propelled by a tiny steam engine for power. The model is now in the Smithsonian Institution at Washington, D. C. It is claimed as the first self-propelled, power-driven, heavier-than-air machine.

In 1843, Henson mentioned the possibilities of heavier aircraft in a published essay, but little came of his ideas, though before his death in the United States in 1857 he studied more fully the idea of gliders. The founding, in 1866, of the Royal Aeronautical Society of Great Britain stimulated experimentation. Two years later the "exhibition" of the Society at Crystal Palace contained 77 models of engines, aeroplanes, and airships, including a triplane built by Stringfellow, which was awarded 100 pounds as a prize for the lightest engine. Francis Wenham greatly increased interest by a notable paper before the Society at its initial meeting. Passing over a number of lesser names, we find that Le Bris, Otto Lilienthal, Percy Pilcher, Lawrence Hargreaves, Clement Ader and Chanute each contributed more or less to the development of heavier-than-air craft, prior to the great work of Samuel P. Langley and the final achievement of Wilbur and Orville Wright. There is no doubt that it was experimentation with the glider which laid the basis for the modern airplanes.

Le Bris, a French sailor, like some others tried to imitate the flight of birds, taking the albatross as a special model and was probably the first man to build a successful man-carrying glider. His craft, some 32 feet long, had 220 square feet of wing surface, with an appendage or tail that could be moved by a set of pulleys and levers. On the first attempt, a man who had been holding the craft down by ropes was entangled and carried aloft several hundred feet; on the second Le Bris himself fell and broke a leg. A fellow countryman, Clement Ader, built a number of models, one of which his friends asserted flew in 1897 for 300 meters.

Now passing over some experimenters in different lands who contributed little that is essential to flying, some of the most notable names are those of Alphonse Penaud, whose merits have been overlooked by many, Otto Lilienthal, Octave Chanute, and Samuel P. Langley. Though there has been some dispute as to the value of certain features of the experiments of these four pioneers, each seems to have added either some essential theory or some practical experience.

Penaud died too early in 1880 to realize the importance of his own efforts. C. L. M. Brown, in his recent book, *The Conquest of the Air,* speaks of this Frenchman as the greatest of his own land up to the time of his death. After several interesting experiments with a helicopter, his small model airplane or "planophore" in 1871 made successful flights before witnesses of a learned aviation society. Later his design of a full-sized machine, lacking an engine, approached very nearly the correct principles of the airplane. Penaud, following Prof. Pettigrew, used the torsion of rubber bands as his motive power, in a model which looks much like the toy airplanes of today which are propelled by screw actuated by releasing a twisted rubber band. Penaud also fitted an automatic elastic rudder to his model, and this had possibilities that the fixed rudders lacked. His plane, on release, would drop about two feet and then glide along near the ground for about fifty feet.

Since 1840, inventors had known that air pressure against the wing of a machine, under certain conditions, will keep it aloft. Otto Lilienthal, however, was the earliest to demonstrate that a curved wing-surface is superior to a flat one for planes. He entered into the problem as a scientist, making an original examination of the motion of birds in flight. Lilienthal altogether made 2,000 short trips in the air before a fatal accident in 1896. He constructed a glider biplane of willow, covered with tough cotton fabric, with a wing surface of about 100 square feet. Eventually he was able to steer his craft at will by moving his body to one side or the other and forward or backward much as the bicyclist does. The inventor held himself in the machine by passing an iron bar under his armpits but he left his legs dangle freely below. Lilienthal also experimented with a horizontal plane that would stabilize his aircraft.

In England Percy Pilcher, after visiting Lilienthal, carried out many interesting gliding experiments between the years 1895 and 1899. Pilcher added a horizontal tail to Lilienthal's design and made an interesting innovation in the form of a rudimentary under carriage. In 1896, he made a perfect gliding flight of 250 yards across a valley, towed only by a light fishing line, and encouraged by this, made investigations of the possibility of applying a light internal combustion engine. However, in 1899, Pilcher made a demonstration in which a guy-wire snapped, and the machine crashed. Pilcher died on the following day without having recovered consciousness.

Octave Chanute, taking up the work about where Lilienthal left off, finally developed multiplane and biplane gliders, the latter of which he adopted as being more satisfactory. Instead of relying on the movements of the pilot, Chanute sought stability and control within the glider itself, having wing surfaces that were adjustable to assist in keeping his gliders on an even keel. He was so successful in his hundreds of gliding experiments along the sand dunes of Lake Michigan that finally he allowed interested friends to fly alone, and no accidents of note happened. Chanute himself, not convinced that his own

device was safe enough, before 1900 gave up experiments and devoted the next dozen years to helping others and to studying the problem as a scientist, and he offered valuable hints to the Wrights when he visited them during their first experiments.

Samuel P. Langley approached the subject from a technical and scientific point of view. He was more anxious to prove that an airplane could be made to work than actually to acquire the technique of flight. By use of a revolving table with a long projecting arm suspending brass plates, he showed that the faster the arm moved the less tendency the plates had to fall, till they "almost floated in the air." Thus he confirmed theories of earlier men like Cayley, Wenham, and Stringfellow.

Having demonstrated to his own satisfaction the lifting power of a plane propelled through the air, he next thought of making a power plant for his model. After studying more than thirty toy designs, all fitted with rubber bands for power like Penaud's gliders, Langley at last produced in 1896 what he chose to call an "aerodrome" fitted with a steam engine. In two flights he made 3,200 and 4,200 feet respectively, but trouble lay in the control at start and finish. Persuaded by friends and aided by a Congressional grant, Professor Langley and his chief assistant, Charles M. Manly, sought to develop an engine and a plane that would be adequate to sustained flight with passengers.

In the end their large model had a steel frame, a total weight of about 730 pounds, a wing area of about a thousand square feet, and two propellers driven by a gas engine of at least 50 horse power. On October 17 and December 8, 1903, this craft was given initial trials, but at once on both occasions trouble developed at the start, and the machine fell into the Potomac River. The Langley machine later was made to fly by Glenn H. Curtiss at Hammondsport, New York, although there is some controversy as to the changes made prior to this flight. Just nine days after the second failure of the Langley aerodrome, the Wright brothers made their successful flight at Kitty Hawk, North Carolina.

Wilbur and Orville Wright deserve the credit jointly for making a practical airplane, designing and building a suitable engine, and demonstrating certain principles of stability and control. They have the honor of first managing as pilots a machine able to rise into the air by power generated within itself, to sail forward on a level course at even speed, and finally to land without definite mishap. Nobody before them had accomplished all this successfully, and they were certainly the first men to understand the complete control of the airplane.

From the start they shared a common aim: To make scientific flight an accomplished fact. By 1901, they had reduced the problem to its three main elements: First, the construction of the right type and size of wings; second, securing adequate propulsive force; third, stability and control in flight. Wilbur Wright, the literary man of the partnership, summarized the theories and results of their experiments in a number of magazine articles and public lectures. In 1901, he said that "inability to balance and steer still confronts students of the flying problem. . . . When this one feature has been worked out, the age of flying machines will have arrived, for all other difficulties are of minor importance." From the first no students ever worked more arduously and methodically than did the Wright brothers. They read everything they could of the past efforts of inventors to fly; they studied mathematics and made elaborate calculations; they looked upon the problem, finally, as a definite one to be solved simply and once for all. Wilbur and Orville Wright combined the scientific acumen of Langley with the practical zeal of Stringfellow and Lilienthal. It was this balance between theory and common sense that solved a problem that had baffled all men before them.

From 1896 to 1901, the brothers busied themselves with study, minor experiments, and observation of wing mechanism of every type available. Thus gradually, as Wilbur Wright has told us in one of his admirable essays on aviation, they passed "from the reading to the thinking, and finally to the working stage." Greatly impressed by the fatal accidents of both Lilienthal and Pilcher, they determined above everything else to secure safety. First, they checked the data on gliding flights already on record. Chanute had used a vertical rudder in the rear of his plane, whereas the Wrights also used a horizontal control in front. This led to stabilization of the plane fore and aft, which Lilienthal's machines had lacked.

Acting on advice of the Weather Bureau, they chose Kitty Hawk, North Carolina, as a place for experiments because of the favorable currents of wind and absence of sudden squalls. The results of their first summer, in 1900, were not quite satisfactory. With a larger plane having a wing surface of 308 square feet they made a gliding flight of 300 feet in 1901. Only by working the front elevator or rudder frequently could the plane be kept in right horizontal position. After modifying the depth of the "curvature" of the wings, flights came easily to them, and control became simple even in the face of strong breezes.

During the following winter they experimented zealously with a wind tunnel constructed at their home in Dayton, Ohio, with various types and spans of wing surfaces, and finally attacked the most troublesome problem (where all thus far had failed), the securing of lateral control. First, at Kitty Hawk in the autumn of 1902, they used a fixed vertical rudder or tail. Then they improved on this with a movable or adjustable vertical rudder. They also hit on the great principle of warping the ends of the wings to secure lateral control. The pilot now had three controls at his command, and the problem of control was finally solved. In this perfected glider they made over 700 flights at will with remarkable control of the mechanism and plane as a whole, and were able to glide in winds as high as 35 miles an hour.

Now the Wrights had a machine under perfect control by the operator. All that remained was the perfecting of the engine or motive power. Within a year they had designed an engine of

30 horse power, weighing but 7 pounds per horse power. By the autumn of 1903, everything was ready for the transition stage from glider to airplane. The Wright machine thus constructed was a biplane, with two main wings of a chord or span of 32 feet, and a width of 5 feet, giving a total wing surface of approximately 305 square feet. The front horizontal rudder, as they called it, had a sustaining area of 15 square feet, and the vertical rudder in the rear, an area of 6 square feet. Skids were used to support the machine on the ground, and the operator lay across the lower of the two planes. Without engine or load, the total weight was about 117 pounds; with pilot and engine, it was nearly 600 pounds.

When everything was ready in the autumn of 1903, they took the machine to Kitty Hawk for a final test. Before trying this, however, they made a few additional flights in the old glider. On December 17, 1903, the historic date of the first heavier-than-air flight, but five natives came to witness their great efforts, though the neighborhood had been freely invited to be present. On this memorable day, each brother made two flights, the first lasting 12 seconds and the last 59, covering a little over half a mile in the air and 852 feet over the ground. Wilbur Wright himself, in the *Century Magazine* in 1908, spoke of the first flight made that day as "the first in history of the world in which a machine carrying a man had raised itself in the air by its own power in free flight, had sailed forward on a level course without reduction of speed, and had finally landed without being wrecked."

During 1904 and 1905, experiments continued near Dayton, Ohio, in an improved machine, so that on September 26 of the latter year, they made a flight of somewhat over 11 miles, increased this little by little to over 24 on October 5, at a speed of about 38 miles an hour. So quickly did aviation develop that, when Wilbur Wright died in 1912, the airplane had already become important in commerce and war.

On December 17, 1928, just a quarter century afterward, Orville Wright again found himself at Kitty Hawk, North Carolina, this time as the guest of honor of the hundreds gathered to erect a monument in commemoration of the first successful flights. Here a granite boulder was unveiled, and this will be followed later with a large shaft erected from funds already authorized by Congress.

Contrast as you will in imagination the handful of spectators of that early experiment with the gathering of aviators and scientists from all areas of the civilized world in 1928.

THE PRINCIPLES OF LIGHTER-THAN-AIR CRAFT

Stones thrown into water will sink, but a stick of wood thrown into a pond will go down, and then rise, remaining partly submerged. The weight of the stick as a whole is exactly that of the water displaced by the part of the stick that lies below the surface. The weight of the water displaced is variously termed displacement, flotation or buoyancy.

The sustention of all lighter-than-air craft such as balloons or airships depends on this principle of displacement or buoyancy.

A balloon, for example, is filled with hydrogen which weighs roughly about 1/15th as much as air, and therefore must have buoyancy when placed in the atmosphere. For a rough estimate the weight of 1,000 cubic feet of air may be taken as 75 pounds, and of 1,000 cubic feet of hydrogen as 5 pounds. The buoyancy or lift of a balloon of 1,000 cubic feet displacement will therefore be only 75 minus 5, or 70 pounds. A gas bag of large volume, therefore, gives comparatively little lift, and this explains the tremendous dimensions to which airships have to be built when they are required to carry appreciable loads.

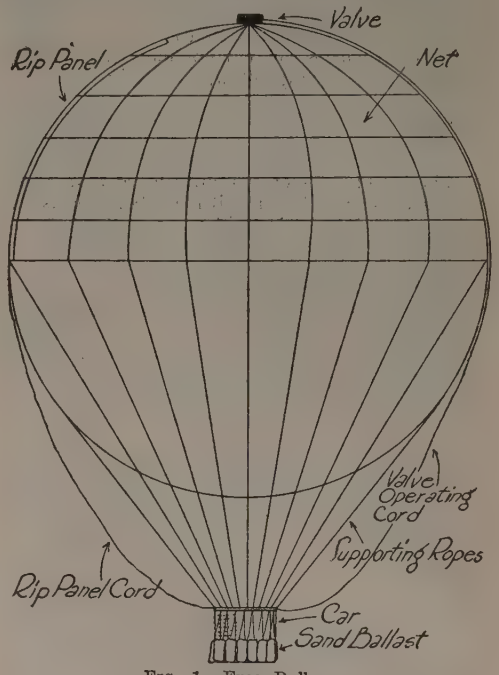

FIG. 1 Free Balloon

We have stated that the lift of 1,000 cubic feet of hydrogen is 70 pounds. But the lift depends evidently on the density of the air. In cold weather, air is much denser than in hot weather, and it is found in practice that the lifting power of an airship is greater in winter than in summer.

There is a great deal of theory involved in the maneuvering of a balloon, and balloon races are won by the most scientific competitors.

A free balloon when it leaves the ground is always "flabby," that is, not entirely filled out. As it rises and passes into a region of less dense air, the gas expands till the balloon becomes taut, It can only rise beyond the height where it becomes a full balloon, if the aeronaut (as the balloon pilot is called) throws out ballast in the form of sand. When all the ballast is expended, it is impossible to rise higher. To descend the aeronaut must valve gas, that is, allow some of

it to escape. Since the full balloon has a buoyancy exactly equal to its weight, the escape of a little gas may cause it to descend all the way to the ground, unless the descent is checked by the throwing out of ballast. A skilled balloon pilot will release only a few cubic feet of gas at a time, and throw out ballast in handfuls at a time.

A free balloon is usually constructed of rubberized fabric and varnished silk, and is filled with either hydrogen or coal gas. It is covered with a netting from which is suspended the basket carrying the pilot. The valve through which gas is allowed to escape at will is placed at the top of the balloon. In emergencies, when a quick descent must be made, a "rip panel" is used through which gas escapes much more rapidly than through the valve. The main parts of a free balloon are shown in the diagramatic sketch of Fig. 1.

an elevator for control in pitch. In addition, fixed fins are provided at the tail end or stern of the airship for stabilizing purposes. While in the non-rigid and in some semi-rigid types the passenger car is suspended at a distance from the envelope, in the rigid it is possible to build the car integrally with the structure and only the power cars are suspended away from the envelope.

The construction of the rigid airship is a particularly intricate one. In addition to the longitudinal girders which run the whole length of the ship, transverse frames or ribs are fitted at intervals. The transverse frames form compartments in each of which a gas bag of gold beater's skin is placed. This is enclosed in cord netting to distribute pressure and prevent chafing. The whole of the airship is covered with a waterproofed, rubber and cotton fabric which

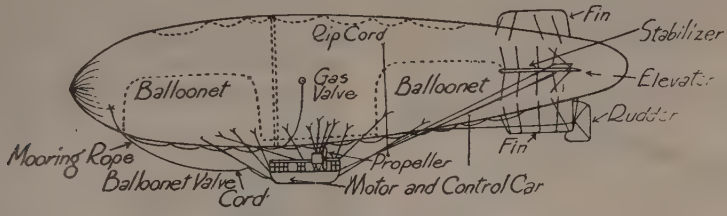

Fig. 2 Non-rigid Airship

A spherical balloon offers considerable resistance to side motion. Therefore, all lighter-than-air craft except balloons are not spherical, but streamline in form, and resemble a huge cigar.

Airships may be divided into three classes, non-rigids, which depend upon inflation of the envelope for maintaining the correct shape; semi-rigids, which rely partially on gas pressure and partially on a rigid keel running the whole length of the bottom of the ship; and rigids, which depend solely upon their structure for the maintenance of their form.

The three types of airships are illustrated in our diagrams. (Fig. 2, 3 and 4).

can be made to present a smooth surface to the air.

The propulsion of all types of airships is of similar type. A gasoline engine or engines mounted in a basket or power egg turns a propeller, which screws itself into the air like a giant screw, and in so doing produces a thrust or pull which drives the airship against the resistance of the air

PRINCIPLES OF HEAVIER-THAN-AIR CRAFT

Small, flat stones, even though heavier than water, so long as they are in motion, will slip

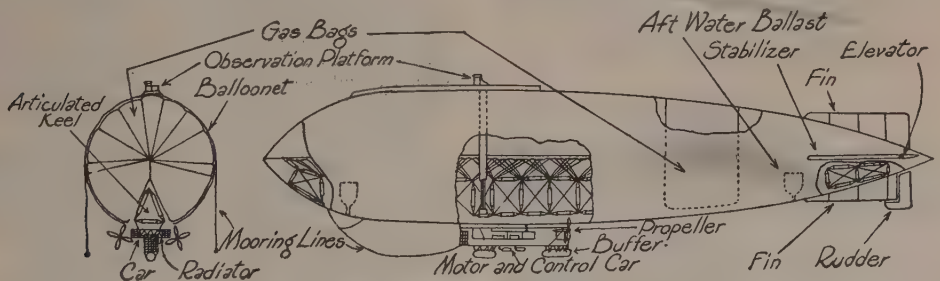

Fig. 3 Semi-rigid Airship

In the non-rigid and semi-rigid airships, balloonets or air bags are placed inside the main envelope. During the ascent, as the gas expands, these balloonets lose their air and fold up. On the descent as the gas contracts, the balloonets take in air through a scoop, fill out and keep the envelope from becoming flabby.

All airships, no matter what their type, are provided with a vertical rudder for steering, and

along the surface of the water. A man stationary in the water will sink. If he can propel himself by his arms and legs, the reaction of the water on his body will sustain him as long as he is in motion. Heavier-than-air craft, gliders and airplanes depend on the same principle of reaction.

If a board is towed through the water it will experience two forces: One at right angles to

the motion which is termed the lift, because it tends to raise the board; the other along the line of motion, which is termed resistance or drag, because it tends to oppose the motion.

trary to general belief, it is the upper surface which gives the greater part of the lift, namely two-thirds approximately.

Modern wings are beautifully streamlined and

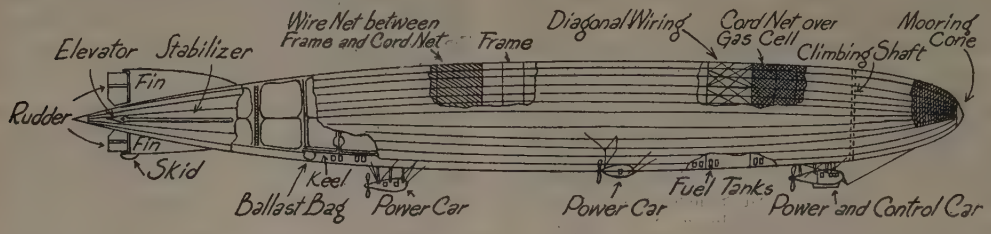

FIG. 4 Rigid Airship

The airplane or glider is sustained by a lift force produced in this fashion. The drag experienced has to be overcome by gravity in the case of the glider and in the case of the airplane by the thrust of the propeller, which in turn receives energy from the combustion of fuel in an engine.

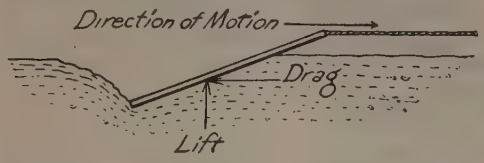

FIG. 5 Showing Lift and Drag on Moving Board

Naturally in the design of an airplane, we try to get as much *lift* as possible and as *little drag* as possible, or to make the lift over drag ratio high. An airplane weighing 2,400 pounds may need as much as 400 pounds thrust under certain conditions of flight. Its lift-over drag ratio is then said to be 2,400 ÷ 400, or six.

When a flat plate or surface is pulled through the air, the air flow is very much disturbed, with eddies or whirls on the top side as can be seen in Fig. 6.

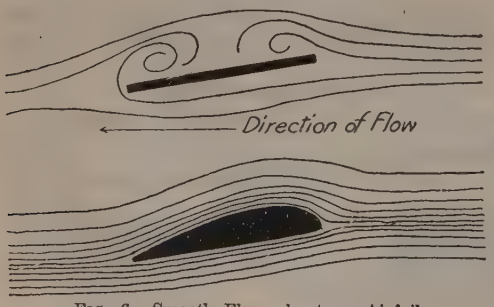

FIG. 6 Smooth Flow about an Airfoil

When a well designed wing or air foil is employed the *flow is free from eddies*, and is said to be *streamline*. This steady flow is also shown in a diagram.

Because the upper surface of a wing is cambered or curved, the air has to flow more rapidly above than below the wing. Owing to the rapidity of the flow, it loses some of its pressure and is said to be in suction. Accordingly, in an airplane wing, the air pulls up on the top surface, and pushes up on the lower surface. The pull and push of the air add up to give lift, but consurprisingly efficient. Their lift-over drag or efficiency ratio is sometimes as high as 20.

The length of a wing is called the *span;* the width is called the chord. The *aspect ratio* of a wing, as illustrated by our sketch, is the ratio of the span to the chord. A long, narrow wing is more efficient than a short, wide one because it experiences less tip loss due to the flow of air round the tips. For a monoplane, that is, an airplane with a single wing, the aspect ratio varies between 5 and 7. Designers would like to give the wing bigger aspect ratios, but then difficulties occur in making the wing strong enough. With biplanes, which it is somewhat easier to brace, it is possible to use larger aspect ratios up to eight or even ten.

FIG. 7 Aspect Ratio

The *lift of a wing increases with its area, and with the square of the speed.* The lift varies with the square of the speed, because the faster the wing moves the more air comes in contact with it, and each particle of air coming in contact with the wing evidently exercises a greater reaction with increase in speed.

The more a wing is inclined to the flight path or wind direction, the more lift it will have for a given area and a given speed. The *inclination of* a wing is defined by the angle between the wind and the chord of the wing. This *inclination is termed the angle of incidence or attack.*

The lift of a wing does not increase indefinitely with the angle. When an angle of incidence of about sixteen degrees is reached, the lift reaches a maximum value. Beyond this angle, the streamline flow breaks down, the wing is said to *"burble" or stall,* and if inclined still more, it actually loses lift. One of the most frequent sources of accident is the "stall," in which placing the wing at too large an angle of incidence may result in loss of lift and control and a subsequent spinning nose dive.

There is no "best" wing in aviation. Thin

wings are generally most suitable for high speed planes. They have high efficiency at top speed, but poor maximum lift, and therefore planes with thin wings will tend to land fast. Heavily cambered wings are more suitable for commercial planes of moderate top speed, but are required to land slowly. In our diagram we show some typical wings, and indicate the uses to which they are most appropriate.

An important problem in the airplane is the maintenance of longitudinal equilibrium and

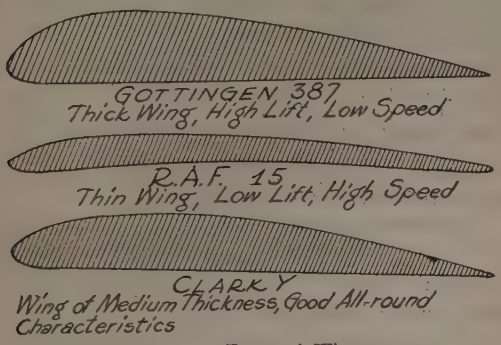
GOTTINGEN 387
Thick Wing, High Lift, Low Speed
R.A.F. 15
Thin Wing, Low Lift, High Speed
CLARK Y
Wing of Medium Thickness, Good All-round Characteristics

FIG. 8 Types of Wings

stability. Unfortunately most airfoils are unstable. The point at which the lift and drag act on the airfoil chord is termed the *center of pressure*. At small angles of incidence the center of pressure moves back, at large angles it moves forward. The center of gravity of an airplane, where all its weight may be considered concentrated, remains always at the same point, and is generally placed by the designer at one-third of the chord back of the leading edge. If the airplane had no horizontal tail surfaces, the movement of the center of pressure with reference to the center of gravity would produce instability. If the plane nosed up a little, the center of pressure would move forward, and would tend to nose the plane up more till it "stalled." If the plane

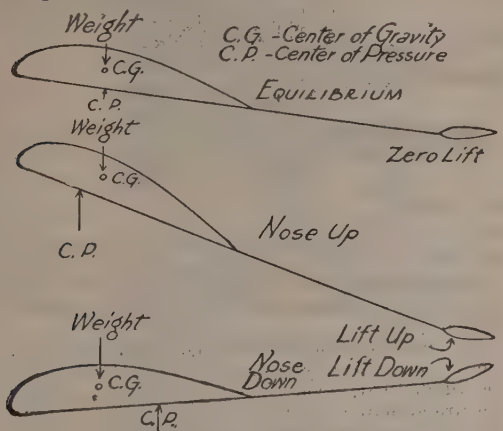

FIG. 9 Showing Instability of Wing and Manner in which Stabilizer Corrects It

nosed down, the center of pressure would move back, thus tending to nose the plane down still more until it would go down in a nose dive. This instability, illustrated by our sketch, is corrected by the fixed horizontal tail surface termed the stabilizer. This is placed at a negative angle to the wing. Accordingly, when the main wing goes to too small an angle of incidence, the stabilizer

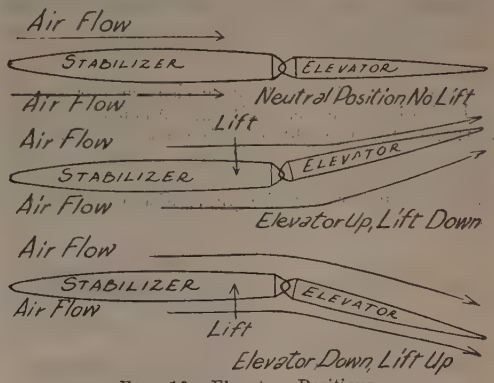

FIG. 10 Elevator Positions

has a downward force acting on it and therefore counteracts the diving tendency. If the main wing rises to too high an angle of incidence, the stabilizer has an upward force exercised on it by the stream of air and so the tendency to "stall" is checked.

Besides using a fixed horizontal stabilizer to secure longitudinal stability, it is necessary to provide a movable control surface, hinged at the rear of the stabilizer to provide longitudinal control. This movable surface is termed the *elevator*. Our drawing illustrates its action. When the elevator is turned up, the air strikes it from above, and the nose of the plane is turned up accordingly. When the elevator is turned down, the air strikes it from below, and the plane is accordingly nosed down.

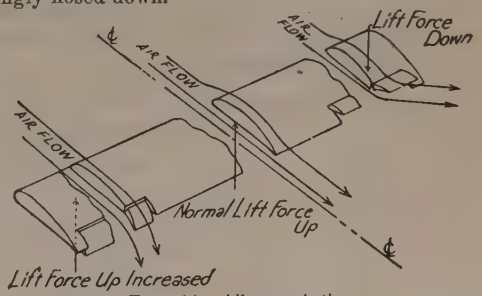

FIG. 11 Aileron Action

It was a great achievement of the Wright brothers that they saw the necessity of three controls, one for each axis of the airplane, and knew how to realize the three control system.

For lateral control in the modern airplane, movable surfaces termed *ailerons* are hinged at the rear outer portions of the wings. The control cables of the ailerons are so arranged that when one aileron is turned down, the other is turned up. If the wing of the airplane goes down on the right side, the pilot turns the right aileron down, the air strikes the aileron on its under surface and a restoring moment is introduced. The aileron on the other side is turned up, receives the air on its upper surface and also exercises a restoring moment, the effects of the two ailerons helping one another.

When a side wind hits an airplane, it is essential that its nose should turn into the wind, or that the plane behave like a weather cock. Weather-cock stability is achieved by placing a vertical fin at the tail of the fuselage. When the side wind strikes the fin, it is clear from our sketch that the nose of the plane will turn into the wind.

Steering is achieved by a vertical rudder hinged in back of the vertical tail fin. When the rudder is turned to the right, the air strikes it from the right, and the nose of the plane turns to the right. Conversely, when the rudder is turned to the left, the nose of the plane also turns to the left.

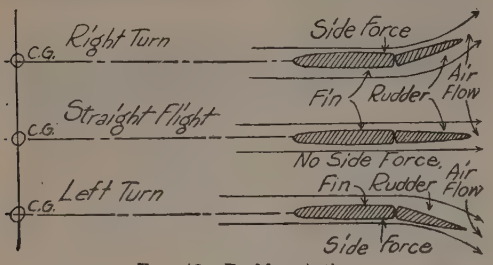

FIG. 12 Rudder Action

THE MAIN PARTS OF AN AIRPLANE

The airplane is far less standardized in its design than an automobile and always will be. The automobile is severely restricted in length of chassis, width of wheel base and the speed which can be safely employed. The airplane can be a tiny "flivver" or a giant transport machine of 25 tons gross weight, and it can have one, two or more wings, and its speed does not seem to have reached anything like its limit as yet. In describing the main parts of the airplane, we have selected one type only, which is representative of today's practice, namely, an enclosed cabin monoplane, which is shown in diagrammatic form.

The nine cylinder air-cooled engine of about 200 horse power is carried at the nose of the fuselage, with the rear part of the crank case bolted to a mounting ring. On the forward end of the crank case is an extension on which the hub of the propeller is fitted. The air intake to the carburetor is placed underneath the fuselage, so that fresh, clean air only is admitted to the carburetor. All the exhaust manifolds lead into a single exhaust ring, which has at its lowest point a single large exhaust pipe which leads the exhaust gases away from the passenger compartment. The oil tank is mounted close behind the engine, so as to lessen the length of oil piping. Throttle and spark controls run from the left side of the pilot's cockpit, close to the pilot's left hand. The throttle and spark controls consist of solid rods, with bell cranks at appropriate points. Cables are not advisable for engine controls because they are liable to become slack. The fuel tanks are mounted in the monoplane wing on either side of the fuselage, thus reducing the fire hazard. The fuel tanks are connected by simple piping to the float chamber of the carburetor. Fuel, therefore, flows to the carburetor by gravity alone, and all fuel pumps are thus avoided. A fuel tank gage is mounted in the tank, with its dial easily seen by the pilot. Careful power plant installation is a great factor in the reliability of an engine.

The pilot's cockpit is at the forward end of the cabin. Windows of non-shatterable glass give the pilot vision in all directions while protecting him from the weather. In front of the pilot are the instruments, grouped according to function. On one side are: The air-speed indicator which shows the speed relative to the air; the altimeter which shows the height above the ground; and the inclinometer in which a bubble of air in a curved tube filled with colored alcohol shows whether the plane is on an even keel or not. In the center of the instrument board is the compass which is indispensable for cross-country flying. On the left side of the instrument board are grouped the engine instruments, the tachometer which shows the revolutions per minute of the engine; the oil pressure gage which shows whether the engine is being properly lubricated and the oil temperature gage which serves a similar purpose.

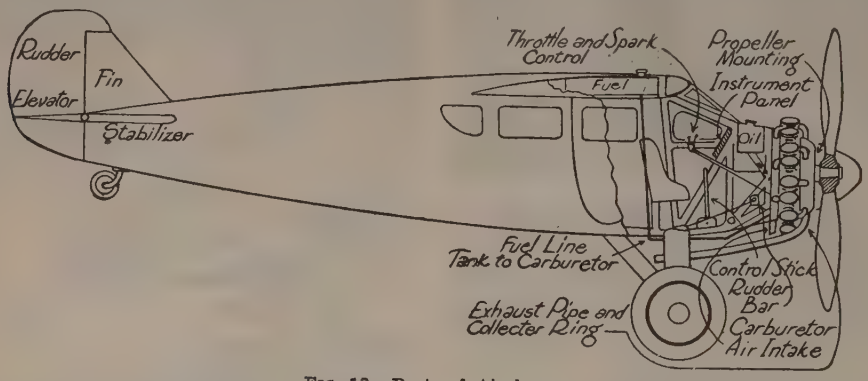

FIG. 13 Parts of Airplane

The pilot's flying controls consist of the control stick, commonly called the "joy" stick and the rudder bar. The ailerons, elevator and rudder are actuated by these two important parts of the airplane. The action of the flying controls is illustrated by the drawings, which show that a forward motion of the stick turns the elevator down, and therefore dips the nose of the plane. Pulling back on the stick turns the elevator up and raises the nose of the plane. The movements of the stick for longitudinal control are therefore

quite instinctive. In the same way, pushing the stick to the right will turn the right aileron up, the left aileron down, and therefore the plane as a whole will go down on the right side. Again

The landing gear of an airplane is a very important part. In the hands of a skilled pilot, a perfect three-point landing can be made after flattening out gently from a glide, without the

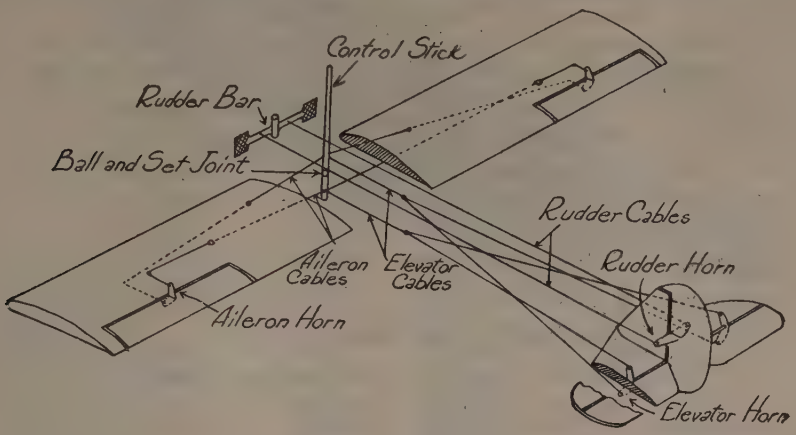

FIG. 14 Control System

the movement is instinctive. Pushing the right forward on the rudder bar will turn the nose of the plane to the right. This is somewhat different from the action required with the steering wheel of an automobile, but rudder action is soon learned. In fact the use of all the flying controls is but a matter of a few minutes.

Back of the pilot is the passenger's cabin, with ample vision through the sliding windows. Electric lighting by means of a battery, and heating by means of air which has been warmed by passing round the exhaust pipe are always available in a modern passenger plane.

The fuselage of the modern airplane, in which engine, pilot, passengers, etc., are housed, is generally made up of welded steel tubing. For-

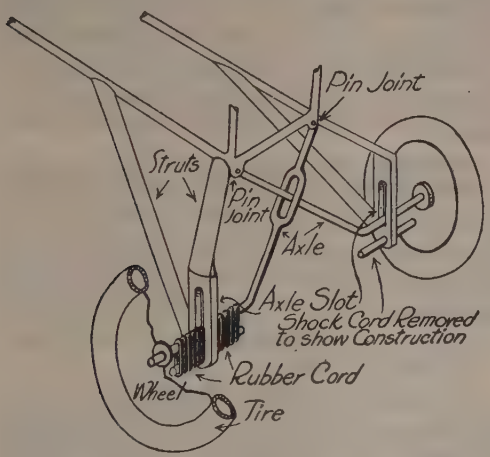

FIG. 15 Divided Axle Landing Gear

merly, wooden struts and wires were used, but welded steel tubing has replaced stick and wire, because alignment is better maintained, and because in a crash, tubing will bend but not break and splinter. Many fatalities have been avoided by the use of tubing.

slightest shock. But sometimes such a perfect landing is not possible. Therefore, the landing gear has to be so constructed that it can take up shock. This is done frequently by making use of rubber shock absorbers. As shown in our drawings the struts can descend relative to the wheels against the restraining action of rubber cords. The placing of the wheels of the landing gear is important. The center of the wheels should be some distance ahead of the center of gravity of the airplane, so that if the wheels meet a bump the airplane does not nose over.

While accidents still happen in airplanes, structural failure in the air never happens nowadays, so much care have engineers given to the design and construction of the wings. (See Fig. 16)

The contour of the airfold is maintained by the ribs, placed along the span of the wing at intervals of approximately one foot. The doped and varnished cotton fabric, which constitutes the wing, is sewed to the ribs, which are placed about one foot apart along the span of the wing. The ribs maintain the contour of the air and transmit the lift of the wing surface to the two spars which provide strength against bending. The front and rear spars are braced against the drag of the wing by an intricate trussing of wires and compression struts. The forces on the wing are relieved by the external lift struts which carry a part of the wing load directly to the fuselage.

AIRPLANE ENGINES

Historical Development

The four cylinder water-cooled engine built by the Wright brothers in 1903 had approximately 21 horse power and weighed 152 pounds, so that the weight per horse power was 12.7. Since that time, as a result of continued effort in every country, the aircraft engine has improved beyond recognition. Today there are air-cooled engines in production, weighing not much more than 1 pound per horse power, and the aircraft engine has become a most reliable and certainly the most refined prime mover built by man.

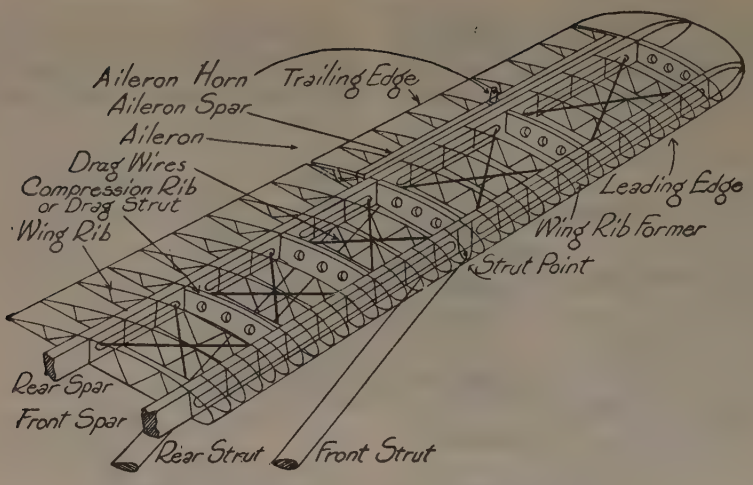

FIG. 16 Wing with Semi-Cantilever Monoplane Bracing

Prior to the World War aircraft engine horse powers remained quite moderate. The best known engine at the outbreak of the Great War was probably the Curtiss OX, which had eight water-cooled cylinders, arranged in V form, and developing 90 to 100 horse power at 1,400 revolutions per minute, and weighing a little over 4 pounds per horse power. In Europe, perhaps the most distinctive types were the rotary air-cooled engines such as the Gnome (80 horse power) and the Le Rhone (110 horse power). These were much lighter than the Curtiss OX and very compact. They played a very useful part in the early history of aviation. Their chief drawbacks were the windage losses of the rotating cylinders, the difficulty of securing perfect lubrication, and their lack of reliability. They were never built in larger powers than 110 horse power and have now been completely superseded.

The World War gave a tremendous impetus to the development of the engine. Since supremacy in the air was vital to the combatants, and since fighting supremacy was dependent on speed and climb, which in turn depended largely on horse power, each side tried to develop more and more powerful engines. At the end of the War the British and French were using the 300 horse power Hispano-Suiza, an 8-cylinder water-cooled V engine, with great success. The Germans concentrated their efforts on 6-cylinder vertical engines, developing not more than 225 horse power, somewhat heavy in construction but wonderfully reliable. The outstanding engine achievement of the United States was the famous Liberty motor. This was to some extent a derivative of the Hall-Scott engine, but involved a new design said to have been produced in a Washington hotel by Colonel J. G. Vincent and Colonel Hall. Not only did the United States produce the most powerful aircraft engines of the War, but with our understanding of production methods, enormous numbers of Liberty engines were built. Had the War continued the United States would have produced more engines than the rest of the Allies and the Germans combined.

As it was, the American government at the end of the War had an enormous surplus of Curtiss OX and Liberty motors on its hands. These were sold at low prices to commercial interests. The OX engines, costing thousands of dollars, were sometimes sold for as little as $32, and enabled designers to produce cheap two and three seater planes, which proved invaluable for training and aerial service work. The Liberty motors for several years gave invaluable service to the air mail planes, and continued to be widely used up to a year or so ago.

During the War, the rotary air-cooled engines had given away to the water-cooled type, nevertheless designers felt that air cooling was entirely logical for the aircraft engine. The automobile engine may be called upon to give its maximum power when the car is moving slowly, as in going up a steep hill, and air cooling is then a difficult proposition. In the airplane, there is always a rapid stream of air to be relied upon, and hence air cooling is far more plausible. It has also been found that most of the power plant failures are due to water-cooling troubles, and air cooling has therefore given the airplanes greater reliability. Air-cooled engines have also proved lighter than the water-cooled types, and also dispense with the weight of radiator and water.

In Europe, the development of the air-cooled type has been mainly in the hands of the Bristol Company of England, which starting with a 3-cylinder 100 horse power type, has now produced the Bristol Jupiter, a 9-cylinder type of 450 horse power, weighing approximately 1½ pounds. In England also has been produced the well-known Cirrus engine, with 4 air-cooled cylinders in line. This develops 85 to 95 horse power and weighs 270 pounds.

It is in the United States that the air-cooled engine has taken the greatest development. Charles L. Lawrance, in 1919 and 1920, produced the first successful American air-cooled engine, a 3-cylinder 60 horse power type. Since that time the development of such engines has been very rapid. The famous Wright Whirlwind carried Lindbergh across the sea, and has been employed on innumerable airplanes. Other well-known engines of the radial air-cooled type are the Pratt and Whitney Aircraft Company's Wasp and Hornet

which are being largely used in large mail and passenger planes.

At the same time the water-cooled engine has remained in favor with many designers, particularly in the large sizes. The Curtiss Company in the United States has remained a firm exponent of the water-cooled engine, on the ground that it allows a better streamline for the forward part of the fuselage, since there are no projecting cylinders exposed to the air stream, and that higher speeds may be attained by its use. The Curtiss Company is now placing on the Commercial market the Conqueror 12-cylinder water-cooled engine of 650 horse power. At very high speeds, there is no doubt that the water-cooled engine offers a real superiority over the air-cooled type. The Schneider Cup races, in which speeds of over 300 miles an hour have been attained, have always been won by water-cooled engines, in some cases developing 1,200 horse power for as many pounds.

European engineers have also held to the view that for large commercial planes flying in all weather conditions, greater reliability could be secured with water cooling. On most European aircraft engines have shown tremendous gain in reliability. It is not uncommon for modern engines to stand up to an endurance test of more than a hundred hours at full power, and whereas the Liberty motor required complete overhaul at the end of 100 or 150 hours, an engine such as the Wright Whirlwind needs a complete overhaul only at the end of 300 hours, and with proper care may have a life of 1,500 hours. Aircraft engines have also progressed in the reduction of frontal area, and in the matter of cost and efficiency. Progress has been achieved by no radical departures, but by steady increase in skill in design, particularly in regard to cutting down dimensions and to increasing the speed of revolution while still maintaining perfect intake and exhaust and combustion. Progress has also been dependent on the use of the strongest and most refined materials. More than 40 different materials go into an aircraft engine, such as magnesium (which is lighter than aluminum), aluminum-bronze for valve insets, duralumin forgings for connecting rods (duralumin is an alloy of aluminum, copper, nickel and magnesium), high strength alloy steels and many others.

MODERN PRACTICE

Name of Engine	Rated Horse Power	Rated Revolutions Per Minute	Type of Cooling	Weight Dry	Weight in Pounds Per Horse Power	Fuel Consumption Per Horse Power in Pounds	Arrangement of Cylinders
Cirrus	...	...	Air	...	....	....	4 line
Warner Scarab	110	1850	Air	270	2.45	.50	7 radial
Wright Whirlwind	200	1800	Air	500	2.50	.53	9 radial
Pratt & Whitney Wasp	400	1900	Air	670	1.67	.55	9 radial
Pratt & Whitney Hornet	500	1900	Air	760	1.52	.55	9 radial
Curtiss Conqueror	600	2400	Water	760	1.26	.52	60° V 12
Napier Lion	450	2000	Water	850	1.89	....	60° V 12
Rolls Royce Condor	600	1700	Water	1350	2.25	....	60° V 12

EARLY PRACTICE

Name of Engine	Rated Horse Power	Rated Revolutions Per Minute	Type of Cooling	Weight Dry	Weight in Pounds Per Horse Power	Fuel Consumption Per Horse Power in Pounds	Arrangement of Cylinders
Liberty Motor	421	1700	Water	845	2.00	....	45° V 12
Curtiss OX-5	90	1400	Water	375	4.17	.55	90° V 8
Gnome	100	1200	Air	220	2.2	....	9 Radial rotary

air lines, water-cooled engines such as the Napier "Lion," the Rolls-Royce "Condor" and the Hispano-Suiza are employed to this day.

So many aircraft engines are now available, that it is difficult to select the most representaaive types. The above table is, however, a fair indication of current practice, and gives an idea of earlier practice also.

Besides tremendous improvement in the weight per horse power as shown by the above table, air-

Main Characteristics of the Aircraft Engine

The aircraft engine in its principle and main characteristics is similar to the automobile engine. It has to withstand higher continuous loads than the automobile engine and has to be much lighter for a given horse power, so that its design is very much more refined. The basic problems of both the automobile and the aircraft engine is to mix the fuel (gasoline) and air in-

timately in the correct proportions, to produce as perfect combustion as possible, and to convert the energy of combustion into mechanical power.

The combustion takes place inside the cylinder, which is the heart of the engine. The cylinder in aircraft practice is generally machined from a solid block of steel. The cylinder is open at its lower end; at the top is closed in by a cylinder head which is generally an aluminum casting, screwed in or shrunk into the cylinder. Inside the cylinder is the cup-shaped piston, arranged to slide up and down in the cylinder. The piston rings are carried in grooves in the piston, and press fairly tightly against the cylinder walls, so that leakage of gases past the piston is prevented. There is a piston pin in the piston round which the connecting rod can oscillate. The other end of the connecting rod embraces the crankpin, which is fixed in the crank arm of the crank shaft. As the piston moves up and down in the cylinder, its reciprocating motion is converted into rotational motion of the crankshaft. On the front end of the crankshaft is mounted the propeller, which gives propulsion to the aircraft. The intake valve and the exhaust valve are mounted in the cylinder head, and are operated by push rods, and springs. The push rods are themselves driven by the camshaft which in turn is driven by gearing from the crankshaft.

The conventional gasoline engine is said to have a four-stroke cycle, because the process of taking in gas, compressing, fixing and exhausting takes place in four strokes of the piston, two up and two down. At the beginning of a cycle, the piston is at the "top-center" position on the cylinder. As the crankshaft revolves (being moved either by starter or by the action of other cylinders) the piston descends and at the same time the inlet valve opens by means of the mechanism previously described. The downward movement of the piston, termed the suction stroke, produces suction or low pressure in the cylinder space above it, and a mixture of fuel and air is drawn in through the intake valve accordingly. When the piston reaches bottom center, the inlet valve closes. The further rotation of the crankshaft then moves the piston up again. Since the valves are closed, this stroke, termed the compression stroke, serves to compress the mixture of air and fuel to a high point. The efficiency and power of the engine are greatly increased by this compression of the mixture before its ignition by an electric spark. At or near the end of the compression stroke, a violent electric spark jumps across the points of the spark plug. The mixture is ignited, and the fuel burns or explodes rapidly, combining chemically with the air. The burning of the fuel produces a very high temperature in the cylinder (hence the necessity of cooling the cylinder walls) and a high pressure acting on top of the piston. This high pressure acting on the downwardly moving piston during the third stroke, which is termed the power stroke, delivers the energy of combustion in the form of turning moment to the crankshaft. Near the end of the power stroke, the exhaust valve opens, and on the last stroke of the cycle, when the piston is again moving upward, the burnt gases are ejected through the exhaust valve. The cylinder is then ready for another charge of fuel and air, and for another working cycle.

The pressure at the end of the compression stroke is about 95 pounds per square inch. Usually during the compression stroke the mixture of gas and air is compressed into a space 5½ times as small as that when the piston was at the bottom of the stroke. The compression ratio is then said to be 5½ to 1. Greater compression would mean better efficiency, but if too high compressions are used, without special fuels, the combustion becomes too rapid and severe knocking or detonation may be produced, with which motorists are also familiar.

The temperature in the cylinder after the combustion of the fuel is tremendously high—over 4,000 degrees Fahrenheit. Subjected to such enormous temperatures the cylinder walls, unless suitably cooled, would cause the piston to seize and the lubrication would fail. Hence the necessity for cooling the walls by means of water jackets containing circulating water, or by aluminum fins cast integrally with the cylinder head. Aluminum is a particularly good conductor of heat, and is used in the fins for this reason. Sometimes, for extra cooling, the steel cylinder also has fins machined on its outer wall as shown in our diagram. When a finned air-cooled cylinder is used it has to be subjected to the blast of the propeller, or slipstream as it is termed.

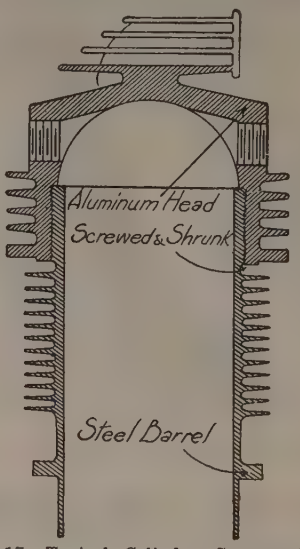

FIG. 17 Typical Cylinder Construction

The aircraft engine cannot function without a number of accessories, one of the most important of which is the carburetor. The working of the carburetor is perhaps more difficult to understand than the working of the engine itself. The diagram of Fig. 18 shows a carburetor in its simplest form. The full supply line is led from the fuel tank to a chamber in which there is a pivoted float. When too much fuel is coming from the fuel tank, the float shuts off the supply by means of a needle valve. From the float chamber the fuel passes to a small nozzle through a pipe bent at right angles. As air from the outside rushes into the engine under the pull of the suction stroke, it passes rapidly through a narrow channel or Venturi, and in so doing sucks

fuel from the nozzle and at the same time mixes the fuel intimately with the air. A throttle valve, controlled by the pilot, regulates the amount of fuel and air admitted to the engine, and hence the power output of the engine.

The ignition system of an aircraft engine generally consists of a high tension magneto in which coils of wire wound on an armature, rotated by gearing from the engine crankshaft, and revolving under the influence of a powerful magnet, produce electric energy. By a suitable system for interrupting the electric system and by a mechanically operated distributor, a high voltage spark is made to jump the points of the spark plug located in each cylinder at appropriate points on the engine cycle.

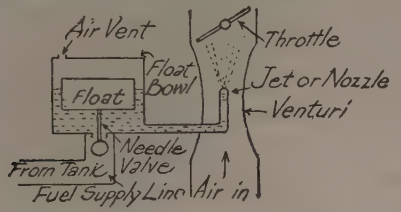

Fig. 18 Simple Carburetor

Correct lubrication is an essential part of the aircraft engine. Oil is supplied to the bearings of the crankshaft, by a pump driven from the engine crankshaft, and is led into holes drilled in bearings, and is then thrown out as a spray on the cylinder walls and the piston. After lubricating the various parts of the engine, the oil passes to the bottom of the crankcase from whence it is withdrawn to the oil tank by means of a scavenging pump. As the oil passes round and round, it is sometimes cooled by a special oil radiator.

Typical Engine Arrangements.

In the appended figure, the typical arrangements of the engine of today are illustrated. from where it goes back to the bottom of the water jackets. Designers have built water-cooled engines with three backs of 6-cylinders each, making 18 cylinders in all, and with four banks of 6 cylinders each. The two banks of 6 cylinders remain the most typical arrangement.

(b) The arrangement of cylinders in star or radial form gives a wonderfully light and compact arrangement, so this form remains very popular in spite of its head resistance and obstruction of the pilot's vision.

(c) To decrease the head resistance of the radial engine, various forms of cowling have been suggested, with the air entering at the center, but the top of the engine covered in by the streamline cowl. The use of such a cowl increases the speed of an airplane considerably.

(d) The four cylinder in line, is somewhat heavier in basic construction than the radial, but is simpler in construction, and has less head resistance. This type is becoming increasingly popular for the light plane, and for the training plane.

Future Developments of the Aircraft Engine

It is hard to forecast the future development of the aircraft engine, but competent observers predict that the Diesel engine, burning heavy, non-inflammable oil, will in a few years largely displace the gasoline aircraft engine of today. The Diesel engine besides greater safety offers the possibility of greater efficiency and lower cost of fuel. The difficulty in employing the Diesel is its weight, which is high because of the very large pressures developed inside the cylinder. The Packard Motor Company has, however, already successfully built an aircraft Diesel which weighs only 610 pounds for 200 horse

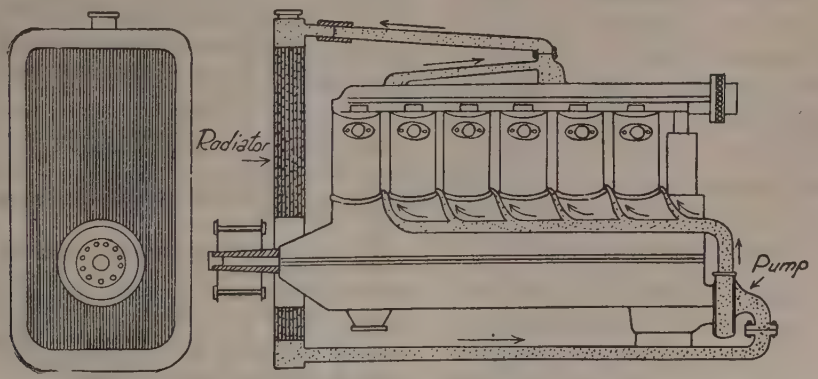

Fig. 19 Water Cooling System

(a) The diagram of Fig. 19 shows a 12-cylinder V engine of the water-cooled type, like the Liberty motor, together with its cooling system, in which water is circulated by means of a water pump. The hot water tends to rise naturally, and so the hot water from the top of the engine water jackets passes to the radiator, where it is cooled by the blast of air passing through the radiator, and then goes down to the water pump, power. The Packard Diesel is a 7-cylinder radial air-cooled engine, but its characteristics have so far been kept jealously secret. In the more conventional gasoline engine, engineers believe that the vertical in-line engine will to some extent displace the radial engine, because the head resistance is thus diminished, and the pilot's vision is less impeded. For the very large planes of the future, water-cooled engines of over 1,000

horse power are likely to be developed. There is some possibility that some chemical having a higher boiling point than water will be used as a cooling medium.

RECENT TYPES OF COMMERCIAL AIRPLANES.

There are now some two hundred airplane manufacturers in the United States, building every variety of commercial airplane, and it is very difficult to select the most typical. A table of the characteristics of some of them is appended.

In the light plane class used for primary training and interesting to the sportsman owner, we can cite the Aeromarine-Klemm AKL-25-A. This is a two-seater monoplane, with cockpits in tandum. The spread of the wing is 40 feet 2 inches, and the over-all length is 24 feet 8 inches. The engine is a Salmson 9-cylinder air-cooled developing about 50 horse power. The high speed is about 85 miles an hour. The weight fully loaded is 1,430 pounds and the wing area is 210 square feet. The AKL-25-A is said to be a low wing monoplane because the wing is placed at the bottom of the fuselage or body. The wing is said to be tapered, because it is wider near the fuselage, where maximum strength is required, than at the top. This monoplane is said to be internally braced, because no external struts or wires are used to brace the wing. Dispensing with such external bracing diminishes the head resistance of the plane, although the weight of the wing is heavier than is the case when external bracing is employed.

For more advanced training, particularly for acrobatic work, it is customary to employ a more powerful engine. An excellent example of the advanced training plane is the "Trainer" manufactured by Great Lakes Aircraft Corporation, and powered with a 90 horse power Cerries engine. The monoplane is probably more efficient than a biplane, but a biplane is apt to give a smaller and more maneuverable craft, and the Trainer is a biplane accordingly. The instructor in such a place occupies the front cockpit, and the student occupies the rear cockpit. The wings are "staggered," the upper wing being somewhat ahead of the lower plane. This "stagger" gives better vision for the flyers, and also gives them a clear parachute jump in case of emergency. The Trainer lands faster than the Aeromarine-Klemm, but it has also a higher maximum speed, namely, 110 miles per hour.

For the long hauls and large loads of the Transcontinental air lines, it may be necessary to employ large three-engined planes (particularly when passengers are to be carried and the greatest possible security against power plant failure is needed). For shorter or feeder air lines, a smaller type of cabin plane is more popular. An excellent and typical feeder line plane is the Fairchild 71 built by the Fairchild Airplane Company. This carries a pilot and six passengers. Dual control is provided (dual control for planes of over four or five occupants now seems to be the rule). Since the weight of the plane fully loaded is 5,500 pounds, a much more powerful engine is employed, namely, the Pratt & Whitney "Wasp" of 425 horse power. The top speed is 138 miles per hour. The Fairchild 71 is termed a high wing monoplane, because the wing is placed above the body. The wing bracing is very typical of American practice and is said to be of the semi-cantilever type, with the wings supported at about midway of their length by lifting struts on either side of the fuselage. With the increase in the number of planes, our hangars are becoming crowded. In the F71 by removing a pin or two and in a few minutes, the wings can be folded back, and much less space is then required.

The main justification of the airplane is its speed. Two or three years ago a cruising speed of 100 miles an hour was considered quite good for air transport work, but requirements are growing steadily higher, and many authorities predict cruising speeds of 200 miles per hour in the next few years, in which case San Francisco will be only a night's run out of New York City. An example of this increasing requirement of speed is the Fokker Super-Trimotor which is powered with three Wasp engines of 425 horse power each. The Fokker Super-Trimotor can fly and even climb on any two of its three engines. It is a 14-place cabin monoplane with two pilots seated ahead of the cabin. The pay load is 2,250 pounds (that is load which can be commercially profitable, mail, express, and passengers) and the gross weight is 12,500 pounds. Fully loaded the Fokker Super-Trimotor can develop a speed of 145 miles per hour.

Seaplanes are becoming increasingly useful and popular. They can be either hydroairplane, flying boats or amphibions. The hydroairplane is built exactly like a land plane, but instead of a landing gear, one or two floats are used to give buoyancy in the water. In the flying boat, a regular boat hull is used both to give buoyancy and to house crew, passengers and equipment. The amphibion is a type of craft which can alight on either land or water, and is in many respects the most useful of all aircraft. It is particularly valuable for transport between large cities where the landing fields are at some distance from the center of the city, but river or other water areas are generally available in the very heart of the city. One of the best known amphibions is the Sikorsky S-38, in which wheels at the side of the main hull operate as a landing gear, but can be swung up by hydraulic means when a water landing is required.

One of the most pronounced tendencies in the construction of airplanes is the substitution of metal (particularly the light and strong aluminum alloy known as duralumin). Just as in the history of all other vehicles of transportation, it may be confidently expected that metal will ultimately displace wood altogether.

Particularly in Europe, very large planes are in process of construction. Junkers in Germany is building a 100-passenger plane, and Dornier will soon be testing a huge flying boat, equipped with twelve engines of 500 horse power each.

Recently La Cierva's Autogiro has attracted much attention by its successful flights and it is now being built in the United States by Pitcairn Aircraft. The Autogiro is neither an airplane nor a helicopter, although it resembles an air-

plane in everything except the lifting surfaces. Instead of fixed wings, the Autogiro is supported by a huge four-bladed windmill, whose blades are free to rotate about a vertical shaft, and also move slightly up, so that no sidewise moments are introduced. The great advantage of the Autogiro is that while the craft as a whole may be moving very slowly, the blades are still moving rapidly and providing ample lift. As a result of this principle, the Autogiro can land very steeply and slowly and runs only a short distance after landing. This makes its use very attractive for the private flyer.

The helicopter or directly rising machine has attracted the attention of many workers, both in Europe and the United States, and is certainly a fascinating conception. The Berliner and De Bottiezat helicopters in the United States, the Pescara Damblanc and Oehmidieu helicopters in France have made short flights and shown possibilities. The difficulties of gearing in transmitting power, the inefficiency of the lifting airscrews in forward flight, and the difficulty of control while rising vertically or hovering are very great and all these inventors have ceased development work. Many well-informed authorities nevertheless believe that some day a practical helicopter will be achieved which will give man complete freedom in the air.

COMMERCIAL AVIATION.

Safety. The safety of commercial flying on regular air lines compares favorably with the transportation of passengers by automobile. Immediately after the World War a considerable stock of military aircraft remained which, purchased cheaply and employed without supervision, led to many accidents. This war material has been gradually used up or discarded to give way to modern planes, which have immensely improved in the last decade, especially in the last two or three years. The establishment of the Aeronautics Branch of the Department of Commerce with the licensing of pilots and planes, has also greatly increased safety. Another help to safety lies in the various aids to navigation now supplied by the government such as lighting and marking of airways, mapping of airways and weather service to pilots.

Flyers who attempt "stunts" for entertainment, or who run unusual risks, necessarily take their lives in their hands, and weather hazards such as gales, fogs, and thunderstorms always remain. But for aircraft operating with good ground organization, on regularly scheduled air lines the degree of safety already attained is quite remarkable, and the great majority of fatalities are confined to experimental, hazardous, or unusual conditions of aviation. Statistics as to safety are somewhat confused but a few figures will bear out the above argument. The Curtiss Company in the United States carried 4,000, and trained 60 pilots, in 1925 without a single major accident. In three years, the air mail service, which functions under all weather conditions, lost by death in flying a total of only

TYPES OF AIRCRAFT

	Type	No. of Passengers	Number of Motors	Total Horse Power	Length	Span	Wing Area	Maximum Speed	Landing Speed	Service Ceiling	Price
Keystone "Patrician"	CML	20	3	1,575	63′	90′	1,000	151	57	17,400	$90,000
Sikorsky "S-37"	CBL	18	2	1,000	45′-6″	100′	1,049	122	58	15,000	
Stout "4-AT"	CML	12	3	600	49′-10″	74′	785	114	55	14,000	
Fokker "Super-Universal"	CML	6-8	1	400	36′-7″	50′-7″	370	138	54	18,000	21,800
Loening "Cabin Amphibion"	CBA	8	1	525	34′-8½″	46′-8″	517	130	55	15,000	27,900
Boeing "40-B"	SBL	3	1	400	33′-4″	44′-2″	545	132	57	15,100	24,500
Stinson "SM-ID"	CML	6	1	200	32′	45′-10″	292	125	56	14,000	12,500
Ryan "B-1"	CML	5	1	200	27′-5″	42′	290	126	49	16,000	12,200
Curtiss-Robertson "Robin"	CML	3	1	90	25′-9″	41′	245	101	46	11,500	4,000
Alexander "Eaglerock A-2"	OBL	3	1	90	24′-11″	36′-8″	330	100	34	11,500	
Elias "Aircoupe"	CML	2	1	80	21′	28′-1½″	192	96	25	10,000	3,350
Fairchild "21"	OML	2	1	80	22′	28′	139	105	40	10,500	4,250

C—Closed; *O*—Open; *S*—Semi-closed; *M*—Monoplane; *B*—Biplane; *L*—Landplane; *A*—Amphibion

five pilots. In 1926, over 3,700 persons took air rides in Philadelphia at the Exposition or enroute from Washington, D. C., and points south as far as Norfolk, without a single injury. In the Aeromarine Services, 26,000 traveled from Florida to Havana with only one major accident. Four thousand persons have flown by air between Cleveland and Detroit, and 43,000 have crossed the English Channel with complete safety. These statistics are more or less typical, and it is estimated that but one death occurs for every 1,250,000 persons carried by air.

It is confidently expected that the next few years will see even greater advances in aviation safety, on the following grounds. The public, becoming acquainted with the work of the Department of Commerce, will refuse to patronize any but licensed aircraft manned by licensed personnel. The use of multi-engined planes for passenger transportation will eliminate the hazard of power plant failure. At the same time, the immense increase in the number of airports and landing fields will lessen the danger of forced landings. The Daniel Guggenheim Safe Aircraft Competition has focused the attention of designers on the construction of planes which without losing their speed qualities, will land far more slowly, and require only a short landing run. The national extension of the weather service will warn pilots of dangerous weather conditions. The dangers of fog flying are being lessened by the greater use of reliable instruments, and by the systematic instruction of pilots in "blind flying."

Air Transport in Europe. Shortly after the Great War, commercial aviation began to develop tremendously in various countries. Some typical figures will show the trend. For the year ending on May 1, 1920, aircraft transported in England some 70,000 people, on 38,954 flights, a total of 737,000 passenger miles, and in addition 116,000 pounds of goods. Valuable and perishable commodities lead necessarily, it being quite common to ship gold and money by air, but almost everything, even to a live tiger, has been carried. From London service by air radiates in nearly all directions except across the Atlantic. One can travel to almost all the European capitals, to Morocco and other points in Africa. Within six years more than 60,000 people crossed the Channel to or from England. In 1923 alone, 1,400 airplanes checked in or out of the London airport, and the value of goods carried rose to nearly $4,000,000, one-fourth of which went to Paris. In 1924, the Imperial Airways, under government control, replaced the four private companies, and under a subsidy British commercial aviation has developed fast. From the Croyden airport near London, the trip is made to Brussels in 2 hrs. 45 m., to Cologne in 5 hrs., to Hamburg in 6 hrs. 45 m., to Berlin in 7 hrs. 45 m., and to Paris in 3 hrs. or less, whereas the boat-train schedule calls for 7 or more hours.

By 1928, in England airplanes were in service or designed to carry from 10 to 40 persons. The French Farman Company carries from 12 to 20 passengers in each plane. A German seaplane is being constructed to carry 100 across the Atlantic; and the Italian Ricci quadruplane was expected to transport, under favorable conditions, at least 150 persons and 14,000 pounds of cargo as far as Brazil.

Between 1919 and 1925, commercial aviation in France increased 833 fold or from 9,124 letters to over 7,500,000. France, in 1924, had 5 companies, 9 lines, 80 pilots, 260 planes, which carried 16,728 passengers on 11,800 trips, with almost 2,000,000 pounds of freight and half as many of mail. In 1926, 35 planes were being flown, and 4,720,000 letters were carried in the first nine months. Germany increased rapidly in 1925 and 1926, with 50 lines in operation, carrying 56,000 passengers in 1926, while letters and freight increased 5 fold and distance 3 fold over 1925. England carried 21,000 passengers and 618 tons of freight over the Channel in six months of 1926. Altogether, in 1926, Europe had 33 commercial companies, most of which carried both cargo and passengers.

Air Transport in the United States. The air mail service was inaugurated between New York and Washington, D. C., in 1918. During the first year only two planes were used, one of them carrying in all 826,000 letters in 10,716 miles of flying, and for a total of 164 hours in the air. Nine contracts were let the private companies in 1926, which attained 378,000 miles by the end of the year. Between June and the end of December, 1926, the Boston-New York line covered 75,500 miles, carrying 6,600 pounds of mail; the Chicago-Dallas line covered 29,000 miles, carrying 58,000 pounds, and the Los Angeles-Salt Lake City line covered 328,000 miles, carrying 70,000, and 258 passengers.

One of the most reliable and comprehensive sources of information on American commercial aviation is to be found in the Aircraft Yearbook published by the Aeronautical Chamber of Commerce, from which the following information is largely drawn.

During the year 1928, commercial air transport in the United States underwent tremendous expansion.

At the end of 1928, there were 15,128 miles of airways in operation, with two-thirds of this mileage equipped for night flying. Twenty-two companies were operating 33 air mail lines under contract with the Post Office Department. There were 294 single and multi-engined planes in service. The mileage flown was 10,472,024 miles as compared with 5,242,839 miles in 1927. There was a similar increase in mail poundage. In 1927, the air lines carried 1,222,843 pounds of mail. In 1928, they carried 3,632,059 pounds. In 1927, 12,594 passengers were flown on regular scheduled service. In 1928, they numbered 52,934.

The tremendous increase in air mail poundage in 1928 was due to the decrease in postage, effective on August 1, from 10 cents to 5 cents for the first ounce. Many authorities predict that in time all first class mail will be carried by air, at the ordinary postage of 2 cents an ounce.

The appeal of time saving by the air mail is irresistible to business men. Air mail makes pos-

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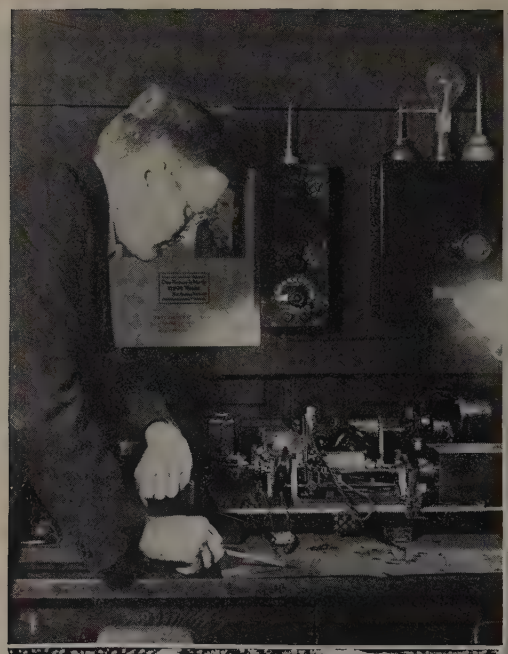
LEADERS IN AVIATION

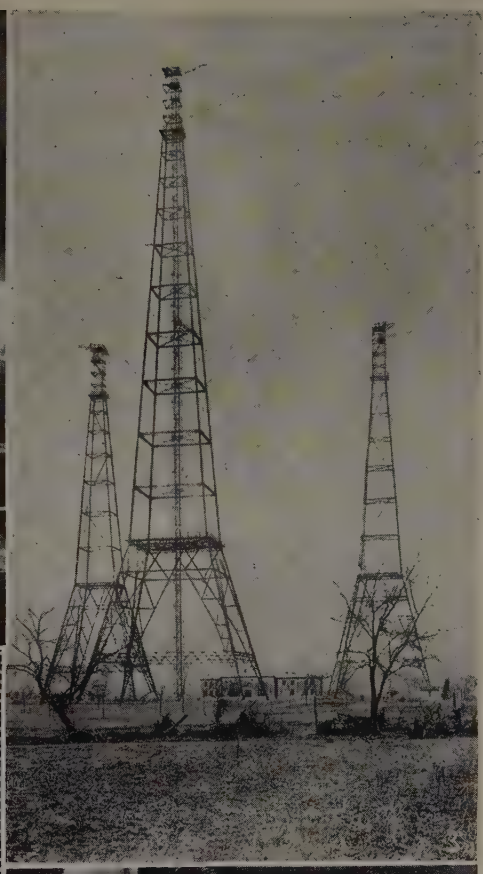
Colonel Charles A. Lindbergh

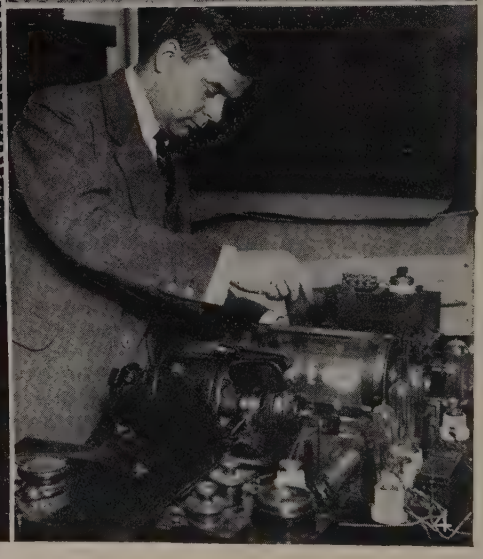
Orville Wright

Glenn H. Curtiss

Commander Richard E. Byrd







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RADIO

1 Capt. R. H. Ranger, R. E., with Photoradiogram machine sending pictures by radio from New York to London.
2 Picture of H. R. H. The Prince of Wales, sent by radio from London to New York by Radio Corporation of America.
3 The great wireless towers at Arlington, Virginia. 4 The Marconi machine for radio picture transmission.

sible tremendous savings in interest on cheques and bank drafts. It is estimated that between $8,000,000,000 and $9,000,000,000 of such valuable paper will be carried by air in 1929.

The Night Transcontinental Service inaugurated on May 1, 1929, will give all cities on the transcontinental route twice-a-day service in either direction. The flying line between New York and San Francisco will now be only 32 hours. A letter mailed in New York or Los Angeles on Monday evening will be delivered on the other seaboard on Wednesday morning.

In the development of the night air mail much credit is due to the Department of Commerce, which has set up its powerful aerial beacons over immense distances, and is helping to give pilots weather service and other aids in navigation.

Airplane Manufacture. There has been an equally rapid expansion in airplane manufacture. After the war the surplus of war material purchased very cheaply for commercial purposes effectually prevented the construction of commercial planes. In 1921, not a single commercial airplane was built. In 1928, more than 5,000 commercial planes were built and 2,087 engines for commercial purposes. The retail market of this commercial production was in excess of $27,000,000. With the production of military airplanes and of spare parts, the total value of airplane manufacture was more than $75,000,000, this making airplane manufacture one of the great industries of the country.

Private Flying. A most gratifying sign of the growth of American aviation in 1928 was the increase in private flying. At the end of the year the Department of Commerce listed 4,844 licensed planes, and of this number, 3,000 were privately owned either by individuals or by corporations using them for private purposes. The most conspicuous private flyer was Colonel Charles A. Lindbergh, who, scorning to use trains or steamships, covered 65,000 miles in the year, flying to Central and South America, and crossing the continent some ten times. Several country flying clubs were formed during the year, and the movement promises to grow very rapidly. Members of flying clubs will be part owners of good light planes, and will be able to fly where they will at a cost not greater than involved in the operation of an automobile.

Other Peace-Time Work of Aircraft. Besides its work in carrying mail, freight and passengers, the airplane is rendering many industrial services. The United States Government has used airplanes for spraying poison to kill mosquitos in their breeding haunts, in killing caterpillars, and in destroying the gypsy moth in New England, the boll weevil in the South, leaf hoppers in the Southwest, and the coding moth in Oregon apple orchards. Cotton in Georgia has been dusted at the rate of from 200 to 1,000 acres a night, compared with not more than 30 by older methods, with one-fourth increase in crop yield; and peach trees have been sprayed against the "curl" disease at the rate of 200 acres an hour, compared with 8 by old hand methods.

News and pictures have been sent by air when other transportation was impossible, as in the case of pictures incident to the funeral of President Coolidge's father in Vermont during very heavy snow; news of the explosion at the Naval Arsenal at Dover, N. J.; of the Florida and Mississippi floods. A rush shipment of clothes from New York to Florida, of overshoes from Ohio to New York City during a great storm, of gold to Miami bankers at the time of the disaster there, of a woman suffering from lockjaw to a distant hospital, of a man suffering from gangrene to another, of food to an ice-bound tug in Lake Michigan, of antitoxin from New Jersey to New York—the list of airplane uses in such emergencies would fill a page.

For policing, exploring, rescue, reclamation, inspection, and other similar work the airplane has already been used numerous times. One man in a western state has his office in an airplane which he moves about at will and which serves also as his sleeping quarters, while he inspects hundreds of acres under his general management. In advertising by "sky-writing" the use of plane is well known. Other uses are in making aerial maps by photography and in aerial surveying. A mosaic map of New York City has been made with elaborate detail, some 620 square miles to a scale of 600 feet to the inch, so that every building, street, footpath, and automobile even are clearly shown. One township made an appraisal at a cost of only $22,000 by use of an airplane, whereas a similar one from the ground took four years and cost $80,000. For several years the United States Forest Service has maintained forest patrols, each covering about 300 miles, and in 1920 alone 35 pilots thus discovered 1,600 fires in western reserves.

Large industrial organizations have taken up the airplane seriously, using it in their business for sales purposes, advertising, and inspection trips by executives. For example, the directors of the Standard Oil Company of Indiana used a three-engine plane to fly 84,000 miles on inspection trips in one year. The Goodrich Rubber Company makes large use of planes in sales promotion work. Among other large corporations owning planes for commercial purposes are the Pittsburgh Plate Glass Company, the Royal Typewriter Company, the United Cigar Stores, etc.

Salesmen are buying planes to cover their territory more quickly. Doctors, in increasing numbers, are making their professional calls by air. New York business men use land planes and flying boats for commuting purposes. Timber companies, ranchers and planters make use of the airplane in many states.

MEMORABLE AIRPLANE FLIGHTS.

1903. Orville and Wilbur Wright each made two flights on Dec. 17 in biplane and engine both of their own construction. First successful flight in power-driven heavier-than-air machine with passenger without accident.

1904. Wright brothers made 105 flights. Best record 3 miles in 4 m. 30 s.

1905. Wright brothers made 49 flights. Best record 24 miles in 38 m.

1906. Santos-Dumont, a Brazilian, made biplane flight in France of 722 ft. in 21.5 s.

1908. Farman made best French record in biplane, 12.24 miles. Delagrange established biplane record in Italy, 10.5 miles. Glenn H. Curtiss

won *Scientific American* cup in biplane at Hammondsport, N. Y., 3,420 ft. Wilbur Wright, at Le Mans, France, won world's record and Michelin prize in his biplane, 77 miles in 2 h. 20 m. 23 s. at av. speed of about 34 miles.

1909. Record for speed: Glenn H. Curtiss. 18.8 miles in 23 m. 29 s. Rheims, France.
One man duration: Henry Farman. 144 miles in 4 h. 17 m. 53 s. Mourmelon, France.
Cross-country flight: Col. S. F. Cody. 40 miles in 1 h. 3 m. Aldershot, Eng.
Altitude: Hubert Lathan in Antoinette monoplane. 1,486 ft. Chalons, France

1910. Labouchers first man to fly 200 miles without stop. Used a monoplane. 211.27 miles in 4 h. 37 m. at Rheims, France.
Paulham in biplane won London *Daily Mail* prize of $50,000 for flight from London to Manchester.
Morane in monoplane established world's record for speed at rate of 66.417 miles an hour. Rheims, France. Exceeded later in year by others.
Radley in monoplane flew 1 mile at 77.6 mi. an hour. World's straightaway record for monoplane to date.
Le Blanc in France flew circular course of 485 miles, 75 mi. in longest stage, in 10 d. 11 h. 55 m.
One man distance record: Maurice Tabuteauin Farman biplane.
Height: Leganeaux of France. 10,500 ft.
289.39 miles in 6 h. 1 m. 35 s. Buc, France.
Greatest speed: Le Blanc in Bleriot monoplane. 67.87 m. an hr., at Belmont Park, N. Y.
One man duration: Farman. 8 h. 23 m., 289 miles.
American records: Walter Brookins in Wright biplane, Chicago to Springfield, Ill., 175¾ miles in 5 h. 51 m. with two stops. Made 88 miles in one stage. No stop record, Arch Hoxsey in Wright biplane, 104 miles from Springfield, Ill., to near St. Louis, Mo. Ryan prize, for circling Statue of Liberty and returning to Belmont Park, N. Y., won by Moisant in monoplane. About 35 miles in 34 m. 38.8 s.

1911. Speed: E. Nieuport in Nieuport monoplane. 64.132 miles an hour. Mourmelon, France.
Duration: G. Fourny. 441.173 miles in 11 h. Buc, France.
One man distance: A. Gobe in Nieuport monoplane. 460 miles. Pau, France.
Altitude: R. Garros in Bleriot monoplane. 13,940. Parame, France.
Speed in vertical climb: T. O. M. Sopwith and R. Simon in Bleriot monoplane. 1,640 ft. in 3 m. 35 s.
Cross-country flight: Lieut. Jean Conneau in Bleriot monoplane. 1,073 miles in 58 hrs. 38 m.
E. Ely alighted on deck of a battleship and rose again from it at San Francisco.
Glenn H. Curtiss flew from water to land and land to water. First use of flying boats or hydroaeroplanes, as they were then called.
C. P. Rogers made first transcontinental flight. With many voluntary stops, this took from Sept. 17 to Nov. 5 to cover 3,390 miles.

1912. Speed record: J. Vedrines in Deperdussin monoplane, 107.4 an hour. Pau, France.
Duration: G. Fourny in Farman biplane, 628 miles in 13 hrs. 18 m. Buc, France.
Altitude for airships: Cohen at Conte, France, 10,102 ft.
Altitude: R. Garros in Bleriot monoplane, 19,032. Tunis, Africa.
Flying boats: Lieut. John H. Towers in a Curtiss machine remained aloft 6 hrs. 10 m. 35 s.

1913. Pegoud made first voluntary loop in air.
Speed record: M. Prevost, France, in Deperdussin monoplane, 126.59 miles an hour, and also 68.31 in 30 m.
Distance: M. Fourny, France, in a Farman biplane, 626.77 miles.

1914. Bleriot flew from Scotland to Norway. 4 hrs. 10 m.
Duration record: Bohm in an Albatross, with 100 h. p. Mercedes motor remained aloft for 24 hrs. 12 m. at Johannisthal, Germany.
Altitude: Oelrich ascended to 25,755 ft. Sikorsky in plane made by him at Leningrad, stayed aloft at 6,200 ft. for 1 hr. 26 m. 21 s., with 10 passengers, an impressive record for such conditions. With 16 passengers he remained aloft 18 m.

1915. No important civilian European records.
Victor Carlstrom in Curtiss biplane flew continuously from Toronto to Binghamton, N. Y., and then to New York City.
Duration in U. S.: B. I. Jones, of the U. S. Army, 8 hrs. 53 m., and with two passengers, 7 hrs. 5 m.
Altitude: J. E. Carberry, U. S. Army, 11,690 ft.

1916. Ruth Law made a non-stop flight from Chicago to Hornell, N. Y., 590 miles in 5 hrs. 45 m. Record for cross-country flying, and world record for endurance piloting by a woman.
A Curtiss *J. N.* plane rose to 16,500 ft.
V. Carlstrom made a non-stop flight of 661 M. in 5 hrs. 40 m.

1917. Germany tried to control torpedo boats by stationing airplanes above.
Distance: G. Laureati flew from Turin to Naples, 920 miles.
An Italian Caproni plane flew for 322 miles with 10 passengers.

1918. Regular U. S. air mail established between New York and Washington, D. C. New York, Cleveland, Chicago route attempted.
Loening 2-seated monoplane at Dayton, O., developed 145 miles speed, with load of 4 guns and equipment, and climbed to 25,000 ft. in record time.
Four army airplanes flew from San Diego to Jacksonville, Fla. First long trip in the United States in formation like this.
Altitude record: Major R. W. Shroeder, with Wright motor of 300 h. p. rose to 28,900 ft. Bristol, Eng.

1919. *NC-4*, a U. S. Navy flying boat plane went from Rockaway, N. Y., to Halifax, N. S., to Azores, to Lisbon, Portugal, and finally to Plymouth, Eng. Four 400 h. p. Liberty motors gave speed of 90 miles in air and nearly 60 on water. Distance, 4,116 miles. Manned by Com. A. C. Reed and crew of five.
Capt. John Alcock and Lieut. A. W. Brown, Eng. Air Forces, flew a Vickers Vimy bombing plane, with two Rolls-Royce Eagle engines, from Newfoundland to Ireland. First non-stop Atlantic crossing. 16 hrs. 12 m., 1,936 miles, av. speed 118 miles an hour. Alcock died by accident later in year in France.
Capt. Ross Smith flew a Vickers Vimy, Rolls-Royce engine plane from London to Port Darwin, Australia, 11,500 miles.
Major Macaulay, in a *DH-4*, made round trip from Americus, Ga., to San Diego, in total time of 44 hrs. 15 m., and Capt. White made non-stop flight, Chicago to New York, 727 miles at 106 miles an hour.
Farman Goliath plane carried 10 passengers from Paris to Morocco, 1,116 miles in 16 hrs. 20 m.
Altitude record: Roland Rohlfs climbed 30,800 ft. at Mineola, N. Y., in a Curtiss Wasp, with 400 h. p. motor, and later to 32,450 ft.
Army reliability record: Lieut. B. W. Maynard, with Sgt. W. E. Klein as passenger, Mineola, N. Y., to San Francisco, in 3 d. 6 hrs. 47 m., and return in 9 d. 4 hrs. 26 m. and 5 s.

1920. U. S. fire air patrol in Oregon and California, flying for a total of 1,995 hrs., discovered 464 forest fires.
Knight, in mail plane, carried 16,000 letters from Chicago to Cleveland in 2 hrs. 10 m., at average of 157 miles an hour.
Lieut. A. G. Hamilton dropped from Le-Pere plane by parachute, 20,900 ft. in 12 minutes.
Donald Hudson in Curtiss Wasp crossed Andes at 30,000 feet high.
NC-4, which crossed Atlantic in 1919, flew 6,690 miles in 129 hrs. flying time.
Monument dedicated to Wilbur Wright at Mons, France, where he made a world record in 1908.
Flights from Cape to Cairo, Africa; from Calcutta to Bombay; from Philadelphia to West Indies by U. S. Navy planes and back, 12,731

miles in 1, 192 flying hours with no injuries under very adverse wind and storm conditions; four U. S. *DH-4* planes from New York to Alaska and back, 7,000 miles.
Farman Goliath flew continuously for 24 hrs. 19 m. and 1,915 miles.
Speed record: Sadi Lecointe, France, at rate of 188 miles an hour.
Altitude: Major R. C. Shroeder at Dayton, Ohio, 33,114 feet, using 400 h. p. Liberty motor. Rendered unconscious by cold and rare atmosphere, he fell with plane 5 miles, but recovered in time to land safely.

1921. Larson all-metal monoplane secured world's endurance record.
Helium first used instead of hydrogen in the U. S. Navy *C-7*, a "blimp" of 181,000 cu. ft. gas capacity, at Hampton Roads, Va.
Helium has advantages of being inflammable and of not losing its value by remaining long in a gas bag.
Pulitzer Prize record: Bertrand Acosta at Omaha, Nebr., flew 153.595 miles at rate of 176.75 miles an hour in a Curtiss-CD-12 plane of 400 h. p.
Altitude record: John A. Macready in La Pere biplane, 37,800 feet (40,000 officially corrected). Dayton, O.
Parachute record: Sgt. Encil Chambers, 26,000 ft. descent in about 18 m., first 500 before silk parachute opened. Lawton, Okla.

1922. Pilotless airplane successfully flown in England, and 300 h. p. Voisin biplane in France directed by Hertzian waves.
Lieut. J. H. Doolittle, U. S. A., Atlantic to Pacific, in 20 h. 20 m., with one stop at Kelly Field, Texas for fueling.
Capts. Sacadura and Coutinho, after hardships and accidents, completed flight from Portugal to Brazil.
Speed record: Russell L. Maughan at Mt. Clemens, Mich., at 248.5 an hour, unofficial.
Endurance: Lieuts. John A. Macready and Oakley G. Kelly, U. S. A., in Fokker monoplane, at San Diego. 35 hrs. 18 m.
Non-stop: Lieuts. Macready and Kelly, San Diego to Indianapolis, in *T-2* army monoplane, 2,060 miles.
Altitude: Lieut. Leigh Wade and two passengers, 33,350 ft.
Experiments with gliders and helicopters continued. World's glider endurance record: M. Maneyrolle in Peyret tandem monoplane.
Berliner helicopter at College Point, Md., indicated the possibility of using the same power plant and units for both upward and forward motion of a plane.
M. Pescara in France with a helicopter secured vertical motion by revolving two horizontal wings, and horizontal motion by means of a propeller.

1923. U. S. held officially 33 out of 42 world aviation records.
Non-stop record: Lieuts. John A. Macready and Oakley G. Kelly, in a Fokker Army *T-2*, flew from Roosevelt Field, N. Y., to San Diego, Calif., 2,516 miles in 26 hrs. 50 m. 48.2 s.
Speed: Lieut. J. A. Williams, U. S. N., officially timed by electricity at Mitchell Field, N. Y., 266.6 miles an hour in a *NC* (Navy-Curtiss) racing ship.
Refueling record: Capt. L. H. Smith and Lieut. J. P. Richter at San Diego. Remained in air 37 hrs., 15 m. 15 s. Furnished with 687 gal. of gasoline, 38 of oil, and 4 hot meals in air. Later they flew in one day from the Canadian to the Mexican border, including a non-stop stage of 1,300 miles.
Altitude: Sadi Lecointe in a Nieuport plane, 36,564 ft. France.
Flying boat (hydroplane): Jean Laporte, 18,159 ft. France.

1924. U. S. globe-circling flight. Each manned by a pilot and mechanic, four planes started across the Pacific. Of these, the *Seattle* struck a mountain and wrecked in Alaska, and the *Boston* had to discontinue at the Faroe Island off Scotland on the return. The *Chicago* and *New Orleans* completed the trip in 363 flying hours, 26,346 miles, between Apr. 6 and Sept. 28. Itinerary included Vancouver, the starting and finishing point, Alaska, Shanghai, Bangkok, Calcutta, Bagdad, Constantinople, Vienna, London, Iceland, Greenland, Boston, New York, Washington, and then across to Chicago, Omaha, Dallas, San Diego, San Francisco to the starting point. Lieuts. Eric H. Nelson and John Harding, Jr., piloted the *New Orleans*, and Lieuts. Lowell H. Smith and Leslie P. Arnold piloted the *Chicago*.
World endurance record: Coupet and Drouhin, 37 hrs. 58 m. 10 s.
Speed: Warrant Officer Bonnet, France, 278.48 miles an hour.
Speed: Lieut. Russell L. Maughan, U. S. Army flyer, on a third attempt, made a "dawn to dusk" flight from Curtiss Field, N. Y., to San Francisco, 4 a. m. Eastern time to 9:38 p. m. Pacific time—21 hours, 48 m. 50 s. for 2,670 miles. With five stops en route, the actual time in the air was only 17 hrs. 52 m. Contrast this with the first transcontinental flight by Rogers in 59 days with 68 stops and a longest single span of 133 miles to 575 for Maughan.
Helicopter record: Pescara in his machine, 2 propellers, Hispano-Suiza engine of 180 h. p., in France, 2,414 ft.

1925. Attempting to reach the North Pole with two flying boats, equipped with Rolls-Royce motors, Capt. Roald Amundsen and Lincoln Ellsworth, an American, were forced down at 88 degrees north and 10 west. With great difficulty they released themselves from the ice.
Donald B. MacMillan and party of eight, using three Loening amphibion U. S. Navy planes, were able to explore 30,000 sq. miles of northwest Greenland and Ellsmere island, securing much scientific data.
De Pinedo, with a Savoia amphibion flying boat, made a round trip to Australia, by way of India and Siam, returning by way of Japan, covering 34,500 miles.
Air line distance record: Com. John Rodgers and Lieut. Byron Connell, of U. S. Navy, in a *PN-9* plane, with 2 500 h. p. Packard engines, from Pablo Bay, Calif., till forced down near Hawaii, 1,730 nautical miles.
Duration and distance: Drouhin and Landry, in a Farman biplane with 450 h. p. motor, France. 2,734 miles in 45 h. 11 m. 59 s.
Speed: Lieut. J. H. Doolittle, Bayshore, N. Y., to Baltimore, Md., 245.7 miles an hour.
Duration for seaplanes: Lieuts. C. H. Schildhauer and J. R. Kyle, U. S. Navy *PN-9* with 2 500 h. p. Packard engines, 28 h. 35 m. 27 s.
Gliders: Com. Massaux in Poncelot Vivette glider at Vauville, France, 10 h. 19 m. 43.4 s.

1926. Com. R. Franco, in a Dornier Wal flying boat, flew by stages from Palos, Spain, to Buenos Aires, Argentine, 6,232 miles in 12 days. Noted for "long jumps" (five of the seven above 800 miles each), for freedom from serious accident, and for average daily speed.
Alan J. Cobham flew a de Havilland plane from Edgeware to Cape Town, South Africa, and return in about 170 flying hours, 16,130 miles. He beat the English mail steamer *Windsor Castle* on the return trip by two days, though he covered 3,000 more miles, and spent 15 days in 26 stops on the ground en route.
Alan J. Cobham also flew from London to Melbourne, Australia, and return, 26,000 miles in 320 hours actual flying time, using same plane as in his London to Cape Town flight.
Other distance flights were, Paris to Mesopotamia, non-stop, for 2,700 miles in 26 hrs. 30 m.; Paris to Omsk, Siberia, non-stop, for 2,937 miles in 29 hrs.; Paris to Djask, Persia, non-stop, for 3,415 miles in 32 hrs.; and New York to Buenos Aires, Argentine, by Bernardo Duggan, in a seaplane, for about 9,376 miles, with delays due to accidents, in actual flying time of 114 hrs.
Com. Richard Byrd and Floyd G. Bennett, in a Fokker three-engine plane equipped by the Ford Company and named the *Josephine Ford*, flew from Spitzbergen to the North Pole and back, 1,550 miles, in 16 hrs. The new

Bumstead sun compass permitted them to direct their return most exactly.

Loening airplane launched by catapult from the deck of a ship for the first time. Two airplanes with engines running were launched from the British dirigible *R-33*.

Good will flight to Latin American countries by ten U. S. Army officers in five amphibion flying boats, from San Antonio to Mexico, west coast of South America, across the Andes, and to Caribbean points, thence to Washington, D. C., 22,065 miles in 263 hrs. 15 m. flying time.

1927. Fatalities were impressive in 1927. Four trans-Atlantic flights failed, and 10 persons were lost; on the Dole race from Oakland, Calif., to Honolulu, 15 planes entered, 2 arrived, and 10 lives and 3 planes were lost; two French aviators were lost in flying to Brazil, in the interior jungles according to natives.

Dole race to Hawaii from Oakland, Calif., won by Arthur Goebel and W. V. Davis in monoplane *Woolaroc*, 26 hrs. 17 m. and 33 s.

Altitude: Lieut. C. C. Champion, . S. N., in a Wright-Apache plane near Washington, D. C., 38,474 ft.

Glider distance record: E. Chattanes in GO1 glider, near Varese, Italy, 34,488 ft.

Capt. Chas. A. Lindbergh, in the *Spirit of St. Louis*, a modified Ryan monoplane, with Wright *J-5-A* (Whirlwind) engine, flew alone from Roosevelt Field, N. Y., by way of Newfoundland, Ireland, and England, to Paris, 3,610 miles in 33 hrs. 30 m. Average speed was about 107.5 an hour. Previously, he established a transcontinental time record by flying from San Diego to St. Louis in 14 hrs. 5 m., and from St. Louis to New York in 7 hrs. 15 m.

Acting for the Daniel Guggenheim Fund for the promotion of aeronautics, Lindbergh later made a record visiting flight to every state, almost all flying fields, 82 cities, covering 22,350 miles in 260 flying hours. He had no mishaps, never was late at a landing, and missed but one engagement due to fog.

Com. R. E. Byrd and three companions made record four-passenger flight from New York to France, 3,477 miles in 46 hrs. 6 m. Their airplane, *America*, is a trimotored Fokker.

Distance (air line) and duration of flight: Clarence D. Chamberlin, in a Wright-Bellanca monoplane with C. A. Levine as passenger, flew from Roosevelt Field, New York, to Eisleben, within 110 miles of Berlin, Germany, a record non-stop flight of 3,911 miles in 42 hrs. 31 m.

W. S. Brock and E. F. Schlee, in a monoplane, flew from Grace Harbor, N. F., to Croydon, England, about 2,400 miles in 23 hrs. 9 m. They continued on a world flight as far as Tokyo, 12,295 miles in 145.5 hrs., and 18 elapsed days.

Ruth Elder and George Haldeman, on a Paris flight from New York, were forced to land in the water and were rescued by a Dutch oil tanker about 350 miles northeast of the Azores. Record for woman, 2,623 miles in 36 hrs.

Com. F. de Pinedo, in a flying boat, covered 30,000 miles over four continents and two oceans, from Sardinia in Sicily to America and back to the seaport of Rome, Italy.

Altitude: R. Donati, 38,792, at Turin, Italy.

1928. Duration: J. Risztics and W. Zimmerman, in Junkers plane with LV 280 h. p. engine, Dessau, Germany, 65 h. 25 m.

1929. Refueling in flight, duration: Major Carl Spatz and four companions in U. S. Army Fokker plane, with 3 Wright Whirlwind 220 h. p. engines, at Los Angeles, 150 hrs. 40 m. 14 s.

BALLOON AND AIRSHIP RECORDS.

1783. Mongolfier brothers made the first balloon and de Rozier first navigated one as pilot.

1785. J. P. Blanchard, a Frenchman, with Dr. John Jeffries, an American, as passenger and backer, crossed by balloon from Dover, England, to France. Prof. Charles used hydrogen for inflation.

1821. Charles Green first used coal gas for inflating balloons.

1836. Green, Robt. Holland, and Monck Mason flew 500 miles from London to Duchy of Nassau, Holland in 18 hrs. A balloon was called a "nassau" afterward.

1852. Henri Giffard developed an airship with two propellers and a rudder.

1862. Glaisher and Coxwold made unofficial record ascent of about 7 miles. At 29,000 Glaisher became unconscious, and Coxwold nearly so later, pulling the valve rope with his teeth to let out the gas.

1870. Duel between French and German balloon, probably first in warfare.

1870. Balloon with two pilots driven from Paris to Norway, 600 miles in 13 hrs.

1872. Depuy de Lome completed a "dirigible" balloon with enormous propeller managed by eight men.

1884. Capts. Krebs and Renard made several trips in their airship.

1897. A. S. Andrée, of Sweden, scientist, with two companions, lost in attempt to reach the North Pole by balloon. Their fate after the second day out is unknown.

1900. Count F. von Zeppelin made his first rigid airship.

1901. Santos Dumont, a Brazilian, won a prize of 4,000 pounds for successfully circling the Eiffel Tower, Paris, after several attempts. Built 14 dirigibles and several airplanes at his own expense.

1900. Count de la Vaulx flew a balloon from France to Russia, 193 miles in 35 hrs. 45 m.

1901. Dr. Surig and Prof. Berson, Germany, ascended 35,600 ft. in a balloon, a record for all aircraft till 1921, and for balloons till 1927.

1906. Count F. von Zeppelin navigated a rigid airship for 200 miles in 8 hrs.

1907. English airship, *Nulli Secundus*, flew over London at 30 miles an hour.

1908. Col. Schaesk made record of 72 hrs. from Berlin to coast of Norway.

A balloon flew from England to Russia, 1,117 miles in 31 hrs. 30 m.

1909. Duration record in U. S.: Harmon and Post, St. Louis to Edina, Mo., 48 hrs. 26 m.

1910. Walter Wellman, with four companions, in non-rigid *America*, rescued in mid-Atlantic by passing boat. Their balloon disappeared in air.

1911. Lahm and Hart, American balloon race, flew 480 miles in 22 hrs. 26 m.

The Zeppelin Company inaugurated passenger service, which by 1914 had carried 34,000 people without mishap.

1912. Emile Dubonnet flew from France to Russia in one day, 1,216 miles.

Rumpelmeyer established world's record by floating from Paris to Russia, 1,492 miles. H. Kaulen, Germany, established duration record of 87 hrs. in a balloon.

1914. Berliner balloon established record of 1,896.9 miles.

1917. A Zeppelin made a non-stop flight of 4,295 miles from Bulgaria to Central Africa and return, in 95 hrs., at av. speed of 57 miles.

1918. Of 67 Zeppelins used in World War, only 10 survived—34 lost by accident, 17 by enemy attack, and 6 by capture.

1919. The English *R-33*, of Zeppelin type, with 32 aboard, flew from near Glasgow to Mineola, N. Y., in 108 hrs. 12 m., at av. speed of 33.25 miles. Returning in 72 hrs. 3 m. Was 645 ft. long, 78 wide, with 5 gondolas for instruments, passengers, machinery, and cargo, 5 engines of 270 h. p. each, 13 tons of water ballast, 81 gas bags of 2 million cu. ft. of hydrogen, and gasoline storage of 5,670 gals.

Goodyear dirigible, U. S. Navy *C-5*, flew from New York to Newfoundland, 1,115 miles.

1919. Two Zeppelins in less than five months carried 2,380 passengers, 11,000 pounds of mail, 6,600 of freight and express, and covered over 32,300 flying miles in 553 hours.

1920. *D-2*, a Goodyear airship of U. S. Army, flew from Akron, O., to Washington, D. C., 444 miles. Length 500 ft., width 58; cruising radius, 500 miles.

L-21, a Zeppelin, on trial trip, carried 85 passengers 10 hrs. at 8,200 feet altitude. Another, after assignment to Italy, the *L-120* claimed a record of 105 hrs. flight.

U. S. Navy balloon drifted from New York to near Hudson Bay in Canada. Crew of three lost in woods 4 days and reached a railroad by 9 days of travel.

1921. Small Goodyear airship (pony blimp), 95.5 by 28 ft., fitted with Lawrence 3 cyl. 50 h. p. engines, and with gas capacity of but 35,000 cu. feet, had a cruising range of 450 miles.

R-38 built by British Royal Aircraft Works for the United States, once the world's largest airship, on trial test before delivery, collapsed, exploded, and fell into the Humber River, killing 44 of crew.

Helium tried for *C-7*, a non-rigid airship; used finally in quantity in the *Shenandoah* in 1924.

1922. International (Gordon Bennett) Balloon Race won by Belgium, 852.33 miles in 25 hrs. 40 m.

Airship *Roma*, built in Italy and sold to United States, fell at Hampton Roads, Va., struck high tension electric wires and caught fire, burning to death 34 of crew of 45.

1923. French dirigible *Dixmude*, later lost mysteriously in the Mediterranean, flew 4,500 miles in 118 hrs. 41 m. without stopping.

Belgium won International balloon record for third year.

1924. National (Goodyear) balloon race won by W. T. Van Orman and C. K. Wallom, 1,072 miles in 44 hrs. 4 m. 44 s.

ZR-3, now called *Los Angeles*, with 32 aboard, flew from Germany to Lakehurst, N. J., without stop, 5,066 miles in 81 hrs. 17 m., at av. speed of 55. Atlantic crossed in 64 hrs. Fitted with five Mayerbach 400 h. p. engines of 76 miles maximum speed. Used 24.5 tons of fuel and oil. It is 600 ft. long, 100 high, with gas capacity of 2.5 million cu. feet.

The ill-fated *Shenandoah*, wrecked in 1925 in Ohio, made longest trip to date as first rigid airship built in the United States. After making numerous short test flights, it crossed from Lakehurst to Fort Worth, Texas, thence to San Diego, to Canadian border in Washington, and back to Lakehurst, a round trip of 9,317 miles in 235 hours record flying time. Moored to improvised masts en route and subjected to almost every condition of navigation and weather.

Duration and distance: both won by Georges Cormier, France, 22 hrs. 34 m., and 496.69 miles.

1925. *Los Angeles* made round trip to Bermuda and back, and moored successfully to *U. S. Patoka*, only ship afloat with mooring masts for such craft.

International balloon race again won by Belgian pilot, 835.7 miles.

Shenandoah wrecked in a line storm near Caldwell, Ohio.

R-*33*, an English Zeppelin type of rigid airship, made in 1918 but refitted in 1925 with new covering and with apparatus to study the strain on various elements, broke loose from her moorings, floated in a high wind for more than 30 hours, and somewhat damaged was again brought back to her station at Pulham, England.

1926. W. T. Van Orman and W. W. Morton, in a *Goodyear IV* balloon, won both the International (Gordon Bennett) and the National (Goodyear) records for the season. International record, 534.9, using for inflation 60% water gas and 40% hydrogen, national record 848 miles.

Capt. Roald Amundsen realized his life-long ambition to see the North Pole as well as the South, which he visited in 1911. With Lincoln Ellsworth, an American, and Col. Umberto Nobile, as commander, with a crew of 19 men, Amundsen dashed across the Pole from Spitzbergen to Teller, Alaska, 75 miles northwest of Nome, 3,400 miles in a non-stop flight lasting 71 hrs. Their semi-rigid dirigible, the *Norge*, had a gas capacity of 670,000 cu. ft., three 250 h. p. motors giving a maximum speed of 62 miles an hour, and a cruising radius of 5,000 miles. Extra fuel and a direction-finding radio equipment were installed.

1927. Capt. H. C. Gray, U. S. Air Service, attained an altitude of 28,510 feet in a balloon at Scott Field, Ill. Lost his life by failure of oxygen supply.

1928. Distance for airships: Graf Zeppelin, Lakehurst, N. J., to Friedrichshafen, Germany, 3,967 miles.

TERMS USED IN AERONAUTICS

(Standardized by National Advisory Committee for Aeronautics, but here simplified for general readers. Terms are explained only with regard to their use in aeronautics.)

Aerodynamics. Science treating of the flow air and the forces exercised on solid bodies by air in motion.

Aeronautics. Knowledge and skill applied to flight of aircraft.

Aerostat. Any aircraft lighter than air, like balloons and airships.

Aerostatics. The science of lighter-than-air craft.

Aerostation. Art of managing lighter-than-air craft.

Aileron. Hinged or pivoted surface placed at rear outer part of a wing, which, on being moved, tends to impart a rolling movement to the airplane.

Aircraft. Any device designed to fly through the air, including balloons, airships, and airplanes.

Airfoil. Any surface intended to be projected through the air so as to bring about useful dynamic reaction or support.

Airplane. Craft heavier than air, fitted with wings, propelled by an engine, and supported by dynamic action of the air upon wings and other exposed parts.

Airplane, pusher. Plane having propeller in rear of the main surfaces or wings.

Airplane, tractor. Plane having propeller in front of the main surfaces or wings.

Airport. Any place on land or water fitted for landings and takings off of aircraft, with facilities for the repair and refueling of such craft, and for the comfort of passengers.

Airship. Aircraft of the lighter-than-air type with propelling system and some means of controlling the direction of motion, differing in these regards from a free or merely floating balloon.

Airships, types of. Non-rigid airships are held to form by the internal pressure of gas bags and balloonets. The rigid is held in shape by a metallic internal structure. The semi-rigid combines elements of both types, combining a rigid keel with internal gas pressure to maintain their form.

Air speed. The rate of motion of an aircraft relative to the air. The air-speed indicator shows the rate of motion relative to the air.

Airway. Air route between ports or landing places.

Altimeter. A device that indicates the height of aircraft above sea level, and is based on the principle of the aneroid barometer.

Amphibion. An airplane designed to rise from either land or water and to alight on either.

Anemometer. An instrument designed to measure the speed of the air current or airstream.

Angle, critical, drift, etc. The critical angle is the angle of attack or incidence at which an airfoil attains its maximum lifting capacity. The drift angle is the angle between the longitudinal axis of an airplane and its path relative to the ground.

Apparatus, water-recovery. Device carried on airships for condensing and so recovering the water contained in gases exhausted from the internal combustion engines. By saving this water and maintaining the weight of the airship at a constant value, in spite of fuel consumption the release of gas from time to time is obviated.

Axes of aircraft. Fixed reference lines indicating the position of the plane from right to left, front to back, or up and down, with regard to normal or some fixed position.

Bag, gas. Skin or rubber container of gas in a balloon, or airship.

Ballast. Any substance, like sand or water, carried for release from a balloon or airship when it is necessary to rise higher. Conversely, gas is released from the gas bag or bags when it is necessary to drop to a lower level.

Balloonet. Bag containing air, placed within the gas bag itself, for the purpose of increasing the pressure within the balloon and keeping it from denting, crumpling, or otherwise getting out of a required shape. Air can be let out of the balloonet for ascent, or into it by means of an air scoop for descent. Must not be confused with gas bag, which contains gas only, whereas the balloonet contains air only.

Balloon. Any aerostat, or craft depending on buoyancy for its support and not provided with mechanical means of locomotion.

Balloon, free. Usually round in shape, caused to rise by release of sand or water bags, and caused to sink by release of gas from the bag. Its direction of flight depends on the wind.

Balloon, dirigible. A balloon that can be steered by an operator. Term should not be applied to an airship.

Bank. To incline an airplane sideways. To right bank, then, is to incline the airplane by forcing the right wing downward. As a noun, bank describes the position of the plane when its lateral axis is inclined to the earth's horizon.

Bar, suspension. One to which ropes are attached for supporting below the basket or carrier for passengers, ballast, cargo, etc. of a balloon.

Basket. Carrier, usually of a free balloon, for passengers, etc.

Biplane. An airplane with two main supporting surfaces one above the other. A triplane has three, a quadruplane four surfaces and so on, but more than three surfaces are rarely used.

Blimp. Slang name for a small non-rigid airship.

Body. The fuselage, or hull of an airplane, including the place for pilot, passengers, cargo, apart from wings and tail of the plane. A short enclosed shelter for passengers or power units is called the nacelle.

Buoyancy. Upward air force of an aerostat or lighter-than-air craft. It equals the weight of air displaced minus the weight of gas contained in the bag.

Cabane. Usually applied to framework for supporting the wings at the fuselage or hull of an airplane.

Capacity, gas. The volume of gas contained in the collection of gas cells of a balloon or airship. It varies under different conditions of pressure and inflation as determined by the operators or by changes in external air forces.

Car. Part of an airship designed to carry passengers, cargo, or supplies. It may be suspended or placed close up against the buoyant portion or main envelope. Name does not apply to parts for similar purpose fitted as a keel of a rigid or semi-rigid craft.

Cell, gas. One gas container or bag fitted in a rigid airship. The number varies from one or a few to a score or thirty.

Cloth. Untreated fabric before it is coated with some preparation for use in aircraft.

Cockpit. Space for pilot and passengers; when housed or enclosed, it is often called a cabin.

Compartment, control. Space or compartment of an airship where the operating machinery or controls are located. Like the pilot house of a ship.

Controls. Any devices for the pilot to use in directing the speed, direction, and attitude of an aircraft or its power plant.

Control stick. Often called "stick" simply. Vertical lever by which both the lateral and horizontal controls are operated. Moving forward or backward the stick controls pitching movements; moving the stick to one side or the other controls the rolling movements.

Control surface. A movable part of airfoil which the pilot moves to change the attitude of the airplane or airship.

Crow's-foot. System of diverging ropes in a non-rigid airship that distribute the pull or force of a single rope. By such an arrangement strands of rope or cord can be cemented to a fabric surface.

Deflation. Act of releasing or removing gas from the balloon or air from the balloonet.

Diaphragm of balloonet. Fabric partition within the envelope separating the gas compartment from the air compartment or balloonet in a rigid or semi-rigid aircraft.

Dirigible. As applied to balloon means steerable or manageable by man. Should not be applied to an airship.

Displacement. Weight or volume (mass) of air replaced by gas used for inflation.

Dive. Steep descent, with or without motive power, in which the speed of the craft exceeds that of the maximum in horizontal flight. A nose dive is one at an angle approaching 75 degrees or more with reference to an upright position or angle of 90 degrees. See glide.

Dope. Liquid substance applied to surface of an airplane cloth to make it stronger, air-proof, or tighter; or liquid applied to a rubberized airship fabric to increase gas-tightness.

Drag. Component parallel to the relative wind of the total air force of an aircraft or airfoil.

Drift. The lateral or side speed of an aircraft due to air currents.

Duralumin. An alloy of aluminum with small percentages of copper, manganese, and magnesium, now much used for airship and airplane construction. Has great strength for light weight.

Dynamics. Science of forces both in equilibrium and motion, and of the relative effects produced by increasing motion.

Dynamic factor. Ratio between load carried by

aircraft or any part of one when maneuvering as compared with the basic load in normal flight.

Elevator. Movable auxiliary airfoil, which gives a pitching motion to the aircraft.

Endurance. Maximum time an aircraft can remain in the air at a given speed and a given height.

Engine, rotary. An engine with cylinders arranged radially and moving round a common fixed crankshaft.

Envelope. Outer covering, usually treated fabric, of an aerostat. It may contain gas, or may enclose other gas bags or cells; and it may contain air cells or balloonets.

Fabric. Cotton, silk, or other cloth treated by rubber and other dope from which airship and airplane envelopes and wings are made.

Fabric (gold beater's skin). Layer of light, fine cloth like cotton, inside of which goldbeater's skins have been cemented and covered with varnish. It is used for gas cells of rigid airships.

Factor of ultimate safety. Ratio of ultimate safety of any part to the total load or strain it is likely to bear in actual use.

Fin. Some fixed vertical surface attached to increase stability, like a tail fin or skid fin, etc.

Flap. Drip flap is a ring of fabric arranged around the envelope so that it sheds water as eaves on a house. Pressure flap is a fabric valve in the envelope to allow air to pass in and out rapidly to stabilize the pressure and keep the balloon or airship on a level course.

Flying boat. Type of seaplane having a hull or hulls which shelter the personnel as well as providing flotation. On the ordinary or center type of hull, lateral stability is provided by tipfloats placed under the wing.

Free balloon. Ordinary round balloon from which ballast and air can be released, but dependent on the wind for velocity and direction.

Fuselage. The structure, roughly streamline in form, which carries passengers, engine, fuel, etc., and to which the wings and tail of an airplane are fixed.

Gap. Perpendicular distance from upper wing to the one below.

Glide. A descent or to descend at an angle without power or in a craft without an engine, according to laws of gravity.

Glider. Aircraft similar to an airplane, but lacking an engine or power plant.

Ground-speed meter. An instrument for measuring the speed of an aircraft with regard to the ground.

Hangar. Any shelter for housing aircraft, but more accurately applied only to heavier-than-air craft.

Height, pressure. Height or altitude at which gas cells of a rigid airship are full, or the gas bag of a non-rigid balloon is completely filled with gas.

Helicopter. Any aircraft supported in the air entirely by force or thrust produced by rotating airfoils. Has the advantage of rising vertically or nearly so, and for this reason requires only a small landing field.

Hull. Main framework of an airship, including gas cells; part of a flying boat (seaplane) used for housing passengers and cargo and for providing flotation on the water.

Inclinometer. An instrument showing the attitude of an aircraft, whether with regard to the vertical plane through the fore-and-aft axis, or the lateral as to side dip on left or right, or in both planes.

Indicator. One of various instruments designed to indicate the fullness of gas cells, the speed of an airplane, etc.

Keel. Of an airship, the structure at the bottom of the hull providing strength against disabling elements and also a means of distribution of the loads along the hull.

Kite. Any aircraft heavier than air, held by a towline and kept aloft by relative strength and movement of the wind.

Landing gear. Understructure which supports the aircraft on land or water or keeps it from damage when landing or taking off. The common forms are boat type, float type, skid type, and ski type. Some amphibion (land and water) airplanes have combinations of floats or boats with skis or wheels.

Landplane. Airplane capable of landing only on the ground.

Lift. Component or part of the total air force exerted on an aircraft, or some part of it as specified, which is perpendicular to the relative wind and in the plane of symmetry.

Lift of a gas. Difference, under same conditions, between density of the gas and of air. The dynamic lift is that impressed on an aerostat by aerodynamic forces.

Lift, useful. Net lift available after deducting weight of the craft, for crew, fuel, oil, cargo and passengers, and equipment.

Line. Any rope used to grasp objects, to moor the craft, to steady it, to stabilize it, or control it.

Load. Useful load is the weight of crew, fuel, oil, cargo, passengers and equipment. Full load is the weight of the craft plus useful load. Basic load is load on an aircraft at rest or in steady flight. Pay load is the weight or useful load from which revenue is derived, such as passengers and freight.

Lobe. An air or gas inflated bag fitted at the stern of some aircraft like a kite or balloon to give it stability.

Maneuver. To change the attitude or relative positions of an aircraft at will of the pilot.

Monoplane. An airplane of but one main supporting surface, which may be divided into two parts by the fuselage.

Mooring mast. Tower to which an airship may be moored at the top. Some have ways for passengers to go up and down and piping for gas and other motor supplies.

Mooring, three-point. System of anchoring an airship by ropes going to three stakes arranged in the form of a triangle. Takes the place of a mooring tower.

Multiplane. Airplane with two or more surfaces placed one above another.

Nacelle. Enclosed shelter for passengers or power plant, usually not as long as the fuselage, and not supporting the tail.

Net. Of a balloon or airship, rigging made of ropes and heavy twine around the envelope and supporting below the weight of the basket which carries the crew, passengers, ballast, and other equipment.

Nose dive. See dive and glide.

Nose heavy. Condition of an airplane in normal flight whereby the craft would go into a nose dive, or the nose would drop, if the longitudinal controls were released or broken.

Ornithopter. Heavier-than-air craft supported and propelled by the flapping of wings. Long the dream of inventors, before the modern airplane was made.

Over-all length. Total distance from extreme point of propeller to extreme end of tail of any aircraft, especially of an airplane.

Pancake, to. Method of leveling off an airplane at a higher point than normal and descending to earth on a steep path, with wings at a large angle of incidence.

Panel of an aerostat. Unit piece of fabric of the envelope or outer covering.

Panel, rip. Strip fitted into upper part of envelope, which may be ripped out when immediate deflation is desired.

Pontoon. Name formerly used for a float.

Proofing. Material incorporated into a fabric to increase its strength and to prevent leakage of gas through it.

Propeller. Rotating mechanism or blade which provides the propulsive force for an airship or airplane. It operates on the air as the propeller of a boat does on the water.

Pusher airplane. One with propeller mounted in the rear of the main supporting surfaces.

Quadruplane. An airplane with four surfaces, placed one above another.

Range. Distance an aircraft can cover without refuelling or landing.

Rate of climb. Upward or vertical velocity with reference to air.

Rigging. Attachment and adjustment of car, rudders, valves, controls, and other elements of an airship; or the similar arrangements of parts of an airplane.

Rope, drag. Any rope used to act as brake or variant ballast of a balloon in making a landing; on airships a similar device to help the crew in landing or hauling down the craft.

Rudder. Movable part or airfoil, usually attached to end or tail of an aircraft, to assist the pilot in directing or yawing the craft.

Sag. Distortion of airship so that both ends rise higher than the middle.

Seaplane. Any airplane designed to alight on the water and rise from it. Name applies to both boat and float types, though the latter is often designated as flying boat.

Skid. Runner used as part of landing gear to enable the aircraft to land, or to taxi over the ground. Tail skids and wing skids protect the tail and wings from harm by hitting the ground.

Sky writing. Making letters or figures from smoke emitted by the airplane as it is maneuvered for this purpose.

Slipstream. Stream of air driven astern by the propeller.

Soar. To make sustained free flight without self-propulsion.

Span. Lateral dimension of an airfoil; maximum distance across an airplane parallel to lateral axis and including the ailerons, or movable auxiliary surfaces.

Spin. Maneuver consisting of a combination of roll and yaw with the longitudinal axis inclined steeply downwards.

Spiral. Maneuver of airplane in which it descends along a path like a giant screw.

Stability. That property of a body which tends to cause it to return to a normal position after it is displaced from such a position.

Stabilizer. Horizontal fixed airfoil that gives the airplane longitudinal stability. Called also the tail plane, because it is usually located in the rear. The fin of an aerostat is called a stabilizer.

Stall. Condition of an airplane which has lost the air speed necessary for support of control, because its wing is at too great an angle relative to the direction of motion.

Statoscope. Instrument which records small changes in altitude of any aircraft.

Streamline. Path of small part of a fluid in relation to a solid body with respect to which the fluid is moving. The term is also commonly used of such flows as are not eddying or disturbed.

Streamline flow. Steady flow past a solid body.

Surface, control. Movable airfoil or surface which the pilot can rotate to change the attitude of the airplane or airship.

Tail (airship) Same as stern.

Tail-heavy. Condition in heavier-than-air craft in which the pilot has to move the control stick forward to maintain a given attitude; otherwise, if left to itself the tail would sink.

Tail-slide. Backward and downward motion of an airplane after stalling. Sometimes incorrectly called a tail spin.

Taxi, taxy. To run an airplane over the ground as in landing or taking off, or a seaplane over the surface of the water.

Trim. Attitude of an aerostat or lighter-than-air craft relative to fore and aft horizontal plane. When the forward end is down, the aerostat is said to have "trim by the bow"; when the after end is down, to have "trim by the stern."

Triplane. Airplane with three supporting surfaces, one above another.

Valve. Any device for releasing gas and gas cells, air from balloonets, or air or gas from the envelope of an airship or balloon.

Vertimeter. Device for measuring the rate of rise and fall of an aerostat.

Volume. Space occupied, measured in cubic feet or cubic inches.

Warp. To change the form of a wing by twisting it; lateral control of an airplane was formerly achieved by warping the ends of the wing.

Weight. Variously computed as that of engine without fuel or oil, of the aircraft with or without load, of necessary ballast, or units of gas or air, of an engine per each horse power, etc.

Wing. Whole or part of supporting surfaces of an airplane, often spoken of as right wing, upper wing, etc.

Wing heavy. The condition of an airplane in which either the right or left wing would drop, were the lateral control released or broken.

Wing surface. Total area of the supporting surfaces or wings, generally expressed in square feet.

Zoom. To climb for a short while at an angle to the earth's horizon greater than could be maintained in steady flight.

PHYSICS.

Physics is the science which treats of the related phenomena of matter and energy. It is not so much a science dealing with matter or with energy alone but one that involves a study of the underlying principles which operate in this universe in which we have our being. All physical phenomena are the results of the operation of physical laws and a careful scientific investigation of these laws not only leads to a better understanding of the actual happenings in this world of ours but also enables us to make practical applications of these underlying principles with which we can conquer nature and make the world a more habitable place in which to live. To love Physics for its own sake one must either be full of a spirit of curiosity regarding our existence, or imbued with an intense desire to serve his fellow men in some such way as devising a new instrument to save the labour of man's hands or discovering a means of saving man's life from disease.

Physics has many ramifications into some other sciences such as Astronomy, Geology, Chemistry, Biology, and Medicine. This sometimes becomes so extensive as to form a separate department of study such as *astrophysics, geophysics, physical chemistry* and *biophysics.* Although originally with the ancients it was included under the study of Philosophy, it has now developed, especially during recent years, further than any other science and includes highly developed *departments such as mechanics, sound, light, heat, magnetism* and *electricity.* There is no commercial industry today nor any productive activity of man such as that of mining or farming which does not involve the **Science of Physics.** To be an efficient and productive worker today, it is essential that one studies its laws and principles. Moreover only in its development by new investigations and research can man ever hope to make any progress in solving the riddle of the universe. It is this pursuit that has produced some of the world's greatest physicists and philosophers such as Archimedes, Galileo, Sir Isaac Newton, Huyghens, Cavendish, Coulomb, Faraday, Gauss, James C. Maxwell, Sir Joseph J. Thompson, Michelson, Sir Ernest Rutherford, Millikan and many others.

DEFINITIONS OF PHYSICAL TERMS.

MECHANICS.

That branch of Physics which treats of the motions of bodies and the causes of changes in these motions. The part that deals merely with the geometrical properties of the different kinds of motion is called *Kinematics,* while *Dynamics* deals with the change in the motion produced by applied forces. Statics is that subdivision which deals with cases where although force is applied, the body remains at rest. Under Mechanics comes the systems of fundamental and derived units. The former are the units of length, mass and time and there are two systems of length and mass, namely the English and the Metric. The *derived units* include the units of *area, volume, velocity, acceleration, force, work* and *power.* These are complete in the English and Metric systems. Mechanics also includes the study of translation and rotation, work and energy, periodic motions, equilibrium, friction and the principles of machines.

Acceleration. Increase in the velocity of a body. The acceleration of a falling body, or of one dropped from a height, caused by the attraction of the earth (gravity) is 32.2 feet per second. In calculations and formulae this is represented by g.

Adhesive forces. Molecular forces which bind unlike kinds of molecules together.

Brittleness. The physical property of matter by virtue of which it tends to break readily under the influence of a sharp blow.

Capillarity. Peculiar action by which the surface of a liquid, where it is in contact with a solid, is elevated or depressed; so called because the phenomena are best seen in tubes of such small diameters that they are comparable to a hair. Also known as capillary attraction.

Center of Gravity. That point in which, if the whole mass of the body were centered, the attraction of gravity would remain unchanged. The center of gravity of a square, rectangle, rhombus, or rhomboid is at the intersection of its two diagonals; of a circle, ellipse, or regular polygon, at the center of the figure; of a semicircle, the radius multiplied by .4244 will give the distance from the center on the radius erected perpendicular to the diameter; at the center of a cube, parallelopiped, cylinder, prism, sphere, spheroid, or ellipsoid; of a right pyramid or cone, in its axis one fourth the distance from the base.

Coefficient of Friction. Constant ratio of force applied over weight.

Cohesive Forces. Molecular forces which bind like kinds of molecules together.

Density. Ratio of mass, or quantity of matter, to bulk or volume, especially as compared with the mass and volume of a portion of some substance used as a standard.

Ductility. The physical property of matter by virtue of which it can be drawn down into thinner wire.

Dynamics. Branch of mechanics which treats of the motions of systems or of particles. It regards mass, forces, constraints, velocities, and positions. It tells about the circumstances under which certain motions take place. Dynamics is divided into statics and kinetics.

Elasticity. The characteristic property of matter of returning to its original length when the forces causing extension are removed.

Elastic Limit. The point beyond which a body must not be stretched in order to have it return to its original length.

Energy. The ability to do work. *Kinetic energy* is the energy a body possesses by virtue of its motion. *Potential energy* is the energy a body possesses by virtue of its position; for example, coiled or stretched springs, bent bars, lifted weights.

Force. That which tends to impart motion to a body at rest, or to change the direction or magnitude of the velocity of a body already in motion.

Hardness. The physical property of matter by virtue of which it does not tend to be scratched readily.

Horse Power. Nominal horse power or Watt's horse power supposes a horse able to lift 33,000 footpounds in one minute; actual tests with an average horse give but 22,000 footpounds in one minute. Indicated horse power is calculated from the pressure upon the piston as shown by an indicator card or diagram.

Hydraulic Press. Application of the principle that pressure upon a body of water is communicated equally in every direction throughout the entire mass regardless of its shape. Pressure by a piston or force-pump upon a small body of water is communicated to a piston of larger area through pipes. It is used in the hydraulic *block, crane, jack, dock, hoist, elevator, punch, shears,* and for *baling paper,* hay, etc.

Hydraulics. Branch of mathematical and engineering science which treats of fluids in motion and of the application of these laws and principles to machinery.

Hydrostatic Paradox. Principle that any quantity of water, however small, may be made to balance any quantity of water however great. It is the principle which underlies the hydraulic press.

Hydrostatics. Mathematical investigation of the pressure and equilibrium of incompressible fluids.

Kinematics. Branch of mechanics, treating of motion, its *direction, velocity, acceleration,* and *composition,* but not regarding mass or constraints.

Kinetics. That part of dynamical mechanics which treats of the forces which cause or change the motion of bodies.

Lever. Rigid rod moving about a fixed axis called the fulcrum.

Malleability. Physical property of matter by virtue of which it can be hammered down into a thinner sheet.

Mass. Means the quantity of matter that a body contains, without regard to the space that it takes up. The unit of measure is the quantity of matter contained in the piece of platinum-iridium known as the standard kilogram. It is kept by the International Board of Weights and Measures near Paris, France. It is equivalent to about two and two-tenths pounds. One one-thousandth of this measure was adopted as the fundamental unit of measure and was named the grain.

Mechanical Powers. May be classed under seven heads. They are based upon two fundamental principles, viz., lever and inclined plane. They are, *lever, wedge, pulley, block and tackle, inclined plane, screw* and *toothed wheel.*

Molecular Forces. The forces of relatively great magnitude which act between molecules, and gives rise to the various physical properties of matter.

Momentum. The quantity of motion of a moving body, and is the product of the mass multiplied by the velocity.

Motion. The property in virtue of which the position of a body in space may be changed.

Physical Properties of Matter. Are *hardness, brittleness, ductility, malleability, tenacity,* and *elasticity.* These depend on differences in the cohesive forces, operating between different molecules of the substance.

Power. The branch of dynamical mechanics which treats of the study of the circumstances under which it is possible for a body to remain at rest or in equilibrium.

States of Matter. Are *solid, liquid* and *gaseous.*

Tenacity. The resistance which a body opposes to the total separation of its parts. The various kinds of tenacity are: *tenacity* in the ordinary sense, or resistance to traction; *relative tenacity* or resistance to fracture; *reactive tenacity,* or resistance to crushing; *sheering tenacity,* or resistance to displacement of particles in lateral direction; and *torsional tenacity,* or resistance to twisting.

Velocity. The rate of change of position. It considers the distance travelled and the time consumed.

Volume. Space is of three dimensions: *length, breadth,* and *thickness.*

Weight. The measure of the force or downward pull due to the attraction of gravity exerted upon all bodies.

SOUND.

A department of Physics which embraces an investigation of the nature and production of sound. This department presents the explanation of the basis of musical sounds and their sources, and the experimental methods for the determination of the velocity of sound. Various practical applications of the principles of sound have been made such as in the study of the acoustic properties of halls and the invention of acoustic aids to navigation in foggy weather and listeners for enemy aircraft and submarines. Sound travels in the air at the rate of about 1,090 feet a second at 32 degrees F. or one mile in 4.84 seconds; in hydrogen its velocity is about four times as great as in air; in liquids the velocity is greater than in air (in water about four times greater, or 4,708 feet in a second); in wood or steel from two to three miles a second. If the vibrations do not exceed 24 a second or if they exceed from 30,000 to 40,000 a second, the ear cannot detect the sound. Sound waves respond very closely to the laws of light as to *reflection, refraction* and *interference.* Sound of low pitch are caused by slowly vibrating, long sound-waves; shrill, high-pitched sounds are produced when vibrations are rapid and the sound waves are short in wave-length.

Beats. These occur when two notes of almost the same frequency of vibration are sounded together and is the effect upon the ear of vibrations set up either in the sounding-body itself or in the air or other medium.

Loop or Anti-node. Is a point of maximum displacement.

Loudness or Intensity of a Note. Depends on the amplitude of the vibrations.

Node. Is a point of minimum displacement.

Pitch of a Note. Depends upon the number of *vibrations per second.* The greater the number of vibrations the higher the pitch.

Quality of a Note. Depends on the presence or absence of overtones.

HEAT.

In this department of Physics are studied the causes and effects of heat, the measurement of temperature, and its effects, also the practical applications of expansion. Methods of measuring and comparing specific heats which is the relative amount of heat necessary to change the temperature of unit mass of a body one degree and also the quantity of heat involved in changing the state of a body are explained together with the very practical industrial applications such as refrigerating plants. Our understanding of thermal phenomena has improved considerably since the adoption of the Kinetic Molecular Theory. This considers that the temperature of a body depends on the state of agitation of the molecules of matter which compose it. In gases the motion is in nearly uniform rectilineal direction; in liquids, in irregular directions; and in solids, orbital or oscillatory. This motion is sustained in all bodies until the absolute zero point, when it ceases. The important significance is emphasized of Joule's experiment on the mechanical equivalent of heat, which demonstrated that heat is one form of energy, and that all energy is indestructible and only convertible from one form to another in a definite relation. This section also discusses the various modes of transference of heat by *conduction, convection* and *radiation* together with the applications of the same, for example in heating and ventilation systems and steam and gas engines.

Absolute Zero. The lowest possible temperature; the temperature at which the undulatory motion in all bodies would cease. It has been shown to be about −273 degrees Centigrade.

Coefficient of Linear Expansion. The ratio of the increase in length of a rod of unit length for a rise in temperature of one degree to its original length at zero degrees Centigrade.

Conduction. The flow of heat through matter in contact but not accompanied by the bodily motion of the particles of matter themselves.

Convection. The transport of heat by the bodily motion of the heated particles themselves.

Heat of Condensation. The number of units of heat required to condense unit mass of the substance without changing its temperature.

Heat of Fusion. The number of units of heat required to melt unit mass of the substance without changing its temperature.

Heat Unit. The same amount of heat necessary to raise one pound of water through one Fahrenheit degree of temperature. One pound of coal in burning yields heat enough to raise 13,500 pounds of water through one degree F. of temperature; hence yields 13,500 B. T. U. meaning British Thermal Units. This is the Engineers' heat unit.

Interference. The action of waves of water, *sound-waves, heat-waves* or *light-waves* upon one another, by which, according to conditions, the effects are either increased, diminished or neutralized. A wave is composed of a *crest* and a *trough.* If two crests come together the waves are increased; if a trough and a crest, both waves are diminished; if two troughs both are neutralized. The colors of soap bubbles, of some iridescent glass, and of mother of pearl are due to interference of light waves.

Radiation. The passage of heat energy through space without the necessary presence of matter. This is called thermal radiation.

Specific Heat. The ratio between the quantity of heat necessary in order to raise a given mass of any substance through a given difference of temperature, and the quantity of heat necessary to raise the same mass of water through the identical difference of temperature.

Temperature. The condition of a body with respect to its power to absorb heat from or communicate heat to surrounding bodies.

LIGHT.

This is a very important section of Physics, and was formerly called Optics. It deals with the physical nature of Light, and its general properties such as its transmission through material substances and also empty space. Various methods have been devised for accurately determining the velocity of light through space and different media. A great development has taken place in the study of image formation after reflection and refraction and in the many convenient applications of these principles of optics in the form of optical instruments for various purposes. This subject also includes the intensive investigations of color whether from an incandescent source, from reflection or from transmission. This has led to our present wide knowledge of the spectra of different chemical elements and compounds. Another interesting development has been the physical demonstration of the existence and the properties of invisible "light" or radiation. This has been in conjunction with the interesting experiments which have been devised to illustrate special optical phenomena such as *diffraction* and *interference* which have an important bearing in connection with a complete theory of Light. This section of Physics has been one of the most fruitful studies in uncovering to us the wonderful phenomena of nature.

Aberration. The irregularities of a ray of light unequally refracted by a lens or reflected by a mirror and not meeting at a focus; the image resulting is indistinct, distorted, or colored at the edges. Indistinct images are produced by spherical aberration; coloring, by chromatic aberration.

Angle of Incidence. The angle formed by the incident beam and the normal or perpendicular to the reflecting surface.

Dispersion. The separation of the component colors of the spectrum, from a mixed beam of light.

Focus. The point at which rays of light converge or from which they diverge.

Focal length. The distance from the center of the lens to the principal focus.

Principal focus. That point through which parallel rays of light are made to pass after reflection or refraction.

Real focus. The point from which rays of light actually diverge.

Virtual focus. The point from which rays of light appear to diverge.

Illuminated Bodies. Those which are lighted by some other source.

Index of Refraction. The ratio of the sine of the angle of incidence to the sine of the angle of refraction.

Lens. A transparent body (usually glass) bounded by curved surfaces used to cause pencils of rays to converge or diverge after passing through it. *Convex lenses* are thickest in the center and magnify; *concave* lenses are thinnest at the center. The *double-convex lens* is convex on both sides; the *double-concave*, concave on both sides. The *plano-convex* has one side convex and the other flat. The *meniscus* is shaped in section like a crescent-one side concave, the other convex. The *axis* of a lens is the line joining the centers of the curvature of both surfaces.

Light. The undulatory theory explains the phenomena of light as the result of an undulatory motion which the luminous body excites in the luminiferous ether pervading all space and the molecular interstices of all bodies. Light travels in a vacuum at the rate of 186,000 miles per second. The emission or corpuscular theory has been abandoned in favor of the undulatory or wave theory.

Opaque Substances. Are those which absorb all the un-reflected incident light.

Penumba. The region of partial shadow surrounding the umbra behind the opaque object.

Radiation. The emission and diffusion of rays of light or heat by all bodies at all temperatures. When the radiant energy of a body is capable of producing light, it is called luminous; when no light is produced, obscure.

Reflection. When a ray of light, sound or radiant heat strikes a surface and is thrown back into the medium whence it came, it is said to be reflected. The *law of reflection* is that the angle of reflection is equal to the angle of incidence; and that both of these angles lie in the same plane with a normal to the surface. Mirrors, reflectors, sounding boards, and echoes are illustrations of reflection.

Refraction. The change in direction which rays of light, heat or sound undergo when passing from a medium to another of different density, as from air to water, glass to water, glass to air, and the like. Lenses, prisms and the spectrum depend upon refraction for the explanation of the phenomena which they manifest. Double refraction is the separation of a ray into two rays unequally refracted and is especially noticeable in certain crystals.

Translucent Bodies. Those which transmit light, but through which objects are faintly distinguished; such as water, gases, and polished glass.

Transparent Substances. Those which transmit a large portion of the incident light without scattering.

Umbra. The region of complete shadow behind an opaque object.

MAGNETISM.

That branch of Physics which studies the general properties of magnets and magnetic substances. Its real scientific development dates from the experimental results of Dr. William Gilbert, physician to Queen Elizabeth, who published a book in London called "De Magnetta" in 1600 A. D. He suggested that the earth's magnetic action on a compass needle was really due to the earth itself being a magnet possibly caused by the presence of large masses of magnetic ore in the interior. This was the basis of the study of terrestrial magnetism. A new and more recent development is *electro-magnetism* which studies the magnetic effects of an electric current.

Magnetization can be produced by three methods, *single touch, double touch,* and *by use of an electric current.* In using the single touch the polarity generated at the point last touched or stroked by the magnetic substance is of opposite kind to that of the pole used. In using an electric current, the substance to be magnetized is placed inside a coil carrying an electric current.

Coercivity. The power of retaining magnetization in spite of any subsequent treatment.

Critical temperature of a magnetic substance. That temperature at which it ceases to exhibit any magnetic properties.

Earth's Magnetic Poles. The places at which the magnetic dip needle is vertical. They do not coincide with the geographical north and south poles.

Induced Magnetism. Temporary polarity set up in a piece of iron or steel by introducing it into the magnetic field of a permanent bar-magnet, or of a solenoid.

Lodestone. Practically the only form of a natural magnet to be found, attracting fragments of itself and setting in one particular direction when suspended. It is an oxide of iron (Fe_3O_4) and the mineral ore is called magnetite. It is irregularly distributed throughout the world.

Magnetic Declination. The angle between the geographical and magnetic meridians.

Magnetic Dip or Inclination. The angle at any point between the earth's magnetic lines of force and a horizontal plane at that point.

Magnetic Force. Mechanical force, in dynes exerted on a unit magnetic pole placed at the point. It is equal to the number of lines of force crossing unit area surrounding the point at right angles to the direction of the magnetic field.

Magnetic Hysteresis. When a magnetizable substance lags in its state of magnetization behind the magnetizing force at any instance there results a transformation of magnetic energy into heat. It is usually measured by making cyclical reversals of magnetic flux.

Magnetic Induction. The process of setting up temporary polarity in a piece of iron or steel by introducing it into the magnetic field of a permanent bar-magnet or inserting it in a solenoid carrying an electric current.

Magnetic Line of Force. A line which at every point has the direction of the magnetic force at that point. It proceeds out of the north pole of a magnet and enters in at the south pole.

Magnetic Meridian. The vertical plane in which the magnetic axis of a freely suspended magnet comes to rest.

Magnetic Saturation. That condition obtained when the metal fails to acquire a higher degree of magnetization, however, much the magnetizing power is increased.

Magnetic Storm. Violent and periodic changes in the magnetic elements at a point on the earth's surface.

Magnetic Substances. Those which are attracted by a magnet.

Molecular Theory of Magnetism. This regards each individual molecule of the magnetic substance as a complete magnet. The process of magnetization is considered as the rotation of the molecular magnets into alightment with similar poles pointing in the same direction.

Permanent Magnetism. That kind of magnetism caused by the magnetization of a glass, hard piece of steel and then suspending it in a current of steam for twenty hours. This magnet is not subject to the gradual diminution which is evident in ordinary magnets.

Permeability. A measure of the ease with which lines of force may be established in any medium as compared with a vacuum. It is the ratio of the number of lines of force present in a substance subject to a magnetizing force to the number of lines present with the substance not present in the field.

Retentivity. The capacity of retaining magnetization after the magnetizing power has been removed.

ELECTRICITY.

The part of Physics which has yielded probably the most important applications affecting our civilization. It has also uncovered to us many mysteries of the Universe. Dr. William Gilbert was the first to make much advance but since the time of Michael Faraday, the world's most brilliant experimenter, the progress in the theory and application of electricity has been remarkably rapid. The study has been generally divided into three parts; electrostatics or electricity at rest, electricity in motion, induced currents.

Electrostatics takes up the general facts of electrification, the static electrical machines, potential, capacity and atmospheric electricity. In the study of *electricity in motion* there is the theory of the Voltaic cell and the chemical, thermal and magnetic effects of electric currents. These effects are made the basis of methods for measuring currents and there are many types of electrical measuring instruments as well as electrical appliances. These effects have also given rise to the electrical appliances for the ordinary pursuits of industrial and domestic life such as electromagnets, heaters, sources of illumination and electroplating and welding apparatus and storage batteries. The *phenomenon of an induced current* was discovered by Michael Faraday and has resulted in the development of the dynamo and motor, the induction coil and transformer, wireless waves, radio, and also X-Rays. This division of the subject includes the study of the principles and properties of the general electro-magnetic radiations, that pervade throughout empty space and penetrate even through matter to a varying degree. A recent interesting and important development is the study of the electron, the ultimate unit of electricity investigated by Sir Joseph J. Thomson of England and Robert A. Millikan of America. This promises to yield some very interesting information regarding the structure of matter itself.

Electrification can be produced by, *friction, induction* and by *conduction.* The first case arises on rubbing two unlike insulators together and then separating them. They are charged with equal quantities of electricity, the one with positive, the other with negative. The second case arises when an electrified body is suspended inside a hollow conducting vessel without touching it. The outside of the vessel becomes charged similarly to that of the electrified body and the inside oppositely. The last case arises when an initially uncharged and insulated metal body is connected with an electrified body by means of a conducting wire. The uncharged body becomes electrified by conduction.

Ampere. The practical unit of current; the current which will deposit silver at the rate of 0.001118 grams per second. See definition of the International Ampere also.

Conductivity. The property of an electric conductor depending on its dimensions, material and temperature which determines the current produced by a given electro-motive force.

Conductors. Bodies which readily conduct electricity. Insulators are bodies which conduct electricity very poorly at low temperatures, namely, lower than 1200° C.

Coulomb. The unit of quantity of electricity and equals a current of 1 ampere during 1 second of time. It is 1/10 units on the centimeter-gram second system, and deposits 1.118 milligrams of silver, and is named after C. A. DeCoulomb, (1736-1806).

Daniell Battery. In 1836, Daniell invented a battery in which the metals were exposed to the action of dilute acid in a glass jar. This form is more constant and requires less frequent cleansing than a voltaic pile. The solution is of copper sulphate (copperas or blue stone), in which a rod or amalgamated zinc contained in a porous cup is surrounded by a copper coil. Modifications are the Grove, Smee, and other cell batteries.

Dielectric Constant. The ratio of the charge which a condenser holds with the given medium as dielectric to the capacity which it has when air is used as a dielectric.

Eddy or Foucault Currents. Magnetic substances are also good conductors of electricity. Therefore, when the flux varies in the magnetic substance an electro-motive force and consequently an electric current is set up. These currents are very large in alternating currents instruments unless some precaution, such as laminating the core, is taken. Some non-magnetic substances also experience Eddy currents.

Electro-chemical Equivalent, of an element is the weight in grams which is deposited by the passage of the unit quantity of electricity (1 coulomb).

Electric Current is a flow of electrons more or less unidirectional and opposite in direction to that of the generally accepted current.

Electric Oscillations. These occur when an electromotive force is momentarily impressed upon an electric circuit where the damping by Ohmic resistance is negligible, or when the electromotive force is removed. The period of the oscillations varies as the square root of the self induction and the capacity of the circuit.

Electro-magnetic Induction. This is the phenomenon where any change in the direction or intensity of a magnetic field gives rise to an induced electro-motive force in any conductor

in the field and this causes an induced current if the conductor forms a closed circuit.

Electromotive Force. That which causes or tends to cause a flow of electric current; usually designated by E. M. F.

Electrolysis. The process by which a current of electricty causes a conductor placed in a liquid to undergo chemical dissociation into charged ions which act as positive and negative carriers of electricity through the solution.

Electrolyte. A conductor which undergoes chemical dissociation on electrolysis. Dissociation is the breaking down of the molecules of a compound substance into the charged ions which compose it, one group positive, the other negative.

Electro-motive Force of Polarization. The back electromotive force produced by the accumulation of hydrogen bubbles on the metallic plate.

Electron. The ultimate unit of negative electricity. It has been shown by Sir J. J. Thompson of England and Professor R. A. Millikan of America to possess a definite quantity of electricity equal to 1.591×10^{-19} coulombs.

Electric Line of Force. This is such that its direction at every point is the same as the direction of the electric force, which would act on a small unit positive charge placed at that point. It is defined as starting from a positive charge and ending on a negative charge.

Farad. The practical unit of capacity and represents the capacity of a condenser that has a charge of 1 coulomb when charged with a difference of potential of 1 volt. It stands for 10^9 units on the centimeter-gram-second system. The microfarad is one-millionth of a farad. Named after Michael Faraday (1791-1867).

High Frequency Oscillations. These are electrical vibrations of great rapidity and high frequency, usually, several millions per second produced in circuits having *inductance* and *capacitance.*

Induced Electromotive Force. The Electromotive Force between the ends of a conductor set up when a change is made in any way in the number or direction of the magnetic lines of force in the immediate neighborhood of the conductor.

Induced Electric Current. Current flowing around a closed circuit as a result of an induced electromotive force.

Induction. Power which an electrified body has of calling forth electrical or magnetic properties from other bodies with which it is not in direct contact. It is upon this strange principle that the soft iron magnet is constructed.

Kilowatt Hour. Amount of energy necessary to perform 1,000 watts in one hour.

Mutual Induction. Phenomenon where a change of current in a conductor is accompanied by a change of its magnetic field which induces an electromotive force in a neighboring circuit.

Ohm. Practical unit of electrical resistance (R) of a column of mercury 1 square millimeter cross-sectional area and 106-3 centimeters long. It is 10^9 absolute units of resistance on the centimeter-gram-second system. The British Association ohm. is 0.987 of a true ohm. Named after Dr. G. S. Ohm. See International Ohm also.

Polarity. The possession of magnetic poles; the property acquired by a magnetizable body when brought into a magnetic field.

Polarization. Reduction of the strength of a current derived from a simple cell due to the collection of gas bubbles on the metallic plate reducing the potential difference and the effective area.

Resistance. That property of a conductor which causes the passage of a current of electricity through it to be attended by a dissipation of energy, as the change of electricity into heat, is called the resistance of the conductor. The less the resistance in proportion to the electromotive force, the stronger the current, in obedience to OHM's law, $C = \frac{E}{R}$.

Self Induction. When a current passes through a conductor a magnetic field is built up about it. The intensity of this field is proportional to the current in the conductor. Consequently any change in the current intensity will cause a corresponding change in the field about the conductor. This change in the electromagnetic field by the principle of electromagnetic induction sets up another electromotive force and current which opposes the change in the original current. The result is comparable to inertia.

Simple Voltaic Cell. A cell composed of two metallic plates such as zinc and copper, immersed in an electrolytic solution such as sulphuric acid. A difference of potential is set up between the two metals.

Storage Battery. A combination of accumulators, which when once charged gives back a continuous and regular current when the poles are connected. It consists primarily of two specially formed sheets of lead coated with red oxide of lead. The chief forms are the Planté, the improved Faure forms and the Edison types.

Superconductivity. The name given to the phenomenon observed when the electrical resistance of very pure metal decreases towards zero when the temperature is reduced to the neighborhood of absolute zero.

Volt. The practical unit of electromotive force (E) required when one ampere passes through a conductor whose resistance is one ohm. It is a little less (.936) than the electromotive force of a Daniell cell; and is 10^8 absolute units of electromotive force on the centimeter-gram-second system. Named after Volta. See International Volt also.

Volta's Series. A series of metals such that any metal in the series acquires a positive charge when touched by any other metal lower in the series and a negative charge when touched by any metal preceding it. They are: Zn, Pb, Sn, Bi, Sb, Fe, Cu, Ag and C.

Voltaic Pile. In 1800, Volta placed discs of copper and zinc in alternate formation and separated by layers of cloth saturated with an acid solution.

Watt. The practical unit of electrical power which equals the power of a current of 1 ampere when the resistance is 1 ohm. It is equal to 10^7 units on the centimeter-gram-second system and to 0.0013405 of a horse power. Named after James Watt (1736-1819).

PHYSICAL LAWS.

Mechanics.

Newton's Laws of Motion.

1. Every body continues in its state of rest or of uniform motion in a straight line except in so far as it may be compelled by an external force to change that state.

2. The acceleration is proportional to the impressed force and takes place in the direction of that force.

3. To every action there is an equal and opposite reaction.

Parallelogram Law of Forces: If two forces be represented in magnitude and direction by two sides of a parallelogram and lines be drawn at their extremities so as to complete this parallelogram, the diagonal drawn so as to intersect the angle between the forces represents the resultant force in both magnitude and direction.

Hooke's Law states that within the elastic limit of any body the ratio of the stress acting to the strain produced in the body is constant.

Archimedes' Principle. A body immersed in a fluid loses weight due to an upward buoyant force and this equals the weight of the fluid displaced.

Pascal's Law. The pressure exerted upon any area of a surface of confined liquid is transmitted undiminished in all directions to every part of the containing vessel.

Sound.

Laws of Transverse Vibrations of a Stretched String.

1. *Length.* The number of vibrations per second of a stretched string is inversely proportional to its length.

2. *Diameter.* The number of vibrations per second is inversely proportional to the diameter of the string.

3. *Density.* The number of vibrations per second is inversely proportional to the square root of the density.

4. *Tension.* The number of vibrations per second is proportional to the square root of the stretching weight.

Heat.

The Laws of Boiling.

1. The boiling point increases with the pressure.

2. The boiling point for a given liquid is constant for a given pressure but differs with different liquids.

3. The temperature of a boiling liquid remains constant until every portion has been vaporized.

Boyle's Law, states that for a given constant temperature the volume of a gas varies inversely as the pressure.

Charles' Law, states that the volume of a gas kept under constant pressure varies directly as the absolute temperature.

Light.

Law of Intensity. The intensity of illumination varies inversely as the square of the distance from the source.

Laws of Reflection.

1. The *angle of reflection* is equal to the angle of incidence.

2. The *incident ray,* the reflected ray and the normal to the surface are all in the same plane.

Laws of Refraction.

1. The sine of the angle of incidence divided by the sine of the angle of refraction is a constant quantity, called the index of refraction.

2. The *refracted ray,* the *incident ray* and the normal to the surface are all in the same plane.

Magnetism and Electricity.

Laws of Attraction and Repulsion.

1. Like magnetic poles repel while unlike poles attract.

2. Like electrical charges repel while unlike charges attract.

Faraday's Laws of Electrolysis.

1. The *quantity* of a substance deposited at an electrode by electrolysis is proportional to the current and to the time.

2. The *masses* of different elements deposited by the same current are proportional to their chemical equivalents.

Joule. The unit of electrical work and expresses the work done by electrical power of 1 watt for 1 second. Named after J. P. Joule (born 1818) of Manchester, England.

Lenz's Law. The direction of the induced current is always such that it produces a magnetic field which tends to oppose the change that causes the induced current.

Ohm's Law. The current flowing in a circuit is directly proportional to the electromotive force applied and inversely proportional to the resistance.

Physical Units of Measurement.

Calorie. The amount of heat required to raise the temperature of one gram of water one degree centigrade.

Coulomb. The amount of electricity passing a point in a circuit in one second when the strength of the current is one ampere.

Dyne. That force which acting on one gram mass will impart to it an acceleration of one centimeter per sec. per sec.

Foot-pound. The work done in raising one pound one foot.

Gram of force. The attractive force of the earth on one gram mass at its surface.

International Ampere. The unvarying electric current which, when passed through a solution of silver nitrate in water, deposits silver at the rate of 0.001118 gram per second.

International Ohm. The resistance offered to an unvarying current by a column of mercury at the temperature of melting ice, 14.4521 grams in mass, of a constant cross-sectional area, and of a length of 106.3 cm.

International Volt. The electrical pressure which, when steadily applied to a conductor whose resistance is one International Ohm, will produce a current of one International Ampere.

Horse-Power. (H. P.). The rate of doing 550 foot-pounds of work in one second.

Pound of Force. The attractive force of the earth on one pound mass at its surface.

DENSITY OF SPECIFIC GRAVITY.

The table gives the density or the weight in grams of one cubic centimeter of the substance. The number may also be regarded as specific gravity:

Air at 0° C. and 76 cms. press..	0.00129
Alcohol (ethyl) 90% 20°C.....	0.818
Aluminum	2.670
Brass (cast)	8.400
Charcoal	1.6
Coal, anthracite	1.26 to 1.80
Coal, bituminous	1.27 to 1.423
Copper (cast)	8.83
Cork	0.14 to 0.24
Diamond	3.530
Ether	0.736
Glass (plate)	2.760
Gold	19.360
Human body	0.890
Hydrogen at 0° & 76 cm. press....	0.0000896
Ice	0.917
Iron, cast	7.655
Lead, cast	11.360
Mercury at 0° C.	13.596
Milk	1.032
Paraffin	0.824 to 0.940
Sugar (cane)	1.593
Sea water	1.027
Water at 0° C.	0.999
Water at 4°	1.000

Physical Constants.

Charge on Electron, elementary electrical charge, $e = 1.591 \times 10^{-19}$ coulombs.

Electrochemical equivalent of silver, 0.001118 gm. per sec. per ampere.

Number of gas molecules per c.c. at 760 mm. and 0° C., $N = 2.70 \times 10^{19}$.

Radius of an atom = about 10^{-8} cms.

Velocity of light in a vacuum = 2.9989×10^{10} cm. per sec. = 984×10^{6} ft. per sec.

Mean wave length of yellow sodium light, 00005893 cm. or 5893 angstrom units.

Velocity of sound in dry air at 0° C. = 33,136 cm. per sec. = 1089 feet per sec.

Density of water, a maximum at 3.98° C. = 0.999973 gm. per c.c.

Density of mercury at 0° C. = 13.5955 g. per c.c.

Density of dry air at 0° C. and 760 mm. = .001293 gm. per c. c.

Coefficient of expansion of gases, .003665.

Specific heat of air, at constant pressure, 0.238.

Latent heat of fusion of water 79.24 cal. per gram.

Latent heat of vaporization of water, 535.9 cal. per gram.

Mean density of the earth, 5.52 grms. per cu. cm.

Acceleration due to gravity at sea level, lat. 45° = 980.60 cm. per sec. per sec. = 32.172 feet per sec. per sec.

Length of seconds pendulum at sea level, lat. 45° = 99.356 cm. = 39.116 in.

Mechanical Instruments.

Roman steel-yard is an old apparatus for weighing objects, using the principle of the lever. The graduated steel-yard or bar with scale pan or hanger is balanced at a point near one end by making it very massive at that end. The scale pan or hanger is fixed in position. The object to be weighed is then balanced by the small sliding weight which is moved to some division indicating the weight.

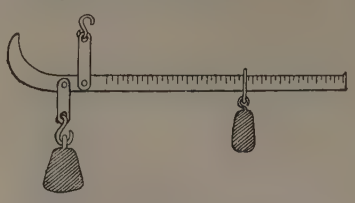


FIG. 1. Roman Steel-yard.

Jack screw, a machine based on the principle of the inclined plane. A force of a few pounds applied at the end of a long lever arm will enable one to raise hundreds of pounds. However what is gained in force is lost in distance since the applied force must move through a much greater distance in comparison.

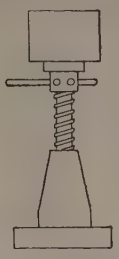


FIG. 2. Jack Screw.

Micrometer caliper, enables one to measure the thickness of small substances such as steel balls, hair or paper very accurately to one-tenthousandth of an inch. They are graduated usually in thousandths of an inch or of a centimeter.

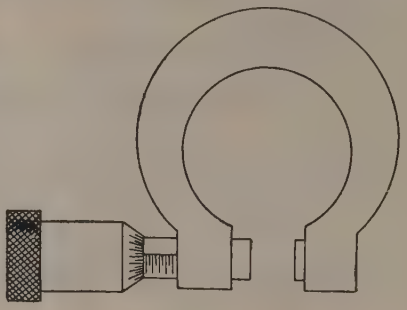


FIG. 3. Micrometer Caliper.

Vernier caliper is used to measure the inside and outside diameters of tubes and rods to about one-hundredth of an inch or better. It can be used very accurately owing to the use of an attached vernier scale.

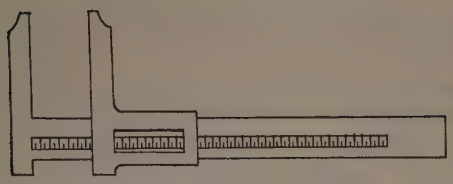


Fig. 4. Vernier Caliper.

Plumb line is a very simple but important instrument used to test the position of lines and surfaces required to be vertical. It consists of a flexible cord with a very symmetrical weight called the plumb bob suspended centrally from one end. It is much used in building and surveying.

The **airship** and the **submarine** are both illustrations of Archimedes principle. In each case there is a buoyant force due to the displacement of a large quantity of air or water and equal to it in weight. In the airships the effective amount of air displaced is regulated by small balloonets inside the large gas bag which are filled or emptied by pumps. This regulates the lifting power to a certain extent. This is similar to the method used for controlling the level of the submarine. Both use a system of horizontal and vertical vanes as well. The driving force is supplied by a series of propellers. When floating horizontally the lifting force due to the displacement is exactly equal and opposite to the total weight of the airship or submarine with all its contents.

Plumb Rule is used to determine the perpendicular direction at any point, an important matter for masons and bricklayers. It consists of a narrow truly rectangular board cut out down the center with an egg-shaped hole at the lower end for a plumb line and bob to swing in when vertical.

Fixed Pulley is a simple machine and enables one to change the direction of a force to be applied into a more convenient direction. Its value is unchanged if the friction is negligible no matter what the angle.

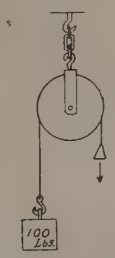


Fig. 5. Fixed Pulley

Single movable pulley gives a mechanical advantage of two so that the force exerted is only one-half the weight lifted. The other cord carries the other half of the weight. The distance through which the force is moved is double the distance the weight is raised. By combining it with a fixed pulley the applied force can also be changed in direction.

Combinations of pulleys are formed by threading a rope from pulley to pulley in a fixed block of pulleys and a movable block. In a similar combination there are two blocks each of which holds three pulleys of equal size mounted freely on the same axle. One block is secured to a rigid beam and the other attached to the weight to be moved. The rope that threads the pulleys alternately from block to block is tied at one end to the fixed block and the other end is free for applying the force. There are thus six separate strands carrying the load so that the applied force is only one-sixth in magnitude but must however move through six times the distance.

Water Pumps. There are several types such as the common farm or lift pump, the force pump for raising water to a height greater than about 26 feet and the centrifugal pump, which drives a steady stream of water by means of a number of rotating curved blades mounted on an axle. The actual depth from which well water may be pumped by the lift pump is about twenty-six to thirty feet because the atmospheric pressure is only equal to about fifteen pounds per square inch and cannot force the water up to a height greater than about 30 feet when the partial vacuum is made in the pipe and barrel. For wells of greater depth than this, it is customary to use the force pump. In this case the piston is solid and the barrel is placed nearer the lower water level with an outlet pipe and valve in its side. Each downward movement of the piston forces water out of the barrel through the valve in the side and up the outlet pipe from it. A check valve in the inlet pipe from the water prevents its return to the well. Many modern pressure pumps driven by power are based on the principle of the force pump.

Air Brake. Has been an important factor in the development of locomotive and railway transportation. In the Westinghouse air brake, compressed air under a pressure of about 75 lbs. per square inch acts on a piston in a cylinder and sets the brake shoes tightly against the wheels of the train. A spring in the cylinder pushes the piston back and releases the brake as soon as the air pressure is reduced.

The **phonograph reproducer** consists of a thin flexible diaphragm which is rigidly held all around the rim in front of a tube leading to the horn. The center is attached to one end of a bar which carries the needle at the other end. The needle is made to vibrate by allowing it to follow the wavy groove in the record and vibrations are imparted to the diaphragm similar to those which formed the groove so that spoken words, orchestral and vocal music are reproduced by it with surprising exactness.

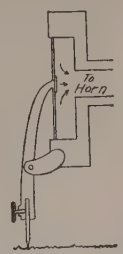


Fig. 6. Phonograph Reproducer.

The airplane is the result of man's attempt to fly through the air. After many historical attempts the "heavier than the air" type was perfected by Orville and Wilbur Wright in the United States in 1903. The "lighter than air" type has been successfully developed since 1783 when J. E. & J. M. Montgolfier of France left the ground in their balloon. The airplane is forced against the air by a powerful gas engine which drives a strong wooden propeller at high speed. It is the reaction of the air against the long propeller blades which drives the airplane against the air. The air streams past the wings which are slightly inclined with the horizontal so that the forward horizontal resisting force of the air is divided into two components one along the surface of the wings and the other perpendicular to their surface and directed upwards. The former component has little effect, while the latter acts as a lifting force which keeps the airplane from falling. A very important feature is the design of the chamber or hollowed out formation of the wings which was developed long ago mathematically by an English engineer. The proper design lessens the air resistance and increases the lifting power.

Vacuum pumps are used for exhausting the air from sealed or confined vessels and bulbs such as radio and audion tubes. On nearly all the types mercury has been used for securing the last stages of exhaustion. The water aspirator will give only a poor vacuum while the rotary oil pump has been developed with a good deal of success during recent years. The first pump was the Guericke air-pump and by using two in series with layers of oil as seals for the valves it became very successful. There is the efficient Gaede rotary mercury pump which traps portions of the air in small sections of a hollow rotating drum and delivers them to the outside, thus reducing the pressure by successive stages. This will give a final pressure of about one millionth of an atmosphere. However, the most recent and by far the most efficient is the mercury vapor diffusion pump such as the Langmuir type which uses a stream or jet of mercury vapor to drive out the molecules of air or gas from the vessel to be exhausted into another one from which a less efficient pump can remove them. The principal is that of the aspirator. Its simplicity and thoroughness in giving a vacuum of about 0.000001 cm. of mercury marks a great advance in methods of obtaining high vacua so desirable for modern research. Usually charcoal cooled with liquid air has been used to get a good vacuum. In radio tubes special films of chemicals called "getters" are used to improve the vacuum by absorbing the remaining gases in the air-exhausted tube.

Water analysis. Water is a chemical compound of two parts of hydrogen to one part of oxygen by volume or one part of hydrogen to eight parts of oxygen by weight. Natural waters are seldom pure, because springs, wells and rivers are often contaminated by drainage from nearby lands and by sewerage from human habitation. Such waters contain some organic matter and the products of its decomposition. Besides these, there may also be inorganic and harmful bacteriological impurities so that drinking water should be carefully examined for all three. A chemical analysis is not sufficient. Rain water is the purest of the ordinary waters found in nature but it contains on the average from two to three parts of dissolved solids in 100,000, in addition to the gases it has absorbed and washed down out of the atmosphere. Water that holds no mineral water in solution is *"soft"* water and when soap is added will readily form a lather. Magnesia and lime in the water make it *"hard"* and cause a curd to form when soap is added. Temporary hardness is that which is removed by boiling while permanent hardness needs the addition of chemicals to render it soft.

Rail elevation on curves is necessary to permit trains to travel around curves at even a moderate speed. The amount of elevation of the outside rail above the horizontal is calculated by railway engineers so as to provide a component of force to oppose the centrifugal action that arises when bodies move in a circular path.

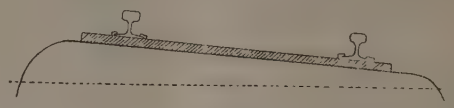


FIG. 7. Elevation of Outside Rail on Curves.

Gyroscope is a mechanical device invented about 1800. The improved types consist of a very heavy wheel with the mass concentrated in the rim, which is so mounted as to be free to rotate about three axes mutually at right angles. When the heavy wheel is made to rotate at a fairly high rate of speed, it is readily discovered that the gyroscope resists any direct attempt to change the direction of the axis of spin. It also will refuse to fall while spinning even if it is placed obliquely on one side of a single support, but slowly precesses about a vertical axis. Examples and applications of gyroscopic action are the earth itself, the *Brennan mono-rail* car, the gyroscope toys, *anti-rolling gyroscopes* on ships, *controlling gyroscopes* for torpedoes, *stabilizing gyroscopes* for bombing and photographic airplane apparatus and the *gyro-compass* for indicating the true north.

Pendulum. *The number of vibrations made by pendulums of different lengths varies inversely as the square root of their length.* If one is 4, 9, or 16 times as long as another, the square roots are 2, 3, and 4 times as great, respectively, but the number of vibrations of the longer one will be only ½, ⅓, or ¼ as many as the shorter. The time in which the vibration will be made varies directly as the square root of length, that of the longer taking 2, 3, or 4 times as long as of the shorter. A pendulum to make a single half vibration in 1 second at the latitude of New York is 39.1013 inches in length.

Barometer. An instrument for measuring the weight or pressure of the atmosphere; invented by Torricelli (1643). Consists of a glass tube more than 30 inches long sealed at one end and filled with mercury. The weight of the atmosphere balances a column of mercury equal to its own weight—30 inches of mercury in a tube one inch in cross-area weighs about 15 pounds. In a wheel barometer a float rests upon the mercury at the open end and by a thread and pulley attachment with the index hand records the

weight as the mercury rises or falls. The *aneroid barometer* consists of a vacuum box whose sides or diaphragms are connected by a system of springs, levers and chain which record the pressure of the air upon the sensitive diaphragms. The barometer acts as a weather indicator only so far as to show sudden and marked changes in the pressure of the air—a sign of atmospheric disturbance. The pressure of the air decreases as one passes from the surface of the earth, therefore when the rate of decrease is known from tables, the height of mountains or of balloon ascensions may be accurately determined. Roughly speaking, the barometer falls $\frac{1}{10}$ inch for every 90 feet of ascent above the sea level up to 1,000 feet, at one mile high it falls $\frac{1}{10}$ inch for about every 106 feet rise.

THERMAL INSTRUMENTS.

The Davy safety lamp used by miners was invented by Sir Humphrey Davy about 1800 A. D. It depends on the fact that wire gauze surrounding the illuminating flame of the lamp conducts heat away very rapidly in case explosive gases are present. The flame may ignite them inside, but the gases outside are not ignited.

The hot air heating system is one of the most common methods of heating human habitations. It is very rapid and not very expensive to instal. Each furnace is designed to heat a definite number of cubic feet of space and should be large enough in capacity to keep the house at about 70° F. during a cold blizzard on a winter night. The furnace itself consists of a cast-iron fire-box with considerable heating surface in the passages, through which the flames and smoke pass on their way to the chimney. The air to be heated

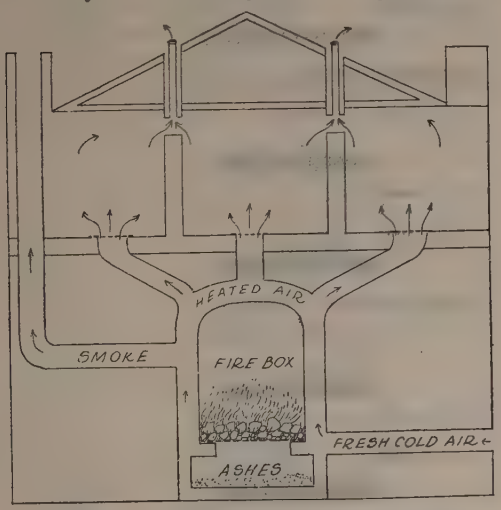


FIG. 8. Hot Air Heating System.

enters from below around the fire-box and is heated by coming in contact with the hot walls of the fire-box and passages in the drum above it. There is usually 35 times as much heating surface as there is grate area. The air is passed over a filled water tank to supply moisture to it. A furnace should not be leaky as this may be a source of real danger to the persons in the house. Large pipes lead the heated air from the furnace to the registers near the floor of each room. Heated air tends to rise of its own accord since it is lighter than cold air and so all ducts and flues should have an upward slant. Those flues going to the upper floors are built in between the lower walls. All conducting pipes should be well covered with asbestos paper which prevents the loss of heat before the air reaches the room it is intended to heat. No provision is sometimes made for the returning of the cold air to the furnace except perhaps through large return pipes from one or two large open grids placed in the floors of the lower rooms. However, in order to secure a supply of fresh air an extra inlet is sometimes provided leading from out of doors to the enclosed space around the fire-box. When the house is warm some windows can be opened at the top.

The steam turbine consists of a set of fixed blades or vanes, called *Guide Blades*, which direct the motion of the high pressure steam so that it impinges upon another set of vanes carried by a shaft free to rotate. The whole mechanism is enclosed. Modern turbines are generally the parallel flow type in which the motion of the steam is along the axis or shaft. In the Parsons turbine the steam is kept alternately bounding from fixed to movable blades many times before its energy is expended. The rows of fixed blades are attached to the metal casing and they serve merely as guides to redirect the steam at the most favorable angle against the next row of movable blades. In the Curtis turbine the steam is directed against the first set of movable blades through inclined nozzles of a special design. Turbines are very efficient, economical of space and attain very high speeds. They are used chiefly for driving dynamos, and for propelling large ocean liners and destroyers. The first to be invented was the ancient model by Hero of Alexandria in the second century B. C. Branca designed one in 1629 and this was followed by the work of Kempeln (1784), Watt (1784), Sadler (1791), Trevethick (1815), Ericsson (1830) and Perkins (1836) but the most practical application and development was done by the Hon. C. A. Parsons, F. R. S., in 1884, who designed one of 10 H. P. which was in actual operation for some time.

The Ammonia refrigerating process is based on the fact that when evaporation takes place from a liquid it is cooled and must secure heat energy from its surroundings in order to keep on vaporizing. A compressor exhausts ammonia gas from above the surface of liquid ammonia through pipes which are cooled by running water and the heat of vaporization and of compression is taken away, turning it into a liquid again. This is returned to the evaporating chamber where it again cools the circulating brine for the refrigerating system as it evaporates into the partial vacuum above its surface and goes to the compressor. The first work of this kind dates from the experiments of Michael Faraday in 1823 on the liquifaction of gases.

Fractional distillation is the process of collecting evaporated portions in fractions as the boiling point of a mixture rises. By repeating the

operation with the fractions, fairly pure portions of each constituent can be secured. This separation depends on the principle that different liquids have different boiling points and can be collected in regular order as they are vaporized. These fractions are then redistilled. In the important refining of oil, crude petroleum from the oil wells is heated in a still and first the dissolved gaseous hydrocarbons are driven off, then the lighter oils, naphtha, gasoline and benzine, later on follow the denser kerosenes or burning oils, then the fuel oils and the waxes.

The **thermos bottle** is a very practical application of all the principles of transmission of heat. It consists of a double walled glass bottle with the air exhausted from the space between the walls which are also smooth and silvered on the inside of this vacuous space. Since convection currents cannot be set up in the vacuum, passage of heat is prevented across between the walls. Conduction of heat from the inside to the outside or the reverse is reduced to a minimum by having very few contacts and only the narrow neck as the main support of the inner container. The silvering reduces gain or loss of heat by transmission in the form of thermal radiation, because bright and smooth reflectors are poor absorbers and poor radiators. Hence a cold substance in the bottle tends to remain cold and a hot substance hot. Professor Dewar of England invented the thermos bottle for conserving liquid air. The British government during the war devised metal containers in place of glass for airplane and military use.

A **thermostat** is an instrument which makes use of the unequal expansion of two flat metal strips such as iron and brass riveted together to control the temperature. One end of the bimetal strip is firmly clamped while the other end makes or breaks an electrical circuit when any change in the temperature causes the strip to become curved. The electrical circuit controls a clockwork motor which operates the drafts of the furnace. The thermostat in this way keeps the rooms at a uniform temperature. Thermostats have been found very useful in modern chemical research.

Thermometer. An instrument for measuring temperature depending upon the almost universal principle of the expansion of bodies under heat. *Mercury thermometers* are used to measure above —39° F. and below 660 degrees F. *Alcohol thermometers* measure below —39 degrees F. The *Fahrenheit thermometer* marks the freezing point at 32 degrees and the boiling point at 212 degrees. The zero of his system was the lowest temperature mark recorded by him in the winter of 1709. The *Reaumur* scale calls the freezing point zero and the boiling point 80 degrees; so that 80 degrees Reaumur = 180 degrees F. The *air or gas thermometer* registers by the change of volume or pressure of a quantity of dry air or gas contained in a reservoir. The *metallic thermometer* registers by the expansion or contraction of a bar of platinum, silver or gold.

A **clinical thermometer** is a sensitive temperature recording instrument of short range used for medical purposes to determine the temperature of the human body. A constriction holds the mercury up at the highest point reached after expansion and a sudden jerk is needed to send it down ready for a new reading. The proper normal temperature for the blood is 98.6° Fahrenheit.

Gasoline engine derives its energy from the heat evolved in the chemical combustion of a mixture of gasoline vapor, and air. The diagram represents a single acting engine where there is only one explosion for two revolutions of the flywheel or four to and fro strokes of the piston. The first (an outward) stroke allows the air and gasoline vapor to be drawn in. The second (a return) stroke compresses and so heats it up. The explosive mixture is now ignited by a spark and drives the piston out on its third (an outward) stroke. The fourth (a return) stroke cleans the cylinder by driving out the spent gases ready for another series of four strokes. The flywheel stores up the energy supplied during the third stroke.

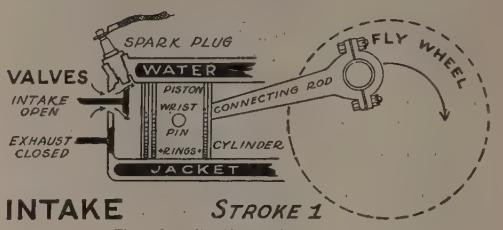


Fig. 9. Suction Stroke.

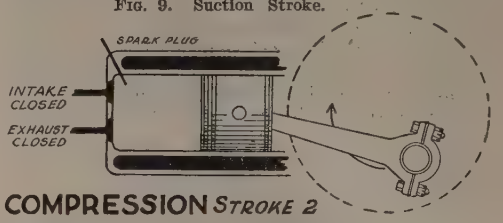


Fig. 10. Compression Stroke.

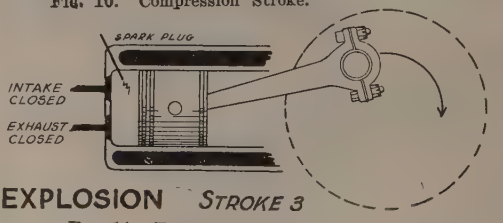


Fig. 11. Expansion Stroke

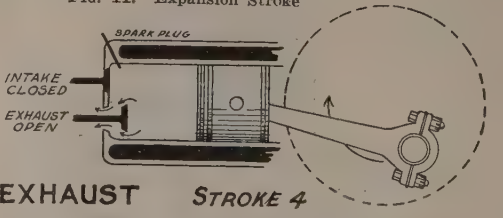


Fig. 12. Exhaust Stroke.

The **steam engine** was developed to the greatest extent by James Watt (1736–1819). The diagram shows the slide valve type. Steam enters by the inlet pipe and is admitted by the slide valve to one side only of the piston which it drives forward up to the other end of the

cylinder. At this point, cams and gears connected with the flywheel cause the slide valve to move over and open the opposite side to the live steam which makes the piston head return. At the same time the slide valve leaves the exhaust open for the spent steam to escape easily away up the smoke stack.

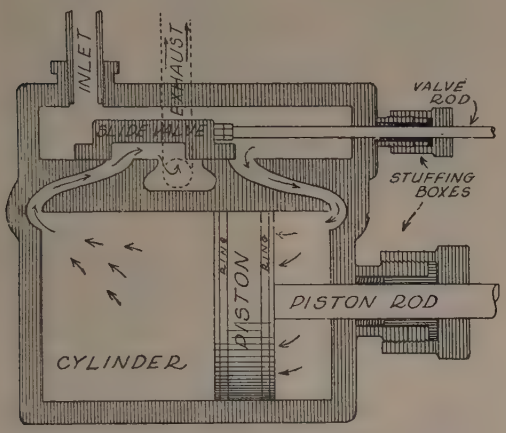


Fig. 13. Steam Engine.

The **Locomotive.** The principle of the modern locomotive is based mainly on the Laws of Transformation of Energy. When the coal is burned in the fire-box and the flames from the fiery furnace change the state of the water in the boiler to steam, we have an example of the conversion of the chemical energy of the coal into the form of thermal or heat energy of the steam. The greater the quantity of coal burned and the hotter the furnace, the greater the pressure of the steam and the higher its temperature. This high pressure steam is led through pipes and valves to the steam cylinders where it is allowed to expand and push back the pistons in them. Thus the thermal energy of the steam is converted into mechanical energy of the pistons. By means of the crosshead and the crankpin the mechanical kinetic energy of translation of the pistons is changed to mechanical kinetic energy of rotation of the driving wheels which causes the locomotive to move and haul its load of passengers and freight. This illustrates the transformation of energy from one form into another. Also the fact that there is a definite limiting relation existing between the amounts in these various forms, so that the total quantity of energy involved is always a constant one.

The **fireless cooker** is a tightly closed metal container surrounded on all sides by material that conducts heat very poorly. After the food has been heated thoroughly to the boiling point it is then closed up inside the fireless cooker. Since the loss of heat by conduction is very small, the food keeps on cooking slowly. In some types, heated soapstone discs placed with the food in the container are used to cook the food.

Optical Instruments.

Lenses are classified as follows:

A. Converging Lenses	1.	Plano-convex,—one surface plane, the other convex.
	2.	Double-convex,—both faces convex.
	3.	Concave-convex,—one face concave, the other convex.
B. Diverging Lenses	1.	Plano-concave,—one face plane, the other concave.
	2.	Double-concave,—both faces concave.
	3.	Convex-concave,—one face convex, the other concave.

Spherical mirrors are either convex or concave.

An **achromatic lens** is built up of a convergent lens of crown glass and a divergent lens of flint to produce a convergent achromatic lens; or by reversing the combination we get a divergent achromatic lens. These lenses give a sharply defined image instead of one whose edges are tinged with color and therefore indistinct. J. Dolland of London solved this difficult problem in 1758. They are a necessity in good microscopes and telescopes.

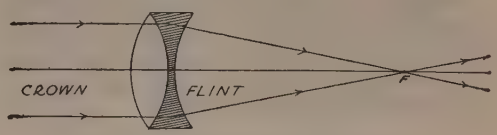


Fig. 14. Achromatic Lens Combination.

Rainbow. The beautiful spectrum found in nature due to the refraction and reflection of light in the water drops at the edge of a rain cloud. The sun which is the true source is located behind the observers.

Photometer. An instrument used for comparing the intensity of illumination given out by various sources. There are many types.

Spectroscope. An instrument used for the analysis of complex radiations. A beam of light is dispersed by means of refraction through a prism or by means of a ruled diffraction grating. The apparatus consists essentially of a *slit*, a *convergent lens*, a *prism or grating*, and a *telescope or camera*. By the study of the spectrum so formed the chemical nature of substances burned or vaporized in the flame emitting the light may be studied. By the aid of the spectroscope it has been learned that 36 of the known chemical elements are contained in the sun's atmosphere. Many new elements have been discovered by spectrum analysis.

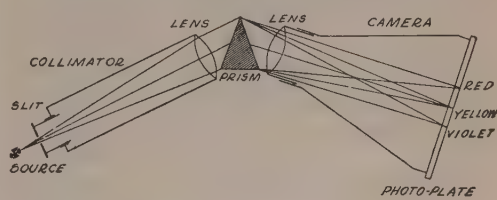


Fig. 15. Spectroscope.

Simple Microscope. A convergent lens of short focal length used so that the object is situated near the focal point on the side towards the lens.

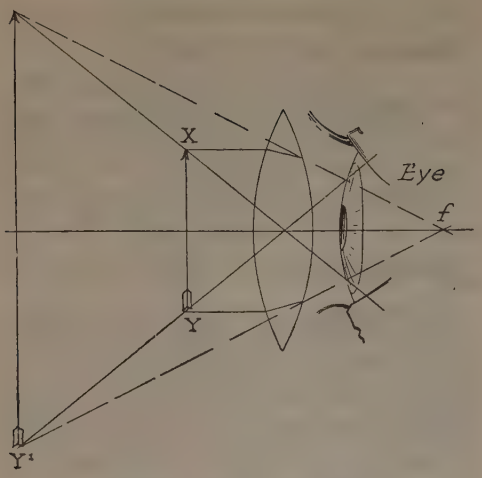


FIG. 16. Simple Microscope.

Compound Microscope. Is used to get greater magnifying power than obtainable with a simple lens. The objective lens or system of lenses held near the object forms an enlarged real image which is further enlarged to a virtual image observed through the eye-piece lens.

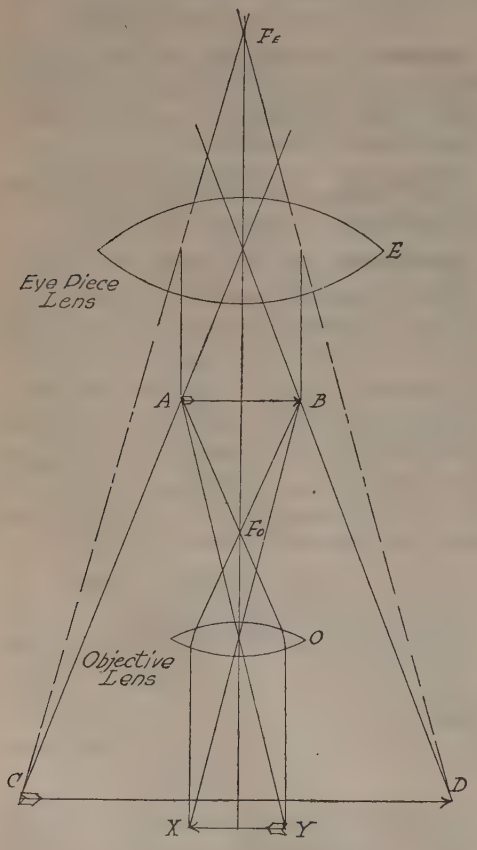


FIG. 17. Compound Microscope.

The eye is a closed chamber into which light can enter only by a lens. The crystalline lens throws a picture on the sensitive nerve endings covering the *retina*. The amount of light is regulated by a curtain called the *iris* which opens wide in the dark to collect the maximum of light rays and contracts in the presence of a bright illumination. By means of muscles the lens may be contracted or relaxed to change its curvature so that either far or near objects are formed with equal clearness on the retina. This power to focus images of the outside world on the retina is called accommodation. The eye is very similar to a camera in principle. The blind spot is the region of the retina where the optic nerve enters the interior of the eye ball. Since there are no microscopic rods and cones in this depression it is insensitive to light.

FIG. 18. The Human Eye.

Defects of Vision. Normal eyes focus the image of ordinary objects nearly on the retina, far-sighted eyes towards a point behind the retina, near-sighted eyes in front. Diverging lenses correct nearsightedness and convergent lenses farsightedness. The proper distance for reading matter is about 10 inches from the eye.

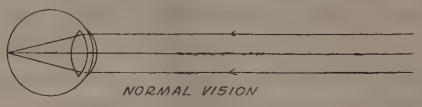


FIG. 20. The Normal Eye.

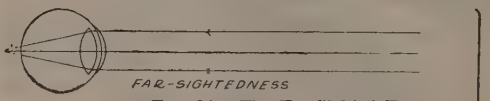


FIG. 21. The Far-Sighted Eye.

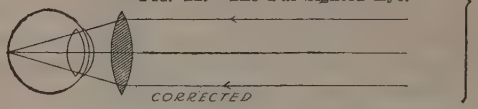


FIG. 22. The Corrected Far-Sighted Eye.

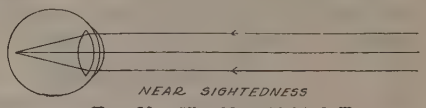


FIG. 23. The Near-Sighted Eye.

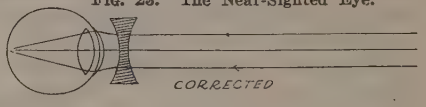


FIG. 24. The Corrected Near-Sighted Eye.

Solar Eclipse. Is caused by the moon coming into line between the sun and the earth. Behind the moon there is a deep shadow called an *umbra* extending into space for a distance, while all around and much further off into space is a less intense shadow called the *pen-*

umbra. When the earth in its orbital motion sweeps into the penumbra, there is seen a partial solar eclipse, while persons in those parts of the earth lying in the umbra see a total solar eclipse since no direct rays from the sun come into this region of the moon's shadow. Owing to the earth's rotation, different parts of the earth's surface travel rapidly through the region of total darkness. Hence the reason for the brief duration of these interesting solar eclipses, which enable the astronomers to learn so much of our solar system.

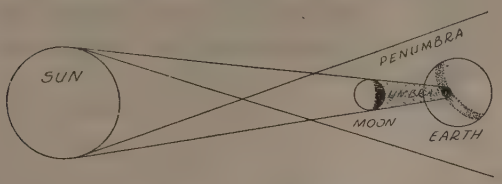


FIG. 19. A Solar Eclipse.

Camera. A device which enables one to secure a permanent impression by photo-chemical action of the bright image formed by a convergent lens placed at a small circular opening in a darkened box. Since single lenses produce some distortion, improved types used two lenses with a small perforated diaphragm placed at the optical center of the combination.

Color.

White light is a mixture of all the colors that form the continuous spectrum from violet to red. Isaac Newton was the first to analyze light and prove that it is a mixture. He classified the colors as seven; *violet, indigo, blue, green, yellow, orange, red.*

Complementary colors are two colors which produce white when superposed e.g. red, and bluish green, orange and greenish blue, yellow and blue, violet and greenish yellow, green and crimson.

Pigment colors when mixed give a quite different effect from a corresponding mixture of spectral colors. Blue paint absorbs nearly all incident light except blue, and some green; yellow paint absorbs all except some green and yellow. On mixing, green is the only color left unabsorbed. Hence it appears to be a green paint.

The color of light is determined by the wavelength of the electromagnetic disturbance which gives rise to the sensation of color. The wave length increases from .0004 mm. for violet to .0007 mm. for red, while the frequency of vibration decreases.

Fraunhofer lines are breaks in the otherwise continuous solar spectrum observed as fine black lines parallel to the slit. These lines are due to the absorption of different colors or light of definite wave length by heated vapors in the gaseous solar atmosphere.

The Solar Spectrum has a known range of 3000 to 53000 Angstrom units. There are thousands of Fraunhofer lines found in the solar spectrum and many of these coincide with the emission lines of known elements showing that these are present in the sun.

Three color printing is based on the fact that all colors can be reproduced by suitably mixing *violet, red and green.* The *complementary pigments* of these are *peacock blue, crimson,* and *light yellow* called *primary pigments.* Three different photographs are made of an object taken through a color filter of one of the spectral colors which cuts out all colors except that one. The half tone block developed from each of these is used with ink of the corresponding complementary color. Impressions from these are superposed on white paper and result in a fair representation of the natural color.

Refraction or bending of light takes place when light passes obliquely across a boundary between two different media. This is illustrated by the very old experiment of the coin at the bottom of a basin. If the eye is so placed below the rim of the empty vessel so as to be just unable to see the coin, it is possible to see the coin again in full view, without moving the eye upward, by simply filling the basin with water. *This illustrates refraction.*

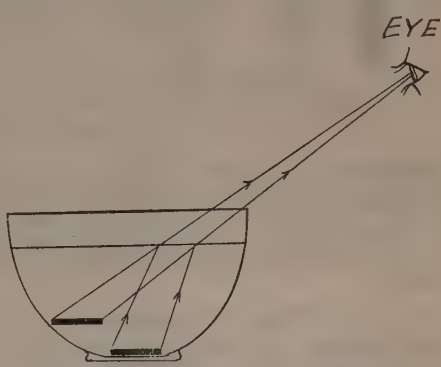


FIG. 25. Refraction of Light Experiment.

The properties of lenses and spherical mirrors:

A *converging lens* is thicker in the central portion than at the edges.

A *diverging lens* is thinner at the central portion than at the edges.

The image formation with these is governed by the following principles.

1. *Concave lenses* and convex mirrors have the same optical properties. They always give reduced and virtual images.

2. *Convex lenses* and concave mirrors have the same optical properties. They always give a real image if the object is further away than the principal focus. The size is reduced if the object is more than twice the distance to the principal focus and it is enlarged if the object is less than twice and more than once this distance. If the object is between the principal focus and the lens or mirror the image is virtual and enlarged.

Full data about an image is specified by stating.

1. *Position.*
2. *Real or virtual.*
3. *Enlarged or diminished.*
4. *Erect or inverted.*

Wireless Waves are electromagnetic waves of radiant energy of a wave length greater than one centimeter up to miles in length.

Thermal Radiation. Infra-red or heat waves are due to waves whose length lies between about eight-tenthousandth of a millimeter and one centimeter.

Visible light consists of radiation whose wave length lies between about four-tenthousandths to eight-tenthousandths of a millimeter.

Soft X-Rays consists of radiation whose wave length lies between one-tenthousandths and one-millionth of a millimeter.

Hard X-Rays from a Coolidge X-Ray tube consists of radiation whose wave length lies between one-millionth and one-tenbillionth of a millimeter.

Gamma Rays come from Radium and other radio-active substances and consists of radiation whose wave length is about one-tenbillionth of a millimeter.

Projection Lantern. An apparatus for securing an enlarged illuminated image of an object or lantern slide on a screen. It consists of a very intense source of illumination such as the carbon arc or incandescent filament, a condensing system of lenses to render the light convergent again, a holder for the slide, or transparent object and an objective system of lenses for projecting on the screen a real inverted and enlarged image of the illuminated object.

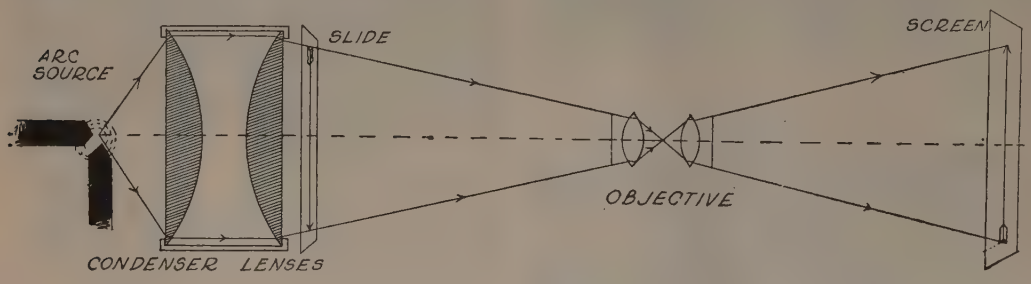


Fig. 26. The Projection Lantern.

Heliograph. An optical signaling device that has been extensively used in military operations. It reflects flashes of sunlight across considerable distances and by regulating their duration and that of the intervals secret signals are exchanged.

Electrical Instruments.

Electromagnet. A powerful magnet made by surrounding soft iron cores with magnetizing coils. It is used in preparing steel magnets, in supporting heavy weights, and in telegraph and signaling appliances.

Helix. A spiral line or a coil of wire used in the form of a solenoid.

Solenoid. An electromagnetic helix used to measure permeabilities of certain metals and to produce a strong and uniform magnetic field.

Toroid (anchoring). A continuous iron or other metallic ring wrapped with two separate sets of layers of turns of wire so that the magnetic properties of the metal may be investigated by using one set of turns as a primary circuit and the other as a secondary.

Magnetic shields are hollow iron spheres or cylinders used to reduce the stray magnetic fields around a suspended-needle galvanometer.

Electric Railways are usually run on 550 volts direct current which is supplied either by a trolley wire, a third rail wire or by a charged conductor, partly enclosed in a conduit between the rails. The rails themselves form the return part of the circuit back to the negative terminal of the generator at the power house. This is usually grounded for safety. In the electric car, the trolley leads the current down to a large variable resistance called the controller which controls the current passing through the motor driving the axles of the wheels.

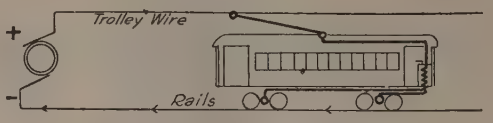


Fig. 27. The Electric Trolley.

Electric Bell. Consists of two small electromagnets which are actuated when the circuit is closed by pressing the door bell button. The iron bar is attracted to the iron cores of the electromagnets and so causes the hammer which is attached to strike the bell. This movement of the iron bar however, breaks the circuit at S—where there is a screw projecting against a spring attached to the bar. Since no current flows now the bar is released and forced back by the supporting spring against the projecting screw. This allows current to flow again which again actuates the electromagnet and rings the bell. This is repeated automatically as long as the bell button is pressed.

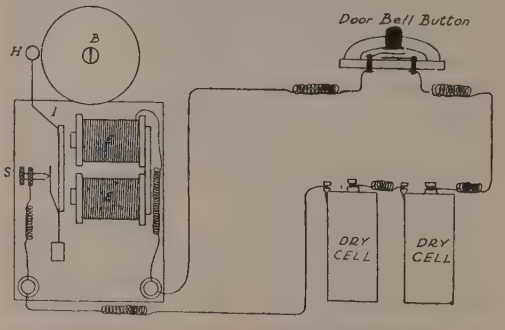


Fig. 28. The Electric Door Bell System.

Magneto. An electrical machine used to generate an alternating current for ringing telephone bells and for the ignition system in gas engines. It really consists of a small dynamo driven by gears from the engine. The potential is generally increased by means of a spark coil. This with a condenser gives hot intense sparks that ignite the explosive mixture in the cylinders.

Terrestrial Magnetism. Dr. Gilbert, physician to Queen Elizabeth, was the first to propose the theory that the earth was a large magnet. Later observation showed two well marked magnetic poles where the dip needle points vertically downwards, one on the northwest shores of Hudson's Bay and the other south of Australia in the Antarctic. The earth's magnetic field is measured by determining the declination, the intensity of the horizontal component of the total magnetic intensity and also the angle of dip or inclination. The compass needle shows the declination or angle between the geographical meridian and the magnetic meridian. The dip needle gives the angle of inclination. The former theory of the earth's magnetism is being questioned now but a complete modern theory has not yet been accepted. The non-magnetic ship, the Carnegie sails the oceans of the world determining and checking the values of the earth's magnetic quantities in all lands and seas. In this way the Carnegie Institute at Washington is now supplementing through its Department of Terrestrial Magnetism the former excellent work of the British Royal Observatory at Greenwich, England.

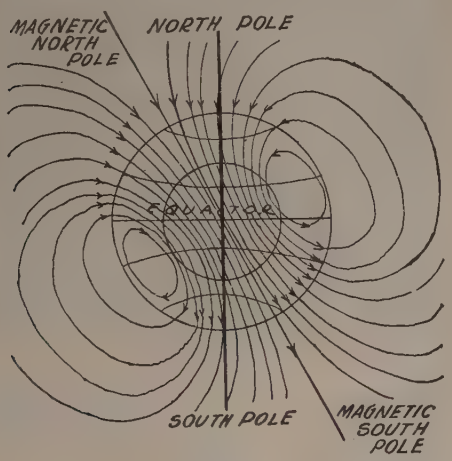


FIG. 29. The Earth's Magnetic Field.

Compass. The instrument used to indicate the magnetic meridian consists of the magnetic needle, the card, and the bowl. The circular card is divided into 32 equal parts by lines drawn from the center to the circumference to form the points of the compass which make angles of 11 degrees 15 minutes between two adjacent points. The enumeration of these points in order is called "boxing the compass." They are: north, north by east, north-northeast, northeast by north, northeast, northeast by east, east-northeast, east by north, east, east by south, east-southeast, southeast by east, southeast, southeast by south, south-southeast, south by east, south, south by west, south-southwest, southwest by south, southwest, southwest by west, west-southwest, west by south, west, west by north, west-northwest, northwest by west, northwest, northwest by north, north-northwest, north by west.

Magnetic Variations. At some places, by means of special self-recording instruments, continuous records are kept of the values of the magnetic elements. In such case it is found that the magnetic elements undergo small daily changes in value, the magnitude of the daily change depending on the location and season of the year. In addition to the *diurnal* range of change the magnetic elements undergo a periodic change of which the period is a year; this is called the *annual* range. Slow changes of which the period, if indeed these changes are at all periodic, must be many centuries, also take place in the value of the elements and these are called *secular* changes. All these changes are due to a combination of causes, the shifting of the earth's field, the minute variations of the dielectric constant of the air and possibly the position of the earth with respect to the other bodies of the solar system.

Magnetic Storms. In addition to these more or less regular changes in the magnetic elements, sudden disturbances often occur which are of considerable magnitude. The cause of such magnetic storms, as they are called, is not clearly known, although there seems to be a definite connection between them and the condition of the sun, for whenever sun spots are pronounced, magnetic disturbances are also unusually large. This is also the case during marked displays of the Aurora Borealis.

Galvanometer. An instrument for detecting the presence, ascertaining the direction, and measuring the strength of an electric current. It depends upon the fact that an electrified wire causes a magnetic needle to stand at right angles to direction of the current.

The **Movable Coil Galvanometer** consists of a coil of many turns suspended freely in the magnetic field of a permanent horseshoe magnet. When the current to be measured passes through the coil, it acts like a magnet and is turned through a definite angle depending on the strength of the current. This angle is determined by observing through a telescope, the motion of an attached pointer or the image in an attached mirror of a fixed scale.

The **Ballistic Galvanometer** is a type of instrument used to measure the quantity of electricity which passes when a current of extremely brief duration traverses the coil of the instrument. It consists of a permanent magnet, a coil of wire and a mirror. The coil is suspended by delicate threads between the poles of the magnet in such a manner that when excited by a current its magnetic poles will react upon the poles of the permanent magnet and cause the coil to swing. The mirror is fastened to the moving coil. The moving element of a ballistic galvanometer is designed for a high moment of inertia in order to lengthen the period, so that it will not move appreciably from its original position before all the current has passed into its coils

Transformer. A device used for lowering or raising voltage in alternating current circuits. It

consists of an iron core and two separate coils of insulated wire, a primary and a secondary. When an alternating electromotive force is fed into one of these coils, the primary, the core is magnetized. The magnetic flux through it varies just as does the applied electromotive force and produces another, an induced electromotive force in the secondary coil of similar frequency and of a potential directly proportional to the ratio of the turns of wire in the two coils.

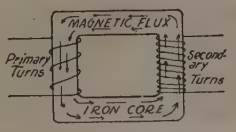


FIG. 30. Principle of Transformer.

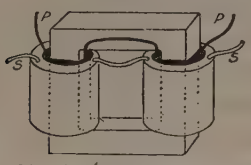


FIG. 31. Commercial Transformer.

Shunts are conductors placed in parallel with a galvanometer or ammeter to carry part of the current thereby varying the sensitiveness of the galvanometer and also preventing too heavy a current being sent through its coils.

Resistance Thermometers are those in which the fact, that an increase in the resistance of a coil of wire is produced by an increase in temperature, is used for the accurate measurement of temperature.

A **potentiometer** is a device used to compare electromotive forces, to measure any sized currents, to measure a high electromotive force, to measure the internal resistance of cells and to calibrate ammeters. It is composed of a long wire of uniform cross-section, joined in series with a battery of constant electromotive force and an adjustable resistance. It requires the use of a sensitive galvanometer. By means of a standard cell, the current through the wire is adjusted to a fixed and definite value. The potential along the wire varies with the length and is balanced against the unknown one to be measured.

Wheatstone's Bridge is a method of measuring resistance based upon the fall of potential along two conductors connected in parallel. The unknown is in series with a known resistance R on one side and two known resistances in series form the other side R_2 and R_3. When the galvanometer shows no current in the position indicated the unknown resistance is determined by the formula $X = \frac{R_2}{R_1} R_3$ (ohms).

The principle of the telephone is based on the phenomenon of induced currents. One of the most typical is an early type which used two similar pieces of apparatus, one at each end. This consisted of a thin flexible soft iron diaphragm which was made to vibrate by the voice in front of the pole of an electromagnet whose surrounding coil was connected electrically to

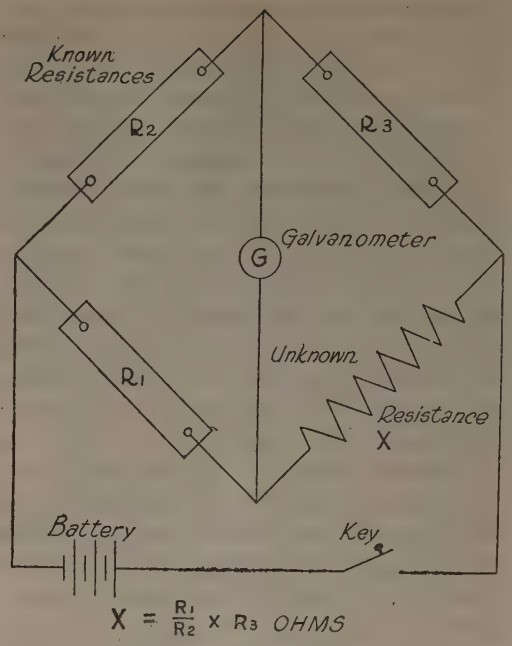


FIG. 32. Wheatstone's Bridge.

the coil of the other more distant apparatus. Motion of the thin disc changed the magnetic field of the electromagnet and gave rise to an induced current which passing through the other electromagnet caused its flexible diaphragm to imitate the movements of the first and so give rise to similar audible sounds. In the modern telephone this apparatus is still used to reproduce sounds at the far end and is called the receiver, but the carbon transmitter based on the principle of the microphone has been found more efficient as a means of impressing the desired fluctuations in the telephonic current at the speaker's end of the telephone line. The modern telephone line has many very ingenious improvements and attachments. For long distance communication, special relays and devices are necessary because the magnitude of the desired fluctuations falls off with the distance.

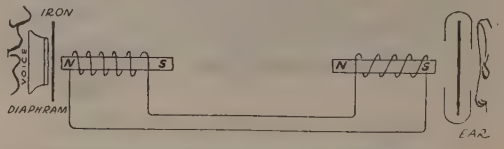


FIG. 33. Principle of Telephone—Early Type.

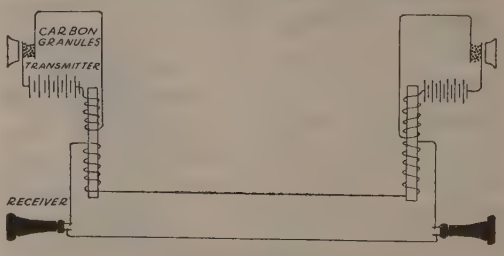


FIG. 34. Modern Telephone Circuit.

The **electric flat-iron** makes use of the heating effect of an electric current when it flows through a high resistance. This resistance wire is nichrome, an alloy of nickel and chromium which does not deteriorate so rapidly when heated like iron wire does. The current for a flat-iron used on a 110-volt circuit is from five to six amperes, meaning that the power to operate it is about half a kilowatt. If the rate is ten cents per kilowatt hour, this means that it costs about five cents to use the flat-iron for one hour. The nichrome wire is wound around and around a horseshoe shaped piece of mica, lying under the steel cover close to the smoothly polished heating plate and is carefully insulated to avoid the danger of short circuiting.

The **bread toaster**, the **coffee percolator**, the **electric oven**, and the **electric heater** are all familiar practical applications, like the electric flat-iron, of the heating effect of an electric current when it is made to flow through a resistance. In most of the above appliances coils of nichrome wire which offers a rather high resistance and withstands oxidation are suitably arranged in spiral form, embedded in a good thermal and electrical insulator. This tends to conserve and concentrate the heat energy.

Electric furnaces are of either the resistance type or the arc type. The electric resistance furnace is formed of coils of platinum, tungsten, nichrome or molybdenum wire wound around spirally on some very refractory material. The resistance offered to the passage of an electric current, through the coil results in the generation of a great amount of heat, which is prevented from escaping readily by means of good heat insulating material packed around the outside of the heating coil. The electric arc furnace depends on the heat generated by a carbon arc. A temperature of 3500° C. can be secured as against about 1800° C. with the resistance type. The arc is produced inside the crucible which holds the substances to be melted and is enclosed with good heat insulating material.

The **electric light bulb** depends on the resistance of a conductor to the passage of an electric current. The heat developed raises the fine filament or wire to incandescence. By enclosing it in a vacuum and by keeping the wire from becoming hot enough to evaporate or volatilize, which is done by using a sufficient length as a resistance to cut down the current, it is possible to keep them good for many hours use. Jobart in 1858 proposed to use a small carbon in a vacuum, but Thomas Edison of the United States, in 1879, and Joseph W. Swan of England, in 1860, made the greatest advances in this problem of electric lighting. The first filaments were made of platinum wire and later of thin carbon wire prepared from parchmentised cellulose. They are now formed of thin tungsten or tantalum wire. The electric current is brought to the lamp from the dynamo at the power plant by means of heavy copper wires carefully insulated which offer little resistance to the passage of the current. This current is led into the bulb by a special relatively thick sealing-in wire through the glass walls. This is connected to a long length of very fine tungsten wire which offers such a high resistance to the current that considerable heat is developed and the filament is made white hot. The current leaves by means of another special sealing-in wire through the glass.

Electric Arc Light. Davy in 1809 obtained light from two pieces of carbon using an electric current from a voltaic battery. Foucault, Duboscq, Deleuil, and others produced electric lights in 1853. Electric light was first used in a light house at South Foreland in 1858. The Jablochkoff candle was invented in 1877. It consisted of two parallel carbons separated by a layer of kaolin and bound together by an asbestos wrapping. Now the pieces of carbon are placed vertically one above the other as in the Weston arc lamp and fed by an automatic mechanism operated by electro-magnets which raise or lower the carbon by an electric current. The names of Brush, Weston, Thomson and Houston are intimately identified with the improvements of the arc light. Henry Lepante's great light exhibited at Chicago in 1893 attracted much attention by its great size. Its 90,000,000 candle power light is visible 146.9 miles.

Incandescent Lamp. The earliest form was devised by William Robert Grove (1840), the inventor of the Grove Battery. It was followed by that of August Kind (1845) and known as the Starr-King lamp. It has a platinum burner and a carbon in a vacuum. Probably the first house to be lighted by electricity was that of Moses G. Farmer of Salem, Mass. In 1859, he arranged a series of lamps by the subdivision of the electric current. The Sawyer-Mann lamp was produced in 1878 and consisted of an incandescent rod of carbon in a globe filled with nitrogen. Edison's lamps appeared in 1880, and introduced the use of the threadlike filament of bamboo sealed in vacuum to prevent its burning away. Its production entailed not only much litigation with Sawyer and Mann, but caused a panic in the London Stock Exchange in 1878 through fear of its causing the displacing of gas.

An **electric spark** is miniature lightning. It is the visible and generally audible phenomenon which accompanies a sudden discharge of electricity across an air gap. It is only recently that any satisfactory explanation has been found. This, in brief, considers the discharge as a rush of electrons to and fro many times across the gap, going with such a high velocity that they ionize the molecules of oxygen and nitrogen of the air against which they collide. Electrons are ejected from these molecules in all directions about the spark gap and on their return to their proper places in the atoms of the gas give forth radiant energy which makes the visible spark. Rotating mirrors and revolving systems of lenses have been used by experimenters to demonstrate the oscillatory nature of the electric discharge.

Electric Machines. Powerful currents are produced by the magneto-electric machine or by the dynamo-electric machine. In the former a permanent magnet is used; in the dynamo-electric machine, an electro-magnet is employed. Both depend upon the induction which takes place between coils of wire and magnets when their respective positions are changed. The strength of a magneto-electric machine is limited to the strength of the inducing field magnets. The use

of electro-magnets was discovered by Soren Hjorth of Copenhagen, who patented his machine in 1855. In it by the mutual action between the electro-magnets and the armatures an acceleration is acquired by means of which the production of electricity is greatly increased, and the power of the machine is greatly intensified. Wilde, (1866) used a small machine equipped with permanent magnets to excite field magnets wound in coils in a larger machine. Siemens (1867) dispensed with the permanent magnets used by Hjorth and took advantage of the residual magnetism stored up in the iron and used what has since been known as the bobbin armature. His discovery was shared by Varley, Wheatstone, and Farmer independently. The continuously wound ring armature was devised by Gramme and D'Ivernois (1871). The modern dynamo stands as the perfected work of such electricians as Weston, Brush, Edison, Thomson, Houston, Westinghouse and others. The armature is the name given to the coils of wire which are made to revolve. The electro-magnets are fixed in position and are known as the field magnets. These are placed on opposite sides of the armature; if two in number the machine is *bi-polar;* if several field magnets are used, the machine is *multi-polar.* Alternating currents dynamos cause the current to flow continuously in one direction. The transformer changes the character or potential of currents.

Electrocution. By a law passed by the legislature of New York (1888) to go into effect in 1889, death by a powerful electric current was substituted for hanging. One wire is strapped to the prisoner's forehead, and the other is applied to his ankle. In this way the current from a dynamo passes through the victim's body.

Sounder. A telegraphic receiver in which audible sounds are produced by the iron armature of an electromagnet. When the signaling current is made and broken at a distant station this armature is made to move to and fro between its stops. The Morse code is represented by the two distinct sounds, which it makes one as the dot and the other as the dash.

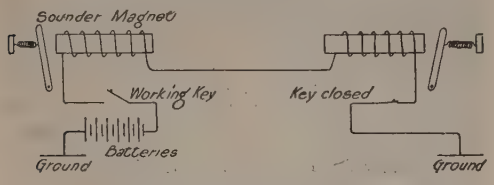


FIG. 35. Telegraphic Circuit with Sounders.

Relay. An electrical device using an electromagnet excited by the original feeble current to actuate a switch or contact maker which controls a more powerful current. This is supplied by a battery strong enough to operate easily the desired apparatus, such as the local telegraphic receiving instruments.

Microphone. A very sensitive electrical instrument for detecting weak sounds such as the ticking of a watch. The original form consisted of a pointed carbon rod resting in loose contact on two other carbon rods. When a battery is connected in series with these rods, and a pair of phones, any very small vibration of the loose rod will cause a variation in the resistance at the point of contact so that the current will vary in a manner corresponding to the sound. The microphone has been applied and much improved in connection with the transmitter of the modern telephone.

Telephone or Carbon Transmitter. Consists of a flexible diaphragm to the back of which is attached a carbon button which presses lightly against a quantity of carbon granules held in a small cavity or chamber. Electrical connections permit a weak current to pass from the diaphragm through the carbon button and granules and out along the telephone lines to the receiver and back. Any small disturbances of the diaphragm produced by the voice cause fluctuations and variations in the electric current which produces a corresponding sound at the receiver. The principle is the same as that of the microphone.

Telephone Receiver. Consists of a small horseshoe electromagnet, with two coils having a great number of turns of insulated fine copper wire on each pole. A thin flexible soft iron diaphragm is held in position quite close to the pole faces of the small electromagnet so that its central portion lies in the electromagnetic field of the latter. Fluctuations in the telephonic current flowing through the horseshoe electromagnet cause corresponding motions of the iron diaphragm which give rise to audible sounds similar to these which gave rise to the fluctuations in the telephonic current originally.

Slide-wire Bridge. A special arrangement of Wheatstone's Bridge, in which two of the three known resistances are replaced or sometimes supplemented by a long uniform wire with a sliding electrical contact.

Electric Arc. Formed when an electric current passes through the vapor between the carbon terminals of a battery connected so that there is a P. D. of at least 30 volts. Sir Humphrey Davy was the first to make an electric arc about 1800 A. D. He used the current from a large number of Voltaic cells.

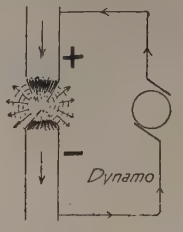


FIG. 36. The Carbon Arc Light.

Voltameters are instruments in which the strength of a current is determined by the weighing of the quantity of a metallic element liberated by the current in a given time. The standard one is the silver voltameter.

Cells:

1. The *Voltaic Cell* consists of plates of zinc and copper immersed in dilute sulfuric acid.

2. The *Daniell Cell* consists of a zinc rod surrounded by dilute sulfuric acid contained in a porous pot which itself is surrounded by a saturated solution of copper sulfate contained in a copper vessel which serves as a copper plate

electrode, or in a glass jar containing a copper electrode.

3. The *Le Clanche Cell* consists of a carbon plate and a zinc rod immersed in a solution of sal-ammoniac. The carbon plate is surrounded by manganese dioxide, which serves as a depolariser.

4. The *Gravity Cell* is a form of Daniell Cell used extensively in telegraphy. In it the liquids are kept separate by gravity, the $CuSO_4$ resting at the bottom while the $ZnSO_4$ solution floats above it.

5. The *Dry Cell* is a modification of the Le Clanche's Cell composed of a central carbon rod surrounded by a stiff paste of manganese dioxide, plumbago and gum; this is surrounded by a zinc cylinder, the intervening space being filled with a thin paste formed from plaster of Paris and solution of sal-ammoniac.

6. The standard *Clark Cell* consists of electrodes and zinc and mercury immersed in a paste of mixed mercurous and zinc sulphates. Its electromotive force is 1.433 volts at a temperature of 15° C.

7. The *Standard Weston Cell* consists of an amalgam of mercury and cadmium, and cadmium sulphate. The electromotive force is 1.019 volts at 20° C. It is now extensively used for very accurate potentiometer measurements.

8. The *Storage Cells* are secondary battery cells. They are used in electric motor vehicles, and telegraphy. The plates are heavy lead grids full of holes containing the active material, red oxide of lead, PbO_2 and spongy lead, with dilute sulphuric acid as an electrolyte.

Thermocouple. A device composed of wires having different kinds of metals at the two junctions. Temperatures at one junction different from the other give rise to thermal electromotive forces which enable one to measure the temperature accurately. The temperature of the cold junction is kept constant by means of a constant temperature bath or thermos bottle.

Thermo-pile. A form of thermocouple used to detect small differences of temperature but composed of a series of these thermal elements.

Radio-micrometer. An instrument which is used to measure the intensity of radiation.

Fig. 37. Crooke's Radiometer.

Thermogalvanometer. An instrument in which the heating of a wire is used to measure small alternating electromotive forces and the intensity of wireless waves.

Thermo-electric Pyrometer. A form of thermocouple used in measuring high temperatures. They are made of rugged construction when used for industrial purposes being protected by iron or other metal tubes.

Faraday's Disk Dynamo, the first magneto-electric generator, consisted of a copper disk mounted upon a shaft so that it could be rotated. Permanent magnets or electromagnets furnished a strong magnetic field which passed through the disk. When the disk was rotated there was an electric potential generated in it proportional to the rate at which it cut the magnetic lines of force. This was invented by Michael Faraday in England about 1830.

Magnetic Damping. Is used in such instruments as a watt-hour meter. A disk generally of aluminum, is connected by gears to the meter movements so that it rotates slowly when the meter is operating. The disk passes between the poles of one or more electromagnets and being a solid conductor eddy currents are generated in it proportional to the velocity at which it rotates. A sudden momentary impulse from the meter would normally tend to cause it to over register due to the momentum of the movements were it not for the damping effect of the eddy currents within the disk.

Oscillograph. An instrument designed to enable the operator to see the form of an electric wave. The magnetic type consists of a delicate moving element in a permanent field of high intensity. A mirror on the moving element reflects a beam of light over a stationary ground glass or a photographic plate. The Cathode tube oscillograph operates by deflecting a sharp beam of Cathode rays, which strike a fluorescent screen, so as to trace out the wave form visibly.

Loud Speaking Telephones.

Extraordinary interest has been aroused in recent years in the problems of the loud-speaker owing to the popularity of broadcast reception. The present loud-speaker is an instrument that has been practically developed by trial and error rather than by theory and only gives a fair reproduction of the original sounds. This is only part of the problem for the difficulty lies in securing considerable intensity and it is the variety of transformations which makes this serious. First the electrical fluctuations are amplified, then the transformation of these into acoustic variations of air pressure, and lastly the disposal and propagation of these acoustic vibrations. There are many distinct devices adopted for the sound transformation such as *electrostatic*, *electromagnetic* and *thermal*. The original electrical disturbance is not a simple harmonic one but a highly coupled one which is analyzed scientifically into its various components as far as possible. The familiar physical phenomenon of resonance is one way of securing loudness but this emphasises certain selected components as is true for many telephonic diaphragms. If these frequencies are of audio frequency it is necessary to damp the diaphragm which of course again reduces its sensitivity for other ones also. One method adopted is to use a strip of thin metal foil hanging in the magnetic field between two magnetic pole pieces. The varying telephonic currents traverse the strip and cause it to vibrate across the field in a corresponding manner giving rise to acoustic effects. Horns are really a disadvantage because they resound. The

transmitting and receiving rooms should be lacking in resonant effects to eliminate echoes and distortions. This is secured by draping the walls and windows and covering the floors with carpets.

Dynamo consists of an armature which carries a number of conductors on its surface, and parallel to its axis of rotation. The armature is mounted between the poles of a magnet and when rotated an electric current is obtained from sliding contacts which make connection with its conductors. When a conductor cuts through a magnetic field an electric potential is generated in it.

Electric Motor. (History) Faraday in 1821 caused a floating bar magnet to revolve upon a central supporting wire by means of an electric current. Barlow, of Woolwich in 1826, made an electric wheel. Abbe Dal Negro, of Padua, in 1830, made an electric pendulum which swayed backward and forward by the force of a current of electricity. Henry's electro-magnets (1828) supported thousands of pounds weight; and in 1831 he devised a simple form of motor. This was followed by motors by Sturgeon (1832), Jacobi, (1834), Davenport (1834), Zabriskie (1837), Davenport (1837), Page (1838), Walkley (1838), Stimson (1838), Page (1839), Cook (1840), Elias (1842), Lillie (1850), Neff (1851) and Page (1854). As early as 1835, Davenport made a small circular electric railway at Springfield, Mass. In 1839, Jacobi made an electric motor boat and carried 14 passengers at a speed of 3 miles an hour. Davidson, a Scotchman, propelled a six-ton electric car 4 miles an hour (1839), Page's electric locomotive drew a train of cars from Washington, D. C. to Bladensburg at a speed of 19 miles an hour (1854). So far the propelling force was the voltaic battery. The modern electric dynamo will drive another dynamo in the opposite direction when the two are connected by wires.

Motor. A device for changing electric to mechanical power. When two magnetic fields meet there is a tendency for them to repel or attract each other depending upon their relative polarity. A motor is mechanically the same as a dynamo, the difference being that a current is fed into the armature in the case of the former. The field set up around the conductors reacts with the field of the machine and rotation is obtained.

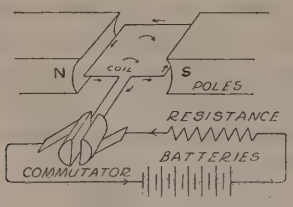


FIG. 38. Principle of Electric Motor.

Standards of Inductance are inductances of known value, rigidly constructed so as to retain their intended values. Such inductances may be fixed or variable. The former consists of a coil of wire wound upon a non-magnetic form and mounted in a suitable casing with accessible terminals. A variable inductance consists of two of such inductances in series one of which may be moved to or away from the other, producing a variation dependent upon the mutual inductance between the two.

Induction coil. A form of the transformer, differing in that its input is direct current and its output a pulsating alternating current. An induction coil consists of an iron core and two coils of wire thoroughly insulated. The primary coil next to the core consists of a few turns of heavy wire which are connected to a direct current source such as a battery. In series with the primary coil is an interrupter, either of the magnetic or mechanical type. The pulsating current in this coil creates a pulsating magnetic flux which cuts through the secondary coil and produces an induced electromotive force greater than that in the primary by an amount proportional to the ratio of the turns in the two coils. The secondary coil sometimes consists of miles of fine wire because the potential to be secured by induction depends on the ratio of the number of the turns in the two coils. A condenser is generally connected across the interrupter to assist in getting sharper breaks of the primary current.

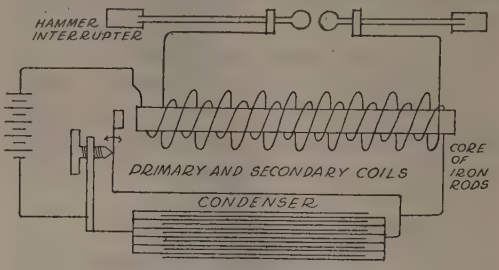


FIG. 39. Induction Coil.

Hammer Interrupter. A magnetic device for rapidly interrupting a direct current circuit. It is used chiefly on induction coils. The current magnetizes the iron core and this attracts the armature of soft iron. As the armature moves toward the face of the core the contacts are opened automatically and the current ceases to flow. The spring returns the armature to its normal position when the contacts again close and the entire cycle is again automatically repeated. The frequency of interruption depends upon the period of the armature and spring and upon the adjustment of the contacts.

The Tesla Induction Coil has a primary of five or six turns, well insulated, which is connected in a tuned high frequency circuit. The secondary is a single layer of insulated wire wound upon an insulating tube. Electrical oscillations of extremely high frequency are produced in this secondary.

Leyden Jar. A glass vessel coated separately upon both sides with tin foil to form a condenser. Its electrical capacity is very small but it is extensively used with most forms of friction electrical machines.

Spark Gaps are of three general types: 1. *Plain*, 2. *Quenched*, 3. *Rotary*. The first type consists of two insulated electrodes between which the current is allowed to jump. The second type

allows the sparking to take place in an enclosed space, filled with gas under pressure. The third type consists of a rotating disk bearing contacts which act like stationary electrodes at certain intervals. The spark can only take place when the electrodes are opposite. Between sparking periods the condenser is allowed to charge up.

Rays emitted by radio-active substances:

Alpha rays are considered to be positively charged particles moving with a velocity about 2×10^9 cm. per sec. which is about one-fifteenth that of light so that they are only slightly deviated by a strong magnetic or electric field. The mass of each particle is 6.2×10^{-24} gm. and they carry an electric charge of 3.182×10^{-19} coulombs and their range of penetration in air at atmospheric pressure is about 7 cm. They are almost the fastest projectiles known in nature. They possess the greatest relative energy for their size.

Beta rays consist of negatively charged particles moving with a very high velocity about 2×10^{10} cm. per sec. which is two-thirds that of light and they are strongly deviated by a magnetic or electric field. The mass is about 1/1850 that of hydrogen atom and they carry a charge of 1.591×10^{-19} coulombs. These are the only natural projectiles faster but lighter than the alpha particles. They are ten times as fast but about one-eight-thousandth the mass in comparison.

Gamma rays are considered to be similar to X-Rays only of shorter wave length and higher frequency having a wave length about 1×10^{-10} cm. being of the nature of wave pulses in the ether. They are more penetrating than the Alpha or Beta rays.

Cathode Rays are beams of electrically charged particles (electrons) of very high velocity produced in intense electric fields. The range of velocities is usually from about twenty thousand to one hundred and twenty thousand miles per second. When stopped suddenly by a metallic target they give rise to X-Rays.

X-Rays are produced by bombarding a solid substance with cathode rays. One explanation is that when an electric charge is suddenly stopped a plane sheet of magnetic force moves forward with the velocity of light. It is definitely known that the rays originate at the point of impact. The velocity of the bombarding electrons constituting the cathode rays is usually about one hundred thousand miles per sec. or about one-half that of light.

AUTOMOBILE.

The motor car or automobile is usually propelled by electric, steam or gasoline power, and is generally so classified.

Automobile, The Gasoline, has from four to twelve cylinders with the pistons acting around on one long common crank shaft. The principle is that of the internal combustion engine and energy is supplied intermittently by two explosions per revolution for a four cylinder, three explosions per revolution for a six cylinder, and four explosions per revolution for an eight cylinder engine.

Engine of a Gasoline Auto. Requires a *cooling*, a *lubricating*, a *carburetor*, and an *ignition system*. Cooling of the cylinder walls is necessary to permit lubrication and prevent the lubricating oil from burning away too rapidly. This is done by air and the use of long thin metal pins projecting from the cylinder walls outside or by water, circulating from the cooling radiator to the water jacket surrounding the cylinder walls.

Lubricating system, is very essential and oil is either splashed or pumped to all bearings around a rapidly rotating part. In some types, the oil is forced through the hollow shafts into the center of the bearings which generally have little curved grooves in them to distribute the oil.

Carburetor. A device for controlling the mixture of the explosive mixture of air and gasoline. The outward suction stroke of the piston draws air and gasoline in about the correct proportions into the manifold or tube leading to the various intake valves for the cylinders. The proportions of gasoline to air must be changed for efficient working when operating under different conditions such as starting or running at low or high speeds.

Ignition system includes a *spark plug*, a *timer*, an *induction coil*, and a *storage battery* or a high *tension magneto*. The timer is a device run by gears from the crank shaft like the magneto and regulates the time of passage of an electric spark between the two insulated metal points in the spark plug at the head of each cylinder so as to ignite the explosive mixture not only when the piston is making its proper stroke but also at the most effective part of that stroke depending on the speed of the engine.

Storage Battery. Consists of a series of insulated and perforated lead plates, whose surfaces have been especially treated, supported in an electrolytic solution of dilute sulphuric acid of density between 1.250 to 1.300. A hydrometer is used to determine if the density falls below 1.200 when the battery needs recharging. Only distilled water sufficient to cover the plates should be supplied to take care of evaporation.

Chassis. The skeleton frame of the car.

Tonneau. The rear seat division of a touring car.

Hood. The car cover which encloses the engine, protecting it from dust and rain.

Running Gear. The term applied to the tires, wheels and axles.

Differential. The mechanical part usually on the rear axle consisting of a carefully arranged assemblage of gears which communicates the motion from the engine main crank shaft passing through the clutch, transmission and drive shaft onto the wheels. It permits one wheel to turn at a different rate of speed from the other so that the car can navigate corners and turns successfully.

Transmission. Particularly applied to that part of the driving mechanism which permits a selection of the suitable speed and driving power by means of a proper combination of gears. For starting or for climbing a low axle

speed is desirable with lots of power which means a high speed of the engine.

Steering Device. Formed by an endless screw working in a worm wheel which enables one to make small changes in direction of the front wheels.

Starter. An electric direct current motor supplied with electrical energy from the storage battery. A special spring and system of gears enables it to drive the main crank shaft so that the pistons are made to move in the cylinders and draw in the explosive mixture which is then automatically ignited.

Clutch. A coupling connecting the main crank shaft with the transmission shaft by means of friction generally. There are various forms such as the cone or the multiple disk.

Brakes consist of two parts, the service brake operated by the foot, and connected to an asbestos lined steel band acting by friction on drums attached to the driving shaft and the emergency brakes of similar mechanism acting on the wheels of the car. Originally the emergency brakes were only applied to the rear wheels of a car but they are now arranged to operate on all four in some models, which is a considerable improvement in many respects.

RADIO.

The remarkable achievements in radio communication during recent years are the result in the main of purely scientific investigations carried on by the pioneers. Clerk Maxwell, Hertz, H. A. Lorentz, Sir J. J. Thomson and O. W. Richardson, who were actuated solely by a desire to learn more about the underlying principles of nature. Lord Kelvin predicted in 1853 from mathematical reasoning that the discharge of a Leyden jar would be oscillatory which was proved experimentally in 1857 by Feddersen. In 1865, Clerk Maxwell developed the electro-magnetic theory and he predicted the existence of wireless waves in space which Professor L. H. Hertz later discovered about 1888. The electron theory was later developed by Lorentz, Thomson and Richardson.

Edison about 1880 discovered that a plate inserted in a carbon filament incandescent lamp was able to cause an electric current to flow between the plate and the filament if the plate was connected to the positive end of the filament but not if the negative end was used. Sir J. J. Thomson showed in 1899 that the current to the plate was carried by electrons. O. W. Richardson in 1901 explained the mechanism of the thermionic emission of electrons from the filament. In 1905, J. A. Fleming proposed the use of the thermionic valve as a rectifier for the detection of electromagnetic waves. In 1907 de Forest inserted a grid calling the device the "Audion" which was of much greater practical use. Its development has been very rapid since because of its ability to perform wonderfully well in a number of very important uses.

Terms Used in Radio.

Antenna. The system of conductors used for radiating or absorbing the energy of electromagnetic waves.

Atmospheric Absorption. Term given to the loss of radiated energy due to atmospheric absorption of the electromagnetic waves.

Audio-Frequencies. Those frequencies of vibration which affect the human ear. They are usually between 20,000 and 50 vibrations per second.

Capacity Coupler. An apparatus which joins portions of two radio frequency circuits by means of electric fields. Electrical energy is thus transferred from one circuit to the other by means of electric forces.

Counterpoise. A system of conductors which form one portion of a radiating circuit and is usually situated below the antenna nearer the ground. The antenna itself forms the other portion. Ordinarily the earth is used.

Coupler. An arrangement which permits a transfer of electrical energy from one circuit to another usually at radio-frequency by transformer action.

Detector. A device usually depending on a crystal or vacuum tube which receives energy at radio frequency and changes it into energy that will operate a telephone receiver. The principle is to rectify the incoming alternating current signals into a pulsating direct current.

Direct Coupler. One which magnetically joins two circuits having a common conductive portion.

Ground or earth, is the use of the earth as one plate of a condenser in radio transmission.

Inductive Coupler. An apparatus which joins portions of two radio frequency circuits by means of magnetic forces. The mutual magnetic field permits a transfer of electrical energy from one circuit to the other.

Radio frequencies are those which are higher than about 20,000 vibrations per second, which is the upper limit for audio frequencies.

Resonance or Tuning. The name given to the varying of the inductance or capacity of a circuit in order to cause the voltage to rise to a maximum.

Wave Meter. A set up including an inductance and capacity, which enables one by resonance to determine the frequency and wave length of a circuit.

Radio Receiving Apparatus.

Crystal detectors have replaced the *coherer* as more sensitive detectors of electromagnetic waves. Polished silicon, galena, and carborundum possess the peculiar property of rectifying an alternating current so that when a train of alternating electric impulses is received from the antenna, these are rectified into a pulsating unidirectional current. There is thus only one single impulse given to the electromagnet of the telephone receiver and a click is heard. An audible sound or tone is heard if the number of trains received is sufficient, about five hundred per second or less than ten thousand per second.

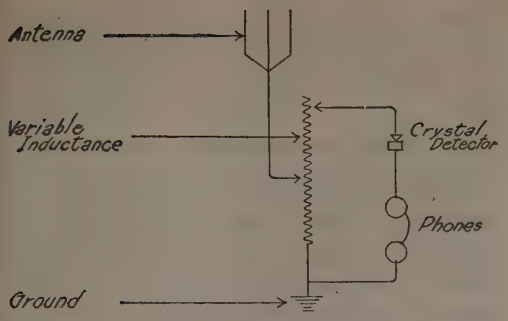


FIG. 40. Simple Crystal Receiving Circuit.

The Audion or Electron Tube is widely used in radio reception. A positively charged plate is mounted in a vacuum tube together with a heated filament and a grid. It has been found by experiment that if the filament is heated to incandescence small negative charges or electrons will be emitted. Some electrons will strike the positively charged plate and current will flow from the plate to the heated filament but not from the filament to the plate. Thus the much needed rectifying action is obtained and on a much larger scale than with the crystal. The filament is supplied from a small battery and controlled by a rheostat. By changing the voltage across the grid the flow of electrons can be greatly affected. The electrons pass through the holes in the grid and strike the plate in the rear of it and there give up their electrical charge. If conditions are properly balanced a small change in potential at the grid will produce a large change in the flow of electrons or the current through the plate which goes to the ear phones. The phones are in series with a high voltage battery which assists in actuating the diaphragms of the ear phones.

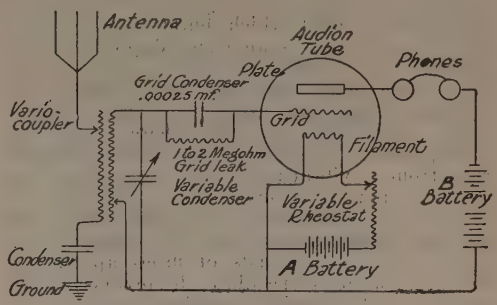


FIG. 41. Single Tube Receiving Circuit.

Audion Detector with one-step amplification. In radio reception one tube is not sufficient to give loud enough signals. It then becomes necessary to increase the intensity of the incoming audible vibrations. This can be accomplished by increasing the amplitude of the vibrations or by passing the audible vibrations from the first detector tube to a second tube through a one to one transformer. From the secondary of the transformer one terminal is connected to the grid and the other to the negative terminal of the A and B battery which is an exact duplication of the detector tube. The one to one transformer is used as this is an inductive coupling and due to its high impedance will damp out any higher harmonics or high frequency oscillations.

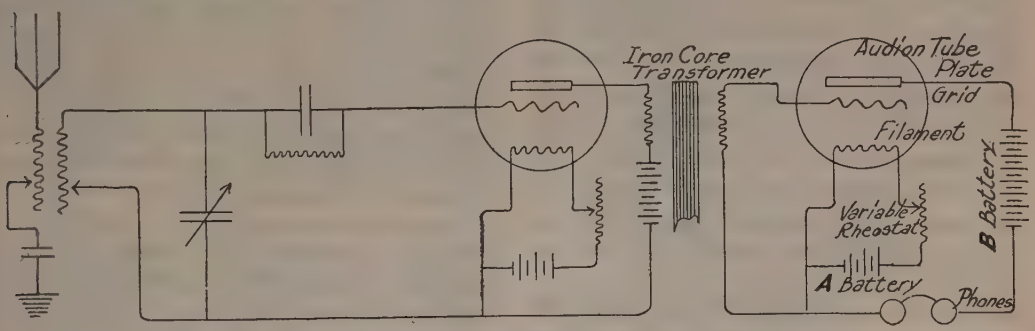


FIG. 42. Two Tube Receiving Circuit. One Detector Tube, One Amplifier.

Tele-Transmission of Pictures.

Tele-transmission of pictures is the transmission of photographs over long distances by means of the telegraph lines of communication. The method is to use certain particular frequencies of alternating current different from the ones regularly in use over the lines which are used for ordinary commercial telegraphy or long distance speech communication. These superposed alternating currents are then sorted out by means of filter circuits at the other end which permit only these special frequencies to pass.

The intensity of current at one frequency acting as a carrier wave is varied by means of a photo-electric cell which receives the impression of the image of a minute portion of the picture to be transmitted. An ordinary photograph is simply built up of light and dark portions. The photo-electric cell is very sensitive to the different intensities of light from these light and dark portions. A lens throws an image of only one very small portion of the photo on the opening to the photo-electric cell at one time. By moving the photo across horizontally in one direction from one side to the other and then raising it vertically step by step after each trip across, the whole photograph is covered. The photo-electric cell in this manner causes the intensity of the telegraphic current to vary in a way

which exactly corresponds to the variations in intensity of the corresponding part of the photograph.

When this fluctuating current is received at the other end of the telegraph wire, suitable apparatus is used which builds up a picture step by step that is an exact duplicate of the original one. In this building up process where the minute impressions are received it is very important that they are put together in their proper succession especially where a new row of impressions is started. The alternating current from a vibrating tuning fork at another frequency is used to govern this and it can easily be made to synchronize the transmitting and receiving apparatus so that they will operate in unison though thousands of miles apart. Unless this is done peculiar distortions of the pictures will result, sometimes giving very ludicrous results.

Tele-transmission of pictures has many important uses such as the detection of criminals by photographs or finger prints, the prevention of forgeries, the expediting of business, where important documents and maps are involved, the selection and direction of moving picture operations at a great distance, and the immediate distribution of the important, the serious and the interesting news of the world by pictures taken on the spot. For military purposes its use is invaluable.

Transmission of pictures may best be considered from four distinct points of view: *tele-autography* which is the transmission of pictures in line; *tele-photography* the transmission of photographs; *tele-vision* the practically instantaneous projection of moving living scenes at a distant point; and *tele-kinematography* where motion pictures are transmitted and then projected for visual observation at a distant point. the prefix "*tele*" comes from a Greek word implying distance. This tele-transmission may be made by wire or by radio. Most of the present methods invented for tele-transmission are only adapted for use on cables and telegraph lines. In tele-transmission one very necessary and important feature is the perfect synchronisur or simultaneous starting and completion of the motion of the respective apparatus at each end so that both work together in unison although possibly thousands of miles apart.

This effect is generally achieved by sending over the line a controlling current, which is made to actuate a relay and so operate the armature of an electro-magnet which controls the speed and action of the recording apparatus in the receiving end. This current does not otherwise affect the messages or signals sent.

Nearly all methods of tele-transmission employ either a photo-electric or a selenium cell both of which are very sensitive to the intensity of incident light. In the first case, an intense beam of light generates a photo-electric current while in the second case, it lowers the resistance offered by the selenium thus permitting a greater current to pass.

The pictures sent may be of varied kinds including thumb or finger prints, architectural drawings or landscapes, photographs, autographs, cheques, moving picture scenes, topographical maps and military plans and even Chinese script. The importance of these various possibilities obviously promises a very wide field of usefulness.

Radio-Transmission of Pictures.

The radio-transmission of pictures is a method of sending and receiving pictures by radio communication through space alone without the use of cables, telegraph or telephone wires. There are several methods which can be adapted readily enough for transmission by radio. The following paragraphs present a very brief outline of one of the most successful yet simplest inventions of this sort. This will indicate the usual methods of overcoming the difficulties involved It is called the Bartlane system after the English inventor, Mr. Bartholemew, director of the *London Daily Mirror*, and Captain McFarlane, a research engineer.

Instead of linking up the stations at each end electrically with the resulting difficulties of synchronism the picture is transformed into a series of holes in a row punched into a long tape.

In transmitting words each letter or number is represented by various permitations and combinations of five punch holes made by a special magnetic typewriter. Another hole in the tape along its center line serves for synchronizing the initial transforming with the final reproducing apparatus.

In transmitting pictures, five shades of photographic density for a minute section of the picture are used ranging from pure white to pure black by fifths. In a positive photograph where it is pure black this is represented by all five punch holes in a row because the photographic negative is pure white at this point and the transmitted light acts on plates which are covered initially with an insulating material and causes this to be chemically removed. Five different timed exposures are made to secure the tone value for each small section of the picture and the corresponding tone plates which are afterwards used as contact plates to control the operation of the punching magnets.

A pure white is represented by no holes being punched. A sixth smaller hole is the synchronising hole. The tape with its code-like message of holes can now be handed over to the cable, telegraph, or radio office and transmitted like an ordinary message. A picture reproducing machine at the other end, then transforms the tape received at the distant point into a duplicate of the original. The principle here is simply that the five punch holes representing the pure black of the original photographic positive will transmit more light than a smaller number. Light from an arc light is sent through them and then the little beams of light are focused by a lens on to a photographic film.

This Bartlane system is quite typical of other inventions that could be used and we can therefore say quite definitely that the transmission of pictures by radio or telegraph or cable has been successfully solved with its resulting benefit for mankind.

CHEMISTRY.

That natural science which treats of the composition of matter, and the changes produced in it when subjected to peculiar conditions, such as heat, pressure, mass, light. Physics is largely a study of the various forms of energy, such as electricity, power, heat, and light, while chemistry deals more particularly with matter. In common with physics, it includes the determination of characteristics which serve to distinguish one substance from another. The physicist is concerned with properties possessed by all substances. The chemist is restricted to those processes in which the molecules undergo some change, for example, the physicist determines the density, elasticity, hardness, conductivity, etc., while the chemist investigates changes in composition, such as may be effected by an electric current, by heat, or when two or more substances are mixed.

The universe from its utmost heights to its deepest depths, is built of matter of some kind. Since chemistry is the science which deals with various kinds of matter, and all industries use the raw material in one form or another, it is clear that chemistry is closely interwoven with the industries of every country. The country that produces the best chemists is apt to be the most powerful and wealthy. The World War was a revelation of the importance of chemistry even though it was used in forms most unwarranted.

Divisions of Chemistry.

In treating the various forms of chemistry, it is found to be divided into two great branches, *organic* and *inorganic*.

Organic Chemistry is the chemistry of carbon compounds. There are more than two hundred thousand organic compounds. It deals with substances obtained largely from animal and vegetable sources.

Carbon and its compounds are extremely important. We learn that they make up our fuel, whether coal, wood, oil, or gas; our lubricants; our foods, our clothing; and they make possible the change from iron to steel.

Hydrocarbons. There are several hundred hydrocarbons. They contain the elements of carbon and hydrogen. Most of these are found in petroleum, natural gas, asphalt, and coal-tar products.

Carbohydrates. A group of organic compounds containing only the elements, carbon, hydrogen and oxygen. These include grape and fruit sugars, cane, malt and milk sugars; the starches and cellulose which make the structural material of the vegetable world; common alcohol, glycerine, acetic, citric and tartaric acids; fats and oils.

Inorganic Chemistry deals with some eighty chemical elements and their compounds, including those of the mineral world. The fundamentals of both branches are the same, and the main reason for division, is the number of carbon compounds.

Biological Chemistry is that division of the science which deals with the vital processes of life, carried on by means of mysterious substances called "enzymes" which as yet have not been obtained in pure state. Nevertheless, they cause chemical changes, without themselves undergoing such changes.

Physical Chemistry explains the processes of chemistry and formulates laws for these processes. It is sub-divided into two main divisions, *electro-chemistry* and *thermo-chemistry*. One division of physical chemistry in which much progress has been made recently is in the study of the properties of gas.

Physiological Chemistry is the study of the chemical nature of substances entering into the constitution of the animal organism and the chemical changes taking place during the life processes of an animal.

Agricultural Chemistry is that branch which treats of the chemical principles underlying the art of agriculture such as the study of soils, manure and vegetable compositions.

Pharmaceutical Chemistry deals with the nature and method of preparation of various drugs and ointments used for medicinal purposes.

DICTIONARY OF CHEMICAL TERMS.

Acetlyene. An illuminating gas made by the action of water on calcium carbide. Berthollet, the French chemist, made important discoveries regarding it, while its method of cheap manufacture from calcium carbide was discovered by Wilson, a Canadian chemist.

Acids. A group of chemical compounds which turn blue litmus paper red, have a sour or acid taste, nearly always contain hydrogen, and neutralize alkalis, hydroxids, or bases. They are of great use in the arts and the laboratory, and are among the most energetic of chemical substances.

Acetic acid. Composed of carbon, hydrogen, and oxygen. The chief constituent of vinegar. It is manufactured by oxidizing alcohol by fermentation. It also has a medicinal or surgical use. Impure acetic acid is called pyroligneous acid.

Hydrochloric acid. A gas, as used in every day life. It is dissolved in water, for which it has a great affinity, depending upon the temperature of the water, which will hold from four hundred to five hundred times its volume in HCl. Made mostly in Europe.

Sulphuric acid. Next to human food, the most indispensible article. Manufactured largely in Great Britain. It is the base of all acids. Leading uses are in fertilizer and sodium carbonate manufacture. H_2SO_4 is used in bleaching, electroplating, nitroglycerine, celluloid, and the like.

Albumen or Albumin. A chemical compound most closely resembling the white of an egg. Present in the blood, in the sap, seed, and edible parts of plants. Obtained in commerce by drying the whites of eggs, without allowing them to coagulate.

Alcohol. Ethyl alcohol or spirits of wine is composed of carbon, hydrogen, and oxygen in the

proportion of C_2H_5OH. It is obtained by distillation from starchy substances such as potatoes, grains, rice, etc., after fermentation. The specific gravity of rectified spirit is 0.82 and is equal to 91 per cent of absolute alcohol, which is alcohol deprived of all its water. Boils at 78 degrees C. and freezes at —130 degrees C.

Aldehydes. A group of organic compounds derived from alcohol (C_2H_5OH) by removing part of the hydrogen by the action of an oxidizing agent.

Alkaloids. A group of nitrogenous basic compounds found in plants. Nearly all are very poisonous. Among them are nicotine, cocaine, quinine, strychnine, caffeine, codeine and morphine. They are all of high medicinal value.

Allotrophy. The quality an element possesses when appearing under various forms, with different properties. Carbon is the best illustration, as in a diamond which is pure carbon, graphite, and amorphous, as charcoal, lamp-black, coke, and mineral coal.

Alloys. These are mechanical mixtures and not chemical compounds, since the metals may be incorporated in all proportions regardless of their combining weights. The most important are:

Bronze, copper and tin.

Aluminium brass, equal parts of aluminium bronze, copper and zinc.

Aluminium bronze, copper 90 parts, aluminium 10 parts.

Babbitt metal, copper 4 parts, tin 12 parts, antimony 8 parts, and tin 12 parts added after melting.

Bell metal, from 82 to 70 parts copper and 18 to 30 parts tin.

Brass, copper 66 2/3 parts, zinc 33 1/3 parts.

Britannia metal, tin, antimony, copper and brass.

Coin bronze (ancient), copper 96 parts, tin 4 parts, or copper 98 parts, tin 2 parts.

German silver, copper 60 parts, zinc and nickel 20 parts each.

Gold coin, gold 900, copper 75, silver 25 parts.

Gun bronze, 90 parts copper, 10 parts tin, or 89 parts copper, 11 parts tin.

Manganese bronze, copper 38 parts, tin 1½ parts, zinc 8¾ parts, and a little lead, iron and phosphorus.

Pewter, tin and copper, and sometimes lead.

Phosphor bronze, copper, zinc, tin and phosphorus.

Solder, tin and lead for soft solder. Hard solder contains brass.

Speculum metal, 67 parts copper, 33 parts tin.

Statuary bronze, nearly the same as gun bronze.

Stereotype metal, antimony 16 parts, tin 17 parts, lead 67 parts.

Tobin bronze, copper 59 parts, zinc 38 parts, with a little tin, iron, and lead.

Type metal, lead 4 parts, antimony 1 part.

Alum. It is the transparent, glassy, colorless crystals deposited when solutions of aluminium sulphate and potassium sulphate are mixed and concentrated by evaporation; used in dyeing and printing cloth, in tanning and paper making, for hardening plaster, (as in medicine), making wood and cloth fireproof, in purifying water and sewerage. Ammonium and sodium alums are manufactured, the latter is an ingredient of some baking powders.

Amalgam. An alloy of which mercury is always a constituent. Tin amalgam for silvering mirrors is composed of 3 parts of mercury to 1 part tin.

Amids. A large class of organic compounds derived by substituting one or more organic radicals for one or more of the hydrogen atoms in ammonia. (NH_3.)

Amins. A large class of compounds derived by substituting such hydro-carbon radicals as methyl or ethyl for one or more of the atoms of hydrogen in ammonia. (NH_3.)

Ammonia. A gaseous compound of nitrogen and hydrogen, colorless and pungent, formed when ammonium chlorid (sal ammoniac) is heated with lime. The ammonia of commerce is obtained from gas works. When ammonia gas is dissolved in water, liquid ammonia is formed.

Anhydrid. Oxids of non-metals which unite with water and thereby produce acids are called anhydrids. The gas (SO_2) is the anhydrid of sulphurous acid (H_2SO_3).

Anilin. A substance largely used in the manufacture of dyes. It is formed by the addition of hydrogen to nitrobenzene. It was discovered in 1826 by Unverdorben, further demonstrated by Runge (1834), Zinin (1841), Hofmann (1843), and Perkin (1856).

Aspirin is the trade name of Monoaceticacid-ester of Salicylicacid. It is a white powder used in the treatment of headaches, rheumatism, colds, pleurisy and the like. Aspirin passes through the stomach unchanged and liberates salicylic-acid in the intestine.

Atmosphere. A convenient unit for measuring pressures such as the force of steam or pressure of liquids. It is, in English use, the weight of a column of mercury 30 inches high at the freezing point at London; in France, the pressure of 760 millimeters of mercury at the freezing point at Paris; generally estimated at about 15 pounds (14.7) pounds to the square inch. When a pressure of 3 atmospheres is spoken of, about 45 pounds to the square inch is understood.

Atom. The smallest particle of an element which can enter into chemical composition. It is also the indivisible constituent of a molecule.

Atomic Theory. A hypothesis or theory put forward by Dalton in 1805. Designed to explain many states, conditions, and the phenomena in chemistry otherwise incapable of explanation. By this theory it is supposed that all bodies are composed of minute particles of the elements and that these atoms cannot exist in a free or uncombined state, but always in union with atoms of other elements in compounds or with atoms of the same element. Argon and some others are exceptions to this theory.

Atomic Weight. The atomic weight of an element is the weight of an atom of that element compared with an atom of hydrogen, the lightest

of all elements, taken as the standard and called 1 or unity.

Boiling. The rapid production of vapor in the mass of a liquid. Boiling points in degrees Fahr.:

Alcohol, specific gravity 813	173°
Ammonia	140°
Benzine	173°
Chloroform	146°
Coal tar	325°
Ether	100°
Linseed oil	597°
Mercury	648°
Milk	213°
Naphtha	186°
Nitric acid, specific gravity 1.42	248°
Nitric acid, specific gravity 1.5	210°
Oil of Turpentine	315°
Petroleum, rectified	316°
Phosphorus	554°
Sea water, average	213.2°
Sulphur	570°
Sulphuric acid, specific gravity 1.848	590°
Sulphuric acid, specific gravity 1.3	240°
Sulphuric ether	100°
Turpentine	315°
Water	212°
Water in vacuo	98°
Whale oil	630°

Bunsen burner, is an arrangement for burning gas by first mixing it with sufficient amount of air so that a more perfect combustion is secured.

Calomel. An insoluble white substance used medicinally to stimulate the liver and other glands. Calomel decomposes when exposed to light forming poisonous mercuric chloride. For that reason calomel is always kept in dark bottles.

Chemical Affinity. The attraction which one element exerts upon another is called chemical affinity, and in most cases manifests a preference of the atoms of one element for those of another element above all others. Substances like nitrogen which display a low chemical affinity are called inert and do not readily form many compounds.

Chemical Analysis. In chemistry, the breaking up of a compound substance into its constituent elements.

Qualitative Analysis. Deals with the kinds of matter present. It has been found that all substances are made up from about eighty different elements, which are put together in different forms.

Quantitative Analysis. Deals with the proportions by weight or by volume in which they are found in the element. In this analysis we find that carbon and hydrogen are generally estimated by the combustion process, which consists in oxidizing the substance and absorbing the products of combustion in suitable apparatus. The oxidizing agent most commonly used is copper oxide, which must be freshly lighted before use on account of its hydroscopic nature.

Chemical Combination. The intimate union of two or more elements to form a compound with properties different from those of the constituent elements. When no such union exists, a mechanical mixture results, such as the air, in which the constituent gases lie side by side without union.

Chemical Formula. A mode of representing the exact composition of chemical compounds, and stands for one molecule of the compound. The formula of water is H_2O. This means that a molecule of water is composed of two atoms of hydrogen chemically combined with one atom of oxygen; two molecules of water would be represented by the formula $2H_2O$, where the large figure multiplies all that follows. Formulas are empirical, as those given above; rational, as HOH; and graphic, as H—O—H.

Compound. A substance which is made up of elements united in exact proportions, by a force called chemism, or chemical affinity.

Distillation. Heating a liquid or solid in a closed vessel and condensing the vapors is called distillation. A common example is the tea-kettle, when the water boils steam escapes from the spout. If the steam were passed through a cold pipe, it would condense as distilled water.

Element. A chemically indivisible substance, or one from which nothing else can be extracted.

Enzymes. Are secreted by a living organism, thus differing from the inorganic catalysts. It is an interesting fact that a germinating seed (barley, for example) develops enzymes as it sprouts.

Epsom Salts. There are deposits of magnesium sulfate in the western states, which when crystallized from solution at ordinary temperatures Epsom Salts is secured. It is used in dyeing, tanning, soaps and for medicinal purposes.

Ether. Is produced by the action of hot concentrated sulfuric acid in removing the elements of water from alcohol. It is used as an anæsthetic and as a useful solvent for many substances.

Fermentation. A large number of chemical changes are brought about through the direct agency of certain living organisms, such as yeasts and bacteria, or by catalytic agents called enzymes, which these small plants secrete.

Fusion. The change of a body from the solid to liquid state.

Melting Point in Degrees Fahrenheit.

Substances	*Degrees*
Antimony	995
Bismuth	506
Brass	1873
Copper	2000
Gold	2016
Iron, cast	2000–2800
Iron, rolled	3000–3500
Lead	612
Platinum	4593
Steel	2370–2550
Tin	444
Wax	158
Zinc	680–772

Graphite. Commonly but incorrectly called black lead or plumbago. It contains no lead, is an allotropic form of carbon, hence identical in composition with charcoal and diamonds. Occurs as a mineral, is lighter than water. The ore is pulverized, thrown into shallow tanks,

the rock sinking and graphite floating. Large deposits found in Siberia, Germany, France, Austria and United States. Used in manufacturing lead pencils.

Helium. Named "Helium" (from the Greek, "Helios," the sun) by Lockyer and Janssen who first observed it during the solar eclipse of 1868. Discovered on earth by Ramsey in 1895, through treatment of the mineral clevite with acids.

Helium is a light, colorless gas. It is so inactive that it has no compounds. It is given off when various metals are heated and is also found in the waters of certain springs. Most of the commercial helium is secured from the gas wells of Kansas and Texas, the other gases being liquified and the helium collected separately. The U. S. is fortunate in owning the only workable source of helium. Because helium is inflammable and less than one-seventh as heavy as air, it is regarded as the most valuable of all known gases for filling balloons and airships. The amount needed for modern dirigibles is enormous. The capacity of the Shenandoah being 2,150,000 cubic feet and of the Los Angeles 2,470,000 cubic feet.

Hydrogen Peroxide. Prepared commercially by treating barium peroxide with dilute sulphuric acid. It is used for bleaching purposes and as a mild antiseptic.

Iodid. A compound formed by the direct union of iodin with another element; or by replacing the hydrogen or hydroiodic acid (HI).

Iodine. Is obtained from beds of Chili saltpeter and from sea weed. The element is used in medicine as a tincture of iodine for treatment of swellings, and as a germicide.

Ion. An atom or atoms bearing + or — charges of electricity, formed through dissociation of an electrolyte in a solvent as water: + ions = anions; — ions = cations.

Laws of Chemistry.

Avagadro's Rule. Under like conditions of temperature and pressure equal volumes of gases contain equal number of molecules. It was advanced by Avagadro in 1811. It is the basis of the methods of finding the molecular weight of compounds.

Barthollet's Law. When two substances can form a substance insoluble or volatile, under the condition of the reaction, that substance will be formed until one of the factors is exhausted.

Boyles Law. The pressure which a given quantity of air at constant temperature exerts against the walls of the containing vessel is inversely proportional to the volume occupied.

Law of Definite Proportion. In a given compound, the proportion of any element by weight, or, if a gas, by volume is always constant.

Law of Multiple Proportion. Whenever one element combines with another in more than one proportion, it always combines in some multiple, one or more of its least combining weight, or, if a gas, of its least combining volume.

Liquefaction. Reduction to a liquid state. Solids are liquified by heat or solution; gases, by cold and pressure. That temperature below which a gas under pressure may be liquified is the critical temperature; and the pressure necessary to produce liquefaction at the critical temperature is called the critical pressure. All gases which may be cooled to the critical temperature may under requisite pressure be liquefied. The critical temperature of hydrogen is —234 degrees C.; oxygen, —119 degrees C.; nitrogen, —146 degrees C.; air, —140 degrees C.; carbonic dioxid, 32 degrees C.; or 88 degrees F.

Mass. Any portion of substance larger than a molecule. It is an aggregation of molecules.

Methane or marsh gas. Occurs in marshy districts. Formed by a process of fermentation of cellulose or plant fibre by micro organisms.

Coal gas. Contains 30 to 40% methane, 45 to 47% hydrogen, 5 to 12% carbon and small quantities of other substances. Pure methane may be prepared by placing aluminum carbide into warm water. It is not so much the methane which is responsible for the mine explosions, as the fine coal dust, which of itself causes explosion. Nor is it the explosion which creates the greatest loss, miners may in a measure escape this by falling flat on their faces, allowing flames to pass over them, as the blast generally leaves the air on the ground breathable. It is *after damp* which creates greatest havoc. This deals a painless and easy death. Men killed by flames are marked with burns and scorching, when death has occurred by after damp, men lie as if placidly sleeping.

After damp. When methane burns in air, it produces carbon dioxide.

CH_4	+	$2O_2$	=	CO_2	+	$2H_2O$
Methane		Oxygen		Carbon Dioxide		Water

In the mines, there is generally insufficient oxygen for complete combustion, and so another very poisonous oxide of carbon is formed called carbon monoxide. The carbon dioxide is not in itself so poisonous. It is rather the small percentage of carbon monoxide—CO. It is this CO which causes many casualties in sections where natural gas is used as fuel.

Mixture. Is composed of two or more elements or compounds blended together, but not held by any chemical attraction.

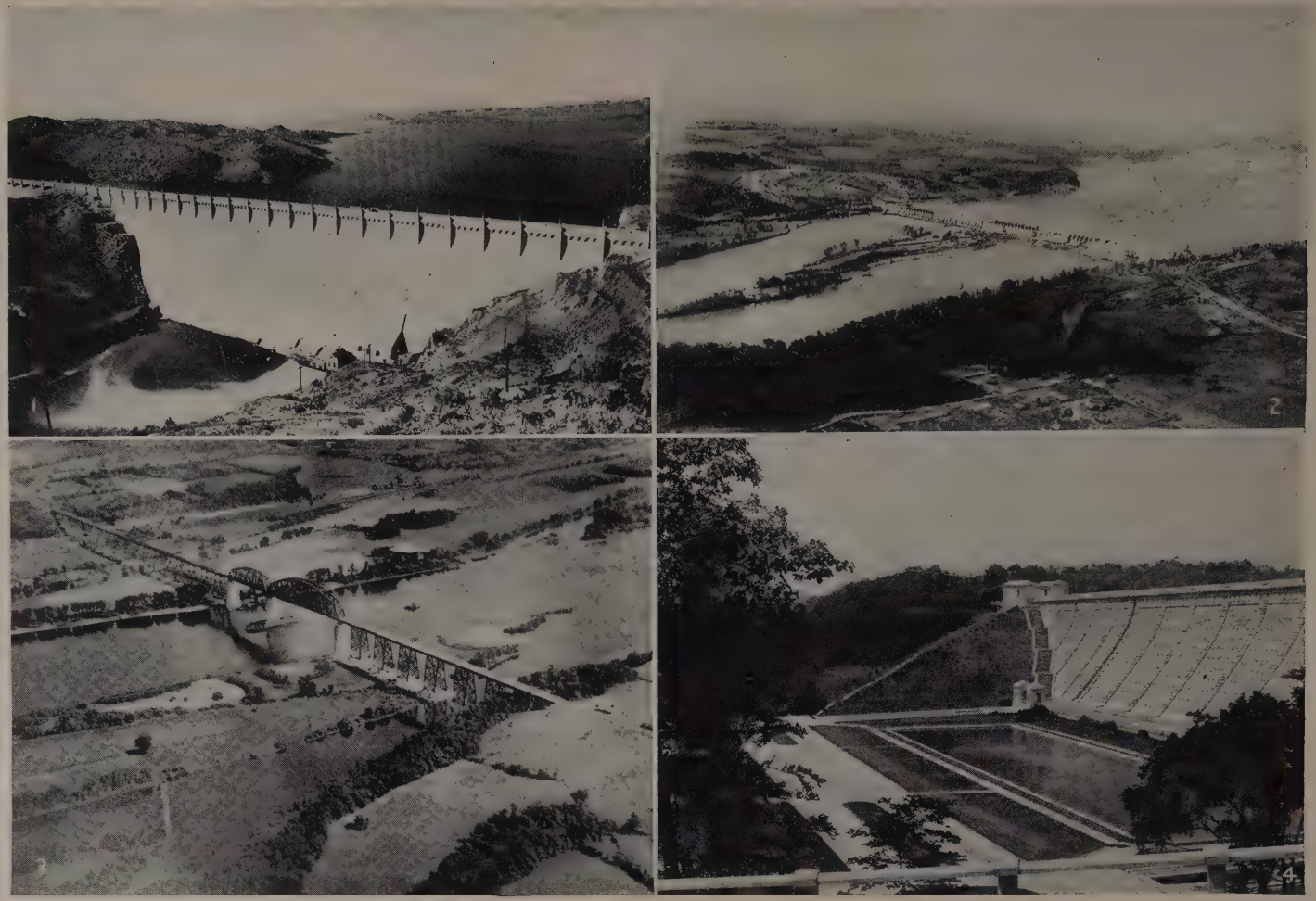
Molecule. Is the smallest particle of a substance that can exist alone.

Molecular Weight. The sum of the atomic weights of the constituent elements. In a molecule of water (H_2O) the molecular weight is the sum of two atoms of hydrogen (with an atomic weight of 1 each) and of 1 atom of oxygen (atomic weight 16), making the molecular weight of water 18.

Oxide. Is a compound of oxygen and another element.

Oxygen. A gas without color, odor or taste. The most abundant of all elements. It is the union of oxygen in the air with carbon and hydrogen in our blood that gives body heat, and supports life. It forms a portion of all animal and vegetable matter. It makes up over one-half of the earth's surface.

Paris Green. Is a poisonous green powder used on growing plants to kill potato bugs and



Photos 1 from Ewing Galloway; 2, 3, 4 from Keystone View Co.

TOPOGRAPHICAL ENGINEERING—I

1 Elephant Butte Dam, Rio Grande, N. M.
2 Muscle Shoals Dam, Ala.
3 Castleton Cut-off Railroad Bridge, near Albany, N. Y.
4 Kensico Dam, Kensico Reservoir, N. Y.

Photos 1, 2, 4 from Ewing Galloway; 3 from Keystone View Co.

TOPOGRAPHICAL ENGINEERING—II

1 Spillways, Muscle Shoals Dam, Ala.
2 Keokuk Dam, lock and power station, Keokuk, Iowa.
3 Lachine Bridge, St. Lawrence River, Montreal, Canada.
4 Roosevelt Dam and Reservoir, Arizona.

other harmful insects. It can be used as a spray when diluted with water or as a powder when mixed with slaked lime.

Quantivalence. The quantivalence of an element is measured by the number of atoms of hydrogen it combines with or replaces, e.g., Na. is univalent, for when added to HCl it replaces one atom of hydrogen; Ca is bivalent, for, as seen in the above reaction, it replaces two atoms of hydrogen. See Valence.

Quinine. Is extracted from the bark of the cinchona tree. Its greatest medicinal use is found in the treatment of malaria fever. It is also used as a preventative.

Radicals. Is an atom or group of atoms which changes places in a reaction; a compound radical is made up of different sorts of radicals as NH_4.

Reaction or chemical equation. Is a method of representing a chemical change.

Salt. Sodium Chloride or common salt is plentiful in most parts of the world. The chief sources of supply are the water of seas and salt lakes, rock salt, and natural brines. Two-thirds of the solid in sea water is common salt or about 2.75 per cent of the total volume. In contrast to this the Great Salt Lake contains about 12 per cent salt. The great salt producing states are New York, Michigan, Ohio, Kansas, Louisiana, Texas, Utah, West Virginia and California.

Specific Gravity. The specific gravity of a body is its weight compared with an equal bulk of another body taken as a standard of comparison. Pure water is the standard for solids and liquids. Either air or hydrogen for gases. To find the specific gravity of a body heavier than water; weigh the body in air; weigh it suspended in water; find the difference, which is what the body loses in weight when supported in water, or is the weight of an equal volume of water; divide the weight in air by the difference. When the body is a solid lighter than water attach a known weight to the body sufficient to sink it, then weigh in water and proceed as given. To find the specific gravity of a liquid weigh some solid in water; weigh the same solid in the given liquid; then divide the loss of weight in water into the loss of weight in the given liquid; the quotient is the specific gravity required.

TABLE OF SPECIFIC GRAVITIES.
Compared with Water.

Substances.	*Average Specific Gravity.*
Air at 60° F.—barometer at 30 inches	
is 1/815 of the weight of water	.00123
Alcohol, pure	.793
commercial	.834
proof spirit	.916
Brass	8.1
Carbonic acid gas	.00187
Chalk	2.5
Clay	1.9
Coal, anthracite	1.5
bituminous (soft)	1.35
Copper	8.95
Cork	.25
Diamond	3.53
Ether	.716
Fat	.93
Feldspar	2.65
Flint	2.6
Glass	2.95
Gold	19.258
Granite	2.72
Gutta percha	.98
Gypsum, plaster of Paris	2.27
Ice	.92
Iron, cast	7.15
wrought	7.77
Ivory	1.82
Lead	11.41
Lime, quick	1.5
Limestone and marble	2.6
Mercury	13.62
Mica	2.93
Naphtha	.848
Oils	.90
Oxygen gas	.00136
Petroleum	.878
Pine, southern	.72
white	.40
Platinum	21.5
Quartz	2.75
Shales	2.6
Silver	10.5
Slate	2.8
Spruce, dry	.40
Steel	7.85
Tar	1.
Tin	7.35
Zinc	7.

Strychnine—Nux Vomica—First used successfully as an analgetic in surgery in 1909 by Dr. W. L. Dudley of Vanderbilt University. An alkaloid discovered in 1818 by Pellitier and Caventon in St. Ignatius beans. In taste exceptionally bitter, has an alkaline base, and is a tertiary monacid base. Applied externally, it is a powerful antiseptic, but its poisonous nature prevents it from being used for this purpose. Internally strychnine particularly affects the nervous system, excites the areas of the spinal column. Small doses cause convulsions with death.

Sulphur. The brimstone of the Bible was sulphur. It is a solid non-metallic element found free in volcanic regions. Sulphur is an essential element in all protein material, hence the effensive smelling of certain decaying matter as eggs. The chief supply is found in Louisiana, Texas, and in Italy. Most of our commercial sulphur is mined by a process patented by Herman Frasch, an American chemist in 1890. Borings through the overlying rock are made into the sulphur beds. Then a series of five pipes one within the other is forced into the sulphur bed. Hot water is then forced into the sulphur which is melted. This melted sulphur in turn is forced to the surface by compressed air which is sent down the smallest pipe. Many wells yield 500 tons daily.

Sulphate. A compound formed with sulphuric acid (H_2SO_4) by replacing the hydrogen with another element or radical.

Sulphid. A chemical compound formed by the direct union of sulphur with another element.

Sulphite. A compound formed by sulphurous acid (H_2SO_3) by replacing the hydrogen with another element or radical.

Surface Tension. The magnitude of opposing forces per unit of length of an imaginary line drawn in the surface of a liquid.

Termination "—IDE" denotes a Binary Compound, that is, a substance composed of only two elements, e.g., Sodium Chloride (NaCl).

Termination "—OUS" is applied to the first of two elements when it exists in a greater proportion than in another combination with the same element, e.g., one atom of phosphorous and three atoms of chlorine form Phosphorous Chloride.

Termination "—IC," when the first exists in a lesser proportion, e.g., one atom of phosphorus with five atoms of chlorine form Phosphoric Chloride.

Prefixes "MONO—," "BI—," "TRI—," etc., indicate the proportion of the latter of two elements, and are sometimes used instead of the above termination. Thus phosphorous chloride may be also called Phosphorous Tri-Chloride; so one atom of carbon with one atom of oxygen is Carbon Monoxide.

Prefix "HYPO—" (under) and **"PER—,"** (over), specify compounds formed by the same two elements containing less (or more) of an element than is in the usual compound.

Valence. The combining power of an atom of an element compared with that of hydrogen taken as a standard. Elements which combine atom for atom with hydrogen are called univalent or are said to have a valence of one; those which require two atoms of hydrogen or other univalent atom to saturate one atom of themselves are called bivalent or 2-valent; and so on with trivalent, or 3-valent; quadrivalent, or 4-valent, etc. Many elements seem to possess a varying valence.

Vapor. The gaseous form, which bodies that are solids or liquids at ordinary temperatures, may be made to assume by the agency of heat.

Vaporization. The passage of liquid into the gaseous state.

Yeast. Is one of the most common of living ferments, wild yeast being a microscopic plant found on the ground, and often in the air. Wine is fermented from grape juice by the wild yeast, found on the skins of the grapes.

CHEMISTRY OF FOOD.

Food is anything which taken into the body builds and repairs the tissue or furnishes heat and energy. Food is needed by the animal body to replace wornout tissues, provide for growth in the young, and supply heat to maintain the body temperature. Food is the source of animal energy. When a muscle contracts carbohydrate in the tissue is oxidized and heat liberated.

Four great classes of foods are necessary to human health.

1. *Proteins*
2. *Carbohydrates*
3. *Fats*
4. *Minerals.*

Classification of food.

(A) Organic foods of animal and vegetable origin, include:

1. Protein, or nitrogenous foods composes most of the muscle, brain and nerve tissue, and is commonly spoken of as *tissue builder.* Eggs, milk, beans, lean meat, peas and cereals are representative protein foods. The protein molecule is very complex and very large. Protein always contains carbon, hydrogen, oxygen, nitrogen and usually sulphur.

a. Albumin, as in the white of an egg.
b. Casein, as in milk curd.
c. Extractives, as in the juices of meats.
d. Fibrin, as in lean meat.
e. Gelatin, as found in sinews and bones.
f. Gluten, as contained in wheat.
g. Legumin, as contained in beans and peas.

2. Carbohydrates are those foods which include a large percentage of starches and sugars. These sugars are found more particularly in cane, beets and sweet fruits. On the other hand starches are found in cereals, rice and potatoes.

a. Cellulose, fruit and vegetable fiber.
b. Starch, as contained in potatoes.
c. Sugar, as cane, beet and fruit sugars.

3. Fats or Glycerides produce more heat and energy per weight than any other food. Fats are found in all animals and most plants, where they serve as a store of energy and heat producing material. Animal fats such as tallow, lard, and butter, and vegetable fats such as olive oil, nuts and cocoa butter are representative fat foods.

a. Animal fats, as butter, lard and fat meat.
b. Vegetable oils, as olive oil, cottonseed oil.

(B) Inorganic foods or those not having animal or vegetable origin.

4. Minerals. Lime and phosphorus, are needed in developing bone, while calcium, iron, iodine, potash are all necessary to our well being. Cereals, eggs, fruits, milk all furnish minerals but in this age of prepared foods, it is the province of chemistry to see that the proper amount of minerals are supplied the human body.

a. Mineral matter is found in the ash of foods.

Water is usually not thought of as a food, it is used in tissue building, but it does not give heat or energy.

CHEMICAL ELEMENTS.

TABULATED STATEMENT OF ALL THE KNOWN ELEMENTS.

At. wt. = Atomic weight; Sp. gr. = Specific Gravity. For Definitions see Index.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics
ALUMINIUM Symbol Al. At. wt. 27.1. Valence III. Sp gr. 2.7. Discovered by Wöhler, 1827.	Occurs as silicate in clays, micas, feldspars, etc.; extracted from its ores by electrolysis.	A tin-white tenacious metal; takes brilliant polish; odorless, tasteless; highly malleable at 100° to 150° C. Sonorous, does not tarnish; slowly magnetic. Soluble in hydrochloric acid and solutions of caustic potash and soda.	Oxid and sulphate are its compounds. Oxid is sapphire, ruby, corundrum, and emery used in polishing. As a basic oxid, and as an acidic oxid, forms the somewhat indefinite aluminates. Sulphate is aluminium salt prepared by itself and along with potassium or ammonium sulphate as alum. Uses: boat building, instruments, balloon fittings, bicycles, cooking utensils, chemical works, lithography, paint, cameras, opera glasses, and aluminium bronze.	
ANTIMONY Symbol Sb. (*Stibium.*) At. wt. 120.2. Valence III. and V. Sp. gr. 6.7. Discovered by Valentine, 15th century.	Occurs in nature in stibnite, antimony sulphid. Found free to a small extent.	A bluish-white, hard, brittle, highly lustrous, crystalline metal. Expands on solidifying; does not rust.	Alloyed to make type metal, britannia metal, and anti-friction metal. Compounds are sulphids; antimony cinnabar, used for paint; antimony trichlorid (butter of antimony) for browning gun-barrels; and tartar emetic.	Tests similar to that for arsenic, from which it is distinguished by the appearance of metal, and its insolubility in sodium hypochlorite.
ARGON Symbol A. At. wt. 39.9. Sp. gr. 1.5. Discovered by Rayleigh and Ramsay, 1894.	A gaseous element nearly one and a half times heavier than air, present in natural nitrogen.	A colorless, odorless gas, chemically inactive.	The argon molecule contains one atom.	Argon will not unite with any other element; more soluble in water than nitrogen; liquefied, boils at −186° C. and solidifies at −190° C.
ARSENIC Symbol As. At. wt. 75. Valence III. and V. Sp. gr. 5.71. Discovered by Schröder, 1694.	Occurs free in nature, but also combined with many metals as in realgar, and in mispickel or arsenical pyrites.	1. A steel-gray, metallic, very brittle solid, subliming easily. 2. A fine, heavy black powder.	White arsenic or arsenious anhydrid (As_2O_3); arsenic oxid or arsenic anhydrid. Used for hardening shot, in paints, as Scheele's green for printing wall paper, dyeing calico, and in pyrotechny.	Marsh's test: arsenic is placed in the apparatus used for generating H; the H is ignited, and, when cold porcelain is held in flame, metallic arsenic is deposited on the porcelain.
BARIUM Symbol Ba. At. wt. 137.4. Valence II. Sp. gr. 3.8. Discovered by Davy, 1808.	Occurs chiefly as sulphate in barite, as carbonate in witherite, in other minerals, mineral waters, ashes of certain plants, and in sea water.	A silver-white or golden-yellow metal, slightly lustrous, somewhat malleable. Melts at red heat, but cannot be distilled. Recent soil analyses have led botanists to believe that the poisonous properties of the loco weed are due to the presence of barium in the soil.	Barium peroxid, used to make peroxid of hydrogen, a bleaching agent, and to prepare oxygen; sulphate, in making pigments, cheap substitute or adulterant of white lead, manufacture of reagents, in pyrotechny, paper making, and pork packing; chlorid, used to prevent incrustation of boilers; nitrate, in making explosives.	Barium salts, when brought into a non-luminous flame, burn with a yellowish-green color. Compounds impart a green color to a Bunsen flame, if volatile; if in solution they form an insoluble, white precipitate on adding sulphuric acid.
BISMUTH Symbol Bi. At. wt. 208.5. Valence III. and V. Sp. gr. 9.8. Discovered by Valentine, 15th century.	Occurs in nature, free, and in combination as sulphid, oxid, and carbonate.	A grayish-white, crystalline, shining, brittle metal with pinkish tinge. Solidifies with expansion.	Used for making alloys which melt at low temperature, and are useful for making casts of objects.	
BORON Symbol B. At. wt. 11. Valence III. Sp. gr. 2.5. Discovered by Davy, 1808.	Occurs in oxygen compounds, namely, boric acid and its salts in two forms.	An odorless, tasteless, greenish-brown powder. Non-conductor of electricity; very infusible. Melts at 320° C., and boils at 763° C	Boron is of little commercial use. Its compounds are boric acid, boric oxid, and borax.	

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
BROMIN Symbol Br. At. wt. 79.96. Valence I., V., or VII. Sp. gr. 3.2. Discovered by Balard, 1826.	Occurs in the upper layers of the natural beds of rock salt. Three modes of preparation.	A heavy, reddish-brown liquid. The only liquid non-metallic element. Unites directly with most metals. Boils at 59°C. Has a very irritating odor.	Forms a class of compounds known as bromids. Useful in medicine, in photography, and in the manufacture of dyes from coal tar.	Gives a brownish color to starch paste by using a very large quantity. No oxid is known.
CADMIUM Symbol Cd. At. wt. 112.4. Valence II. Sp. gr. 8.6. Discovered by Stromeyer, 1817.	Occurs in the rare mineral greenockite, and in association with zinc ores, in very small quantities.	A bluish-white, lustrous metal with a fibrous fracture, highly lustrous, malleable, ductile, and flexible. It melts at 320° C., and boils at 770° C.	Cadmium forms a series of salts, of which iodid is used in medicine. Its sulphid is used as a pigment, and is also used for coloring toilet soaps, in pyrotechny, and in calico printing.	Cadmium tarnishes slightly in air, and burns when heated in it.
CÆSIUM Symbol Cs. At. wt. 132.9. Sp. gr. 1.9. Discovered by Bunsen, 1861.	A chemical element found in certain mineral waters, and in minerals, including lepidolite, petalite, and certain feldspars. Isolated by electrolysis.	A silver-white, soft, ductile metal; oxidizes rapidly in air.	The preparation of the metallic cæsium involves separation of its compounds from other elements, the transformation of the pure cæsium compounds into cyanid and the electrolytic decomposition of the cyanid.	Cæsium has a great avidity for oxygen, readily taking fire if exposed to air. No oxid is known.
CALCIUM Symbol Ca. At. wt. 40.1. Sp. gr. 1.7. Valence II. Discovered by Davy, Berzelius, 1808.	Found in nature as limestone, marble, chalk, coral, eggshells, and many other forms. Prepared by the electrolysis of calcium chlorid.	A light, yellowish-white, clear, lustrous hard metal; malleable, ductile, brittle; melts at red heat. Decomposes water like sodium and potassium.	Quicklime (CaO) for making mortar; slaked lime for making lime-water; calcium sulphate or plaster of Paris; calcium phosphate as fertilizer; and chlorid of lime for bleaching.	Burns with a yellow flame.
CARBON Symbol C. At. wt. 12. Valence IV. Sp. gr.: of diamond 3.5; of graphite 2.25 Prehistoric.	Occurs pure in nature, as diamond and graphite or plumbago (black lead); more or less impure as coal; artificially as charcoal, coke, soot, and lampblack.	Its forms are very varied and quite familiar. Unchanged by acids.	Carbon dioxid (CO_2) found in natural and artificial aerated waters; carbon disulphid (CS_2) for dissolving oils, fats, and vulcanizing rubber; the carbonates; and with hydrogen to form hydrocarbons.	Diamond, noted for its hardness, brilliancy, non-conductor of electricity, and burns under intense heat to CO_2. Graphite, a soft, greasy-looking black solid, crystallizes in six-sided plates. Other forms do not crystallize.
CERIUM Symbol Ce. At. wt. 140.25. Valence III. or IV. Sp. gr. 7.04. Discovered by Mosander, 1839.	Occurs with a few minerals, especially as the silicate in cerite, and samarskite. Prepared by electrolysis.	A steel-gray, very ductile, very lustrous, and malleable metal.	Its oxid is an important ingredient of incandescent gas mantles. Cerous sulphate is used in coloring fabrics.	Burns when heated in air, forming an oxid and producing much heat and light.
CHLORIN Symbol Cl. At. wt. 35.45. Valence I. Discovered by Scheele in 1774.	1. Electrolysis of salt water. $NaCl=Na+Cl$. 2. Hydrochloric acid and black oxid of manganese. $4HCl+MnO_2=MnCl_2+2H_2O+2Cl$.	Greenish-yellow color, pungent odor, irritates mucous membranes, soluble in water. Forms chlorids by direct union with other substances. Bleaches. Condenses to dark yellow liquid; boils at −33.6°.	Chlorids as common salt (NaCl), chlorinated lime, Condy's Fluid, hydrochloric acid (HCl). USES. Manufactured for bleaching materials and disinfecting agents.	Heavier than air. Bleaches all inorganic substances. Does not bleach printer's ink. Does not burn in air, but many substances burn in chlorin.
CHROMIUM Symbol Cr. At. wt. 52.1 Valence II. to VI. Sp. gr. 6.5. Discovered by Vauquelin, 1797.	Occurs chiefly in ferrous chromite, as crocoisite, as wolchonskoite, and as a constituent of meteoric iron.	A shiny steel-gray powder, consisting of small, lustrous, very hard, brittle, rhombohedral crystals.	With steel it yields an alloy, chromium steel. With oxygen forms oxids, used principally as pigments; chromates, used in calico printing and dyeing, making matches, bleaching, tanning leather, and photo-gelatin processes.	Burns brightly when heated in oxygen.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
COBALT Symbol Co. At. wt. 59. Valence II. or III. Sp. gr. 8.8. Discovered by Brand, 1735.	Usually occurs with arsenic or sulphur, and with nickel and other metals.	A hard, steel-gray, very ductile metal, resembling nickel, highly magnetic, and melts at 1500°C; unchanged in air.	It forms alloys, and is used in electroplating. Its principal commercial salts are pigments. Its oxid is used for glazing porcelain.	Slowly dissolved by HCl and sulphuric acids, but quickly by nitric acids.
COLUMBIUM (*Niobium*) Symbol Cb. At. wt. 94. Valence III. and V. Sp. gr. 7.2. Discovered by Hatchett, 1801.	Found in columbite, tantalite, and in small quantities in other minerals.	A steel-gray, lustrous powder.	Columbium forms three oxids of which the pentoxid forms salts called columbates or niobates.	
COPPER Symbol Cu. (*Cuprum*) At. wt. 63.6. Valence I. or II. Sp. gr. 8.95. Prehistoric.	Found native and as oxids, carbonates, and sulphids, in various minerals. Derived by smelting and other methods.	A reddish-yellow metal, bright luster, tenacious, sonorous, elastic, malleable, and ductile. Melts at 1057°C. Excellent conductor of electricity.	Two series of compounds, cuprous and cupric. Uses: for electrical appliances, sheathing of ships, boilers, electrotyping, coinage, in calico printing, dyeing, as an insecticide, and to make brass, bronze, gun metal, and copper sulphate or blue vitriol.	Copper compounds burn in a flame with a characteristically vivid blue or green color.
ERBIUM Symbol Er. At. wt. 166. Discovered by Mosander, 1843.	A constituent of the mineral gadolinite. Found with lanthanum, scandium, and ytterbium.	Erbium is similar to the earthy elements with which it is found; has not been isolated.	Erbium forms a series of rose-colored salts that give an acid reaction with litmus	
FLUORIN Symbol F. At. wt. 19. Valence I. Sp. gr. 1.1. Discovered by Scheele, 1771.	Occurs in fluorite, cryolite, and many other minerals; in water, stems of grass, bones, and other animal substances.	A light, greenish-yellow gas; penetrating and disagreeable odor, irritating the eyes and mucous membrane.	Hydrofluoric acid is used for glass etching. Certain compounds of fluorin form valuable antiseptics, and are also used for preserving food.	Fluorin unites directly with almost all elements; it decomposes water, and almost all compounds, except those with oxygen.
GADOLINIUM Symbol Gd. At. wt. 156. Valence III. Discovered by Marignac, 1886.	A rare element occurring in the mineral gadolinite with ytterbium, erbium, and other rare earths.	Its spectrum is characteristic. Properties imperfectly known.	Its chief compound is the oxid.	
GALLIUM Symbol Ga. At. wt. 70. Valence II. or III. Sp. gr. 5.9. Discovered by Boisbaudran, 1875.	Found in minute quantities in zinc ores. Discovered by use of the spectroscope.	A fairly hard, gray metal. Melts at 30.18° C. The only metallic element, besides mercury, which can be liquid at ordinary temperatures.	It combines with oxygen, forming a monoxid and a sesquioxid, and with chlorin to form a dichlorid and a trichlorid.	Dissolves readily in hydrochloric acid or caustic soda solution.
GERMANIUM Symbol Ge. At. wt. 72.5. Valence IV. Sp. gr. 5.5. Discovered by Winkler, 1886.	Found in small quantities in minerals, from which it is obtained as a sulphid, and reduced to metallic condition by heating in hydrogen.	A grayish-white, lustrous, brittle metal, melting at about 900° C.	It combines with oxygen to form a germanic oxid and a germanious oxid, and with other elements to form a series of salts.	Insoluble in HCl; easily soluble in aqua regia.
GLUCINUM (*Beryllium*) Symbol Gl. At. wt. 9.1. Valence II. Sp. gr. 1.9. Discovered by Wöhler, 1828.	Occurs as a constituent of various minerals, such as beryl, chrysoberyl, and phenacite.	A steel-colored, malleable metal; melting point below 1000° C.	Combines with oxygen, forming glucinum oxid, a white, infusible powder with a sweetish taste. Its compounds have no economic value.	The salts give no color to the Bunsen flame.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
GOLD Symbol Au. (*Aurum*) At. wt. 197.2. Valence I. or III. Sp. gr. 19.3. Prehistoric.	Occurs native and free in placer mines, and mixed with quartz.	A yellow, very heavy, the most malleable and ductile metal; very soft. Melts at 1064°.	The chlorid of gold used in photography; the metal used for coinage and jewelry.	Easily soluble in aqua regia, formed by mixing nitric and hydrochloric acids. Practical test, nitric acid, which has no effect upon gold.
HELIUM Symbol He. Monatomic. Lockyer, 1868. Ramsay, 1895.	In the atmosphere, natural waters, and rare minerals when heated.	A colorless gas scarcely twice as heavy as hydrogen; may be liquefied.	Will not combine with other elements.	Slightly soluble in water, the most difficult of all gases to liquefy.
HYDROGEN Symbol H. At. wt. 1.008. Valence I. Sp. gr. 0.69. Discovered by Cavendish in 1766.	1. Electrolysis of water. 2. Decomposition of water by (*a*) Sodium, $Na + H_2O = NaOH + H$. (*b*) Potassium, $K + H_2O = KOH + H$. 3. Action of sulphuric acid on zinc, $H_2SO_4 + Zn = ZnSO_4 + H_2$.	Colorless, odorless, and tasteless; lightest element known; is combustible; combines with oxygen to form water. Boiling point −252.5°; freezes at −257°.	Water (H_2O), hydrogen peroxid(H_2O_2), illuminating gas, and nearly all the organic compounds. Uses: Oxyhydrogen blowpipe, light, and blast flame. A constituent of all acids.	Burns with a pale flame; does not support life or combustion; lighter than all other gases; distinguished by absence of color and odor.
INDIUM Symbol In. At. wt. 115. Val. I. and III. Sp. gr. 7.1. Discovered by Reich and Richter, 1863.	Occurs in certain zinc ores.	Metallic indium is ductile, silver-white, and lustrous. Its melting point is at 176° C.	With oxygen indium forms two compounds, a monoxid (InO), and a sesquioxid (In_2O_3). Other oxids are said to exist.	Indium is not acted upon by air or boiling water, but burns to its sesquioxid, when heated in air, with a blue-violet flame.
IODIN Symbol I. At. wt. 126.97. Sp. gr. 5. Valence I. or II. Discovered by Courtois, 1811.	Occurs in sea weeds and sea water. From the ashes of sea weeds and from sodium nitrate, commercial iodin is obtained.	A lustrous, grayish-black, soft crystalline solid. Volatilizes into a blue-violet gas, with an irritating odor. Dissolves freely in alcohol, chloroform, and ether.	Forms a class of compounds known as iodids. Used in the arts and in medicine.	Gives a deep blue color to starch paste. Stains the skin yellow.
IRIDIUM Symbol Ir. At. wt. 193. Val. II. or IV. Sp. gr. 22.4. Discovered by Tennant, 1804.	Occurs in alluvial deposits, along with platinum, and is separated from it and other similar metals by chemical processes.	A very hard, white, brittle, lustrous metal, extremely infusible.	Iridium alloys with other platinum metals and gold, copper, and lead. Used in making standard weights, balances, tips of pens, and for coating surgical instruments.	Iridium is insoluble in several mineral acids, and also in aqua regia.
IRON Symbol Fe. (*Ferrum*) At. wt. 55.9. Valence II. or III. Sp. gr. 7.9. Prehistoric.	Alloyed with a small percentage of nickel. It occurs in ores known as brown or red hematite and limonite. When endowed with magnetic properties the ore is known as magnetite. Sulphid of iron or iron pyrites (fool's gold) is iron ore containing sulphur.	Silver-white; crystallizes in the isometric system; fuses at from 1400° to 1500° C. Very tenacious, ductile, magnetic, malleable, and can be tempered. Iron is soluble in acids. Dry air or oxygen does not act upon it, but moisture causes rust, which can be prevented by a coating of paint or varnish, or of such metals as zinc, tin, nickel, copper, or lead.	Pig or cast iron, wrought or puddled iron, and steel; produced by blast furnace, puddling, crucible, Bessemer, and open hearth process. Ferric oxid, as a paint and polishing powder; magnetic oxid, to protect iron in the Bower-Barff process. Ferrous sulphid, for preparing hydrogen sulphid gas; ferrous sulphate, in dyeing, tanning, ink; both ferrous and ferric salts in medicine; ferric hydroxid — a useful antidote for poisoning by arsenious oxid; cast iron, as foundation work; wrought iron, used where it has to undergo strain, and for electro-magnetic purposes.	
KRYPTON Symbol Kr. Monatomic. Sp. gr. 2.2. Discovered by Ramsay and Travers, 1898.	Found in the atmosphere.	A colorless gas that liquefies at −152° C. Chemically inactive.		
LANTHANUM Symbol La. At. wt. 138.9. Valence III. Sp. gr. 6.2. Disc. by Mosander, 1839.	Occurs in such rare minerals as cerite, orthite, monazite, gadolinite.	A white, fairly malleable and ductile metal. Harder than cerium.	Forms one oxid (La_2O_3), and colorless salts, though another is said to exist.	Lanthanum burns brilliantly when heated in air. Easily attacked by cold. Oxidizes rapidly in dry air.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
LEAD Symbol Pb. (*Plumbum*) At. wt. 206.9. Valence II. and IV. Sp. gr. 11.4. Prehistoric.	Found native in small quantities, usually with a little silver or antimony. Extracted from its ores and metallurgical products by roasting and reaction, roasting and reduction, and precipitation. Commercial lead is almost all obtained from galena.	A bluish-gray, lustrous metal, exceedingly malleable and ductile, very soft, and with but little tenacity. It leaves a black streak on white paper, and is an inferior conductor of electricity and heat. Lead is somewhat soluble in water. Pure dry air does not affect it, but air and moisture cause it to become coated with oxid. Resists the action of acids.	Compounds of lead with oxygen are litharge and minium; the former is used in making flint glass, as a glaze for earthenware, in the preparation of lead salts, as a paint, and for drying oils; the latter is used in the arts as a pigment, in the manufacture of flint glass, as a cement for making steam-tight joints, and in making secondary batteries. White lead is used as a pigment, and as a body for colors in making paint. Lead acetate is used in medicine, in the arts, in refining sugar. Lead sulphate is a substitute for white lead. The lead chromates are used in calico printing. Lead is also used in making shot. Lead compounds are all poisonous. There are five different oxids of lead.	
LITHIUM Symbol Li. At. wt. 7.03. Valence I. Sp. gr. .59. Disc. by Arfvedson, 1817.	Occurs in small quantities in rare minerals, also mineral water, and leaves of certain plants, especially of tobacco and beets.	A soft, white metal, the lightest known. Floats upon water.	Oxid, carbonate, citrate, and salicylate are its compounds.	Lithium imparts a red coloration to an otherwise colorless flame.
MAGNESIUM Symbol Mg. At. wt. 24.36. Valence II. Sp. gr. 1.7. Discovered by Liebig and Bussy, 1830.	Widely distributed in nature. Occurs in magnesite, dolomite, epsom salts, and kieserite. Prepared by electrolysis from carnallite.	A very lustrous, light, silver-white, ductile, malleable, moderately hard, rather tough metal.	Magnesia and the several carbonates, citrate of magnesia, magnesium chlorid, asbestos, soapstone, and meerschaum are the chief compounds. Used making flash light powder for use in photography, also in pyrotechny and medicine.	Burns with an intense white light.
MANGANESE Symbol Mn. At. wt. 55. Valence II., IV., VI., VIII. Sp. gr. 7.4. Discovered by Gahn, 1774.	Occurs in ores, chief of which is pyrolusite, mineral waters, and in many plants.	A very hard, grayish-white, brittle metal with a reddish luster. Takes a high polish and is not malleable. Melts at about 1900° C. Rusts in moist air.	Forms several oxids, used in making chlorin, black enamel for pottery, glass, and in the preparation of oxygen; chlorid used in calico printing; pure manganese used in making steel, and as a constituent of alloys.	Changes its character totally with change in valence.
MERCURY Symbol Hg. (*Hydrargyrum*) At. wt. 200. Valence I. or II. Sp. gr. 13.6. 300 B. C.	Occurs free and as cinnabar. Chief mines are in Spain, California, and Austria.	A heavy, silver-gray or nearly white, very lustrous, cohesive, mobile liquid. Freezes at −40°. Dissolves most metals. Performs amalgams.	Red oxid of mercury, mercuric chlorid or corrosive sublimate, one of the best antiseptics known, and mercurous chlorid or calomel, are the chief compounds. Mercury is used in barometers, thermometers, and for extracting gold and silver.	The vapor is colorless, does not conduct electricity, and is monatomic
MOLYBDENUM Symbol Mo. At. wt. 96. Val. II. or VI. Sp. gr. 8.6. Discovered by Hjelm, 1790.	Found chiefly in wulferite and molybdenite, which resembles black lead.	A very hard, silver-white metal, with a melting point above that of platinum.	The chief use of molybdenum is in the manufacture of tool steel. Its alloy with nickel is used for large cranks, guns, rifle barrels, wiring, and boiler plates.	Not a base-forming element.
NEON Symbol Ne. At. wt. 20. Discovered by Ramsay and Travers, 1898.	Present in the atmosphere to the extent of one or two parts per 100,000.	A colorless, gaseous element, chemically inactive.	Disinclined to unite with other elements.	Neon glows red-orange in a vacuum tube, and is marked by strong red and green lines in its spectrum.
NICKEL Symbol Ni. At. wt. 58.7. Val. II. and IV. Sp. gr. 8.8. Disc. by Cronstedt, 1751.	Occurs free in meteorites and in niccolite and nickel glance. It is manufactured chiefly from garnierite. Extracted from the ores by smelting and electrolysis.	A silver-white, lustrous metal that is magnetic, ductile, hard, tenacious, and capable of taking a fine polish. Its melting point is about 1400° C.	Nickel forms nickelous and nickelic oxids and hydroxids: used in making alloys, currency, nickel-plating. The carbonate is used in electroplating.	Rusts very slowly in moist air.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
NITROGEN Symbol N. At. wt. 14.04. Valence III. and V. Sp. gr. of gas 0.97; liquid 0.80. Discovered by Rutherford in 1772.	Four fifths of the atmosphere. Prepared by burning the oxygen out of the air with phosphorus, which forms phosphorus pentoxid (P_2O_5) and dissolves in water; by passing nitrous oxid over heated copper, $N_2O + Cu = CuO + N_2$; by action of chlorin upon ammonia, $3Cl_2 + 8NH_3 = N_2 + 6NH_4Cl$.	Odorless, colorless, tasteless, not combustible nor a supporter of combustion. Animals in an atmosphere of N die for want of oxygen. One of the most inert of the elements, except in the nascent state. Liquefies by pressure at −146°; boils at −194°.	Carbon dioxid (CO_2). Ammonia gas (NH_3). Ammonia liquor (NH_4OH). Nitric acid (HNO_3), and the nitrates. Important in the manufacture of explosives, antipyrine, and dyes.	Differs from O by not supporting life or combustion; from chlorin by its absence of color or odor; from hydrogen by its weight and its incombustibility; from CO_2 by its weight.
OSMIUM Symbol Os. At. wt. 191. Val. II. or VII. Sp. gr. 22.5. Discovered by Tennant, 1804.	Found native alloyed with rhodium, ruthenium, and palladium.	A lustrous, bluish-white, hard, crystalline metal, extremely infusible.	Osmium is used to make the filaments of incandescent electric lamps, as an alloy for machinery bearings, and as tips of gold pens. Osmic acid is used in microscopy.	Its compounds with oxygen form four oxids. When ignited, insoluble in all acids.
OXYGEN Symbol O. At. wt. 16. Valence II. Sp. gr. 1.1504. Discovered by Priestley in 1774.	1. Mercuric oxid (HgO) heated in a tube gives metallic mercury and oxygen. HgO + heat = Hg + O. 2. Potassium chlorate ($KClO_3$) heated in the presence of black oxid of manganese, gives oxygen. $2KClO_3 + MnO_2 = 2KCl + MnO_2 + 3O_2$.	Colorless, tasteless, odorless, soluble in water sparingly. Unites with many substances, forming oxids. Supports combustion. Ozone (O_3) is an allotropic form,—a colorless or bluish unstable gas with a strong odor. Boils at −181.4° C.; freezes at −235° C.	Most abundant element in nature. Found in air, water, and all oxids, etc. Uses: Indispensable to human and animal life, and to the support of flame. Used in medicine, for collapse and heart failure.	A glowing splinter or an ignited sulphur-tipped watch spring will burn in it. Differs from other supporters of combustion in the violence with which bodies burn in it. Does not burn itself. Absence of color and odor distinguishes from some other gases.
PALLADIUM Symbol Pd. At. wt. 106.5. Val. I., II., IV. Sp. gr. 11.4. Disc. by Wollaston, 1803.	Found in grains usually containing platinum and iridium, gold and silver, also gold and lead.	A grayish-white, lustrous metal, fairly malleable and very ductile.	Used for making scales and division marks on scientific instruments, for coating and preserving silvered wire; used in dentistry.	Combined with oxygen, forms four oxids. Noted chiefly for its great tendency to absorb hydrogen.
PHOSPHORUS Symbol P. At. wt. 31. Val. III. and V. Sp. gr. 1.8. Discovered by Brand, 1674.	Found in nature in the form of phosphates. Prepared from bones by distillation. Occurs in allotropic forms as red, yellow, or ordinary, and crystalline phosphorus.	Yellow form, a waxy solid; combustible on exposure to the air; kept under water; is cut with ease; faint odor of garlic. Red form, dull, odorless, tasteless powder.	It forms three hydrids and three oxids. Red phosphorus used for friction matches, in phosphates (for fertilizers), in rat poisons, and for phosphor-bronze.	Distinguished from sodium and potassium by odor, color, combustibility, and behavior in water. Odor is distinctive. Red form burns with slight friction.
PLATINUM Symbol Pt. At. wt. 194.8. Valence II. or IV. Sp. gr. 21.5. Discovered 16th century.	Found in composition with other rare metals in the river deposits in the Ural Mountains.	A very heavy, grayish-white, malleable, ductile, and tenacious metal, melting at 1700-2000° C. Expands almost equally with glass. Does not rust. A fair conductor of electricity and resists the action of many chemical elements.	Compounds of platinum and potassium used in photography; spongy platinum used in self-lighting gas burners, and metal platinum used in manufacture of electric apparatus.	Does not melt in the Bunsen flame. Small chemical activity.
POTASSIUM Symbol K. (*Kalium*) At. wt. 39.15. Valence I. Sp. gr. 0.87. Discovered by Davy, in 1807.	Occurs in many silicates in the mines of Stassfurt, Prussian Saxony. 1. Electrolysis of solution of potassium hydroxid (KOH). 2. Leaching hard-wood ashes.	White, brittle, solid, decomposes water as sodium does. Burns with a lilac color when thrown on water. Melts at 62.5°; boils at 720°.	Has many compounds. Potassium hydroxid (KOH) for washing or as lye, and in soap making. Potassium carbonate and potassium nitrate or saltpeter, potassium chlorite ($KClO_3$), used in medicine.	Burns with a violet or lilac flame in flame test. Potassium salts usually impart violet color to Bunsen flame.
RADIUM Symbol Ra. At. wt. 225. Disc. by M. and Mme. Curie, 1902. Pure radium disc. by Mme. Curie, 1910.	Obtained from pitchblende, carnotite, and a few other rare uranium-containing minerals. A metal of the alkaline earth.	A substance three million times as active as uranium. It maintains its own temperature, 1.5° C., above its surroundings, and emits heat radiations in enormous quantities without combustion, chemical change, or decrease in energy.	Bromid and chlorid are its compounds. Radium salts have been applied to the cure of lupus; and are now being directed to the cure of cancer.	Radium gives a crimson color to flame. A radium salt contained in a celluloid capsule will, if left awhile on the skin, cause a wound hard to heal. Radium emanation is not permanent, and loses half its activity in four days.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics
RHODIUM Symbol Rh. At. wt. 103.0 Val. II. or VIII. Sp. gr. 12.1. Disc. by Wollaston, 1803.	Occurs with other members of the platinum group, and alloyed with gold.	A white, hard, malleable metal, melting at about 2000° C.	It combines with oxygen and forms about four oxids. Its salts form red solutions. An alloy with platinum is used in some forms of pyrometers, and its alloy with steel is also valuable.	Insoluble in all acids, even aqua regia.
RUBIDIUM Symbol Rb. At. wt. 85.5. Valence III. Sp. gr. 1.5. Discovered by Bunsen, 1861.	Found with cæsium in lepidolite and petalite, in water from various springs, in ashes of seaweed and tobacco, in tea, and beet-root. Prepared by electrolysis.	A silver-white, soft metal that melts at 38.5° C., and evolves a bluish vapor at a dull, red heat. The most positive element next to cæsium.	With oxygen rubidium forms a monoxid similar to that of potassium. No oxid has been isolated.	Rubidium oxidizes rapidly in air, and decomposes water. Gives red color when heated in a non-luminous flame.
RUTHENIUM Symbol Ru. At. wt. 101.7. Val II. or VII. Sp. gr. 12.3. Discovered by Claus, 1845.	Occurs in its metallic state in platinum ores and in osmiridium, also as the sulphid in laurite.	A white, lustrous, hard, heavy, brittle metal that melts at about 2000° C; very infusible.	It forms several chlorids and oxids, which, in turn, form various salts, of no importance commercially.	Dissolves slowly in aqua regia, but insoluble in other acids.
SAMARIUM Symbol Sm. At. wt. 150.3. Valence III. Sp. gr. 7.8. Disc. by Boisbaudran, 1879.	A rare element occurring in samarskite and thorite.	The element has not been isolated.	Its compounds are oxid, a very faint yellow powder, and chlorid, topaz-colored deliquescent crystals.	Samarium is characterized by its spark spectrum, and by the absorption spectra of its salt solutions.
SCANDIUM Symbol Sc. At. wt. 44.1. Valence III. Discovered by Nilson, 1879.	A very rare metal occurring in gadolinite and euxenite.	The element has not been isolated.	Forms colorless salts, derived from an oxid.	Spectrum (spark) is characteristic and very complex.
SELENIUM Symbol Se. At. wt. 79.2. Val. II. or VI. Sp. gr. 4.5 (c). Disc. by Berzelius, 1817.	Occurs with copper, lead, silver, sulphids, and several rare minerals, as well as in the lavas of Vesuvius.	It is of a dark brown or gray color by reflected light, but red in thin pieces by transmitted light. Selenium is both odorless and tasteless.	The crystalline variety of the element conducts electricity, upon which property the photophone was based. Its compounds are similar to those of sulphur.	Selenium burns with a reddish-blue flame that has an odor resembling horseradish.
SILICON Symbol Si. At. wt. 28.4. Valence IV. Sp. gr. 2.48. Discovered by Berzelius, 1823.	As silica or oxid of silicon, occurs in nature as quartz, rock crystal, amethyst, flint, agate, jasper, opal, sand, and many other earthy forms.	Exists in two forms: 1. Dark brown powder, melting with difficulty, known chiefly through its compounds. 2. Very lustrous, gray, metal-like leaflets.	A compound containing silicon and sodium is known as soluble or water glass. Used as a coating for stone, making artificial stone, glass, soap, fireproofing, and for preserving eggs.	1. Burns when heated in air; insoluble in water. 2. Does not change when heated.
SILVER Symbol Ag. (*Argentum*) At. wt. 107.93. Valence I. Sp. gr. 10.5. Prehistoric.	Occurs as argentite, stephanite, ruby silver ore and silver chlorid, or horn silver. Also mixed with lead or copper ore.	A pure white metal with brilliant luster. Harder than gold. Very malleable and ductile. Best conductor of heat and electricity.	Silver nitrate, used in medicine, photography, electroplating, and silvering mirrors. Alloyed with copper to make it harder. Used for coins and ornaments.	By blowpipe analysis, reduction, and extraction of the metal.
SODIUM Symbol Na. (*Natrium*) At. wt. 23.05. Valence I. Sp. gr. 0.98. Discovered by Davy, 1807.	Electrolysis of solution of moist sodium hydroxid (NaOH); by reducing sodium carbonate with coal and chalk; by reducing sodium hydroxid with an iron carbid,—Castner process. Sodium chlorid forms two thirds of solid matter in sea water and the great salt deposits.	Light, malleable, ductile, silver-gray, lustrous, soft metal; decomposes water by setting free one atom of H, and forming sodium hydroxid (NaOH), with the hydroxyl radical. Melts at 96.6°; boils at 742°.	Sodium hydroxid, washing soda, or soda lye, used in soap making. Sodium chlorid, or common salt (NaCl); sodium carbonate and bicarbonate (baking soda); sodium nitrate (Chile saltpeter); borax, soluble glass, and hyposulphite of soda used in photography.	Burns with yellowish flame in flame test. All sodium salts color Bunsen flame yellow.
STRONTIUM Symbol Sr. At. wt. 87.6. Valence II. Sp. gr. 2.5. Discovered by Davy, 1808.	Found in celestine, strontianite, and other minerals, also in mineral and sea waters and ashes of certain plants.	A yellow metal, which melts at a moderate red heat, malleable and ductile, and is less electropositive than calcium and the alkali metals.	Strontium combines with oxygen to form a monoxid and a dioxid. Used to separate sugar from beet-root molasses and in pyrotechny.	Strontium oxidizes quickly in air, and burns brilliantly when heated. It acts on water, setting hydrogen free. Its salts color Bunsen flame red.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics
SULPHUR Symbol S. At. wt. 32.06. Valence II., IV. or VI. Sp. gr. 2.043. Prehistoric.	Occurs native near volcanoes, and mixed with ores as sulphids. Takes on several forms according to temperature: rhombic, prismatic, and amorphous. Sicily yields 500,000 tons of sulphur a year.	Brittle, yellow, lustrous, hard. Unites readily with oxygen, and directly with copper, zinc, and iron to form sulphids. Melts at 114°, boils at 444°.	Sulphur in matches, gunpowder, and vulcanizing. Hydrogen sulphid (H_2S), a gas used in laboratory testing of minerals and metals. Sulphur dioxid (SO_2), disinfectant, bleaching, and making sulphuric acid, which is of wide industrial use.	Burns with bluish, pale, lambent flame; giving off suffocating odor. Its gas does not burn or support combustion.
TANTALUM Symbol Ta. At. wt. 183. Valence V. Sp. gr. 16.8. Discovered by Ekeberg, 1802.	Occurs associated with columbates in columbite, tantalite, and yttrotantalite. Its separation is by a long complicated chemical method.	A rare metal resembling platinum, when pure, malleable and very ductile; when impure it is a black powder that assumes an iron-gray metallic luster under a burnisher.	Tantalum drawn into wire is used in incandescent electric lamps. Chief compounds are its acidic oxid, and its compound with potassium and fluorin.	Its salts are called tantalates. When heated in air, begins to oxidize, turning yellow.
TELLURIUM Symbol Te. At. wt. 127.6. Val. II. or VI. Sp. gr. 6.2. Disc. by Reichenstein, 1782.	Occurs free, and as graphic tellurium, as nagyagite, as silver tellurid, and as bismuth tellurid, also in gold and copper ores.	A white, shining, crystalline, brittle solid, which melts at about 452° C., resembles selenium. It is a black powder when formed by precipitation.	Tellurium combines with oxygen to form three oxids, two of which unite with water to form acids, which in turn yield a series of salts.	Burns to the dioxid with a blue flame, when heated in air.
TERBIUM Symbol Tb. At. wt. 160. Valence III. Discovered by Mosander, 1843.	Still doubtful whether terbium is a single substance or a mixture.	The metal has not been isolated but belongs to the rare earths.	Its oxid is a dark orange powder.	
THALLIUM Symbol Tl. At. wt. 204.1. Val. I. or III. Sp. gr. 11.9. Discovered by Crookes, 1861.	Occurs with copper and silver, in crookesite, in pyrites, in the seleniferous deposits from sulphuric acid, in other minerals, and in mineral waters. Prepared from flue-dust of works in which sulphuric acid is made.	A soft, crystalline, lead-like metal, melting at 290° C; a poor conductor of electricity.	It combines with oxygen to form a monoxid and trioxid, which yield a series of salts known as the thallous and thallic compounds. Its compounds are very poisonous, in effect resembling lead poisoning.	Thallium tarnishes rapidly when exposed to the air, becoming coated with oxid, which preserves the rest of the metal. Thallium may be detected by the green line in its flame spectrum.
THORIUM Symbol Th. At. wt. 232.5. Valence IV. Sp. gr. 11.2. Disc. by Berzelius, 1828.	Occurs in monazite, orangeite, thorite, and other rare minerals. Radiothorium—a radioactive substance, a product of thorium.	A grayish-white powder which assumes an iron-gray luster when burnished; somewhat brittle, infusible, insoluble in water.	It forms two oxids, dioxid or thoria, and probably a peroxid or heptoxid. Thoria is used in the manufacture of the Welshbach gas mantles.	Thorium takes fire when heated in air, burning with a bright flame
TIN Symbol Sn. (*Stannum*) At. wt, 119.0. Valence II. or IV. Sp. gr 7.3. Prehistoric.	Found in nature chiefly as the mineral cassiterite or "tinstone" (SnO_2). Ore is washed, roasted, and smelted. The reduced metallic tin is tapped off and melted from impurities.	A silver-white, malleable, ductile metal, of low tenacity, and highly crystalline. Melts at 232° C., boils at 1500° C. Poor conductor of electricity. Takes a high polish. Tin is little acted on by air. Heated in air, it rapidly oxidizes, forming tin dioxid, used for polishing.	Used to coat other metals to prevent rusting or corroding, as a lining for copper vessels and lead pipes to prevent these poisonous metals from contaminating food and water. Tin dioxid forms stannates with basic oxids, sodium stannate being used in calico printing. Stannous chlorid is used as a mordant. Tin is used in the manufacture of tin plate, tin foil, alloys, bell metal, bronze, gun metal, pewter, type metal, etc. Stannic sulphid, known as "mosaic gold," was formerly used for gilding, imitating bronze, etc.	
TITANIUM Symbol Ti. At. wt. 48.1. Val. IV. Sp. gr. 3.5. Discovered by Gregor, 1789.	Occurs in anastase, brookite, and rutile, in titanite of iron, and in other minerals.	A dark gray amorphous powder resembling reduced iron. It is distinguished from almost all other metals for its capacity of uniting with nitrogen at a high temperature.	Titanium gives hardness and toughness to steel and a fine luster to silver, and also increases the brilliancy of arc lamps. Its compounds with oxygen are dioxid, trioxid, and sesquioxid. Titanates are formed from the dioxid.	Burns with an intense light when heated to redness in the air. Decomposes boiling water, and is soluble in dilute acids.
TUNGSTEN (*Wolframian*) Symbol W At. wt. 184.0. Val. VI. Sp. gr. 19.3. Disc. by d'Elhujar, 1783.	Occurs in wolfram or tungstate of iron, and in scheelite or calcium tungstate.	A bright, steel-gray, hard, brittle, crystalline substance, difficult of fusibility; high unknown melting point.	Sodium tungstate, one of its compounds, is used for fireproofing textiles, as a mordant, and as a bronze pigment. Tungsten is used as an alloy with steel and nickel.	Oxidized in air only at red heat; slowly attacked by water containing carbonic acid.

Name of Element.	Mode of Preparation.	Properties.	Chief Compounds and Uses.	Tests and Characteristics.
URANIUM Symbol U. At. wt. 238.5. Val. IV. Sp. gr. 18.7. Disc. by Klaproth, 1789.	Found as an oxid in uraninite or pitchblende, and also occurs in uranocher.	A hard, silvery-white, somewhat malleable metal which melts near white heat, or a grayish-black powder. It has the highest atomic weight of all the elements.	It produces uranic salts. Uranic oxid also acts as an acid, forming uranates of the alkali metals. The compounds are used in china painting, and as photographic reagents.	Easily oxidized in air on heating; decomposes water slowly.
VANADIUM Symbol V. At. wt. 51.2. Valence V. Sp. gr. 5.9. Disc. by Berzelius, 1831.	Found in mottramite, vanadinite, roscoelite, and other minerals, in the form of vanadates.	A light gray, crystalline, lustrous powder, very infusible; not magnetic.	Forms an alloy with platinum, produces five oxids, besides several chlorids. Used to harden steel, in dyeing, and in making ink.	Powder burns in Bunsen flame; does not oxidize in air at ordinary temperature.
XENON Symbol Xe. At. wt. 128. Sp. gr. 3.5. Discovered by Ramsay and Travers, 1898.	A gas found in the atmosphere, in quantities of one part in 20,000.000 parts of air. Its boiling point is —109.18 C., and its melting point, —140° C.	The heaviest and rarest of the elementary gases of the argon family. It is colorless.	It has no reactions and is monatomic.	Xenon when sparked in a vacuum tube is marked by a characteristic blue glow, which changes to green on the introduction of a Leyden jar, and shows distinctive spectrum lines.
YTTERBIUM Symbol Yb. At. wt. 173.0. Valence III. Discovered by Marignac, 1878.	A very rare metal occurring in gadolinite, euxenite and samarskite.	It has not been isolated from other elements.	It forms with oxygen (Yb_2O_3), and a sulphate, ($Yb_2(SO_4)_3 \cdot 8H_2O$).	
YTTRIUM Symbol Yt. At. wt. 89.0. Valence III. Sp. gr. 3.8. Discovered by Wöhler. 1828.	Found with other cerium metals as a silicate, in gadolinite and allanite, and as a fluorid in yttocerite.	A dark gray powder that assumes the luster and color of metallic iron when burnished.	It forms a sesquioxid, which is a yellowish-white powder. It is said to be used in the Nernst incandescent electric lamp.	The oxid glows strongly when heated. The metal has a characteristic spark spectrum.
ZINC Symbol Zn. At. wt. 65.4. Valence II. Sp. gr. 7.1. Discovered by Paracelsus, 1520.	Occurs in ores; sphalerite, smithsonite or calamine, willemite, zincite, and franklinite. Principally obtained from zinc oxid.	A bluish-white crystalline, brittle, lustrous metal.	In sheets used for roofing, mixed with copper to form brass, for coating or galvanizing; zinc sulphate, or white vitriol, in medicine; zinc chlorid, an antiseptic, a caustic, and an irritant poison.	When strongly heated in air it burns with a bluish-white flame, giving zinc oxide.
ZIRCONIUM Symbol Zr. At. wt. 90.6. Valence IV. Sp. gr. 4.2. Discovered by Berzelius, 1825.	Occurs in combination with silica in the mineral zircon, and also in certain rarer minerals, including eudialyte, fergusonite, and polymignite.	A black amorphous powder which has also been obtained as a lustrous, gray, brittle, crystallized solid. Its melting point is above 1300° C.	The dioxid, a white, tasteless powder, has been used instead of lime in the oxyhydrogen flame, and with other rare earths for the mantle of the Welsbach burners. The oxid also yields zirconates. The pure crystals are used in jewelry.	Only oxidized at a very high temperature.

Note. The following list contains some non-metals and rare metals, with the properties, compounds, etc., which have thus far been discovered:—

Didymium. Symbol **Di.** Said to be a compound of the two elements, *neodymium* and *praseodymium*; it is a yellowish-white, malleable, ductile metal; it oxidizes in air; burns when finely divided, producing much light. At. wt. 142 (?); sp. gr. 6.5; several oxids are said to exist. It was discovered in 1842 by Mosander, in mineral cerite.

Dysprosium. Symbol **Dy**; at. wt. 162.5. An element of the rare earth group.

Europium. Symbol **Eu**; at. wt. 152. A metallic element of the rare earth group, discovered spectroscopically by Demarçay in 1896.

Lutecium. Symbol **Lu**; at. wt. 174. A metallic element separated from ytterbium in 1907, by Urbain, in Paris, and by Welsbach in Vienna.

Neodymium. Symbol **Nd**; at. wt. 143.6; valence III.; sp. gr. 7. One of the metallic elements of *didymium*, discovered by Welsbach in 1885; so called from the pink salts to which it gives rise in the solution.

Niton. Discovered by Sir William Ramsay and Dr. Gray (1910). It is the "emanation of radium," an inert gas like argon, a constituent of the atmosphere.

Polonium. This element is so named by its discoverer, Mme. Curie, from her native country, Poland. It was the first of the radio-active substances antedating radium, and was discovered by her in an impure form in 1898. February 15, 1910, her success in producing "a new element possessing radio-activity superior to radium" was announced. Unlike radium, which conserves its energy for an indefinite period, polonium loses its radio-activity rapidly. A tenth of a milligram produced, lost half in 140 days, the time used in the experiment.

Praseodymium. Symbol **Pr**; at. wt. 140.5; valence III. or IV.; sp. gr. 6.5. One of the two components of *didymium*; so called from the green color of its salts; discovered by Welsbach in 1885.

Thulium. Symbol **Tm**; at. wt. 171; valence III.; found in gadolinite; resembles ytterbium; discovered by Cleve in 1879.

Victorium. A probable chemical element discovered by Sir William Crookes in 1901, by fractionization of yttrium salts. Atomic weight about 117. Named in honor of Queen Victoria.

GEOLOGY.

Origin of the Earth.—It is to the astronomer that the geologist must look for the proofs of the origin of the earth. Among the exploded hypotheses that held their ground for long periods in old times the more important are the Ptolemaic and the Copernican systems.

The Ptolemaic System. Ptolemy of Alexandria (130-150) was the founder of a theory called the Ptolemaic system, based largely upon the materials gathered by such earlier astronomers as Hipparchus and Eratosthenes, who computed the size of the earth by means even now considered the best—the measurement of an arc of the meridian. The advocates of the Ptolemaic theory assumed that every planet revolves in a circle, and that the earth is the fixed center around which the sun and the heavenly bodies move. They conceived that a bar, or something equivalent, is connected at one end with the earth; that at some part of this bar the sun is attached; while between that and the earth, Venus is fastened, not to the bar directly, but to a sort of crank; and farther on, Mercury is joined on in the same way. They did not fully understand the nature of these bars—whether they were real or only imaginary—but they did comprehend their action, as they thought; and so they supposed the bar revolved, carrying the sun and planets along in a large circle about the earth; while all the short cranks kept flying around, thus sweeping each planet through a smaller circle. The movements of the planets were to the ancients extremely complex. Venus, for instance, was sometimes seen as "evening star" in the west; and then again as "morning star" in the east. Sometimes she seemed to be moving in the same direction as the sun, then, going apparently behind the sun, she appeared to pass on again in a course directly opposite. At one time she would recede from the sun more and more slowly and coyly, until she would appear to be entirely stationary; then she would retrace her steps, and seem to meet the sun. All these facts were attempted to be accounted for by an incongruous system of "cycles and epicycles." The system of Ptolemy passed current for 1400 years, and during this time astrology was ranked as one of the most important branches of knowledge. Star diviners were held in the greatest estimation, and the issue of any important undertaking, or the fortune of an individual, was foretold by means of horoscopes representing the position of the stars and planets. The system of the astrologers was very complicated, and contained regular rules to guide the interpretation, so intricate that years of study were required for their mastery. Venus foretold love; Mars, war; the Pleiades, storms at sea. Not only the ignorant were the dupes of this system, but the learned also accepted it,—Lord Bacon believing in it most firmly.

The Copernican System. This system represented the sun to be at rest in the center of the universe, and the earth and planets to move round it as a center. It got its name from Copernicus (1473-1543), who (although some vague general notion of the system seems to be due to Pythagoras) first distinctly drew the attention of philosophers to it, and devoted his life to its demonstration. For the rest, the glory of development on the lines he broadly laid down belongs to Kepler, Galileo, and others, particularly to Newton, who finally marked out the form of modern theoretical astronomy. The discoveries by Copernicus mark one of the greatest steps ever taken in science.

Modern Hypotheses. — Astronomers agree that the earth was in some way evolved from a nebula in some form.

Nebular Hypothesis. The Nebular Hypothesis assumes that the solar system was once an enormous mass of gaseous substance. Rapid rotation arising in this gaseous mass, it took the form of a disc, and at last inertia (popularly but erroneously called centrifugal force), overcoming cohesion, whole rings and fragments flew off from this disc, and by gravitation contracted into spheroid masses. As, in the original mass, the velocity of the outer circle of each body thrown off is greater than the inner circle, this causes each spheroid to revolve on its own axis. This process goes on, and the central mass continues to cool and shrink until we have at last a central body with a number of smaller spheroidal bodies revolving around it in orbits; the smaller, the nearer they are to the central orb. Certain points are assumed in this hypothesis to explain the distribution of matter in our solar system. It is assumed that in throwing off great masses from the central disc, immense quantities of minute particles were also thrown, which continue to revolve, in the same plane with the large mass around the central body. By slow degrees these minute atoms, by the law of gravitation, were aggregated into the mass nearest to them. These subordinate aggregations would form with most difficulty nearest the large central mass, because of the superior attractive force of the latter, wherefore the interior planets—Mercury, Venus, the Earth, and Mars—are smaller than the two great orbs in the zone beyond them. These two enormous planets, Jupiter and Saturn, occupy the space where conditions are most favorable to subordinate aggregations; but beyond them the gravity of aggregating material becomes reduced, and so the planets found in the outer zone, Uranus and Neptune, are smaller than the planets of the middle zone. This hypothesis was first suggested by Sir William Herschel, and was adopted and developed by Laplace. It has been called the Laplacian or gaseous nebular hypothesis.

Meteoric Hypothesis. This is a modification of the Laplacian hypothesis and was worked out by G. H. Darwin. It supposes that the parent nebular matter was a swarm of meteors which acted as a coarse gas and coalesced under the dynamic laws of gases.

Planetesimal Hypothesis. This supposes the aggregation of infinitesimal planetoids by a process of accretion. The parent nebula was of the common spiral type in a finely divided solid or liquid state. The knots of the nebulæ were the nuclei of planets resulting from the accretion of the nebulous haze. The orbits were elliptical and crossed one another in the shifting of the ever-varying mass. At each crossing the process of accretion went on; the growth was exceedingly slow; and as the mass increased in density

and size, the internal temperature rose higher and higher. This hypothesis has been greatly advanced and elaborated through the efforts and contributions of Prof. T. C. Chamberlin and Dr. F. R. Moulton. It differs widely from the gaseous, molten-mass theories of the Laplacian and meteoritic hypotheses, overcomes many of the objections to both of these, and is rapidly assuming the form of a tenable, satisfying explanation of the origin of the earth.

GEOLOGIC DIVISIONS:-

Cenozoic,		Present. Pleistocene. Pliocene. Miocene. Oligocene. Eocene.
Mesozoic,		Upper Cretaceous. Lower Cretaceous (Comanche or Shastan). Jurassic. Triassic.
Paleozoic,		Permian. Coal Measures or Pennsylvanian. Subcarboniferous or Mississippian. Devonian. Silurian. Ordovician. Cambrian.
	Great Interval.	
Proterozoic,		Keweenawan. Interval. Animikean or Penokean or Upper Huronian. Interval. Huronian.
	Great Interval.	
Archeozoic,	ARCHEAN COMPLEX	Great Granitoid Series including Laurentian. Great Schist Series or Mona, Kitchi, Lower Keewatin, Coutchiching, or Lower Huronian.

Archeozoic Era.—The Archeozoic era is the age when the oldest accessible rock formation was made. The name Archeozoic (oldest life) implies that the oldest accessible rocks were made at a period when life in some form existed in the world. There is some reasonable doubt whether there may not be some rocks now accessible whose formation antedated the existence of life. To meet this doubt the term Archean Complex is used to cover the terms Azoic and Eozoic used in the older geological nomenclature. The Archean rocks include those igneous and meta-igneous rocks which antedate the oldest sedimentary formation. Archean rocks are the result of great volcanic activity; and are classed as a great schist series and a great granitoid series. To the former belong the formation of the Lake Superior region; to the latter, the granites and gneisses known as the Laurentian —a name derived from the St. Lawrence River in Canada, where the formation is abundant and where the largest surface area of Archean rocks in America lies. The peninsula of Labrador, thence to the Great Lakes, thence east of the valley of the Mackenzie to the Arctic Ocean is largely occupied by Archean rocks. In the United States they occur in a broken series of tracts from Maine to Alabama, along the western side from New Mexico to Alaska, and tracts in Michigan, Wisconsin, Minnesota, and in the Adirondack region of New York. No fossils have been found in Archean rocks, though there are strong indications that life in some form was present. The only statement that can be made regarding the duration of the Archeozoic era is that it was very long indeed; perhaps it exceeds that of all subsequent time.

Proterozoic Era.—This term corresponds to the term Algonkian used in other systems. The period includes the time which elapsed from the time of the formation of Archean rocks and those of the Paleozoic era when life was very abundant. The fossil remains and evidences of life in the rocks of this era are very meager; yet it is very significant that the oldest well-defined fossil of the era is a crustacean, which occupies a high place in animal development. Characteristic traits of rocks of this era are weathering of rocks and sedimentation,—both marks of long exposure to atmospheric and water agencies and erosion. Proterozoic rocks are classified according to age into three groups: (1) The Huronian, from the region north of Lake Huron, where the formation was first clearly distinguished; (2) the Animikean or Penokean, named from the occurrence of the formation in localities in Minnesota and Wisconsin respectively; and (3) Keweenawan, from the Keweenaw peninsula in northern Michigan on the shore of Lake Superior. Each of these formations is thousands of feet in thickness, and consists of such sedimentary rocks as conglomerates, shales, limestones, sandstones, and quartzites. In addition to the localities mentioned, there are a few scattered areas in the United States in which Proterozoic rocks are found. They are rather more abundant in Canada. It is among the Archean and Proterozoic rocks in the region of Lake Superior that the enormous deposits of iron ore are found,—more than are to be found in any other region of equal area anywhere in the world. The fact that Proterozoic sedimentary rocks are known to be 30,000 feet thick and that these are separated by periods of unconformity make it extremely probable that duration of the Proterozoic era, while this vast deposit of nearly six miles in thickness was being laid down by the waters which carried it, must be reckoned by millions, if not tens of millions, of years.

Paleozoic Era.—This first era of abundant life is divided into periods as follows: (1) The Cambrian, (2) the Ordovician, (3) the Silurian, (4) the Devonian, (5) the Subcarboniferous or Mississippian, (6) the Coal Measures or Pennsylvanian, and (7) the Permian.

1. *The Cambrian Period.*—The Cambrian period is divided into Lower or Georgian (Vt.); Middle or Acadian; and Upper or Potsdam (N. Y.), Saratogan or St. Croix. Lower and Middle Cambrian rocks occur on this continent in two general regions, one in the east and one in the west. The first extends from Labrador, Newfoundland, New Brunswick, Nova Scotia, through New England, the Hudson-Champlain valley, across the Appalachian mountains to Alabama (but not near the Atlantic coast). The western area extends northward from the Great Basin region to the Arctic. The presence of marine fossils within the areas mentioned shows that they were covered by the sea in Cambrian times. The Upper Cambrian, Potsdam, Saratogan, or St. Croix epoch saw the Appalachian and the Cordillera regions still under water and also

a large part of the interior of the continent now submerged. The Upper Cambrian formations are believed to lie over nearly the whole of that part of the United States between the Appalachian and the Rocky Mountains. The fossils found in Cambrian rocks are chiefly species of trilobites among which the genera *Olenellus, Paradoxides, Olenoides,* and *Diplocephalus* are notable examples. Cambrian rocks are shale, as near Quebec (5,000 to 6,000 feet thick); shale on limestone, as between the Adirondacks and the Green Mountains; from 10,000 to 12,000 feet of slate (shale) and sandstone on limestone, as in Washington County, N. Y.; shale or slate and sandstone or quartzite, as in Tennessee and North Carolina; and shale, sandstone, and limestone 10,000 feet thick, as in Georgia and Alabama. Estimates of the duration of the Cambrian period range from 1,000,000 to 3,000,000 years.

The Ordovician or Lower Silurian Period. This period is subdivided into Lower Ordovician or Canadian, Middle Ordovician or Mohawkian, and Upper Ordovician or Cincinnatian. There is such difference in both the thickness of Ordovician sedimentary rocks and in the nature of the rocks themselves that it is difficult to give in general terms any fitting description of the geological movements and transformations which will apply to the continent as a whole. Sections descriptive of the country vary so that many terms of only local application must be used. Limestones, dolomites, shales, and slates predominate; the marbles of the Taconic Mountains; the oil and gas wells of Ohio and eastern Indiana have their sources in this formation; the lead and zinc ores of Wisconsin, Iowa, Illinois, and Missouri are found in its rocks; and the phosphatic Ordovician limestones of Tennessee yield fertilizing phosphates. Life during the period continued in an unbroken series from the Cambrian. With the geographical changes in the contour of the continent there came an addition to the life, most noticeably in the appearance of vertebrates in the form of fish-like fossils found near Cañon City and elsewhere in Colorado. It was during the Ordovician period that the trilobites, so abundant in the Cambrian period, reached the highest point in number of genera—77 genera of Ordovician trilobites being known as against 53 Cambrian and only 31 Silurian. Fossil remains include also the cephalopods, the largest form of Ordovician life; gasteropods; pelecypods or lamellibranchs; brachiopods, the most common fossil of the period; bryozoans; echinoderms; cœlenterates or corals; sponges; annelids, and protozoans.

Silurian or Upper Silurian Period. Among the great continental changes it is supposed that during the last stages of the Ordovician period and the earlier part of the Silurian period large areas of the continent of North America slowly emerged from the great sea which had for so long covered so much of it. Mountains slowly and very gradually emerged, and there was more land surface than there had been at any previous period since the early Cambrian days. The oldest rocks of the Silurian system are the Oneida. These rocks are chiefly sandstone and conglomerate, containing many quartz pebbles. The Oneida also forms the crest of the Kittatinny range in New York, Pennsylvania, and New Jersey. The Medina formation of sandstone and shale lies above the Oneida. The third oldest Silurian formation is the Clinton, which extends farther west to Lake Huron and Indiana, and south into Alabama and Georgia. Clinton rocks are mainly sandstone and shale containing iron ore; in New York, Alabama, and Wisconsin. The earlier periods containing large deposits of iron ore are the Archeozoic, Huronian, and Animikean. The Niagara formation covers a great deal of New York, Ontario, Ohio, the southern peninsula of Michigan, parts of Indiana, Illinois, Wisconsin, and Iowa. The Niagaran rocks are shale, limestone, and some well-defined coral reefs. The Salina group contains deposits of limestone, shale, and rock salt, and, sometimes, gypsum. Beds of rock salt occur in New York, sometimes from 40 to 80 feet thick; four salt beds mixed with shale are known near Cleveland. In the Silurian period echinoderms, including blastoids, crinoids, cystoids, starfishes; brachiopods; cephalopods; bryozoans; corals; few trilobites (only 31 genera, of which 11 were new); sponges; and a few fishes, the only representatives of the vertebrates. The largest animals were the crustaceans, the great *Eurypterus* (one and one half feet long) and the *Pterygotus* (which in the next period, the Devonian, attained a length of six feet). The earliest known scorpions occur in Silurian rocks.

Devonian Period. Lower Devonian includes the Helderbergian and Oriskanian series. Helderbergian rocks are found in Maine, Gaspé, New Brunswick, and Nova Scotia; in the Appalachian belt; and in the lower Mississippi basin. The rocks are largely limestone, and run from 300 to 600 feet thick in New York and Pennsylvania, and in Gaspé there is a bed of limestone 2,000 feet thick, partly Helderbergian. The Oriskany formation is found in the Appalachian district, in the Mississippi basin, and in the St. Lawrence basin. Cumberland, Maryland, is the center of the Oriskany belt. Middle Devonian includes the Onondaga limestones in New York and east of the Mississippi, and the Hamiltonian or Erian series in the same areas and southward consisting largely of shales and limestones. The Upper Devonian consists of the Tully, Genesee, Portage, or Senecan formations of limestones, Genesee shales, and limestones; the Chemung and Catskill formations of the Chautauqua series, conglomerates, red shales, and sandstones. The Devonian rocks yield oil and gas in western Pennsylvania, southwestern New York, West Virginia, and Ontario (Canada); black phosphates of Tennessee. In the Devonian period there was a marked increase in the mollusks, both in number and development; in the Onondaga period true marine fish are found in great beds and masses near Columbus, Ohio, and at North Vernon, Indiana; corals were profuse; cephalopods developed notably. Sharks 20 feet in length occur in Hamilton or Erian rocks. Brachiopods reached the period of highest development in the Devonian period,—about 103 genera being known. Plant life is represented by marine plants (algæ); land plants included ferns, tree-ferns, equisetales (horsetails), and calamites, and other gymnosperms. Wings and other fragments of insects, undoubtedly Devonian, have been found at St. John, New Brunswick (Canada), which resemble neuropters, one

having a wing spread of perhaps five inches. From the same locality are reported terrestrial mollusks, myriapods, arachnoids, and a scorpion.

The Subcarboniferous, Lower Carboniferous, or Mississippian Period. In earlier classifications, the entire period from the close of the Devonian to the end of the Paleozoic era was called the Carboniferous period; but it has been thought well to subdivide it more closely. A great continental submergence followed the Devonian period. Beds of Mississippian rocks are thickest in the Appalachian Mountains; in Pennsylvania there is 1,400 feet of Pocono sandstone with 3,000 feet of Mauch Chunk shale upon it; in Maryland the deposit is 1,300 feet thick; in West Virginia, over 2,000 feet thick; in Oklahoma, 1,800 feet; in the Black Hills, about 400 feet; in Colorado, about 500 feet; near the Grand Cañon of the Colorado in Arizona, 1,800 feet. The crinoids reached their highest development in the Mississippian period, 63 genera being known; spirifers, pelecypods, brachiopods, and gasteropods (some air-breathers) were known; cephalopods and trilobites were rare; 400 species of fish are known from America, chiefly sharks. The plants of the Devonian period persisted. The footprints of a supposed land animal or amphibian, the *Paleosauropus primaevus*, found in the Mauch Chunk shale near Pottstown, Pa., show six double imprints with the track of the hind foot partly overlapping that of the fore foot. The stride is 13 inches and the width of the track between outer toes is eight inches. Marks of a trailing tail are also seen. No fossil remains of insects have been found.

Carboniferous, Coal Measures, or Pennsylvanian Period. This system is divided into the Pottsville conglomerate or millstone grit and the coal measures, which consists of beds of shale, sandstone, conglomerate, limestone, coal, and iron ore in a succession of alternating series. The productive areas of coal deposits in North America are (1) the anthracite field of eastern Pennsylvania, 484 square miles; (2) the Appalachian field running from northern Pennsylvania to Alabama, 850 miles long and covering 70,800 square miles; (3) the Northern Interior field in the southern peninsula of Michigan, covering 11,000 square miles; (4) the Eastern Interior field in Indiana, Illinois, and Kentucky, covering 58,000 square miles; (5) the Western Interior and Southwestern fields, from northern Iowa to central Texas, 800 miles in length and covering 94,000 square miles, taking in parts of Iowa, Nebraska, Missouri, Kansas, Arkansas, Oklahoma and Texas; and (6) the New Brunswick-Nova Scotian field on both sides of the Bay of Fundy, covering 18,000 square miles. The Coal Measures present most interesting studies in plant and amphibian life. These are the first marked examples of land life, the forerunners of the land vertebrates. There are more specimens of terrestrial plant and animal life to be found in the Coal Measures than in preceding or succeeding periods, not, perhaps, because more plants and animals lived but by reason of the remarkable preservation of so many fossil remains in the coal beds. The pteridophytes were highest in the scale; gymnosperms ranked second; angiosperms had not yet appeared; and there are some traces of bacteria. Among the pteridophytes were the true ferns, fern-like gymnosperms, calamarians, and other horsetails, giant lycopods, all in great profusion. Land animals included amphibians, insects, spiders, scorpions, and myriapods. Fresh water and salt water life was abundant, and embraced all of the representatives of preceding periods; the crinoids and the trilobites were fast disappearing.

The Permian Period. This is the last of the Paleozoic Era, and is by many regarded only as a continuation of the Carboniferous. During this time large parts of the central and eastern portions of the United States emerged from the epicontinental sea, which now contracted into lakes and inland seas connecting with the ocean in part. It was during this period that the so-called "Upper Barren Coal Measures" of Pennsylvania, West Virginia, Ohio, and Maryland were laid down by the process of sedimentation. The Permian strata are perhaps best seen in Texas, Kansas, and Nebraska, which at this time were under comparatively shallow water. In the first of these localities depths of from 4,000 to 7,000 feet of sedimentary Permian rocks are not uncommon. By the time of the close of the Paleozoic Era, the Appalachian Mountain system had developed; the Ouachita Mountains were defined; and the submerged part of the continent had greatly decreased in area. From these changes in the geographical aspect of the country, it is only consistent to infer corresponding changes in climate, water circulation, and in the distribution of plants and animals. The amphibians were a prominent feature of the Permian period, as they were in the Carboniferous; the primitive reptiles made their appearance, or greatly increased, in the closing ages of the Paleozoic era. The Permian fish, both fresh water and marine, were both abundant and highly developed.

Mesozoic Era. This era is divided into (1) the Triassic period, (2) the Jurassic period, (3) the Comanchean or Lower Cretaceous period, and (4) the Upper Cretaceous period.

The Triassic Period. Triassic strata are known in the Atlantic slope east of the Appalachians, in the western interior, and on the Pacific coast. On the Atlantic slope the Triassic patches extend from Nova Scotia to South Carolina, and are grouped under the name of Newark, from Newark, N. J. Here the Triassic rocks are conglomerates, breccias, sandstones, shales, and some limestones. The Triassic beds vary from 3,000 to 15,000 feet in thickness. In the western interior, Triassic deposits are found in Texas, the Black Hills of South Dakota, and interruptedly from New Mexico to British Columbia along the eastern slope of the Rockies, for the most part unsatisfactorily distinguished from the Permian rocks. The beds run from 100 to 2,500 feet in thickness. On the Pacific slope the Triassic system has its greatest development in America. In the West Humboldt range of Nevada the beds are 17,000 feet thick. In the summits of the Sierras in northern California and up the coast to Queen Charlotte Islands the deposits are notable. This great development of Triassic rocks in the West is due to the fact that the Pacific Ocean borders were far inland over what is now the Pacific coast. The most remarkable feature of plant life in the Triassic

period was the predominance of the gymnosperms, which took the place which the pteridophytes held in the Carbonaceous period. Conifers and cycads were foremost. Among land animals many of the Permian period persisted, but the higher forms of reptiles appeared in the Triassic. The dinosaurs, the chelonians or turtles, the plesiosaurus, the crocodiles, and ichthyosaurs were prominent on land. In sea life the ammonites held first place, followed by the pelecypods and gasteropods among the invertebrates.

Jurassic Period. It is extremely doubtful whether any Jurassic rocks are to be found on the eastern coastal plain. Marine Jurassic beds of limestone were recently discovered in Texas; and some are known in eastern Mexico. But it is along the line of the Rocky Mountains and on the Pacific coast that the large Jurassic deposits are found. The system, however, does not exceed 2,000 feet in depth in California; but in western Nevada it is sometimes from 5,000 to 6,000 feet in depth, made up of slates or limestone. Marine life predominated; the ammonites still lead among invertebrates; sea urchins were rapidly and markedly developed; crabs and modern types of crustaceans appeared; sponges and foraminifera were abundant; and the great sea reptiles, such as the ichthyosaurs, plesiosaurs, and sea crocodiles, reached their highest development in this period, and present a most remarkable and wonderful fauna. Among plants the cycadeae were so distinctive that the Jurassic has been named the "age of cycads"—yews, cypresses, arbor vitæs, pines, and ginkgos. On land the dinosaurs and other carnivorous reptiles attained remarkable size; the herbivorous dinosaurs developed greatly, and soon eclipsed in size the carnivorous species. One herbivorous dinosaur found in Wyoming measured 75 feet in length; while a carnivorous dinosaur from Colorado measured only 17 feet in length. The stegosaurus of Colorado and Wyoming is a remarkable specimen of an armed dinosaur. The pterosaurs were the first development of aërial reptile life which we know about, and included the rhamphorhyncus and pterodactyl. The earliest known bird was the *Archeopteryx macrura.* The insects included cockroaches, crickets, flies, and ants, but no butterflies or moths, as there were as yet no angiospermous plants.

Lower Cretaceous or Comanchean Period. At the beginning of this period the greater part of North America was above sea level. Texas and Mexico were under water as far north as the Ouachita Mountains; the sea then flowed over the great central plain from the Mackenzie River on the north to the Rio Grande on the south; later, this great mediterranean sea disappeared. The Lower Cretaceous along the Atlantic coast is called the Potomac series; along the eastern part of the Gulf coast it is called the Tuscaloosa series. The system passes over Texas into New Mexico, and probably Arizona, into Kansas. In the northern interior, Lower Cretaceous occurs in parts of Wyoming, South Dakota, and Colorado; farther north it is seen in Montana, Alberta, Assiniboia, and the Queen Charlotte Islands. On the Pacific coast it is seen in California, Oregon, Washington, and British Columbia. Each of these parts have local names and subdivisions which serve to complicate a by no means simple period. A most important phase of the Lower Cretaceous period is the introduction of angiosperms, both monocotyledons and dicotyledons, which appear first in the Potomac series, and had so fully developed that in the succeeding period they had overrun the continent. These early angiosperms were plants familiar to us, including the sassafras, laurus, eucalyptus, and myrica. The cycads, conifers, and ferns which dominated preceding periods, now sank to a subordinate place.

Upper Cretaceous Period. Further exposures of the continent occurred in the Upper Cretaceous period. New Jersey, Delaware, Maryland, and Virginia are among the parts which then emerged. Beds of clay, sands, greensand marl, with but little limestone, are characteristic of this area. Along the Gulf coast these beds extend from Georgia, through Alabama and Mississippi to western Tennessee and Kentucky. In the interior they are found in Texas, Kansas, and to the north. On the Pacific coast the rocks of this period are found, somewhat scattered, in California, Oregon, Washington, and British Columbia. The plants of the Upper Cretaceous period had a distinctly modern or present-day appearance, many of our varieties of angiosperms being abundant; monocotyledons, including palms and grasses, were becoming abundant, and the new flora was widely distributed. Among animals the dinosaurs were still predominating, and presented most peculiar forms. The flying reptiles had developed, and some presented a wing-spread of 20 feet and had great powers of flight. Sea animals included a few, but gradually disappearing, ichthyosaurs and plesiosaurs, and many and important types of sea serpents, sea turtles, and sea birds. Rhizopods or foraminifers were more prominent than in any preceding period, and sea urchins were conspicuous.

Cenozoic Era. This embraces all of the remaining periods of the geological history of the earth, and is the era of modern life.

The Eocene Period. Land formations of the Eocene period are (1) marine deposits found on the borders of the continent, especially around the Gulf area, on the southeastern Atlantic coast, in the West Indies, and on the Pacific coast; (2) brackish water deposits in Washington and Oregon; and (3) fresh water deposits from lakes, river, ponds, etc., in scattered regions among the mountains of the West and upon the adjacent plains. Eocene life shows very marked differences from that of the Cretaceous period. Marine life was almost wholly changed; the great saurians disappeared; the reptile forms were markedly transformed; and placental mammals took a commanding position, probably on account of the development of the angiosperms which afforded food for the grass-eating herbivores, that in turn supplied food for the carnivores. While these animals were very different from those with which we are familiar, there may be traced back to them the descent of modern types. They were the ancestors of our types, and the great number of genera which were represented and the suddenness of their development are points of interest in the period.

The Oligocene Period. The Oligocene has not been used in the older systems of geological classifications of North America, but has been prominent in Old World geology. To secure

uniformity and to aid paleontological classification, it is now being recognized as a distinctive period between the Eocene and the Miocene. The rocks which are considered as belonging to the Oligocene period are certain marl beds on the Atlantic coast in North and South Carolina and some in Florida; the Gulf formations of Alabama, Mississippi, Louisiana, and part of Texas; and extensive areas in Colorado, Wyoming, Nebraska, and South Dakota. It is interesting to note that amber, a fossilized resin found on the Baltic shores, occurs in the Lower Oligocene of Europe. Amber is of great paleontological importance as a natural means of preserving insects. They, it is supposed, alighted upon the resin when it was soft and became imbedded in it, so that about 2,000 species of Oligocene insects have been thus preserved, entombed in the amber. The trees of the Oligocene period were both evergreen and deciduous,—yews, pines, sequoias, but very few palms. Among the land animals were such as the *Titanotherium validum* (a skeleton of which is in the Carnegie Museum in Pittsburg), which were midway between the rhinoceros and the elephant, the *elotheres* or giant hogs, and the three-toed horses.

The Miocene Period. Miocene formations are marked by slight coastal additions to the southeastern Atlantic coast, to the Gulf coast, along the Pacific coast, and in the interior in Nevada, Montana, Arizona, Texas, and New Mexico. The Miocene rocks are of nearly all of the sorts common to sedimentary deposits of marine and fresh water. The flora of the Miocene period was little different from that of the Oligocene, excepting in an increase in deciduous trees and grasses. The disappearance of some of the tropical and subtropical plants argues a change in climatic conditions. The horse, the tapir, the lowland rhinoceros, peccaries, camels, squirrels, beavers, gophers, and rabbits persisted from the Oligocene period. To these were added the mastodon or elephant forms, especially the Tetrabelodon, Dibelodon, and the ruminants of the deer and ox family. Little is known of Miocene birds. Turtles, lizards, and crocodiles had taken on their modern forms.

The Pliocene Period. Pliocene formations, so far as known, cover an area similar to those in which Miocene deposits are found. There was an upbuilding of the peninsula of Florida, and the shores around the Gulf, and for a short distance up the Atlantic coast, and along the Pacific coast. These deposits were, of course, marine. The lacustrine and other fresh water deposits are known in the interior east of the Rocky Mountains, on the border of the Great Plain; the auriferous gravels of California began in the Miocene and continued through the Pliocene. Patches of gravel are found in Minnesota, Wisconsin, Iowa, Illinois, Arkansas, Indiana, Kentucky, and Tennessee, which are referable to the Pliocene period. The Lafayette formation, named from Lafayette County, Miss., is composed of gravel, sand, silt, and clay welded together.

The Pleistocene or *Glacial Period.* The great feature of the Pleistocene period was the covering of from six million to eight million square miles of the earth's surface with ice sheets. Just previous to this covering with ice, the districts so covered had enjoyed a mild climate. This fact is so striking that it tends to obscure other important events in the period. Nearly one half of North America was buried under ice. The three centers were (1) Labrador, (2) Keewatin, just west of Hudson Bay in Canada, and (3) the Cordilleran ice sheet in the Rocky Mountains in Canada. The southern well-defined limit in North America ran in an irregular line from New Jersey, west through Pennsylvania, Ohio, Illinois, Missouri, Kansas, and Nebraska, and northwest through Montana, Idaho, and Washington. In the east its southern boundary nearly followed the course of the Ohio River, and the most southerly point of the lowland glaciation reached was about 37° 30′, near what is now the mouth of the Ohio. Mountain peaks and eminences south of this line were affected, but in widely scattered localities. About one half of the glaciation of the entire world was in North America, and about one half of the remainder was in Europe. A strange feature is the fact that Alaska was only slightly affected. The area over which the ice spread is now covered by clay, sand, and bowlders, and this mantle is called the drift. The great bowlders have been in many cases forced into unusual and strange positions by the ice flow. The bowlders and the bed rock are marked with grooves and striæ caused by the pressure of the superincumbent mass. The drift ranges in depth up to 500 feet. The drift is classified into ground moraines, terminal moraines, and lateral moraines. These moraines are great heaps of bowlders, gravel, clay, and sand. The terminal moraines mark the advance and retreat of ice sheets. Migrations of both plants and animals mark the extraordinary changes of temperature which accompanied the Glacial period. There is evidence of five or six backward and forward movements, some of which, it is believed, covered fully 2,000 miles in North America, and exceeded 1,000 miles in Europe. This alternate advance and retreat of the ice sheet resulted in a marked intermingling of floras and faunas. In Great Britain remains of the musk ox, now exclusively arctic, have been reported as found along with those of the hippopotamus, now strictly tropical; and in France the relics of the reindeer are similarly associated with those of the lion. The climate of some interglacial epochs was evidently warmer than at present. In the Toronto beds, remains of the papaw and osage orange and other trees occur, now reaching their average northern limits about 300 miles farther south. South of the ice sheets in North America the mammoth, mastodon, bison, reindeer, and musk ox were abundant and characteristic animals, while the saber-toothed cat, tapir, llama, and horse were nearly extinct. The mammoth was abundant in Mexico and the southern states, and ranged northward. The mastodon occupied a large area in the northern states, extending into Canada, and the south. The musk ox and reindeer occurred as far south as Virginia.

While most European geologists have concluded that man was present in central and southern Europe during the later part of the glacial period, convincing evidence of glacial man in North America has not been discovered. The final retreat of the ice sheets from middle latitudes terminated the Pleistocene and marked the beginning of the Present or Human period.

MINERAL RESOURCES OF UNITED STATES AND CANADA.

ABRASIVES. *Corundum*, next to diamond the hardest natural abrasive, is found especially in N. C. and Ga.; *Carborundum* is an artificial abrasive made by melting a mixture of silicon, coke, and sawdust in electric furnaces; *Emery* is most abundant at Chester, Mass., and near Peekskill, N. Y.; *Abrasive Garnet* is found in N. Y. and N. C.; *Grindstones* are largely from the Berea sandstone of Ohio and Mich., and in N. B.; *Millstones* and *Buhrstones* in the Appalachians from N. Y. to N. C.; *Oilstones* from Ark. and the Orange stone of Ind., and Deerlick stone of Ohio; *Pumice* from Neb. and Kan.; *Whetstones* from N. H., Ohio, and Vt.

ALUMINIUM. It is very abundant and widely distributed. Commercial aluminium is obtained from cryolite.

ANTIMONY. Stibnite is the chief ore; found in Cal., Ida., S. D., and N. B.

ARSENIC. It is combined with many metals, obtained mostly in Mont., Utah, Wash., and Can.

ASBESTOS. Obtained in Vt., Ida., Ga., Wyo., and Que.

ASPHALTUM. Closely allied to petroleum, is obtained from bituminous sandstone and limestone; large deposits in Cal., Tex., Utah, Ky., and Okla.

BARYTES. Mo., N. C., Tenn., and Va. produce most.

BAUXITE. An oxid of aluminium which occurs in Ark., Ga., Ala., and Tenn.

BORAX. California has a monopoly in its production.

BROMINE. A by-product of salt manufacture in which Mich., Ohio, and Penn. lead.

BUILDING STONES. *Granite.* Of various colors, gray, mottled gray, red, pink, white, and green are the most common. The supply in the United States is practically inexhaustible; nearly 70% comes from the Atlantic states, Vt. leading. Three great areas produce the finest, viz.: Eastern Crystalline Belt, from Me. to eastern Ala.; Central Belt, including the Minn.-Wis., the Mo., east central Ark., and Texas areas; Western Belt includes the quarries in Cal., Col., Mont., Wash., and Ore.; much is quarried in Ont. and Que. *Limestone.* The Bedford quarries in Ind. contain beds of limestone 20 to 70 feet thick. Kan., Neb., and Iowa produce limestone for building; other states for the manufacture of lime. N. B. and Que. lead in Canada. *Marble.* Most of the marble quarried is white; Vt., first, yields a variegated red and white, eastern Tenn. a pinkish chocolate with white, Tex. red, Mass., N. Y., Md., and Ga. marbles are similar. Ont. is noted for its marble. *Sandstone.* It is widespread, but most extensively quarried in Ohio, Middle Atlantic States, and Ont. *Bluestone*, a species of sandstone, in N. Y., Penn., and N. J. *Slate.* In Penn. (60%), Vt., Me., Va., N. Y., and N. J.

CEMENT. *Natural Cement* has been displaced by *Portland Cement*, largely manufactured. The Lehigh district of Penn. is the most important cement-making region in the world, producing about one third of the output in the U. S. Ind., Cal., Kan., Ill., Mo., N. J., Ohio, Mich., Ark., and Can. produce largely.

CLAYS. Widely distributed, the chief mineral in D. C.; everywhere in Ill., and nearly every variety of clay product is made. *Brick* and *Tile Clays* are found in every state. Mo. ranks first, Penn. second; N. J. clay products include pottery and every variety of brick and tile except vitrified brick. *Common Brick* are manufactured in the Hudson River region, the largest brick producing center in the world. Clay working is the principal industry in N. C. *Fire Clays* are most abundant in Penn., Ohio, Mo., Ky., Ind., and Ill.; *Kaolins*, in N. C. and Penn.; *Paper clays*, in Ga. and S. C. *Pottery Clays* other than Kaolin occur as *ball clay* in N. J., Tenn., W. Va.; *stoneware clay* in N. J., western Penn., and eastern Ohio. Extensively manufactured in Ont.

COAL. The known coal areas of the U. S. embrace 310,296 sq. m., to which may be added 160,000 sq. m. little known but may be workable, and about 32,000 sq. m. under heavy cover. The original supply is estimated to have been 21 billion short tons of *anthracite*, nearly 2 trillion tons of *bituminous*, 650 billion tons of *sub-bituminous*, and nearly 750 billion tons of *lignite*. At the end of 1911 the exhaustion of the beds was a little less than .5% of the original supply, leaving more than 99.5% to be mined. In the production of both anthracite and bituminous coal Penn. is credited with 47.4% in quantity and 51.4% in value of the total output in the U. S., more than that of any other country in the world except Great Britain and Germany. The U. S. contributed 38.1% of the world's product in 1911. The anthracite areas are almost wholly in eastern Penn.; two small areas are in Col. and N. M. The bituminous and lignite fields, scattered widely over the country, include an area of about 496,000 sq. m., comprising six provinces: Eastern, including Appalachian Atlantic Coast regions to N. C.; Gulf, including the lignite fields of Ala., Miss., La., Ark., and Tex.; Interior, all the bituminous areas of the Mississippi Valley and Mich.; Great Plains, the lignite areas of N. and S. D., and the bituminous and sub-bituminous of Wyo. and Mont.; Rocky Mountain, Utah, Col., and N. M.; The Pacific Coast, including Cal., Ore., and Wash. W. Va., Ill., Ohio, Ind., Ala., Ky., Col., Iowa, Wyo., rank in order after Penn.

CHROMITE. It is found chiefly in Cal. and Can., being used in coloring, bleaching, tanning leather.

COPPER. Occurs as sulphid ores and in native state. Gold, silver, zinc, and lead are often mixed with it. The U. S. is the copper-producing country of the world. Ariz., Mont., and Mich. produce largely; N. F., Ont., and Sask. much less.

FELDSPAR. Varieties are found in Me., Mass., Conn., N. Y., Md., Penn., Wis., Va., and Can. Used in making pottery.

FLUORSPAR. Distributed from Me. to Va.: Ill., Col., Ky., Can., a little. Used in iron smelting and making hydrofluoric acid.

FULLER'S EARTH. A variety of clay used principally for filtering and clarifying oils; deposits in many localities, but the best known are in Fla. and S. D.

GOLD. *Gold* is found either in veins of quartz or as placer gold in the sands and gravel of streams; it is also produced as a by-product of silver and copper mining. Before its discovery in Cal. in 1848, all the gold mined in the U. S. came from N. C., S. C., and Ga.; Col., Cal., Nev., Alas., Ore., Utah, Mont., S. D. (the Black Hills), and Ida. now produce it. *Placer* mining is most extensive in Cal. B. C., Yukon, and N. S. yield most in Can.

GRAPHITE. Usually occurs with other minerals and sometimes in meteorites. *Crystalline graphite* is mined in N. Y., Penn. Ala., Ga., N. C., and Que.; *amorphous graphite* in Mich. and R. I.

GYPSUM. *Rock gypsum* occurs in 24 states and in N. B. and N. S. N. Y., Iowa, Ohio, Tex., Va., Mich., and Kan. produce most. Used in making various plasters, cement, paints, alabaster, also in dentistry.

IRON. So abundant in the U. S. that only the most accessible and economically worked and transported deposits are mined. Good coking coal and limestone are necessary in the locality. Minn. (from the Mesabi Range, the most important iron-producing region in the world) far outranks all other states in quantity and quality, having more than half the product of the U. S. Other states are Mich., Ala., Wis., Va., N. J., Tenn., and Penn. In production of pig iron Penn., Ohio, Ill., N. Y., Ind., N. J., Va., Tenn., and Md. stand first. Ohio is the only state that produces extensively carbonate of iron. N. F., N. S., Ont., Que., and N. B. produce it.

LEAD. *Galena* is lead sulphid and the principal ore of lead. *Argentiferous* or silver-bearing ore occurs largely in the Rocky Mountains, in Ida., Utah, Col., and Mont. Mo. leads, but the lead is known as "soft lead," being free from silver, true of all in the Mississippi Valley. N. F., N. B., B. C., and Que. furnish varying quantities.

LIME. *Limestone* for burning is abundant throughout the country. Penn. (about 70% being used in fluxing furnaces), Ohio, Wis., Me., Mo., Mass., N. S., Ont., Que., and N. B. produce much.

MAGNESITE. Native *magnesium carbonate* is found almost exclusively in Cal. B. C. and N. B. have a little.

MANGANESE. Occurs in many minerals and ores; but those of commercial value are the oxids. Va. produces most; it is a by-product of the silver mines in Col. and the zinc furnaces in N. J.

MERCURY. *Cinnabar*, or the red oxid of mercury, yields quicksilver; found in quantity in Cal. only.

MICA. Produced in N. C., N. H., S. D., N. M., Col., and Can.

MINERAL PAINTS. Ocher, umber, mortar colors, sienna, ground slate, and mineral black. The ochers are found from Vt. to Ala., mostly in Penn., Ga., and Md.; some from Can.

MINERAL WATERS. Found in almost every state of the Union, but Wis. outranks them all, the output coming mainly from Waukesha Springs. N. Y. stands second, Saratoga Springs being most famous.

MONAZITE. For commercial purposes this comes entirely from N. C. and S. C.; used in pharmacy and the manufacture of gas mantles.

NATURAL GAS. Since 1910 W. Va. has produced most, Penn., Kan., Ohio, Okla., N. Y., Ind., and La. follow in order. Ont. produces 95% of the Canadian yield.

NICKEL and **COBALT.** Usually found in the same ore, cobalt being a by-product of the smelting. The chief point of production is Mine la Motte in Mo., where it is a by-product of lead. Can. has the largest nickel mines in the world at Cobalt, Ont.

PEAT. Prepared for burning it is called *Briquets*, and is produced in Cal., Iowa, Ida., Ind., Ill., Mich., R. I., Mo., and Que.

PETROLEUM. Chief fields in Cal., Okla., Ill., Penn., N. Y., Ohio, Tex., W. Va., La., B. C., and Ont.

PHOSPHATE. The premier state in production is Fla. Four varieties are obtained, *hard rock* (only one exported), *soft, land pebble*, and *river pebble*. Tenn., second in rank, has three types, brown, blue, and white, the brown most important.

PLATINUM. Occasionally found in gold-bearing gravels; its commercial importance is slight. Most of it comes from Cal. and Ore.; Que. has a small yield.

PRECIOUS STONES. Those of value are from the South and West. Mont. leads with sapphires; N. M. and Utah with turquoises; Cal., Tex., and Wash. have a few.

PYRITES. A common mineral, iron pyrites most frequent; used to make sulphuric acid. Occurs plentifully in Va., N. Y., Cal., Penn., Ga., Que., and N. F.

QUARTZ. Occurs in many forms; used in building, in glass, paint, pottery, and soap manufacture; quarried in Conn., N. Y., Penn., Md., and Can.

SALT. Mich. and N. Y. lead, Ohio, Kan., Cal., Tex., W. Va., and Utah follow. La. produces most rock salt; the mines underlie mounds or "islands" rising above the marshlands along the Gulf.

SAND and GRAVEL. Penn. leads in value of output, N. Y., Ohio, Ill., N. J. (molding sand), and Mo. *Glass Sand* is quarried chiefly in Ill., Mo., Ohio, Ind., N. J. N. Y., Md.

SAND-LIME BRICK. In Mich., Minn., N. Y., Fla., Penn., Ind., Iowa, and Can.

SILVER. Occurs as sulphids and in admixture with ores of copper and lead. Nearly all the silver mined comes equally from Nev. and Mont.; Utah, Col., Ida., and Ariz. follow. N. B. and N. F. have some; richest deposits in the world are at Cobalt, Ont.

SOAPSTONE. The production of soapstone or fibrous talc is confined to Va., N. Y., Vt., N. C., and Mass.; much is found in Can.

SULPHUR. La. almost alone in this production, which is under a heavy cover of quicksand.

TALC. Valuable deposits in nearly all the Atlantic states and Can.; small quantities in Cal. Some of the talc of N. C. of the highest grade is used for complexion powder.

TIN. S. D. almost alone in production; small quantities mined in Tex., N. C., and Can.; good prospects in Alaska.

TITANIUM. Va. the only state producing rutile with which titanium is combined; used in alloys.

TRIPOLITE. *Infusorial Earth* and *Tripolite* from Mo., Ill., Col., N. Y., Md., Conn., Mass., Nev., besides Can.

TUNGSTEN. Col. leads in tungsten ores, which are found in all Pacific and Rocky Mountain states.

ZINC. Combined with lead in limestones, in Mo. district, the ore is easily mined and is abundant. Zinc ore known as "blende" chiefly obtained from the Mississippi Valley, Col., N. J. Wis., Utah, N. M., and Ida.; small quantities in Can.

MINERAL INDUSTRY BY STATES.

1919 Figures.

Industry and State	Value of Product. Amount	% of Total
COAL:		
Anthracite	$ 364,084,142.	100.
Pennsylvania	364,084,142.	100.
COAL:		
Bituminous	1,145,977,565.	100.
Pennsylvania	363,973,952.	31.7
W. Virginia	193,108,343.	16.9
Illinois	138,767,835.	12.1
Ohio	77,988,602.	6.8
Kentucky	72,432,840.	6.3
Indiana	45,492,726.	4.0
Alabama	45,359,441.	4.0
Colorado	28,342,195.	2.5
Virginia	23,763,440.	2.1
Wyoming	18,723,451.	1.6
Iowa	16,903,358.	1.5
Kansas	15,748,535.	1.4
Oklahoma	14,477,317.	1.3
Tennessee	14,024,432.	1.2
Utah	12,632,035.	1.1
Missouri	12,077,845.	1.1
Washington	10,737,656.	0.9
Petroleum and Natural Gas	931,793,423.	100.0
Oklahoma	247,497,450.	26.6
Texas	143,337,362.	15.4
California	138,018,663.	14.9
W. Virginia	99,518,304.	10.7
Kansas	66,515,158.	7.4
Pennsylvania	66,271,961.	7.1
Ohio	45,483,525.	4.9
Louisiana	32,016,085.	3.4
Illinois	31,263,563.	3.4
Kentucky	23,329,521.	2.5
Wyoming	21,959,937.	2.4
New York	9,900,894.	1.1
Indiana	2,604,395.	0.3
Iron Ore	218,217,905.	100.0
Minnesota	128,377,174.	58.8
Michigan	60,906,692.	27.9
Alabama	12,291,760.	5.6
New York	5,264,443.	2.4
Wisconsin	3,826,872.	1.8
Copper	181,258,087.	100.0
Arizona	84,217,141.	46.5
Michigan	34,476,336.	19.0
Montana		
Utah		
Lead and Zinc	75,579,347.	100.0
Oklahoma	18,979,726.	25.1
Missouri	15,879,177.	21.0
Idaho	9,529,723.	12.6

Industry and State	Value of Product. Amount	% of Total
Gold and Silver (Lode Mines).	58,832,330.	100.0
Colorado	16,785,716.	28.5
Nevada	9,687,431.	16.5
California	8,773,757.	14.9
Utah		
Limestone	52,943,924.	100.0
Pennsylvania	12,881,213.	24.3
Ohio	6,742,496.	12.7
Indiana	4,619,801.	8.7
New York	4,597,942.	8.7
Illinois	3,776,626.	7.1
Vermont	3,563,734.	19.5
Granite	18,279,345.	100.0
Massachusetts	2,405,165.	13.2
N. Carolina	1,576,250.	8.6
Wisconsin	1,484,979.	8.1
N. Hampshire	1,427,979.	7.8
Maine	1,300,996.	7.1
Minnesota	1,135,931.	6.2
Sandstone	10,684,969.	100.0
Pennsylvania	3,534,563.	33.1
Ohio	2,759,352.	25.8
Illinois	1,329,389.	12.4
Phosphate Rock	10,300,198.	100.0
Florida	6,678,888.	64.8
Tennessee	3,139,671.	30.5
Clay	10,086,298.	100.0
Pennsylvania	2,546,485.	25.2
New Jersey	1,482,358.	14.7
Missouri	1,420,585.	14.1
Basalt	9,657,977.	100.0
Pennsylvania	2,298,791.	23.8
New Jersey	1,928,025.	20.0
Massachusetts	1,548,611.	16.0
Connecticut	1,262,597.	13.1
Gold, (Placer Mines)	9,368,561.	100.0
California	7,937,654.	84.7
Gypsum	6,805,940.	100.0
New York	1,110,463.	16.3
Iowa	1,092,920.	16.1
Slate	5,720,792.	100.0
Pennsylvania	2,651,533.	46.3
Vermont	2,057,388.	36.0
Marble	4,397,912.	100.0
Vermont	2,108,872.	48.0
Tennessee	1,088,131.	24.7

BIOLOGY.

Biology is the science of life; the study and knowledge of living beings and organized matter as distinguished from inanimate things or inorganic matter. In a broad sense it may be understood to include every form and function of living beings, and under this conception all human knowledge, together with every achievement of human progress, are facts of biological science. However, as generally understood, biology treats of the origin, structure, development, function, reproduction, and distribution of plants and animals.

Evolution.—The theory of evolution, comprehensively considered, attempts to account for the origin of created things, particularly the earth, with its past and present plant and animal life, including the origin and development of the human race. It is concerned with problems of development, ranging from that of the formation of a star from nebular or planetesimal matter to the production of the sugar beet by husbandry, and from those involving the simplest volitional acts in animals to the transcendent powers of the human mind. This theory, which possesses the greatest philosophical and scientific significance, has its foundation in certain unities, universally existent and demonstrable. Among these are the universality of natural laws, unity of structure in plants and animals, and in their mode of reproduction,—all arising from germs or eggs; the universal presence of protoplasm as the material basis of life, and the contractility of protoplasm as the source of all movements of plants and animals. From the philosophical point of view, all this implies an infinite power or creator working in and through the material and immaterial universe by unchanging natural laws.

Inorganic Evolution considers the development of the material universe, particularly that of the solar system and the earth, the latter involving the origin of the minerals composing its mass, and the formation of the air and water. Chemical evolution takes into account the gradual upbuilding of matter from its ultimate, preëlemental particles to the elemental condition, thence through molecular compounds of increasing complexity to the most complex of all—protoplasm, the material basis of life, which marks the limit of physico-chemical development.

Organic Evolution is a theory of descent, of development from simple, general types to complex, specialized forms, and undertakes to account for the origin of species by the operation of natural laws.

Aristotle (384-322 B. C.), the greatest philosophical naturalist of the ancients, is considered the father of the theory of descent. He conceived a series of organisms intergrading from jellyfishes to man, and asserted his belief in heredity. St. Augustine, in the fourth century, explained the origin of things by a series of causal factors. Nine hundred years later Thomas Aquinas supported this teaching. However, beginning in the sixteenth century and continuing until after the middle of the nineteenth, the doctrine of special creation was universally maintained. A few, however, questioned it. Among them was the German philosopher, Leibnitz (1646-1716), who declared his belief in the continuity of nature, and in a universal connection between species, which he maintained could be changed by a change in environment. The French naturalist, Buffon (1708-1788), asserted that all animals may have originated from a single ancestral type, affirming, and as often denying under hostile criticism, his belief in the mutability of species. Erasmus Darwin (1731-1802), grandfather of Charles Darwin, maintained that all animals have developed from a single primordial "filament," and more or less clearly defined sexual selection, protective mimicry, the law of struggle, the effects of climate and of use and disuse as causes of variation.

The great French naturalist, Lamarck (1744-1829), who was the true founder of modern evolution, published his views extensively during the first decade of the nineteenth century. He taught that all organisms develop from germs, that development is always from the simple to the complex; that vestigial structures, such as the internal limb bones of whales or the vermiform appendix in man, are remains of once actively used structures, and that characters acquired during the life of the individual, particularly the effects of use and disuse, may be inherited. These views were vigorously opposed by Cuvier, and were generally discredited until Charles Darwin and Alfred Russell Wallace, acting independently of each other, formulated the great theory of descent which has revolutionized all scientific teaching.

In 1859, after more than 20 years of the most painstaking research, following a notable five years' journey around the world as a naturalist, Darwin published his epoch-making "Origin of Species," containing overwhelming arguments for the doctrine of descent. These views, ably supported by Huxley, Herbert Spencer, Haeckel, Asa Gray, and others, became widely accepted by philosophers and scientists. The chief tenet of the new theory was natural selection. Darwin maintained that among plants and animals there exists an all-prevailing tendency to fortuitous variation; that when variations are favorable to the organism they are preserved; that natural selection, otherwise stated by Herbert Spencer as "the survival of the fittest," is a determining factor in preserving variations. Darwin did not claim that this process of elimination, resulting in the permanency of the best adapted, is the only factor in organic evolution, but emphasized that it is a most important one. Stimulated by the masterly example of Darwin, who was an investigator of the highest order, subsequent research in comparative anatomy, embryology, and paleontology has contributed a vast mass of confirmatory evidence, and established practically universal belief in the theory of descent. Present day scientists, however, are not agreed as to the relative significance of the now recognized factors of evolution, including that of natural selection itself, which is being subjected to rigorous review, and undoubtedly there are unknown, and, possibly, there are undiscoverable, factors in evolution.

Mental Evolution, which lies at the basis of social and religious evolution, is exemplified in the fact that, while man is the only fully self-conscious reflective, thinking animal, it is impossible to establish a line of demarcation between the mental acts of animals and of man. The beginnings of reason are manifest in animals.

and, notwithstanding the immense difference between the mental attributes of man and the rudimentary faculties of animals, there is evidence that his exalted intellectual qualities had their origin in the animals which preceded him in development. The difference in the size and shape of the skull between the living and most ancient fossil races of mankind, the evidence found in the vestigial structures inherited from other animals, the culture-record of man,—his gradual mastery of the elements, of fire, tools, soil cultivation, subjugation and domestication of animals, of the useful arts, sciences, and fine arts; his recognition of ethical principles, of the divine in the universe and in human nature, all indicate a development from the simple to the complex in full harmony with the principles of evolution.

The establishment of the theory of evolution is the greatest intellectual achievement of this age. Not only have important discoveries in biological science arising from stimulated research, such as the germ origin of disease and antitoxin treatment, been of great benefit to mankind, but in the realm of modern economics, sociology, psychology, and ethics the principles of evolution have been profoundly influential. The evolution theory, with its immediate corollaries, has immensely enlarged our conception of Deity, of the universe, of the world, its history and life, and of man's past, present, and future place in it.

BOTANY.

Botany is the science of plant life. Plants may be considered from different points of view, each resulting in a distinct division of the science of botany.

Structural Botany or **Morphology** is the study of the form and structure of plants, more particularly of the shape and relation of their parts or members. It passes into plant anatomy or histology, which deals with the finer, for the most part microscopic, characteristics of vegetable tissues.

Physiological Botany or **Plant Physiology** is the study of the plant in action, its life processes and functions.

Cytology is the study of the cells, the fundamental elements from which all plant structures are developed.

Systematic Botany or **Taxonomy** is the study of the classification of plants, and of their grouping into floras.

Ecology or **Plant Sociology** is the study of the relations of plants to other plants, and to animals, and of their adjustment to their physical surroundings.

Economic Botany is the study of plants in relation to their usefulness to man.

Paleobotany or **Geological Botany** is the study of fossil plants, of extinct plant life.—a subject which derives its chief interest from the important light it throws upon the ancestry, development, and affinities of existing vegetation.

Genetics. Under this name, of rather recent introduction, are grouped the various phenomena of plant and animal heredity.

Morphology. The organic unit of plant life as of animal life is the cell, the essential element of which is protoplasm or life substance. All plant structures or organs, no matter how large or complex, arise from combinations of these cells.

In the simplest plants the plant activities, such as nutrition, reproduction, respiration, and movement, are all carried on in a single cell, but as we ascend in the scale of development, increasingly complex structures for the carrying on these activities appear. In the liverworts there are expansions of simple cellular tissue into leaf-like organs but lacking the distinctive structure of true leaves. In mosses imperfect structures considerably resembling, not only leaves, but stems and roots, appear, and finally, in the fern plants, true plant vessels and woody tissue are developed, and hence highly organized true roots, stems, and leaves occur. Along with this increasing complexity of structures connected with the nutritive functions, there occurs also an equal advance in structures concerned with the other functions, until, in the seed plants, we find almost infinite variation in form, structure, and adaptation of various plant organs, innumerable forms of leaves which have to do with nutrition and respiration, and of floral parts which have to do with reproduction. The study of these structures has been called Structural Botany or Organography, now largely superseded by the term Morphology.

Physiology. The activities or work of the living plant may be presented under: (1) Stability of Form, (2) Nutrition, (3) Respiration, (4) Movement, (5) Reproduction.

STABILITY. In the most delicate plants with thin cell walls, rigidity of form is maintained by internal pressure upon their walls, the protoplasm of active cells manifesting this power to draw liquids within the cell wall and retain them under pressure. This turgid condition of active cells gives rise to tensions in adjoining tissues which also contributes to rigidity and permanence of form.

NUTRITION.

Food. Primarily all plant food is inorganic, and must always contain carbon, oxygen, hydrogen, and nitrogen, together with smaller quantities of sulphur, phosphorus, potassium, magnesium, calcium, and iron, all of which must be introduced into the plant in liquid or gaseous form—hydrogen and oxygen from water, carbon from carbon dioxid in the air, and the other elements in various salts dissolved by water in the soil before entering the plant.

Absorption. In all land plants possessing green parts, carbon dioxid is absorbed immediately from the air through the surfaces of the leaves. The mineral salts dissolved in water in the soil are absorbed by the roots.

Transpiration. More water with its content of dissolved salts is absorbed through the roots than is needed for food. The salts are retained but the surplus water is evaporated through the stomates or breathing pores of the leaves; the amount thus transpired by a large leaf area is very great, some trees being planted to drain marshy ground by transpiration through their leaves.

Photosynthesis. Every green plant possesses the power to manufacture, from the inorganic elements in the air and water, its own food. The process whereby the carbon of the carbon dioxid from the air and the oxygen and hydrogen of water are recombined as starch, sugar,

or cellulose, through the agency of the chloroplasts in the green cells and sunlight, is called photosynthesis. It is primal and fundamental, as organic life, both plant and animal, derives all its food ultimately from green plants, and depends for existence upon this process.

RESPIRATION. Plants need to breathe and do breathe by a process essentially similar to that of animals, oxygen entering the plant through the stomates or breathing pores of the leaves and being absorbed by the living cells, while carbon dioxid is given out by the same cells and finally escapes by diffusion.

MOVEMENT. Many low plants, such as bacteria and diatoms, possess the power of locomotion; the naked protoplasm of slime molds slowly creeps over surfaces; the zoöspores and ciliated sperms of lower plants swim freely. In complex plants locomotion mostly disappears, but certain portions of the plants move, usually slowly, but sometimes with great rapidity. Hygroscopic movements occur in dry tissues. Growth movements, due to internal causes, such as those of tendrils, and to external causes, such as turning or growing of leaves or stems toward the light (heliotropism), or of roots downward, due to gravity (geotropism), are characteristic of higher plants. The leaves of certain plants manifest marked irritability when mechanically disturbed, such as the sensitive plants, as do also the modified leaves of carnivorous plants which entrap insects.

REPRODUCTION. There are two distinct methods: Reproduction by division, which is always asexual, called Vegetative Reproduction, and Reproduction by Spores, which may be either sexually or asexually produced.

Vegetative Reproduction. In the lowest plants the method is cell division, a single-celled plant splitting into two similar single-celled plants, as in Protococcus and other lower algae, and bacteria. In more complex plants vegetative reproduction or propagation is effected by various outgrowths of the body, such as the gemmae of liverworts, and the buds, bulbs, tubers, and modified branches of higher plants.

Reproduction by Spores. Cells specially organized for spore production occur in all but the lowest groups. The first spores produced appear to have arisen from the internal division of a mother cell, and are asexual spores. But even in the higher thallophytes we find spores formed by the union of two specialized cells called gametes, which are sexual spores. Among the lowest plants the pairing gametes are alike, that is, apparently unisexual, but among somewhat higher forms they become distinctly bisexual, as sperms, or male cells, and as eggs, or female cells, and this soon gives rise to an alternation of generations between sexual and asexual spore-producing forms which prevails throughout the whole plant kingdom from the more complex thallophytes to the highest plants.

Classification or Taxonomy. Beginning with the simplest and lowest forms and progressing upward through more and more highly organized intermediate groups to the plants of the greatest development and complexity of structures, four great natural divisions are recognized, as follows:—

I. **Thallophytes,** Thallus plants.
II. **Bryophytes,** Moss plants.
III. **Pteridophytes,** Fern plants.
IV. **Spermatophytes,** Seed plants.

All known plants are readily referable to these divisions, but it does not follow that these are equivalent natural groups. Some maintain that there should be more groups of primary rank, and others hold there should be fewer, but the

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PLANT KINGDOM.

Table of the Principal Groups of Plants.

Thallophytes or Thallus plants	Algae and Algoid forms	Cyanophyceae, blue-green algae.	
		Chlorophyceae, green algae.	
		Phaeophyceae, brown algae.	
		Rhodophyceae, red algae.	
	Fungi and Fungoid forms	Schizomycetes, fission fungi, bacteria.	
		Myxomycetes, slime molds.	
		Phycomycetes, algae fungi, water molds.	
		Ascomycetes, sac fungi, lichen fungi.	
		Basidiomycetes, basidium fungi, rusts, mushrooms.	
Bryophytes or Moss plants	Hepaticae, liverworts.		
	Musci, mosses.		
Pteridophytes or Fern plants	Lycopodiales	Sigillaria and Stigmaria	(fossil).
		Lepidodendra	(fossil).
		Lycopodiaceae, club mosses.	
	Equisetales	Calamites (fossil).	
		Equisetaceae, horsetails.	
	Filicales	Cycadofilices, cycad ferns	
		Filices, true ferns.	
Spermatophytes or Seed plants	Gymnospermae or Naked-seeded	Cycadales, cycads.	
		Gnetales, gnetums.	
		Ginkgoales, ginkgo.	
		Coniferales, evergreens.	
	Angiospermae or Covered-seeded Flowering plants	Monocotyledoneae (one-leafed seed), cereals, palms, lilies.	
		Dicotyledoneae (two-leaved seed), oak, apple, pea, sunflower.	

arrangement as stated is more widely accepted and used than any other classification.

Fundamental distinctions between these primary groups may be stated as follows:—

Thallophytes have thallus bodies, but lack the peculiar reproductive structures of the next higher group called archegonia; Bryophytes possess archegonia but lack fibro-vascular bundles, i. e., true plant ducts and woody tissue, which characterize all plants higher in the scale than Bryophytes; Pteridophytes have fibro-vascular bundles but do not produce seeds; Spermatophytes have seeds.

Thus it will be seen that in each ascending group characteristic structures have been developed not possessed by any of the groups which stand below them.

Thallophytes (*θαλλός*, young shoot, *φυτόν*, plant) are the simplest of plants and represent the initial stages of development in the plant kingdom. Wherever vegetable life exists, thallophytes constitute a part of it, being the last plants to disappear in the polar regions, on high mountains, and in the depths of the sea. In size, form, structure, and mode of life, they present immense variety; many are exceedingly minute, some bacteria requiring lenses of the highest magnifying power for their detection; others, such as diatoms and yeast plants, though microscopic are readily observed; many filamentous algae are so insignificant as to escape ordinary attention; a vast number, however, are objects of familiar notice, such as molds, mildews, mushrooms, lichens, and common seaweeds; while some of the great marine species develop enormous structures exceeding 500 feet in length. They exhibit all of the principal functions of plants though there is no differentiation of any portion of the plant-body or thallus into specialized organs such as the roots and leaves of higher plants. All are composed entirely of cellular tissue and many consist only of a single cell which performs all of the essential activities—being able either to manufacture its own food from inorganic elements, or to assimilate food prepared by other organisms, and to reproduce its kind by cell division. Reproduction is of two sorts: (1) by vegetative multiplication or fission, and (2) by spores, which may be either asexually or sexually produced—the former prevailing exclusively among the lowest forms, and persisting in all, while many multiply not only by fission, but by both kinds of spores as well;—bisexuality, which characterizes all higher plants, being clearly established in the higher algae. Thallophytes have developed in two great groups or parallel series, algae and fungi. Algae possess chlorophyll (green pigment) and sustain themselves independently, like other green plants; fungi never possess chlorophyll and are incapable of independent existence.

Bryophytes (*βρύον*, moss, *φυτόν*, plant). Moss plants. One of the four great divisions or subkingdoms of plants, ranking between the thallus plants, thallophyta, and the fern plants, pteridophyta, in organic development; readily distinguished from the former by characteristic reproductive structures, called archegonia, and by distinct alternation of generations, and from fern plants by the absence of vascular tissue. They consist of the liverworts (*Hepaticae*), which descend nearly to the thallophytes in simplicity of structure and the mosses (*Musci*), which approach the pteridophytes in development. All are green plants, mostly terrestrial, and composed entirely of cellular tissue. Liverworts possess only thalloid structures without stems or roots, and with cellular expansions simulating leaves. In mosses there are structures resembling stems and leaves which are very imperfect compared to the true stems and leaves of higher plants, as there is no vascular tissue, and there are no true roots though their function is performed by corresponding organs.

The conspicuous, independent, green plant is the sexual generation, gametophyte, and gives rise to a dependent, non-vegetative, so-called fruiting form, the asexual generation, or sporophyte, which, in turn, gives rise to a new sexual generation. Therefore, as in pteridophytes, complete alternation uniformly prevails, and, excepting the absence of vascular tissue, the most striking difference between these classes lies in the fact that while in bryophytes the sexual generation, or the gametophyte, is the leafy, visible plant and the asexual generation, the sporophyte, is not prominent, in pteridophytes the asexual generation is the conspicuous, permanent plant and the sexual generation is inconspicuous and temporary.

Pteridophytes (*πτερίς*, fern, *φυτόν*, plant). Fern plants. One of the four primary divisions or subkingdoms of plants, ranking next to the flowering or seed plants, spermatophytes, in the scale of development. The pteridophytes are distinguished at once from the bryophytes and thallophytes below them by the presence of vascular tissue, and by the possession of true roots, stems, and leaves, and on the other hand they strikingly differ from the flowering plants above them by the absence of seeds. Well marked alternation of generations occurs, and in this they differ from bryophytes in that the asexual generation, sporophyte, is the vegetative, conspicuous, nutritively permanent, independent plant, while the sexual form, gametophyte, is minute, transient, and inconspicuous. The leafy plant, sporophyte, produces spores. These fall to the ground and germinate, producing minute, green, thalloid structures, called prothallia, which bear the sex organs—antheridia and archegonia. This sexual plant, gametophyte, is distinct and independent. A fertilized egg cell on the prothallium germinates, producing the large, leafy, but asexual form or sporophyte, which in turn produces spores, thus completing the cycle of alternation. By reason of vascular tissue, and the development of strong woody fibers and conducting systems, fern plants average much larger than bryophytes, ranging in size from minute floating forms to immense palm-like tree ferns of the tropics, 40 feet high with leafy fronds 12 to 15 feet long.

Spermatophytes (*σπέρμα*, seed, *φυτόν*, plant). Seed plants. The highest of the four primary divisions or subkingdoms of plants, differing from all others by the production of seeds, and embracing the conspicuous vegetation of the earth—herbs, shrubs, and trees, and including practically all of the useful plants, cultivated or otherwise employed by man. Over 100,000 species have been described by botanists, divided into two well-marked but very unequal natural groups:—

Gymnosperms, which produce naked seeds, immensely abundant in earlier geologic ages but now represented by only about 400 living species.

Angiosperms, which produce seeds in closed ovaries, now overwhelmingly predominant in the plant kingdom.

While vascular tissue first appears in the fern plants it attains its highest structural adaptation and specialization in this group.

Alternation of generations is not apparent to ordinary observation and can be demonstrated only by laboratory methods and with the microscope, owing to the minuteness of the sexual generation or gametophyte. Contrary to long established popular notion, the whole visible plant is sexless and is a true sporophyte. The true sexual generations arise from spores produced by the sporophyte, but are entirely concealed within certain portions of its structure. The pollen grains discharged from the stamens of flowers, are not the male element, but are only sexless spores, just as the spores shed by ferns are sexless, but the germinating pollen grain gives rise to a microscopic plantlet which is sexual, and produces sperm cells. Likewise the pistil and its contained ovule are not the female generation but simply a spore-producing structure of the asexual plant. However, within the ovule a sexless spore (megaspore) germinates and gives rise to a few-celled plantlet which is sexual and produces the egg cell. A germinating pollen tube, containing the sperm cell, penetrates the ovule, and fertilization is effected by fusion of the sperm and egg cells. The fertilized egg cell in the female plantlet develops into the embryo and the outer walls of the ovule develop into a tough or horny coat, and this with the contained embryo and the remains of the female plantlet, endosperm, make up the seed. Three generations are thus represented in the seed: (1) the old, sexless generation, sporophyte, by the seed coat; (2) the female generation, gametophyte, by the nutrient portion or endosperm; and (3) the new, asexual generation, sporophyte, by the embryo. This group is still popularly called flowering plants, but not all produce flowers. These plants were long called Phanerogams, meaning evident sexual reproduction, but it is in fact least evident in this group. The name Siphonogama, referring to the fertilization by the pollen tube, has been proposed, but not widely used. As all produce seeds and no other plants do, the name seed plants (spermatophytes) promises to be permanent.

CULTIVATED PLANTS.

Origin.—The cultivation of plants for food and other useful purposes antedates the historical period of the human race.

It began in those remote epochs when the progenitors of the present dominant peoples, having emerged from primitive savagery, were struggling upward through barbarism by successive conquests of nature and natural forces. In common with the acquisition of weapons and tools, the use of fire and the domestication of animals, the cultivation of plants must be reckoned as one of the great factors in the progress of the race.

History.—The earliest records show that a large proportion of the plants which are still of supreme importance to mankind were well established in cultivation at the dawn of history. It is impossible to state with any degree of exactness how long the most ancient of these have been in cultivation. For example: it is known that wheat and rice have been planted by man for at least 5,000 years, but we possess no data enabling us to estimate how many centuries, or, as seems more probable in the light of modern research, how many thousands of years, these plants had been grown previous to their first mention in available records.

In China at an annual ceremony, established 2700 B. C., wheat, rice, millet, sorghum, and the soy bean were directed to be planted by royal edict.

In Egypt, wheat, barley, and millet have been found in the earliest monuments; mummies were wrapped in linen cloth, indicating the ancient culture of flax; a drawing delineating the fig occurs in the pyramid at Gizeh; the watermelon is represented in ancient paintings; and the olive, date palm, grape, lentil, bean, and lupine were among the plants cultivated in the valley of the Nile at least 4,000 years ago.

In Switzerland the lake dwellers of the Stone Age possessed wheat, the lentil, and the apple, and later, when these communities had acquired the use of bronze, their agriculture included oats, millet, the broad bean, pea, poppy, and the pear.

In Peru, Indian corn was discovered in the catacombs of the Incas, and the lima bean and peanut have been found in the tombs at Ancon, indicating an ancient cultivation and use at the period of Spanish discovery.

In Mexico, tobacco pipes in great numbers and variety of design have been found in the ancient tombs of the Aztecs, and are also found among the remains of the mound builders of North America.

Method of Diffusion.—Agriculture, in so far as the cultivation of the principal plants is concerned, was developed in three great regions of the world, viz.: (1) China, (2) southwest Asia including Egypt, *i. e.*, from the Ganges to the Nile, and (3) intertropical America from Mexico to Peru.

China had cultivated many important plants for at least 3,000 years before intercourse with India and western Asia began, about 150 B. C. At that time the broad bean, cucumber, alfalfa, sesame, saffron, pear, spinach, and watermelon were among the useful plants introduced into China from the West, which likewise began to receive cultivated plants from the far East.

In ancient times the peoples in the region between India and Egypt, including the Mediterranean basin, exchanged cultivated plants easily. The Aryan invasion of Europe, the struggles between Assyria and Egypt, various migrations and conquests, notably the expedition of Alexander the Great to India, diffused the then cultivated plants throughout the entire region so that, after the establishment of intercourse with China, this region possessed nearly all of the useful plants of the Old World. At the period of the Crusades comparatively few cultivated plants remained for exchange, although sugar cane and some minor fruits were then brought to Europe.

The discovery and settlement of the Americas was the next great event in the diffusion of cultivated plants. The potato, maize, tobacco, prickly pear, tomato, peanut, and other valuable plants were then transported to Europe and Asia, and Old World plants in great numbers introduced into the new. The slave trade with Africa and the discovery of the Pacific Islands and Australia, together with the vast extension of modern commerce, completed the world-wide dispersion of cultivated plants existing at the present day.

Order of Introduction.—The most anciently cultivated plants were those producing seeds, roots, or fruits affording substantial food for man. Among some fifty plants known to have been in cultivation upwards of 4,000 years, all but a few are food plants, none are fodder plants for animals, and only two are green vegetables. To this most ancient group belong the cereals: wheat, barley, millet, rice; the legumes: bean, lentil, chick pea, lupine; the fruits: apple, peach, apricot, olive, fig, date palm; the vegetables: cabbage, onion, turnip, purslane; and it also includes the fiber plants: flax and hemp; the dye plants: saffron and carthamine; and the beverage plant, tea.

Among the plants which have been cultivated since the beginning of the Christian era, but not definitely known to have been in cultivation for as long a period as 4,000 years, although it is highly probable that a number of them exceed it, are the cereals: oats, rye, and probably maize; the vegetables: beet, carrot, lettuce, celery, pea, asparagus, and probably the potato and sweet potato; the fruits: orange, lemon, grape-fruit, cherry, and plum; the aromatic plants: pepper and nutmeg; the dye plants: madder and indigo; the narcotic plants: poppy, betel-pepper, and probably tobacco; and the fiber plant, cotton.

During the last 2,000 years the plants brought into cultivation have been of much less general economic importance, being, chiefly, fodder plants for domestic animals, vegetables, medicinal plants, and minor fruits. No cereal grain of the first order has been established,—the buckwheat developed in Asia during the middle ages being of little consequence in comparison with the standard grains.

Among the plants developed in agriculture and horticulture during the past 2,000 years, the following are the most important: buckwheat, commonly, though incorrectly, classed as

a cereal; the vegetables: horseradish, parsnip, parsley, chicory, endive, artichoke, pumpkin, squash, tomato, lima bean, okra, New Zealand spinach (*Tetragonia*), and mushrooms; the fruits: currant, gooseberry, raspberry, blackberry, strawberry, cranberry, muskmelon, persimmon, and pineapple; the fodder plants: red, alsike, purple, and Egyptian clover, guinea grass and timothy grass; the fiber plants: jute, sea island cotton, and sisal; the aromatic plants: red pepper, cinnamon, clove, and hop; the medicinal plants: cinchona and coca; the pistachio nut and peanut, and the beverage plants: coffee, maté, and cacao (cocoa).

With the exception of those plants established or brought into extensive use subsequent to the discovery of America, the great majority of this group dates from the middle ages. In the five centuries from 1200 to 1700, little increase was made in the number of plants in cultivation. Coffee and some of the clovers appear to have become established during this period. While great diffusion and increase in the area of distribution occurred during the period following American discovery, few plants new to cultivation were developed. During the eighteenth century, the American strawberry and persimmon in the United States, sea kale in Europe, and the tetragonia from New Zealand were contributed. Of these the strawberry ranks first, having become the leading small fruit in the United States.

The adoption of scientific methods in agriculture and the invention of labor-saving machinery in the nineteenth century produced an expansion in the area of cultivation unparalleled in history. While valuable new races and varieties of previously established plants have been added, the only new plants which have assumed intercontinental importance during the past century are the blue gum (*eucalyptus*), grown for quick timber and eucalyptus oil, and the cinchona tree, the source of quinine, both dating from about 1850. In the United States during this period the list of small fruits has been increased by the development of the blackberry, the raspberry, and the cranberry, which have now attained considerable local importance.

Botanical Rank.—Cultivated plants which have risen to economic importance belong to those groups which are highest in the scale of organic development.

With the exception of the mushroom, which is a fungus, all are spermatophytes, that is, flowering or seed-bearing plants. Each of the great divisions of the spermatophytes, the endogens and the exogens, has noteworthy representatives in cultivation. To the endogens belong the cereals, the fodder grasses, palms, and a number of vegetables and fruits, while the exogens embrace the legumes and most vegetables, fruits, and fiber plants.

The plants now in cultivation are distributed among more than fifty natural families. Among the most important of these families are the following, with examples under each:—

Grass Family (*Gramineae*), including wheat, rice, barley, oats, rye, maize, millet, sorghum, sugar cane, timothy grass.

Palm Family (*Palmaceae*), containing the date palm, oil palm, cocoanut, areca nut.

Lily Family (*Liliaceae*), represented by the onion, leek, garlic, asparagus.

Mustard Family (*Cruciferae*), which includes the radish, horseradish, cabbage, turnip, watercress, mustard.

Pea Family (*Leguminosae*), containing the bean, pea, lentil, lupine, clover, alfalfa, peanut, indigo.

Rose Family (*Rosaceae*), includes the apple, peach, pear, almond, apricot, plum, cherry, quince, raspberry, blackberry, strawberry.

Parsley Family (*Umbelliferae*), represented by the carrot, parsnip, celery, parsley.

Gourd Family (*Cucurbitaceae*), includes the gourd, cucumber, watermelon, muskmelon, pumpkin, squash.

Sumac Family (*Anacardiaceae*), mango, pistachio nut, cashew, sumac.

Myrtle Family (*Myrtaceae*), blue gum, guava, pomegranate, clove.

Madder Family (*Rubiaceae*), cinchona, coffee, madder.

Nettle Family (*Urticaceae*), breadfruit, fig, mulberry, hemp, hop, china grass.

Orange Family (*Aurantiaceae*), to which belong the orange, lemon, lime, grape-fruit.

Potato Family (*Solanaceae*), containing the potato, tomato, tobacco, red pepper, egg plant.

Sunflower Family (*Compositae*), represented by lettuce, chicory, endive, salsify, artichoke, carthamine.

It is worthy of notice that the great family of *Compositae*, embracing about one tenth of all flowering plants and ranking highest of all plants in specialization and development, should furnish such a meager list of economic plants, while the contribution of the grasses and palms, much inferior in number of species and far below in the scale of development, is of incalculable value to mankind, furnishing the major portion of food for the human family and sustenance to the most important domestic animals.

Number of Species.—Compared to the total number of wild plants the list of those attaining stable economic rank in cultivation is surprisingly small.

In the group of flowering plants (*spermatophytes*) there exist in nature upwards of 150,000 species. Yet from this vast array agriculture and horticulture have wrested only about 300 plants which have become of permanent usefulness. This does not include plants grown purely for ornamental purposes, for flowers, or foliage, but only those whose practical utility is of more than local or temporary importance, such as food, fodder, textile, tinctorial, and beverage plants.

Geographical Distribution.—The Old World has contributed about four fifths and the New World about one fifth of cultivated plants. Asia has been the chief contributor in the Old World, with Europe second. The regions furnishing the great majority of species of Old World origin are: China, India, with the East India Islands, southwestern Asia, the Mediterranean basin, including the Nile region. The region furnishing the most important New World plants is intertropical America, Mexico to Peru, and particularly the Andean plateaus.

Comparatively few useful plants have been developed outside of these focal areas, and none of the first order. The Arctic and Antarctic

zones have contributed none, neither has South Africa, Patagonia, or Argentina. Australia and New Zealand have produced so far only the blue gum (*Eucalyptus*) and the so-called New Zealand spinach (*Tetragonia*), both relatively unimportant.

It is remarkable also that the United States, a region of high average fertility, possessing a rich and varied flora of upwards of 12,000 flowering plants, should have added relatively such a small list to the economic plants of the world. The pumpkin and Jerusalem artichoke among vegetables and the American grape, strawberry, plum, blackberry, raspberry, and cranberry among fruits constitute its chief contribution. Of these the strawberry and grape are the most valuable. As yet none of these are extensively cultivated in other regions of the world. However, by grafting the European vine upon the root of the American grape, the great vineyards of France and south Europe have been saved from destruction by the insect pest, Phylloxera, making the New World grape perhaps our most valuable economic addition to Old World plants.

Changes under Cultivation.—Great modifications in the various plant parts, the root, stem, leaves, and flowers, are brought about by cultivation, most of which disappear in a short time if the plant is allowed to relapse into the wild state. However, there are a few cultivated plants which have never been discovered in a wild state, and which will not propagate themselves if abandoned. Among these are wheat and Indian corn. Like the dog among domestic animals these plants seem to have been so greatly modified through ages of cultivation that it is impossible for them to exist without the agency of man. The changes by which plants have been adapted more and more perfectly to the needs of man have been effected chiefly by selection. The choice, generation after generation, of the best developed individuals is a process of cumulative improvement capable of well nigh inconceivable results. Thus the saccharine content in the juice of the sugar beet has by careful selection been increased more than a hundred per cent. Robustness and stature can often be greatly augmented by cultivation in enriched soil. Many plants have been greatly improved by being hybridized with related stock. The earlier conception of cultivated plants as species specially created for the benefit of man instead of having been brought to their present state of usefulness through his age-long husbandry, led to artificial distinctions between cultivated and wild forms of the same plant. The writings of the earlier botanists, including those of the great Linnæus himself, are widely in error with reference to these relationships, and the connection of most cultivated plants with their parent wild species remained unrecognized or unknown until after the beginning of the nineteenth century. In 1807 Humboldt wrote: "The origin, the first home, of the plants most useful to man and which have accompanied him from the remotest epochs is a secret as impenetrable as the dwelling of all our domestic animals." Since Humboldt's time the researches of botanists throughout the world have revealed the wild form and region of origin of nearly all cultivated plants.

In case of plants of recent introduction, such as the strawberry, American grape, raspberry, and blackberry, the connection between the wild and cultivated forms is now a matter of common knowledge, and the relationships of those established during the last two thousand years are almost equally well known to science. It has also been found that about two thirds of the most anciently cultivated plants still grow wild in a form corresponding to some variety in cultivation. However, in the case of a small number of the most ancient group, the wild forms apparently have ceased to exist. Just as the wild progenitors of the camel appear to have perished prehistorically, just as the aurochs, ancestor of the domestic ox, disappeared from European forests during the middle ages, and as the buffalo has vanished from American plains during the last half century, likewise the parent wild species of tobacco, wheat, maize, broad bean, lentil, ervilla, chick pea, and probably the sweet potato and carthamine, have become extinct.

Consequently the very existence of these depends upon their cultivation. However, a plant once in cultivation is rarely, if ever, completely abandoned, even in case of species of minor importance. When replaced by more useful plants, or when largely discontinued for any economic reason, limited cultivation persists, as in case of dyer's woad when supplanted by indigo. The mallow grown as a vegetable by the Romans, and fennel and cummin once widely used in medicine, are doubtless still locally planted. Indigo and madder have been largely replaced commercially by chemical products from coal tar, yet both will be long continued in cultivation in some regions of the world. An interesting example of introduction, long use, and final abandonment is furnished by the history of alexanders, a plant closely related to spinach and celery, and, at one time, the most widely grown umbelliferous vegetable in Europe. Theophrastus (about 372-287 B. C.) refers to it only as a medicinal plant. About 500 years later Dioscorides (about 150) describes it as edible, indicating its cultivation, and in 600 years more we find Charlemagne (742-814) ordering it to be planted on his farms. Great use of it was made particularly in Italy for a long period, but in 1800 its cultivation was hardly remembered in England and France, and it is not mentioned in their gardeners' books since. Thus we see how a plant, economically important for 1,500 years and still abundant in a wild state, was entirely supplanted in cultivation by other plants better fitted to the needs of man.

Extensive cultivation in any region does not necessarily indicate ancient use there; neither does recent introduction denote a plant new to husbandry. The Chinese, who have grown tea for ages, formerly supplied the outside world, yet India, where cultivation began about 1870, now exports more tea than China. The increasingly popular grape fruit, or pomelo, an ancient Asian citrus fruit, has become established in Florida and California during the last 25 years.

HISTORY OF PLANT CLASSIFICATION

The science which treats on plants dates back to Solomon, who, "spake of trees, from the cedar of Lebanon to the hyssop on the wall." The ancient Chaldaeans, Egyptians and Greeks, were cultivators of the science. Theophrastus wrote a History of Plants, three hundred years before Christ, and described about five hundred species. Pliny, the Elder, described about five hundred species used in the treatment of diseases.

It was not however until the sixteenth century that a genuine interest was taken in the science of botany, when Otto Brunfels, a physician of Bern, Switzerland, gave his attention to the science. He may in fact be looked upon as the restorer of the science of botany. In his Herbarium, which was printed at Strassburg, he described a large number of plants, chiefly of central Europe, and illustrated them by beautiful wood-cuts.

William Turner, termed "The Father of English Botany," wrote the first part of his New Herbal in 1551. In these early works the descriptions were mainly for medicinal purposes. Plants which appeared similar were placed together, but little attempt was made at systematic classification. Crude attempts at systematizing plants were gradually evolved, based upon external appearance alone, as is illustrated in the Herbal issued in 1597 by John Gerard (1545–1612), a barber surgeon and keen student of British plants.

Probably the earliest attempt at a methodical arrangement of plants was made by Andreas Caesalpinus of Florence, Italy (1519–1603). In his work De Plantis, he divided the 1520 plants then known into fifteen classes, the distinguishing character being taken from the fruit. John Ray (1627–1705) did much to advance the science of botany. He separated flowering from flowerless plants, dividing them into Dicotyledons and Monocotyledons. His classification of plants was founded on the correct idea of affinities of plants.

The University of Oxford established its first professor of botany under Dr. Robert Morrison, who published a systematic arrangement of plants, following largely on the lines suggested by Caesalpinus. He divided plants into eighteen classes, the distinguishing feature being determined as to whether the plants were woody or herbaceous, also taking into consideration, the nature of the flowers and fruit.

J. P. de Tournefort, who was long at the head of the French School of Botany, published a systematic arrangement in 1694–1700. He described about 8000 species of plants and arranged them into twenty-two classes. His classification was largely determined by the corolla, also distinguishing herbs and under-shrubs from trees and shrubs. His system was used for a long period in Europe, but finally displaced by Carl von Linne, or Linnaeus.

The Linnean system was founded on characteristics of the stamens and pistils, which are the sexual organs of the flower, and hence it is often termed the sexual system. This system takes into account only a few characters of the plant, and in no manner arranges them by their natural affinities. It is not a scientific or natural arrangement and Linneaus himself claimed it was only a stepping stone to plant classification.

Plant fertilization was a subject which early attracted attention. The idea of separate sexes in plants was entertained in very early times, even before separate male and female organs had been demonstrated. The production of dates in Egypt, by bringing two kinds of flowers into contact proves that some ideas were prevalant on that subject. The female date-palms only were cultivated, and wild ones were brought from the desert to fertilize them. Herodotus tells us that the Babylonians knew of old that there were male and female date-trees. This fact was also known to the Phoenicians and other nations of Asia and Africa.

A great step forward in plant classification came as the result of the work of Antoine Laurent de Jussieu (1748–1836). His Uncle, Bernard de Jussieu, was a follower of the Linnean system. Early in life Antoine became botanical demonstrator in the Jardin des Plantes and thus gave his time to the science of Botany. The necessity of proper plant arrangement led him to consider the best possible methods, and, following the lines already suggested by his uncle, adapted a system founded in part on that of Ray, in which instance he embraced all the discoveries in organography, also adopted the simplicity of the Linnean definitions, and displayed the natural affinities of plants. His Genera Plantarum, begun in 1778, and published in 1780, was an important advance and formed the basis of all natural classifications. In arranging plants according to a natural method, it is necessary to have a thorough knowledge of structural and morphological botany, therefore we find that the advances made in these departments have materially aided the efforts of systematic botanists.

One of the most ardent followers of this natural method was Augustin Pyramus de Condolle (1778–1841) who in 1813, published a work in which he showed that the affinities of plants are to be sought by the comparative study of the form and development of organs (morphology), and not by plant functions, or the physiology of the plant. His Prodromus Systematis Naturalis Regni Vegetabilis covered an arrangement and description of all known plants. De Canddolle's own herbarium was extremely rich. He had visited and carefully examined many of the most extensive collections, especially those of Paris. Many collections, as well as separate families, were frequently submitted to him by individuals for his examination. His library, too was stored with almost every important publication required for his work. With such ample materials, and aided by untiring interest in his work, he pursued his study until his death.

The work was continued after his death by his son, Alphonse de Candolle, with the aid of other eminent botanists. The following table gives historical and economic data concerning some of the most important cultivated plants based largely upon the researches of the great Swiss Botanist Alphonse de Candolle:—

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Agave (Amer. Aloe, Century Plant)	*Agave americana*	Amaryllis Family *Amaryllidaceae*	Perennial	Mexico
Alfalfa (Lucerne)	*Medicago sativa*	Pea Family *Leguminosae*	Perennial	Central Western Asia
Almond	*Amygdalus communis*	Rose Family *Rosaceae*	Small tree	Mediterranean basin, Western Asia
Apple	*Pyrus Malus*	Rose Family *Rosaceae*	Small tree	Europe, Asia Minor
Apricot	*Prunus armeniaca*	Rose Family *Rosaceae*	Small tree	China
Areca Nut Palm (Betelnut)	*Areca Catechu*	Palm Family *Palmaceae*	Small tree	Malay Archipelago
Arnotto or **Anatto**	*Bixa Orellana*	Bixa Family *Bixaceae*	Small tree	Tropical America
Arrowroot	*Maranta arundinacea*	Arrowroot Family *Marantaceae*	Perennial	Tropical America
Artichoke (European)	*Cynara Cardunculus*	Sunflower Family *Compositae*	Perennial	Southern Europe, Northern Africa
Artichoke (Jerusalem)	*Helianthus tuberosus*	Sunflower Family *Compositae*	Perennial	Ohio and Mississippi valleys
Asparagus	*Asparagus officinalis*	Lily Family *Liliaceae*	Perennial	Europe, Western Asia
Avocado or **Alligator Pear**	*Persea gratissima*	Laurel Family *Lauraceae*	Tree	Mexico
Banana	*Musa sapientum*	Banana Family *Musaceae*	Perennial	India

Years of Known Cultivation.	Historical Notes.	Economic Importance.
1000	Cultivation in Mexico far antedates Spanish discovery. Introduced into Europe 1561 from South America.	Extensively cultivated in the plateau of Mexico. Pulque, the national beverage of the Mexicans, is made from the fermented sap, and by distillation mescal is obtained. From very closely related, possibly identical, species are derived the valuable fibers maguey or Pita flax and sisal hemp, used for cordage, binding twine, etc.
2500	Introduced into Greece 470 B. C. from Persia. Mentioned in Vergil. Brought to Mexico and S. America by Spanish. Introduced into California in 1854 from Chile.	A most valuable fodder plant of great importance throughout the world. Grown extensively in Europe, Asia, Africa, North and South America. Especially adapted to dry regions, producing enormous crops under irrigation. Extensively grown in Kansas and Oklahoma without irrigation, and is chief forage crop in Colorado, Utah, California, and other western states under irrigation.
4000	Cultivation prehistoric in western Asia. Mentioned by Theophrastus, Pliny, and Dioscorides.	Sweet almonds commercially important in S. Europe, W. Asia, N. Africa, and California, but the United States import about $1,000,000 worth of nuts annually in addition to present production. Bitter almonds limited in cultivation; used in making flavoring extracts and prussic acid.
4000	Cultivation prehistoric. Abundantly used by Lake Dwellers of the Stone Age in Italy and Switzerland.	Most important fruit of the temperate zone, area of production, consumption, and variety of product being considered, ranking with the grape, olive, orange, lemon, and banana, among the six leading fruits of the world. North America is preëminently the leading apple growing region. Cultivation dates back to the earliest settlements, the records showing production of 500 barrels of cider by one man in New York in 1639. In the United States, New York, Pennsylvania, and Ohio produce about one third of the total crop.
4000	Cultivation in China antedates 2000 B. C. Introduced into S. E. Europe at the time of Alexander the Great, about 325 B. C.	Extensively grown in N. India, Persia, S. Europe, and Egypt. Although marketable quantities are grown in New York, crop commercially important in the United States only in California and Oregon, whence large quantities of the fresh and dried fruit are shipped to the eastern states and abroad.
2000	Anciently cultivated by Malaysian peoples. Introduced into China 111 B. C.	Great quantities of the nut are grown in India, Cochin China, Ceylon, and the Malaysian Islands; a considerable article of trade in the East, where betel chewing is practised. The areca nut mixed with lime and chewed with betel leaves acts as a stimulant and blackens the teeth. The nut also yields a kind of catechu.
1000	Cultivation prehistoric in tropical America. Now naturalized in India.	Also called anotto, arnatto, and annotta. Source of most widely used dye for coloring dairy products, being the standard butter and cheese color in the United States, England, and Holland. Has limited use as a dye in calico printing. Anciently used by natives of Brazil, Central America, and West Indies to stain their bodies red, and by Mexicans in painting.
300	Cultivation widely diffused in tropical America and West Indies since Spanish discovery. Also introduced on the coast of Guinea in Africa.	Widely cultivated in the East and West Indies and in Africa for food. Large imports of prepared arrowroot made to Europe and the United States. A starch food highly esteemed for invalids and children.
2000	Cultivated by the Romans. Introduced into England 1548. Naturalized as a weed in the pampas of Buenos Aires, spreading over vast areas in the nineteenth century.	Much grown and highly valued table vegetable in Europe. Sparingly used in the United States. In wild state called cardoon.
300	Tubers used by the Indians. Introduced into England 1616. Now cultivated in Europe.	As yet grown only to a limited extent in the United States, chiefly as food for pigs. Very little used as table vegetable. Yields enormous crops, 200 to 500 bushels per acre. Alcohol is made from the tubers in Europe.
2000	Much changed by cultivation, the succulent young stems used for food attaining many times their normal size in the wild state.	Increasingly popular table vegetable. Cultivation becoming important market garden industry near the large cities of Europe and the United States.
400	Common names absurd. Not a pear. Avocado is a corruption of the Mexican name.	Fruit highly prized and much grown in tropical countries; is both wild and cultivated in Mexico, West Indies, and Brazil. Cultivation now established in S. Florida and S. California.
4000	Cultivation antedates historical records in India. Pliny mentions that the Greeks under Alexander the Great saw it in India.	The most important tropical fruit widely used in temperate regions, extensively cultivated in tropical countries throughout the world. Produced in enormous quantities in the West Indies and Brazil, and shipped in constantly increasing volume to the United States and Europe. Beginning with a few hundred bunches in 1870, consumption in the United States has increased to upwards of $5,000,000 worth annually. Banana flour is becoming a staple article of food.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Barley	*Hordeum vulgare*	Grass Family *Gramineae*	Annual	Asia
Bean, Broad	*Vicia Faba*	Pea Family *Leguminosae*	Annual	Southwest Asia
Bean, Lima	*Phaseolus lunatus*	Pea Family *Leguminosae*	Annual	Brazil
Bean, Navy or Kidney	*Phaseolus vulgaris*	Pea Family *Leguminosae*	Annual	South America
Bean, Soy	*Dolichos soja*	Pea Family *Leguminosae*	Annual	China, Japan, Java
Beet	*Beta vulgaris*	Goosefoot Family *Chenopodiaceae*	Biennial or Perennial	Mediterranean region
Betel Pepper	*Piper Betle*	Pepper Family *Piperaceae*	Shrub	Malay Archipelago
Blue Gum	*Eucalyptus globulus*	Myrtle Family *Myrtaceae*	Tree	Australia
Breadfruit	*Artocarpus incisa*	Nettle Family *Urticaceae*	Tree	Sunda Islands
Broom Corn	*Sorghum saccharatum var.*	Grass Family *Gramineae*	Annual	Tropical Africa
Buckwheat	*Polygonum Fagopyrum*	Buckwheat Family *Polygonaceae*	Annual	Manchuria, Siberia
Cabbage	*Brassica oleracea*	Mustard Family *Cruciferae*	Annual, Biennial, Perennial	Europe
Cacao	*Theobroma Cacao*	Byttneria Family *Byttneriaceae*	Small tree	Amazon and Orinoco valleys
Carrot	*Daucus Carota*	Parsley Family *Umbelliferae*	Biennial	Europe

Years of Known Cultivation.	Historical Notes.	Economic Importance.
4000	Cultivation extremely ancient. Found in oldest Egyptian monuments and in remains of Lake Dwellers of Stone Age in Switzerland. Mentioned by Theophrastus.	Important grain, ranking sixth among cereals, being preceded by wheat, rice, maize, oats, and rye. Greater part of crop in Europe and the United States used in the manufacture of beer. The finest malting barley is grown in Bohemia. Produces crop in great extremes of climate, being grown in Norway, Alaska, and Iceland, also in Algeria, Egypt, and India, as well as in temperate regions. California leads production in the United States.
4000	Cultivation dates back to the Bronze Age by Lake Dwellers of Switzerland and Italy. Known to the Hebrews 1000 B. C.	Important article of food in Europe and W. Asia; also valuable forage plant; grown in gardens and as a field crop. All species of the bean have a very high food value; are relatively cheap in price, but much less easily digested than cereals.
400	Found in old Peruvian tombs. Introduced into Africa during period of the slave trade.	Widely cultivated in tropical Africa, sparingly in temperate regions. Production in the United States most extensive in California.
400	Introduced into Europe subsequent to discovery of America.	Extensively grown in the United States, over 150 varieties in cultivation, as a garden vegetable, "string beans," as a fodder crop, and for food. The closely related "frijole" is universally grown in Mexico and Spanish American countries, where it ranks next to maize as a staple food.
4700	Very ancient in China; records show cultivation dating to 2700 B. C.	The common bean of China and Japan, grown in immense quantities. Various preparations form a part of the daily food, to a considerable extent taking the place of meat in supplying the proteid elements. Now grown in Europe and southern and southwestern United States as forage and soiling crop.
2200	Anciently cultivated for leaves and roots used as vegetable. Sugar beet culture modern, being established in Germany and France about 1810.	The chief source of sugar, furnishing about three fifths of the total product; sugar cane, which for 2,000 years had contributed practically all of the world's supply, being reduced to second place during the last half century by the enormous sugar beet crops of Europe—Germany, France, and Russia leading in production. The sugar beet industry is increasing very rapidly in the United States, notably in Michigan, Nebraska, Colorado, California, and Utah. The development of a profitable amount of sugar in the beet is one of the most remarkable agricultural achievements of the nineteenth century, elevating an ancient but minor garden vegetable to front rank among the economic plants of the world.
2300	Leaves chewed with areca nut since 400 B. C. by Malays of the East Indies.	Cultivation extensive in the East Indies, where the consumption of leaves by chewing with the areca nut is enormous. Narcotic stimulant.
75	Introduced into Europe, Asia, Africa, and America about 1850. First planted in California in 1856.	Said to be the most rapidly growing tree in the world; wood hard, difficult to work, used for wheel spokes, mining timber, carpentry, not attacked by borers. Leaves yield eucalyptus oil, important medicinally.
400	In cultivation in tropical East Indies when first visited by Europeans.	Fruit one of the chief food products of the Indian Archipelago and the Pacific Islands. Bark furnishes fiber for clothing. The milky juice and wood are also of value.
4000	The species of *Sorghum*, of which this is one of many varieties, has been in cultivation since very ancient times. Grown in the United States before 1800.	This variety of the *Sorghum* is grown for broom making only in Italy, France, Germany, and the United States. Illinois, Kansas, Missouri, and Oklahoma, ranking in the order named, produce seven eighths of the crop, Illinois growing about one half of the total crop of the United States. (See *Sorghum cane.*)
2000	Introduced into Europe from northwestern Asia during the Middle Ages.	A food plant of minor importance compared to the standard cereals, but extensively grown in European and Asiatic Russia, where buckwheat porridge is a common article of diet, and to a smaller extent in other European countries and in the United States. In the United States buckwheat flour is used chiefly for pancakes or griddlecakes, infrequently for bread. Production declining, the crop of 1900 being one third less than that of 1860. Japanese varieties of value as honey plants.
4000	Ancient Greeks cultivated three varieties. Pliny mentions six. In modern cultivation varieties very numerous.	Widely cultivated in the Old World, particularly in Europe, and grown on a greater number of farms in the United States than any other vegetable. Over 150 varieties are enumerated. Ages of cultivation have developed the widely modified forms, kale, kohlrabi, cauliflower, Brussels sprouts, also the tree- or cow-cabbage grown for cattle in France, often attaining a height of 10 feet and sometimes 12 or 15 feet.
1000	Anciently cultivated in tropical America.	Source of cocoa, chocolate, and the soft solid oil called cocoa butter, which constitutes over 50 per cent of the seeds. The fruit is eaten and also used in making a fermented liquor.
2000	Introduced into England from Holland about 1500. In wild state becomes troublesome weed.	In general but limited cultivation as stock food and garden vegetable in Europe and the United States.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Carthamine	*Carthamus tinctorius*	Sunflower Family *Compositae*	Annual	W. Asia, Arabia
Cashew	*Anacardium occidentale*	Sumac Family *Anacardiaceae*	Tree	Tropical America
Cassava	*Manihot utilissima*	Spurge Family *Euphorbiaceae*	Small shrub	Tropical America, Brazil
Castor Oil Plant	*Ricinus communis*	Spurge Family *Euphorbiaceae*	Annual, Small shrub	Tropical Africa, Abyssinia
Celery	*Apium graveolens*	Parsley Family *Umbelliferae*	Biennial	Europe, No. Africa, Western Asia
Century Plant (see Agave)				
Cherry	*Prunus Cerasus*	Rose Family *Rosaceae*	Small tree	W. Asia, E. Europe
Chickling Vetch	*Lathyrus sativus*	Pea Family *Leguminosae*	Annual	West Asia south of the Caucasus
Chick Pea	*Cicer arietinum*	Pea Family *Leguminosae*	Annual	Persia
Chicory	*Cichorium Intybus*	Sunflower Family *Compositae*	Perennial	Europe, Northern Africa, W. Asia
China Grass or Ramie	*Boehmeria nivea*	Nettle Family *Urticaceae*	Perennial, Shrub	China, Japan
Cinchona	*Cinchona Calisaya*	Madder Family *Rubiaceae*	Small tree	Peru, Bolivia
Cinnamon	*Cinnamomum zeylanicum*	Laurel Family *Lauraceae*	Small tree	Ceylon, India
Clove	*Caryophyllus aromaticus*	Myrtle Family *Myrtaceae*	Small tree	Molucca Islands
Clover (Alsike)	*Trifolium hybridum*	Pea Family *Leguminosae*	Perennial	Temperate Europe
Clover (Egyptian)	*Trifolium alexandrinum*	Pea Family *Leguminosae*	Annual	L. Syria, Asia Minor
Clover (Italian)	*Trifolium incarnatum*	Pea Family *Leguminosae*	Annual	Southern Europe
Clover (Red)	*Trifolium pratense*	Pea Family *Leguminosae*	Perennial	Europe, Algeria, Western Asia

Years of Known Cultivation.	Historical Notes.	Economic Importance.
4000	Grave clothes of mummies are dyed with carthamine and fragments of the plant are found in ancient Egyptian tombs. Introduced into China about 150 B. C.	Used since remote antiquity as a red dye for cotton and silk; now largely supplanted by coal tar colors except in India and China, where it is still an article of local commerce. Cultivated in France, Spain, Italy, India, and China. The extract mixed with talcum forms the cosmetic known as rouge.
400	Widely diffused in tropical countries since Spanish discovery, particularly in India and Guinea. Introduced into East Indies by Portuguese.	Much cultivated in the tropics for fruit and nuts used for food. Fruit also furnishes a vinous liquor, and the tree yields a gum similar to gum arabic.
1000	Long cultivated in Brazil, and after Spanish discovery extended to Africa and Asia.	Chief source of tapioca. Important food plant in tropical countries. Cultivation now established in Florida.
4000	Prehistorically cultivated. Seeds found in ancient Egyptian tombs. Mentioned by Theophrastus and Dioscorides.	Cultivated in Italy, France, Spain, Algeria, India, West Indies, South America, and the United States for oil expressed from seeds. Cultivation in the United States limited mainly to Oklahoma, Kansas, Illinois, and Missouri and of little importance. Oil largely used in medicine and the arts, and in India as lamp oil.
3000	Anciently grown in Mediterranean region. Mentioned in Homer's *Odyssey*.	Widely cultivated in Europe and rapidly increasing in the United States, in 1900 rising to tenth rank in acreage devoted to garden vegetables.
2000	Grown before Christian era in W. Asia and S. Europe. Mentioned in Vergil's *Georgics*.	Cultivated in temperate regions of Europe, Asia, and the United States. Is included among the 15 leading fruits of the world. Ranks about eighth among fruits of the United States. Pennsylvania and California lead in production.
2000	Cultivation in S. Europe dates back to Greeks and Latins. Now cultivated in N. India and W. Asia.	Minor food plant cultivated in India, Germany, France, and some other countries for its seeds.
4000	Cultivation ancient in India. Referred to in Homer's *Iliad* and by Theophrastus.	Grown extensively in Asia for the table and for stock food. Seeds sometimes substituted for coffee.
2000	Cultivated by the Greeks and Romans.	Chief use as an adulterant for coffee, the practice originating in France. Chiefly grown in France, Holland, Germany, and Scandinavia, but recently becoming of commercial consequence in limited areas in the United States, Michigan producing about nine tenths of the crop.
	Not a grass, but a nettle, closely related to the hemp and the hop. Cultivation begun in S. France about 1850 and sparingly in S. United States about the same time.	Valuable fiber plant, mostly grown in China and India. Excellent fiber, stronger than hemp, and nearly as pliable as silk. Used in making China grass cloth and bank note paper.
250	Bark introduced into Europe in 1639 by the Countess of Cinchon, whence the name. Now extensively cultivated in India, Japan, Ceylon, and Jamaica.	Source of quinine, the most important drug in tropical medicine, and widely used throughout the world. Cultivation becoming more and more extensive.
150	Cultivation begun in Ceylon about 1765. Bark of wild trees used from remote antiquity.	Cultivated for bark in Brazil, West Indies, Egypt, and Java, but cultivation now declining in favor of coffee.
300	Brought to Europe by Portuguese after the establishment of East Indian trade.	Valued spice tree; the dried flower buds are the cloves of commerce. Cultivated on many tropical islands and coasts, chiefly in the Moluccas, Sumatra, Java, Mauritius, Zanzibar, Jamaica, and French Guiana. The oil of cloves widely used in flavoring and perfumery and also in medicine.
500	Introduced into Great Britain from Sweden in 1834.	Named for Alsike, Sweden, where it has been long cultivated. One of the best clovers, but as yet only sparingly cultivated in the United States. Excellent honey plant.
500	Cultivation universal though not ancient in Egypt. Now being introduced in S. United States.	Especially adapted to warm climates; principal food of cattle in Egypt. In the United States sparingly cultivated in the Southern States.
500	Cultivation long only local in S. France. Introduced into Italy and England during the last 100 years. Now extending to the United States.	Valuable fodder plant in S. France and Italy. In the United States cultivation is increasing though not extensive.
500	Introduced into England from the Netherlands in 1663.	A most valuable forage and soiling plant, the leading leguminous fodder of the North Central and Eastern United States, where it is relatively as important as alfalfa in the West or the cow pea in the South. In common with other clovers and most leguminous fodders it is of great value in crop rotation, enriching the soil through the agency of bacteria living in the roots, which transfer nitrogen from the air to the soil, a remarkable natural process of fertilization.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Coca	*Erythroxylon Coca*	Erythroxylon Family *Erythroxylaceae*	Small shrub	Peru and Bolivia
Cocoa (see Cacao)				
Cocoanut Palm	*Cocos nucifera*	Palm Family *Palmaceae*	Tree	Malay Archipelago
Coffee	*Coffea Arabica*	Madder Family *Rubiaceae*	Small tree	Abyssinia, Arabia
Coracan	*Eleusine coracana*	Grass Family *Gramineae*	Annual	India
Corn, Indian, Pop-corn, Sweet Corn (see Maize)				
Corn Spurry	*Spergula arvensis*	Pink Family *Caryophyllaceae*	Annual	Europe
Cotton (Common)	*Gossypium herbaceum*	Mallow Family *Malvaceae*	Annual, Small shrub	India
Cotton (Sea Island)	*Gossypium barbadense*	Mallow Family *Malvaceae*	Annual, Small shrub	West Indies, Tropical America
Cow Pea	*Vigna Catjang*	Pea Family *Leguminosae*	Annual	Southeastern Asia. Malay Archipelago
Cranberry	*Vaccinium macrocarpon*	Heath Family *Ericaceae*	Small shrub	Northeastern United States and Canada
Cucumber	*Cucumis sativus*	Gourd Family *Cucurbitaceae*	Annual	India
Currant (Black)	*Ribes nigrum*	Gooseberry Family *Grossulariaceae*	Small shrub	Europe, Siberia, Manchuria
Currant (Red)	*Ribes rubrum*	Gooseberry Family *Grossulariaceae*	Small shrub	N. Europe, Siberia, N. U. S. and Canada
Date Palm	*Phoenix dactylifera*	Palm Family *Palmaceae*	Tree	S. W. Asia, N. Africa
Egg Plant	*Solanum Melongena*	Potato Family *Solanaceae*	Annual	India

Years of Known Cultivation.	Historical Notes.	Economic Importance.
1000	Cultivation and use ancient in Peru and Bolivia. Supplies of leaves found buried with mummies in Peruvian tombs.	Source of cocaine. Extensively cultivated in South America, Ceylon, India, and Java. Yearly production of leaves used in South American trade estimated at 50,000,000 pounds. Coca chewing is almost universal among peoples of the Andean region.
3000	Ancient cultivation in East Indies. Now extended to tropical coasts throughout the world.	A most useful tropical tree, extensively cultivated on the coasts of India, the East and West India Islands, and Brazil. Leading food plant of the Pacific Islands. Besides the cocoanut, and its dried kernel, the copra of commerce, as chief products, palm wine, arrack, and sugar are made from the juice; fiber for cordage is obtained from the stems and coir from the husk of the nut. Cultivation has been established in Florida.
500	Beginning of cultivation uncertain, but not ancient. Introduced for cultivation in South America by the Dutch in 1718.	Coffee and tea are preëminently the leading beverage plants, cacao, maté, and the various substitutes being relatively insignificant. Commercially of great importance. Largely grown in Brazil, Mexico, Central America, West Indies, Arabia, Java, Sumatra, Ceylon, India, and Hawaii, Brazil leading with a production of over one half of the world's crop. In the United States the consumption greatly exceeds that of tea; in England tea is preëminently first.
2000	Cultivation ancient in India. More recently extended into Japan, Egypt, and Abyssinia.	Seeds similar to millet; used for food. Cultivated in India, Malay Archipelago, Japan, Egypt, and Abyssinia.
1500	Cultivation dates to the late Romans. Now widely diffused in N. Africa, W. Asia, to Hindustan and Java. Sparingly naturalized in the United States.	Cultivated for fodder in southern Europe.
2200	Known to ancient Greeks. Introduced into China about 900. Cultivation begun in Virginia in 1721. First export in 1784.	The most valuable textile fiber plant. Crop commercially important in the United States, British India, Egypt, Russia, China, Brazil, Mexico, Peru, and Turkey, which usually rank in the order named, the United States producing two thirds and upwards of the world crop annually, with British India and Egypt next in importance, these three countries usually producing over nine tenths of the export crop. Grown on upwards of a million farms in America, the leading agricultural crop of the Southern States, Texas leading in production. Total crop second in value only to corn in the United States, of which about nine tenths is for fiber and about one tenth for cotton seed product, oil, stock food, etc.
500	Cultivation well established in West Indies, Mexico, Peru, and Brazil at time of earliest Spanish discovery.	Very valuable for its long fiber. Grown in the West Indies, tropical America, and the southern United States, particularly in Georgia, South Carolina, and Florida. Production limited in amount, constituting about one per cent. of the total cotton crop in the United States.
500	Cultivation widely diffused in tropical regions since establishment of European trade with the East following Spanish discovery. Introduced in S. United States about 1725.	Grown for food and forage in most tropical and subtropical countries. The most important fodder and soiling crop of the southern United States, corresponding in value to red clover in the Northeastern region and to alfalfa in the West.
100	Cultivation begun in Massachusetts about 1800. Now sparingly cultivated in England.	Cultivation important in certain limited areas in the United States. Massachusetts grows three fifths, New Jersey one fourth, and Wisconsin one tenth of the total crop of about 1,000,000 bushels.
4000	Cultivation prehistoric. Known to Greeks and Romans. Introduced into China about 150 B. C.	Widely grown throughout the world. Stands sixth in acreage devoted to garden vegetables in the United States.
1500	Cultivation begun in Europe during early Middle Ages.	Extensively grown in Continental Europe, Scotland, and Canada; sparingly in the United States. In France the *liqueur de cassis* is made from the fruit.
1200	Unknown to Greeks and Romans. Cultivation dates from the Middle Ages. Rare in England until after 1600.	Very widely grown in Europe and the United States, chiefly for jellies. New York and Michigan lead in production.
4000	Very ancient cultivation in Egypt and Babylonia. Mentioned by Herodotus. Is the palm of the Bible.	Furnishes the date of commerce, also oil, fiber, and wood. Much cultivated in southwestern Asia and northern Africa, and to some extent in China, France, and Italy. Chief source of wealth in Arabia.
4000	Anciently cultivated in India. Now extensively grown in East Indies; sparingly in temperate United States.	Important vegetable in the East Indies. Culture and use in the United States limited but increasing.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Endive	*Cichorium Endivia*	Sunflower Family *Compositae*	Annual	Mediterranean basin to Turkestan
Ervilla	*Ervum ervilia*	Pea Family *Leguminosae*	Annual	Mediterranean basin
Fenugreek	*Trigonella foenum-graecum*	Pea Family *Leguminosae*	Annual	W. Asia, N. E. India
Fig	*Ficus Carica*	Mulberry Family *Moraceae*	Small tree	Mediterranean basin to Afghanistan
Flax	*Linum usitatissimum*	Flax Family *Linaceae*	Annual	Western Asia
Garlic	*Allium sativum*	Lily Family *Liliaceae*	Perennial	Desert of the Kirghiz, W. Asia
Gooseberry	*Ribes Grossularia*	Gooseberry Family *Grossulariaceae*	Small shrub	Eur., N. Afr., W. Asia
Grape (American)	*Vitis Labrusca*	Grape Family *Vitaceae*	Shrub	N. E. United States
Grape (European) (The Vine)	*Vitis vinifera*	Grape Family *Vitaceae*	Shrub	W. Asia, Mediterranean basin
Grape Fruit	*Citrus decumana*	Orange Family *Aurantiaceae*	Tree	Pacific Isl., E. of Java
Guava	*Psidium Guayava*	Myrtle Family *Myrtaceae*	Small tree	Tropical America
Hemp	*Cannabis sativa*	Nettle Family *Urticaceae*	Annual	Siberia

Years of Known Cultivation.	Historical Notes.	Economic Importance.
2000	Probably cultivated by Greeks and Romans, but proof not fully clear.	Widely grown salad plant in Europe; sparingly in the United States.
3000	Cultivated by ancient Greeks and Romans. Seeds excavated on the site of Troy. Still grown by modern Greeks and also in Italy.	Useful fodder plant; seeds also of some value, but the formerly extensive cultivation in Europe now confined to forage growing in Greece and Italy.
2000	Cultivation common in ancient Greece and Italy. Now abandoned in Europe, but maintained in India, W. Asia, and the Nile valley since remote antiquity.	Spring fodder plant; seeds used in medicine.
4000	Cultivation prehistoric. Pictured in a pyramid in Egypt. Mentioned by Archilochus 700 B. C., also by Herodotus, Theophrastus, and Plato.	Valuable fruit; extensively cultivated in subtropical countries, particularly in Spain, Italy, and S. France, in Europe, and in southwestern Asia. Grown in the Gulf States and in California. Chiefly important as dried fruit. All dried figs in the United States are produced in California; commercial figs largely from Asiatic Turkey, though Smyrna figs are now established in California.
5000	Remotely ancient in cultivation. Egyptian mummy cloths are woven from flax fiber.	Second only to cotton as a fiber plant, and linseed oil production important. Chief fiber production is in Russia, Sweden, Germany, Austria, and Ireland, Russia leading. In the United States fiber production, once important, is practically abandoned. Chief seed production is in Russia, British India, United States, and Argentina, in average years ranking in order named, the United States producing about one fifth of the world crop, chiefly grown in North and South Dakota, Minnesota, Iowa, and Kansas.
2000	Moderately ancient cultivation in China. Herodotus affirms that the ancient Egyptians grew it, but no records remain.	Generally used as a condiment in southern Europe; not popular and only sparingly used in the United States. Oil of garlic used medicinally.
400	Cultivation may date to the Middle Ages. Became common in Germany and Holland about 1500 and was introduced into England during the sixteenth century.	Highly prized in northwestern Europe; not cultivated in southern Europe; reaches highest perfection in England. In the United States, while widely grown, is of minor importance, ranking sixth among small fruits, being preceded by the strawberry, raspberry, blackberry, cranberry, and currant.
300	First vineyard planted by Lord Delaware in 1610, but not extensively grown until after the introduction of the Concord grape during the last century. While the Concord, Catawba, Isabella, Hartford, and most of the cultivated varieties originated from the wild northern fox or plum grape, *Vitis Labrusca*, the Clinton grape was derived from the wild species, *Vitis riparia*, and most of the American wine grapes from the native summer grape, *Vitis aestivalis*.	Since 1860 culture has made remarkable progress, the last census showing crop exceeding $8,000,000 in value. New York produces one third of the American grape crop and is followed by Ohio, Pennsylvania, Michigan, Illinois, Indiana, Missouri, and Kansas, in order named. Notwithstanding the extensive culture of the European grape in the Pacific States, the American grape constitutes three fifths in value of all grape products of the United States. Millions of young vines have been shipped to Europe to be top grafted with the European vine. This procedure has protected the great vineyards of France, Italy, and Spain from the ravages of the *Phylloxera*, the American grape root successfully resisting the pest.
5000	Remotely ancient in Egypt. Used by Lake Dwellers of the Bronze Age in Italy. Cultivated by the Phoenicians, Hebrews, Greeks, and Romans. Introduced into China 120 B. C.	Shares leading rank with the apple among world fruits. Cultivation important in every continent. Chief products, raisins, currants, and wine of great commercial importance. Raisin production largest in Spain, but important in southwestern Asia, Australia, and California. Currants are small seedless raisins, mostly grown in Greece (name derived from Corinth). Wine is made throughout the world, total production estimated at 4,000,000,000 gallons, France, Italy, and Spain contributing about three fourths of this enormous amount. The European grape products of California,— wine, raisins, and table grapes,— amount in value to two fifths of all grape products of the United States.
2000	Long cultivated in India and Malay Archipelago. Cultivation established in Florida and California during last 25 years.	Anciently cultivated and much prized fruit in India, China, East Indies, and Pacific Islands. Also called shaddock from name of the captain who first introduced it into the West Indies. Now successfully established in Florida and California, and rapidly becoming popular table fruit in the United States.
400	Commonly grown from Mexico to Peru at date of Spanish discovery. Since widely diffused in East and West India Islands, India, and China. Recently established in Florida and California.	Valuable fruit, strictly tropical, chiefly grown in the East and West Indies, but now well established in Florida and to some extent in S. California.
4000	Anciently cultivated in China, central Asia, and Russia. Probably brought into Europe by Scythians about 1500 B. C. Mentioned by Theophrastus and in the Talmud.	Important fiber plant, ranking next to cotton and flax. Extensive cultivation in Europe, notably in S. Russia, for fiber, and in India for seed and narcotic products. Fiber production in the United States practically limited to Kentucky; was most important about 1860; now declined to less than one tenth of former yield, due to introduction of jute, manila, and sisal hemp for cordage.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Henna	*Lawsonia alba*	Loosestrife Family *Lythraceae*	Shrub	W. Tropical Asia
Hop	*Humulus Lupulus*	Nettle Family *Urticaceae*	Perennial	Europe, W. Asia, N. America
Horseradish	*Radicula Armoracia*	Mustard Family *Cruciferae*	Perennial	Eastern Europe
Indigo	*Indigofera tinctoria*	Pea Family *Leguminosae*	Shrub	India
Jujube	*Zizyphus vulgaris*	Buckthorn Family *Rhamnaceae*	Small tree	N. China
Jute	*Corchorus capsularis*	Linden Family *Tiliaceae*	Annual	India
Kafir Corn	*Sorghum saccharatum var.*	Grass Family *Gramineae*	Annual	Tropical Africa
Leek	*Allium ampeloprasum var. porrum*	Lily Family *Liliaceae*	Perennial	Mediterranean basin
Lemon	*Citrus medica*	Orange Family *Aurantiaceae*	Small tree	India
Lentil	*Ervum Lens*	Pea Family *Leguminosae*	Annual	W. Asia, Greece, Italy
Lettuce	*Lactuca Scariola*	Sunflower Family *Compositae*	Annual, Biennial	S. Europe, N. Africa, W. Asia
Lime	*Citrus medica var. acida*	Orange Family *Aurantiaceae*	Small tree	India
Lucerne (see Alfalfa)				
Lupine	*Lupinus albus*	Pea Family *Leguminosae*	Annual	Sicily, Macedonia
Lupine (Egyptian)	*Lupinus termis*	Pea Family *Leguminosae*	Annual	From Corsica to Syria
Madder	*Rubia tinctorum*	Madder Family *Rubiaceae*	Perennial	W. Asia, S. E. Europe
Maize (Indian Corn)	*Zea Mays*	Grass Family *Gramineae*	Annual	Plateaus of Tropical America

Years of Known Cultivation.	Historical Notes.	Economic Importance.
4000	Antiquity of use by women as dye for staining finger nails red shown by ancient Egyptian paintings and mummies. This custom persists in the East at the present day.	Commercially cultivated in India and Arabia for the dye. Flowers used in perfumery and embalming.
1200	Cultivation first mentioned by Pepin 768. Began in England about 1525. Introduced into the United States 1629.	Came into general use in brewing in the Middle Ages; now most extensively cultivated in Germany, England, and the United States, which rank in production in the order named. New York produces one third of the American crop, maintaining first rank since 1840, Oregon, California, and Washington growing practically all of the remainder.
1000	Extensively naturalized as a weed in the United States. Non-seed bearing.	Root widely used as a condiment in Europe and the United States, but cultivation unimportant in extent.
2000	Anciently cultivated in India. The dye was known to the Romans, who called it *indicum*, thus denoting its source in their commerce. Another species (*I. Anil*) is cultivated in Mexico.	Important dye plant, yielding valuable blue dye stuff; most extensively grown in India, but production also commercially important in Java and the Philippines. Large European imports from India since 1600, but culture now seriously threatened by increasing use of aniline dyes.
2500	According to Pliny was brought from Syria to Rome in the reign of Augustus.	Dried fruit an article of commerce in S. Europe, Syria, India, and China.
2000	Long cultivated in India; much more recently in Ceylon, Sunda Islands, Philippine Islands, and southern China; introduced into portions of tropical Africa; experimentally grown in Florida.	Exceedingly valuable coarse fiber plant. Commercial production practically limited to India, where it is of great importance, the development of the jute industry and export having been enormous during the last century, export of fiber exceeding 1,500,000,000 pounds and jute cloth (gunny) 300,000,000 yards in 1898. Is replacing hemp, flax, and other fibers.
4000	Non-saccharine *Sorghums* are of ancient cultivation in Asia and Africa. Introduced into the United States about 1885 by the United States Department of Agriculture. (See *Broom Corn, Sorghum.*)	Successfully grown as substitute crop for Indian corn in dry regions. Has become important crop in sections of Kansas, Oklahoma, Texas, and California. (See *Sorghum cane.*)
2000	Extensively cultivated in central and southern Europe, northern Africa, and Asia. Not now found in wild state.	Extensively grown in Europe for culinary purposes; not popular, and very sparingly cultivated, in the United States.
2500	Cultivation ancient in India, whence it spread very early into Mesopotamia and Media; became known to the Greeks through the Medes, giving rise to the specific name *medica*. Mentioned by Theophrastus and Dioscorides.	Important fruit; in world-wide use; much grown in subtropical and tropical countries; the most extensively used variety of the species; the other important varieties of *Citrus medica* being the citron, bergamot, lime, and sweet lime. Cultivation in the United States limited mostly to S. California.
5000	Prehistoric. Used by Lake Dwellers. Probably the "red pottage" of Esau mentioned in Genesis.	Valuable food plant, but less popular than peas or beans in Europe. Commercial crop grown in Egypt, but extensively cultivated in Europe and Asia, and to a small extent in New Mexico and Arizona.
2200	Cultivated by the Greeks and Romans.	Widely popular and much used salad plant. Cultivated wherever climate permits throughout the world.
2000	Ancient cultivation in India, from whence it has been widely diffused in tropical countries.	Much prized acid fruit in the tropics; widely imported in temperate regions, but sparingly used, being much less popular than the lemon. Now successfully grown in Florida, which produces a small crop.
2200	Anciently cultivated in Italy. Known to Theophrastus and Pliny.	Widespread cultivation for seeds and for green manuring in Europe. Rarely cultivated in the United States.
4000	Found in ancient Egyptian tombs. Still widely cultivated in Egypt.	Cultivated for seeds used for food in Egypt and Crete since ancient times.
2000	Culture becoming non-important on account of substitution by the artificial dye, alizarin.	Once furnished the most important red dye and was extensively cultivated in Europe, East Indies, and China, but practically abandoned in Europe and rapidly diminishing in the East, being replaced by the aniline dyes.
2000	Anciently cultivated in Peru even before the Incas, and by the Toltecs and Aztecs in Mexico. Found in the catacombs of Peru and in the remains of North American Mound Builders. Darwin found ears of Indian corn buried in soil that was formerly part of the shore in Peru, but now over eighty feet above sea level. Like wheat, maize is unknown in the wild state, and evidently has been so greatly modified by cultivation as to be incapable of maintaining itself from year to year independent of human agency.	A cereal of the first rank, the chief contribution of the American continent to the food plants of the world. Cultivated extensively in North and South America, southern Europe, and Asia, total production equaling in volume that of wheat, oats, or rye; the largest and most valuable grain crop of the United States, which produces fully three fourths of the world crop. Yield greatest in the Mississippi valley, where six states, Iowa, Illinois, Missouri, Kansas, Indiana, and Nebraska, grow one half of the crop. Staple food in Mexico and Central America, and increasingly used for food in S. Europe and Asia. Sweet corn is a garden variety which has assumed great importance since the development of the canning industry, ranking in acreage with the tomato and garden pea as a vegetable and canning crop. Pop corn has become a valuable local crop in certain sections, particularly in northwestern Iowa.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Mango	*Mangifera indica*	Sumac Family *Anacardiaceae*	Small tree	India, Malay Peninsula
Manila Hemp	*Musa textilis*	Banana Family *Musaceae*	Small tree	Philippine Islands
Maté	*Ilex paraguensis*	Holly Family *Aquifoliaceae*	Small tree	Paraguay, W. Brazil
Millet (Common)	*Setaria miliacea*	Grass Family *Gramineae*	Annual	Egypt, Arabia
Millet (Italian)	*Setaria italica*	Grass Family *Gramineae*	Annual	China, Japan, Indian Archipelago
Mulberry (Black)	*Morus nigra*	Nettle Family *Urticaceae*	Small tree	Armenia, N. Persia
Mulberry (White)	*Morus alba*	Nettle Family *Urticaceae*	Small tree	India, Mongolia
Mushroom (Common)	*Agaricus campestris*	Mushroom Family *Agaricaceae*	Perennial	Northern Hemisphere
Muskmelon	*Cucumis Melo*	Gourd Family *Cucurbitaceae*	Annual	India, Guinea
Mustard (Black)	*Brassica nigra*	Mustard Family *Cruciferae*	Annual	Eur., N. Afr., W. Asia
Mustard (White)	*Brassica alba*	Mustard Family *Cruciferae*	Annual	Eur., N. Afr., W. Asia
New Zealand Spinach	*Tetragonia expansa*	Carpetweed Family *Aizoaceae*	Annual	New Zealand
Nutmeg	*Myristica fragrans*	Nutmeg Family *Myristicaceae*	Small tree	Molucca Islands
Oats	*Avena sativa*	Grass Family *Gramineae*	Annual	E. Temperate Europe
Ochrus	*Lathyrus ochrus*	Pea Family *Leguminosae*	Annual	Italy, Spain
Oil Palm	*Elaeis guineensis*	Palm Family *Palmaceae*	Tree	Guinea
Okra (Gumbo)	*Hibiscus esculentus*	Mallow Family *Malvaceae*	Annual	Tropical Africa
Olive	*Olea europea*	Olive Family *Oleaceae*	Small tree	Syria, S. Asia Minor
Onion	*Allium Cepa*	Lily Family *Liliaceae*	Biennial	Persia, Afghanistan

Years of Known Cultivation.	Historical Notes.	Economic Importance.
4000	Ancient in India. Introduced into South America (Brazil) about 1750.	Valuable fruit; cultivated in many tropical and subtropical countries, over 150 varieties being grown in India.
500	Cultivation limited to the Philippine Islands, chiefly to Luzon, where it has been long cultivated.	Yields the standard fiber for rope making and cordage. Worn-out rope makes excellent manila paper. Native clothes in Philippines woven from manila fiber. Extensively cultivated and forms one of the chief exports of the Philippines.
1000	Use ancient in Brazil and Paraguay. Cultivation increasing.	Beverage plant. Collection and preparation of leaves important industry in Paraguay and Brazil.
5000	Cultivation prehistoric in S. Europe, Egypt, and Asia. Greatly used by Swiss Lake Dwellers of the Stone Age. Mentioned by Theophrastus and Cato.	Valuable forage plant; much used in Europe, W. Asia, and the United States. Grown in every state and territory; total crop about one half that of red clover or alfalfa, Kansas leading in production.
5000	Cultivation prehistoric in Asia. In China it is sown at a royal ceremony, dating back to 2700 B. C.	In wide cultivation in Europe and Asia as forage and food plant. Important food crop in China and Japan, the latter annually using 35,000,000 bushels for human food. Seeds formerly used for food in Europe, but now chiefly fed to birds.
2000	Mentioned by Greek and Latin authors. Naturalized in Greece, Italy, and Spain. Still much cultivated in Greece.	Much grown fruit in Europe for wine making and preserving; sparingly in the United States.
4000	Ancient cultivation in China in silk culture. Planted in S. Europe since 1540; in the United States since 1830.	Wide cultivation in India, China, and Japan. Bark used in paper making. Leaves form chief food for silkworms.
1000	In cultivation since Middle Ages. The only cryptogamous plant in extensive cultivation.	Extensively grown for market near large cities in Europe and the United States.
2000	Represented in a painting found in Herculaneum. Introduced into China 800. Fruit greatly improved during last 400 years.	Much prized in cultivation in the Old World. Widely cultivated in the United States, ranking fifth in acreage among vegetables. New Jersey leads in production, growing about one seventh of entire crop. Cultivation under irrigation much developed in Colorado. Often called cantaloupe in the markets.
2000	Cultivation ancient in the Mediterranean basin. Naturalized as a weed in the United States.	Cultivated in Europe for mustard oil.
2000	See Black Mustard above.	Cultivated in Europe and sparingly in the United States for salads, for seeds used as a condiment, and for oil.
130	Brought to England by Captain Cook in 1771 and put in cultivation by Sir Joseph Banks. Now sparingly diffused in gardens in Europe and the United States.	Use similar to that of spinach. Valuable in dry countries, but not yet widely known or cultivated.
2000	Ancient cultivation in East Indies. Recently introduced into West Indies and Brazil.	Valued spice plant; in cultivation in the East and West Indies and Brazil. Annual imports to United States exceed $500,000.
3800	Prehistoric in central Europe. Found in lake dwellings of the Bronze Age. Pliny states that the Germans lived on oatmeal Not cultivated by ancient Egyptians or Hebrews. First Chinese record later than 600. Still almost unknown in India.	A cereal of the first order, extensively grown in northern Europe, United States, and Canada. Russia and the United States lead in production. Third in importance among cereals in the United States, ranking next to corn and wheat, exceeding wheat in volume but not in value. Illinois and Iowa leading oat growing states, producing about one third of total crop.
2300	Mentioned by Theophrastus, but cultivation local in S. Europe in both ancient and modern times.	A fodder plant limited in cultivation to S. Europe and Asia Minor; chiefly grown in Spain and Greece.
400	In cultivation by negroes when Guinea was first visited by travelers early in the sixteenth century. Introduced into Brazil and West Indies by slave traders, where it has now become naturalized.	Source of palm oil used for food on west African coasts and exported in large quantities to Europe for candle and soap making. It is particularly valuable in the process of making tin plate.
1500	Anciently grown in tropical Africa. Was in cultivation in Egypt in 1216. Now diffused in tropical countries and in the S. United States.	A generally used food plant most commonly employed in soups in the East and West Indies and also in the southern United States.
4000	Cultivated by ancient Egyptians. Mentioned in Homer's *Iliad* and *Odyssey*, and in the earliest Hebrew books. According to Pliny cultivation began at Rome about 600 B. C.	Important in dry countries. In extensive cultivation in Mediterranean Europe, Syria, south Africa, Australia, and California. Chief products: olive oil, which takes the place of butter in Mediterranean countries, and the dried and pickled fruit, all of which are important commercially. Olive culture in the United States is confined to California.
4000	Cultivated by the ancient Egyptians; also by the Greeks and Romans.	Extensively cultivated throughout the world. Grown in every state in the United States, New York and Ohio leading in production. Bermuda and Spanish varieties now grown in California.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Orange	*Citrus Aurantium*	Orange Family *Aurantiaceae*	Small tree	China, Cochin China
Papaw	*Papaya vulgaris*	Papaya Family *Papayaceae*	Small tree	W. Indies, Cent. Am.
Parsley	*Petroselinum sativum*	Parsley Family *Umbelliferae*	Biennial	S. Europe, Algeria
Parsnip	*Pastinaca sativa*	Parsley Family *Umbelliferae*	Biennial	N. Asia, Central and Southern Europe
Pea (Field)	*Pisum arvense*	Pea Family *Leguminosae*	Annual	Italy
Pea (Flat-podded)	*Lathyrus Cicera*	Pea Family *Leguminosae*	Annual	S. Europe, Algeria
Pea (Garden)	*Pisum sativum*	Pea Family *Leguminosae*	Annual	W. Temperate Asia
Peach	***Amygdalus persica***	Rose Family *Rosaceae*	Small tree	China
Peanut	*Arachis hypogaea*	Pea Family *Leguminosae*	Annual	Brazil
Pear	*Pyrus communis*	Rose Family *Rosaceae*	Tree	Europe, Asia Minor
Pepper (Black)	*Piper nigrum*	Pepper Family *Piperaceae*	Shrub	India
Pepper (Red)	*Capsicum annuum*	Potato Family *Solanaceae*	Annual	Brazil
Peppermint	*Mentha piperita*	Mint Family *Labiatae*	Perennial	Europe
Pineapple	*Ananas sativa*	Bromelia Family *Bromeliaceae*	Perennial	Mex., Cent. America, Colombia
Pistachio Nut	*Pistacia vera*	Sumac Family *Anacardiaceae*	Shrub	Persia, Syria
Plum (Prune)	*Prunus domestica*	Rose Family *Rosaceae*	Small tree	Asia Minor, Persia
Pomegranate	*Punica Granatum*	Myrtle Family *Myrtaceae*	Tree	Persia, Afghanistan

Years of Known Cultivation.	Historical Notes.	Economic Importance.
1500	Cultivation developed in Middle Ages. Unknown to Greeks and Romans. First planted in the United States by Spanish at St. Augustine, Florida, in 1562.	The most important subtropical fruit. Cultivated in India, Japan, East India Islands, Mediterranean countries, Brazil, and Jamaica. In the United States commercial production limited to California and Florida, California leading in production.
1000	Long cultivated in West Indies. Now diffused in all tropical regions.	Valuable fruit. Extensively cultivated in tropical countries; not exported to any extent. The wild papaw, *Asimina triloba*, of the southern United States, is an entirely different plant.
1200	Cultivated by Charlemagne. Introduced into England in 1548.	Widely grown in Europe and the United States as a flavoring plant and for garnishings, but relatively an unimportant vegetable.
2000	Cultivation developed in central and southern Europe during Middle Ages.	Limited cultivation as a winter vegetable in the United States and in Europe, but little used in comparison with the leading vegetables.
2000	Cultivation appears to have begun with the Romans and Greeks. Now widely grown in Europe, North America, and Asia as far east as India.	Valuable for food and forage. Grown on a large scale in Europe for the seeds used for food and to a limited extent for fodder; also much grown in Canada, but cultivation less important in the United States, where it is not as popular for food as the bean.
2000	Long cultivated in southern Europe and diffused by modern cultivation in western Asia.	Esteemed fodder plant, but if seeds are used for food in quantities, becomes dangerous to health. Cultivation mostly in Italy and Spain.
3800	Cultivated by Lake Dwellers of Bronze Age and by ancient Greeks. Mentioned by Theophrastus.	Highly prized garden vegetable. Cultivated in Europe, Asia, and the United States. Chiefly used as green vegetable, but also for fodder. Ranks seventh in acreage among minor vegetables in the United States. Canning green peas has now become an important industry.
4000	Cultivation prehistoric in China. Introduced among Greeks and Romans about 100.	Extensively cultivated in Europe and Asia and second only to the apple as an orchard fruit in the United States. California, Michigan, Georgia, and Texas lead in production.
1000	Ancient cultivation in South America. Found in ancient Peruvian tombs. Introduced into Africa about 1500. Important in the United States since 1866.	Now grown in all warm regions, and in the last 40 years has become important crop in the United States. Yield, about 12,000,000 bushels, of which Virginia, North Carolina, Georgia, and Alabama produce three fourths, ranking in order named. In this country crop is largely eaten as roasted peanuts, but in Europe quantities of peanut oil are produced.
4000	Prehistorically cultivated by Lake Dwellers of Bronze Age. Mentioned by Homer, Theophrastus, and Pliny.	Wide cultivation in temperate regions, but chiefly in France and the United States. Ranks fourth among American orchard fruits, being preceded by the apple, peach, and plum. Chiefly grown in California, New York, and Michigan.
2300	Long cultivated. Used as a medicine by Hippocrates 400 B. C. In Middle Ages was one of the most prized and costly spices.	The most commonly and widely used spice. Extensively cultivated in East and West Indies, Siam, and Malay Peninsula, whence millions of pounds are exported.
500	Early cultivation in the West Indies. Introduced into Europe in sixteenth century.	Also known as cayenne pepper or chili. Much grown in tropical Africa and America, but less generally used than black pepper.
150	Commercial cultivation for oil began in Surrey, England, about 1750. Now extended to the United States. Also cultivated in Japan.	Essential oil very widely used in flavoring, in making menthol, and in medicine. Grown in England and Japan, but chiefly in the United States, about one half of the commercial crop being produced in Michigan, mostly in St. Joseph county. Japan's crop is next in importance and is largely used in making menthol.
500	In cultivation at time of Spanish discovery in tropical America. Introduced in sixteenth century into India and Guinea; recently into Florida, California, and Hawaii.	Highly prized and increasingly popular subtropical fruit until recently important in greenhouse cultivation in Europe, but culture under glass now relatively unimportant, the markets being supplied from increasing outdoor plantations in the Azores, northern Africa, Queensland, Bahamas, West Indies, and Florida, the latter cultivating upwards of 14,000,000 plants. Sparingly grown in California and Hawaii.
1900	Long cultivated in western Asia. Introduced into Italy about 30.	Nut highly prized for flavoring and for oil. Cultivated in S. Europe and N. Africa.
2000	Extensively cultivated by the Romans. Mentioned by Pliny. The prune is a variety that produces fruit containing a high percentage of sugar, which can be dried without removing the skins or stones.	Extensive cultivation throughout temperate regions. Third most important orchard fruit in the United States, exceeding 8,000,000 bushels, California growing two thirds. All prunes produced in the United States grown in the Pacific States; first prune orchard planted at San José, California, in 1870. Many eastern plums are cultivated varieties of the native species, *Prunus americana*.
4000	Cultivated throughout historic time. Represented in ancient Assyrian and Egyptian sculptures. Introduced into China 150 B. C. Cultivated in the United States in Florida and California.	Widely cultivated and highly prized fruit in S. Europe, N. Africa, and India; sparingly grown in Florida and California.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Poppy	*Papaver somniferum*	Poppy Family *Papaveraceae*	Annual	Mediterranean basin
Potato	*Solanum tuberosum*	Potato Family *Solanaceae*	Perennial	Mountains of Tropical America, Chile to Mexico
Prickly Pear	*Opuntia Ficus-indica*	Cactus Family *Cactaceae*	Small tree	Mexico
Pumpkin	*Cucurbita Pepo*	Gourd Family *Cucurbitaceae*	Annual	Temp. N. America
Purslane	*Portulaca oleracea*	Purslane Family *Portulacaceae*	Annual	Central and W. Asia, Greece
Quince	*Cydonia vulgaris*	Rose Family *Rosaceae*	Small tree	Persia, Asia Minor
Quinoa	*Chenopodium Quinoa*	Goosefoot Family *Chenopodiaceae*	Annual	Colombia, Peru
Radish	*Raphanus sativus*	Mustard Family *Cruciferae*	Annual	Temperate Asia
Rape	*Brassica Napus*	Mustard Family *Cruciferae*	Biennial	Europe
Raspberry (Black)	*Rubus occidentalis*	Rose Family *Rosaceae*	Small shrub	Eastern U. S., Canada
Raspberry (Red)	*Rubus idaeus*	Rose Family *Rosaceae*	Shrub	Temp. Europe, Asia
Rhubarb	*Rheum Rhaponticum*	Buckwheat Family *Polygonaceae*	Perennial	China
Rice	*Oryza sativa*	Grass Family *Gramineae*	Annual	India
Rye	*Secale cereale*	Grass Family *Gramineae*	Annual	Eastern Temperate Europe, north of the Danube
Safflower (see Carthamine)				

Years of Known Cultivation.	Historical Notes.	Economic Importance.
3000	Known to the Lake Dwellers. Used by Greeks and Romans. Mentioned by Homer.	Source of opium, which is the most important drug in commerce, and of poppy oil. Much cultivated, the Ganges region of India leading in production, but largely grown in China, Asiatic Turkey, and Egypt. Opium consumption greatest in China and Burma. Used in the United States and Europe chiefly in manufacture of morphine and codeine.
2000	Cultivation ancient in Peru. Widely diffused from Chile to Colombia at time of Spanish discovery but no evidences of culture in Mexico or by North American Indians. Introduced into what is now North Carolina and Virginia late in the sixteenth century. Brought to Europe first by the Spaniards early in the sixteenth century and to England by Sir Walter Raleigh in 1585.	Stands second only to corn as the most important contribution of America to the food plants of the world. Preëminently the most important vegetable grown in Europe and America. World crop enormous, exceeding 5,000,000,000 bushels; in bulk surpassing by about one half the world crop of wheat, corn, or oats. Germany, Russia, Austria-Hungary, France, the United States, and Great Britain chief producers in order named. Germany grows one third of the world crop, Russia one fifth. In the United States grown in every state and territory, also in Hawaii and Alaska.
500	Cultivated in Mexico before the Spanish conquest. One of first American plants taken to Old World. Introduced into S. Europe, Asia, and Africa. Now widely naturalized.	Grown for fruit in Mediterranean countries and Southwest Asia. Also used as hedge plant and as food plant for cochineal insect. The tuña, a closely related, perhaps identical, species, is highly valued for fruit in Mexico.
500	Cultivated by Indians at time of earliest discoveries in the United States.	Formerly much grown for table use in the United States, but now largely supplanted by improved varieties of squash. Still extensively planted, most frequently in corn fields, for stock feeding.
4000	Diffused in cultivation throughout the world since earliest times. Now extensively naturalized in the United States.	Cultivated as a pot herb in Europe. Is a common garden weed in the United States. Rarely used as a vegetable, though frequently fed to animals, particularly to pigs.
4000	Cultivation very ancient in W. Asia and in Greece. Mentioned by Plutarch and Pliny.	A minor orchard fruit not extensively grown though frequently used for flavoring, preserving, and jellies in Europe and the United States. Largest American orchards are in western New York.
1000	Extensive ancient cultivation in the Andean plateau, Colombia to Chile. Was staple food for natives of this region at date of Spanish conquest.	Meal made from seeds chief food of people inhabiting the high plateaus of Colombia, Peru, and Chile.
3000	Cultivated in gardens from China to Europe since ancient times. Mentioned in Chinese records 1100 B. C.	Cultivated in all temperate regions. Very common in gardens and universally used as table vegetable in the United States.
4000	Prehistoric cultivation in Europe.	Widely grown in Europe for oil from the seeds, for green manuring, and as green fodder for sheep. Sparingly grown in the United States for stock food.
75	Cultivation began in the United States in 1832. Now general in Eastern States.	Cultivated only in North America. The leading bush fruit of the United States and second only to the strawberry among small fruits. New York, Michigan, Ohio, and Pennsylvania, ranking in the order named, grow over one half of the total crop, which exceeds 75,000,000 quarts.
1000	Long and widely cultivated in northern Europe; sparingly in the United States.	Extensively cultivated in Europe. Both this species and a cultivated variety of the wild red raspberry (*Rubus idaeus* var. *aculeatissimus*) are widely grown in the United States, but production is small compared to that of the black raspberry.
2000	In Europe long grown as vegetable, foliage plant, and for medicinal properties of the root.	Generally grown in the United States as an early green vegetable. Cultivation, relatively, of minor importance.
5000	Mentioned in Chinese records dating back to 2800 B. C. Cultivation in S. United States began before 1700.	Grown in immense quantities in China, Japan, and India, where it is the chief food, sustaining about one third of the human race; also grown in considerable quantities in S. Europe, Egypt, and the United States. Cultivation in the United States began in Georgia and the Carolinas in 1700. Louisiana now grows three fifths of the crop, South Carolina, Hawaii, and Georgia following in the order named.
2000	Least ancient of Old World cereals. Unknown to the ancient Greeks, but mentioned by Pliny. Cultivation probably did not antedate the Christian Era in Roman countries, but may have been more ancient in Russia and Thrace.	Fifth in importance among the great cereals; outranked only by wheat, corn, rice, and oats. Russia produces about one half of the world crop, Germany second, Austria third, altogether some seven eighths of the world crop. A leading food stuff in northern Europe; is made into "black bread." Unimportant crop in the United States, comprising in value only one per cent. of our cereals.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Saffron	*Crocus sativus*	Iris Family *Iridaceae*	Perennial	Asia Minor, Greece, Italy
Sainfoin	*Onobrychis sativa*	Pea Family *Leguminosae*	Perennial	Temp. Eur., W. Asia south of Caspian Sea
Sapodilla	*Achras Sapota*	Sapodilla Family *Sapotaceae*	Tree	Cent. Am., W. Indies
Sea Kale	*Crambe maritima*	Mustard Family *Cruciferae*	Perennial	Western Europe
Sesame	*Sesamum indicum*	Bignonia Family *Bignoniaceae*	Annual	Sunda Islands
Sisal Hemp	*Agave sisalina*	Amaryllis Family *Amaryllidaceae*	Small tree	Mexico, Central Am.
Sorghum Cane	*Sorghum saccharatum*	Grass Family *Gramineae*	Annual	Tropical Africa
Spinach	*Spinacia oleracea*	Goosefoot Family *Chenopodiaceae*	Annual	Persia
Strawberry (American)	*Fragraria virginiana*	Rose Family *Rosaceae*	Perennial	N. E. U. S., Canada
Strawberry (Chilean)	*Fragraria chilensis*	Rose Family *Rosaceae*	Perennial	Chile, California
Strawberry (European)	*Fragraria vesca.*	Rose Family *Rosaceae*	Perennial	Temp. Eur., W. Asia E. North America
Sugar Cane	*Saccharum officinarum*	Grass Family *Gramineae*	Annual	East Indies
Sumac	*Rhus Coriaria*	Sumac Family *Anacardiaceae*	Small tree	Mediterranean basin. Southwest Asia
Sunflower	*Helianthus annuus*	Sunflower Family *Compositae*	Annual	West Central U. S.
Sweet Potato	*Ipomaea Batatas*	Convolvulus Family *Convolvulaceae*	Perennial	Trop. Am. E. Ind. (?)

Years of Known Cultivation.	Historical Notes.	Economic Importance.
4000	Cultivation remotely ancient in W. Asia.	The dried flower parts furnish a dye widely used in coloring and flavoring confectionery. Now most extensively cultivated in Spain.
500	Cultivation appears to have begun in France about 1400.	Much cultivated in Europe for pasturage and hay. Almost unknown in the United States.
500	Cultivation antedates Spanish discovery in tropical America. Since much diffused in tropical regions of India and East India Islands.	Sub-acid fruit much used for desserts in West Indies and other tropical countries where it is cultivated.
200	Cultivation developed in Europe in the eighteenth century.	Blanched sprouts, similar to asparagus, highly prized in England, where it is a widely grown vegetable. Cultivation limited elsewhere.
4000	Cultivation very ancient in Sunda Islands. Introduced into India about 1000 B. C.; Egypt, about 500 B. C.; in Brazil before 1650.	Seeds used for food and yield oil used similarly to olive oil as a food and cosmetic. Much cultivated in tropical and subtropical countries of the Old World, particularly in India, China, Japan, Egypt, and Central Africa.
500	Long cultivated to limited extent in Mexico and Central America. Greatly increased in Yucatan during last 25 years.	Valuable coarse fiber plant. Cultivation an important industry in Mexico, particularly in Yucatan, and in Central America; greatly increased in recent years by extensive use of fiber in making binding twine for American harvesting machines.
4700	Anciently cultivated in Egypt, India, and China. Many varieties now grown throughout the world.	Extensively grown throughout the world, especially in China, India, Egypt, and central Africa, for seeds, syrup, and fodder. Long cultivation has developed several important varieties. These are the non-saccharine, embracing Kafir corn, dourra, rice corn, Jerusalem corn, and broom corn, grown for the seeds and fodder; and the saccharine, embracing the well-known sorghum canes, grown for syrup and fodder. Sorghum cane, broom corn, and Kafir corn are extensively grown in the United States. Syrup production reached maximum about 1880; has rapidly declined owing to introduction of glucose syrups made from corn. Tennessee, Kentucky, Missouri, and Arkansas lead in syrup production. Fodder production increasing notably in Kansas, Oklahoma, and semi-arid districts. (See *Broom Corn and Kafir Corn.*)
2000	Cultivation ancient in W. Asia. Brought into China by Chang-kien about 150 B. C. Introduced into Europe in fifteenth century.	Cultivated in Europe and America for young leaves used as greens. In wide use as a minor vegetable.
300	Introduced into England in 1629. The principal strawberry grown in the United States, where culture became important with introduction of Hovey's strawberry in 1834.	Most important small fruit of the United States; grown in every state and territory; annual yield upwards of 250,000,000 quarts, Maryland, Michigan, Ohio, New York, Tennessee, New Jersey, Illinois, and Missouri leading in production.
300	Introduced into France from Chile in 1715. Now much crossed with the American and the European strawberry in cultivation.	Pure species not much cultivated, but valuable crosses with the other cultivated species are in extensive cultivation in Europe and America. Grows wild west of the Cordilleras in Chile, also in California.
500	Cultivation began in fifteenth century. Now much crossed with preceding, forming new varieties.	Widely grown in gardens in England and N. Europe.
2000	Brought to Europe by Crusaders. Introduced into Brazil, Mexico, and West Indies, 1500-1550.	Until within 50 years the chief source of sugar, but now second to the sugar beet. In cultivation throughout tropical regions. Grown extensively in East and West Indies, Hawaii, Brazil, Argentina, Peru, Mexico, and Louisiana. Cuba, Java, Hawaii, and Louisiana lead in production, growing over one half of the world crop of cane sugar.
500	Cultivated in Spain, Italy, and Sicily for the leaves, which are used in tanning.	Leaves valuable in tanning, subserving the same use as tan bark. Cultivation increasing in southern Europe, particularly in Sicily. The leaves of wild American sumacs have been gathered for export in considerable quantities, particularly in Virginia.
500	In cultivation by the Indians, who used seeds for food and hair oil, at period of early discoveries. Introduced into Europe about 1550. Mentioned by Champlain in his travels, 1610.	Grown in Egypt, India, and particularly in southern Russia for seeds, yielding a valuable oil. Seeds fed to poultry, the seed cake to stock. Sparingly cultivated in the United States, except for ornament, although Illinois, Iowa, Indiana, and Arizona report small crops of seeds.
2000	Widely cultivated in tropical countries. Ancient in China and antedating Spanish discovery in West Indies.	Most important vegetable in tropical and subtropical countries, where it is extensively cultivated. Second only to the potato in the United States; widely grown in the South, Georgia, North Carolina, Alabama, South Carolina, and Tennessee producing over half of the total crop, which in acreage and value is about one fifth that of the potato.

Common Name.	Scientific Name.	Plant Family.	Character.	Origin.
Taro	*Colocasia antiquorum*	Arum Family *Araceae*	Perennial	India, Polynesia
Tea	*Thea sinensis*	Camellia Family *Ternstroemiaceae*	Shrub	China, Assam, Manchuria
Timothy Grass	*Phleum pratense*	Grass Family *Gramineae*	Perennial	Europe
Tobacco	*Nicotiana Tabacum*	Potato Family *Solanaceae*	Annual	Ecuador, Peru, Colombia
Tomato	*Lycopersicum esculentum*	Potato Family *Solanaceae*	Annual	Peru
Turnip	*Brassica Rapa*	Mustard Family *Cruciferae*	Biennial	Europe
Vetch	*Vicia sativa*	Pea Family *Leguminosae*	Annual	Europe, Algeria
Watermelon	*Citrullus vulgaris*	Gourd Family *Cucurbitaceae*	Annual	Tropical Africa
Wheat	*Triticum vulgare*	Grass Family *Gramineae*	Annual	Euphrates region, Asia
Yam	*Dioscorea alata*	Yam Family *Dioscoreaceae*	Perennial	Tropical Africa, Pacific Islands

Introduced Plants. A well populated region, where agriculture is extensive, contains in addition to the surviving native plants, a large number which have been introduced in various ways from other parts of the world. The ships of modern commerce have taken the rat and the cockroach to every seaport, and likewise have transported many plants which have become established in the vegetation of new regions. An introduced plant which maintains itself permanently is said to be naturalized; if it survives only temporarily and locally it is called adventitious. Colonization and trade have diffused hundreds of the plants of Europe in other continents. In turn, Europe has received many foreign plants, and there is a continuous interchange between various regions of the world. Nearly all these widely distributed plants are herbs,—a large number being the field, garden, and wayside weeds that accompany agriculture everywhere. The number of introduced shrubs and trees which have become thoroughly naturalized is small. Some plants, like the English sparrow and European rabbit among animals, have become pestiferous after gaining a foothold in a new region, such as the Canada thistle, Russian thistle, and other troublesome weeds.

In that portion of the United States and Canada lying east of the northwest corner of Minnesota and extending south to Kansas and Tennessee, containing three fifths of the population and the most extensive agriculture of North America, about 4,000 species of flowering plants are found. Of these, 666, or almost exactly one sixth, are naturalized plants, mostly introduced from Europe, although many other regions have contributed. Consequently, the flora of this area has been enriched by the addition of one foreign to each five native species. No other region in North America contains so large a

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ORANGES AND CITRUS FRUITS

Orange Grove
Navel Oranges and Blossoms

Navel Orange Tree

Lemon Grove
Grape Fruit and Blossoms

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FRUITS AND NUTS

Apple
Apricot
Persimmon
Peach
Pear
Cocoanut
Fig
Banana

Years of Known Cultivation.	Historical Notes.	Economic Importance.
2000	Cultivation ancient in Polynesia. Reached China before 100 B. C. and long cultivated in India and Egypt. Mentioned by Pliny.	A leading food plant in the Pacific Islands, where it is widely cultivated. The starchy root is made into bread or poi.
4600	Mentioned in Chinese records dating 2700 B. C. Extensively grown in India since 1870. Experimentally grown in the southern United States.	Tea and coffee stand first among the world's beverage plants. Dried leaves produced in immense quantities for ages by cultivation in China and Japan. Cultivation becoming very extensive in India and Ceylon. Exports from India now exceed, and those from Ceylon almost equal, the export of China. Great Britain, Russia, and the United States chief consuming nations, England using about seven times as much tea as the United States, while the proportions are reversed in the consumption of coffee.
190 In U. S.	Named for Timothy Hanson, who introduced the seed in the Carolinas about 1720.	Most valuable cultivated grass in the United States; constitutes a large part of the hay crop in the North Central and Northeastern States.
2000	Almost universally used by Indians of North and South America since ancient times. Tobacco pipes abundant in Aztec tombs, also found among remains of the Mound Builders. Introduced into Europe by Oviedo about 1520. Cultivated by first colonists in Virginia.	Cultivation greatly diffused since Spanish discovery. The United States is the leading grower, production about equaling the total crop of Europe, which is mostly grown in Austria, Russia, Germany, and France. Cultivation, which began at first settlement of Jamestown, became great factor in growth of Virginia and Maryland. Kentucky, North Carolina, Virginia, Ohio, Tennessee, Wisconsin, Pennsylvania, and Connecticut lead in production. Cigars first made at South Windsor, Conn., in 1801; became commercially important after 1850. Use of tobacco now widespread among Oriental nations.
500	Cultivated in Peru at time of Spanish discovery. Formerly called "Love Apple" and considered poisonous, but during last century cultivation has become extensive in all temperate climates.	Highly prized and increasingly popular vegetable. Cultivation greatly enlarged in recent years by growth of the canning industry and locally is of much importance. Exceeded in acreage only by the watermelon and sweet corn among the minor vegetables. Crop exceeds 30,000,000 bushels, nearly half of which is grown in Maryland and New Jersey.
4000	Prehistoric in Europe, but not known to ancient Egyptians, Hebrews, or Chinese.	Much grown in England, northern Europe, and Canada for stock food. Widely, but sparingly, cultivated in the United States. Used extensively as table vegetable.
2000	In cultivation by the Romans at the time of Cato.	Valuable for seed and forage. Much cultivated in Europe, but rarely and not very successfully in the United States.
4000	Very anciently cultivated by Egyptians. Most extensive cultivation in the United States is in the Southern States; in Europe, in southern Russia.	The most popular melon in cultivation. Extensively grown in warm climates throughout the world, but most abundantly in S. Russia and the S. United States. Leads all minor vegetables in acreage, being surpassed only by the major vegetables potato and sweet potato. Texas, Georgia, North Carolina, and Missouri chief growers in the order named.
5000	Cultivation prehistoric in Asia. Grown by the Lake Dwellers, ancient Egyptians, and by the Chinese as early as 2700 B. C. Like maize, wheat is unknown in a wild state. Origin not established with certainty, but weight of evidence indicates the Euphrates region.	The most highly prized cereal in cultivation; the bread plant *par excellence* of western civilization. The world crop surpasses in value and commercial importance all other cereals, though the total yield in bushels is nearly the same as that of corn, oats, and rye. The leading wheat growing countries are the United States and Canada, Russia, France, India, Austria, Italy, Germany, and Argentina.
2000	Long cultivation in East Indies and Pacific islands. Now spread to many tropical countries.	The farinaceous roots, resembling but inferior to the sweet potato, are an important article of food in tropical Asia, Africa, and America, where it is much cultivated.

proportion of introduced plants. Of the naturalized plants, 89 are Compositae, including such common plants as the burdock, mayweed, ox-eye daisy, several thistles, and the dandelion; 66 are grasses, including foxtail grass, canary grass, beard grass, goose grass, darnel, cheat, and crab grass; 46 belong to the mustard family, containing peppergrass, shepherd's purse, mustards, and various cresses; 42 belong to the mint family, including hoarhound, motherwort, ground ivy, catnip, thyme, and various mints; 37 belong to the pulse or pea family, containing several clovers, sweet clovers, vetches, and vetchlings. A number of poisonous plants are included, among them celandine, foxglove, hellebore, henbane, jimson weed, and poison hemlock.

About four fifths of these introduced plants belong to twenty leading plant families, and this same group of families contains about two thirds of the native plants.

Native and Introduced Flowering Plants.

Northeastern United States and Canada.

Plant Family.	Native.	Introduced.	Total.
Borage Family	23	16	39
Buckwheat Family	43	14	57
Composite Family	430	89	519
Crowfoot Family	78	15	93
Ev'g Primrose Family	48	2	50
Figwort Family	86	29	115
Goosefoot Family	23	13	36
Grass Family	312	66	378
Heath Family	78	1	79
Lily Family	80	7	87
Mint Family	77	42	119
Mustard Family	56	46	102
Nightshade Family	19	14	33
Orchis Family	68	..	68
Parsley Family	57	20	77
Pea Family	145	37	182
Pink Family	37	33	70
Rose Family	183	33	216
Sedge Family	322	11	333
Violet Family	43	3	46
126 other families	1,090	175	1,265
Total	3,298	666	3,964

ANIMAL KINGDOM.

Table of the Principal Groups of Animals.

- **Protozoa** — The simplest animals
  - Rhizopoda
    - Foraminifera.
    - Radiolaria.
  - Flagellata.
  - Infusoria.
  - Gregarina.
- **Coelenterata** — Sponges, corals, and jellyfishes
  - Porifera
    - Spongiæ
      - Calcareous sponges.
      - Siliceous sponges.
  - Cnidaria
    - Anthozoa, coral polyps.
    - Hydrozoa, hydroids and medusæ.
- **Echinodermata** — Crinoids, starfishes, and sea urchins
  - Pelmatozoa
    - Cystoidea, cystids.
    - Crinoidea, stone lilies.
    - Blastoidea, blastids.
  - Asterozoa
    - Ophiuroidea, brittle-stars.
    - Asterioidea, starfishes.
  - Echinozoa
    - Echinoidea, sea urchins.
    - Holothuroidea, sea cucumbers.
- **Vermes** — Worms
  - Platyhelminthes.
  - Rotifera.
  - Nemathelminthes.
  - Gephyrea.
  - Annelida, sea worms.
- **Molluscoidea** — Mollusk-like forms
  - Bryozoa, sea mosses.
  - Brachiopoda, lamp shells.
- **Mollusca** — Mollusks
  - Pelecypoda, lamellibranchs, bivalves.
  - Scaphopoda, tusk-shells.
  - Amphineura, chiton.
  - Gastropoda, univalves, snails.
  - Cephalopoda, nautilus, cuttlefish.
- **Arthropoda** — Articulates
  - Branchiata
    - Crustacea
      - Trilobita, trilobites.
      - Gigantostraca, horseshoe crabs.
      - Entomostraca, ostracoids, barnacles.
      - Malacostraca, lobsters, crabs.
  - Tracheata
    - Myriopoda, centipeds.
    - Arachnoidea, spiders, scorpions.
    - Insecta, insects.
- **Vertebrata**
  - Cyclostomata, lampreys.
  - Pisces, Fishes
    - Selachii, sharks.
    - Holocephali, spook fishes.
    - Dipnoi, lungfishes.
    - Teleostomi, ganoids and teleosts, the common fishes
  - Amphibia, amphibians, batrachians.
  - Reptilia, reptiles.
  - Aves, birds.
  - Mammalia or Mammals
    - Prototheria, monotremes.
    - Metatheria, marsupials.
    - Eutheria, placentals.

ZOOLOGY.

Zoölogy is the science of animal life. The study and knowledge of animals from different points of view give rise to special divisions of zoölogy. The study of their gross structure is Anatomy; of the form and origin of organs, Morphology; of the functions of organs, Physiology; of minute structure, Histology; of cell structure and development, Cytology; of classification, Taxonomy or Systematic Zoölogy; of extinct animals, Paleontology; of animals in relation to man, Economic Zoölogy. The study of certain groups of animals has been given special names: of mammals, Mammalogy; of birds, Ornithology; of reptiles, Herpetology; of fishes, Ichthyology; of insects, Entomology, etc.

Systematic Zoology or **Taxonomy** treats of the classification or orderly arrangement of animals according to their natural relationships. The animal kingdom is divided into great primary divisions called Branches or Phyla.

Branches are divided into Classes.
Classes are divided into Orders.
Orders are divided into Families.
Families are divided into Genera.
Genera are divided into Species.
Species are divided into Individuals.

Nomenclature is the naming of animals and the groups to which they belong so as to make the character of the animal and its place in nature clearly understood. Scientific nomenclature is concerned with the technical names uniformly used by scientists of all nations. The scientific name of an animal consists of two Latinized words. The first, the name of the genus, or the generic name, always begins with a capital letter; the second, the word denoting the species, or the specific name, is usually in the form of a Latin adjective, and begins with a small letter. For example: the scientific name of the puma, also called cougar, panther, and mountain lion, is *Felis concolor*—*Felis* being the Latin name of the cat, and *concolor*, a Latin adjective signifying uniform color. While this animal has many popular names in several languages, its name in scientific language is the same throughout the world. The further classification of the puma is as follows:—

Branch: *Vertebrata*, Backboned animals.
Class: *Mammalia*, Mammals.
Order: *Carnivora*, Flesh-eaters.
Family: *Felidae*, Cat tribe.
Genus: *Felis*, True cats.
Species: *concolor*, uniformly colored.

A genus may contain many species or only one. There are numerous living species of

Felis, among which are the lion, *F. leo;* the tiger, *F. tigris;* the leopard, *F. pardalis;* and the jaguar, *F. onca*, but only one living species of giraffe, *Giraffa camelopardalis*. Likewise a family may consist of one or many genera, an order of one or many families, a class of one or several orders, and a branch of one or several classes.

Just as the buffalo is now disappearing, and as many species, such as the great auk, dodo, and quagga, have become extinct very recently, likewise not only an immense array of species, but whole genera, families, and orders of animals have perished in geologic times. A complete classification would include all of these. To approximate it is the vast task of paleontologists, who have already determined the relationships of thousands of fossil species. In general, the following outlines and descriptions take into account only living animals, and the classifications given are those usually followed by students of existent groups:—

Protozoa.—The lowest forms of animal life. They are all one-celled animals, and are usually of microscopic size. They move with a gliding motion, are constantly changing form, and have no organs or true tissues. Food is absorbed at all points of the surface, and is digested in all parts of the interior. The animals reproduce by self-division, one animal breaking up into two or more; or they multiply by spores or germs. The Rhizopoda (*ῥίζα, rhiza*, root, and *πούς pous*, foot), are the lowest class of Protozoa. They all have projections from the protoplasm, called pseudopodia. These projections are used both for locomotion and for taking food. The lower rhizopods have no shell or no constant shape. The only internal resemblance to organs are vacuoles. The rhizopods are grouped in two orders: the Foraminifera and the Radiolaria. The Foraminifera (*foramen*, a hole, and *ferre*, to bear) are distinguished by the form of their pseudopodia, which are long, and connected with one another in a beautiful network of protoplasm. They have also a shell or "test" of calcium carbonate or silica, or made up of particles of sand, mud, sponge spicules, or other foreign matter glued together. The shells may be perforate or imperforate. The perforations, when present permit the pseudopodia to pass through. There are also one or more general openings in the shell to permit the body to come in contact with the surrounding water, from which food is drawn. They vary in size from microscopic up to one inch in diameter (the Nummulites). Though the shells are minute they have contributed to the building up of great deposits on the bed of the ocean, and have been important limestone builders in the past. There are four important families of Foraminifera: Gromidæ, Miliolidæ, Globiginidæ, and Nummulinidæ. Radiolaria, the second and higher group of rhizopodous Protozoa, are divided into 85 known families, comprising many thousands of species. They are distinguished from other Protozoa by complex and beautiful shells of silicon, and a peculiar membranous inner capsule. They supply food to countless minute crustaceans, which in turn feed fishes.

PROTOZOA.

A. Amœba. *B.* Paramœcium. *C.* Globigerina. *D.* Euglena. *E.* Vorticella. All much magnified.

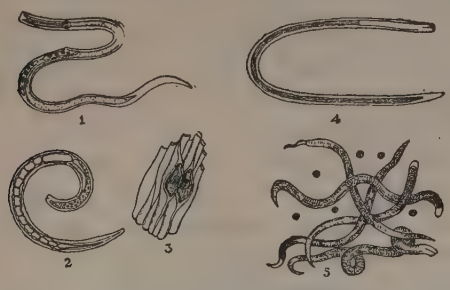
Coelenterata. This branch of the animal kingdom consists of the simplest groups of the many-celled animals or Metozoa, as distinguished from the one-celled animals or Protozoa. It includes two main groups, the Porifera, pore-bearing animals or sponges, and the Cnidaria, animals armed with stinging cells, corals, sea anemones, and hydroids. Some zoölogists consider the Porifera a distinct branch ranking between the Protozoa and the Cnidaria, which alone are regarded as the true Coelenterates. Sponges are usually attached like plants to rocks or similar substances and increase in size by a regular process of growth. The Cnidaria comprise the Anthozoa, or coral-polyps, and the Hydrozoa, or hydroids and medusae. The Anthozoa contain the sea anemones and all of the corals except the millepores. The name, Anthozoa, means flower animals in allusion to the arrangement of the rayed tentacles about the mouth in a form which suggests a composite flower. These tentacles vary in number from two to several hundred and are armed with batteries of **stinging** cells (*cnidae*). Sea anemones and most Cnidaria are gorgeously colored. The Hydrozoa (*ὕδωρ, hudor*, water, and *ζῳον, zoon*, animal) comprise the hydroids and medusae. The hydroids are noted for their delicacy and beauty. They live in communities or colonies; one group feeds the colony, another protects it, and a third is devoted to reproduction.

Red Coral. COELENTERATES. Sea Anemones.

Echinodermata (*ἐχῖνος, echinos*, a hedgehog, and *δέρμα, derma*, the skin) are the highest group of radiate animals. They have a tough external covering, ranging from a leathery skin to a well-defined calcareous test. The radiating parts are usually five in number. Echinodermata are provided with a mouth, alimentary canal, and a digestive system. They move about by means of the tube-like feet with a sucking disc at the end by which they cling to rocks and draw themselves about. They are divided into three classes: the Pelmatozoa, the Asterozoa, and the Echinozoa. Pelmatozoa are with few exceptions

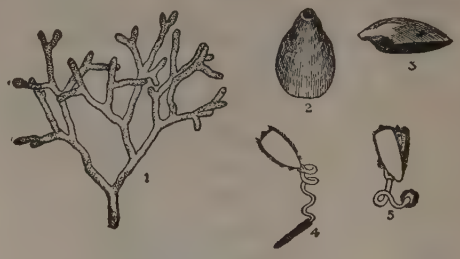
fixed to their dwelling places by stalks. They include the Cystoidea or cystids, the Crinoidea or stone-lilies, and the Blastoidea or blastids. The Cystoidea or cystids, and the Blastoidea or blastids, now extinct, were abundant in Paleozoic times. The Crinoidea or crinoids are flower-like in form. About 300 living species called sea lilies, and over 2,000 fossil species, called stone lilies, are known. The Asterozoa include the Ophiuroidea and the Asteroidea. The Ophiuroidea comprise the class of brittle stars or sand stars. They have a small, flat, roundish disc from which issue suddenly five slender, cylindrical arms. About 600 species are known. The Asteroidea are starfish. The body is five-sided and covered with short, small spines. The Echinozoa include the Echinoidea and the Holothuroidea. The Echinoidea include the sea urchins, cake urchins, sand dollars, and the heart urchins. The sea urchin has a spherical, heart-shaped or disc-shaped body covered with movable spines. The sand dollars have flat round bodies. The Holothuroidea are known as sea cucumbers, sea squirts, and sea slugs. The body is soft, worm-like in shape, and the mouth is surrounded by a circle of tentacles.

Vermes or Worms.—The animals in this group present so many differences of structure and habit that it is difficult to give in general terms a group of characteristics which will apply to all of this class. They have elongated bodies, no internal skeleton; both sides of a line drawn through the animal lengthwise are alike, and there are distinct dorsal and lateral sec-



NEMATHELMINTHINE WORMS.
1. Vinegar Eel (*Leptodera oxophila*). 2. Trichina (*T. spiralis*). 3. Trichina encysted in muscle fibers. 4. Wheat worm or Smut worm (*Anguillula tritici*). 5. Human-blood Filaria (*F. sanguis-hominis*). All much magnified.

tions. Nearly all have bodies composed of segments which are nearly alike. Almost all have powers of locomotion; they crawl; have not jointed or articulate legs, but fleshy, unjointed legs, or spines, or suckers, or bristles. Some are aquatic, some terrestrial, and some live as parasites in or on other animals. They are grouped as Platyhelminthes, Rotifera, Nemathelminthes, Gephyrea, and Annelida. The Platyhelminthes (*πλατύς, platys*, broad, and *ἕλμινς, helmins*, worm), or flatworms, have no body cavity or blood system. The body is flat and often thin and leaf-like or ribbon-like. The fluke worm or fluke infesting the livers of ruminants, causing the destructive disease known as rot in sheep, and the tapeworms parasitic in the human body and in other animals, are well-known examples. The Rotifera (*rota*, a wheel, and *ferre*, to bear) or "wheel animalcules," are minute, often microscopic, and include the smallest of the many-celled animals. The Nemathelminthes (*νῆμα, nema*, a thread, and *ἕλμινς, helmins*, a worm) are worms which do not occur in segmented form, have long, cylindrical bodies, and are known as "round worms." The skin is strong and often wrinkled. They are not known to possess any organs of special sense, except that of touch. All are parasitic except the marine forms and the paste and vinegar eels. The ascaris or roundworm and the pinworm (*Oxyurus vermiculatus*) infest the human intestines, and trichinæ, minute worms living in the muscles of the pig, when introduced into the human system cause the disease known as trichiniasis or trichinosis. The Gephyrea include many marine worms, once classed with the echinoderms as Apoda and Apedicellata. The Annelida or Annulata (*annulusa*, a little ring) are composed of many segments or rings, have a head, and are covered with bristles or hairs which assist locomotion; the blood is generally red, but often green or yellow; they breathe by gills which, in some cases, open into the alimentary canal.

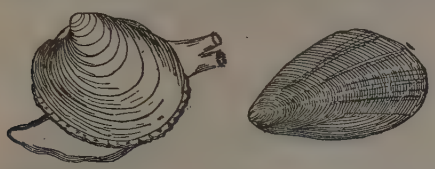


MOLLUSCOIDEA.
1. The Bryozoan Myriozoum. 2, 3. The Brachiopod Terebratulina, or Lamp-shell. 4, 5. The Brachiopod Lingula.

Molluscoidea. These are mollusk-like forms and include the Bryozoa or sea mosses and the Brachiopoda or lamp shells. The Bryozoa are minute marine animals growing in moss-like or coral-like colonies and secreting a calcareous zoarium. Each individual or zooid of the colony occupies a cell-like zoœcium. The mouth of each zooid is surrounded by a ring of tentacles known as the lophophore. There is no heart or circulating system; multiplication is by budding. English authorities call the group Polyzoa, but American authorities use the older term, Bryozoa. The Brachiopoda (*βραχίων, brachion*, arm, and *πούς, pous*, foot) have unequivalvate and equilateral bivalve shells. They have no organs of special sense; food, consisting of a number of floating organisms, is brought to the mouth by currents of water induced by the vibrations of cilia upon the two long spiral arms at the sides of the mouth, which also assist in respiration. Brachiopods adhere to solid bodies by a pedicel or by one of the valves of the shell. More than 4,000 species are known, of which 95 per cent. are extinct and known only in the fossil state.

Mollusca. The mollusks include the fresh-water mussels, clams, oysters, snails, slugs, cuttlefishes, squids, octopi, and all of the shellfish which have a one-valved shell. Instead of an internal bony skeleton, mollusks have a shell which both supports the soft tissues and pro-

tects the delicate parts. The parts of a mollusk are the head, the trunk, a foot or muscular organ by which the animal moves about and burrows, and a mantle or tunic which enfolds the body and out of which the growth of the shell is produced. Shells are of two pieces, the bearers of which are called bivalves; or of one piece, univalves. Both land and water forms are known, but the latter are by far the more numerous. They feed on vegetable and animal matter. The order is divided into Pelecypoda (lamellibranchs and bivalves), Scaphopoda

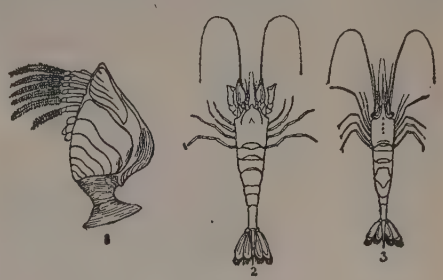


Quahog Clam. Venus mercenaria. MOLLUSKS. Common Mussel. Mytilus edulis.

(tusk shells), Amphineura (chiton), Gastropoda (univalves, snails, etc.), and Cephalopoda (nautilus, cuttlefish). Pelecypoda (*πέλεκυς, pelekys*, ax, and *πούς pous*, foot) or Lamellibranchiata or Bivalves or Acephala or Conchifera: the shells of this group are of two pieces hinged together, such as those of oysters, clams, etc. The animals vary in size from that of the little fresh-water mollusk to that of the giant East Indian clam of three feet in length. Pelecypods have the senses of touch, smell, and hearing, while some have eyes. The ears are in the foot, and the eyes are either on the edges of the mantle or at the end of the siphon. The siphon is a double tube formed by the extension of the mantle posteriorly. One opening draws in water laden with minute animalcules, thus supplying food and at the same time oxygen-laden water for respiration by the gills; the other opening furnishes a passage through which the water depleted of its oxygen and food particles passes to the outside again.

The Scaphopoda (*σκάφη, scaphe*, a boat or bowl, and *πούς, pous*, foot) includes the tooth-shells or tusk-shells. They are common in deep water on muddy bottoms. They are shaped something like an elephant's tusk, and are open at each end. There are no head, eyes, or heart. The digging foot is small. The shells were used by the Indians on the Northwest coast as necklaces and other ornaments, and as "shell money," which they call *hi-qua*. The pieces of shell were ground down to a definite shape and carefully made. The Amphineura (*ἀμφί, amphi*, around, and *νεῦρον, neuron*, a nerve) are characterized by an arrangement of the nervous system, in which two lateral and two ventral nerve trunks are bound together and are furnished with ganglia throughout the entire length. The shell is either in eight pieces or absent. They are of small size and are found in the warmer seas. The chitons have an eight-piece shell, and can roll themselves up in balls for protection. They cling to rocks and adhere despite the heaviest surf. Over 200 species are known. The Gastropoda (*γαστήρ, gaster*, the stomach, and *πούς pous*, foot) include snails, slugs, limpets, periwinkles, whelks, and many other one-shelled or one-valved shell mollusks. They are by far the largest division of the Mollusca. They all move about by the pulling or pushing force of a single foot. Breathing is carried on in some by a single gill; in others, by a pair of gills; and in still others, by lungs. The head bears tentacles, on the tips of which are the eyes. In some cases the eyes are upon a pair of stalks which can be thrust or drawn in at will. The shells are in many cases beautifully marked and colored. The mode of breathing is made the basis of further classification. The Cephalopoda (*κεφαλή, kephale*, head, and *πούς, pous*, foot) are the highest group of mollusks. They have a circle of fleshy arms around the mouth in front of the head. These arms are tentacles or "feet." By these they catch and hold their prey and also creep about. Cephalopods can swim rapidly forward or backward, which they accomplish by ejecting spurts of water, and thus propel themselves. Only the nautilus has an external shell. The octopods or octopi have eight tentacles or arms around the mouth. They are often called "devilfish."

Arthropoda.—The Arthropoda (*ἄρθον, arthron*, a joint, and *πούς, pous*, a foot) include all of the invertebrates having jointed appendages. There are more species in this than in any other branch of the animal kingdom. The bodies consist of segments or rings covered with an outer body wall or hardened cuticle, called the exoskeleton. The eyes of all arthropods are compound, made up of a number of small eyes. The divisions are: **Crustacea** (trilobites, horseshoe crabs, ostracodes, barnacles, lobsters, and crabs), **Myriapoda** (centipeds), **Arachnoidea** (spiders and scorpions), and **Insecta** (insects). The **Crustacea** (*crusta*, a shell) include lobsters, crabs, crawfish, shrimps, prawns, barnacles, etc. All live in water, though a few are met with in damp places, such as the wood



CRUSTACEANS.
1. Barnacle. 2. Shrimp. 3. Prawn.

lice and water bugs. The crustaceans have gills and two pairs of antennæ or feelers. Sea spiders are a form of Crustacea having a long slender body with eight very long legs. They live at great depths of the sea. Lobsters, crabs, and shrimps have five pairs of legs, the first usually developed as pincers. The **Myriapoda** (*μυρίος, myrios*, numberless, and *πούς, pous*, foot) include centipeds, and millipeds or thousand-legged worms. These are land animals and breathe like insects through minute openings on each side of the body along its entire length. The **Arachnoidea** or **Arachnida** (*ἀράχνη, arachne*, a spider) include the mites, scorpions, and spiders. The head and thorax

are more or less united into one part, the cephalothorax; there are four pairs of legs borne by the thorax, no antennæ, their place being taken by the jaws. The eyes are simple and vary from two to twelve. In the case of spiders, the spinnerets are borne on the abdomen. The scorpions have poison-glands and a sting in the abdomen. The mites are the lowest of the articulated animals. They are usually parasites, living upon the bodies, under the skin, of higher animals. Spiders have a round abdomen attached by a slight stem to the cephalothorax. Their mandibles or jaws are powerful hooked fangs connected with a poison gland in the head, from which a poison exudes that is strong enough to kill flies and other insects, but is not, except in the case of one species (*Latroductus*) fatal to man.

Insecta (*insectum*, cut in two) are the most numerous of all groups of land animals. The most conservative estimate of the number of species of insects places this number at 5,000,000, while Riley, the famous entomologist, placed the number of species at 10,000,000. An insect is a member of the six-legged arthropods. The term is loosely applied in popular use to everything that is of the nature of a small crawling creature. But the term does not include even spiders, centipeds, or "thousand-leggers."

One very generally accepted classification divides insects into nineteen groups or orders:—

Thysanura, springtails and bristletails.
Ephemerida, May flies.
Odonata, dragon flies.
Plecoptera, stone flies.
Isoptera, white ants.
Corrodentia, psocids and book lice.
Mallophaga, bird lice.
Euplexoptera, earwigs.
Orthoptera, grasshoppers, crickets, etc.
Physopoda, thrips.
Hemiptera, true bugs, plant lice, scale insects.
Neuroptera, aphis lions, ant lions, etc.
Mecoptera, scorpion flies.
Tricoptera, caddice flies.
Lepidoptera, butterflies and moths.
Diptera, true flies.
Siphonaptera, fleas.
Coleoptera, beetles.
Hymenoptera, bees, wasps, ants, etc.

Another mode of classification of insects is that given by Dr. Sharp in the Cambridge Natural History Series (1901) in nine orders:—

1. *Aptera*, wingless insects.
2. *Orthoptera*, locusts, grasshoppers, crickets.
3. *Neuroptera*, dragon flies, June flies, caddice flies.
4. *Hymenoptera*, ants, bees, wasps, sawflies.
5. *Coleoptera*, beetles.
6. *Lepidoptera*, butterflies, moths.
7. *Diptera*, true flies.
8. *Thysanoptera*, thrips.
9. *Hemiptera*, bugs, cicadas, aphids.

FISHES or PISCES.

The class Fishes comprises the lowest grand division of the vertebrates and certain primitive and degenerate forms standing below the true vertebrates, the whole grouped in six subclasses according to the following table based on Jordan's classification:—

PROTOCHORDATA.

Subclass.	
Enteropneusta	Balanoglossus.
Tunicata	Larvacea. Ascidiacea. Thaliacea.

VERTEBRATA.

Leptocardii	Branchiostomidae: Lancelets.
Cyclostomi	Hyperotreti: Borers: hagfishes. Hyperoartii: Lampreys.
Elasmobranchi	Selachii: Sharks, rays, sawfishes. Holocephali: Chimæras.
Teleostomi	Crossopterygii: Bechirs. Dipneusti: Sirenoidea, barramundas. Actinopterygii: Ganoidei (Ganoids): Sturgeons, garpikes. Teleostei (Bony fishes): Salmon, perch, codfish.

Enteropneusta and **Tunicata** are unimportant groups of the fishes. The Enteropneusta strongly resemble worms and have no familiar names. "Sea squirts," "sea pears," and "sea peaches" describe some of the Tunicata.

Leptocardii or **Lancelets** have the simplest of vertebrate characters: a notochord, but no skull, no limbs, and no vertebræ; the heart only a long tube with the power of contracting and expanding; blood colorless, no brain; and respiration carried on by gill slits. They are from one half an inch to four inches long and lie buried in sand and mud at the bottom of shallow waters. They are very important to the scientist for the study of the development of the vertebrates from lower forms.

Cyclostomi or **Lampreys** have a brain, skull, heart, and other organs, which mark a long step in the development of vertebrate animals. Both the hagfishes and the lampreys are parasitic upon other fishes.

Elasmobranchii or **Shark-like Fishes** have pairs of fins, a lower jaw, teeth, separate vertebræ, gill arches and a covering of scales—all structures which are not found in any of the lower fishes. The skeleton is not bony but cartilaginous so that the whole body is very flexible. There are two groups, the Selachii, sharks and skates, and the Holocephali, chimæras. Sharks are the earliest fishes found among fossils. There are about 150 known species of sharks and this group includes also the rays and skates. The chimæras are a small group of ugly looking fishes sometimes called sea cats.

Teleostomi or **True Fishes** have a more or less complete bony skeleton, and include all of the higher forms of the three great primary divisions. The Crossopterygians, fringe-finned fishes, and the Dipneusti, lungfishes, are nearly all extinct and are of paleontological interest. The Actinopterygii include all fishes with fish jaws and fish fins, and comprise the Ganoidei, ganoids, and the Teleostei, bony fishes.

Ganoidei, Ganoids. In most ganoids the skeleton is cartilaginous, and in some it is very primitive in development. The body is covered with horny, enameled plates, and angular, shining scales. The number of living ganoids is small and their relationships puzzling.

Teleostei or **Bony Fishes** comprise all of the most highly developed fishes, embracing some 10,000 species. The skeleton is almost entirely bony, and there are many specializations of

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PLANT LIFE

1 Tobacco drying, Cuba. 2 Tobacco field. 3 Lilies (lilium candideum). 4 Tobacco. 5 Hedge (picea-excelsa). 6 Pineapple field. 7 Hydrangea (olaksa). 8 Fern (aspidium-felix-mas).

All Photos from N. Y. Zoological Society.

WATER FOWL

1 Common Sea Gulls
2 Mute Swans
3 Mallard Ducks
4 Great White Heron
5 American Wood Ibis
6 Canada Geese
7 American Flamingoes
8 Eider Ducks

structure not found in the lower groups. The infinite variety of detail in structure divides this vast assemblage into many orders of very unequal size and value. Their relationships are extremely diverse and cannot be correctly indicated in a linear series.

AMPHIBIANS or AMPHIBIA.

This class is an interesting link between Fishes and Reptiles. It was formerly called Batrachians, but the name Amphibia has now come into more general use. But all amphibian animals are not Amphibia; for the seal and walrus, though equally at home on land or sea, are of a much higher class.

All Amphibians, like Fishes and Reptiles, are cold-blooded—that is, they adapt the temperature of the body to that of their surroundings. On this account they are able to endure extremes of heat and cold in a remarkable degree. They can withstand the solid freezing of the water of a marsh or pond, but do not so well bear the higher temperatures.

There are wonderful combinations of gills, lungs, and fins and legs in this class, affording interesting study in evolution, but this great diversity makes classification difficult.

Amphibians thrive in warm regions, being most numerous in tropical America and India; none occur in polar regions. There are about 1,000 existing species, of which about 100 are Tailed Amphibians (*Urodela*); some 60 of these are American, 40 are Coecilians (*Apoda*) mostly of tropical America, and the remainder are Tailless Amphibians (*Salientia*), Frogs, and Toads widely distributed throughout the world.

REPTILES or REPTILIA.

Reptiles are air-breathing vertebrates, with limbs generally ending in claws, and bodies usually protected by plates or horny scales. They are cold-blooded, breathe by lungs; some live on land and some in water; the latter come to the surface to breathe. The class includes turtles, snakes, lizards, crocodiles, etc. The three orders of living Reptiles are:—

Chelonia. Turtles, Tortoises, and Terrapins.
Crocodilia. Crocodiles, Alligators, Gavials.
Squamata. Lizards and Snakes.

Of the numerous species found in North America, there are 44 Turtles and Tortoises, 2 Crocodilians, 97 Lizards, and 111 Snakes.

Chelonia. Tortoises are strictly land animals; Terrapins are the edible, hard-shelled, fresh-water species, and Turtles is a name applied loosely to the entire order.

Crocodilia or Crocodilians. The two species of this order found in North America are the American Crocodile and the Alligator. There are about 23 species of crocodilians in the world, the largest of which are found in the Eastern Hemisphere.

Squamata or Lizards and Snakes. This is much the largest of the three living orders of reptiles grouped in two suborders, Lacertilia, Lizards, and Ophidia, Snakes, each embracing about 1,000 species, the North American representatives of which are classified in 11 families of lizards and 4 families of snakes.

BIRDS or AVES.

Birds were evolved from reptiles. The strongest evidence of this fact was the discovery among the lithographic slate of Solenhofen in Bavaria of the fossil remains of a reptile-like bird, the *Archaeopteryx lithographica*, which is the earliest known progenitor of the great class of Aves.

The birds of North America are classified into seventeen orders:—

Order I (*Pygopodes*)—Grebes, loons, and auks. Of the 30 species of grebes known, 6 are found in North America, 5 of the 5 species of loons, and 30 of the 30 known species of auks, murres, and puffins.

Order II (*Longipennes*)—Jaegers, skuas, gulls, and terns. Of the 6 known species of jaegers and skuas, all are found in North America, 40 of the 100 species of gulls and terns, and 1 of the 3 species of skimmers.

Order III (*Tubinares*)—Albatrosses, petrels, and fulmars. Four of the 10 species of albatrosses, and 30 of the 70 petrels and shearwaters are found in North America.

Order IV (*Steganopodes*)—Gannets, tropic birds, cormorants, and pelicans. Eight of the 8 gannets, 1 of the 4 darters, 10 of the 30 cormorants, 3 of the 12 pelicans, and 1 of the 2 frigate or man-o'-war birds are found in North America.

Order V (*Anseres*)—Ducks, geese, and swans. Sixty-five of the 200 known species are found in North America.

Order VI (*Odontoglossae*)—Flamingoes. Five of the 7 known species are North American.

Order VII (*Herodiones*)—Herons, storks, ibises, etc. One of the 6 spoonbills, 4 of the 30 ibises, 2 of the 25 storks, and 15 of the 75 herons and bitterns are found in North America.

Order VIII (*Paludicolae*)—Cranes, rails, etc. Three of the 18 cranes, 1 of the 2 courlans, and 15 of the 180 species of rails, gallinules, and coots are found in North America.

Order IX (*Limicolae*)—Phalaropes, snipes, plovers. All of the 3 phalaropes, 2 of the 11 avocets and stilts, 45 of the 100 snipes, sandpipers, 8 of the 100 plovers, and 3 of the 10 oyster catchers are found in North America.

Order X (*Gallinae*)—Turkeys, grouse, bobwhites, etc. Eighty-five of the 200 grouse and bobwhites, and 4 of the 90 pheasants are found in North America.

Order XI (*Columbae*)—Pigeons and doves. Of the 300 species, 12 are North American.

Order XII (*Raptores*)—Vultures, hawks, and owls. Three of the 8 vultures, 35 of the 350 falcons, hawks, and eagles, 1 of the 10 barn owls, and 20 of the 200 horned owls, hoot owls, etc., are found in North America.

Order XIII (*Psittaci*)—Parrots and paroquets. Only 1 of the 500 species of parrots, paroquets, and macaws is North American.

Order XIV (*Coccyges*)—Cuckoos and kingfishers. Thirty-five of the 175 cuckoos, and 8 of the 180 kingfishers are North American.

Order XV (*Pici*)—Woodpeckers. Twenty-five of the 350 woodpeckers are found in North America.

Order XVI (*Macrochires*)—Goatsuckers, swifts, and humming birds. Seven of the 85 nighthawks, 4 of the 75 swifts, 17 of the 500 humming birds are found in North America.

Order XVII (*Passeres*)—Perching birds, flycatchers, blackbirds, jays, orioles, sparrows, finches, swallows, vireos, warblers, wrens, thrushes, etc. Thirty-five of the 350 flycatchers, 2 of the 100 larks, 25 of the 200 crows and jays, 1 of the 200 starlings, 15 of the 150 blackbirds and orioles, 80 of the 550 finches and sparrows, 5 of the 350 tanagers, 10 of the 80 swallows, 2 of the 2 waxwings, 2 of the 200 shrikes, 15 of the 50 vireos, 70 of the 100 wood warblers, 3 of the 65 wagtails and pipits, 12 of the 200 thrashers and wrens, 79 of the 95 nuthatches and tits, 5 of the 122 warblers, kinglets, and gnatcatchers, and 12 of the 300 thrushes and bluebirds are found in North America.

From the foregoing number of species, given upon the authority of Frank M. Chapman of the Museum of Natural History in New York City, it would appear that the total number of species of birds found in North America is about 1,086. The total number of species in the world of those birds which are represented in North America is about 7,225. It is a fair estimate of the total number of species of birds in the world to place the figures at about 10,000.

MAMMALS or MAMMALIA.

While feathers are the distinctive badge of the great class of Birds, hair is characteristic of the Mammals. Even the young whales and some of the adults possess it. No other animals are provided with this covering. Mammals embrace about 3,300 species, and may be classified into 12 orders:—

1. **Primates** or **First Order**, including man, apes, and monkeys. About 260 species.
2. **Ferae, Carnivora** or **Flesh Eaters**, including cats, dogs, bears, weasels, sea lions, seals, walrus. About 300 species.
3. **Insectivora** or **Insect Eaters**, including moles and shrews. About 230 species.
4. **Cheiroptera** or **Wing-Handed Mammals**, including bats and flying foxes. Over 500 species.
5. **Glires, Rodentia** or **Gnawers**, including rats, squirrels, gophers, hares. About 1,400 species.
6. **Ungulata** or **Hoofed Mammals**, including cattle, deer, sheep, swine, tapirs. Over 300 species.
7. **Cetacea** or **Whales**, including whales, porpoises, dolphins. About 90 species.
8. **Sirenia** or **Sea Cows**, including only the manati and dugong; 2 species.
9. **Edentata** or **Toothless Mammals**, including armadillos, sloths, and ant-eaters, about 25 species.
10. **Effodientia** or **Diggers**, including only the pangolins and aardvarks, about 10 species.
11. **Marsupialia** or **Pouched Mammals**, including opossum, kangaroo. About 175 species.
12. **Monotremata** or **Egg Laying Mammals**, including the duckbill and echidna; 5 species.

DOMESTIC ANIMALS.

Origin.—The domestication of animals to provide food and for many of their most important uses was accomplished long before recorded history begins.

The subjugation and employment of wild creatures superior to himself in strength and speed was one of the supreme achievements of primitive man,—an acquisition of incalculable value in promoting his advance from savagery to civilization, ranking with the utilization of fire, the invention of tools, and the cultivation of plants among the great determining elements of human progress.

History.—Practically all domestic animals of primary importance appear to have been in age-long use at the dawn of history. This prehistoric period is indeterminable, but extends to a most remote antiquity. Parent wild species of the camel, sheep, and humped cattle seem to have perished from the earth before written history began, and the ancestry of the horse and dog is not positively referable to living forms.

In Egypt the most ancient monuments contain mummies of the cat, and delineations of the dog, goat, ox, goose, and pigeon occur in various sculptured records. The camel was also known, and less ancient monuments depict the horse.

In India monumental inscriptions and other records indicate a remotely ancient use of the horse, elephant, humped cattle, water buffalo, and a somewhat later introduction of the peacock, chicken, and cheetah.

In China the earliest records indicate the possession of domestic animals, among which were the pig, silkworm, duck, and cormorant.

In Switzerland remains of the dog, cat, horse, pig, goat, sheep, and ox have been found in the middens of the Lake Dwellers.

In Greece and **Rome** mention of the ox, sheep, horse, mule, pig, goat, dog, and goose occurs in Homer or in other early authors, while the pigeon, guinea fowl, peacock, and rabbit are recorded before the beginning of the Christian era.

In Peru mummies of the guinea pig and blankets woven of alpaca wool are found in the ancient tombs at Ancon.

Method of Distribution.—As Asia unquestionably was the cradle of the human race, the domestication of animals doubtless took place there. This achievement led to other conquests of nature, and in time to migrations of the primitive peoples from their focal areas of development. Such movements as the Aryan invasion of Europe undoubtedly brought with it the majority, if not all, of the animals then in use. The remains of the Lake Dwellers in Switzerland show that they possessed many of the most important. The wars between Assyria and Egypt, between Greece and Persia, Rome and Carthage, and the extension of Roman authority to northwest Europe, were important factors. The establishment of commercial relations with the western world by caravan through Bactriana by the Chinese, about 150 B. C., and continued for centuries, also greatly contributed. Mediæval land commerce between the Orient and Europe, and particularly the Crusades, completed the diffusion and exchange of useful animals, so that, at the beginning of the fifteenth century, the then civilized world, with a few minor exceptions, was in possession of the same economic animals as to-day, and distributed over the same area.

The establishment of the sea trade between western Europe and the Orient by way of the

Cape of Good Hope and the discovery, conquest, and settlement of the New World greatly extended the distribution of useful animals. During the past 400 years all of the most important domestic animals have been established in North and South America, in South Africa and Australia, a movement unparalleled in geographical range and economic significance in the history of the human race.

Order of Introduction. — Notwithstanding their comparatively small number, it is impossible to arrange domestic animals in the chronological order of their subjugation. As in case of cultivated plants, practically all economic species of the first rank have been in use upwards of 4,000 or 5,000 years. Age-long domestication of the dog, ox, humped cattle, sheep, goat, ass, horse, camel, elephant, cat, pigeon, goose, and honeybee is incontrovertible, but no evidence exists to determine beyond question which was first used.

It seems most probable that nearly all of these animals were first held in captivity by primitive peoples for surplus food supply, and that their other uses developed later. Among those which have come into use in the western world shortly before and since the beginning of the Christian era, but not belonging to the most ancient group, are: the chicken, which reached Greece and Rome from the East about 500 B. C.; the rabbit, brought from Spain to Rome during the period of the republic; the guinea fowl, brought to Rome from Africa about the same time; the swan, dating to the early Roman emperors; the carp, which had reached the Danube in the sixth century; and the water buffalo, which reached Italy at the same period. The Portuguese brought the canary to Europe about 1500; the turkey and guinea pig, from the New World, reached Europe in the sixteenth century, and the goldfish, which had been transferred by stages in ships trading with the Orient, reached England in 1691. From the foregoing it will be seen that no new domestic animals of great economic value have been developed during the last 2,000 years.

Zoological Rank.—The domestic animals of greatest value to man all belong to the highest groups, and are also, for the most part, if not invariably, the highest of their respective groups. Of the 41 more or less completely domesticated forms herein enumerated—37 vertebrates and 3 invertebrates—24 of the vertebrates belong to the highest class, mammals, and 12 to the next highest class, birds; 2 belong to the lowest class, fishes, while reptiles and amphibians are not represented.

Number of Species.—In comparison with the vast array of living wild species, the list of domestic animals bred for economic purposes is almost incredibly small. There are about 3,300 living mammals but only 23 are in domestication, or about 1 in each 150. There are upwards of 10,000 species of birds, of which only 12 are economically important, or about 1 in each 1,000 wild species. Of the great host of fishes, two only approach economic value, and of the hundreds of thousands of insects, only 3 attain economic significance, while the other groups of the animal kingdom are without representation. The total number which have become permanently valuable is about 40; over half of these are relatively unimportant, and only about 10 are of high economic value and world-wide use. This, of course, does not include merely captive animals, or those which have been temporarily or intermittently tamed, but embraces only those which are permanently established and economically important.

Geographical Distribution.—Not only were seven eighths of all domestic animals originally wild species of the Old World and first domesticated there, but this preponderant majority also includes every domestic species of preëminent rank and universal distribution.

Asia is by far the chief contributor, and, if physical instead of artificial boundaries be observed, then the list contributed by the natural continent of Asia and Europe, i. e., Eurasia, will be found to embrace three fourths of all, including practically every domestic species of the first order.

The preëminence of Asia is revealed by a mere catalogue of the native animals which have been domesticated within its confines. Six of the seven more or less completely domesticated species of cattle (*Bos*) viz.: the banteng, humped cattle, gaur, gayal, water buffalo, and yak, are distinctly Asiatic, while the seventh species, the ox, most important of all, originated from now extinct ancestors formerly wild in Europe and western Asia, and was doubtless first tamed by ancient Asiatic peoples. While the origin of the Arabian camel may be north African as well as west Asian, the Bactrian camel is clearly Asiatic, as is the horse, goat, domesticated elephant, cheetah, chicken, peacock, cormorant, honeybee, silkworm, carp, and goldfish.

Parent wild species of the pig, reindeer, goose, duck, and pigeon are of Eurasian distribution, and it is highly probable that the most ancient domestication of at least the pig, reindeer, and duck took place in Asia, and perhaps this is true of the goose and pigeon. While the parent species of the sheep is undetermined, its earliest domestic use was doubtless established in western Asia.

The vast continent of Africa with adjacent islands, possessing a rich and varied fauna, has contributed only a minor fraction,—the ass and cat alone being of high economic rank, while the guinea fowl, canary, parrot, and ostrich are relatively unimportant.

The contribution of the New World does not include a domestic animal of the first rank,—North America adding only the turkey and the cochineal insect, and South America the alpaca, llama, and guinea pig. The fauna of Australia has no representative in domestication.

Effects of Domestication.—Some animals have been profoundly modified in form, size, and habits, by domestication, such as the dog, sheep, pig, donkey, pigeon, and chicken, so that very numerous breeds, strains, or varieties have been developed. Many kinds of dogs are incapable of existence apart from human agency. The donkey does not run wild, and chickens are never found at a great distance from human habitations. Others have varied much in form and size, but are still capable of independent existence, such as the horse, goat, ox, cat, and goose, while a group like the cheetah, water buffalo, and swan are only partially domesticated, and but little altered by association with man.

Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication.
Alpaca (*Lama pacos*)	*Ungulata* (Hoofed Mammals) *Camelidae* (Camels)	The Guanaco (*Lama guanacus*) Andean region, Peru to Patagonia	1000
Ass Donkey Burro (*Equus asinus*)	*Ungulata* (Hoofed Mammals) *Equidae* (Horses)	Wild Ass (*Equus asinus*) Northern Africa, Abyssinia	5000
Banteng (Javan Ox) (*Bos sondaicus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goat)	Wild Banteng (*Bos sondaicus*) Burma, Malay Peninsula, Java, Borneo, Bali	Data uncertain
Bee, Honey (*Apis mellifica*)	*Hymenoptera* (Ants, Bees, Wasps) *Apidae* (Bees)	Unknown. Probably western Asia	5000
Camel (Arabian) (One humped) (*Camelus dromedarius*)	*Ungulata* (Hoofed Mammals) *Camelidae* (Camels)	No existing wild species, and none known to history Probably Arabia	5000
Camel (Bactrian) (Two humped) (*Camelus bactrianus*)	*Ungulata* (Hoofed Mammals) *Camelidae* (Camels)	None living or remembered Probably deserts of central Asia	5000
Canary (*Carduelis canaria*)	*Passeres* (Perching Birds) *Fringillidae* (Finches)	Wild Finch (*Carduelis canaria*) Canary Islands	400
Carp (*Cyprinus carpio*)	*Eventognathi* (Carp Tribe) *Cyprinidae* (Carp, Minnows)	Wild Carp (*Cyprinus carpio*) China	2000
Cat (*Felis domestica*)	*Carnivora* (Flesh-Eating Mammals) *Felidae* (Cats)	Present domestic form now believed to be a permanently established mixed strain derived from the Egyptian wild cat (*Felis caffra*) and the common wild cat (*Felis catus*), of central Europe and England. The ancient Egyptian cat was probably *F. caffra*	5000

Historical Notes.	Economic Importance.
Domestication by Peruvian Indians far antedates Spanish discovery. Blankets woven from alpaca wool have been found in ancient tombs dating back to the Incas. Alpaca wool was first exported to Europe in 1836.	Important in domestication in the Peruvian Andes, where it is raised in flocks for wool, which possesses a fiber of peculiar excellence, well adapted to many finer grades of cloth, so that it has become an important article of export. The alpaca does not acclimatize in other regions of the world, and all attempts to introduce and establish it as a wool-bearing animal in Europe and the United States have failed.
Probably first domesticated in the valley of the Nile. Long preceded the horse in ancient Egypt. Came into Greece by way of Asia Minor and Syria. Not common in early Greece. Mentioned only once in Homer's *Iliad*; not at all in the *Odyssey* nor in Hesiod, though Homer frequently mentions mules. The ass accompanied the spread of vine and olive culture through Italy and Spain to France. Known in England in reign of Ethelred; reintroduced during reign of Elizabeth. Brought to Mexico and South America by the Spaniards.	A most valuable beast of burden, particularly in subtropical, dry, and mountainous regions. It is invaluable for mountain transportation in Spain, Italy, southern France, Mexico, South America, and in arid mining regions of the western United States. It does not thrive in cold or damp regions, and is not suited to the climate of the eastern United States. Varies greatly in size, from dwarf forms only 20 to 30 inches high in the West Indies to fine Spanish and American breeds 16 hands high. The burro, used almost exclusively as a pack animal by miners and prospectors in the mountain regions of the Western States, is a small form.
Long tamed and esteemed by native peoples of Java and Bali, but historical references meager and period of domestication imperfectly known.	Large herds, forming considerable wealth, are kept by the Malays of Java and of Bali. In domestication the banteng freely intermixes with humped cattle, so that there are numerous intermediate strains.
Domestication dates back to the dawn of history in the Mediterranean region, Syria, Greece, and Egypt. Spread through Europe by Romans. Introduced into America by early colonists.	Honey and beeswax have long been common articles of commerce in many countries, but were relatively much more important in ancient times before the introduction of sugar. In the United States over 700,000 farms, or one in every eight, keep a total of 4,000,000 swarms, valued at $10,000,000.
Subjugation and domestication prehistoric: probably by primitive man in Arabian and Saharan deserts. Well known in Egypt in 1300 B. C., though not recorded on their monuments. Mentioned by Diodorus, Strabo, and many ancient authors, and frequently in the Bible. Introduced into Italy in 1622, and into Texas, New Mexico, and Arizona by the United States government in 1856 and used by Confederates during the Civil War for carrying mails. The experiment, however, did not prove successful, though remnants of the herds persisted for some time in Arizona and California, and possibly a few may still survive in remote portions of the desert. Introduced into Australia in 1860.	For ages the most useful animal in domestication in the arid regions from northern India and lower Afghanistan, south through Arabia to the Red Sea and Somaliland, and westward throughout the Sudan deserts; invaluable as a beast of burden and as a means of travel, especially adapted to deserts. Its flesh is good food, the milk is excellent, and the hair is made into cloth and cordage. The more slender forms, called dromedaries, bred especially for speed, will traverse 100 miles or more of desert in a single day. Introduction in other countries unsuccessful, except in very dry regions. In southern Europe attempts were unsatisfactory on the whole, although the camel thrives in Spain. In Australia it has become valuable for interior expeditions, and since 1880 camel corps have been formed by European troops in the Sudan, and are a permanent branch of the Egyptian army.
Domestication in central Asia remotely ancient, but historical references are meager when compared to the wealth of allusion concerning the Arabian camel and the prominence given to it by the historians of antiquity. While the railway is replacing both species of camels wherever it penetrates the desert, these stolid beasts of burden have been factors of incalculable influence in founding commerce and promoting civilization in regions isolated by otherwise insuperable barriers of mountain and desert.	Equally valuable throughout central Asian deserts, from northern Turkestan to Mongolia, as the Arabian camel is in more southern climates, being especially adapted to rocky and cooler regions. It endures the fierce summer heat and the severe winter cold of the Tibetan plateau while bringing tea from Peking to Lake Baikal, and it hauls wagons over the lofty passes of the Hindu Kush across Afghanistan to Persia at all seasons. The ability of this animal to withstand terrible extremes of heat and cold, and to travel long distances without water, conditions absolutely unendurable by horses or cattle, made possible the establishment of the commerce which has existed for centuries between China and western Asia.
When the Portuguese conquered the Canary Islands in 1478, these finches, now called canaries, were taken to Spain in great numbers, and thence distributed throughout Europe. In size and color they have been greatly modified by domestication.	The use of canaries as cage song birds and household pets is much more extensive in Europe than in the United States. They are now found throughout the world wherever European colonization has been established. The rearing of canaries for the market has become an industry of considerable local importance in Germany, Belgium, Scotland, and northern England.
Long domesticated in China; reached eastern Europe early in Christian era: grown in France and Germany since the thirteenth century; established in the United States about 1870.	The only fish widely domesticated for food; now acclimatized throughout the world; very hardy and prolific but coarse fleshed and inferiorly flavored; very popular in Germany but sparingly in favor in the United States
Like the dog, was a member of the domestic circle when history began. Apparently first domesticated by the Egyptians, being depicted upon their first monuments. Held sacred and highly esteemed, mummies of cats being found coeval with the earliest human remains. Mentioned in Sanskrit manuscripts 2000 B. C., but not known to Chinese until about 500. Known to Europeans of the Bronze Age, but not generally known to the ancient Assyrians, Hebrews, or Greeks.	Reared and prized throughout the world as a household pet, and of true economic importance as an exterminator of rats, mice, and other small animal pests. Second only to the dog as a hearth animal, but far inferior to it in range of usefulness. It possesses intelligence of a high order, but has never developed or manifested so great an amount of attachment, affection, and devotion to man as the dog, although it becomes attached to places to a remarkable degree. It has been less modified by human agency than the dog, the varieties being rather few and the variations in size comparatively insignificant, and it readily returns to a wild or semi-wild state.

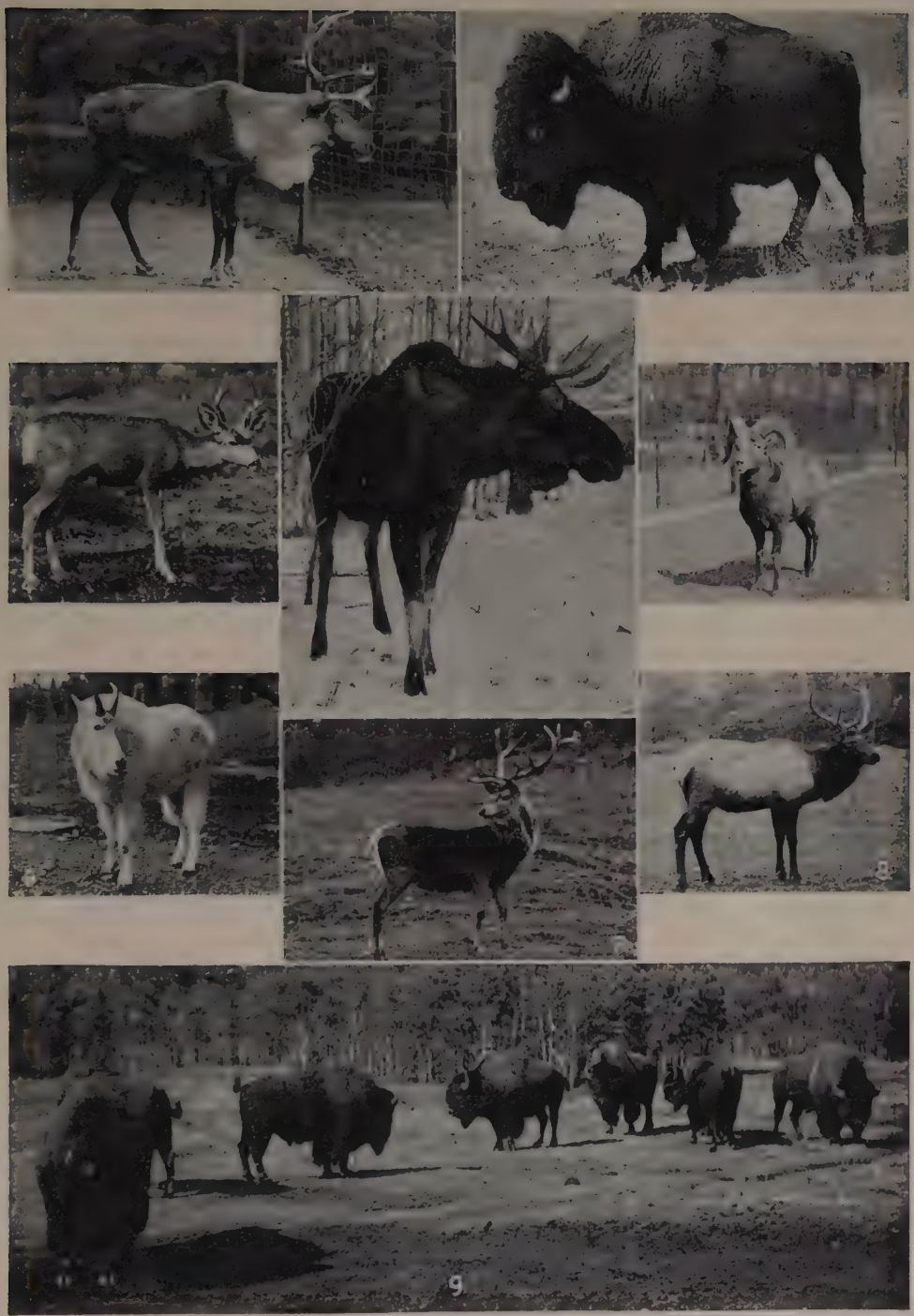
Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication
Cheetah Hunting Leopard (*Cynaelurus jubatus*)	*Carnivora* (Flesh-Eating Mammals) *Felidae* (The Cat Tribe)	Hunting Leopard (*Cynaelurus jubatus*) India, Africa	4000
Cochineal (*Coccus cacti*)	*Hemiptera* (Bugs) *Coccidae* (Scale Bugs)	Scale Bugs (*Coccus cacti*) Mexico, Central America	400
Cormorant (*Phalacrocorax carbo*)	*Steganopodes* (Totipalmate Fishing Bird) *Phalacrocoracidae* (Cormorants)	Black cormorant (*Phalacrocorax carbo*) Europe, Asia, Africa	2000
Dog (*Canis familiaris*)	*Carnivora* (Flesh-Eating Mammals) *Canidae* (The Dog Tribe)	Unknown, probably indeterminable, but either from wolves or jackals, or from both together	5000
Duck (*Anas boschas*)	*Anseres* (Duck Tribe) *Anatidae* (Ducks)	Wild Mallard (*Anas boschas*) Europe, Asia, and North America	Data uncertain
Elephant (*Elephas indica*)	*Ungulata* (Hoofed Mammals) Suborder: *Proboscidea* Family: *Elephantidae*	Wild Elephant (*Elephas indica*) India and East India Islands	5000
Fowl, Domestic Cock, Hen Chicken (*Gallus domestica*)	*Gallinae* (Gallinaceous or Game Birds) *Phasianidae* (Pheasants)	Wild Jungle Fowl (*Gallus bankiva*) India, Cochin China, and Malay Islands	4000

Historical Notes.	Economic Importance.
Depicted on ancient Assyrian and Egyptian monuments. Anciently trained for hunting in India and established as a part of the royal state, the custom being maintained by many native princes at the present day. Brought to Europe by returning Crusaders, and flourished in France and Italy for about two hundred years.	This large cat-like animal, although about equal to the true leopard and the jaguar in size, does not share their tiger-like ferocity, but in disposition is more like a dog, and is readily tamed. While it occurs wild over large areas in Asia and Africa, its domestication, which is only partial, is now restricted to India, where its chief use is to hunt the black-buck, a species of antelope. Upon approaching within about 200 yards, the cheetah is unloosed, and, by a burst of its superior speed, which, for short distances, greatly exceeds that of a race horse or greyhound, and is probably greater than that of any other mammal, it overtakes and throttles the strongest buck within a few hundred yards.
Long grown in Mexico. In use as a dye when the Spanish under Cortes entered in 1519, and immediately introduced into Europe. Successfully naturalized in Mediterranean countries and in the Canary Islands. It feeds upon a species of prickly pear, *Opuntia coccinellifera*. The brilliant dye carmine, derived from the dried insect, was discovered by a Franciscan monk of Pisa and manufacture began in 1650.	Source of cochineal and carmine dyes; at one time exceedingly valuable, and stimulated culture of the insect in many dry, semi-tropical regions. Grown in Mexico, Central America, Java, Algeria, and the Canary Islands. Exported in considerable quantity from Honduras. The discovery of aniline dyes and the great extension of their use in the last quarter century have rendered the culture of cochineal unimportant except locally.
Trained to fish since ancient times by Chinese and Japanese. In Europe fishing with native cormorants began about 1625 in Holland, where it still prevails to some extent, whence it spread to England, where it was much used for a time and then abandoned. Now being revived to some extent as a sport in England.	While fishing with cormorants has been practically limited to the field of sport in Europe, the use of these birds, which are trained in great numbers, to catch fish for food in China and Japan, has long been of economic importance. A ring is placed about the neck of the bird so that the fish when caught is not swallowed, but simply pouched, and when removed the bird proceeds to catch another in the same way.
Domestication dates to primitive man, and far precedes the dawn of history; many important varieties being portrayed in the earliest sculptures. Ancient forms of the greyhound are pictured on Egyptian monuments dating to 3400 B. C., while the mastiffs, hounds, lapdogs, and turnspits carved in stone 4,000 years ago closely resemble the breeds of to-day. Remains found in the kitchen middens of Denmark, and in the lake dwellings of both the Stone Age and Bronze Age in Switzerland. Depicted on the oldest monuments in the valleys of the Euphrates and Indus, and worshiped as Anubis, the genius of the Nile, by ancient Egyptians. Mentioned in the Bible. Highly prized by the Greeks and Romans.	The most intelligent, affectionate, and devoted of domestic animals; in use by all peoples, and accompanying man throughout a wider range than any other animal, greatly exceeding the cat, donkey, or horse in this respect; varying in adaptation to climate from the hairless forms of the tropics to the heavily fur-coated Eskimo breeds, and in size from tiny lapdogs no larger than kittens to great Danes standing three feet high at the shoulder, thus presenting forms which are at once larger and smaller than any wild member of the dog tribe, there being some 200 varieties which have resulted from the intercrossing of about six leading types, namely: wolf-like dogs, greyhounds, spaniels, hounds, mastiffs, and terriers. Exceedingly susceptible to human influence; bred and trained for an infinite variety of purposes, from merely curious and pampered household pets to powerful hunters and even beasts of burden, providing food for some peoples and sharing with the reindeer the labor of transportation in Arctic regions. Most varieties have become so modified by domestication that they are unable to sustain themselves independently of man.
Domestication ancient, but evidence scanty and indefinite. The white or Pekin duck was introduced into the United States from China in 1870.	Duck raising extensive in Europe both for flesh and eggs, which are more generally used than in the United States. In eastern Asia, notably in China, ducks are grown in enormous numbers. Duck raising has become a profitable industry in the United States, particularly since the introduction of the Pekin duck.
Very anciently tamed in India, there being over 100 different names for the elephant in Sanskrit. Earliest use was in war, and they were first made known in Europe through employment in military operations. Alexander the Great captured 15 at the battle of Arbela. Pyrrhus led elephants against the Romans. In the Punic wars the Carthaginians used the African elephant, 37 of them crossing the Alps with Hannibal's army. The ancient Egyptians knew both species, though the African elephant is the only one depicted on Egyptian and Assyrian monuments. At the battle of Raphia, 217 B. C., 73 African elephants fought disastrously against 104 Asiatic. Domestication for draught and baggage animals now limited to India and the East India islands.	The largest and, when properly trained, the most docile of domestic animals, exhibiting a high degree of intelligence, which is often overestimated on account of a remarkable willingness to obey instructions; endowed with unusual powers of memory and becoming greatly attached to its keepers. However, it lacks initiative and reasoning powers, being far inferior to the dog in this regard. It will not voluntarily go to the assistance of a human friend in trouble, or to the rescue of its own master even when attacked at its feet, though it will act instantly when directed. It is also helpless in the face of a new danger or unexpected emergency. A most valuable draught and baggage animal, employed in hauling and handling timbers and in transporting heavy loads over rough ground in the absence of roads in India and the East India Islands. The largest specimens, particularly those with long tusks, are considered of high caste, and are kept for state pageants.
Ancient domestication in India, but not figured on Egyptian monuments or mentioned in the Old Testament. Apparently reached Europe in a domesticated state about 500 B. C. Caesar found it in Britain upon his arrival. It is now diffused throughout the world, except in polar regions, accompanying man throughout a wider range than any other bird, and ranking with the dog, cat, donkey, horse, ox, sheep, and pig among the most universal companions of man.	The most thoroughly domesticated, widely distributed, and generally useful of birds, being readily adaptive to a wide range of climatic and food conditions and consequently more easily reared than any other fowl. Greatly modified by ages of breeding in many lands into numerous races which exhibit wide variations in size, form, and color, from diminutive Bantams to giant Brahmas nearly as large as a turkey, and from pure white to pure black breeds, with numberless intergrades, together with red, brown, and vari-colored races. On account of immense numbers their aggregate value for food and eggs reaches a vast total, ranking high among the animal productions of the world.

Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication
Gaur (*Bos gaurus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goat)	Wild Gaur (*Bos gaurus*) India	Data uncertain
Gayal Mithian (*Bos frontalis*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	Wild Gayal (*Bos frontalis*) Northeastern India	Data uncertain
Goat (*Capra hircus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Oxen, Sheep, Goats)	Benzoar goat or Persian pasang (*Capra aegagrus*) As main stock Greece to Persia, Afghanistan, and western India	5000
Goldfish Golden Carp (*Carassius auratus*)	*Eventognathi* (Carp Tribe) *Cyprinidae* (Carp Minnow)	Wild Carp (*Carassius auratus*) Fresh water China, Azores, Madeira, St. Helena, Java, and the Philippines	1400
Guinea Fowl (*Numida meleagris*)	*Gallinae* (Gallinaceous or Game Birds) *Phasianidae* (Pheasants)	Wild Fowl of Guinea (*Numida meleagris*) Western Africa	2500
Guinea Pig (*Cavia cutleri*)	*Rodentia* (Rodents) *Caviidae* (Cavies)	Wild Cavia (*Cavia cutleri*) Peru	1000
Goose (*Anser domesticus*)	*Anseres* (Duck Tribe) *Anatidae* (Ducks, Geese)	Wild Goose (*Anser ferus*) Central Europe Asia and north Africa	5000
Humped Cattle Indian Ox Zebu (*Bos indicus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	No known wild form Probably southeastern Asia	5000

Historical Notes.	Economic Importance.
Tamed by the hill tribes of northeastern India, but historical data as to when this domestication began are wanting.	The domestication of this magnificent wild ox, the handsomest representative of the genus Bos, is only partial and is confined to native tribes inhabiting a limited area in northeastern India, who keep it in herds for its flesh.
In semi-domestication by native tribes of northeastern India evidently for a considerable period of time, but definite historical data are unavailable.	Kept in large herds for food by the peoples of the hill regions of northeastern India; not employed as a beast of burden and probably no attempt is made to use its milk.
Domesticated by the ancient Egyptians and by prehistoric Lake Dwellers in Switzerland. Figured on ancient monuments in Egypt; mentioned in the Bible. Ages of domestic breeding have developed numerous varieties, the chief of which are the Angora, Kashmir, Syrian, Egyptian, and Sudan goats. Domestic goats have run wild in many regions, sometimes mixing with other species. According to Garcilasso, goats were brought to Peru from Spain in 1544.	Valuable for flesh, milk, wool, and skins, particularly in warm, dry regions, the greater part of the world's goats being grown in southern Europe, northern Africa, and Syria. The fleece of the Angora goat is called mohair and is much used in fabrics. The fine underwool combed in summer from Kashmir goats is woven into the well-known Kashmir shawls. Goat's leather is employed for innumerable uses, some of the chief of which are glove making, shoemaking, and bookbinding. In the United States goats have never attained importance as farm animals. The Angora goat introduced in 1849 by gift of the sultan of Turkey was little bred or noticed for fifty years. Since 1900 numerous flocks have been established in the Pacific States, notably in Oregon, and considerable numbers have been raised in Iowa and Missouri.
First domesticated in China, Basilewsky placing the date of their development in Chinese springs about 450. After the establishment of maritime trade with western Europe goldfish were transported first to Batavia, thence to Mauritius and St. Helena, and were brought from St. Helena to England in 1691. Now domesticated and naturalized in many parts of the world. The golden color is the result of artificial selection. Those which have become naturalized in the Potomac river have assumed an olive-green color similar to that of the parent wild species.	The most widely distributed ornamental fish, being more highly prized and more extensively used for aquariums than any other species. No fish available for like purposes equals it in beauty and the ease with which it may be reared and maintained. Like other merely ornamental animals it does not attain economic importance, although the rearing and handling of goldfish is a matter of considerable consequence in the trade of aquarium furnishers, and dealers in small animals.
Domesticated by Greeks and Romans. Disappeared with the fall of Roman civilization and was reintroduced from Africa by the Portuguese in the sixteenth century. It was first taken to the Cape Verde Islands and West Indies and thence slowly spread to Europe and around the world.	Valuable for food and eggs, but not popular in Europe or America on account of their constant noisy cries, and the difficulty experienced in rearing them. Originating from a wild species accustomed to very dry regions, the domesticated forms cannot endure wet situations or moist climate, rendering unusual precautions necessary for the protection of the young chicks.
Domestication in Peru long antedates the period of Spanish conquest. Mummies of the guinea pig have been found in the ancient tombs at Ancon. Since the Spanish occupation of South American countries it has become widely distributed in other parts of the world, being introduced into Europe by the Dutch during the sixteenth century. The name guinea pig is a double misnomer. It is not a pig but a rabbit-like rodent related to the rats; neither does it come from Guinea, but is exclusively South American. However, Guinea is probably a corruption of Guiana, and the peculiar grunting sound emitted by it undoubtedly gave rise to the name pig.	According to Nehring the ancient Peruvians used this animal not only for food but for sacrifices. It is now eaten for food from Ecuador to Chile, especially in Peru, and it is sometimes made use of for food in Europe. This animal has been apparently but little modified by domestication. Its intelligence is limited, being stupid and manifesting no affection. However, it never bites, and on that account has long been kept as a safe pet for children, both in Europe and in the United States. It is immensely prolific and easy to rear. Now extensively employed in biological laboratories for experimental purposes, particularly in the study of germ diseases.
Domestication very ancient in Egypt and Asia. Figured on oldest Egyptian monuments. Known to Greeks of Homer's time, and the geese kept in the Capitol are said to have saved Rome. Great herds of geese were driven from central Europe to the ancient Roman markets. The goose has been but slightly changed from the parent wild stock by domestication.	Valuable for eggs, quills, feathers, and for food. In southern Europe culture was formerly much more important, but it is still a great industry in Holland and Germany. Livers from geese artificially fattened, in districts near Strassburg, are made into the celebrated delicacy known as paté-de-fois-gras. In the United States, goose raising is of minor importance, there being forty times as many chickens as geese, the total number of geese being about 5,600,000, somewhat exceeding the ducks, but falling below turkeys—chickens, turkeys, geese, and ducks ranking in the order named. Most extensively grown in the southern states: Kentucky, Missouri, Texas, Tennessee, and Arkansas leading in the order named.
Domestication prehistoric, being exceedingly ancient in Egypt and India. Forms considered as the ancestors of the present Indian breeds, depicted on ancient Egyptian monuments. White bulls long held sacred by the Hindus. Recently introduced into Jamaica for use on plantations.	Very valuable as a draught animal and beast of burden throughout its range in India, China, the Asiatic Islands, Madagascar, and the eastern coast of Africa. It can travel twenty to thirty miles per day, and is very docile. Age-long breeding has resulted in greater variations in size than in the case of any other domestic cattle, some forms exceeding the largest ox in height, while the smallest breeds are no taller than a large dog.

Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication
Horse (*Equus caballus*)	*Ungulata* (Hoofed Mammals) *Equidae* (Horses)	The Wild Mongolian Horse (*Equus przevalskii*) Of central Asia More closely resembles the domestic horse than any other living species, and the domestic form was undoubtedly derived from it or a closely related species now extinct	5000
Llama (*Lama glama*)	*Ungulata* (Hoofed Mammals) *Camelidae* (Camels)	The Guanaco (*Lama guanacus*) Andes, Peru to Patagonia	1000
Mule Hinny (*Mulus, Hinnus*)	*Ungulata* (Hoofed Mammals) *Equidae* (Horses)	These hybrids between the domestic horse and the domestic ass do not occur in a wild state, but have been developed by domestic breeding	3000
Ostrich (*Struthio camelus*)	*Struthiones* (Flightless Birds) Suborder: *Ratitae* (Struthious Birds) *Struthionidae* (Ostriches)	Wild Ostrich (*Struthio camelus*) Africa	50
Ox, Cow, Steer, Cattle (*Bos taurus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	The Aurochs (*Bos primigenius*) Of Europe and western Asia Abundant at the time of Julius Caesar but supposed to have become extinct about the twelfth century, though some regard the wild Chillingham cattle of England as unmixed descendants of the aurochs	5000



Photos 1, 2, 5, 6, 8 from N. Y. Zoological Society; 3 from Ewing Galloway; 4, 7, 9 from Brown Brothers.

HOOFED ANIMALS

1 Woodland Caribou
2 American Bison (Buffalo)
3 North American Moose
4 Black-Tail Deer
5 Rocky Mountain (Big-Horn) Sheep
6 Rocky Mountain Goat
7 English Deer
8 American Elk (Wapiti Deer)

9 Buffalo Herd

Photos 1, 2, 5, 6, 7, 8, 9, 10 from N. Y. Zoological Society; 3 copyright Keystone View Co.; 4 copyright Ewing Galloway.

MISCELLANEOUS ANIMALS

1 Skunk
2 Woodchuck
3 Badger.
4 Silver Fox
5 Racoon
6 Mountain Lion
7 Timber Wolf
8 Polar Bear
9 Porcupine
10 Black Bear

Historical Notes.	Economic Importance.
Probably first domesticated in central Asia, anciently used in India in war and sacrifices. Appears in ancient sculptures at Persepolis in Persia. Horse heads adorn columns of ancient Assyrian palaces. Came into use much later than the ass in Egypt, the monuments indicating introduction during period of the Shepherd Kings about 2000 B. C., attached to the war chariots of Pharaoh. Frequently mentioned in the Bible. Highly treasured by Greeks and prominent in their mythology; drew the sun chariot of Apollo and the sea chariot of Poseidon; appears as the sea horse Hippocampus, and as the winged horse Pegasus, and as the centaur. Used by Lake Dwellers of the Bronze Age. The gods of German mythology are horsemen. Introduced into the Americas by the Spanish. The horsemen accompanying Pizarro in Peru and Cortes in Mexico struck terror through the native armies and made possible seemingly miraculous victories over immensely superior numbers.	Economically the most valuable as well as historically the most important animal domesticated by man. While doubtless kept by the most primitive peoples chiefly for food, its strength and speed soon gave it a higher value to barbaric races for purposes of war and the chase, and its adaptability to innumerable conditions and uses has rendered it indispensable to the most highly civilized nations. The horse has accompanied man in his conquest of every continent throughout a climatic range exceeded only by the dog and is of inestimable importance in carrying on the work of the world. Although inferior in intelligence and mental power to the elephant and the dog, the horse is the most spirited, trustworthy, and affectionate of the large working animals, and has become such an intimate companion of man that sentiment practically forbids the use of its excellent flesh for food among civilized peoples. Prolonged domestication, while producing many varieties ranging in size from the small Shetland pony to the Norman draft horse, has modified it less profoundly than the donkey or the dog, and it readily maintains itself apart from human agency, as witness the vast herds of so called wild horses in Texas and South America which were derived from small groups introduced by early Spanish explorers. Counting young as well as mature horses there are upwards of 21,000,000 in the United States valued at nearly $2,000,000,000, being nearly one half the total value of all domestic animals; employed on over 4,500,000 farms, or four out of each five.
Domesticated by ancient Peruvians, who had long used both the llama and the alpaca at the time of the Spanish conquests. Attempts to introduce the llama into other regions of the world have been unsuccessful.	Very valuable for food and as a beast of burden before the Spanish occupation of the Andean region, particularly in Peru and Chile. Used in immense numbers for transporting silver and other products during the early period of the conquest, but since the introduction of horses and mules the llama has been gradually displaced as a beast of burden. Previous to the acquirement of European domestic animals the llama and alpaca were as serviceable to the Peruvians as the reindeer is to the Laplanders, providing wool and flesh, and carrying on the work of the country.
The breeding of mules began in remotely ancient times, probably in Asia Minor, whence they were brought to Greece at a very early period, being frequently mentioned by Homer, also by Theognis, Hesiod, and other early Greek writers, and held in high esteem for their superior strength. Nausiccaa's car was drawn to the seashore and back by mules. From Greece they were introduced into ancient Italy, where they became popular, hauling carts on the highways in Varro's time much as they do in that region to-day. From Rome they became widely diffused in Europe, and the Latin names *mulus* and *hinnus* were adopted into the languages of most peoples who made use of these hybrids, persisting in the English names mule and hinny at the present day. Mentioned in the Bible, though the Israelites were forbidden by law to rear them.	The only hybrid among domestic animals which has risen to true economic importance and world-wide use. While of sullen disposition and much less affectionate than the horse, it possesses a high degree of intelligence. In adaptability to severe or unfavorable conditions it is superior in some respects to both the horse and the donkey, being able to withstand rough usage, inferior food, and extremes of heat better than the horse, and far exceeding the donkey in strength, particularly for draught, and in suitability to moist climates, while it is far inferior to the horse in speed, gracefulness, and spirit, and to the donkey in docility. The finest mules are reared in Spain and the United States, large breeds attaining a height of 16 hands. Mules are especially well adapted to conditions of general and farm labor in the southern states, where the great majority are bred and used. In the United States the ratio of mules to horses is about one fifth both in number and value.
Partially domesticated for centuries by native tribes in central Africa. Since 1860 complete domestication on a large scale has been undertaken in south Africa, particularly in Cape Colony, whence it has spread to Algiers and the southern United States. Unless completely established in domestication the ostrich will soon become extinct.	Chiefly valuable for certain of its large feathers called plumes, which are an important article of trade in Cape Colony, where upwards of 250,000 ostriches are reared for plume production. Ostriches are grown in limited numbers for the same purpose in Florida, California, and Arizona.
Domestication prehistoric, apparently first accomplished by Aryan peoples in western Asia. As a beast of burden and draught animal considerably antedates the horse, which, among the more ancient peoples, was used chiefly in war. Appears on ancient Egyptian monuments; early mentioned in the Bible; frequently named by ancient classical writers, such as Herodotus and Hippocrates among the Greeks, and Tacitus, Varro, Strabo, and Pliny among the Romans. Butter seems to have been unknown to Greeks and Romans in their most flourishing period; but was extensively used by more northern peoples. Brought to the West Indies by Columbus, 1493: to Mexico by Spanish about 1525; from England to Virginia 1610, and to Massachusetts 1624; from Holland to New York 1627; and from Denmark to New Hampshire in 1631.	The chief source of wealth in many regions. Just as the horse is preëminent as a labor animal, the ox stands first as the food producing animal, par excellence, in modern civilization. The aggregate value of cattle products—beef, milk, butter, cheese, hides, etc.—far exceeds that of any other animal. While still employed as a draught animal, it is so inferior to the horse for general purposes, that its use among the most advanced peoples is comparatively limited. In intelligence it ranks far below animals relatively of little value to man, and ages of domestication have not resulted in such extremes of variation as are met with in the donkey, dog, horse, or its near relative, the humped ox of India. Yet many well marked varieties have been developed, particularly during the last century in England, when valuable breeds for special purposes, such as the Shorthorn, Hereford, Alderney, and Jersey, became established. In the United States there are upwards of 71,000,000 cattle, of which 21,000,000 are milch cows, with a total value of $1,500,000,000.

Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication
Parrot (*Psittacus erithacus*)	*Psittaci* (Scansorial Birds) *Psittidae* (Parrots)	Wild Parrot (*Psittacus erithacus*) Central Africa	2500
Peacock (*Gallipavo cristatus*)	*Gallinae* (Gallinaceous or Game Birds) *Phasianidae* (Pheasants)	Wild Peacock (*Gallipavo cristatus*) India, Siam	4000
Pig (*Sus scrofa domestica*)	*Ungulata* (Hoofed Mammals) *Suidae* (Swine)	European stock from Wild Boar of Europe (*Sus scrofa*) Asiatic stock from Wild Boar of India (*Sus cristatus*) Some authorities consider these two wild forms specifically identical	5000
Pigeon (*Columba livia*)	*Columbae* (Pigeon Tribe) *Columbidae* (Pigeons)	Wild Blue Pigeon or Rock Dove (*Columba livia*) Europe and Asia	5000
Rabbit Belgian Hare (*Lepus cuniculus*)	*Rodentia* (Rodents, Gnawing Mammals) *Leporidae* (Hares, Rabbits)	Wild Rabbit (*Lepus cuniculus*) Europe, Africa	3000
Reindeer (*Rangifer tarandus*)	*Ungulata* (Hoofed Mammals) *Cervidae* (Deer)	Wild Reindeer (*Rangifer tarandus*) Northern Europe and Asia	Data uncertain

Historical Notes.	Economic Importance.
The first record of the parrot is in an account of a feast in Alexandria, Egypt, 284 B. C. Prized as a food by the ancients, being esteemed a delicacy. Long tamed by native peoples of central Africa, and taken to Europe in considerable numbers soon after the establishment of the slave trade, being first seen in England in 1504, and thence carried to many parts of the world.	Highly regarded by natives of central Africa as a household pet; also used for food and its feathers for ornaments. The best talking birds are all of this species, though they lack the brilliancy of plumage possessed by many other parrots. Its chief use among civilized peoples is as an ornamental bird and household pet, developing under training the most remarkable powers of imitating human speech displayed by any animal.
The domestication of the peacock dates to remote antiquity in India. It is first mentioned in western literature in the plays of Aristophanes and became well known to the Greeks after the expedition of Alexander the Great to India. It became very common among both the Greeks and Romans, who reared it in great numbers for the table.	Valuable for food, the flesh and eggs being of good quality though inferior to the domestic fowl, and reared still extensively in southeastern Asia for food. While the range of the peacock in domestication has been greatly extended in modern times, it has been entirely replaced by domestic fowls for food and eggs, and its use in most regions of the world is now restricted to ornamental purposes,—the splendor of its plumage being unequaled by any other large bird.
The domestication of the pig is remotely ancient, having been established among the Chinese for some thousands of years. Mentioned in the Bible, though held unclean by Mosiac law. Remains are found in the ancient lake dwellings of Switzerland. Used for food by the Greeks and Romans. Brought to America by the early colonists. However, it is only during the last 200 years that the pig has reached its present highly modified state of domestication, and only during the last century has selective breeding been carried on to secure rapid growth and much fat. The Chester White breed was evolved in Chester county, Pennsylvania, between 1818 and 1830; the Berkshire was introduced from England about 1830; and the Poland China originated in southwestern Ohio, 1839-1840.	Remarkable as the only domestic mammal reared primarily and exclusively for food, the use of its bristles for brushes and its hide for leather being insignificant and not considered by the breeder. Its rapidity of growth and propagation gives it a peculiar value in the food supply of the world. While the flesh of the pig is inferior to that of the ox, the quickness and certainty with which it can be produced, and the ease with which it can be cured and marketed, render it the cheapest and most widely available of meats. The distribution of the pig is world-wide, being found on every continent, throughout a range of latitude about equaling that of the horse, but not in high altitudes though it ascends to 9,000 feet in Spain. Long domestication, and particularly modern selective breeding, have greatly altered some of the prominent characteristics of the wild pig. The domestic pig is omnivorous, not herbivorous only, and has largely lost its tusks and the inclination to use them. The wild pig is a notably alert and sagacious animal and while the conditions surrounding its domesticated descendants all tend to degrade rather than to improve intelligence, animal trainers have found it to possess surprising powers and to receive instruction with a readiness equaled by few if any animals lower than the apes.
Very anciently tamed and prized in Egypt and Assyria. According to Lepsius, the earliest mention is during the third dynasty in Egypt about 3000 B. C. The pigeon entered Greece by way of Syria and became common about 400 B. C.; thence was transported to Rome and spread to Europe. Frequent in the mythology of various peoples. Mentioned in the Mosaic law concerning sacrifices and frequently throughout the Bible; adopted as a symbol of the Holy Spirit by the early Christians; also held in high regard by the Mohammedans. Homing pigeons very ancient in the Orient, where they were first seen by Europeans during the Crusades; became conspicuous again in the Franco-Prussian War and now maintained by the leading armies.	Valuable particularly for its flesh and easy to rear in many regions of the world. While more ancient than the domestic fowl, it is not so generally useful, and at present is of small economic importance compared to the leading domestic birds, consequently pigeons are now kept as pets and ornamental birds rather than for food. Ages of domestication have produced some 250 varieties, such as pouters, tumblers, fantails, rough-footed, black nun, and homing pigeons. In the United States during recent years considerable attention has been given to rearing young pigeons for the table, especially near large cities, where squabs now have an established place in the poultry markets.
According to Hehn the rabbit was anciently domesticated by Iberian peoples in Spain, who may have brought it from northern Africa. Established among the Romans about the time of the Republic. Varro, Strabo, and Pliny describe it. Thence it spread throughout Europe. Now reared in the United States and in many other regions of the world. In Australia its introduction proved a most unfortunate experiment as it multiplied in such numbers as to become a destructive pest.	Much prized for its flesh in many European countries, particularly in France and Belgium, where it is reared in great numbers. Recently it has become popular in England, and, on account of cheapness, occupies a place very similar to the chicken in American markets. While grown to a limited extent in the United States it has not become popular, and its use is insignificant even when compared to such minor fowls as the duck or goose. Much modified by long domestication, particularly in size, adaptation to climate, and character of fur.
Long domesticated in Lapland, Scandinavia, and Russia. Introduced into Iceland in 1870, and into Alaska in 1892. While many authorities consider both the barren ground caribou and the woodland caribou of North America merely varieties of the European reindeer, it does not appear that either of these American forms has ever been domesticated by the Indians of Canada or Alaska.	Invaluable to the Laplanders as a beast of burden, as a means of travel and for food, clothing, and other useful purposes. It is maintained in considerable numbers in Siberia, northern Scandinavia, and in several Permian districts in Russia. The Lapland draught animal is smaller than the wild form, but in Siberia a large domestic reindeer is kept for riding. Shares with the dog the labor of transportation in far northern regions.

Common and Scientific Name.	Order and Family.	Parent Wild Species and Region of Origin.	Years of Known Domestication
Silkworm Moth Silkworm (*Bombyx mori*)	*Lepidoptera* (Butterflies and Moths) *Bombycidae* (Silkworm Moths)	Silkworm Moth (*Bombyx mori*) Northern China, Bengal	4500
Swan (*Cygnus olor*)	*Anseres* (Duck Tribe) *Anatidae* (Ducks, Geese, Swans)	Wild Swan (*Cygnus olor*) Europe	2000
Sheep (*Ovis aries*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	Unknown and probably indeterminable, but is most closely allied to the wild mouflon, *Ovis musimon*, of Sardinia and Corsica, the Armenian Wild Sheep, *Ovis gmelini*, of Persia and Anatolia, and the Asiatic Wild Sheep or Oorial, *Ovis vignei*, of Central Asia, and may be a mixed strain derived from some or all of them or from similar wild species now extinct	5000
Turkey (*Meleagris gallipavo*)	*Gallinae* (Gallinaceous or Game Birds) *Phasianidae* (Pheasants)	Wild Turkey (*Meleagris gallipavo*) United States, Mexico, West Indies	350
Water Buffalo Indian Buffalo Arna (*Bos bubalus*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	Indian Buffalo (*Bos bubalus*) India	2000
Yak (*Bos grunniens*)	*Ungulata* (Hoofed Mammals) *Bovidae* (Ox, Sheep, Goats)	Wild Yak (*Bos grunniens*) Of the Tibetan plateaus	2000

Historical Notes.	Economic Importance.
According to Chinese authorities, silk culture was begun by Si-Ling, wife of the emperor Hoang-ti, 2600 B. C. Silk cloth first mentioned among the Greeks by Aristotle. Silkworms brought to Constantinople from China by Greek missionaries 530, and introduced into Italy in the twelfth century. Cultivation has become important in Italy, Turkey, and Greece, and established to some extent in France, Spain, and Portugal. Begun in Georgia in 1732, later in the same century in Connecticut and Pennsylvania, and in 1821 extensively undertaken under encouragement of the United States government, but finally resulted disastrously and abandoned in 1846. Numerous subsequent attempts have been made, but as yet silk culture is not upon a commercial footing in the United States.	The source of the finest and most valuable textile fiber known, no other animal or vegetable substance capable of extensive production equaling its peculiar qualities, which have been held in high esteem since remote antiquity. Silkworm culture and the preparation of raw silk have been of age-long importance in China, Japan, and India, and since the Middle Ages of much consequence in western Asia and southern Europe. The raw silk production of the world is approximately 40,000,000 pounds annually, of which the far East contributes two thirds, China exporting 17,000,000, Japan 8,000,000, and India 1,000,000 pounds respectively; western Europe over one fifth, of which Italy produces 7,000,000 pounds and France, Austria-Hungary, and Spain the remainder in the order named; while the remaining one tenth is produced in the Levant and western Asia, mainly by Syria, Anatolia, the Caucasus, Turkey, and Greece.
Semi-domestication dates to the period of the Roman emperors, when it was eaten for food, as it was also to some extent in mediaeval times. However, during the Middle Ages, swans became part of the regalia of European courts, only royalty being permitted to keep them. By English law they were declared birds royal and the position of king's swanherd was once an important office.	Now reared almost exclusively as an ornamental bird, adorning ponds, lakes, and rivers in many regions of the world. Although noted for its beauty and gracefulness, the swan is inferior to most tamed birds in intelligence and adaptability, and its domestication, which at most is only partial, has resulted in but slight changes of form and habits. So, while it is one of the most conspicuous and striking of birds, it is relatively of very little value to mankind.
Domestication prehistoric, probably first effected in western Asia, and well established when the earliest records begin. A form was used by the Lake Dwellers of Switzerland. Early and frequently mentioned in the Bible. Possessed by the Greeks and Romans and alluded to in their early literature. Jason and the Argonauts sailed in search of the Golden Fleece. Used for its flesh, wool, and milk since time immemorial in large areas in Asia and Europe, and now diffused throughout the world. Introduced into Florida by the Spanish in 1565; into Virginia in 1609; into Massachusetts in 1624; into New York in 1625; into New Jersey and Delaware by the Swedes in 1634; into Pennsylvania in 1684; and into California by the Spanish missions from Mexico in 1773. The fine wool breeds are derived from the Spanish merino, which antedates the Christian era. The long wooled breeds, Cotswolds, Leicesters, and Lincolns, as well as the medium wooled Southdowns, Shropshire, Hampshire, and Oxfordshire Downs, have been developed in England.	The leading fiber producing animal of the world; very valuable also for flesh, milk, and leather. The production of sheep's wool immensely exceeds that of the goat, alpaca, and camel combined, and ranks far above silk culture in general economic importance. Sheep's milk is unimportant in countries supplied with milch cattle, but its flesh is highly esteemed and very widely used. The sheep is the least intelligent member of the bovine family in full domestication, and it is the only one widely kept which does practically no labor for man. Sheep are now reared throughout the world but are especially adapted to arid, desert, and mountainous regions, being notably abundant in Australia, Argentina, the western United States, Russia, South Africa, and Spain, and they also thrive in the cool, moist climates of England and France. Domestication and selective breeding have greatly modified the sheep as to bodily size, length and quality of wool, presence and character of horns, and in the case of the so-called fat-tailed sheep, the tail has become enormously developed. In the United States there are about 60,000,000 sheep, reported from over 750,000 farms, or from one out of each eight, with a total value of upwards of $200,000,000.
The turkey was taken from the West Indies to Europe by the Spanish early in the sixteenth century, where it became established in domestication and thence was returned to America. It is the only domestic animal contributed by the New World in wide and valuable use, the llama and alpaca being confined to a narrow region in the Andes, and the guinea pig being insignificant in comparison. Its name is a contraction of the curious misnomer turkey cock given to it by the English, just as the French wrongly called Indian corn turkey wheat, though both the bird and the grain were American.	The largest domestic fowl, valuable and much prized for food, though neither its eggs nor feathers are used to an important extent. Notwithstanding it is a stupid bird, ranking low in intelligence, it is easily domesticated and the tame birds readily intermingle with the wild ones. While it needs considerable range and is inclined to wander, and therefore is not suited to small farms, it is comparatively easy to rear and stands second to the chicken in the United States, ranking above geese and ducks both in number and value, there being upwards of 6,500,000 turkeys, Texas reporting the largest number, and followed in order by Missouri, Illinois, Iowa, and Ohio.
Long domesticated in India, Burma, and the Malaysian region. It spread westward during the Middle Ages, appearing in Italy about 600, where it became permanently established, and somewhat later was introduced into Gascony in France, into portions of Hungary, and other regions. In a truly wild state it is now found only in India though domesticated water buffaloes have frequently become wild again in various regions.	Valuable for its flesh, milk, and as a beast of burden, being peculiarly suited to warm, moist countries, delighting in water and marshy situations. For centuries it has been employed for plowing and hauling wagons in the malarial plains of Italy. Now domesticated throughout India, Burma, the Malay Peninsula, and East India Islands, particularly Java, also in Asia Minor and Egypt. The buffalo ox is as well adapted for labor as the common ox; the buffalo cow gives more milk, but the flesh is considered inferior. The water buffalo has been but little modified in form, size, or habits by domestication, retaining its fondness for water, and during hot days it will lie almost completely immersed.
Domesticated since immemorial times by the inhabitants of the Tibetan plateaus. Yak tails are suspended as streamers from poles placed in front of Tibetan monasteries, and in China yak tails dyed red are mounted as pendants from the roofs of houses.	The chief wealth of the native peoples of high Tibet. As a beast of burden the yak is indispensable to commerce in that region, being strong, sure-footed, and able to withstand the rigorous climate. Its flesh is excellent in quality, the milk rich, and the curd is much used both fresh and when dried and made into a kind of meal. The butter is good, and in the cold climate is kept in bladders, forming an article of trade. The coarse hair of the yak is twisted into ropes and the fine hair is made into cloth.

BOTANICAL TERMS

AKENE: a one-seeded fruit which ripens dry and seed-like.

ALTERNATION OF GENERATIONS: the alternation of gametophyte and sporophyte in a life history.

ANEMOPHILOUS: applied to flowers or plants which use the wind as agent of pollination.

ANTHER: the sporangium-bearing part of a stamen.

APETALOUS: applied to a flower with no petals.

ARCHESPORIUM: the first cell or group of cells in the spore-producing series.

ASEXUAL SPORE: one produced usually by cell-division at least not by cell-union.

CALYX: the outer set of floral leaves.

CAPSULE: in Bryophytes the spore-vessel; in Angiosperms a dry fruit which opens to discharge its seeds.

CARPEL: the Megasporophyll of Spermatophytes.

CELL: the elementary structure which is the foundation of all vegetable tissue.

CHLOROPHYLL: the green coloring matter of plants.

CHOLOROPLAST: the protoplasmic body within the cell which is stained green by chlorophyll.

CONJUGATION: the union of similar gametes.

COROLLA: the inner set of floral leaves.

COTYLEDON: the first leaf developed by an embryo sporophyte.

CYCLIC: applied to an arrangement of leaves or floral parts in which two or more appear upon the axis at the same level, forming a cycle, or whorl, or verticil.

DICHOTOMOUS: applied to a style of branching in which the tip of the axis forks.

DIOECIOUS: applied to plants in which the two sex-organs are upon different individuals.

EGG: the female gamete.

EMBRYO: a plant in the earliest stages of its development from the spore.

EMBRYO-SAC: the megaspore of Spermatophytes, which later contains the embryo.

ENDOSPERM: the nourishing tissue developed within the embryo-sac, and thought to represent the female gametophyte.

EPIDERMIS: the outside or protective covering of the plant. It is to the plant what the skin is to the human body.

FAMILY: a group of related plants, usually comprising several genera.

FERTILIZATION: the union of sperm and egg.

FILAMENT: the stalk-like part of a stamen.

FISSION: cell-division which includes the wall of the old cell.

GAMETANGIUM: the organ within which gametes are produced.

GAMETE: a sexual cell, which by union with another produces a sexual spore.

GAMETOPHORE: a special branch which bears sex organs.

GENERATIVE CELL: in Spermatophytes the cell of the male gametophyte, within the pollen grain, which gives rise to the male cells.

GENUS: a group of very closely related plants, usually comprising several species.

HETEROGAMOUS: applied to those higher plants whose sporophyte produces two forms of asexual spores.

HOMOSPOROUS: applied to those plants whose sporophyte produces similar asexual spore.

HOST: a plant or animal attacked by a parasite.

HYPHA: an individual filament of a mycelium.

HYPOCOTYL: the axis of the embryo sporophyte between the root-tip and the cotyledons.

HYPOGYNOUS: applied to a flower whose outer parts arise from beneath the ovary.

MEGASPORANGIUM: a sporangium which produces only megaspores.

MEGASPORE: in heterosporous plants the large spore which produces a female gametophyte.

MICROSPORE: in hetereosporous plants the small spore which produces a male gametophyte.

MICROPYLE: the passageway to the nucellus left by the integument.

MONOPODIAL: applied to a style of branching in which the branches arise from the side of the axis.

MOTHER CELL: usually a cell which produces new cells by internal division.

NUTRITION: the support and care of the plant body. These functions are carried on by the root, stem and leaves.

OOGONIUM: the female, egg-producing organ of Thallophytes.

OOSPHERE: the female gamete, or egg.

OOSPORE: the sexual spore resulting from fertilization.

OVARY: in Anglosperms the bulbous part of the pistil, which contains the ovules.

PENTACYCLIC: applied to a flower whose four floral organs are in five cycles, the stamens being in two cycles.

PETAL: one of the floral leaves which make up the corolla.

PISTIL: the central organ of the flower, composed of one or more carpels.

PISTILLATE: applied to flowers with carpels but no stamens.

POLLEN: the microspores of Spermatophytes.

POLLEN-TUBE: the tube developed from the wall of the pollen grain which penetrates to the egg and conducts the male cells.

POLLINATION: the transfer of pollen from anther to ovule (in Gymnosperms) or stigma (in Angiosperms).

PROTOPLASM: the essential living portion of the cell. Lines the interior of the cell-wall.

RADIAL: applied to a body with uniform exposure of surface, and producing similar organs about a common center.

RECEPTACLE: in Angiosperms that part of the stem which is more or less modified to support the parts of the flower.

SAPROPHYTE: a plant which obtains food from the dead bodies or body products of plants or animals.

SCALE: a leaf without chlorophyll, and usually reduced in size.

SEPAL: one of the floral leaves which make up the calyx.

SEXUAL SPORE: one produced by the union of gametes.

SPECIES: plants so nearly alike that they all might have come from a single parent.

SPERM: the male gamete.

SPIRAL: applied to an arrangement of leaves or floral parts in which no two appear upon the axis at the same level; often called alternate.

SPORE: a cell set apart for reproduction.

SPOROPHORE: a special branch bearing asexual spores.

SPOROPHYLL: a leaf set apart to produce sporangia.

SPOROPHYTE: in alternation of generations, the generation which produces the asexual spores.

STAMEN: the microscoporophyll of Spermatophytes.

STAMINATE: applied to a flower with stamens but no carpels.

STIGMA: in Angiosperms that portion of the carpel, usually of the style, prepared to receive pollen.

STOMATA: (mouths) organs of the epidermis whose functions are to communicate between the green matter and the air.

STYLE: the stalk-like prolongation from the ovary which bears the stigma.

SYMBIOSIS: usually applied to the condition in which two organisms live together in intimate and mutually helpful relations.

TESTS: the hard coat of the seed.

TETRAD: a group of four spores produced by a mother-cell.

ZOOSPORE: a motile asexual spore.

DICTIONARY OF NATURAL HISTORY.

DIVISION OF PLANTS.

Abutilon (*Flowering Maple*). A genus of mostly shrubby tropical or semi-tropical plants containing about 90 species. A number are cultivated as pot and border plants. Leaves maple-like or vine-like; flowers one to two inches or more long, red, yellow, white, or variegated. *Abutilon Theophrasti*, known as velvet-leaf, introduced from India, is a troublesome weed, widely diffused in the United States.

Acacia. A large genus of plants of the Pea family (*Leguminosae*) containing about 450 species. Three hundred are native to Australia and Polynesia, the remainder are distributed in warm regions of the other continents except Europe, 17 occurring in the southern United States. All are shrubs or trees with finely divided leaves, and small flowers

ACACIA.

arranged usually in globular clusters. Many are of great value, yielding gums, timber, tan bark, and food products. Several species in Asia and Africa produce gum arabic. Gum senegal is the product of *Acacia verek* and the drug catechu of *Acacia catechu*. The tan bark known as the Black Wattle, four times as strong as oak bark, is obtained from the Australian *Acacia decurrens*. The most valuable timber acacia is the Australian blackwood (*A. melanoxylon*). Several acacias thrive in cultivation.

Acanthus Family (*Acanthaceae*). A large family of flowering plants containing about 175 genera and 1,800 species, mostly tropical herbs and shrubs, with but few representatives in the United States and Europe. Certain species of justicia and ruellia are fine hothouse plants. The wild, spiny acanthus (*A. spinosus*) and the cultivated acanthus (*A. mollis*) were known to the Greeks and Romans, who conventionalized the leaves extensively in architectural decoration of columns, friezes, and cornices.

Ailanthus (*Tree of Heaven*). A tall spreading tree (*Ailanthus glandulosus*) of the Quassia family (*Simarubaceae*), native of China, but now extensively planted for shade and ornament in Europe and the United States. The tree resembles the ash in foliage; thrives on light soils and is quite hardy, but the disgusting odor of the staminate flowers has caused it to be prohibited on public grounds of the United States government and to be regarded with increasing disfavor.

Alder. A genus (*Alnus*) of 18 or 20 trees and shrubs of the Birch family (*Betulaceae*), nine of which are North American, growing in cold and temperate climates. The best known species are: **Green** or **Mountain Alder** (*A. crispa* and *A. mollis*), shrubs 2 to 10 feet high, growing from Newfoundland to Virginia and northwest to Alaska. **Speckled** or **Hoary Alder** (*A. incana*), a shrub or a small tree, 8 to 25 feet high, in wet soil, eastern United States and Canada, also Europe and Asia. **Smooth Alder** (*A. rugosa*), 5 to 25 feet high, streams and swamps, eastern and southern United States. **Seaside Alder**, small tree sometimes 30 feet high, coast of Delaware and Maryland, and in Oklahoma. **Red Alder** (*A. oregona*), tree 30 to 80 feet high, California to Alaska. **White Alder** (*A. rhombifolia*), small tree 20 to 35 feet high, Pacific States. **Black Alder** (*A. glutinosa*) of Europe, tree 30 to 60 feet high, often planted and locally naturalized in the United States. Wood, light, inferior for fuel, but valuable in use under water for piles, pumps, and sluices.

Algae. The lowest and most primitive forms of plant life, the fungi being regarded as having been derived from various groups of algæ; bacteria, for example, probably originated in the lowly blue-green algae, and molds from a higher algae group. The algae and fungi are thus closely interrelated and the distinction between them founded upon the presence or absence of chlorophyll is largely one of convenience.

Fucus.

Sargassum.

SEAWEEDS.

Four classes of algae are readily distinguished: *Cyanophyceae*, blue-green algae; *Chlorophyceae*, green algae; *Phaeophyceae*, brown algae; *Rhodophyceae*, red algae.

Cyanophyceae, Blue-green Algae, characterized by extreme simplicity of cell structure, and reproducing only by fission, are most abundant in warm shallow waters and moist places. Highly colored growths occur in the warm springs of the Yellowstone region, and the tint which gives the name to the Red Sea is due to the immense abundance of floating filaments of Trichodesmium.

Chlorophyceae, Green Algae. In this class the clear green of the chlorophyll is not masked by various colored pigments as in the other classes. There are one-celled groups such as protococcus and the beautiful desmids and diatoms and a wide range of the more complex forms, including the confervae and pondscums, terminating in conspicuous types, such as the sea-lettuce (*Ulva*) and stoneworts (*Chara*). Sexual reproduction and alternation of generations are exhibited in the higher types of this class.

Phaeophyceae, Brown Algae, so called because a brown pigment masks the green chlorophyll, are almost exclusively marine and embrace a vast array of the larger seaweeds, mostly of cold waters. Great kelps (*Macrocystis*) in the Pacific are said to grow 900 feet long. The Gulf weeds (*Sargassum*) and the rock weeds (*Fucus*) are immensely abundant, some of the latter being the most highly complex of the algae.

Rhodophyceae, Red Algae, so named by reason of a reddish pigment which obscures their chlorophyll, comprise the red seaweeds, the most beautiful of all algae, varying in form from delicate filaments to broad, membranous, or cartilaginous structures, the most striking being the corallines, which resemble corals on account of incrusted lime deposits.

Alkanet (*Anchusa*). A genus of the Borage family (*Boraginaceae*), some species of which yield valuable dyes. The most important, *Anchusa tinctoria*, the true alkanet, is a native of southern Europe and the Levant, and yields the beautiful red coloring matter known as alkanet.

Aloe. A large genus of plants of the Lily family (*Liliaceae*), native to warm regions, particularly South Africa and the island of Socotra, where vast hilly tracts are entirely covered by various species. All have permanent, fleshy leaves, often strongly resembling those of the agave or century plant, which is sometimes wrongly called American Aloe, and range from a few inches to over twenty-five feet in height. Some species yield fiber and dyestuffs but their greatest value lies in medicinal properties, the important drug, aloes, being the dried juice of the leaves of a number of large tree-like kinds, notably *Aloe socotrina* and *Aloe Perryi*, yielding socotrine aloes; several South African species yielding Cape aloes; and *Aloe vera* of the East and West Indies, also grown in Europe, yielding Hepatic or Barbados aloes. The juice was anciently used in embalming.

Alpine Plants. The flora of mountains which approach the line of perpetual snow, or of high latitudes where similar conditions prevail. These conditions produce dwarfed or stunted plants characterized by large, bright-colored flowers strongly attractive to the restricted insect life of the region, and by a habit of growth in close tufts, forming mats or carpets. Saxifrages, arenarias, heath forms, particularly azaleas and rhododendrons, primroses, gentians, and small ferns, are prominent in alpine vegetation, which is essentially Arctic vegetation, as it results from practically identical conditions.

Alternation of Generations. The alternate occurrence in the life history of a plant of two or more forms differently produced. In ferns, for example, there are two distinct generations. One is asexual, that is, producing not male or female elements but spores. This is the ordinary form of these plants with which we are familiar. The other is a minute flattened leaf-like organism which grows from the fallen spore on damp soil, stones, and wood. But this inconspicuous form is sexual, developing organs which produce egg cells and spermatozoids which fertilize and by their growth again give rise to the asexual generation, which we recognize anew as the fern. Neither the sexual nor the asexual form of these plants can reproduce itself directly. It must first pass through the other form, i. e., there must be an alternation of generations. Botanists now recognize a like alternation in the higher or flowering plants, although the sexual generation is microscopic and lies concealed within the asexual or spore-bearing plants, so that the law of alternation of generations has been demonstrated to prevail throughout the plant world.

Alyssum. A genus of the Mustard family (*Cruciferae*), consisting of about 100 species, natives of the Old World, mostly small perennials, many of which are called madwort. A number of European species and varieties have been developed in cultivation as ornamental plants. The well known sweet alyssum (*Lobularia maritima*) is annual; widely grown as a border plant.

Amaranth (*Amaranthus*). The principal genus of the Amaranth family, embracing some 300 species, mostly tropical herbs. About 30 species grow in the United States, chiefly coarse weeds such as pigweed and tumbleweed. *Amaranthus blitum* and *Amaranthus oleraceus* are used as pot herbs in Europe. The seeds of *Amaranthus frumaceus*, called kiery, are used as food in India. The flowering heads of several species assume monstrous forms in cultivation, such as love-lies-bleeding (*Amaranthus gangeticus*) and prince's feather (*Amaranthus caudatus*).

Amaryllis. The typical genus of the Amaryllis family, containing many species, natives of warm regions, which possess flowers of great beauty. The South American species, *Amaryllis formosissima*, was brought to Europe about 1700 and has become commonly cultivated in gardens.

Amaryllis Family (*Amaryllidaceae*). A natural order of monocotyledonous plants, embracing nearly 1,000 species, mostly tropical, and adapted to dry regions, usually bulbous, leafing and flowering only in the wet season. The most important type economically considered is the strictly American genus Agave, including 140 species, among which are the century plant, or maguey, and sisal hemp. Narcissus, amaryllis, and galanthus are extensively cultivated ornamental plants. Only a few are native to the eastern United States; the most common is the small yellow-flowered stargrass (*Hypoxis hirsuta*).

Andropogon. A genus of grasses (*Gramineae*) of 150 species of world-wide distribution, a number of which are of great value. Johnson grass (*Andropogon halepense*), cultivated in southern United States since 1830, is highly prized for hay. The blue-stem grasses (*Andropogon nutans*, *A. provincialis*, and *A. scoparius*) are valued for hay in the prairie regions of the Mississippi valley and the great plains. An Indian species (*A. squarrosus*) yields the perfume vetiver, from its roots, and the tropical species (*A. schoenanthus* and *A. nardus*) yield lemon oil and citronella used in perfumery.

Anemone (*Windflower*). A genus of the Crowfoot family (*Ranunculaceae*). There are about 90 species, mostly natives of cold and temperate northern regions, generally with beautiful flowers, blossoming in early spring. The **Wood Anemone** of Europe (*Anemone nemorosa*) and a very similar species of North America (*A. quinquefolia*) are delicately beautiful woodland plants flowering in April and May. The **Pasque Flower** (*Anemone pulsatilla* or *Pulsatilla vulgaris*) blossoms on English chalk hills about the same time. The **American Pasque Flower** (*Anemone patens var. Nuttalliana*, or *Pulsatilla hirsutissima*) during March and April adorns the prairies from Illinois to Saskatchewan and south to Nebraska and Texas. The **Garden Anemone**, with very numerous varieties long in cultivation, probably developed from two wild species of the Levant, *Anemone coronaria* and *Anemone stellata*, is a great favorite with florists. About 18 species grow wild in North America.

Angiosperms. A name, signifying "seeds in vessels," given to the greater group of the Spermatophytes, or seed plants, in contradistinction to the smaller group called gymnosperms, having "naked seeds." There are over 150,000 known living species of angiosperms, while the gymnosperms, though immensely more abundant in earlier geologic ages, number only about 400 living species, so that the far greater part of the conspicuous vegetation of the earth belongs to the angiosperms, which are called the true flowering plants, for no others bear conspicuous flowers. There are two great natural divisions of the angiosperms, monocotyledons and dicotyledons, the former having one seed-leaf or cotyledon and the latter two seed leaves or cotyledons.

Anise (*Pimpinella anisum*). An annual plant of the Parsley family (*Umbelliferae*), native of Egypt and other Mediterranean countries, much cultivated in southern Europe and particularly in Germany, for the seeds and oil; used as a condiment and in making liqueurs.

Annuals. Plants which flower during the first year of growth, and completely die after ripening seeds, are called annuals. The first plants brought into cultivation by the human race were almost exclusively of this group, and to-day it includes the most important economic plants, embracing all of the cereals, wheat, maize, rice, rye, barley, oats; the sorghums and millets, and many other valuable grasses; all fiber plants of the first order: cotton, flax, hemp, jute; the most valuable legumes, such as peas, beans, lupine, lentil, peanut, and many clovers and fodder plants; all of the common cucurbitaceous plants: watermelon, muskmelon, pumpkin, squash, and gourds; and many important vegetables: tomato, radish, mustard, lettuce, endive, okra, eggplant, and spinach; also carthamine, quinoa, sesame, and tobacco.

Aquatic Plants, or Hydrophytes, grow partly or wholly submerged in water. They do not, however, embrace the marsh plants. Among the lower forms, seaweeds and fresh water algae are noteworthy aquatics. Among flowering plants, the water buttercup (*Ranunculus*), the water lilies (*Castalia* and *Nymphaea*), and the pondweeds (*Potamogeton*) are widely distributed and conspicuous examples. Most aquatics are perennial, growing from roots fixed in the soil beneath the water, but some, like the duckweed (*Lemna*), float on the surface. Only rarely do aquatic plants produce flowers beneath the surface, as in the sea wrack (*Zostera*). In nearly all cases the flowers are developed above the water, and are fertilized by the wind and by insects like most flowering plants.

Aralia Family (*Araliaceae*). A natural order of plants closely related to the Parsley family (*Umbelliferae*), containing about 450 species, consisting of trees, shrubs, and herbs, growing in all climates, generally aromatic and possessing stimulant properties. The most important are the Aralias, Ginseng (*Panax*), and the English Ivy (*Hedera*).

Arbutus (*Madroña*). A genus of the Heath family (*Ericaceae*), comprising about 20 species of shrubs and small trees, mostly natives of Europe and North America. The branches are usually smooth and red, and the leaves evergreen and shining. The **Strawberry Tree** (*Arbutus unedo*), a native of southern Europe, is grown in California, but is not hardy in colder parts of the United States. The edible fruit resembles a strawberry, and is often made into sugar. The native **California Madroña** (*Arbutus Menziesii*) is often 80 to 100 feet in height. The Arizona Madroña (*Arbutus arizonica*), a tree 40 to 50 feet high, grows in high altitudes in California, southern Arizona, and Mexico. The **Texas Madroña** (*Madroña xalapensia*) is rarely more than 18 to 20 feet in height.

Arbutus, Trailing (*Epigaea repens*). A trailing plant of the Heath family, with branches 6 to 15 feet long and evergreen leaves, called Mayflower in New England and Ground Laurel in the Southern States. It grows in sandy or rocky soils, especially in the shade of evergreen trees, from Canada to Texas. Prized for its early blooming, delicate flowers, now gathered in considerable quantities for city flower markets.

Arctic Plants. On land within the Arctic zone, mosses and lichens are noteworthy for their great abundance and value as food for the reindeer and musk ox. The bog moss (*Sphagnum*) covers great areas, while species of *Hypnum* and *Polytrichum* are immensely abundant. There are many flowering plants, but the number of species is small compared to those existing in equal areas in warmer regions. Prominent examples are various rushes, sedges, saxifrages, heath forms, and rosaceous plants. Exactly speaking, trees do not occur, the Arctic species of the birch and willow being low-growing forms which are more nearly herbs than shrubs. A large proportion are xerophytic in character, with erect leaves which catch and make use of light from every direction. However, growth is actually retarded and stunted by the very continuity of light during the summer season, so that most Arctic plants are dwarfed and tufted in habit. Insects are abundant but limited in variety, being mostly short-tongued flies. Consequently, while Arctic flowers develop brilliant colors to attract insects, most of them are short tubed and of simple structure from the standpoint of fertilization. The plant life of the Arctic seas is inconspicuous but important as food for lower marine animals.

Artemisia. A genus of the Sunflower family (*Compositae*). There are about 200 species, natives of the northern hemisphere and southern South America. The flower heads are small and numerous and the leaves are generally much divided. The **Wormwood** (*Artemisia Absinthium*), and a number of other species, are used in the manufacture of absinthe. The dried flowers of *Artemisia santonica* and several other species are valued as a vermicide, known as wormseed. The young leaves of **Mugwort** (*Artemisia vulgaris*) are used in Germany for seasoning and for cleansing and healing wounds. **Southernwood** (*Artemisia Abrotanum*), a shrubby plant, native of southern Europe and Asia, is used in the manufacture of beer and to drive away moths. Many shrubby species, known as sage brush, grow in the western parts of the United States.

Arum Family (*Araceae*). A natural order of monocotyledonous plants, consisting of about 100 genera and 1,000 species, mostly natives of the tropics, usually stemless perennials with tuberous roots. Representations are few in number in temperate regions, there being only 10 species in temperate North America, of which the Jack-in-the-pulpit (*Arisaema triphyllum*), skunk cabbage (*Symplocarpus foetidus*), and the sweet flag (*Acorus Calamus*) are well known. The taro (*Colocasia antiquorum*), widely cultivated in the tropics, is the most valuable economic plant of the family. Many are greenhouse foliage plants, and the calla (*Richardia aethiopica*) is a very common house plant.

Ash (*Fraxinus*). A genus of the Olive family (*Oleaceae*) of about 40 species, mostly natives of Europe and eastern Asia, and about 12 are natives of North America. The best known species are: **Common Ash** (*F. excelsior*), a large tree 100 to 150 feet high, growing wild in southern Europe and northern Asia. The wood is tough, hard, and much used in carriage building, manufacture of agricultural implements, turnery, cabinet making, and for fuel. **White Ash** (*F. americana*), a large tree 45 to 90 feet high; Nova Scotia to Florida, westward to Minnesota and Texas. Used much the same as Common Ash. **Green Ash** (*F. lanceolata*), 40 to 50 feet high, Vermont to Florida, intermittently to Utah and Arizona. Used for same purposes as White Ash but less valuable. **Red Ash** (*F. pennsylvanica*), a small tree, rarely more than 40 feet high, growing in moist soil from New Brunswick to South Dakota, Florida, Alabama, and Missouri. Used the same as White Ash. **Blue Ash** (*F. quadrangulata*), 50 to 75 feet high, Ontario, Minnesota, and Michigan to Alabama, west to Iowa and Arkansas. Used in carriage building, for flooring and tool handles. **Black or Hoop Ash** (*F. nigra*), a large tree, 70 to 80 feet high, Newfoundland to Manitoba, south to Virginia and Arkansas.

Aspen. A name applied to two species of the genus *Populus* of the Willow family (*Salicaceae*), one a native of the United States, the other growing in Europe and Siberia. The **American Aspen** (*Populus tremuloides*), called **Quaking Aspen** or **Quaking Asp**, is one of the most widely distributed trees of North America, growing from Alaska and Newfoundland to lower California. A slender tree with light green bark, maximum height 100 feet. Wood soft, light, and largely used for manufacture of wood pulp. The **European Aspen** (*Populus tremula*) is a quick growing tree, 50 to 80 feet high. The wood is soft and porous, and is used in turnery and in interior finish for houses. The bark contains considerable salicin.

Asphodel (*Narthecium ossifragum*). A small plant of the Lily family (*Liliaceae*) with orange colored flowers blossoming abundantly in summer in European peat bogs. The specific name, *ossifragum*, signifying "bone-breaking," arose from the mythical belief that if eaten by sheep their bones would become brittle. In the United States the name bog asphodel is given to plants of the genus *Abama*.

Aster. A genus of the Sunflower family (*Compositae*) containing not less than 250 species, most abundant in North America. A number of perennial species are in cultivation as garden flowers. They bloom from July to November and are among the most valuable plants for border and roadside planting. The **New England Aster** (*Aster novae angliae*) is one of the most showy native American asters. The **China Aster** (*Aster chinensis*), a summer annual having more than 250 varieties, is the best known and most valued. It is a native of China and has been greatly improved by cultivation. It has a great variation in form and color.

Astragalus. A genus of the Pea family (*Leguminosae*) containing about 1,000 species, some 200 of which grow in the United States. They are shrubby or herbaceous plants commonly found in dry soils. *Astragalus gummifer*, which grows in western Asia, and a number of other species yield gum tragacanth. *Astragalus molliissimus* and several species called loco weeds, found on the western plains, have poisonous properties. Cattle and horses which eat them are said to lose all appetite for anything else, become deranged, and finally die.

Azalea. A genus of the Heath family (*Ericaceae*). There are about 40 species natives of North America and Asia. Mostly tall, branching shrubs with flowers of various colors. The *Azalea pontica*, a native of countries around the Black Sea and covering many mountain slopes, is a common garden flower in Great Britain. It varies with orange, red, and almost white flowers. The **Wild Honeysuckle** (*Azalea nudiflora*) grows in sandy or rocky woods from Canada to the southern part of the United States, and has long been cultivated in Great Britain. The flowers are pink to nearly white. The **Swamp Pink or Honeysuckle** (*Azalea viscosa*) abounds in swamps from Maine to Ohio, south to Florida and Texas, and is also cultivated in Great Britain. The flowers are large, white, and very fragrant. There are many hybrids of the Azalea.

Bacteria. ... Exceedingly minute, one-celled plants, the smallest known organisms, constituting one of the great groups of fungi known as *Schizomycetes* or fission-fungi. Bacteria are almost omnipresent, being found in the air, water, soil, nearly all foods and drink; are constantly present in the mouth, stomach, intestines, and in the external layers of the skin. The air of cities contains vast numbers, but they also exist in great numbers in country and even in mountain air. Water ordinarily called pure contains bacteria in abundance, spring water, artesian well water, and even sulphur spring water being abundantly

BACTERIA.
1. Hay Bacillus. 2. Spirillum. 3. Typhoid-fever Bacillus. 4. Butyric-acid Bacillus. 5. Planococcus. 6. Anthrax Bacillus among blood corpuscles.

supplied. There are two groups: Those which live upon dead animal or vegetable matter, **Saprophytes**; and those which subsist upon living animals or plants, **Parasites**. Saprophytic bacteria are beneficent in their action, being the cause of decomposition and decay, thus returning dead matter to its inorganic elements, so that it may again become food for plants. Parasitic bacteria include all of the harmful forms. Those which produce disease are called pathogenic, and are known to be the cause of many infectious diseases, such as diphtheria, influenza, tuberculosis, and probably all infectious diseases are due to their agency.

Ballast Plants. Plants growing on ballast, or distributed by ballast, the seeds being contained in it when loaded or falling upon it in transit. The study of the transportation of plants from one region to another in this manner has become of much interest to botanists.

Bamboo (*Bambusa*). A genus of about 25 arborescent grasses natives of southern and eastern Asia, one of which, the common bamboo (*B. vulgaris*), is not known growing wild although it is widely cultivated in the Old World, West Indies, and South America. The species range in height from 20 to 100 or even 120 feet, and sometimes attain a diameter of four to eight inches. The stem and leaves, particularly the wood, are put to innumerable uses in the East Indies and eastern Asia; nearly all articles of ordinary use, from houses and furniture to fences, carts, water pipes, cordage, matting, paper, boxes, and baskets, being wholly or largely made from bamboo products.

Banyan (*Ficus bengalensis*). A tree of the genus Fig (*Ficus*) of the Nettle family (*Urticaceae*), native of India and remarkable for its vast rooting branches. It grows 70 to 100 feet high and spreads over a great surface. The branches send shoots downward, which take root and become stems. The tree is extensively planted but grows wild only in the lower Himalayas and the Dekkan hills. The wood is light and of no value, but the white glutinous juice is used as an ointment, and bird lime is made from it. Gum lac is also a product of the Banyan.

Baobab (*Adansonia digitata*). An African tree of the Mallow family now naturalized in the East and West Indies. It is one of the largest trees known, often 30 feet in diameter, though only 40 to 70 feet high. It produces leaves resembling those of the horse-chestnut, white flowers about five inches broad, and a gourd-like fruit a foot in length, which is eaten by monkeys and called monkey-bread. The juice of the fruit is made into a beverage; the powdered bark is used like pepper, and the bark fiber is made into ropes and cloth. The only other species are the Australian cream-of-tartar tree (*A. Gregorii*) and the Madagascar baobob (*A. madagascariensis*).

Barberry (*Berberis*). A genus of 75 low shrubs, natives of temperate regions, the type of the Barberry family (*Berberidaceae*). They are chiefly used as ornamentals, but a few species produce an edible, currant-like fruit. The bark is used in dyeing and sometimes in tanning, and malic acid is extensively made from the berries in France. Of the 13 native species, the best known are the **American Barberry** (*Berberis canadensis*) of the Alleghany and Ozark mountains, and the so-called **Oregon Grape** (*Berberis Aquifolium*) of the Rocky Mountains and westward. The **Common Barberry** (*Berberis vulgaris*), introduced from Europe for border shrubbery, now grows wild in eastern New England.

Beech (*Fagus*). A genus of the Beech family (*Fagaceae*), containing about 16 species, four in the northern hemisphere and 12 in the southern. The **American Beech** (*Fagus americana*) is the only North American species. It is a beautiful tree, 70 to 80 and sometimes 100 feet high, and is one of the most widely distributed trees of eastern North America. The wood is tough, close grained, and is largely used in the manufacture of tool handles, chairs, and for fuel. The small sweet nuts are sold in the markets of Canada and in some of the Western and Middle States. The **Common Beech** (*Fagus sylvatica*), forming pure forests in many parts of Europe, is a large tree 100 to 120 feet high. The wood is dark colored, solid, and very durable under water and is much used in cabinet making, for weirs, and for fuel. The bark is sometimes used in tanning. The nuts are used for the manufacture of beech oil and for feeding swine. The beech is often planted for hedges.

BAMBOO. Bambusa.

Begonia. A genus of plants of the Begonia family (*Begoniaceae*). There are about 350 species found in the tropics of both hemispheres, especially in Mexico and Central and South America. The cultivation of begonias was begun in 1777 and there are now hundreds of varieties of recognized merit. Some of the species are very popular house plants, known as Begonia, Elephant-Ears, Beefsteak Geranium, etc., grown for their handsome flowers and beautiful foliage.

Belladonna or Deadly Nightshade (*Atropa Belladonna*). A tall, bushy herb of the Potato family (*Solanaceae*), native of central and southern Europe, extending into Asia. The entire plant is poisonous, containing the alkaloid atropin. The leaves and roots are largely used in medicine.

Bergamot (*Citrus medica*). A variety of lemon, from the fruit of which oil of bergamot is extracted, much prized in perfumery.

Biennials are plants which require two seasons of growth to produce flowers and ripen seeds or fruit, usually growing the first year to store up surplus food in enlarged portions of the root, stem, or leaves for use the next year in maturing seeds and

fruit, after which the plant dies. While they are relatively few in number when compared to annuals or perennials among both cultivated and wild plants, several important vegetables are biennials such as the beet, cabbage, carrot, celery, parsley, parsnip, rape, turnip, and onion, although some forms of the cabbage are annual and some perennial and some forms of the beet and other biennials are sometimes perennial.

Big Trees. A term applied in America to the genus *Sequoia* of the Pine family (*Coniferae*), containing two species, both natives of California. The **Big Tree** (*Sequoia gigantea*) is the largest American tree, having an average height of 275 feet with a trunk 20 feet in diameter at the base. It sometimes attains a height of 320 feet with a trunk measuring 30 to 35 feet in diameter. The bark is often two feet thick. The Big Tree grows on the west side of the Sierra Nevadas at an elevation between 5,000 and 7,000 feet, from Placer to Tulare county, California. The **Redwood** (*Sequoia sempervirens*) is a tree 200 to 340 feet high and 10 to 15 feet in diameter, growing from the south border of Oregon to Monterey county, California. Rarely found more than 30 miles from the coast or over 3,000 feet above sea level. It is often cultivated as an ornamental tree in Europe. The wood is soft, light, and much used in building.

Birch (*Betula*). A genus of the Birch family (*Betulaceae*). There are about 28 species, natives of north temperate zones; 13 are North Americans. **Common Birch** (*Betula alba*), abounding in northern Europe, is a beautiful tree 60 to 70 feet

BIRCH. Betula. Flowering Branches.

high. The bark is used in medicine and dyeing, and it yields the birch tar employed in the preparation of Russia leather. **Red** or **River Birch** (*Betula nigra*) grows in the United States from Massachusetts to Iowa and Kansas, south to Florida and Texas. It is a slender tree, 70 to 90 feet high, which produces a hard, valuable timber. **Cherry, Black,** or **Sweet Birch** (*Betula lenta*) is a large tree, sometimes 80 feet high. Wood fine grained and valuable for making furniture, etc. The bark yields an oil identical with the oil of wintergreen. It grows from Newfoundland to western Ontario, Florida, and Tennessee. **Yellow Birch** (*Betula lutea*), a large tree, maximum height 100 feet. The timber is used in shipbuilding. From Newfoundland to Manitoba, south to Carolina and Tennessee. **Paper** or **Canoe Birch** (*Betula papyrifera*), a large tree, maximum height 80 feet. The bark on the young trees is of a beautiful white color, and is capable of division into thin sheets, used for making canoes, baskets, and ornaments. Newfoundland to Alaska, northern Pennsylvania, Michigan, and Washington.

Bittersweet or **Woody Nightshade** (*Solanum Dulcamara*). A plant with a long, climbing, shrubby stem, found in most parts of Europe and in Asia and introduced into the United States. A fluid extracted from the twigs is used in medicine. The woody vine (*Celastrus scandens*) is called bittersweet in the United States. The opening orange-colored pods, displaying the scarlet covering of the seeds, are very ornamental in autumn.

Bladdernut. A genus of the Bladdernut family (*Staphyleaceae*), natives of the north temperate zone, mostly small trees. The seeds contain a fixed oil which is slightly purgative. The wood is well suited for the purpose of the turner. The American Bladdernut (*Staphylea trifolia*) is a branching shrub 6 to 15 feet high.

Bloodroot (*Sanguinaria canadensis*). The only species of the genus *Sanguinaria* of the Poppy family (*Papaveraceae*). It has large handsome white flowers which bloom in April and May in rich woods in eastern North America; one of the earliest and most conspicuous spring flowers. The stem and root contain a red juice, and are poisonous when eaten.

Boneset (*Eupatorium perfoliatum*). A perennial herb of the Sunflower family, native of the United States, growing in moist soil. The leaves and flowering tops are much used in household medicine as a tonic.

Borage Family (*Boraginaceae*). A large order of dicotyledonous plants, containing some 85 genera and 1,500 species, mostly natives of northern temperate regions. They are usually herbs and shrubs. Some tropical species are timber trees, and some species are dye plants, but most are of slight economic importance, although the forget-me-not (*Myosotis*) and heliotrope (*Heliotropium*) are widely grown and highly prized for their flowers.

Box Elder or **Ash-leaved Maple** (*Acer Negundo*). A species of the Maple family (*Aceraceae*). One of the hardiest and most widely distributed trees of the United States, growing from Vermont to Florida, and westward to the Rocky Mountains. It grows rapidly and often reaches a height of 60 feet. The wood is soft, light, and is used for wooden ware and wood pulp. The sap is sometimes made into sugar.

Box Tree (*Buxus*). A genus of evergreen shrubs and small trees of the Box family (*Buxaceae*), sometimes treated as a part of the Spurge family (*Euphorbiaceae*). The Common Box, a native of Europe and Asia, sometimes attains a height of 20 feet. Numerous cultivated varieties bear trimming remarkably well and are much used for borders of walks and gardens. The hard, fine grained wood is exceedingly valuable, being much used in engraving and in the manufacture of mathematical instruments.

Brake. A name given to several species of ferns of the genus *Pteris*. The Common Brake or Bracken (*Pteris aquilina*) is very abundant in most parts of Europe and America and in parts of Asia and Africa. The leaves and stems are employed in dressing kid, and the root is used as a substitute for hops. It is sometimes fed to cattle.

Brazil Wood. A dyewood, the product of different species of *Caesalpinia* of the Pea family (*Leguminosae*), and forming a considerable export from Brazil. Much of the Brazil Wood of commerce is obtained from *Caesalpinia braziliensis*, a small tree about 30 feet high, native of the West Indies. The heart wood alone is valuable and is generally sent to the market in the form of sawdust. It yields a red coloring matter called brazilin, which is used by the dyer and calico printer and in the manufacture of red ink.

Bromelia Family (*Bromeliaceae*). A natural order of monocotyledonous plants, allied to the Amaryllis family, embracing some 35 genera and about 900 species, all tropical or subtropical, many of them epiphytic, and usually with spiny or scurfy leaves. The pineapple (*Ananas sativa*) and the Spanish moss (*Tillandsia*), which hangs in festoons on trees in the Southern States, are important representatives. Many species are in hothouse cultivation for their curious manner of growth and showy flowers.

Broom. A name given to a number of species of shrubs of the closely allied genera *Cytisus*, *Genista*, and *Spartium* of the Pea family (*Leguminosae*). Common Broom (*Cytisus scoparius*), a native of Europe, has been introduced into the United States. It grows in dry soils, ornamenting hedges and bushy places with its large yellow

flowers. The branches are very tough and much used for making besoms, and the young tops and seeds are used in medicine. The leaves are used in tanning and dyeing, and cloth is sometimes made from the fiber.

Buckthorn (*Rhamnus*). A genus of the Buckthorn family (*Rhamnaceae*), containing about 75 species, natives of warm and temperate regions. Five are natives of the United States. The fruit and bark yield yellow and green dyes. The **Common Buckthorn** (*Rhamnus catharticus*), a shrub or small tree 6 to 20 feet high, is a native of Europe and northern Asia and introduced into the United States. The bark affords a beautiful yellow dye, and the berries yield the sap green used in painting. The **Alder Buckthorn** (*Rhamnus Frangula*) is a native of Great Britain, and introduced into the United States. It is a shrub rarely more than 8 feet high. The bark, leaves, and berries are much used for dyeing. *Rhamnus Purshianus*, known as Cascara Sagrada, is a native of the Pacific States. It is a tree 15 to 20 feet high, and the bark is extensively used in medicine.

BUCKTHORN. Rhamnus.

Buckwheat Family (*Polygonaceae*). A well marked, natural family of dicotyledonous plants, embracing about 30 genera and 800 species, universally diffused in temperate climates. The foliage of these plants often contains an acid juice as in rhubarb (*Rheum*) and sorrel (*Rumex*) and sometimes acid blistering properties as in smartweed or water pepper (*Polygonum Hydropiper*). Leading genera are *Rumex*, containing the docks, sorrels, and canaigre; *Polygonum*, comprising the smartweeds, bindweeds, and bistort; *Fagopyrum*, buckwheat; and *Eriogonum*, embracing a large number of desert plants of the western United States known as wool-joints.

Buffalo Berry (*Shepherdia argentea*). A shrub of the Oleaster family (*Eleagnaceae*), a native of northwestern North America, which has recently begun to take rank as a fruit plant, the currant-like berries being used for jellies in the Rocky mountain regions.

Buffalo Grass (*Bulbilis dactyloides*). A common grass of the high western plains of the United States, ranging from Manitoba to Texas, where it is one of the best pasture grasses, but rapidly disappearing in many sections, due to overfeeding on the ranges.

Burdock (*Arctium*). A genus of plants of the Thistle family (*Compositae*), containing about six species, natives of Europe. Common Burdock (*Arctium Lappa*) is a native of Europe naturalized in the United States, where it has become a troublesome weed. The root is sometimes used in medicine.

Burgrass or Sandbur (*Cenchrus*). A genus of about 12 species of grasses growing in sandy soils in temperate and tropical regions. They bear sharp pointed burs which frequently cause trouble with sheep, their wool becoming matted with them.

Cactus Family (*Cactaceae*). A very distinct natural order of plants numbering about 1,000 species grouped in about twenty genera. With a few exceptions, practically all are natives of America, the great majority growing in Mexico and

CACTUS GROVE. California.
Opuntia.

adjoining regions. They are fleshy, juicy plants, usually completely beset with sharp spines, with flat or cylindrical stem joints which resemble leaves, while the true leaves are small and scale-like. The flowers, which are produced upon the angles of the stems, are large and vividly colored; and in some of the night-blooming forms, such as the cereus, are remarkable for their fragrance. By reason of their peculiar structure they are especially adapted to arid regions, where a number are of economic importance. The tuña or prickly pear (*Opuntia*) is not only in wide use in Mexico and among the Indians of the southwestern United States, but is also a prized fruit in Mediterranean countries, where it has become thoroughly naturalized. When stripped of thorns, *Opuntias* make excellent fodder, and a thornless form developed by Burbank promises to be of value as a vegetable. Many forms of *Cereus*, *Mamillaria*, and *Echinopsis* are easily cultivated.

Calabar Bean. The seed of a twining, half shrubby plant (*Physostigma venenosum*) of the Pea family (*Leguminosae*), native of western Africa. It is highly poisonous and is used to produce contraction of the pupils of the eye, and for other purposes in medicine.

Calla. A genus of plants of the Arum family (*Araceae*). The only species, *Calla palustris*, is found in swamps in Europe, Siberia, and North America. The rootstock is sometimes made into bread.

Camellia. A genus of evergreen shrubs and small trees of the Camellia family (*Ternstroemiaceae*), natives of China, Japan, and northern India, and extensively cultivated in greenhouses in Europe and the United States. The Japanese Camellia (*Camellia Japonica*), the best known species, has large rose-like flowers of various colors.

Camphor Tree (*Cinnamomum camphora*). A large evergreen tree of the Laurel family, from which camphor is made. It is probably a native of China but is cultivated in nearly all warm climates, being highly prized for timber as well as for the production of gum camphor.

Canaigre (*Rumex hymenosepalus*). A tannin producing plant of the Buckwheat family (*Polygonaceae*) resembling the sour dock. Its roots contain a larger percentage of tannin than any other plant. The rapid decrease in the supply of wild Canaigre has caused its cultivation to be undertaken and extensive plantations have recently been established in the southwestern United States.

Canna. A genus of reed-like plants of the Arrowroot family (*Marantaceae*) natives of tropical regions, noted for their showy flowers and ornamental foliage. Many forms are in cultivation, among them the common garden Indian Shot (*C. indica*) and the West Indian *Canna edulis*, which yields a starch or arrowroot called *tous-les-mois*.

Caper (*Capparis*). The true caper bush (*C. spinosa*), whose pickled flower buds are the capers of commerce, grows in Mediterranean countries, and is now cultivated in the Southern States. There are about 150 species of capparis, natives of warm countries, several of which are used like the true caper.

Capsicum. A genus of the Potato family (*Solanaceae*), containing about 90 species, natives of tropical America. They are in very general cultivation for their fruit, which is extremely pungent. Common Capsicum, often called Chile or Red Pepper (*Capsicum annuum*), is the most common species in cultivation. *Capsicum fructum* has great pungency and is the true Cayenne pepper.

Caraway. A plant of the Parsley family (*Umbelliferae*) growing wild in Europe and parts of Asia. It is cultivated for its aromatic seeds, which are used as medicine and as a condiment.

Carnation. A double flowering variety of the clove pink (*Dianthus Caryophyllus*), and one of the most popular flowers in cultivation. It is a native of southern Europe, where it has been in cultivation for 2,000 years. There are many varieties with various forms and colors, but the red, white, pink, and yellow varieties predominate.

Catalpa. A genus of trees of the Trumpet Creeper family (*Bignoniaceae*), containing about seven species, natives of eastern Asia, the West Indies, and two of the eastern United States. The Catalpa or Indian Bean (*Catalpa bignonioides*) has thin silvery gray bark, and reaches a maximum height of 60 feet. It is a native of the Southern States and is cultivated as an ornamental shade tree. The wood is light and of a fine texture, useful in cabinet work. The Western Catalpa or Catawba Tree (*Catalpa speciosa*) has thick rough bark and reaches a maximum height of 120 feet, growing wild from Indiana to Tennessee, and west through Arkansas and Missouri. It grows rapidly and is often planted as a timber tree as well as an ornamental tree in parks. The wood is soft and light, largely used for fence posts, railway ties, and occasionally for furniture.

Catmint or Catnip (*Nepeta Cataria*). A plant of the Mint family (*Labiatae*), native of Europe and Asia, and naturalized in the United States. So named because cats are fond of it. Occasionally used in medicine.

Cattail. A name given to two North American species of *Typha*, which grow in swamps and have their flowers in a close cylindrical spike at the top of the stem. The roots are sometimes eaten and the leaves are used in cooperage, being placed between the staves.

Cedar. A common name applied to a number of coniferous evergreen trees, properly, however, to species of *Cedrus*, the **Cedar of Lebanon** (*C. Libani*), the **Deodar** of India (*C. deodara*), and a north African species (*C. Atlantea*). Certain true pines are called cedar, also certain cypress trees. The **White Cedar** of the United States is more nearly a cypress (*Chamaecyparis thyoides*) and the so-called **Red Cedar** is a juniper (*Juniperus virginiana*).

Celandine (*Chelidonium majus*). A plant of the Poppy family (*Papaveraceae*) frequent in Great Britain and Europe, and introduced into the United States. All parts of the plant contain a yellow juice which is very acrid and burning to the skin. It is used to some extent in medicine, being a drastic purgative and in large doses an active poison.

Cereals. Those grasses which produce starchy, mealy seeds used for food, the name being derived from cerealia, or offerings to Ceres, the goddess of agriculture. The principal cereals are wheat, corn, rice, rye, oats, and barley, which, since time immemorial, have been grown more extensively than all other crops, constituting the chief source of food for man and domestic animals. The millets and sorghums, also coracan and Job's tears, are classed as cereals, and sometimes, though incorrectly, buckwheat is also included.

Cereus. A genus of the Cactus family and including some of its largest members, native to the arid regions of the southwestern United States and Mexico. A number are cultivated for their flowers. Those of the night-blooming species (*C. grandiflorus*) sometimes attain a diameter of eight inches, and are noted for their beauty and fragrance. The Great Cereus (*C. giganteus*) is frequent on the arid plains of Arizona and Sonora, where it grows 60 feet high, the fruit forming a staple food for the Indians.

Cherry, Wild (*Prunus*). Several North American trees and shrubs of the Rose family (*Rosaceae*). The **Wild Red Cherry** (*P. pennsylvanica*), a small tree 20 to 30 feet high, is common in rocky woods, in the Northern States. The fruit is small, with a thin pulp, and is often used domestically and in the preparation of cough mixtures. The **Wild Black or Rum Cherry** (*P. serotina*) is a large tree, often 80 feet high, very common east of the Rocky Mountains. The dark colored wood is valuable for cabinet making and the bark is used in medicine. The **Choke Cherry** (*P. virginiana*) is a shrub 8 to 15 feet high, rarely a small tree, growing from Newfoundland to British Columbia, south to Georgia and Texas. The **Western Wild Cherry** (*P. demissa*) is a shrub or small tree reaching a maximum height of 30 feet, found from Dakota to New Mexico, west to British Columbia and California.

Chrysanthemum. A genus of plants of the Sunflower family (*Compositae*) containing about 150 species, natives of northern Europe, the Canary Islands, East Africa, and Asia. The Chinese and Japanese chrysanthemums (*C. indicum* and *C. sinense*) are the parents of many forms now in cultivation in the United States. The flowers are of nearly all colors and shades. The **Oxeye Daisy** (*C. Leucanthemum*) is a common weed in pastures in the Atlantic States. The French chrysanthemum or **Marguerite** (*C. frutescens*) is extensively cultivated in France for ornamental purposes.

Clover or Trefoil (*Trifolium*). A large genus of plants of the Pea family (*Leguminosae*) containing about 250 species, most abundant in Europe, though about 60 are natives of the United States, being most numerous in California. A number are very valuable, being widely cultivated for fodder, pasturage, and as means of enriching the soil.

Club Mosses (*Lycopodiaceae*). A group of pteridophytes closely allied to the ferns, giant forms of which were immensely abundant in the Carboniferous Age, but sparingly represented among living plants, chiefly by species of *Psilotum* and *Lycopodium*, most abundant in the tropics. In temperate regions the club mosses have the aspect of large trailing true mosses and some have arbor-vitae-like leaves. A few species are used in medicine, and the dust-like spores of a true club moss form the well-known lycopodium powder.

Colocynth Gourd or Bitter Apple (*Citrullus vulgaris*). A plant of the Gourd family, growing chiefly in the Mediterranean region. The drug colocynth, extensively used in medicine, is obtained from the dried pulp of the fruit. While the fleshy portions are exceedingly bitter and drastic, the seeds are bland and much prized for food in North Africa.

Compositae (Composite, Sunflower, or Thistle family). The largest natural family of flowering plants containing some 800 genera and over 12,000 known species and estimated to embrace more than one tenth of all flowering plants. It is represented in all parts of the world, and in some regions constitutes a remarkably high percentage of the flora, in central Europe over one eighth, in California and Mexico over one sixth, in Chile over one fifth, and in southern Argentina one fourth, while in exceptional localities the proportion reaches one third as in the Andes of Chile. This family is now considered the most highly developed and specialized of all plants and is of recent geologic appearance, the earliest fossil composites being found in the upper Miocene.

There are three well-marked divisions: the tubular flowered composites (*Tubuliflorae*) of which the aster, golden-rod, and sunflower are familiar types; the ligulate flowered composites (*Liguliflorae* or *Cichoraceae*) rep-

resented by the dandelion, chicory, and lettuce; and the labiate flowered composites (*Labiatiflorae*) confined to the tropics and southern hemisphere. Important representatives are the true and Jerusalem artichokes, carthamine, endive, salsify, scorzonera, wormwood, southernwood, camomile, tansy, arnica, coltsfoot, pyrethrum, elecampane, and a large number of ornamental plants in cultivation such as the dahlia, chrysanthemum, China aster, immortelle, marigold, cornflower, coreopsis, cineraria. The economic value of this vast order is comparatively slight, not a single plant of prime importance having yet been developed in cultivation.

CYCAD. Cycas revoluta.

Conifers (*Coniferae*). The largest group of living gymnosperms; all trees and shrubs of temperate regions, rare in the tropics; mostly with evergreen, resinous, needle-shaped or scale-like leaves and producing a cone-like strobile containing the seeds, whence the name, conifer. There are some 32 genera and 300 species whose combined timber and resin products exceed in value that of every other order of plants, grouped in two families: the **Pines** (*Pinaceae*) and the **Yews** (*Taxaceae*). To the former belong the pines, spruces, hemlocks, firs, larches, cypresses, cedars, redwoods, and araucarias, and to the latter the yews, and the numerous species of *Podocarpus* of the southern hemisphere. The whole group was much more numerous in earlier geologic times.

Cork Oak or **Cork Tree** (*Quercus suber*). A species of oak, native of southern Europe and northern Africa, the spongy bark of which is the common cork of commerce. It ranges from 20 to 40 feet in height, attains a diameter of 5 feet, and sometimes lives 300 to 400 years, producing crops of bark for 150 years.

Cornflower or **Bluebottle** (*Centaurea Cyanus*). A popular garden flower in Europe and the United States, there being many varieties with flowers ranging from a beautiful deep blue to white. Native of Mediterranean countries and a common weed in European grain fields.

Cress. A name given to many plants the foliage of which has a pungent mustard-like taste and is used as a salad. The name is commonly confined to species of *Lepidium* of the Mustard family (*Cruciferae*).

Crowfoot Family (*Ranunculaceae*). A natural family of dicotyledonous herbs and climbing shrubs, consisting of about 40 genera and 600 species, natives of temperate and cool regions, often acrid and drastic and some are virulent poisons. Many **Buttercups** or **Crowfoots** (*Ranunculus*) are acrid when fresh, particularly the **Cursed Crowfoot** (*R. sceleratus*). The most poisonous are the **Aconites** (*Aconitum*), **Hellebores** (*Helleborus*), the **Larkspurs** (*Delphinium*), and the **Baneberry** (*Actaea*), while the **Yellow Root** (*Hydrastis canadensis*) and **Goldthread** (*Coptis trifolia*) contain powerful medicinal properties. The remaining plants of this family are mostly harmless, and embrace some of the most prized garden flowers, such as the **Virgin's Bower** (*Clematis*), **Anemone**, **Peony** (*Paeonia*), and **Columbine** (*Aquilegia*).

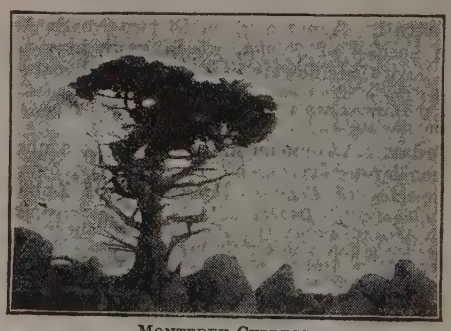
Custard Apple. A name commonly given to the fruits of certain trees of the genus Anona of the Custard Apple family (*Anonaceae*). Some of the fruits are among the most delicious produced in tropical countries.

Cycads (*Cycadaceae*). A family of gymnosperms, consisting of about 10 genera and 80 species of dwarf, palm-like trees, of limited distribution, chiefly in the tropics; economically valuable as the source of a kind of sago obtained from the interior of the trunk and from the mealy portion of the seeds. **Cycas revoluta** and **C. circinalis**, frequently met with in conservatories, are sago plants in Japan and in the Molucca Islands. The seeds of the **Mexican Cycad** (*Dioon edule*) yield a starch food. The cycads first appeared in the Carboniferous Age and became immensely abundant in Cretaceous time. The present species are merely remnants of a dying race, the scattered survivors of a great ancient group of plants.

Cyclamen. A small genus of plants of the Primrose family (*Primulaceae*), several species of which are cultivated in flower gardens on account of the beauty and fragrance of their flowers.

Cypress (*Cupressus*). Evergreen trees and shrubs of the Pine family, with small, imbricated leaves and globular cones, comprising about 12 species, in northern regions of the world. The **Common Cypress** (*C. sempervirens*) of Europe, now introduced, is famous for its durable wood, believed to be the cedar or gopher wood of the Bible. The **Monterey Cypress** (*C. macrocarpa*), a beautiful tree sometimes 150 feet high and 8 or ten feet in diameter, grows near the sea in California and three others occur on the Pacific Coast. The so-called **Cypress** or **White Cedar** (*Chamaecyparis thyoides*) of the Eastern States, and the **Bald Cypress** (*Taxodium distichum*) of southern swamps, well known and valued for timber, are strictly not true cypresses.

Cytisus. A genus of the Pea family (*Leguminosae*), natives of the Old World. There are about 35 species, all small trees or shrubs with yellow, white, or purple flowers, many of which are very beautiful. They are common in shrubberies and greenhouses and several species are cultivated as forage plants. Some are called broom, others laburnum, but most are known as cytisus.



MONTEREY CYPRESS.

Dahlia. A genus of the Sunflower family (*Compositae*), natives of Mexico. *Dahlia variabilis* and *Dahlia Juarezii* are the parents of most of the varieties in cultivation, of which there are now nearly 3,000, possessing a wide range of sizes and colors.

Dandelion (*Taraxacum officinale*). A perennial plant of the Sunflower family (*Compositae*), native of the old world, and possibly indigenous in western North America; now practically cosmopolitan by naturalization, being immensely abundant in pastures, meadows, and roadsides, throughout large areas of the United States. Formerly it was often employed in medicine, is still an ingredient in bitters and domestic remedies, and is used to some extent as

a pot herb. The **Fall Dandelion** (*Leontodon*), a related plant, readily distinguished by its more slender solid stipe, is also of European origin but widely naturalized in northeastern temperate North America.

Desert Plants are climatic groups especially adapted by many peculiarities of structure to withstand the excessive transpiration that would otherwise occur in an intensely dry atmosphere. Some, like the cactus, have succulent, fleshy leaves and stems, others are densely clothed with hairs, small scales or wax or having special structures guarding the pores; still others are bulbous, dying down after a brief period of rapid growth. The majority are shrubby and very woody throughout. A considerable number are either thorny or contain acrid and poisonous juices protecting them against the attacks of herbivorous animals.

Desmids. A large group of fresh water algæ, closely related to the diatoms; usually one-celled, bright green, and beautifully symmetrical in form, growing on plants and mud in ponds.

Diatoms (*Diatomaceae*). A family of one-celled, microscopic algae, existing in immense numbers at the bottom of the sea, lakes, ponds, upon submerged plants, and in damp places, numbering over 1,500 known species, characterized by great variety in form and markings of the silicious cell walls, being exceedingly beautiful objects and used to test the highest powers of microscopes, the fine lines of some species exceeding 100,000 to the inch. Fossil deposits occur in Bohemia, Virginia, Nevada, and California, known as diatomaceous earths, which are used as polishing powder.

Dicotyledons. The larger of the two natural groups of *Angiosperms*. They differ from the other group, Monocotyledons, most conspicuously as follows: The growing seed develops two seed leaves or cotyledons, whence the name; the stems increase in thickness by new growths of tissue on the outside of the woody portion between it and the bark; the leaves have open venation, i. e., are net-veined or reticulated; and the flower parts are usually in fours or fives. There are two groups of dicotyledons:—

Archichlamydeae, in which the corolla, if present, is composed of separate petals. The group includes the simpler and more primitive dicotyledons (often destitute of corolla and sometimes of the calyx also), numbering over 40,000 species, prominent families being: the tree groups, oak, walnut, elm, and willow, and allied families; the buttercups and their numerous allies, the poppies, mustards, water lilies, magnolias, the rose and saxifrage families, with their useful fruits, the pea family, largest of the group, numbering with its allies 10,000 species, and the parsley family, which is the highest of the archichlamydeae. **Metachlamydeae**, a group evidently developed from the preceding; distinguished by having petals united—i. e., sympetalous; the group contains the most highly organized plants, also numbering over 40,000 species. The leading alliances are the heath, convolvulus, gentian, polemonium, mint, nightshade, vervain, plantain, and related families, together with the Compositae, the largest family of angiosperms containing probably over 12,000 species and standing at the head of the whole plant kingdom in organic development.

Digitalis. A genus of plants of the Figwort family (*Scrophulariaceae*), natives chiefly of Europe and Asia. Purple Foxglove (*D. purpurea*), a native of Great Britain and naturalized in the United States, is much valued in medicine. Purple, white, and yellow flowered varieties are cultivated. The whole plant is poisonous.

Dogwood (*Cornus*). A genus chiefly of shrubs and small trees, the wood of which is exceedingly hard and is used for many purposes. The astringent bark and sometimes the leaves are used in medicine. There are about 25 species, some 18 of which occur in the United States. The **Flowering Dogwood** (*C. florida*) is a small tree, native of the Eastern States and frequent in cultivation. It has showy white petal-like bracts surrounding its clusters of small flowers.

Dutchman's Pipe (*Aristolochia macrophylla*). A twining vine of the Birthwort family (*Aristolochiaceae*) growing in rich woods from Pennsylvania to Georgia, west to Minnesota and Kansas, and often planted to form shady bowers.

Ebony. The hard, dark colored heartwood of a number of species of trees. Tropical species of the genus *Diospyros* of the Ebony family (*Ebenaceae*) are the source of most of the ebony of commerce. *D. ebenum*, a large tree of India, Ceylon, and other tropical countries, furnishes the best quality.

Edelweiss (*Leontopodium alpinum*). A small perennial of the Sunflower family (*Compositae*) growing at high elevations in the Alps and often cultivated in gardens in the United States and Europe. It is famous because of its scarcity in the mountains and the supposed difficulty of obtaining it.

Eglantine. A name given to two species of rose: *Rosa rubiginosa* or *Sweet Brier*, a native of Europe and naturalized in the United States, which has sweet-scented pink flowers, and *Rosa eglanteria*, a West Asian species with yellow flowers which have an offensive odor.

Elder (*Sambucus*). A genus of the Honeysuckle family (*Caprifoliaceae*) containing about 20 species of shrubs or trees. The American **Elder** or **Elderberry** (*S. canadensis*) is a shrub 4 to 10 feet high, growing along fences and roadsides. The purplish black berries are sometimes used for making wine and other preparations. The **Mexican Elder** (*S. mexicana*), native of the southwestern part of the United States and Mexico, is a tree 25 to 30 feet high. The flowers are used in medicine. The **Western Elder** (*S. glauca*), a tree 30 to 50 feet high, very abundant in the Pacific coast region, is occasionally planted as an ornamental tree. The **European Elder** (*S. nigra*) is a large shrub or small tree with hard, tough wood, used as a substitute for boxwood. The berries are largely manufactured into wine.

Elecampane. A genus of the Sunflower family (*Compositae*).—The Common Elecampane (*Inula Helenium*), a native of Europe and naturalized in the United States, is the only important species. It was formerly extensively cultivated for its root, which is used in medicine.

Elm (*Ulmus*). A genus of the Nettle family (*Urticaceae*). There are about 16 species, 6 of which are natives of the United States. The **English Elm** (*U. campestris*), a tree 60 to 80 feet high, is one of the most important species. It is found in Europe, western Asia, northern Africa, and is naturalized in the United States. The wood is compact and very durable under water, much used in shipbuilding and wagon making. The **American White Elm** (*U. americana*) is a large tree 90 to 100 feet high, growing from Newfoundland to Florida and Texas. The wood is tough, strong, and largely used for wheel hubs, in cooperage, and for shipbuilding. It is a fine street and park tree. The **Cork Elm** (*U. racemosa*) is a tree 70 to 90 feet high, growing from Quebec and Vermont westward to Nebraska and Tennessee. The wood is considered the best of American elms, and is much used for agricultural implements and bridge timbers. The **Slippery** or **Red Elm** (*U. fulva*) is a tree 60 to 70 feet high, growing from Ontario to Florida, westward to Nebraska and Texas. The wood is durable in contact with the soil and is much used for fence posts and railway ties. The mucilaginous inner bark is used in medicine.

Epiphytes. Plants which grow upon the stems or other portions of larger plants for mechanical support, but do not to any important extent derive their food therefrom. They possess chlorophyll and are capable of creating their own food from inorganic elements. Illustrative examples are the **Long Moss** (*Tillandsia*) and various tropical orchids.

Everlasting. A name given to various plants whose flowers may be dried without losing their form or color, particularly to certain species of amaranth and *Helichrysum*. In the United States the name **Pearly Everlasting** is given to *Anaphalis margaritacea*, which grows in dry woodlands from Maine to Washington and Oregon and northward.

Ferns (*Filices*). The most important group of pteridophytes, comprising about 200 genera and over 4,000 species, widely diffused in moist regions, though most abundant in the tropics; ranging

in size from minute moss-like forms to the giant tree ferns of hot climates. Ferns are the most highly organized of non-seed-bearing or flowerless plants, possessing root, stem, and leaf structures with vascular tissues very similar to those of higher plants. The most striking difference is in their mode of reproduction. There is complete alternation of generations, the leafy plant being non-sexual and producing dust-like spores from modified portions of the leaf-like fronds. The spores germinate, and grow into minute flattened structures called prothallia, which are sexual, producing egg

TREE FERN.

cells and antherozoids; these by fertilization develop a new organism, which becomes the asexual, leafy fern. Although embracing some of the most striking and beautiful plants, ferns are of small economic importance. There are six families of true ferns (*Filices*):—**Osmundaceae**, embracing the large royal ferns, often called flowering ferns, represented in the United States by three species of Osmunda. **Gleicheniaceae**, all tropical ferns. **Schizaeaceae**, climbing ferns, about 100 species, mostly tropical. The beautiful climbing fern or **Hartford Fern** (*Lygodium*) and the rare and curious **Curly Grass** (*Schizaea*) of the Eastern States are examples. **Hymenophyllaceae**, filmy ferns, 200 species, exceedingly abundant in the tropics, a few occurring in the Southern States. **Cyatheaceae**, a tropical group which includes the great tree ferns. **Polypodiaceae**, the largest and most highly developed family, numbering over 3,000 species, and including nearly all the true ferns of temperate regions.

Feverbush or **Spicebush** (*Benzoin aestivale*). A graceful shrub of the Laurel family (*Lauraceae*) with beautiful leaves and scarlet berries, common in the eastern United States. The bark is sometimes used in treating fevers, and the seeds are occasionally substituted for allspice.

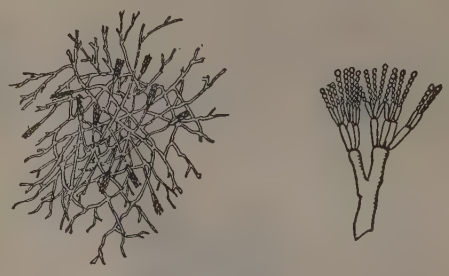
Fir (*Abies*). A genus of the Pine family (*Coniferae*) containing about 25 species, natives of the cooler portions of the north temperate zone. The **Silver Fir** (*A. picea*), a common tree in central Europe, attaining a height of 150 to 200 feet, is the source of the Strassburg turpentine. The **Balsam Fir** (*A. balsamea*) is a tree 50 to 80 feet high, growing from Virginia northward. Canada balsam is made from the sap. The **White Fir** or **Great Silver Fir** (*A. grandis*) is a large tree, often 300 feet high and 10 feet in diameter, growing from British Columbia to lower California. The wood is soft and extensively used for cooperage and boxes. The **Red Fir** (*A. nobilis*) is a large tree 150 to 200 feet high, found in the same regions as the white fir. It is often planted in Europe as an ornamental tree. The **Mexican Fir** (*A. religiosa*) is a magnificent silver-leaved tree 150 feet high.

Forget-me-not (*Myosotis*). A genus of the Borage family (*Boraginaceae*) with small, usually blue flowers. A number of species are common in America. The flower is esteemed for its delicate beauty, and is widely regarded as an emblem of friendship.

Foxtail Grass. A name applied to certain species of two very dissimilar genera of grasses, *Alopecurus* and *Setaria*. There are about 20 species, natives of both hemispheres. **Meadow Foxtail** (*A. pratensis*) is one of the best meadow and pasture grasses of Europe and has become established in the United States. **Jointed Foxtail** or **Water Foxtail** (*A. geniculatus*) is very common in moist places in many parts of the United States and cattle are very fond of it. The common **Yellow Foxtail** (*S. glauca*) and the **Green Foxtail** (*S. viridis*) are exceedingly abundant weeds growing everywhere in cultivated ground. The true millets, which are also species of *Setaria*, are sometimes called foxtail grass.

Fuchsia. A genus of the Evening Primrose family (*Onagraceae*), named in honor of Leonard Fuchs, containing about 70 species, mostly natives of tropical America. Some are climbers, some small trees, but the majority are shrubs. Several species are largely cultivated in greenhouses because of the beauty and fragrance of their flowers. A great many varieties have been developed, mostly from *Fuchsia macrostemma*, which first became popular about 1790.

Fungi. A great group of thallophytes, of which there are upwards of 35,000 known species, some 8,000 being North American, ranging in size from the minutest organisms known to threadlike masses several feet long, some of which develop reproductive bodies a foot in diameter (puff balls) and in color from white to yellow, blue, red, and black. All derive their sustenance either directly from living plants and animals (parasitic) or from dead or decomposing organisms (saprophytic). There are six classes: **Schizomycetes**, Bacteria; **Myxomycetes**, Slime molds; **Phycomycetes**, algae-like fungi, molds; **Ascomycetes**, sac fungi, lichen fungi; **Basidiomycetes**, Basidium fungi, Mushrooms; **Saccharomycetes**, Yeasts.



MOLD. Penicillium.

Furze (*Ulex europaeus*). A thorny evergreen shrub of the Pea family (*Leguminosae*), with beautiful yellow flowers, naturalized in the United States from Europe.

Gentian (*Gentiana*). A genus of the Gentian family (*Gentianaceae*) containing about 300 species, mostly natives of the North Temperate and Arctic zones and the Andes of South America. The **Common** or **Yellow Gentian** (*G. lutea*) which is abundant in meadows of the Alps and Pyrenees, is valued for its seed which is used in medicine. The **Soapwort Gentian** (*G. Saponaria*) is extensively used in the United States as a substitute for Common Gentian. It grows in wet soil from Ontario to Minnesota, Florida, and Texas. **Fringed Gentian** (*G. crinita*) celebrated for the beauty of its flowers, which are large, blue, and fringed on the margins, occurs from Quebec and Minnesota south to Georgia and Iowa. The **Downy Gentian** (*G. puberula*), with blue funnel-shaped flowers is a common garden plant.

Geranium. A genus of the Geranium family (*Geraniaceae*), containing about 150 widely distributed species, 10 of which are natives of the United States. The **Herb Robert** (*G. Robertianum*) is a low-spreading herb with small red-purple flowers

found in eastern North America, Europe, Asia, and northern Africa. It has astringent properties and is used in medicine. The **Alumroot** or **Wild Cranesbill** (*G. maculatum*), which has beautiful rose-purple flowers, is the most valuable, medicinally, of all the species. It grows from Manitoba south to Georgia, Alabama, and Missouri. The name cranesbill is given to a number of species. The plants commonly cultivated in gardens and greenhouses under the name of Geraniums are species of *Pelargonium*. There are about 125 species mostly natives of the Cape of Good Hope, prized on account of the brilliant colors of the flowers and the shape and markings of the leaves.

Gillyflower. A name applied to a number of plants of the Mustard family (*Cruciferae*), prized for the beauty and fragrance of their flowers. The name is used mostly to denote species of *Chieranthus* and *Matthiola*.

Ginger (*Zingiber*). A genus of the Ginger family (*Zingiberaceae*). The species, of which there are about 20, are perennial herbs, natives of the East Indies. The root stock of most species is used in medicine and as a condiment. The most valuable is the Common or Narrow-leaved Ginger (*Z. officinale*), which is cultivated in most tropical countries. Zerumbet, or Broad-leaved Ginger (*Z. zerumbet*), cultivated in Java, has a rootstock less pungent than that of Common Ginger. Mioga (*Z. mioga*) is much used in Japan. *Asarum canadensis* of North America, called Wild or Indian Ginger, is sometimes used as a substitute for true ginger.

Ginkgo or **Maidenhair Tree** (*Ginkgo biloba*). The only living representative of a geologically important group of gymnosperms, long cultivated for ornament and only recently discovered in the wild state in western China. It is a beautiful tree sometimes 100 feet high, with thickish, veiny deciduous leaves, in contour strongly resembling those of the maidenhair fern.

Ginseng. A name given to two species of Panax of the Ginseng family (*Araliaceae*), the roots of which are highly esteemed as a medicine by the Chinese. The Chinese Ginseng (*Panax ginseng*) is a perennial herb one to two feet high, cultivated in China and Korea. The American Ginseng (*P. quinquefolium*) grows from the Mississippi river eastward. On account of the great demand for the root in China, where it commands a high price, numerous attempts have been made to establish it profitably in cultivation in the United States, but so far without marked success.

Gladiolus. A genus of the Iris family (*Iridaceae*), and largely native of South Africa. Most of the species have flowers of great beauty, some of them being among the finest ornaments for borders and greenhouses.

Golden-rod (*Solidago*). A large genus of the Composite family, closely related to the aster, and containing upwards of 75 species, most of which are North American, some 50 different golden-rods occurring in the eastern United States. On account of its abundance, wide distribution, and richness of color the golden-rod has been called the national flower.

Grasses (*Gramineae*). An immense well-defined family of monocotyledonous plants, consisting of some 3,500 species, universally diffused and abundant, forming a very considerable portion of the vegetation of most regions and including the most valuable plants used by man. Grasses are mostly herbaceous though a few, like the bamboo, are woody; usually with round or slightly flattened stems, solid at the joints; possessing alternate leaves, with tubular sheaths having free overlapping edges, and a ligule on the side opposite to the sheath; and the grain (commonly called the seed but in reality the fruit) grooved on one side, with the embryo on the outside of the starchy perisperm; being thus distinguished from their nearest very numerous, but comparatively valueless relatives, the sedges, which have solid, often angular, stems, and leaves with tubular, closed sheaths, lacking ligules and with the embryo within the perisperm.

In cool temperate and cold regions the true stems of perennial grasses usually grow in an interlacing protective network below the surface of the soil, forming a more or less dense turf or sod from which are sent up annual growths or culms, commonly but inaccurately called stems. In the tropics perennial grasses grow individually erect, similarly to annual species; consequently there is no true turf in hot countries and only partial turf in warm temperate regions—it being difficult to establish it even by artificial means in the southern United States—and such regions are largely dependent upon annual grasses for pasturage and hay. Grasses are of inestimable value: first, by reason of their starchy, mealy seeds—all of the cereal grains being grasses—and, second, on account of their stems and leaves, which constitute the chief pasturage, fodder, and forage for domestic animals, thus directly and indirectly providing man with the greater part of his food both vegetable and animal.

Greasewood (*Sarcobatus vermiculatus*). A somewhat shrubby and spiny plant, 2 to 10 feet high, of the Goosefoot family, very abundant in alkali soils of the interior plateau region from Montana to Mexico and west to the Sierra Nevada.

Ground Cherry (*Physalis*). A genus of herbs of the Potato family (*Solanaceae*) having an inflated calyx which incloses a small, many-seeded berry. There are nearly 50 species, about 35 occurring in the United States, some of which are sparingly cultivated for the sweetish fruit used in preserving, and one species, the **Chinese Lantern Plant** (*P. Francheti*), for ornament, owing to its showy scarlet or crimson bladder-like calyx.

GINKGO.

Gymnosperms. The smaller of the two groups of seed plants, *Spermatophytes*, distinguished by bearing naked seeds, while the other group, the Angiosperms, bears seeds which are covered, that is, inclosed in an ovary. Gymnosperms constituted a large part of the forest vegetation of the Coal Measures, but the living representatives of that vast ancient array are few in number. Two groups are extinct, and the existing species, of which there are about 400 (as compared to upwards of 100,000 Angiosperms), belong to four groups: (1) **Coniferae**, the largest and most important of the living forms, containing the valuable timber trees, pine, fir, spruce, cedar, hemlock, redwood, cypress, and yew. (2) **Cycads**, fern-like tropical forms, very limited in distribution, containing some 80 species. (3) **Gnetums**, very remarkable in form, peculiar to arid regions and certain portions of the tropics comprising only about 30 species of Ephedra, Tumboa, and Gnetum. (4) The **Ginkgo**, which is the only living representative of a formerly important group.

Halophytes. Plants which grow naturally in salty or alkaline soils or waters. The greater portion grow in the ocean and along its shores, but there are large areas of halophytic plants in dry regions where salt lakes formerly existed.

Hazelnut (*Corylus*). A genus of shrubs or small trees of the Birch family (*Betulaceae*), of about 7 species, natives of the Northern Hemisphere. The **American Hazelnut** (*C. americana*) is a shrub 3 to 8 feet high, growing in thickets from

New England to Ontario and Dakota and southward. The **Beaked Hazelnut** (*C. rostrata*), a shrub similar to the preceding, is found in the Pacific Coast region and also in the Eastern and Middle States. The **Common Hazel** or **Filbert** (*C. Avellana*), an Old World species with numerous varieties, is extensively cultivated in Europe.

Heath Family (*Ericaceae*). A large, well-marked natural family of dicotyledonous plants, consisting of about 55 genera and 1,050 species, mostly small shrubs, natives of heathy and boggy tracts, especially in subalpine and alpine localities throughout the world. The foliage is usually astringent and in many species of **Rhododendron, Azalea, Andromeda,** and **Kalmia** it is dangerously poisonous. The fruits of **Gaultheria** are edible and also yield the oil of wintergreen. Many species are highly prized in cultivation for their flowers. To this family belong **Blueberries, Huckleberries,** and **Cranberries.**

Heliotrope (*Heliotropium*). A genus of the Borage family (*Boragineae*) containing about 115 species, many of which have fragrant flowers used by perfumers. The **Peruvian Heliotrope** (*H. peruvianum*), a small shrub seldom more than two feet high, with lilac-blue flowers, is in almost universal cultivation for its fragrance, which resembles that of vanilla. The **European Heliotrope** (*H. europaeum*), a native of Europe and naturalized in the United States, has small white or rarely pale red flowers. The **Seaside Heliotrope** (*H. curassavicum*), a white-flowered species, is found in the southern, central, and western part of the United States. Many hybrid heliotropes, which exhibit great variety in size and color of the flowers, are cultivated in flower gardens and greenhouses.

Hemlock Tree (*Tsuga*). A genus of the Pine family (*Coniferae*), containing about seven species, four of which are natives of North America. The **Common Hemlock** (*Tsuga canadensis*) is a large tree sometimes attaining a height of 110 feet, and growing from Nova Scotia to Alabama and west to Wisconsin and Minnesota. The wood is light and soft and is extensively used in building. The bark is largely used in tanning and hemlock oil is distilled from the branches and leaves. There are many cultivated varieties which are very ornamental. The **Carolina Hemlock** (*T. caroliniana*) is a tree attaining a maximum height of 80 feet, and growing in Virginia, North Carolina, and Georgia.

Hickory (*Carya*). A genus of the Walnut family (*Juglandaceae*), containing 10 species, natives, exclusively of North America. Their timber is very heavy, strong, and tough, and is much used in the manufacture of agricultural implements, carriages, and hoops for casks. The fruit is a hard-shelled nut, which in some species has an excellent flavor. The **Pecan** (*C. illinoensis*) is a large, slender tree reaching a maximum height of 170 feet and a diameter of 6 feet. It grows in moist soil, especially along streams, from Indiana to Iowa and Missouri, south to Kentucky and Texas. It is cultivated in the Southern States for its sweet, edible nut, which forms an important article of commerce. The **Shagbark** or **Shellbark Hickory** (*C. ovata*) is a large tree, sometimes 120 feet high, growing in rich soils from Ontario and Minnesota south to Florida, Kansas, and Texas. The nuts form an important article of commerce, though less used than the pecan. The **Whiteheart Hickory** or **Mockernut** (*C. alba*) is a large tree 75 to 100 feet high, growing from Ontario to Florida, occasionally to Missouri and Texas. It has a thick-shelled, edible nut. The **Pignut Hickory** (*C. glabra*), a tree 75 to 100 and sometimes 120 feet high, ranges from Ontario to Florida, westward to Nebraska and Texas. The nuts are bitter and not edible.

Holly (*Ilex*). A genus of trees and shrubs of the Holly family (*Aquifoliaceae*). There are about 160 species, mostly natives of America and about 12 are natives of the United States. The **American Holly** (*I. opaca*), a slow-growing tree, sometimes 50 feet high, is found from Maine to Florida, west to Missouri and Texas; occasionally cultivated as an ornament in parks. The wood is white, hard, and much used in cabinet making, interior finish for houses, and in turnery. The branches are used in large quantities for Christmas decorations. The **Dahoon Holly** (*I. Cassine*) is a small tree about 25 feet high, growing in low woods from southern Virginia to Florida, west to Louisiana. The leaves are sometimes used for tea. The **Common Holly** (*I. Aquifolium*), the only European species, is grown in parks and shrubberies in Great Britain and is occasionally planted in the southern and middle portions of the United States. It sometimes attains a height of 50 feet.

Hollyhock. A plant of the Mallow family (*Malvaceae*), common in gardens throughout the world. It has a tall stem with large flowers which vary exceedingly in color, and double and semi-double varieties are common.

Holy Grass (*Hierochloe borealis*). A sweet smelling grass about a foot high, found in the northern United States, Canada, and northern Europe. It is of little value as forage, but in Iceland it is used for scenting apartments and clothes. Its use in scenting churches gave rise to the name holy grass.

Honey Locust (*Gleditsia triacanthos*). A beautiful thorny tree, 70 to 80 feet in height, belonging to the Pea family (*Leguminosae*), and native of rich valleys from Ontario through the basin of the Mississippi. Sometimes the trunk is almost completely covered with bunches of branching thorns. It derives its name from the sweet, jelly-like pulp that surrounds the seeds, which are borne in conspicuous bean-like pods.

Honeysuckle (*Lonicera*). A genus of the Honeysuckle family (*Caprifoliaceae*), containing about 100 species; erect or twining shrubs, about half of which are in cultivation. The **Trumpet** or **Coral Honeysuckle** (*L. sempervirens*) is a twining green shrub, native of the United States, and often planted on account of its beautiful scented flowers, red on the outside and yellowish within. The **Common Honeysuckle** or **Woodbine** (*L. periclymenum*), an English species with fragrant cream-colored flowers, is frequently planted in shrubberies. The **Italian** or **Perfoliate Honeysuckle** (*L. Caprifolium*), a native of Europe and naturalized in the United States, is very similar to the English honeysuckle. The **Japanese Honeysuckle** (*L. japonica*) is common in the eastern United States, having escaped from cultivation.

Horehound (*Marrubium*). A genus of the Mint family (*Labiatae*). The **White Horehound** (*M. vulgare*) is much used in medicine. The name **Black** or **Fetid Horehound** is applied to *Ballota nigra*, another plant of the Mint family, closely resembling the white horehound and having similar medicinal properties. Both are natives of Europe and now widely naturalized in the United States, especially the white horehound.

Hornbeam (*Carpinus*). A genus of the Birch family (*Betulaceae*), containing about 12 species. The **Common Hornbeam** (*C. Betulus*) is a beautiful tree 60 to 100 feet high, very frequent in many parts of Europe. The wood is white, hard, and strong, and is much used by carpenters and wheelwrights. The **American Hornbeam, Blue Beech,** or **Water Beech** (*C. caroliniana*) is a small tree 35 to 40 feet high which grows from Quebec to Florida and west to Minnesota and Texas. The wood is very hard and heavy and is one of the toughest woods of the northern states. The **Hop Hornbeam** (*Ostrya virginiana*) has much the same habit, range, and properties.

Horse-Chestnut (*Aesculus*). A genus of the Buckeye family (*Hippocastanaceae*), containing about 11 species, natives of North America and Asia. The seeds are large and somewhat resemble chestnuts. The **Common Horse-chestnut** (*A. Hippocastanum*) is a large tree, sometimes 100 feet high, native of Asia and escaped from cultivation in the eastern United States. It is largely planted as an ornamental tree in all countries with temperate climates. The **Ohio** or **Fetid Buckeye** (*A. glabra*) is a tree reaching a height of about 50 feet, growing from Pennsylvania to Alabama, west to Michigan and Oklahoma. The wood is used for making artificial limbs and wooden ware. The **Sweet** or **Big Buckeye** (*A. octandra*) is a large tree 80 to 90 feet high, growing from Pennsylvania to Georgia, west to Iowa and Texas, and often planted as an ornamental tree. The **California Buckeye** (*A. californica*) is a small tree 30 to 40 feet high, native of California, sparingly planted for ornament.

Horsetails (called also Scouring Rushes). An order and family of pteridophytes, ranking next to the ferns, now consisting of the single genus Equisetum, containing about 25 species of world-wide distribution in wet places, several occurring in the United States. They range in height from a few inches to 12 or 15 feet, and outwardly resemble certain gymnosperms, but are entirely different from them in structure as well as from all other pteridophytes. Some contain so much silex that a polishing powder is made from the ashes of the stems. The fossil **Calamites** appears to have been a giant horsetail form of the Carboniferous Age.

COMMON HORSETAIL.
Equisetum arvense.

Huckleberry. A name properly applied to the genus *Gaylussacia*, but (especially westward) indiscriminately given to several species of *Vaccinium*, growing in the northern regions of Europe and America. The species range in height from a few inches to ten feet, and the berries vary greatly in form and color from one eighth to five eighths of an inch in diameter, and from black to blue, and white, and one species is red. Some are called **Blueberries** and others have various local names. None has yet been successfully cultivated, though large quantities of fruit from wild plants are marketed.

Hydrangea. A genus of about 25 species of ornamental shrubs of the Saxifrage family (*Saxifragaceae*), natives of North and South America, China, and Japan. The flowers are small and white, pink, or bluish in color. *Hydrangea Hortensia*, a dwarf variety, is extensively grown in greenhouses.

Hyssop (*Hyssopus officinalis*). An evergreen plant of the Mint family (*Labiatae*), with beautiful blue flowers. It is cultivated for its aromatic leaves, young shoots, and roots, which are used in medicine and for seasoning.

Ice Plant (*Mesembryanthemum crystallinum*). A tender greenhouse herb, native of Africa and southern Europe, remarkable for the glistening bladder-shaped hairs with which its surface is covered, and which sparkle in the sun like granules of ice.

Immortelle. A name applied to various species of *Helichrysum*, especially *H. arenarium*, grown extensively in France, which retain their form and to a considerable extent their color for a long time after gathering. Widely used in Europe and America for funeral decorations. (See EVERLASTING.)

Ipecacuanha (*Cephaelis ipecacuanha*). The name applied to a shrubby plant of the Madder family (*Rubiaceae*) growing in Brazilian forests, the roots of which are much used in medicine.

Ipomoea. A genus of the Morning Glory family (*Convolvulaceae*) containing about 400 species, mostly twining or trailing herbs. Many are cultivated for their beautiful flowers, as the morning glory and moonflowers; others for their thick fleshy roots, as the well-known sweet potato (*I. batatas*) and jalap (*I. purga*), much used in medicine. The **Cypress Vine** (*I. Quamoclit*), native of tropical America but now very common in the southern United States, has beautiful flowers and foliage. The **Common Morning Glory** (*I. purpurea*) is a native of Mexico but has escaped from gardens, becoming a weed in many parts of the United States. The **Moonflowers** are derived from *I. Bona-nox* and *I. grandiflora*. The flowers are pure white, striped with green and very fragrant. The **Wild Potato** (*I. pandurata*) is a troublesome weed, difficult to exterminate on account of its huge roots. *I. fastigiata* and *I. leptophylla*, both growing in the western United States, are noted for their immense roots, specimens of the latter often weighing 100 pounds.

Iris (*Flower-de-Luce, Fleur-de-Lis*). A genus of the Iris family, comprising about 100 species, most numerous in North America and Europe, with conspicuous, beautiful flowers, many of which are in wide cultivation. Others are prized for their roots, **Orris Root** being produced by three European species. The rootstocks in some species are edible. The **Blue Flag** (*I. versicolor*) is common in wet places throughout the Eastern States.

Ivy. A name given to a number of climbing, creeping, and twining plants. The true **English Ivy** (*Hedera Helix*), held in high esteem by the Greeks and Romans, grows throughout a large part of Europe and is cultivated as an ornamental vine for walls and rocks in the United States. It belongs to the Ginseng family, while the **Virginia Creeper** (*Psedera quinquefolia*), often called ivy, belongs to the Grape family, as does the **Japanese** or **Boston Ivy** (*Psedera tricuspidata*); the **Ground Ivy** (*Nepeta Glechoma*) is a mint, and the **Poison Ivy** (*Rhus*) belongs to the Sumach family.

Jack-in-the-Pulpit or **Indian Turnip** (*Arisaema triphyllum*). A common American herb of swampy woodlands belonging to the Arum family (*Araceae*), noted for its acrid bulbs, sometimes used in domestic medicine, and for the peculiar shape of the flower parts, giving rise to the name.

Jasmine (*Jasminium*). A genus of the Olive family (*Oleaceae*) containing about 100 species of shrubs or climbers, natives of the warmer parts of Asia. The **Common Jasmine** (*J. officinale*) is much cultivated in gardens for its fragrant white flowers, which are used in preparing oil of jasmine, a delicate perfume. It blooms from June to October. The **Spanish Jasmine** (*J. grandiflorum*), which has flowers still more fragrant than the common jasmine, is also used in preparing oil of jasmine. The **Italian Yellow Flowered Jasmine** (*J. humile*), a very common greenhouse variety, is hardy in open air as far north as Maryland.

Jessamine or **Jasmine, Yellow** or **Carolina** (*Gelsemium sempervirens*). A beautiful climbing vine of the Logania family (*Loganiaceae*), which grows in woods and thickets from Virginia southward. Its yellow funnel-shaped flowers have a fragrance similar to that of true jasmine. The plant is extremely poisonous like many others of the family, which includes the deadly *Strychnos Nux-vomica*, and furnishes a powerful drug used in medicine.

Job's Tears (*Coix Lachryma-Jobi*). A cereal of the East Indies closely related to maize, deriving its name from the hard, shining, tear-like seeds, sometimes used similarly to beads in necklaces and rosaries. While cultivated for food in India, and sometimes made into flour in Spain, where it is now naturalized, it is grown only as a curiosity in the United States.

Judas Tree (*Cercis*). A genus of trees of the Pea family (*Leguminosae*). There are about five species, natives of North America, Europe, and temperate Asia. The **American Judas Tree** or **Red Bud** (*C. canadensis*) is a hardy tree, sometimes reaching a height of 40 to 50 feet. It has beautiful rose colored flowers and is frequently planted as an ornamental tree. The **European Judas Tree** (*C. siliquastrum*) is very similar to the American species.

Juniper (*Juniperus*). A genus of some 30 trees and shrubs of the Pine family, mostly natives of northern cool regions, about 10 occurring in North America. The **Common Juniper** (*J. communis*), in its typical form a small tree 6 to 14 feet high, is more common in its dwarf sprawling forms, 1 to 3 feet in height. The so-called **White Cedar** of the Eastern States and the **Bermuda Cedar**, much prized for timber, are junipers. Many varieties are in cultivation.

Kalmia. A genus of the Heath family (*Ericaceae*). There are about six species, five North American and one Cuban. **The Mountain Laurel** (*K. latifolia*) is a shrub or occasionally a small tree reaching a height of 30 or 40 feet, growing from New Brunswick to Florida and Louisiana. It is narcotic and dangerous, the leaves being poisonous to many animals. The wood is hard and is used in turnery. The **Sheep Laurel** (*K. angustifolia*) is a small shrub growing from Newfoundland to Georgia. It has the same properties as the mountain laurel.

Kelp. A name given to any dark brown or blackish seaweed (*alga*), particularly to those species of *Fucus* and *Laminaria* which are extensively burned on the shores of northern Europe for their ashes, also known as kelp, once the chief and still an important source of iodin.

Knotweed (*Polygonum*). A large, widely diffused genus of herbs of the Buckwheat family, so named on account of the swollen joints of many forms, consisting of some 200 species, about 60 North American, and including many well-known plants, such as the **Knotgrass** or **Doorweed** (*P. aviculare*), the **Smartweed** (*P. hydropiper*), the **Bindweed** (*P. Convolvulus*) and various others. The **Prince's Feather** (*P. orientale*) of gardens was introduced from India.

Lady's Slipper (*Cypripedium*). A genus of the Orchid family (*Orchidaceae*), containing about 40 species and numerous hybrids, some of which have flowers of great beauty, and are easily and extensively cultivated. The **Showy Lady's Slipper** (*C. reginae*) is a plant two feet high, growing from Nova Scotia to Minnesota, southwest to Georgia; it is the most conspicuous North American species. Much more common is the **Large Yellow Lady's Slipper** (*C. pubescens*) frequent in swampy thickets and damp prairies in the eastern United States. The earliest bloomer is the pink **Stemless Lady's Slipper** or **Moccasin Flower** (*C. acaule*) of dry woods, while the **White Lady's Slipper** abounds in bogs.

Larch (*Larix*). A genus of trees of the Pine family (*Coniferae*), containing about nine species. The **American Larch** or **Tamarack** (*L. laricina*) is a slender tree 50 to 60 feet high, growing from Virginia to Hudson Bay. It is often planted as an ornamental tree and the wood is highly valued for shipbuilding and for telegraph poles.

Larkspur (*Delphinium*). A genus of the Crowfoot family (*Ranunculaceae*), containing about 60 species, beautiful plants with large, showy, irregular flowers, many of which are in cultivation. The **Field Larkspur** (*D. consolida*), a popular garden flower, grows in waste places, being naturalized from Europe in southern New Jersey and Pennsylvania and southward. The **Dwarf Larkspur** (*D. tricorne*) with blue or white flowers, grows native from Pennsylvania to Georgia, west to Minnesota and Arkansas. Many beautiful wild larkspurs, several of which are poisonous, particularly to sheep and cattle, grow in the Rocky Mountain region and westward. *D. Staphisagria*, a species cultivated in Europe, is used in medicine.

Laurel (*Laurus*). A genus of the Laurel family (*Lauraceae*). There are but a few species, the principal ones being the **Noble Laurel** or **Victor's Laurel** (*L. nobilis*) and **Sweet Bay** (*L. canariensis*), natives of Asia Minor, but widely diffused in the Mediterranean region. They are often only shrubs 15 feet or less, but sometimes trees 30 to 60 feet high. The leaves and fruit, which are bitter, astringent, and aromatic, were formerly used in medicine. The leaves are sometimes used in seasoning and they yield the volatile oil of sweet bay.

Lavender (*Lavandula*). A genus of plants of the Mint family (*Labiatae*). A few European species are used in medicine and the flowers are used in perfumery.

Leguminosae (Pulse, or Pea family). The second largest natural family of flowering plants, ranking next to the Compositae in number of species, and far above it in economic importance, embracing upwards of 7,000 species, widely distributed but most abundant in the tropics, containing many very useful plants, such as peas, beans, clovers, alfalfa, peanut, numerous dye plants: indigo, logwood, Brazil Wood; gum plants: gum Arabic, gum Acacia, and gum Senegal; numerous timber trees and many powerful poisons and drugs: laburnum, Calabar bean (*Physostigma*), cassia, copal, balsam of Copaiba, and balsam of Tolu.

Lichens. A large group of thallophytes, exceedingly interesting in their structure and manner of life and growth. Every lichen is composed of two plants living together in a special nutritive relation known as symbiosis. One is a colorless, thread-like structure, which is a fungus. The other consists of green or blue-green cells, which are algae; the latter possessing chlorophyll create, by photosynthesis, the food used by both plants, while the fruit of lichens is that of a fungus. In this relation the fungus is truly parasitic, as it does nothing in return for its food, and the algae may be considered as plants held in slavery for its benefit. Lichens are usually flat, membranous, or crustaceous, though some are branching

Reindeer Moss. Old Man's Beard.

LICHENS.

in habit. Nearly all grow on exposed trees, rocks, or barren grounds, and derive their sustenance entirely from the air and water. They are exceedingly abundant in northern regions, continuing to the extreme limit of vegetation. The **Reindeer Moss** (*Cladonia rangiferina*) covers vast tracts in northern Europe and is the chief food of the reindeer. The **Iceland Moss** (*Cetraria islandica*) is a northern lichen used for human food. Numerous species occur in moist temperate regions and some are found in the tropics.

Licorice (*Glycyrrhiza*). A genus of perennial herbs of the Pea family (*Leguminosae*), the roots of which are used in medicine. The **Common Licorice** (*G. glabra*) is cultivated in Europe and to a limited extent in Louisiana and California. The roots are extensively employed by porter brewers, and the concentrated extract from them is the common stick licorice of confectionery stores.

Lilac (*Syringa*). A genus of trees of the Olive family (*Oleaceae*). The **Common Lilac** (*S. vulgaris*), a shrub 6 to 15 feet high, is one of the most widely diffused ornamental shrubs cultivated in North America and Europe. There are many fine single and double flowered varieties. The lilac was introduced into Europe by the Turks, who brought it from west central Asia.

Lily (*Lilium*). A genus of plants of the Lily family (*Liliaceae*), containing about 45 species, natives of the North Temperate zone, many of which are prized for the size and beauty of the flowers. The **White Lily** (*L. candidum*), a native of the Levant, with large white flowers, has long been in cultivation in gardens. The **European Orange Lily** (*L. bulbiferum*), with large, orange-colored flowers, is a well-known and very showy ornament in flower gardens. The **Tiger Lily** (*L. tigrinum*) has a stout stem two to five feet high with beautiful orange-colored

flowers, spotted with purple. It is a native of China but has escaped from cultivation in many parts of the United States.

Lily-of-the-Valley (*Convallaria majalis*), the only representative of the genus, is a highly prized ornamental plant of the Lily family (*Liliaceae*). It grows wild in bushy places and woods in Europe, Asia, and the southern Alleghany region of North America, and is very extensively cultivated. The flowers, which are small, bell-shaped, and sweet scented, are used in France in the manufacture of eau d'or, an esteemed French perfume. All parts, leaves, stem, and flowers, are exceedingly poisonous if eaten, but the acrid, burning taste greatly lessens the danger of poisoning from this plant.

Linden or Basswood (*Tilia*). A genus of the Linden family (*Tiliaceae*), containing about 12 species, natives of North America, Europe, and Asia. The lindens produce a soft, straight grained wood which is much used for the interior finish of buildings, cabinet making, sounding boards for pianos, and in the manufacture of paper. The tough inner bark is largely made into mats, cords, and fishing nets, and the flowers of the European species are used in perfumery. Many are planted for shade and ornamental trees. The **American Linden or Basswood** (*T. americana*) is a large tree 70 to 125 feet high, growing from New Brunswick to Georgia, west to Nebraska and Texas. The wood is extensively used for making cheap furniture and paper pulp. The **Southern Basswood or Whitewood** (*T. pubescens*) is a small tree 40 to 50 feet high, growing from Long Island to Florida, west to Texas. The **White Basswood or Bee Tree** (*T. heterophylla*) is a forest tree 45 to 70 feet high, Pennsylvania to Florida, west to Illinois and Tennessee. The **European Linden or Lime Tree** (*T. europaea*) is planted as an ornamental tree in parks and streets.

LINDEN OR BASSWOOD.

Live-forever or Houseleek (*Sempervivum*). A genus of the Orpine family (*Crassulaceae*), perennial, fleshy herbs, natives of the Old World. The **Common Houseleek** (*S. tectorum*), a native of the Alps but escaped from cultivation in the United States, is frequently planted in gardens. The leaves afford immediate relief for burns and insect bites. Broken portions of the stem and leaves are remarkably tenacious of life, rooting and growing after long exposure, whence the popular name.

Liverworts (*Hepaticae*). The lower of the two groups of bryophytes, the other including the mosses; all are moisture-loving, growing on trees, damp soils, and rocks, or floating on the water, and consist of a green thallus body, attached to its support by holdfasts and root-like absorbing structures. There are three groups: the **Marchantiales**, in which the thallus is a flat green disc, often reproducing by gemmae—the true sex organs being produced on different plants; **Jungermanniales**, the most numerous, the prostrate thallus bearing on either side a row of foliage leaves, so that they strongly resemble mosses, and are called the leafy liverworts. The **Anthocerotales** have a single, undivided thallus but the spore case is elongated, green, grows continuously, and splits into two valve-like portions.

Locust Tree. A name applied to various trees of the Pea family (*Leguminosae*). The **American Locust Tree** or the **False Acacia** (*Robinia pseudacacia*) is a large tree 70 to 80 feet high, growing from Pennsylvania to Georgia and now widely naturalized in most states east to the Rocky Mountains. The wood is compact and hard and is extensively used for shipbuilding and all purposes where great strength and toughness are required.

Lotus. A name applied to several different plants. The lotus tree and fruit of the Libyan lotus eaters encountered by the wandering Ulysses, was the **Jujube** (*Zizyphus*). The **Lotus of the Nile** is a water lily (*Nelumbo*). The name is also applied to a large genus of the Pea family, allied to the clovers.

LIVERWORT. Marchantia.

Lupine (*Lupinus*). A genus of the Pea family (*Leguminosae*), containing about 100 species of herbs and half shrubs, about 70 of which occur in the United States, principally in the Rocky Mountain and Pacific coast regions. Lupines were known to the ancient Greeks, who cultivated them for their seeds and for green manuring. The most important cultivated species are the **White Lupine** (*L. albus*), the **Yellow Lupine** (*L. luteus*), and the **Blue Lupine** (*L. angustifolius*). The **Wild Lupine** (*L. perennis*), a perennial one to two feet in height with purple-blue flowers, grows in sandy soils from Maine and Ontario to Minnesota, Florida, Missouri, and Louisiana. The **Low Lupine** (*L. pusillus*), four to eight inches high, grows on dry plains in Dakota and Kansas and westward.

Madder Family (*Rubiaceae*). One of the largest families of flowering plants, embracing an array of upwards of 350 genera and 5,500 species distributed widely from cool regions north to mountain regions south of the equator, and very abundant in the tropics. Coffee, madder, ipecacuanha, and cinchona or calisaya bark, the source of quinine, are contributed by this family, which also abounds in fragrant, showy flowers, many of which, such as the Gardenias, are favorites in cultivation.

Magnolia. A genus of the Magnolia family (*Magnoliaceae*), containing about 15 species of large-leaved, beautiful trees, natives of eastern North America and Asia. The **Great Leaved Magnolia or Large Leaved Cucumber Tree** (*M. macrophylla*) is 30 to 50 feet high, rendered conspicuous by its large white flowers, sometimes a foot in diameter. It grows from Kentucky to Florida, west to Arkansas and Louisiana. The **Umbrella Tree** (*M. tripetala*) is 20 to 40 feet high with large white flowers. Found from Pennsylvania to Alabama, west to Arkansas and Mississippi. The **Cucumber Tree or Mountain Magnolia** (*M. acuminata*) is 60 to 90 feet high with greenish yellow flowers, which are less admired than those of other species; grows from New York to Illinois and south to Kentucky and Alabama, west to Arkansas. Often planted as an ornamental tree. The **Laurel Magnolia or Sweet Bay** (*M. virginiana*) is a slender tree 50 to 70 feet high with beautiful fragrant flowers; Pennsylvania to Florida, west to Arkansas and Texas.

Mahogany. A name applied to the timber of a number of trees, the most highly esteemed being that of *Swietenia Mahogani*, a large tree, native of the West Indies and tropical South America.

Maidenhair (*Adiantum*). A delicate, graceful fern, with black, shining leaf stalks. Two species occur in the Eastern States, the **Common Maidenhair** (*A. pedatum*) very abundantly, and the **Venus' Hair** (*A. Capillus-Veneris*) more sparingly. There are about 80 species in all, several of which are much prized in cultivation.

Mandrake (*Mandragora*). A genus of plants of the Potato family (*Solanaceae*), natives of Europe, since ancient times superstitiously reputed to possess many evil powers. In the United States the name is applied to the May apple (*Podophyllum*), the rootstock of which is used in medicine.

Mangosteen. A highly prized fruit, said to be the most delicious grown in the tropics, produced by the evergreen tree, *Garcinia mangostana*, of the natural order *Guttiferae*, native of the Molucca Islands but now cultivated in Java and other tropical countries.

Mangrove (*Rhizophora*). A genus of the Mangrove family (*Mangrophoraceae*), containing three species of trees and shrubs, all tropical and natives of coasts, particularly about the mouths of rivers, where they grow in the mud. The seeds grow while still attached to the parent tree, and the young trees are provided with roots and branches when they drop off into the water or mud. The coast and keys of southern Florida abound in mangroves. The fruit of the **Common Mangrove** (*R. Mangle*) is sweet and edible and its juice yields a light wine.

Manna. A sweet substance which exudes from incisions in the stems of the flowering ash (*Fraxinus ornus*) and the round leaved ash (*Fraxinus rotundifolia*), natives of Sicily, used extensively in medicine. See *Tamarisk*.

Maple (*Acer*). A genus of trees of the Maple family (*Aceraceae*), containing nearly 100 species, natives of north temperate regions, especially North America and eastern Asia. The **Sugar Maple** (*A. saccharum*) is a large tree 90 to 120 feet high, growing from Newfoundland to Georgia, west to eastern Nebraska and Kansas. The wood is extensively used in cabinet work and finishing houses. Large quantities of sugar and syrup are made from the sap. The **Silver** or **Soft Maple** (*A. saccharinum*) is a rapid growing tree 100 to 120 feet high, found from New Brunswick to Florida, west to Ontario, Nebraska, and Oklahoma. It is often planted as a shade tree. The **Scarlet** or **Red Maple** (*A. rubrum*) is a large tree reaching a maximum height of 120 feet, and growing in swamps and low ground from New Brunswick to Manitoba, south to Florida and Texas. The close-grained wood is largely used for furniture, and in turnery. The **Oregon Maple** (*A. macrophyllum*) is a beautiful tree 80 to 100 feet high, growing from Alaska to California. It is often planted as an ornamental tree.

Marigold. A name given to several very different flowering plants. The old marigold (*Calendula officinalis*) of the English poets, is a hardy annual with leaves and bright flowers that last nearly throughout the year. The French and African marigolds belong to the genus *Tagetes*, and have yellow to brown flowers of a rank odor. The foregoing belong to the Sunflower family, while the wild marsh marigold, common in wet meadows in Europe and America, belongs to the Crowfoot family.

Marsh Mallow. A name applied to *Althaea officinalis*, a plant of the Mallow family (*Malvaceae*), native of Great Britain and naturalized in the United States. The mucilaginous roots are used in confectionery and in medicine.

Marsh Marigold (*Caltha palustris*). A marsh plant of the Crowfoot family, with striking bright yellow flowers and shining, kidney-shaped leaves, common in America and Europe, often called **Cowslips** in the United States, and sometimes used as a potherb.

May Apple (*Podophyllum peltatum*). A well known perennial woodland plant of the Barberry family (*Berberidaceae*), common throughout the eastern United States except in New England, where rare. The large, fleshy berry is edible though insipid; the roots contain a purgative resin much used in medicine. Sometimes incorrectly called mandrake.

Medlar (*Mespilus*). A genus of trees or shrubs of the Rose family (*Rosaceae*). The **Common Medlar** (*M. germanica*), a small tree, bearing an astringent edible fruit, is a native of and largely cultivated in southern Europe and temperate parts of Asia; seldom seen in America.

Melilot (*Melilotus*). A genus of plants of the Pea family (*Leguminosae*), many species of which are in cultivation for pasturage, hay, and green manuring. The flowers of the **Common Melilot** or **Yellow Sweet Clover** (*M. officinalis*), which is cultivated in the United States, are used in the manufacture of perfumery.

Mesophytes. Plants which grow naturally in medium conditions of soil moisture, being intermediate between xerophytes and hydrophytes, embracing the plants of forests, prairies, meadows, and of most cultivated areas.

MAY APPLE.

Mesquite (*Prosopis*). A genus of trees or shrubs of the Pea family (*Leguminosae*), containing about 16 species, natives of America, Asia, and Africa, three of which grow in the United States. The **Mesquite** (*P. juliflora*) varies from a straggling shrub to a widely-branched tree 50 feet high. It occurs from central Texas to eastern California, and southward to Chile and Argentina. The very heavy wood is used for fuel and fence posts, while the pods and leaves are much eaten by stock. The **Screwpod Mesquite** (*P. pubescens*) is a tree 25 to 30 feet high with similar range and uses, both species being valuable in arid regions.

Mint Family (*Labiatae*). A large, distinctly marked family of dicotyledonous plants, chiefly herbs with square stems and opposite, aromatic leaves, numbering 150 genera and 3,000 species, principally natives of temperate climates. The striking qualities of the mints depend upon the presence of aromatic or fragrant essential oils, making them valuable as stimulants, flavoring herbs, and in perfumery. Of the aromatics peppermint, spearmint, and pennyroyal are best known; lavender and spike also furnish well-known oils, while thyme, marjoram, basil, savory and sage are frequently used. Lavender, patchouli, and rosemary are employed in the manufacture of perfumery. Horehound, ground ivy, balm, and dittany are used as household remedies.

Mistletoe (*Viscum*). A genus of small, mostly tropical and parasitic shrubs of the Mistletoe family (*Loranthaceae*) containing upwards of 400 species. The **Common Mistletoe** (*V. album*), a native of the greater part of Europe, grows on many kinds of trees, particularly the apple and hawthorn. It was intimately connected with many of the superstitions of the ancient Germans and Britons. The **American Mistletoe** (*Phoradendron flavescens*) closely related and very similar, grows upon tupelo, maple, and many other trees from New Jersey to Minnesota southward to Florida and Texas.

Monocotyledons. The smaller of the two primary groups of Angiosperms, distinguished by having only one seed leaf, while the dicotyledons have two seed-leaves. The flower parts are in threes, never in fours or fives, the leaves are usually parallel-veined, and the woody fibers are scattered throughout the stem, never forming a cylinder between the bark and pith as in dicotyledons. The group embraces about 20,000 species, containing the cereals and many other useful plants, prominent families being the grasses, sedges, palms, arums, pond-weeds, irises, lilies, and orchids.

Mountain Ash (*Sorbus*). A genus of small trees of the Rose family (*Rosaceae*), containing about 7 species, natives of the north temperate zone. The **American Mountain Ash** (**S.** *americana*) is a small tree, sometimes 30 feet high, growing from Newfoundland to Manitoba south to North Carolina and Michigan, and often planted for ornament. The fruit is a small astringent red berry, frequently used in home remedies.

Mosses (*Musci*). The higher of the two groups of bryophytes, the other including the liverworts; all small green plants with structures resembling and corresponding to the true roots, stems and leaves of higher plants, adapted to a great variety of situations from semi-aquatic to semi-arid, most abundant in cool temperate and arctic regions. There are two main groups: the **Sphagnum** forms, the peat or bog mosses, and the **Bryum** forms, or true mosses. While the peat is formed from accumulations of bog mosses, the group on the whole is of little value to man. (See BRYOPHYTES, LIVERWORTS.)

Mushrooms. Edible fungi, particularly agarics and morels. The **Common Mushroom** (*Agaricus campestris*), one of more than 1,000 species of *Agaricus*, grows in fields and pastures, and is extensively cultivated. The **Morel** (*Morchella esculenta*) common in America and Europe is highly prized. There are many other edible fungi, among them the ink cap, parasol, and fairy ring fungus, the chanterelle, and several puff balls. Umbrella-shaped fungi are popularly called **Toadstools**, but the prevalent idea that all such are poisonous is wrong. There are, however, several extremely poisonous fungi, some of which rather closely resemble edible species, so that the inexperienced should never eat them indiscriminately.

Morel.

Common Mushroom.

MUSHROOMS.

Mustard Family (*Cruciferae*). A well defined, natural group of dicotyledonous plants, comprising 185 genera and 1,500 species, natives of cool and temperate regions, occurring only on mountains in the tropics; all herbs with a pungent, watery juice and cruciform flowers, many of which have risen to economic rank in cultivation, such as the turnip, cabbage, rape, sea kale, radish, horseradish, garden cress, water cress, mustards, scurvy grass, and wood. The **Stock** or **Gillyflower**, **Wall Flower**, **Candytuft**, and **Sweet Alyssum** are cultivated for their flowers.

Narcissus. A genus of the Amaryllis family (*Amaryllidaceae*), with narrow leaves and usually white or yellow flowers. The species are native of Europe, Asia, and Africa, and many are cultivated in gardens for their beautiful and often highly-scented flowers. The **Poet's Narcissus** (*N. poeticus*) with white fragrant flowers is one of the most popular. The **Jonquil** (*N. Jonquilla*) bears fragrant golden yellow flowers which are employed in the manufacture of perfumes.

Nettle Family (*Urticaceae*). A group of dicotyledonous plants of wide distribution, but most numerous in the tropics, chiefly herbs or shrubs, a number of which have important economic uses. Here belong the **Hop**, **Hemp**, and **China Grass**, which are highly valuable, while related species furnish fiber and cordage and also the narcotic resin called Indian hemp. The true nettles (*Urtica*) are armed with stinging hairs containing a very irritant juice. Interpreted in a broad sense the family includes the **Elm**, **Hackberry**, **Osage Orange**, and **Mulberry**.

Oak (*Quercus*). A genus of about 200 trees and shrubs, most numerous in temperate climates, though some are tropical; fully 50 species occurring in the United States, with many intermediate forms or hybrids. The **European Oak** (*Q. robur*), the most important Old World timber oak, is sparingly planted in the United States. The **White Oak** (*Q. alba*), the most valuable American timber oak, occurs from Texas to Minnesota and eastward. With similar range, but less valuable for timber, are **Bur Oak** or **Mossy Cup Oak** (*Q. macrocarpa*), the **Scarlet Oak** (*Q. coccinea*), and the **Red Oak** (*Q. rubra*). The **Cow Oak** or **Basket Oak** (*Q. Michauxii*) and the **Yellow** or **Chestnut Oak** (*Q. acuminata*) produce edible acorns. The bark of the **Quercitron** (*Q. velutina*) is made use of in tanning, as a yellow dye, quercitron, and in medicine. The **Live Oak** (*Q. virens*) once famous for shipbuilding, is a sturdy species with entire evergreen leaves occurring in the Southern States and Cuba, and there are live oaks in the Pacific states.

Orchids (*Orchidaceae*). An immense family of monocotyledonous plants, numbering about 400 genera and 5,000 species, all herbs, occurring throughout the world except in very cold or dry regions, and reaching their greatest development and profusion in the tropics. It is a well-marked group, usually with showy flowers of strikingly irregular form and peculiar structure. In temperate climates orchids are terrestrial, but in the tropics many species are epiphytic. While a vast number are highly prized in hothouse cultivation, few have any known value, the **Vanilla** (*Vanilla planifolia*) used for flavoring being the most important.

Osage Orange or **Bow Wood** (*Maclura pomifera*). A tree of the Nettle family (*Urticaceae*), native of the southwestern United States, attaining a height of 20 to 60 feet, extensively planted for hedges, while the wood, of orange color and of great hardness, is valuable for fence posts, mallet heads, and to some extent in cabinet work.

Livingstonia. PALMS. Phoenix.

Palm Family (*Palmaceae*). A very distinct natural family of monocotyledonous trees and shrubs, chiefly tropical and subtropical, embracing about 1,000 species which are second in economic importance only to the cereal grasses. Palms are usually unbranched trees, with large terminal clusters of long stalked leaves. The flowers are often exceedingly numerous, a date palm bearing 12,000 in a cluster, while in a species of Alphonsia over 200,000 flowers have been counted in a single spadix, or 600,000 in one plant! Sugar, starch, oil, wax, resins, and spirituous liquors are obtained from their juices; many

yield esteemed fruits, others produce fiber for clothing, cordage, and also valuable timber. Among the most important are the date palm, cocoanut palm, arecanut palm, oil palm, cabbage palm, vegetable ivory, and coquilla nut palms.

Pampas Grass (*Gynerium argenteum*). A very tall grass with a silvery white silky panicle, common in Brazil and Argentina, now introduced into the United States and other countries as an ornamental plant.

Parasitic Plants. True plant parasites live partly or wholly within other plants or animals and derive their sustenance wholly therefrom, in contradistinction to epiphytes or perching plants, which are attached to other plants merely for mechanical support. A vast number of fungi are parasitic upon other plants, such as rusts smuts, mildews, blights, and leaf curl. Certain fungi (*Trichophyton*) grow in the human skin, producing ringworm, barber's itch, and similar diseases, while bacteria are constantly present in the skin and digestive tract of many animals. The **Dodder** and **Rafflesia** are examples of seed plants which are true parasites. Many other seed plants are so-called half parasites, retaining their green color but deriving at least a part of their food from other living plants. Half parasites commonly blacken in drying.

Parsley Family (*Umbelliferae*). Also called Carrot family. A large, distinct group of herbs, comprising 170 genera and 1,600 species, nearly all natives of north temperate regions, usually with fistulous stems, flowers in umbels, acro-narcotic juices, and aromatic seeds. The vegetables, celery, parsley, parsnip, carrot; and the flavoring plants, caraway, dill, coriander, anise, and cummin belong here. The medicinal gum-resins, asafoetida, ammoniacum, opoponax, and galbanum, are derived from species of this family, which also contains a number of virulently poisonous plants, such as the hemlock (*Conium*) and water hemlock (*Cicuta*).

PASSION FLOWER.

Passion Flower (*Passiflora*). A genus of climbing vines of the Passion Flower family (*Passifloraceae*), containing about 250 species natives mostly of tropical America. Twelve are natives of the United States. Many species are cultivated in greenhouses for their large, beautiful flowers. The **Passio. Flower** or **Passion Vine** (*P. incarnata*), with showy, white flowers and an edible fruit, grows from Virginia to Missouri, south to Florida and Oklahoma. The **Yellow Passion Flower** (*P. lutea*), with greenish yellow flowers, is found in thickets from Pennsylvania and Missouri southward. *Passiflora caerulea*, a native of Peru and Brazil, is extensively grown for its white, pale blue, or rose-colored flowers.

Perennials. Plants whose duration of life is more than two years, contrasted with annuals and biennials.

Petunia. A genus of plants of the Potato family (*Solanaceae*). There are about 12 species, natives of South America and introduced into other countries for their beautiful flowers. The **Violet Petunia** (*P. violacea*) is a trailing plant with purple-violet flowers, a native of Brazil and escaped from cultivation in southern New York and Pennsylvania. There are many varieties, including single and double flowered forms with innumerable variations in color. The common garden petunias are mostly hybrids of *P. violacea* and the **White Petunia** (*P. axillaris*).

Phlox. A genus of the Polemonium family, containing 40 species, well distributed in North America, many of which are prized in cultivation for their showy flowers, hardiness, and ease of growth.

Pine (*Pinus*). A genus of trees of the Pine family (*Coniferae*), containing about 80 species, nearly two thirds of which occur in the northern part of the western hemisphere. The **White Pine** (*P. Strobus*), a tree 75 to 100 feet high, is one of the most important timber trees of North America. It extends from Newfoundland to Minnesota, south to Georgia. The wood is soft, straight grained, and is much used for building and cabinet work. The **Yellow Pine** or **Long-leaved Pine** (*P. palustris*) is a large tree, sometimes attaining a height of 100 feet and growing in sandy soil from Virginia to Florida and Texas. The wood is heavier and stronger than that of any other pine, and is used in all kinds of building. The tree is the chief source of turpentine, tar, resin, etc. The **Western Yellow Pine** or **Bull Pine** (*P. ponderosa*) is a large tree, sometimes 150 to 250 feet high and 5 to 8 feet in diameter. It is found from the Rocky Mountains to the Pacific coast and is one of the most important lumber trees of the West. The **Sugar Pine** (*P. Lambertiana*), which grows in Oregon and California, is one of the largest trees of the genus, attaining a height of 150 to 300 feet and a diameter of more than 10 feet. The timber is strong, straight grained, and is much used for a finishing lumber and cabinet work.

Pink (*Dianthus*). A genus of plants of the Pink family (*Caryophyllaccae*), including the **Carnation, Sweet William,** etc., chiefly natives of Europe and Asia. Some of the species have long been in cultivation on account of their beautiful and often fragrant flowers. There are many varieties, including single and double forms of many different colors.

Pitcher Plants (*Sarracenia*). Curious insectivorous bog plants, not rare in the Atlantic states. The leaves, which are urn-shaped or tubular, secrete a liquid in which insects are caught and decomposed. The most widely distributed species (*S. purpurea*) is the **Sidesaddle Flower** or **Huntsman's Cup.** The pitcher plants of greenhouse cultivation (*Nepenthes*) are herbs or half shrubby plants, natives of China, India, and Malaysia. Some of the species have their leaves prolonged into a kind of tendril, which ends in a cup or pitcher-like organ. Many species are commonly grown in hothouses.

PITCHER PLANT.
Sarracenia purpurea.

Plane Tree (*Platanus*). The only genus of the Plane Tree family (*Platanaceae*), containing 6 or 7 species, natives of the north temperate zone. The **Sycamore, Plane Tree,** or **Buttonwood** (*P*

occidentalis) is a large tree, reaching a maximum height of 130 feet with a trunk diameter of 14 feet. It is found from Quebec to Georgia, west to Manitoba and Kansas. The wood is a favorite material for tobacco boxes and butcher blocks and is largely used for furniture. There are two other species in the United States; the **California Sycamore** (*R. racemosa*) and the **Arizona Sycamore** (*P. Wrightii*), both large trees.

Plum, Wild. Small trees or shrubs belonging to the genus *Prunus*. The **Wild Yellow** or **Red Plum** (*Prunus americana*) is a small tree reaching a maximum height of 35 feet, found from New York to Montana, Florida, and Colorado. It is often cultivated in the Eastern States as an ornamental or fruit tree. The **Chickasaw Plum** (*P. angustifolia*) is a small tree 15 to 20 feet high high, growing in dry soil from New York to Florida, west to the Rocky Mountains. The fruit is often sold in the markets. A number of varieties are cultivated as fruit trees. The **Wild Goose Plum** (*P. hortulana*) is a tree 20 to 30 feet high, growing on low banks of streams from Maryland and Virginia to southeastern Kansas and Texas. The **Canada Plum** (*P. nigra*), a tree reaching a height of 20 to 30 feet, grows near streams from Newfoundland to Manitoba, Massachusetts, and Wisconsin. Often cultivated in the Northern States and Canada as a fruit tree or for the beauty of its flowers.

Poplar (*Populus*). A genus of about 20 trees of the Willow family (*Salicaceae*), natives of temperate and cold regions, persisting to the limit of trees on mountains and in high latitudes. Half of the species occur in the United States, all of soft wood and rapid growth. The **American Aspen** or **Quaking Asp** (*P. tremuloides*), usually a small tree, occurring almost throughout the continent, has the widest range of any North American tree. The **Cottonwood** (*P. deltoides*), common along streams from the Rocky Mountains eastward, sometimes attaining 150 feet in height and a diameter of 7 feet, is much planted for ornament. The **Balsam Poplar** (*P. balsamifera*), sometimes 100 feet high, occurs northward and in Siberia. The **European White Poplar** (*P. alba*) and **Black Poplar** (*P. nigra*), much-planted ornamentals, have become naturalized in the Eastern States. The **Lombardy Poplar** (*P. nigra, var. italica*) is very widely grown in Asia, Europe, and America.

Poppy Family (*Papaveraceae*). A small group of dicotyledonous plants, containing about 25 genera and 200 species, of world-wide distribution, but most numerous in Europe, consisting of herbs with a milky or colored juice, which is generally powerfully narcotic, and sometimes acrid. The widely-cultivated opium poppy is the most important. In the United States the **Bloodroot** (*Sanguinaria*) is common in the eastern portion. **Argemone** is a characteristic genus of the Rocky Mountain regions; the **California Poppy** (*Eschscholtzia*) is a striking representative on the Pacific coast, while the poisonous **Celandine** (*Chelidonium majus*) of Europe has been naturalized in many localities.

Potato Family (*Solanaceae*). Also called Nightshade family. An important dicotyledonous family, mostly herbs, numbering about 70 genera and 1,600 species, most abundant in the tropics, many of which are powerful poisons while others are of the highest usefulness. Among the poisonous species are the **Deadly Nightshade** (*Atropa Belladonna*), **Black Nightshade** (*Solanum nigrum*), the **Bittersweet** or **Woody Nightshade** (*Solanum Dulcamara*), the **Jimson Weed** or **Thorn Apple** (*Datura*), **Henbane** (*Hyoscyamus*), the **Mandrake** (*Mandragora*), **Tobacco** (*Nicotiana*), and even the leaves and stems of the **Potato**. The most valuable economic plants are the potato, tomato, eggplant, and red pepper.

Primrose (*Primula*). A genus of plants of the Primrose family (*Primulaceae*), natives of Europe and Asia. Some of the species are extensively cultivated on account of their fine color and delicate beauty. The **Common Primrose** (*P. vulgaris*), a native of Europe, is the parent of many cultivated varieties.

Quaking Grass (*Briza*). A small genus of European grasses with slender stalks and large spikelets, which quake in the slightest wind. Several species, naturalized in the United States, are considered valuable pasture grasses for dry situations.

Quassia. A genus of trees and shrubs of the Quassia family (*Simarubaceae*). *Quassia amara*, the wood and root of which are extremely bitter, was formerly much used in medicine.

Quercitron. A species of oak and also the dye obtained from it. See OAK.

Rafflesia. A small genus of extraordinary parasitic plants of the Rafflesia family (*Rafflesiaceae*). They attack grapevines, and the only visible part consists of a flower. *Rafflesia Arnoldi*, a native of Sumatra, has a flower three feet in diameter. The flower bud is about as large as a cabbage and bursts directly from the woody stem of the host plant. The flower, which is of livid color and mottled in the manner of decaying flesh, has a strong and fetid odor which attracts carrion insects by which pollen is carried from flower to flower.

Resin Weed or Compass Plant (*Silphium laciniatum*). A large plant, native of the United States, with a very resinous stem. It grows on prairies and has nearly vertical root leaves, the edges of a majority of which when growing in places equally exposed to the sunlight on all sides, point nearly north and south, whence the name compass plant. This property of the leaves is mentioned in Longfellow's Hiawatha.

RESURRECTION PLANT.
Anastatica hierochuntica.

Resurrection Plant (*Anastatica hierochuntica*). A small Arabian herb, the branches of which roll up when dry so that the plant becomes almost globular, but which expand again when moist. The name is also applied to several species of Selaginella; small flowerless plants which when dry close up so as to resemble a bird's nest, but revive again in wet weather. While in their contracted, globular state these plants are often blown about the sterile plains where they grow, thus widely scattering their seeds or spores.

Rose (*Rosa*). A genus of usually more or less climbing or trailing, shrubby plants of the Rose family, containing many of the most beautiful and highly prized flowers. There are numerous wild species, exceedingly variable and difficult to distinguish, some botanists recognizing only 30 or 40, others nearly 200, all natives of north temperate regions. Centuries of cultivation of various species in Asia, Europe, and America have produced innumerable varieties.

Rose Family (*Rosaceae*). An important family of dicotyledons, comprising some 90 genera and 1,500 species of herbs, shrubs, and trees, widely diffused throughout the world, and embracing a number of the most highly-prized fruits in cultivation as well as many beautiful flowering plants and ornamental shrubs and trees. Among the fruits of the group are the almond, peach, nectarine, apricot, plum, pear, apple, quince, raspberry, blackberry, and

strawberry. Among the ornamentals are the mountain ash, hawthorns, medlar, cherry laurel, spiraea, flowering almond, and numerous roses.

Russian Thistle (*Salsola kali, var. tenuifolia*). An annual herb of the Goosefoot family (*Chenopodiaceae*), naturalized from northern Europe, which has become a very troublesome weed in the United States and Canada, particularly in the wheat-growing regions of the northwest. It is not a true thistle, but the mature leaves are tipped with short, sharp spines.

Sage Brush. Certain shrubby species of *Artemisia* of the Composite family, with silvery or hoary leaves containing a bitter juice. The characteristic **Sage Brush** or **Sage Wood** (*A. tridentata*) of the plains from Montana to Colorado and westward, immensely abundant over vast areas at 4,000 to 6,000 feet altitude, usually grows from two to six feet high, though it sometimes exceeds 12 feet.

Salad Plants. Vegetables whose green parts are served uncooked for human food, as celery, lettuce, chicory, endive, and water cress.

Sandalwood (*Santalum album*). A small tree, native of India and the Indian archipelago; producing a compact, fine-grained wood which is used for making small ornamental articles and possesses a remarkable fragrance which persists long after it has become thoroughly seasoned.

Sassafras. A genus of trees of the Laurel family (*Lauraceae*), containing but two known species, one in North America and the other in China. The **Sassafras** or **Ague Tree** (*Sassafras variifolium*) is a large tree 80 to 90 feet high, found from Canada to Florida west to Kansas and Texas. Oil of sassafras, used for flavoring confectionery, is distilled from the roots, and the bark is frequently employed in household medicine.

Screw Pine (*Pandanus*). A genus of the Screw Pine family of southern Asia and the South Sea Islands, resembling huge pineapple plants, having long sharp-pointed, spiny-edged leaves arranged in a three-ranked spiral, whence the name, and many have remarkable prop roots. Several species are of great utility, yielding fiber, fodder, perfumes, and food products.

SCREW PINE.

Sedge Family (*Cyperaceae*). A large, distinct, natural group of monocotyledons, numbering some 65 genera and 3,000 species of grass-like or rush-like herbs with solid, often three-angled stems, and fibrous roots, universally diffused in marshes and along streams throughout the world. Sedges are devoid of active principles, are far less nutritious than grasses, yield no seeds or grains, and are consequently of comparatively little value. The tuberous rootstocks of two species of Cyperus are used for food, and another yields an aromatic oil. The stems of some species are woven into mats and hats. The cotton grass is used to stuff cushions, while species of Carex furnish a substitute for sarsaparilla. The **Papyrus** (*Papyrus antiquorum*) is celebrated for having furnished a sort of paper made by the ancient Egyptians from its pith.

Sensitive Plant. The common name given to certain species of Mimosa of the Pea family, whose finely divided leaves display remarkable irritability. When touched the leaflets close in pairs; upon more vigorous handling near-by leaflets also close and finally the leafstalk drops and the whole leaf appears withered. After a brief interval the leafstalk rises and the leaflets unfold again. The **Sensitive Brier** (*Schrankia*) of the Southern States also possesses this peculiar property.

Service Berry. The common name of several distinctly different trees of the Rose family (*Rosaceae*). The American **Service Berry** or **Shad Bush** (*Amelanchier canadensis*) is a small tree which bears a sweet red or purple berry. The **European Service Berry** (*Pyrus Sorbus*), a tree sometimes 50 feet high, is cultivated for its small pear-shaped fruit.

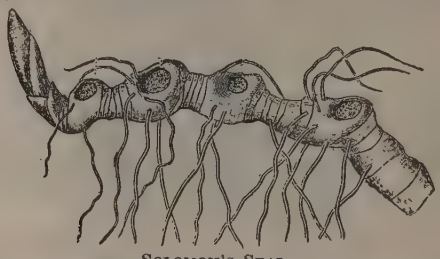
Shamrock. The **Hop Clover** (*Trifolium*) is usually considered the true shamrock or national badge of Ireland, though the **White** or **Small-Leaved Clover** (*T. repens*), the **Bird's Foot Clover** (*Lotus corniculatus*), and the **Wood Sorrel** (*Oxalis*) are also associated with the national emblem.

Shepherd's Purse (*Capsella Bursa-pastoris*). An annual plant of the Mustard family (*Cruciferae*), native of the Old World, but now cosmopolitan by naturalization, bearing small white flowers and a pouch-like pod; often a troublesome weed.

Skunk Cabbage (*Symplocarpos foetidus*). A North American plant of the Arum family (*Araceae*) which emits a fetid odor, especially when bruised. Common in wooded marshes in the eastern United States, where it is one of the earliest flowers to appear in spring.

Smilax. A genus of the Lily family (*Liliaceae*), containing about 200 species, usually climbing vines, most abundant in tropical America and Asia. About 17 species are natives of the United States. The **Carrion-flower** (*S. herbacea*) is found in woods and thickets from the Atlantic to Minnesota and Texas. The **Long-stalked Greenbrier** (*S. pseudo-china*), growing from Maryland to Nebraska, south to Florida and Texas, has tuberous rootstocks sometimes used in medicine. The roots of a number of species, particularly *Smilax medica* and *S. papyracea* of Central and South America, yield sarsaparilla. The delicate twiner called **Smilax** by florists is a South African plant (*Myrsiphyllum*).

Snapdragon (*Antirrhinum*). A genus of plants of the Figwort family (*Scrophulariaceae*). The flowers have a peculiar corolla, the lower lip of which, if parted, shuts with a spring or snap. The **Great Snapdragon** (*A. majus*), a favorite plant with many fine varieties, is the most frequently cultivated.



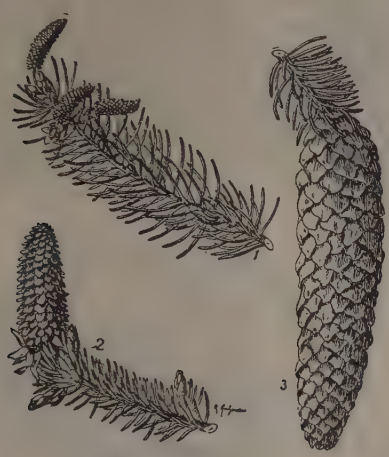
SOLOMON'S SEAL.

Solomon's Seal (*Polygonatum*). Perennial herbs of the Lily family, so-called because the scar left on the creeping rootstock after the death of each annual growth was thought to resemble the imprint of a seal.

Sorrel. A name given to several species of *Rumex* of the Buckwheat family, which have sour leaves, sparingly cultivated, chiefly in Europe for use in soups and sauces. The **Sheep Sor-**

rel (*R. Acetosella*) widely naturalized in America is frequently a very troublesome weed in meadows and pastures in the Eastern States. The **Wood Sorrel** (*Oxalis*) is often called **Sheep Sorrel.**

Spruce (*Picea*). A genus of trees of the Pine family (*Pinaceae*), containing about 18 species, native of the Northern Hemisphere. The **White Spruce** (*P. canadensis*) is a slender tree 50 to 150 feet high, found from New York to British Columbia, north to Newfoundland, Hudson Bay, and Alaska. The wood is light and soft and is largely used for construction and for paper pulp. It also yields some of the spruce gum of commerce. The **Black Spruce** (*P. mariana*) is a tree 20 to 30 and very rarely 100 feet high; growing from Newfoundland and Hudson Bay and Alberta south to North Carolina, Michigan, and Minnesota. It is largely used for wood pulp and paper. The **Red Spruce** (*P. rubra*), a tree 70 to 80 feet high growing from Nova Scotia to Virginia, is largely manufactured into lumber. The **Tideland or Sitka Spruce** (*P. sitchensis*) is a large tree usually 100 feet, sometimes 200 feet high, occurring abundantly from northern California to Alaska. Its valuable timber is used for all kinds of building purposes. The **Norway Spruce** (*P. Abies*) is largely planted in the Eastern States as an ornamental tree.



SPRUCE. Picea excelsa.
1. Male flowers. 2. Female flowers. 3. Fruiting cone.

Spurge Family (*Euphorbiaceae*). One of the largest families of dicotyledonous flowering plants, embracing over 200 genera and 4,000 species; herbs, shrubs, and trees, very widely diffused throughout the world, but notably numerous in tropical America. Nearly all possess a milky juice which contains more or less caoutchouc, while the watery sap is generally acrid, purgative, emetic, or poisonous. The most important economic plants of the family are cassava, the source of tapioca, the castor-oil plant, the tallow tree of China, the African teak tree, and the Brazilian caoutchouc tree, and noteworthy medicinal contributions are croton, cascarilla, and mercurialis.

Sumach (*Rhus*). A genus of about 100 species of trees and shrubs, widely distributed except in cold regions. About 15 occur in the United States, among them **Staghorn Sumach** (*R. typhina*) sometimes 30 feet high, and the much smaller **Smooth Sumach** (*R. glabra*) and **Dwarf Sumach** (*R. Copallina*) of the Eastern States; also the dangerous species: **Poison Sumach or Dogwood** (*R. Vernix*), **Poison Ivy** (*R. Toxicodendron*), and **Poison Oak** (*R. quercifolia*) of the East and South, and the **Western Poison Oak** (*R. diversiloba*) of the Pacific coast. Foreign species yield valuable dyestuffs, such as fustic, tanning materials, and varnish. Here also belongs the **Smoke Tree** (*R. Cotinus*), frequent in cultivation.

Sumach Family (*Anacardiaceae*). An important group of trees and shrubs, mostly tropical, numbering 50 genera and 400 species, characterized by a resinous or milky-acrid juice and dotless, alternate leaves. Here belong the **Cashew Nut** (*Anacardium*), the **Pistachio Nut** (*Pistachia vera*), **Mango** (*Mangifera*), **Hog Plum** (*Spondias*), and other valued fruits, as well as the **Poison Sumachs** and the astringent **Sumachs** used in tanning. Mastic and Chian Turpentine are obtained from species of *Pistachia*. A number are ornamental plants, such as the beautiful **Pepper Tree** (*Schinus*) now much planted in California.

Sundew (*Drosera*). A genus of inconspicuous but beautiful plants of the Sundew family (*Droseraceae*). Several species are natives of American bogs. The leaves are clothed with glandular hairs which secrete a viscid and digestive fluid that entraps and dissolves insects.

Sunflower (*Helianthus*). A genus of the *Compositae* containing about 60 species, all American, and nearly all occurring in the United States; large, erect, mostly perennial herbs, bearing showy flowers with brown or purple discs and conspicuous yellow rays. The **Common Sunflower** (*H. annuus*), native of the great plains, has become much larger in cultivation, sometimes growing 20 feet high with huge, flowering heads one to two feet in diameter.

Sweet Pea (*Lathyrus odoratus*). An ancient garden flower of the Pea family, which has been greatly developed in form, color, and fragrance during the last half century, there now being upwards of 100 varieties in cultivation.

Sycamore. Certain trees of the genus *Ficus* of the Mulberry tribe of the Nettle family (*Urticaceae*), mostly natives of Asia and Africa, are properly called sycamores. The **Egyptian Sycamore** (*F. sycamorus*), supposed to be the sycamore of the Bible, is a large spreading tree often planted for shade in Egypt and western Asia. In northern Europe this name is also given to a species of maple (*Acer pseudo-platanus*) and in the United States the **American Plane Tree** (*Platanus occidentalis*) is most commonly called sycamore.

Tallow Tree. A name given to various trees which produce a thick oil or resinous-like substance which may be used for making candles. The most important are the **Tallow Tree** of Malabar (*Vateria indica*) and the **Chinese Tallow Tree** (*Sapium sebiferum*).

Tamarind (*Tamarindus indica*). A beautiful spreading tree of the Pea family (*Leguminosae*); a native of India and often cultivated in warm climates for shade and for its fruit, which consists of a pod filled with an acidulous pulp.

Tamarisk (*Tamarix*). A genus of shrubs or trees of the Tamarisk family (*Tamaricaceae*). The Common Tamarisk (*T. gallica*), a native of the Mediterranean region, is often planted in the United States and Europe for ornament. Some authorities consider that the manna of the Bible was derived from Tamarisk (*T. mannifera*).

Teasel (*Dipsacus*). A genus of herbs of the Teasel family (*Dipsacaceae*), natives of the Old World. The Fuller's Teasel (*D. fullonum*), the only important species, has long been cultivated for its spiny heads which are used for raising the nap of cloth. The closely related *D. sylvestris* has become naturalized as a weed in many parts of the United States.

Thistle. A name applied to various Compositae, especially to species of *Cnicus, Cirsium, Carduus, Onopordon, Centaurea,* and *Sonchus,* which are widely distributed, mostly as weeds. The **Canada Thistle** (*Cirsium arvensis*), a slender perennial 1 to 3 feet high with rather small rose-colored flowers, is one of the most troublesome weeds, being extremely difficult to eradicate. The **Scotch Thistle** (*Onopordon Acanthium*), recognized by its cottony or woody leaves, is common in the Atlantic states. It is said to be the emblem of Scotland. The **American Star Thistle** (*Centaurea americana*) is common on dry plains from Missouri to Louisiana and Arizona.

Thyme (*Thymus*). A genus of half shrubby plants of the Mint family (*Labiatae*). The Garden Thyme (*T. vulgaris*), a native of southern Europe, is cultivated in gardens on account of its fragrance and as a culinary herb.

Trillium. A small genus of the Lily family (*Liliaceae*), growing in moist soil from Maine to Georgia, and Minnesota. They have three beautiful, netted veined leaves which arise from the same point near the summit of the stem and are surmounted by a large solitary flower.

Truffle (*Tuber*). A genus of globose, subterranean sac-fungi, comprising some of the most prized of edible fungi. The Common Truffle (*T. cibarum*) and several other species are much sought in southern Europe, where dogs and pigs are trained to locate them by scent. Edible truffles are scarcely found in the United States.

Tuberose (*Polianthes tuberosa*). A plant of the Amaryllis family (*Amaryllidaceae*), native of Mexico, is extensively cultivated for its beautiful and fragrant white flowers.

Tulip (*Tulipa*). A genus of the Lily family (*Liliaceae*), containing about 45 species, native mostly of the warmer parts of southern Europe. The tulip has been a popular ornamental plant for several centuries. *T. Gesneriana*, a native of Asia Minor, is the species from which most of the cultivated varieties, which exceed 1,800 in number, have been produced.

Upas (*Antiaris toxicaria*). A tree of the Mulberry tribe of the Nettle family (*Urticaceae*), found in the Philippine Islands. The fiber of the bark is sometimes made into cloth and the juice of the roots is used by the Malays for poisoning their arrows. The stories concerning the poisonous exhalations of the leaves, "the deadly upas-shade," are purely mythical.

Vanilla. A genus of orchids, natives of tropical America and Asia. The vanilla of commerce is chiefly the fruit of *V. planifolia*, a native of eastern Mexico, but largely cultivated in several tropical countries. This plant has a long fleshy stem and attaches itself to trees by means of aerial rootlets.

VANILLA.

Varnish Tree. A name given to several trees of the Sumach family (*Anacardiaceae*), the juice of which is used for making varnishes. The **Black Varnish Tree** (*Melanorrhoea usitata*), of Burma, and the **Japan Varnish Tree** (*Rhus vernicifera*) are among the more important.

Venus Fly Trap (*Dionaea muscipula*). An insectivorous plant, growing in North Carolina, whose trap-like leaves close suddenly upon insects that alight on them.

Verbena. A genus of the Vervain family (*Verbenaceae*), comprising about 80 species, mostly natives of America, some of which, usually called vervains, are common weeds in the Eastern States. The cultivated verbenas have been mostly derived from *V. canadensis* of the eastern United States and from *V. teucrioides* and *V. venosa* of Brazil.

Virginia Creeper or **American Ivy** (*Psedera quinquefolia*). A common North American woody vine of the Grape family (*Vitaceae*), climbing extensively by means of tendrils. It is distinguished from the **Poison Ivy** by having five leaflets at the end of a single leaf stalk, while the latter has but three. The foliage turns a brilliant crimson in autumn. Of the same genus is the attractive **Japanese** or **Boston Ivy** (*G. tricuspidata*) extensively cultivated in the Eastern States.

Violet (*Viola*). A genus of about 175 species of small, often stemless, mostly perennial, herbs of the Violet family, widely diffused in temperate regions, over 40 wild species occurring in the eastern United States. Wild violets frequently hybridize and many forms are cultivated, the most common being the **Pansy** (*V. tricolor*) and the **Sweet Violet** (*V. odorata*) from European species. Handsome garden varieties have been developed from our native **Bird's Foot Violet** (*V. pedata*) and strains from the **Canada Violet** (*V. canadensis*) are frequently cultivated.

Walnut (*Juglans*). A genus of beautiful trees of the Walnut family (*Juglandaceae*), containing about 10 species, mostly natives of North America and Asia. The **Black Walnut** (*J. nigra*) is a large tree sometimes 100 to 125 feet high, growing from Ontario to Florida, west to Nebraska and Texas. The dark brown wood is largely used for cabinet making and gunstocks. The **White Walnut** or **Butternut** (*J. cinerea*) resembles the black walnut, but is seldom over 100 feet high. The wood is largely used in the interior finish of houses and for furniture. New Brunswick to Georgia and westward to Dakota and Arkansas. The **California Walnut** (*J. californica*), a tree sometimes 65 feet high, is often cultivated in California for shade and as a stock on which to graft the English walnut. The **English Walnut** (*J. regia*) is a tree 60 to 90 feet high, native of Persia and has long been cultivated for its edible nuts, which are an important article of commerce.

WATER LILY. Castalia.

Water Lily (*Castalia*). A striking genus of plants of the Water Lily family (*Nymphaeaceae*), mostly tropical but widely diffused throughout the world, with tuberous roots embedded in the bottom of streams or ponds, large floating leaves, and showy flowers of various colors from white to red, yellow, and blue. A number are favorite water garden plants by reason of their beauty and fragrance. The starchy seeds and rootstocks are used for food in some countries.

Willow (*Salix*). A genus of the Willow family, containing over 150 species, mostly of cool, northern regions, fully one half occurring within the United States. Many hybridize freely, making determination of true species extremely difficult. Most willows are shrubs, some are trees, while Arctic and Alpine forms are dwarf, and herb-like. *S. herbacea* of northern Europe and America is seldom two inches high. *S. arctica* and *S. polaris* are the northernmost woody plants. The largest is the widely cultivated **White Willow** (*S. alba*) introduced from Europe, which

exceeds 80 feet in height. The **Weeping Willow** (*S. babylonica*), also from Europe, is much planted for ornament. The **European Osier** (*S. viminalis*) is cultivated for its twigs. Of the native species, the shrubby **Shining Willow** (*S. lucida*), the **Black Willow** (*S. viara*) sometimes 40 feet high, and the **Heart-leaved Willow** (*S. cordata*) are among the best known.

Wintergreen (*Gaultheria*). A genus of low or trailing shrubs of the Heath family (*Ericacae*). Several species contain the oil of wintergreen, widely used in flavoring and in medicine.

Wistaria. A genus of climbing shrubs of the Pea family (*Leguminosae*) of China and the southeastern United States. Some of the species are often grown on walls of houses and over arbors on account of their beautiful racemes of bluish flowers.

Witch Hazel (*Hamamelis virginiana*). A North American shrub or sometimes a small tree, reaching a maximum height of 25 feet, with clusters of showy yellow flowers. An extract made from the leaves is much used in medicine.

Witch Hazel.

Wood Sorrel (*Oxalis*). A genus of the Wood Sorrel family (*Oxalidaceae*), containing about 250 species, mostly tropical, all herbs, with a sour juice, often bulbous. Some 20 species are North American; among the most common are: the **Common Wood Sorrel** (*O. Acetosella*), white flowered with rosy veins; the **Violet Wood Sorrel** (*O. violacea*) with violet flowers, and the **Yellow Wood Sorrel** (*O. stricta*), with pale yellow flowers and the **Lady's Sorrel** (*O. corniculata*), yellow flowered. All our species have clover-like, trifoliate leaves.

Xerophytes. Plants adapted by modifications of structure to withstand the excessive transpiration of arid regions. Usually there is great reduction in the leaf surface, as in cacti and desert shrubs, or the leaf surface is specially protected by hairs, scales, or waxy deposits.

Yarrow (*Achillea Millefolium*). A perennial herb of the Sunflower family (*Compositae*), with finely divided leaves, strong odor, and a bitter taste, occurring almost throughout northern Europe and America, used to some extent in medicine.

Yeasts (*Saccharomycetes*). One-celled fungi, with a peculiar method of reproduction called budding. There are numerous species, which live chiefly in plant juices or solutions containing sugar, in which they secrete an enzyme, which induces alcoholic fermentation. Yeasts have been cultivated for centuries in the production of beer and other fermented liquors, and in making bread.

Yew (*Taxus*). A genus of some six trees and shrubs of the Yew family (*Taxaceae*), widely distributed in the Northern Hemisphere, three species occurring in the United States. The **American Yew** (*T. canadensis*) is a low, straggling shrub seldom over 5 feet high growing in woods from Newfoundland to Manitoba and south to Virginia and Iowa. The **Florida Yew** (*T. floridana*) is a bushy tree rarely 25 feet high. The **California Yew** (*T. brevifolia*) is a tree 40 to 50 feet high occurring from British Columbia to California, sometimes cultivated in gardens in Europe. The hard wood is used for fence posts. The **European Yew** (*T. baccata*) is a native of Europe and Siberia reaching a height of 40 feet, many varieties of which are cultivated in the United States. The leaves of yews are more or less poisonous.

Yucca. A well-marked genus of the Lily family, containing about 15 species, mostly of the southwestern United States and Mexico, usually with a short, unbranched stem, crowned with a tuft of sword-shaped leaves, tipped with a sharp spine. **Adam's Needle** (*Y. filamentosa*) a showy species, with a huge panicle of flowers, 6 or 8 feet high, occurs near the coast from Maryland to Florida. The much smaller **Bear Grass** (*Y. glauca*) grows on the plains from South Dakota to Texas. The **Spanish Bayonet**, usually almost stemless, with reflexed leaves and purple, edible fruit, ranges from Texas to California and Mexico. The **Joshua Tree** (*Y. arborescens*) is a huge, weirdly branching, woody species, characteristic of the Mohave Desert. Other species form a conspicuous part of the vegetation in the arid regions from Texas to Arizona and Mexico.

Joshua Tree. Mohave Desert.
Yucca arborescens.

Zamia. A genus of cycads, containing about 30 species, all tropical American, several of which yield sago-like food products.

Zanthoxylum. A genus of over 100 trees and shrubs of the Rue family (*Rutaceae*), four occurring in the United States, the best known being the **Prickly Ash** or **Toothache Tree** (*Z. Americanum*) and the **Southern Prickly Ash** or **Pepper Tree** (*Z. Clava-Herculis*), both small trees with prickly twigs, the bark of which is much used in medicine.

Prickly Ash.

Zauschneria (*Zauschneria californica*), Balsamea. A beautiful low perennial with bright scarlet fuchsia-like flowers, native of the coast ranges of California. First collected at Monterey in 1792 by Haenke, the first botanist to visit the region.

Zinnia. A genus of plants of the Sunflower family (*Compositae*), natives of Mexico and the southwestern United States. Several species are commonly cultivated in gardens for their showy flowers.

DICTIONARY OF NATURAL HISTORY.

DIVISION OF ANIMALS.

Comprising Descriptions of Wild Animals. For Domestic Animals, see Index.

Abalone. The Spanish name, generally used in California, for several species of ear shells, marine gastropods of the family *Haliotidae*, which are abundant on rocks near the shore, where they feed upon seaweed. Vast quantities of the animals are dried for food by the Chinese, while the richly colored mother-of-pearl lining the shell makes it highly prized for inlaid work, buttons, and ornaments.

Adder. A common name of the viper or of any venomous snake of the viper family. In the United States, the name is popularly given to both the copperhead and moccasin and also to the harmless hognose snake which is called spreading or blowing "adder." In English literature the term signifies the common viper, which is the only venomous snake of the British Isles.

Agouti. The name given to several small South American rodent mammals of the genus *Dasyprocta*. The common agouti of Brazil is about the size of a rabbit, with long hind legs and short tail, which, together with the rump and thighs, is covered with coarse, bristly hair. It was formerly immensely abundant but, owing to its destructiveness to crops, has been largely exterminated.

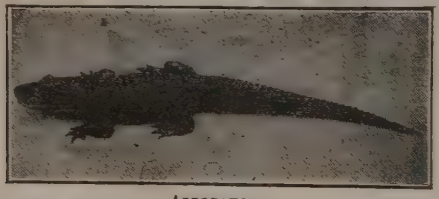
Albatross. The popular name for the large sea birds of the genus *Diomedea*, closely related to the petrels, and the most exclusively oceanic birds known, rarely visiting land except during the nesting season. They gather their food, which consists largely of fishes and mollusks, from the surface of the ocean, never diving beneath it, and will follow a ship for days without resting in order to pick up refuse thrown overboard.

The **Wandering Albatross** (*Diomedea exulans*), of the southern oceans, one of the largest of birds, having a length of 4 or 5 feet and an extent of wing of 10 to 12 feet or more, is justly noted for its powerful and graceful flight.

The superstitious affection and regard in which the albatross is held by sailors was strikingly introduced into literature in Coleridge's "Rime of the Ancient Mariner."

Alewife (*Pomolobus pseudoharengus*). A small fish, 8 to 10 inches long, closely related to the herring and shad, abundant on the east coast of the United States, entering the bays and rivers in vast numbers to spawn. While inferior in quality to the shad, immense quantities are caught for food, upwards of 60,000,000 pounds being reported in a single year.

Alligator. A genus of reptiles of the crocodile family (*Crocodilidae*). The American alligator (*A. mississippiensis*), formerly very abundant in the rivers and swamps of the Southern States is now rarely seen north of Florida and Louisiana, where it is being rapidly exterminated for its hide,



ALLIGATOR.

ivory teeth, and eggs. It is estimated that 3,000,000 alligators were killed in Florida alone, from 1880 to 1900. Like the crocodile, the alligator is active at night, emits bellowing sounds, uses its tail as a weapon, carries its prey to the bottom before eating, but spends more time on land, lying in the sun on swampy shores. During colder months it hibernates in swamp mud. The female alligator deposits from 100 to 200 eggs in a mound of mud and vegetable matter, where they hatch by the heat of the sun aided by the decomposition of the vegetable matter. The young grow slowly and many years are required for maturity. While the alligator is reputed dangerous in the water, it is practically harmless on land, and Hornaday maintains that there is no well authenticated instance of loss of life by alligators.

Alpaca (*Lama pacos*). A domesticated form of the guanaco, raised in herds in Peru and Bolivia for its fine wool and excellent flesh. It feeds upon the scant vegetation of the higher Andes, and is brought down to the native villages at shearing time. (See DOMESTIC ANIMALS.)

ALPACA.

Amoeba. A genus of microscopic animals, one of the lowest forms of the Protozoa, living in moist earth, ponds, and swamps. Its body consists of a single cell of naked protoplasm, yet it effects locomotion by its power of thrusting out portions of protoplasm (*pseudopodia*) in one direction, and retracting them from the opposite direction, and it can ingest food in a similar manner. It reproduces itself by division, the parent organism splitting into two smaller similar organisms, which repeat the process when proper growth has been attained. It is often selected by biologists to illustrate the processes of motion, sensation, nutrition, and reproduction in a very simple form, all of these functions being performed by a single cell in the amoeba.

Anaconda or Water Boa (*Eunectes murinus*). A huge, crushing snake closely related to the boa constrictor, native of the Amazon and Orinoco valleys, sometimes attaining a length of 30 feet. Its nostrils, which open vertically, are provided with valves which can be closed when under water, and its eyes are elevated so that it can see not only ahead, but downward into the water. Although, like other boas, it hangs from trees or coils on banks to catch animals unawares, the anaconda frequently conceals its body in water near shore and grips drinking animals by the neck or nose. While it is strong enough to crush a deer its food consists chiefly of small rodents, peccaries, birds and their eggs, fish, and reptiles, including even its own kind.

Anchovy (*Engraulis encrasicholus*). A small fish about 3 inches long, closely related to the herring, abundant in Mediterranean waters, also in Holland. Large quantities are salted for export, particularly at Leghorn. Anchovies have been used for sauces since ancient times. Some of the American species also are valuable for food preparations.

Ant-Eater (*Myrmecophaga*). A large, edentate mammal, so named because its food consists entirely of ants. The **Great Ant-Eater** (*M. ju-*

bata), native of the tropics of Central and South America, is an animal of remarkable appearance. It has a narrow head, with the jaws and nose prolonged into a sort of a tube, and a small, round mouth without teeth, through which it thrusts its long tongue covered with a glutinous secretion to gather its insect food. It is 4 feet in length exclusive of a bushy tail 2½ feet long. It lives wholly upon the ground, sleeping in its lair during the day and going forth at night in search of ant-hills, devouring the insects and their larvae with great rapidity. Though possessing much strength, the ant-eater is timid and harmless and easily falls a prey to the jaguar and other enemies. The **Two-Toed Ant-Eater** (*Cyclothurus didactylus*) of northern Brazil, so named because only two toes possess claws, is about the size of a squirrel, with a long prehensile tail, lives in trees, and is nocturnal in its habits.

Antelope, American, or Pronghorn (*Antilocapra americana*). A graceful animal, peculiar to western North America, ranking between the antelopes and the deer, and the only member of its family (*Antilocapridae*). It differs from true antelopes in having a branch to its horns and in shedding them periodically like the deer, but, unlike the deer, its horns are hollow and do not break off at the base, only the

AMERICAN ANTELOPE (*Antilocapra americana*).

outside horny portion being shed. It is a timid animal about three feet high, grazing in open plains and relying upon its sharp eyesight and speed for safety. For short distances it is the fleetest of American animals. The pronghorn was formerly immensely abundant from the Mississippi westward to the Pacific, ranging from Mexico to Canada, but now only a meager fraction remains, chiefly in or near the Rocky Mountains.

Antelopes (*Antilopinae*). A subfamily of hollow-horned ruminant mammals, standing between the ox and the goat among the *Bovidae*, and containing some of the most beautiful, graceful, and fleet-footed animals known. They are mostly slender, and deer-like, with short hair, and more or less spirally twisted horns, numbering about 150 species, of which 135 occur in Africa and the remainder in Europe and Asia, no true antelope being found in America or Australia, the so-called American antelope or pronghorn belonging to a different family. They range in size from delicate gazelles, less than two feet high, to ox-like species such as the nilghau and the eland, the latter sometimes weighing 1,500 pounds. Among the more prominent African antelopes are the addax, bushbuck, eland, gnu, gazelle, hartbeest, klip springer, kudu, oryx, rietbok, steinbok, and waterbuck; Asian antelopes include the Siberian saiga, a gazelle, the nilghau, and the Indian antelope, sasin, or blackbuck. Various species were formerly immensely abundant in Africa, but as nearly all are extensively hunted for food, their numbers are rapidly diminishing.

Ant Lion. The larva of a neuropterous insect of the genus *Myrmeleon* noted for its peculiar habit of making funnel-shaped pitfalls in fine sand, at the bottom of which it lies concealed, waiting to seize and devour the insects, usually ants, which fall into its ingeniously constructed trap.

Ants (Order *Hymenoptera*, family *Formicidae*). Well known, common insects, closely related to the bees, abundant in temperate and tropical regions, numbering over 2,000 species, most of which live in communities and construct more or less

Male. Worker. Female.

ANTS.

elaborate dwellings in the ground, in wood, or out of clay, fiber, or leaves. A society of ants consists of three classes, males, females, and neuters or workers. The males and females have wings; the workers are wingless. The females are the largest, the males intermediate, and the workers smallest and most numerous. In the warm sunshine of midsummer swarms of males and females may be seen in their wedding flights. The males soon die; the females descend, tear off their own wings, and enter their dwellings or ant-hills to lay eggs. The eggs are placed in special chambers by the workers, where, in about two weeks, they develop into larvae. The nursing workers care for and feed them until they surround themselves with a silky cocoon and become pupae. The pupae lie motionless until ready to appear as ants, when the attendant workers remove their fibrous coverings and feed them until they are able to take care of themselves. In time the winged males and females among them rise in a wedding flight, and a new colony is produced as before. Ants live upon both animal and vegetable food; a favorite with many being the honey secreted by various scale insects and plant lice (*Aphis*) which are kept and fed in the dwellings of some ants for their sweet secretions, so that the Aphis has been called the ant's "cow." Ants display remarkable social instincts in providing for and defending their own colonies but are warlike and wage vicious battles with their neighbors, and many enslave smaller species and live by their enforced labor.

Armadillo. An edentate mammal, closely related to the sloth and ant-eater, which takes its name from the shields of defensive armor with which its skin is provided. The Texas species, called also **Peeba** (*Tatusia peeba*) ranging from Texas to Argentina, is 16 inches long with a tail slightly longer, has claws for burrowing, pointed snout, long tongue, small eyes, and erect pointed ears, and is mostly nocturnal in habit, feeding upon fruits, roots, worms, ants, and carrion.

Asp. A name given to a number of poisonous serpents. The venomous *Naia haie*, which was the sacred serpent often represented in the art of ancient Egypt, and still abundant in the Nile region, is commonly called an asp. It attains a length of 4 to 5 feet and has a dilatable neck resembling that of its near relative, the dreaded Indian cobra. The common viper or adder of Europe is also frequently called an asp. The asp associated with the story of Cleopatra's suicide was in all probability the horned viper (*Cerastes*), a small but very venomous Egyptian snake about two feet long.

Ass, Wild (*Equus*). An equine mammal differing from the horse by longer ears, more shaggy coat, tail only partly covered with long hair, and by absence of callosities on the fore legs. Wild asses occur in dry regions of central and western Asia and in northeastern Africa, usually in small herds of from 5 to 20. In Asia they have been hunted since ancient times for their flesh, which is as highly esteemed as venison. The **Kiang** (*E. hemionus*) of the high plains of Tibet is the largest species, and is extremely

wild and swift. It is light yellowish brown in color with dark mane and tail and a brownish black stripe along the spine. The **Onager** (*E. onager*) of west Asian deserts is smaller, much lighter in color, with a white stripe down the withers and another with a brown stripe in the center along the backbone. The **African Wild Ass** (*E. asinus*), parent of the domestic ass, has longer ears, shorter mane, and more scanty tail. It is creamy gray or blue gray in color with a dark stripe down the back and across the shoulders. It is easy and graceful of movement, very swift, and difficult to approach, and, like the Asiatic species, is hunted for its flesh.

PERSIAN WILD ASS or ONAGER. Equus onager.

Auk (*Alca torda*). A diving bird having small, short wings and tail, and webbed, three-toed feet, frequently called the razor-billed auk. The name was formerly applied to the great auk (*Alca impennis*), which became extinct about 1844,—a peculiar bird, which was unable to fly owing to the disproportionate smallness of its otherwise perfectly formed wings.

Avocet (*Recurvirostra*). A wading bird of the family *Recurvirostridae* with a very slender upwardly curved bill, exceedingly long legs, and, unlike other waders, webbed toes. There are a number of species. The **American Avocet** (*R. americana*) differs from the European avocet (*R. avocetta*) in the chestnut brown colors of the head, the predominant colors being black and white with blue legs.

Axolotl (*Amblystoma*). A tailed amphibian frequenting ponds and lakes in Mexico just as other species of *Amblystoma*, popularly known as mud puppies or water dogs, do in similar situations in the United States. It is of peculiar interest on account of the fact that it does not usually undergo metamorphosis, but remains in the larval or tadpole stage, keeping its gills throughout life. The axolotl has the aspect of a giant tadpole, 6 to 9 inches long, about to turn into a frog, and is abundant in many localities, sometimes being marketed for food.

Babirussa (*Babirusa alfurus*). An East Indian wild hog inhabiting Celebes, Buru, and other adjacent islands of the Malay archipelago. It is nearly naked, slender legged, and feeds upon fallen fruits instead of rooting in the ground. The male has two pairs of remarkable tusks, both growing upward and curving backward. The upper tusks, instead of protruding from the side of the mouth, grow out of long sockets through the skin on each side of the mouth, and in old animals often reach 8 or 10 inches in length.

Baboon (*Cynocephalus*). An Old World monkey, ranking below the apes, with arms and legs nearly equal, a short tail, and a long, dog-like nose. There are about 16 species, practically all confined to rocky districts in Africa, where they roam in bands, living chiefly upon fruits, roots, insects, and eggs. They are among the strongest and fiercest of monkeys, with ugly dispositions and disgusting habits. (See MANDRILL and MONKEYS.)

Barnacle. A popular name for crustaceans of the order *Cirripedia*, which fasten themselves in great numbers on rocks, wharf piles, and bottoms of ships. They are usually inclosed in a shell composed of several parts, with an opening through which several pairs of long, many jointed, hairy feet are thrust out.

Bass. A name applied to many fishes, chiefly to the perciform families, *Serranidae* and *Centrarchidae*. The former family includes the Salt-water Bass, represented by the **Striped Bass** or **Rock Fish** (*Monroe lineata*), one of the most important of American food fishes, which inhabits the entire eastern coast of the United States, where it is very abundant. It enters fresh water streams to spawn. It is a gamy fish, reaching a length of 3 to 5 feet, and is very popular with anglers. The **Fresh-water Bass** belong to the Sunfish family (*Centrarchidae*) and are represented by the two black basses of sportsmen—the small mouthed (*Micropterus dolomieu*), and the large mouthed (*M. salmoides*).

Bats (*Cheiroptera*). A numerous order of small mammals distinguished by possessing true powers of flight, usually spending the day in caves or dark places, hanging head downward, and flying forth at night in search of food. There are about 500 species, divided into six families, found everywhere except in the frigid zones. They comprise two main groups: the small, numerous, mostly insect-eating bats of temperate and warm regions (*Microcheiroptera*), and the large fruit-eating, or fox, bats of the Old World tropics (*Megacheiroptera*). To the former belong the leaf-nosed bats, the false vampires of Africa and India, the true vampires of South America, the smooth-nosed bats, and the common bats of Europe and America. Our common bats are from 3 to 5 inches long with a wing spread of 9 to 14 inches. The great fruit bats or flying foxes of the East Indies are sometimes 15 inches long with a wing spread approaching 5 feet, and are hunted by natives for their flesh.

Bears (*Ursidae*). A group of carnivorous mammals, most abundant in cool northern regions, only two species occurring south of the equator. Bears are largest and strongest in cold climates, and smallest and weakest in warm regions, being exactly opposite to the cat tribe in this regard. They are large and clumsy but usually good climbers and swimmers and, although flesh eaters, feed largely upon roots, fruits, nuts, honey, and other non-animal food. The **Polar Bear** (*Thalarctos maritimus*), the largest and strongest, and, excepting the grizzly, the most savage of all, occurs throughout the Arctic regions. The **Grizzly Bear** (*Ursus horribilis*), next to the polar in size and strength and the most ferocious and dangerous member of the bear tribe, is found throughout the Rocky Mountains region from Mexico to Alaska. The **Brown Bear** (*Ursus americanus*), the best known species, and formerly abundant in forests throughout the continent, is now limited to remote regions. The **Cinnamon Bear** is a brown phase of the black bear, found in the Rocky Mountains, where it is about as numerous as the true black species.

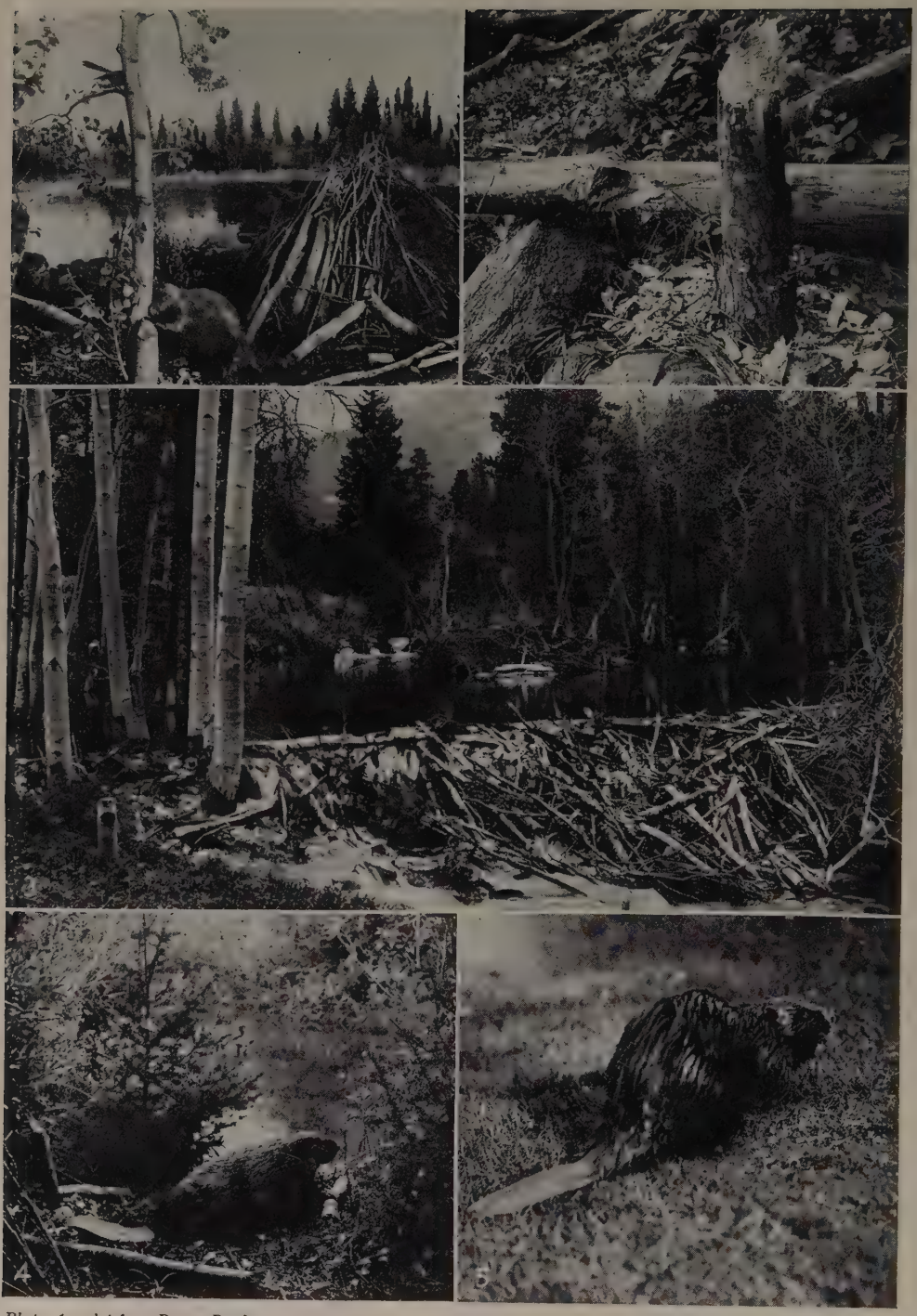
Beaver (*Castor*). A large aquatic rodent found in North America and parts of Europe and Asia. The beaver, when full grown, measures about 2 feet from tip of nose to root of tail and weighs 30 to 60 pounds, has a palmated hind foot and a broad, flat tail. It is remarkable for its ingenuity in constructing lodges and dams across streams and is highly valued for its fur.

Bee. A name given to a large number of insects of the order *Hymenoptera*. The true bees (*Apoidea*) are divided into 14 families: comprising the social bees, such as the honeybee and bumblebee; and the solitary bees, such as the cuckoo bee, carpenter bee, mason bee, and leaf-cutting bee. Honeybees live in large communities, which consist of a queen, a few hundred drones or males, and between 10,000 and 40,000 workers, or infertile females. The queen is the mother of the whole society, the drones do no work and, after the eggs are fertilized, die or are killed and thrown out; while the workers make the wax, construct the comb, gather the honey, care for the eggs, and nurse the young to maturity. Although the work

Photos 1, 2, 3, 4, 5 from Ewing Galloway; 6 from Keystone View Co.

AMERICAN SCIENTISTS

Robert Fulton
Luther Burbank
Samuel F. B. Morse
Eli Whitney
Dr. C. P. Steinmetz
Peter Cooper



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ANIMAL LIFE—BEAVER

1 Beaver house with Beaver at work. 2 Specimen of Beaver cutting. 3 Beaver dam and house, Estes, Colorado. 4 Beaver at work. 5 Beaver.

of a society goes on continuously, the life of a worker bee is limited to a few months. A queen, however, may live several years and produce hundreds of thousands of eggs each season.

Drone. Worker. Queen.
BEES.

Beetles (*Coleoptera*). One of the largest and best known orders of insects, estimated to contain 200,000 species, of which over 11,000, grouped in 80 families, occur in North America north of Mexico, or about equal in number to the species of flowering plants in the same region. Beetles are distinguished by a pair of horny wing covers meeting in a straight median line down the back; have mouth parts adapted to biting; no tail appendages; and all undergo complete metamorphosis. A few are directly valuable, such as the blister beetle; and others, like the ladybug, destroy harmful insects; but many are injurious to crops, fruit, grain, hides, leather, and fabrics. Important families are Blister Beetles (*Meloidae*), Carrion Beetles (*Silphidae*), Dermestids (*Dermestidae*); Fireflies (*Lampyridae*), Ladybug (*Coccinellidae*), Scarabids (*Scarabidae*), Tiger Beetles (*Cicindelidae*), and Water Beetles (*Gyrinidae, Hydrophilidae*).

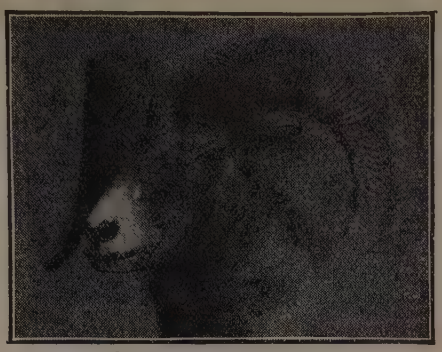
TIGER BEETLE.

Bighorn, or Rocky Mountain Sheep (*Ovis canadensis*). A large, horned mountain sheep, inhabiting the most inaccessible parts of the Rocky Mountains and the country west of them. Adult rams attain a length of 6 feet and a height of 40 inches, and the enormous horns, measured along the curvature, sometimes reach a length of 28 inches. The bighorn was once abundant but now exists only in small bands in widely separated localities.

Bird-Catching Spider. A name applied to species of large spiders of the family *Theraphosidae*. Their food consists chiefly of beetles and other insects, but they will attack and eat humming birds and other small creatures. The bird spider (*Mygale avicularia*) of South America has a body about 3 inches long and its legs extend over a space of 8 or 10 inches.

Bird of Paradise. A name applied to a number of cone-billed birds (*Paradisea, Cincinnurus*), natives of the Malay archipelago, which are remarkable for their unusual development of plumage, and the strikingly brilliant colors of the males. Their feathers are highly prized ornaments for headdresses in eastern countries.

Bison, American, or Buffalo (*Bos americanus*). The largest, most imposing, and most widely celebrated of North American animals; formerly exceedingly numerous over an area 2,000 miles



BIGHORN. Ovis canadensis.

wide from the Appalachian forests across the interior plains and the Rocky Mountains to Utah, and 3,000 miles long from Mexico to northern Canada, being immensely abundant east of the Rocky Mountains, occurring in vast herds sometimes miles in extent, and numbering hundreds of thousands. Large specimens stood 5½ feet high, were 10 feet long, and weighed about 2,000 pounds. From 1870 to 1885 the buffalo was systematically slaughtered, being almost exterminated; and unless special efforts are made for their preservation, these remarkable animals, the only wild cattle in the New World, will become extinct. There are now estimated to be less than 350 wild buffaloes in the United States and Canada, and there are only about 1,700 in captivity, where they breed readily and are easily reared.

AMERICAN BISON.

Bittern (*Botaurus*). A large bird allied to the heron with long bill and toes, found in parts of North America, Europe, Asia, and Africa. It inhabits sloughs and marshes of tall, rank grass, in which it hides by standing erect and pointing its beak upward. The bittern is sometimes called Stake Driver on account of its peculiar call.

Blackbird. In the United States, the name is given to members of the family *Icteridae*, near relatives of the European starlings. The best known are the **Red-Winged Blackbird** (*Agelaius phoeniceus*), frequenting marshes and cattail swamps throughout most of temperate North America, and the **Yellow-Headed Blackbird** (*Xanthocephalus*), ranging in similar situations from Indiana to the Pacific coast. The **European Blackbird** is a species of thrush (*Turdus merula*), called merle in France, and formerly called ouzel in England.

Blackfish. The name given to a number of dark-colored fishes. In the United States the name is applied mostly to the tautog (*Tautoga onitis*), a common food fish found from Maine to South Carolina

Blacksnake, or **Blueracer** (*Bascanium constrictor*). A common colubrine serpent found throughout the United States. It has a slender body of 50 to 80 inches long, and is usually pitch black above and pale green below, but in some states it is bright olive green above. The black snake is active in movement, an excellent climber, and a swift and powerful swimmer. It is useful to the farmer in destroying great number of moles and mice, and it will attack and kill rattlesnakes and copperheads.

Bluefish (*Pomatomus saltatrix*). A well known food and game fish with an average weight of 3 to 5 pounds, of wide distribution, common along the eastern coast of the United States. It feeds upon other fish, swimming in large schools and destroying everything before it.

Boa. A large non-poisonous snake of tropical America of the family *Boidae*, closely related to the python. It feeds upon living animals, which it kills by constriction and swallows whole. The Boa Constrictor of Guiana and Brazil, one of the smaller of the boas, about 12 feet long, is an exceedingly handsome serpent, brownish with a series of complicated, connected blotches.

West Indian Boa.

Boar, Wild (*Sus scrofa*). The wild boar of Europe, Asia, and Africa, parent species of the domestic pig, formerly widely diffused and abundant, is now confined mainly to mountain forests and remote, uncultivated districts. A full grown wild boar stands 3 feet high, weighs over 300 pounds, and has sharp tusks 3 to 4 inches long, capable of inflicting terrible wounds.

Bobolink, Reed Bird, or **Rice Bird** (*Dolichonyx oryzivorus*). An American song and game bird nesting in New England and Canada, when its song is prominent, and wintering in Central America and the West Indies, becoming fat en route in Southern grain fields, where vast numbers are shot for the city markets.

Bovidae. The largest family of the order *Ungulata* or hoofed mammals, comprising about 200 species, with paired, hollow horns, chiefly of the Old World, the Asian forms being the most important, and the African the most numerous. It includes the well known bovine animals, ox, sheep, goat, and antelope.

Buffalo. True buffaloes are bovine ruminants of the Old World, with flattened, angular horns, and lack the hump and mane characteristic of the American bison commonly but incorrectly called buffalo. The **Cape Buffalo** (*Bos caffer*) is a large, fierce, untamable African species living in herds from Abyssinia to Cape Colony. The **Indian Buffalo** (*Bos bubalus*) occurs wild in India, Ceylon, and the Philippines, attaining a height of 5½ feet. It loves water and lives in swampy jungles and marsh lands. It has long been tamed and is a widely used beast of burden.

Bullhead, Bullpout, or **Horned Pout** (*Amiurus nebulosus*). The best known of the smaller catfishes, abundant in muddy streams and ponds from Maine to North Dakota and south to Florida and Texas, and now introduced into California. It is yellowish brown in color, clouded with darker, and attains a length of 12 to 18 inches.

Bumblebee, or **Humblebee** (*Bombus*). A large, hairy-bodied, burly bee, similar in habits to the honeybee but much less highly developed socially, building nests on the ground, often in clumps of grass. About 50 species occur in North America.

Butterflies, together with moths, constitute the well-marked natural order of *Lepidoptera* or scale-winged insects. Butterflies are readily distinguished from moths by having slender antennae knobbed at the ends, by holding their wing erect over the back when at rest, and by their diurnal habits. They occur throughout the world but are most numerous and beautiful in the tropics, some species having a wing spread of 6 inches. Over 7,000 species have been described, of which about 1,000 are North American.

Buzzard (*Buteo*). A large bird of prey closely related to the eagle and hawk, occurring throughout the world except Australia. In the United States there are several species which are commonly called hawks, such as the **Red-Tailed Buzzard** (*B. borealis*) and the **Red-Shouldered Buzzard** (*B. lineatus*). In the Southern States the name is generally given to the turkey vulture, or turkey buzzard (*Cathartes*).

Camelidae. A family of ungulate mammals having teeth of peculiar formation and feet with broad, cushion-like pads. There are six living representatives: the Arabian and Bactrian camels, the guanaco, vicuña, alpaca, and llama, the last two being domesticated varieties of the guanaco.

Bactrian Camel.

Canidae. The Dog family; a group of carnivorous mammals, with digitigrade feet, usually having five toes on the fore feet and four toes on the hind feet, with claws that are not retractile. It includes dogs, wolves, jackals, and foxes.

Canvasback (*Aythya vallisneria*). The most highly esteemed American food duck, ranging throughout North America. When fattened upon its favorite food, the water celery, its flesh is of peculiar excellence and the demand of the game markets has led almost to the extermination of the species in the Eastern States. (See plate of Ducks.)

Capybara (*Hydrochaerus capybara*). A large American aquatic mammal of the family *Caviidae*, the largest known rodent, reaching a length of about 4 feet and weighing 100 pounds. It resembles a gigantic guinea pig with a long flat head, small ears and eyes, and bristly brown hair.

Cardinal Bird (*Cardinalis cardinalis*). A beautiful bird of the Finch family, the male of which is deep red in color, with the forehead and upper throat black, and with dusky wings. It occurs from the Bermudas north to Massachusetts and west to Wisconsin, and is a brilliant songster and favorite cage bird.

Caribou (*Rangifer*). The North American reindeer, considered by some only a variety of the European reindeer. Two distinct series of forms occur, the woodland caribou and the barren ground caribou. The **Woodland Caribou** is the larger, is darker in color, and has heavier antlers with more numerous points. It frequents woodlands from Newfoundland and Labrador to the Rocky Mountains and

never occurs north of latitude 60 degrees. The **Barren-ground Caribou** occurs in vast numbers on the great arctic plains north of latitude 60 degrees, lives upon lichens, moss, and swamp grass, and is exceedingly useful to the Eskimo for food, leather, and other purposes.

WOODLAND CARIBOU.

Cassowary (*Casuarius*). A large, ostrich-like bird found in Australia and the Papuan Islands. It is more than 5 feet high, has a heavy massive body, and the legs are shorter and stouter than those of the ostrich. The plumage is loose, coarse, and hair-like, and black in color. Both head and neck are bare and the head is surmounted by a horny helmet.

BARREN-GROUND CARIBOU.

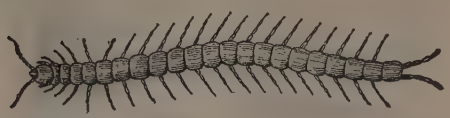
Catbird (*Galeoscoptes carolinensis*). A common song bird closely related to the mocking bird, found in most parts of North America. It is about 9 inches long, slate gray with crown and tail black. Its call resembles the mewing of a cat but in the spring its song is varied and brilliant.

Catfish. A name given both salt and fresh water fishes of the family *Siluridae*, inhabiting chiefly the rivers, ponds, and stagnant waters of warm regions. They have no scales and are provided with beard-like appendages resembling the whiskers of a cat.

Caviidae. A family of South American rodents containing about 14 species, the best known of which is the domesticated guinea pig.

Centiped (*Scolopendra*). A worm-like arthropod with a many-segmented body, having a pair of jointed legs on each segment. The first pair are developed as poison claws, the wounds of which are fatal to insects and small animals, and sometimes dangerous to man. Small species are only an inch long, but large forms reach a foot in length.

Cervidae. An important family of ungulate mammals, the males of which shed their solid horns or antlers annually. There are over 60 species including the deer, moose, elk, reindeer, and musk deer.



CENTIPED *Scolopendra*.

Chameleon. An African arboreal lizard of the family *Chamaeleontidae*, with a worm-like extensile tongue and peculiar globular eyes, capable of moving independently of one another. It is able to change its color rapidly and thus simulate to a certain extent the colors of the surrounding objects. The name is sometimes incorrectly applied to certain American lizards.

Chamois (*Rupicapra tragus*). A goat-like antelope of southern Europe, about the size of a large goat. It is dark brown in color, with horns 6 to 7 inches in length recurving at the tips. Chamois associate in flocks, are skillful climbers, and can jump ravines 20 feet wide. The skin is made into leather much prized for its softness.

Chewink (*Pipilo erythrophthalmus*). A North American finch, a little smaller than the robin, common in the eastern United States. The male is black above, with a white breast, chestnut sides, and wings marked with white. The female is brown where the male is black.

Chigoe (*Sarcopsylla penetrans*). A small flea found in the West Indies and the tropical parts of South America. It buries itself under the skin, usually of the feet, often causing a painful and dangerous ulceration. In the southern and central United States the name chigoe, chigger, or jigger is applied to minute scarlet mites which penetrate the skin and cause intense itching.

Chimpanzee (*Anthropopithecus troglodytes*). An anthropoid ape of central and western Africa, attaining a height of 5 feet at most. The chimpanzee has arms reaching just below the knees, long hands and feet; a pale face with distinct eyebrows, eyelashes, and whiskers, which together with its tractability make it seem the most man-like of apes.

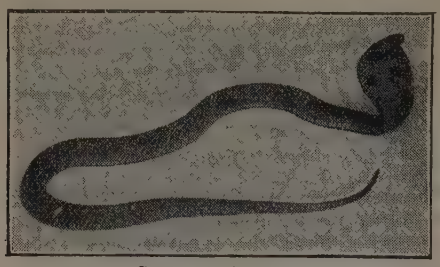
Chinch Bug (*Blissus leucopterus*). A well-known injurious bug, occurring in immense numbers in the Mississippi valley, where it inflicts great damage, particularly to crops of wheat and corn. The female lays about 500 eggs, which mature in about 15 days, and there are two broods during the season.

Chipmunk (*Tamias*). A genus of squirrel-like rodents; also called ground squirrel. It differs from true squirrels in having internal cheek pouches and by stripes along its back and sides. There are about 30 species, widely distributed in North America, Europe, and Asia.

Civet. A carnivorous mammal of the genus *Viverra*, allied to the cat, but having a longer body and shorter legs. It is found chiefly in Africa, southern Asia, and the East Indies. Both sexes have under the tail a double pouch, which secretes an odoriferous, fatty substance much used in perfumery. The name civet cat is sometimes incorrectly applied to the cacomistle (*Bassaris*) of the southwest.

Clam (*Mya arenaria*). A bivalve mollusk found on the Atlantic coast from Florida northward, occurring abundantly in soft bottoms, near low water mark, extensively used for food. The fleshy, edible body of the Giant Clam (*Tridacna gigas*) of the East Indies sometimes weighs 20 pounds, while the combined weight of the two valves of the shell may exceed 500 pounds.

Climbing Fish (*Anabas scandens*). A small East Indian fish possessing the ability to live for some time out of water, and to make journeys on moist earth from pond to pond. It is reputed to be able to climb trees.



COBRA DE CAPELLO.

Cobra (*Naia*). The common name of six or seven species of very venomous Old World snakes which possess the power of widening and flattening the neck just behind the head when alarmed or about to strike. The **Cobra de Capello** (*N. tripudians*), very abundant in India and Ceylon, is a slender, active, vicious snake about 4 feet long. Its bite, usually inflicted without warning, is almost always fatal, and causes the death of about 20,000 people annually in India. The **King Cobra** (*N. bungarus*) of the Malay Peninsula, the largest of venomous serpents, attaining a length of 10 feet, is powerfully muscled, and can erect its head 3 feet perpendicularly, and strike an equal distance. It lives exclusively upon other snakes and lizards.

Cockroach (*Blatta orientalis*). A common orthopterous insect, living in houses and ships; originally from the East, now widely distributed, especially in seaport towns. While it is a pest, destroying much food, and even cotton, wool, and leather, it is also of service in ridding ships and houses of bedbugs. The **Croton Bug** or **German Cockroach** (*Blatella germanica*), now abundant in houses in New York, Chicago, and other cities, was quite recently introduced from Europe. Native cockroaches live in the woods under sticks and stones, and sometimes venture into houses.

CONDOR.

Condor (*Sarcorhamphus gryphus*). A large vulture found in the Andes of South America, usually from 9,000 to 16,000 feet above sea level. It is probably the largest living bird of prey, reaching a length of about 48 inches with a wing expanse of 9 to 10½ feet. The condor feeds mostly on carrion but, when hungry, will attack young goats and lambs.

Coot or **Mud Hen** (*Fulica americana*). A wading bird of the rail family, 14 inches long, sooty-colored with a white bill, frequenting swamps from Alaska and Greenland south to Central America, used for food by the poorer classes in southern cities.

Copperhead (*Ancistrodon contortrix*). A vicious, venomous, woodland snake, which strikes without warning, closely related to the rattlesnake, occurring sparingly from New England to Kansas and more abundantly southward. It is about 3 feet long, hazelnut brown or old copper color, with the top of the head coppery red.

Coral. Coral polyps are coelonterate animals, which usually live together in enormous colonies, though a few are solitary. They take in carbonate of lime with sea water or with food, and deposit the coral substance which both supports and protects the body. The forms of corals are numerous and include the star coral, brain coral, organ-pipe coral, feather coral, stag-horn coral, sea-pens, sea-feathers, and sea fans. The coral polyps are of brilliant colors, and many of the skeletons are highly colored. Red coral used in jewelry comes from the Mediterranean and Red seas; pink coral from Italy; yellow from Sardinia; and black from the Red Sea. The madrepore is a large, branching coral found on the reefs of Florida growing in masses nearly 2 feet high, and 3 to 4 feet in diameter. There is no such thing as a "coral insect," and coral is not built cell by cell as the bee builds honeycomb. Some 2,000 species are known.

Coral Snake or **Harlequin Snake** (*Elaps fulvius*). A small, beautifully colored venomous snake (see plate of REPTILES), about 2½ feet long, frequenting woods from South Carolina to western Texas and ranging northward to southern Indiana. It feeds chiefly upon other snakes, lizards, and insects.

Cowbird (*Molothrus ater*). A North American bird, related to the bobolink, breeding from Texas to Manitoba and eastward, feeding around cattle and, like the cuckoo of Europe, laying its eggs to be hatched in the nests of other birds.

Crab. A group of short-tailed crustaceans, containing over 1,000 species, mostly living in shallow sea water. The **Blue Crab** (*Callinectes hastatus*) of the Atlantic coast is a highly-prized edible species both in hard shell and soft shell stage. The **Fiddler Crab** (*Gelasimus vocans*), so named from the manner in which it carries its largest claw, ranges from Cape Cod southward. The **Hermit Crab** (*Pagurus*) thrusts its soft body into a cast-off snail shell and carries it around for protection.

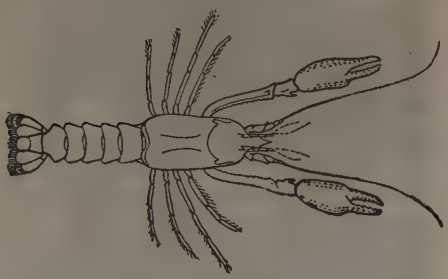
HERMIT CRAB.

MUD CRAB.

Crane (*Grus*). A large wading bird, frequenting marshes, living upon fish, small animals, roots, and seeds, breeding northward but migrating southward in winter, most numerous in the Old World. The **Whooping Crane** (*G. americana*), pure white and black, 50 inches long, and the slate colored **Sand-hill Crane** (*F. mexicana*) occur in the United States.

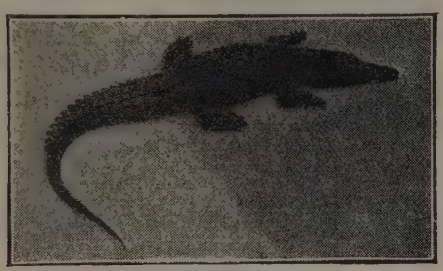
Crawfish, Crayfish (*Cambarus*). A fresh water crustacean resembling a small lobster, living in lakes, ponds, and streams, feeding upon worms, insects, small animals, and plants. While rarely eaten in America, crawfish are esteemed a great delicacy in Europe, particularly in France.

Cricket (*Gryllidae*). An orthopterous insect closely related to the grasshopper and locust. The **House Cricket** (*Gryllus domesticus*) of Europe, the "cricket on the hearth," has been introduced in the eastern United States. American crickets are nocturnal and solitary and rarely enter houses.



BLIND CRAWFISH. Mammoth Cave.
Cambarus pellucidus.

Crocodile (*Crocodilus*). A large amphibious flesh-eating reptile distinguished from the alligator usually by a narrower, more pointed snout, and differences in the teeth. There are a number of species, all natives of warm regions, two or three of which are dangerous to man. The great **Estuarine Crocodile** (*C. porosus*), sometimes 16 feet long, is a fierce man-eating species of southern Asia and the East India Islands. The **Egyptian Crocodile** (*C. vulgaris*) immensely abundant in the upper Nile, and widely distributed in African rivers, is bold and dangerous. The **American Crocodile** (*C. americanus*) found in tropical America, the West Indies and sparingly in Florida, exceeding 14 feet in length, like the alligator is practically harmless.



AMERICAN CROCODILE.

Crow (*Corvus*). A passerine bird allied to the raven and jay. The **American Crow** (*C. americanus*), occurring throughout North America and assembling in enormous flocks, is one of the most intelligent of birds. The very similar, slightly smaller **Fish Crow** (*C. ossifragus*) of the lower Atlantic and Gulf coasts is readily distinguished by its different call. The **Carrion Crow** (*C. corone*) of Europe, living solitary in pairs instead of flocks, is readily tamed and taught to imitate the human voice.

Cuckoo (*Coccyzus*). A genus of 200 species of strictly insect-eating birds occurring throughout the world. The celebrated **European Cuckoo** (*C. canorus*) is a summer visitor from Africa, which lays its eggs in the nests of other birds. The **Yellow Billed Cuckoo** (*C. americanus*) and the **Black Billed Cuckoo** (*C. erythrophthalmus*) of the eastern United States, build nests, and hatch their own eggs.

Cuttlefish (*Sepia*). A cephalopod mollusk, rarely over 18 inches long, with an oval body and a large head, surrounded by 10 arm-like feet. There are about 60 species living near shore in the open sea, discharging, when pursued, an ink-like fluid, used for writing by the ancients and the source of sepia ink. The shell or bone is fed to canary birds and the whole animal is used for food in India, China, and Japan.

Daddy Longlegs or Harvestman (*Phalangium*). A long-legged, small-bodied, wingless insect, resembling and related to the spiders. There are about 15 North American species, all of which feed largely upon plant lice (*Aphis*) and are beneficial to man. In England the name daddy longlegs is applied to two-winged flies of the family *Tipulidae* (Crane flies).

DADDY LONGLEGS OR HARVESTMAN.

Deer (*Cervus*). A group of ruminant mammals, the males of which usually possess solid bony outgrowths of the skull called antlers, shed and grown anew each year, found in all continents except Australia, valued for their flesh, hides, and horns. The **Red Deer or Stag** (*C. elaphus*) of Europe, now rare except in game preserves, is 4 feet high, and weighs 300 to 400 pounds. The small **Fallow Deer** (*C. dama*) of Mediterranean countries, only 3 feet high, is kept in parks for ornament and highly prized for venison. The **Wapiti or American Elk** (*C. canadensis*), usually, though improperly, called elk, now mostly confined to the Rocky Mountains, sometimes measures 5½ feet high and weighs 800 pounds. This large deer thrives wherever protected and is easily reared in captivity. The **White Tailed or Virginia Deer** (*Dama virginiana*), a most graceful and elegant species, once abundant nearly throughout the continent, is now rare except locally in the United States. The **Mule Deer** (*Dama hemionus*), so named on account of its long ears, is a somewhat larger Rocky Mountain species. The **Black Tailed Deer** (*Dama columbiana*), with a distinctly black tail, smaller and more graceful than the mule deer, occurs from California to Alaska.

Dingo (*Canis dingo*). The wild dog of Australia. It is smaller than the wolf, usually about 2 feet high, and varies in color from brown to black. Dingos are abundant in the woods of Australia, where they hunt in large droves.

Dodo (*Didus ineptus*). A large extinct bird, related to the pigeon, formerly inhabiting the island of Mauritius. It was larger than the swan, with a clumsy body, short legs, and a large bill and was unable to fly. It became extinct about the end of the seventeenth century.

Dolphin (*Delphinus*). A fish-shaped aquatic mammal related to the whales, usually less than 10 feet in length, with a horizontal tail. The **Common Dolphin** (*D. delphis*), occurring in all except polar seas, 6 to 8 feet long, feeding largely upon squids, was formerly valued for food. It was sacred to Apollo, and the Delphic oracle was named for it.

Dove, Mourning or Turtle (*Zenaidura macroura*). A common and very widely distributed bird in the United States, about 1 foot long, with a characteristic mournful note. It is usually seen in pairs, lives on seeds and fruits, and is prized for its excellent flesh.

Dragon Fly. Several families of insects (order *Odonata*) with long, cylindrical bodies, large head and eyes, and four membranous wings, very voracious feeders upon other insects, but harmless to man. Also called **Spindle, Snake Feeder, and Devil's Darning-needle.**

Duck. The common name for birds of two divisions of the duck family, the River and Pond ducks (*Anatinae*), including the **Mallard, Teal, Shoveler, Widgeon,** the **Baldpate, Pintail,** and **Wood ducks,** and the **Sea** and **Bay ducks** (*Fuligulinae*), which include the **Red-head, Canvasback, Golden-eye, Scoter, Eider,** and **Harlequin ducks.** The **Mergansers** (*Merginae*) are sometimes called fish ducks.

Duckbill (*Ornithorhyncus anatinus*). An aquatic egg-laying mammal of the order *Monotremata*, found in Australia, Papua, and Tasmania. It is about 18 inches long, with a duck-like bill, webbed feet, and a short, flat tail. It inhabits rivers, burrowing in the banks and feeding largely upon mollusks and aquatic insects.

Eagle. A large diurnal bird of prey of the Falcon family (*Falconidae*). The **Golden Eagle** (*Aquila chrysaetus*), occurring throughout Europe, northern Asia, and northern Africa, also in North America, though rare east of the Mississippi, is a dark brown bird, 3 feet long with a wing spread of 7½ feet, usually nesting in cliffs or trees, and feeding upon small animals. The **Bald Eagle** (*Haliaetus leucocephalus*), the emblem of the United States, ranging throughout North America, is a dark brown sea eagle, with white head, neck, and tail, about equal to the golden eagle in size, living near water, and subsisting mainly upon fish and small land animals.

Earthworm, Angleworm (*Lumbricus*). A burrowing worm, common throughout the world except in deserts, living upon vegetable matter in the soil, which is greatly improved by its workings. In South America, Africa, and Australia giant species occur, sometimes 6 feet long and an inch in diameter.

Eel (*Anguilla chrysypa*). A long-bodied, fresh-water food fish which goes to the sea to spawn; common in most regions except Pacific America; usually 20 to 30 inches long, very voracious, eating refuse and dead fish, and destroying great numbers of fish caught in fishermen's nets; very prolific, the young returning from the sea to fresh waters in vast numbers.

ELAND.

Eland (*Oreas canna*). A large ox-like antelope, formerly found all over South Africa, but now inhabiting only the interior region. It is about 5½ feet high, and has a body somewhat like that of an ox and a head like a deer, with twisted horns and a small mane. Elands generally go in herds of 50 to 100 and look so much like cattle that they are often mistaken for them.

Elephant (*Elephas*). The largest living land animal, with a huge body supported by pillar-like legs, an immense head provided with tusks, and a long proboscis or trunk. There are two living species: The **Asian Elephant** (*E. indicus*), native of southern Asia, Ceylon, and Sumatra, usually from 7 to 10 feet high, is extensively domesticated and is the species usually seen in menageries. The **African Elephant** (*E. africanus*) of central Africa, standing 10 to 12 feet high, is wilder and fiercer, with much larger ears, darker skin, and usually has one nail less on each foot, infrequent in captivity, though Jumbo was an African elephant.

AFRICAN ELEPHANT.

Elk. In America the name commonly given to a large, handsome deer (*Cervus canadensis*), also known as **Wapiti.** In Europe the moose (*Alces*) is called elk. (See DEER, MOOSE.)

Emu (*Dromaeus*). A large ostrich-like bird of Australia, allied to the cassowary but larger, and next in size to the ostrich. It differs from the cassowary in having the neck and head feathered, in the absence of a helmet, and in having more slender legs. Emus live in open plains, where they feed upon berries, herbs, etc. They thrive in captivity and are valued for their eggs and flesh.

Equidae. A family of hoofed mammals (*Ungulata*), which have but one toe incased in a solid hoof, and 42 teeth—including the horse, ass, zebra, and quagga.

Ermine (*Mustela erminea*). A kind of weasel found in North America, Europe, and Asia, which turns white in winter, and is valued for its fur. It is about 10 inches long and in summer is reddish brown above and whitish below, with tip of tail black. The habits of the ermine are much like those of the common weasel, but it preys upon larger animals, such as hares and rabbits. In Europe it has been domesticated and used like the ferret.

Falcon (*Falco*). A long-winged bird of prey with a hooked beak and strong, sharp claws, striking down its quarry in flight, found nearly throughout the world. The **Peregrine Falcon** (*F. peregrinus*), found in every continent except Australia, 16 inches long, is the "noble peregrine" of falconry, a veritable tiger of the air, fierce, strong, and swift, quickly overtaking and overpowering the swiftest birds. The **Sparrow Hawk** (*F. sparverius*), very common in the United States, only 11 inches long, a beautiful and graceful species, is one of the boldest and most active falcons.

Fer-de-Lance (*Bothrops lanceolatus*). A much dreaded, venomous snake of the West Indies, 4 to 6 feet long, with very long poison fangs.

Flamingo (*Phoenicopterus*). A small-bodied bird with very long neck and legs, downwardly turned bill, and scarlet or rose-colored plumage with black wings. The **American Flamingo** (*P. ruber*), now rare in Florida and Louisiana, stands nearly 4 feet high. It is easily tamed and often kept in zoölogical gardens.

Flea (*Pulex*). A small, reddish-brown insect, with a beaked mouth for biting, and long, strong legs, most abundant in the tropics and in warm, dry regions, as in southern Europe, where they are intolerable pests. There are many species, those infesting animals being different from the human flea (*P. irritans*).

Flies (*Muscidae*). A large family of dipterous insects of which the house fly is typical. In its most restricted sense the family numbers about 150 North American species. The larvae, known as maggots, live in decaying animal and vegetable matter, and reach maturity very quickly. The house fly requires only from 10 to 14 days. Most adult Muscidae are of repulsive habits, often carrying germs of disease from their filthy surroundings and depositing them on food. The typhoid fever, when epidemic in military camps, is usually due to these flies. Among better known kinds are: The **House Fly** (*Musca domestica*), which usually breeds in horse dung, might easily be greatly reduced in numbers. Two kinds of **Blow Flies** (*Calliphora vomitoria and C. erythrocephala*) live as larvae in decaying flesh. The **Screw-worm Fly** (*Chrysomyia macellaria*), which occurs from the United States to Argentine Republic, attacks raw sores of domestic animals. The **Biting House Fly** or **Stable Fly** (*Stomoxys calcitrans*) closely resembles the house fly, from which it can be distinguished by its sharper proboscis; it annoys horses and cattle, and bites human beings. The **Horn Fly** (*Haematobia serrata*), smaller than the house fly, attacks cattle, often swarming about the base of their horns. The African **Tsetse Flies** of various species (*Glossina*), insects resembling the common stable fly, transmit by their bites small protozoa (*trypanosomes*) into the blood of horses, cattle, and dogs, resulting fatally; one species (*G. palpalis*) is in this way the cause of the fatal "sleeping sickness" in man, the trypanosomes being transmitted from the crocodile, it is believed.

Flounder or **Flatfish** (Family *Pleuronectidae*). A flat fish frequenting sandy sea bottoms, in which both eyes, by a gradual twisting of the head, appear on one side, which is always uppermost. There are about 50 genera and upwards of 400 species including many valuable food fish such as the halibut, plaice, and turbot.

LIVER FLUKE.
1. Larval stage. Cercaria. 2. Mature fluke. 3. Cyst. 4. Redia stage.

Fluke (*Distomum*). A small, flat, platyhelminthine worm, infesting a great variety of animals, several species attacking man. The common **Liver Fluke** (*D. hepaticum*), parasitic in man and many ruminant animals, causes the destructive disease called rot in sheep. The adult worm in the liver produces hundreds of thousands of eggs, which are discharged through the bile duct. Eventually some of these are washed into ponds where they hatch in the water. The newly-hatched larvae immediately attack and enter the bodies of certain amphibious snails, where they undergo a remarkable series of changes, finally escaping as active cercariae, which encyst upon blades of grass, and are eaten by sheep and other animals. The cyst dissolves in the stomach and the liberated worm penetrates the liver, where it matures and again lays eggs.

Flying Fish (*Exocoetus*). An open-sea fish, possessing large pectoral fins, which leaps from the surface and glides long distances through the air. There are over 40 species, mostly of tropical oceans.

Flying Squirrel (*Sciuropterus*). A squirrel provided with a distensible membrane connecting the fore and hind legs, by means of which it glides from tree to tree. The **Assapan** (*S. volans*), occurring from Canada to Kansas and southward, about 10 inches long including the tail, is the most common American species.

Fox (*Vulpes*). A carnivorous mammal closely related to the wolf and dog, but smaller, with a narrow, pointed nose and a bushy tail, dwelling in burrows, hunting singly at night, living upon small animals and fruit and noted for sagacity and cunning. The **American Red Fox** (*C. fulvus*), reddish yellow, throat and tip of tail white and ears black, ranges eastward from the Missouri river in the Northern States and Canada. The **Prairie Fox** (*V. macrourus*), lighter colored with a larger tail, inhabits the central plains. The **Kit** or **Swift Fox** (*V. velox*), of arid western regions, is smaller, handsomer, and remarkably fleet. The **Arctic Fox** (*V. lagopus*), with thick fur, covering even the soles of the feet, pure white in winter and dull rusty and yellowish in summer, occurs throughout Arctic regions. The **Gray Fox** (*Urocyon virginianus*), more dog-like, gray mixed with black, lives in hollow trees or caves, from Pennsylvania south and west to Texas. Many species occur in Europe, Asia, and Africa.

Fringillidae (Finch family). The largest family of birds, containing 100 genera and more than 500 species, occurring in all continents save Australia, one seventh of all being North American, mostly seed-eating song birds of plain plumage, though some are brilliantly colored, including sparrows, grosbeaks, cross bills, linnets, the snowbird, and the canary.

Frog (*Rana*). A four-footed, tailless amphibian, with the hind legs strongly developed for leaping, smooth skin and webbed feet, living chiefly on insects and small mollusks. There are about 270 species, widely distributed except in arid or frigid regions. The **Bull Frog** (*R. catesbiana*), 5 to 8 inches long, occurring in sluggish waters from Kansas eastward, is noted for its deep bellowing note. The **Common** or **Leopard Frog** (*R. pipiens*), 2½ inches long, usually green above, marked with black patches edged with whitish, is abundant throughout North America, west to the Sierra Nevadas. The **Green Frog** (*R. clamitans*), 3 inches long, confined to the eastern United States, is found also in Europe, Asia, and North Africa. (See plate of FROGS.)

Garter Snake (*Thamnophis*). The most abundant North American snake, occurring everywhere in grassy places. The most common species is *T. sirtalis*, found throughout the United States, east of the Sierra Nevadas. There are many other species, all absolutely harmless, and on the whole beneficial to man.

FLYING FISH.

Gavial (*Gavialis gangeticus*). A carnivorous reptile of the crocodile family, occurring in the Ganges and other Indian rivers, differing from the crocodile in having a long, slender, knobbed snout, one fifth as long as the body, which sometimes exceeds 18 feet. It feeds upon small animals and is harmless to man.

Gila Monster (*Heloderma suspectum*). A venomous lizard of the arid regions of Arizona, New Mexico, and Sonora, about 18 inches long, whose bite is fatal to some small animals but probably not to man.

Giraffe or **Camelopard** (*Giraffa camelopardalis*). An African hoofed mammal, the tallest living animal, attaining a height of 18 feet, a large part of which is represented by the abnormally long neck. The body, legs, and neck are strikingly colored and spotted; the head is finely formed, with erect

ears, full lustrous eyes, and two bony, hornlike outgrowths from the skull, covered with hair. The tongue is very long, slender, and rough, and is used for plucking trees, the leaves of which constitute most of its food. The giraffe is found only in central and southern Africa.

Glass Snake (*Ophisaurus ventralis*). A smooth, legless, snake-like lizard about 2 feet long, found from North Carolina to Wisconsin and southwestward to Mexico. It is immediately distinguished from true snakes by having eyelids and external ear openings. In common with many lizards it can part with its tail in an emergency and grow a new but much shorter one thereafter, giving rise to many erroneous popular notions as to brittleness and ability to reunite its separated parts.

Gnu (*Connochaetes*). A large ungainly South African antelope, somewhat resembling both the ox and the horse in appearance. The **White-Tailed Gnu** (*C. gnu*), 6½ feet long, standing 4 feet high, lives in herds in open plains where it is hunted for its flesh, hide, and horns.

Golden-eye or **Whistler** (*Glaucionetta clangula americana*). A North American duck, breeding from Maine to Manitoba and northward, wintering southward in Cuba. It is a vigorous diver and swimmer, and the sound of its rapidly driven wings gives rise to the name whistler. (See plate of DUCKS.)

Goose. The common name for a member of a division of the duck family (*Anatidae*), larger than ducks but smaller than swans, found nearly throughout the world. About 10 wild species visit or breed in the eastern United States, among them the **Snow Goose** (*Chen hyperborea*), the **Black Goose** (*C. caerulescens*), the **White Fronted Goose** (*Anser albifrons, var.*), the **Canada Goose** (*Branta canadensis*), and the **Brant** (*Branta bernicla*).

Gopher (*Spermaphilus*). The common name of various ground squirrels possessing cheek pouches. The most abundant is the **Striped Gopher** (*S. tridecemlineatus*) of the prairies from Michigan to Texas and northward, about 10 inches long including the tail; marked with 13 stripes. The true **Pocket Gopher** (*Geomys bursarius*) of the northern Mississippi valley is slightly larger and has cheek pouches lined with hair, opening outside the mouth. The name gopher in the Southern States is applied to a burrowing tortoise.

Gorilla. This largest, most muscular and powerful of the anthropoid apes, a native of the forests of Gabun, black in color, with naked face, small ears, and wide nostrils, a vegetable feeder, living in families, is savage and untamable, not hesitating when cornered to attack man. A full grown male stands more than 5 feet high when erect, and sometimes weighs 400 pounds.

Grasshopper. An orthopterous insect closely related to the locusts, but provided with long antennæ and never migrating in swarms, usually green, resembling the vegetation it lives upon. The so-called grasshoppers once so destructive on western plains are true locusts.

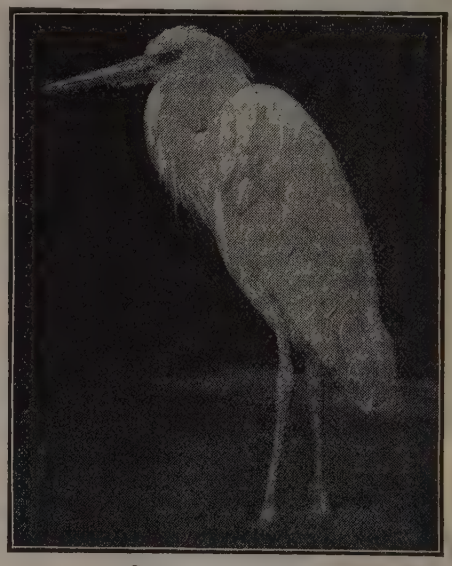
Grouse. Large game birds of northern regions belonging to the family *Tetraonidae*, some of which, as the **Capercaille** of Europe, are nearly 3 feet long, weighing 15 pounds. The **Ruffed Grouse** (*Bonasa umbellus*), wrongly called **Partridge** in the north, and **Pheasant** in the south, 18 inches long, makes a peculiar drumming sound by quick strokes of its wings. The **Pinnated Grouse** (*Tympanuchus americanus*), commonly called Prairie Hen or Prairie Chicken, 17 inches long, was formerly abundant from Indiana westward. The **Sharp Tailed Grouse** (*Pediaecetes phasianellus*) of the Arctic plains extend southward to Illinois. The **Sage Cock** or **Sage Chicken** (*Centrocercus urophasianus*) of western desert plains is the largest American grouse, sometimes 30 inches long. It feeds upon various kinds of sage brush, which impart a bitter flavor to its otherwise excellent flesh.

Guanaco (*Lama guanacus*) A South American mammal of the camel family, found in high altitudes in Peru and Chile, and on the plains of Patagonia; much smaller than the camel, humpless, and with two-toed feet. Both the llama and alpaca probably are domesticated forms of the guanaco.

Hare (*Lepus*). A small rodent, with long hinder legs, short, bushy tail, large eyes, long ears, and almost woolly fur, most numerous in northern regions, usually feeding upon tender plants. The **Cotton Tail** (*L. sylvaticus*), 13 inches long, ranging from Hudson's Bay to Florida and eastward, is our most common species. The **Prairie Hare** or **Jack Rabbit** (*L. campestris*) 23 inches long, ranging from Dakota to Kansas and west to Oregon, turns white in winter.

Hawk (*Accipiter*). In the United States the name is applied to the buzzard, falcon, harrier, and kite, or to almost any bird of prey not an eagle, vulture, or owl. Among the true hawks (*Accipiter*) are the **Sharp-shinned Hawk** (*A. velox*), also called **Pigeon Hawk**, 12 inches long, occurring throughout the United States; the **Chicken Hawk** (*A. cooperi*), also called **Cooper's Hawk**, a bold bird, 18 inches long, feeding upon grouse, pigeons, and hares. The larger **Goshawk** (*A. atricapillus*), 24 inches long, ranging far northward, is a daring robber of poultry.

Heron (*Ardea*). A genus of birds with long necks, wings, and legs, most numerous in warm and tropical regions, frequenting marshy places. The **Great Blue Heron** (*A. herodias*), 40 to 50 inches



GREAT WHITE HERON.

long, is common throughout North America; the **Great White Heron** (*A. occidentalis*) is slightly larger and entirely white, one of the most striking of the herons. The **Little Blue Heron** (*A. coerulea*), 24 inches long, ranges from Illinois eastward, and the **Little Green Heron** (*A. virescens*), 18 inches long, occurs throughout the continent.

Herring (*Clupea harengus*). A very important food fish, abundant on both shores of the Atlantic, particularly in northwestern Europe. It attains a length of 12 inches and an average weight of one pound. Herring are cured in vast quantities, and young herring are put up as sardines.

Hippopotamus. A thick-skinned, amphibious, hoofed mammal, most nearly related to the common pig, two species of which exist in Africa. The **Common Hippopotamus** (*H. amphibius*), ranging from equatorial Africa southward, exceeded only by the elephant and rhinoceros in bulk, attains a length of 14 feet and a height of 4 to 5½ feet. It is the most aquatic of all hoofed animals, graceful in the water, but very awkward on land, which it visits chiefly at night to feed on herbage. The **Liberian Hippopotamus**

(*H. liberiensis*), scarcely larger than a full grown hog, which it resembles in habits, occurs only in Guinea.

Horned Toad (*Phrynosoma cornutum*). A small, grotesque, harmless lizard about 5 inches long, with a somewhat toad-shaped body, bearing spines on its head and back, common on arid plains of the western United States.

Horse, Wild. The wild horses mentioned by Strabo and Pliny among the Romans and in writings of the Middle Ages were probably all descendants of tame horses which had returned to a wild life. The wild horses which became so numerous in Texas and other western states as well as those of the plains of South America originated from European horses left behind by early Spanish explorers. Some consider the tarpan of central Asian steppes the progenitor of the domestic horse, but most regard it a very wild descendant of tame horses. However, a truly wild horse was discovered in the deserts of Mongolia about 1885 by a Russian naturalist, and named for him **Przevalski's Horse** (*Equus przevalskii*). It is about the size of the zebra and more closely resembles the domestic horse than any other known wild species. Its coat, which is of a dun color, much darker on the front of the legs, becomes very shaggy in winter. The mane is short and there is no forelock. In summer a narrow dark line is visible in the middle of the spine extending from the mane to the tail. The bristles of the upper part of the tail are shorter than in the horse, but longer than in the donkey, and the head and limbs are larger in proportion to the body than in the domestic form.

PRZEVALSKI'S HORSE. Summer coat.

House or English Sparrow (*Passer domesticus*). A small bird, 6 inches long, ranging from India westward throughout the most of Europe, and introduced into America, Australia, and New Zealand; first brought into the United States at Brooklyn, N. Y., in 1851, to destroy insects; now widely diffused and abundant east of the Rocky Mountains.

Humming Birds (*Trochilidae*). A family of some 75 genera and 400 species, peculiar to America, containing the smallest and most brilliantly colored of birds, mostly tropical, but a few occur in temperate regions. The largest species is 8½ inches long, the smallest about 2½ inches; 17 visit various portions of the United States in summer, one ranging as far as Alaska. The **Ruby-Throated Humming Bird** (*Trochilus colubris*), breeding from Florida to Labrador, is the only representative in eastern North America.

Hyena (*Hyaena*). A carnivorous mammal, most numerous in warm regions of Asia and Africa, of repulsive appearance and habits, living on carrion and attacking sick or wounded animals. There are several species, which, like the vultures among birds, are valuable as scavengers.

Ibis. A genus of birds allied to the herons. The **Sacred Ibis** (*I. aethiopica*) of the ancient Egyptians, native of the Nile valley and southward but now rare in Egypt, is a beautiful bird, with pure white plumage, contrasted with black head, neck, and wing feathers, and a bronze blue-black plume. The **Scarlet Ibis** (*Guara rubra*) of tropical America is pure scarlet in color excepting the black tips of wing feathers. The **White Ibis** (*Guara alba*) of the southern United States is pure white with black tipped wing feathers.

Iguana. A genus of large arboreal lizards, mostly of tropical America, with a crest of spines extending from the neck to the end of the tail, and a wide fold of skin under the throat. The **Common Iguana** (*I. tuberculata*) 3 ot 4 feet long, feeding upon leaves, fruits, and insects, is much prized for food in South America. The **Ring-tailed Iguana** (*Cyclura carinata*) of the West Indies, 4 feet long, mostly grass eating, is strong fleshed and inedible. The **Black Iguana** (*Ctenosaur acanthus*) of California is valued for its flesh.

PRZEVALSKI'S HORSE. Winter coat.

Jackal (*Canis aureus*). A carnivorous mammal very closely related to the dog, found in the Mediterranean region and southern Asia, about 2 feet long, possessing an offensive odor like the fox, grayish yellow in color, with many varieties; nocturnal in habits, attacking domestic animals, robbing hen roosts, fond of fruit, but also eating carrion. The jackal is readily domesticated.

Jackdaw (*Corvus monedula*). A European bird, 10 inches long, the smallest member of the crow family (*Corvidae*); glossy black with back of head ashy gray; an omnivorous feeder, robbing other birds of their eggs; nesting on hollow trees, church towers, and corners of buildings, possessing the power of imitating sounds, for which it is sometimes kept as a pet.

IGUANA

Jay. The jays belong to a subdivision (*Garrulinae*) of the crow family (*Corvidae*), one of their near relatives being the magpie; distinguished from crows by longer tail and more brilliant colors. There are about 30 North American species, many more or less bluish in color, the majority occur-

ring in the southwestern United States and Mexico. The **Blue Jay** (*Cyanocitta cristata*) of eastern North America is a noisy, rather bold bird, nesting in trees, often about houses; about a foot long, with crest and back light blue, wing and tail feathers deep blue with white tips and black bars, and a black collar on the breast.

Jellyfish or Medusae. Free swimming marine coelenterate animals with disc-shaped or umbrella-shaped bodies of jelly-like consistency, composed chiefly of water, only about one per cent. being solid matter. Small forms are less than an inch in diameter, while larger forms measure 6 to 7 feet across the disc, with tentacles 100 feet long. Many are beautifully colored and nearly all are phosphorescent, some giving forth a strong light when disturbed. The stinging tentacles of some are poisonous to bathers. The common **Yellow Jellyfish** (*Aurelia flavidula*) of the New England coast, 8 to 10 inches in diameter, is not poisonous.

June Bug. A heavy bodied beetle of the family *Scarabaeidae*, appearing in great numbers about lights in May and June. In Europe most June bugs are species of *Rhizotrogus*; in eastern North America there are over 100 species of *Lachnosterna*, supplying most of the June bugs. The beetles do but little damage, but the larvae—white fleshy grubs—injure turf and cut off roots of strawberry plants. The **Common June Bug** (*L. fusca*) abundant in the northeastern United States is almost an inch long and dark brown in color.

Kangaroo (*Macropodidae*). A marsupial mammal peculiar to the Australian region, distinguished by disproportionately large hind limbs, mostly ranging in size from that of a sheep to a rabbit; all strictly vegetarian, living on grass and roots. Some are nocturnal in habit and all are timid creatures, protecting themselves only when forced to do so. When at rest kangaroos stand upright, locomotion being accomplished by a series of immense bounding jumps. The marsupium or pouch in which the young are placed as soon as born contains four nipples. The young of the Great Kangaroo are only about an inch long at birth. There are two groups, the true kangaroos, 30 species, and the rat kangaroos, 10 species—none larger than rabbits. The **Great Kangaroo** (*Macropus giganteus*) 4 to 5 feet high with a tail 4 feet long, of eastern Australia and Tasmania was discovered by Captain Cook in 1770.

Katydid. The katydids are large, green, long-horned grasshoppers, with well developed wings, and feed amongst foliage. The **Common Katydid** (*Cyrtophyllus concavus*), of the northwestern United States, the sharp chirp of which gave rise to the name ka-ty-did, is arboreal in habits but rather local in occurrence. Its evening song, heard in late summer and fall, often in the tops of tall elms, is produced by rubbing the wing-covers and wings together.

Kingbird (*Tyrannus*). Kingbirds are flycatchers, of powerful and skillful flight, 8 to 10 inches long, black or gray above with an erectile crest marked with a yellowish-red patch; usually white or gray below. During nesting season the male attacks all birds that come near his nest, teasing and driving away eagles, hawks, and crows, by darting down upon their backs. The **Common Kingbird** (*T. tyrannus*) of eastern North America is very useful as an insect destroyer, though it sometimes eats bees.

King Crab or Horseshoe Crab (*Limulus polyphemus*). The king crab, believed by some naturalists to belong to the crustacea, and by others to be nearly related to the arachnida, has a body—cephalothorax—shaped like the foot of a horse, behind which is a wedge-shaped abdomen, and a long narrow inflexible tail. It burrows in sandy or muddy shores of the Atlantic coast, living on small animals, chiefly worms. Two other species occur in Asia.

Kingfish. The kingfish (*Menticurrus nebulosus*) of American fishermen, a game fish of excellent flavor, closely allied to the mullets, occurs along the Atlantic coast from Massachusetts to Florida, and is also locally known as tomcod, barb, black mullet, and whiting. The name is given to many other fishes. The brightly colored deep-water fish (*Lampris luna*) called **kingfish in England**, attaining a length of 4 feet, and very highly esteemed for its rich flesh, intermediate between that of the salmon and tunny in color, seems best entitled to the name.

Kite. A diurnal bird of prey, of the same family as hawks and eagles (*Falconidae*), but with a deeply forked tail. The **European Kite** (*Milvus ictinus*), once abundant in Great Britain, now nearly extinct, slightly exceeds 2 feet in length, of which the tail is nearly one half. Rags usually form a part of its tree-built nest of mixed materials, explaining the meaning of Autolycus's advice to laundresses (Winter's Tale, Act IV, scene 3), "When the kite builds look to lesser linen." The flight of the kite is very elegant and strong, and few modern Londoners "who see the paper toys hovering over the parks in fine days of summer, have any idea that the bird from which they derive their name used to float all day in hot weather high over the heads of their ancestors." Other species occur in the Old World, and of the five North American Kites the best known is the **Swallow-tailed Kite** (*Elanoides forficatus*), 25 inches long, bronze purplish with white head and tail, which ranges from South America to Minnesota and Pennsylvania.

Koodoo or Kudu (*Strepsiceros kudu*). This African antelope, now becoming rare from excessive hunting, found from Abyssinia southward to the Cape, stands over 4 feet high at the withers, and the spiral horns, present only in the male, are sometimes 4 feet long. It is reddish brown with vertical white stripes. The **Lesser Koodoo** (*S. imberbis*) of Somaliland, is much smaller.

Ladybird or Ladybug. Ladybirds (*Coccinellidae*) are short-legged, approximately hemispherical beetles, of medium or small size, often red marked with black spots, or black with red spots. There are hundreds of kinds, some of which are found in all temperate and tropical regions, more than 150 species having been described from North America north of Mexico. The larvae, like the beetles themselves, eat plant lice, scale insects, mites, and eggs of other insects. So useful are the ladybugs and their larvae that economic entomologists are naturalizing foreign kinds to aid in the control of especially noxious scale insects. Ladybugs are especially active in bright sunlight, their acrid blood protecting them from destruction by birds.

Lark. Larks are migratory, insectivorous passerine birds belonging to the family *Alaudidae*, but when the word lark is used alone the European lark is meant. Other birds which resemble the *Alaudidae* are often called by the name of lark with a prefix, as the meadow lark and tit lark. The **Lark** or **Skylark** (*Alauda arvensis*), 7 inches long, with an erectile crest, is one of the most abundant birds of western Europe. At the time of their autumn migration southward larks are taken in great numbers for the markets. The **Horned Lark** (*Otocoris alpestris*), closely related to the skylark, is found, in about 7 well-marked varieties, in various parts of North America. It is about the same size as the European lark, and each side of the head bears a narrow horn-like tuft of black feathers.

Leech. Leeches are blood-sucking parasitic worms, and most of them live in fresh water. They have tough, leathery, elongate, flattened bodies, with a sucker at each end. The mouth is provided with three saw-like jaws, by means of which the leech makes a wound like a three-pointed star, from which it sucks the blood. Leeches can be kept several years in a jar of pure water, without food. They were much employed by physicians in the past to bleed patients as a remedy for certain diseases, but now the employment of the leech is uncommon. The use of leeches as remedial agents dates back to the times of the Romans. The **Medicinal Leech** (*Hirudo medicinalis*), a native of middle Europe, is over 6 inches in length when fully extended.

Lemur. The lemurs form the lowest suborder of primates, and are old-world monkeys. Thirty-six species are found in Madagascar; about 14 others are distributed from Africa eastward as far as the Philippine Islands. The typical lemurs (*Lemur*) are omnivorous, gregarious, active, noisy, diurnal animals, about as large as a cat, with fox-like face, thick fur, and long bushy tail. The **Ring-tailed Lemur** (*L. catta*), from Madagascar, is one of the most striking species. Its body is gray, but the long tail has alter

nate rings of black and white. The **Ruffed Lemur** (*L. varius*), also from Madagascar, is the largest species.

LEMUR.

Leopard (*Felis pardus*). A large cat-like carnivore found in southern Asia and in Africa. It is of a tawny ground color, nearly pure white beneath, and spotted with a few solid spots and numerous rosettes of black. In southern Asia a black variety is occasionally found, and the leopards of northern China have longer fur than those of more tropical regions. The leopard attains a length of more than 7 feet, tail included; is very ferocious and climbs like a cat, which it also resembles in the stealthy capture of prey. It captures and devours many small animals, especially dogs, and sometimes attacks man.

Lion (*Felis leo*). The lion is readily distinguished from all related cat-like animals (*Felidae*) by the adult male having a mane. Lions are found in Africa and in parts of southern and western Asia. They all belong to one species, although variable in the amount of mane, and in color, which ranges from yellowish brown to chestnut brown or to deep red, and sometimes to almost silver gray. A male lion measures about 10 feet in length, including 3 feet of tail; the female is about a foot shorter. Lions cannot climb; they live in sandy and rocky places, often in thickets of undergrowth near streams and springs, where they lie in wait for their prey. Their greatest activity is at night, although they are often seen during the day. Opinions differ widely as to the courage of the lion, as well as to the loudness of its roar; there has been much exaggeration in regard to both subjects, but a hungry or provoked lion, especially at night, is a very dangerous and aggressive animal. The lion often overcomes animals larger than himself by means of his stealthy cat-like habit of springing upon them unawares. He preys upon buffaloes, zebras, and even young elephants. Lions, although monogamous, sometimes go in troops, being sociable rather than gregarious. The male aids in care and feeding of the young, which number from two to four, usually three, at a birth. The pupil of the lion's eye is circular when contracted, not a narrow slit as in the cat. The papillae of its tongue are so large that it can rapidly rasp the flesh from bones by licking them.

Lobster. The three species of *Homarus*, marine ten-footed crustaceans, are called lobsters,—one is European, one North American, and one South African. The forward pair of legs is enormously enlarged, one bearing immense blunt pincers for holding food, and the other sharp-toothed pincers for tearing. They are fond of decaying animal matter, and are caught in lobster pots, made of lath and netting baited with fish offal, and lowered to the bottom by a cord attached to a float to mark the location. The **American Lobster** (*H. americanus*), found from Labrador to New Jersey, has been caught so much that notwithstanding stringent laws regulating time of catching and size of lobsters caught, they average smaller from year to year, and it seems almost incredible that lobsters were formerly taken weighing nearly 40 pounds.

Locust. The grasshoppers with long horns (antennæ), of which the katydid is an example, are scientifically *Locustidae;* but the grasshoppers with short antennae, known scientifically as *Acrididae*, are the locusts mentioned in the Bible, and in the numerous works on destructive locusts. The seventeen-year cicada is also often wrongly called a locust. True locusts (*Acrididae*) form the largest family of orthopterous insects. These herbivorous insects mainly rest upon the ground, and their stridulation is usually due to rubbing the hind thighs against the outer edges of the wing-covers. The **Rocky Mountain Locust** (*Caloptenus spretus*), 1¼ inches long, ravaged the United States between the Rocky Mountains and the Mississippi River particularly during the early history of that region, and the U. S. Entomological Commission was organized, in 1877, to study these insects. These muscular, gregarious locusts, strong in flight, migrate in clouds and destroy every green leaf before them. The very similar **Red-legged Locust** (*Caloptenus femur-rubrum*) is distributed throughout the eastern United States. Tropical locusts are often very large, some having a wing spread of nine inches.

Loon. A name correctly applied only to divers of the genus *Urinator*, all of the northern hemisphere. They walk with difficulty, but swim very rapidly; are black or slaty above, speckled with white in summer, and white beneath; have a hind toe, webbed feet, and very short tail feathers, and usually lay two brown spotted eggs in a roughly formed nest near the water. The **Common Loon** or **Great Northern Diver** (*Urinator imber*), 36 inches long, breeds from latitude 42 degrees northward, going south as far as the Gulf of Mexico in winter. It is such a quick diver that it sometimes escapes the shot by diving beneath the surface of the water at the flash of a gun.

CANADA LYNX.

Lynx. The popular and scientific name of cat-like animals, rather larger than the domestic cat, having a short tail and tufted ears. Lynxes are more or less mottled brownish or gray, lighter beneath the body. They are all savage in disposition and prey upon smaller animals, doing much damage to sheep, lambs, and poultry. They climb trees readily and frequent rocky places in forests. The **European Lynx** (*Lynx lynx*), found in central and northern Europe and in northern Asia, is over two feet in body length and has sharp-pointed ears and a longer tail than most lynxes. The **Canada Lynx** (*Lynx canadensis*), once distributed in forests from Maine to Alaska, but now rare in eastern Canada and the United States, is over a yard long, including the tail. The somewhat smaller **Bay Lynx** or **Wildcat** (*Lynx rufus*) is found from northern Georgia to Maine, and is not rare in many thinly settled districts.

Lyre Bird. Two of the three species of the genus *Menura*, of the family *Menuridae*, Australian passerine birds, are known, from the lyre-like form of their tails, as lyre birds. The bodies of these birds are about the size of that of a small hen, but the long tail gives them a total length of nearly a yard. The tail has two outer feathers that are very heavily webbed, and curved in the form of the horns of a lyre. The rest of the tail feathers, representing the strings of the lyre, are very abnormal, and are thinly furnished with hair-like barbs.

Mackerel. A name applied especially to certain teleost (*acanthopterygid*) fishes of the family *Scombridae*. The common mackerel (*Scomber scombrus*), an important food fish of both sides of the north Atlantic, rarely attaining a length of 18 inches, makes extensive migrations along the coast, at or near the surface, in immense schools that sometimes contain thousands of barrels of fish. Some years mackerel are abundant, other years rare. The greater part of their food consists of small crustacea, but they eat spawn of lobsters and of fishes, young fishes, even of their own species, and the middle of large jellyfishes. They are taken with young fish for bait, but will bite at almost any shining object. Besides the common mackerel the better known North American kinds are: the chub-mackerel, big-eyed mackerel, bull mackerel or thimble-eye (*Scomber colias*) of the Atlantic coast; the frigate mackerel (*Auxis thazard*) of warm seas which rarely appears off the New England coast; the horse mackerel, or tunny (*Thunnus thynnus*), of the northern hemisphere.

Magpie. A collective name for all birds of the genus *Pica*. They are related to the crows, which they resemble in their omnivorous habits, audacity, and cunning. The **European Magpie, or Pie** (*Pica pica*), of which the somewhat larger magpie of western North America, formerly supposed to be a separate species (*Pica hudsonica*), but now regarded as a variety, is a bird of about 20 inches total length, of which over one half is of the long tail. Its color is lustrous black, with belly, shoulders, and edges of the wings white. Once common in Great Britain, its thievish habits have led to its being nearly exterminated. The **Yellow-billed Magpie** (*Pica nuttalli*) of central California resembles the common magpie except that the bill and bare skin around the eyes are yellow.

Mallard. The mallard (*Anas boschas*), the wild form from which domestic ducks were derived, is found throughout the northern hemisphere, reaching in winter as far south as the Isthmus of Panama, Egypt, and India, but in summer ranging the Arctic regions, or oftentimes, in America, breeding in the valleys of the Rocky Mountains. The mallard duck is 20 to 25 inches long; the male with brilliant metallic green neck, rich chestnut chest, a collar of pure white and a rhomboidal violet spot on each wing; the female has the wing-spot like the male, but is otherwise with yellowish or buff variations. The mother duck lines her rather rude nest with down from her breast, and her clutch is of from 9 to 11 eggs, which hatch in 28 days, the young being cared for by the mother until full grown and feathered. The word mallard is still sometimes used in its original sense for the male or drake; duck for the female.

Manati, or Sea-cow (*Manatus*). An aquatic, gregarious mammal, of the order Sirenia, nearly related to the dugong, and found in fresh water and along the Atlantic coasts of Africa (1 species) and of tropical America (2 or 3 species). It is shaped somewhat like a whale, has paddle-formed fore limbs, no hind limbs, a horizontally flattened tail, very small eyes, and reaches a length of eight feet. Beneath its wrinkled, black skin is a layer of blubber, which contains no free oil, as does that of the whale. It has a large number of molar or grinding teeth, which are replaced from before backwards during life, being worn away by its food, which consists of water plants mixed with sand. The two lobe-like halves of its upper lip, beset with stout bristles, move independently and aided by the fore limbs, draw the food into its mouth.

Mandrill (*Cynocephalus mormon*). The mandrill is one of the West African baboons, the lowest family of the catarrhine anthropoid apes. The bridge of its nose is red, and it has blue ridges on the muzzle. Mandrills are omnivorous, gregarious, ferocious apes, with large face, prominent brow-ridges and very short tail. The naked ischial callosities of the rump of adult males are bright red, more intense when the animal is excited, and the mandrill, which is often seen in zoölogical gardens, is repulsive in looks and habits.

Marmoset. Marmosets are platyrrhine monkeys of the family *Hapalidae*, which is made up of the genera *Hapale* (7 species) and *Midas* (14 species), all from tropical America. They are the smallest of monkeys, about as large as squirrels, soft-furred and usually have a mane. The long tail is hairy, ringed, and not prehensile, although their habits are arboreal.

Marten. Martens are carnivorous mammals of the genus *Mustela*, nearly related to the weasels. The **American Marten or Sable** (*Mustela americana*), an important fur-bearing animal, was once abundant in the Atlantic states from Maine to Virginia, but has become rare except in the wilder parts of British America. It is about 18 inches long, exclusive of its bushy tail, and is trapped in simply constructed deadfalls baited with any kind of meat, a piece of fish, or a bird's head. The **Siberian Sable** (*Mustela zibellina*), with black fur, and the British **Pine Marten** (*Mustela martes*), dark brown with a brownish-yellow throat, are the European representatives.

Martin. A name applied to swallows (*Hirundinidae*), but especially with a modifying prefix, to certain well-known kinds. All are valuable insectivorous birds, with long wings and of rapid flight. The **Purple Martin** (*Progne subis*) often nests, several pairs together, in the same box provided for it; the **Sand Martin**, or bank swallow (*Riparia riparia*), a smaller sort found in North America, Europe, and Asia, digs deep holes in sand banks in which to build its nest; the **European House Martin** (*Chelidon urbica*) attaches its nests to the eaves of houses. Shakespeare wrote (Macbeth, act 1, sc. 6) of the last species:—

> "No jutty, frieze,
> Buttress, nor coign of vantage, but this bird
> Hath made his pendent bed and procreant cradle."

Meadow Lark. Meadow Larks are American birds of the genus *Sturnella*, belonging to the troupials (*Icteridae*), near relatives of orioles, red-winged blackbirds, and bobolinks, the name lark being here a misnomer. The **Common Meadow Lark** (*Sturnella magna*) of eastern North America is about 10 inches long, including about 3½ inches length of tail, is brownish streaked with black above and chiefly yellow below, but with a black irregular crescent on the breast. The **Western Meadow Lark** (*Sturnella neglecta*), from Illinois westward to the Pacific, is similar to its eastern congener, but has a much sweeter song.

Milk Snake. The milk snake, or house snake, of the northern United States is a color variety of the Southern States corn snake, or red snake (*Ophibolus doliatus*), a very variable non-poisonous species, 3 feet long, marked with brown blotches bordered with black. The milk snake, generally known in New England as spotted adder, has an arrow-shaped brown spot on the top of the head; the head of the corn snake is red.

Mink (*Putorius vison*) A black or dark brown amphibious mammal, 15 to 18 inches long exclusive of its bushy tail, and related to the weasels. Its food is mainly frogs and mollusks, but it will eat flesh of birds and quadrupeds. It nests in burrows in banks of streams, producing five or six young each April. Minks are caught in deadfalls and steel traps, fresh fish being used as bait. They have been bred in captivity for their valuable fur, which consists of a dense, soft under-fur mixed with long, lustrous hairs.

Minnow. A term loosely applied in the United States to almost any small fresh-water fish, and sometimes to those found in salt water. The genus Notropis, of the so-called minnow family *Cyprinidae*, numbers upwards of 100 species, all confined to North America east of the Rocky Mountains, which have been termed American minnows or shiners. They are of no importance as food fishes for man, but are useful as food for the larger predatory fishes, and as bait in fishing.

Mite (*Acarina*). Mites are near relatives of the spiders, but have the thorax and abdomen fused together to form a more or less rounded body, and are usually small. Some mites are scavengers, others infest plants, and many are parasites of other animals. The **Ticks** (*Ixodidae*), parasitic on larger animals, are conveyors of disease. The **Cattle Ticks** (*Margaropus*) in warmer regions infect cattle with a protozoan blood-parasite, causing Texas fever. The **Itch Mite** (*Sarcoptes scabiei*), a microscopic species that burrows in the human skin, giving rise to the itch. The **Red Spider** (*Tetranychus telarius*), a minute species that spins webs, attacks indoor cultivated plants. **Chicken Mites** (*Dermanyssus gallinae*) often swarm under the perches of ill-kept henhouses, and attack the poultry at night. **Harvest Mites** (*Leptus irritans*) known as jiggers or chigoes in the southern and western United States, burrow in the human skin, causing severe itching. The minute, white **Sugar Mite** (*Tyroglyphus sacchari*) infests raw or unrefined sugar in immense numbers, sometimes estimated to exceed 100,000 to a pound of sugar, and causes grocer's itch.

Moccasin Snake (*Ancistrodon piscivorus*). A dangerous venomous snake of the south Atlantic and Gulf states and the lower Mississippi valley, closely related to the copperhead, also known as the **Water Moccasin** from its aquatic habits, and as the **Cotton-mouth** from the whiteness of its mouth. It is about 4 feet long; dark chestnut brown, with the head purplish black.

Mole. General name for the small insectivorous mammals of the family *Talpidae*, of which there are seven genera and numerous species, all found in the northern hemisphere. They have short fore limbs and burrow in the ground; their fur is dense and velvety; they have no external ear, and their eyes are rudimentary. The **Common Mole** of the northern United States (*Scalops aquaticus*) is dark lead-colored above, paler beneath; about 4 inches long, exclusive of the tail, which is shorter than the head; burrows galleries just beneath the ground, often to the injury of lawns, in its search for insects and earthworms. The **Star-Nosed Mole** (*Condylura cristata*) of the northern United States is blackish, with slender head, the nose tipped with a circle of fleshy projections, and the tail longer than the head.

Monkey. A general name given to many long-tailed anthropoid primates; certain monkeys with long bushy tails are called marmosets, and others with dog-like faces are termed baboons. Large monkeys are often spoken of as apes, though this name is best restricted to the short-tailed, man-like kinds. The apes and monkeys together number about 212 species. They are divided into two great groups: the catarrhines and platyrrhines. The catarrhine monkeys are confined to the old world; their nostrils are close together and point downward, and they have 32 teeth. Those catarrhines that have long tails do not use them as prehensile organs. The platyrrhine monkeys are found only in the new world; their nostrils are wide apart and directed outwards, and, with the exception of the marmosets, they have 36 teeth. The tail is generally long; often prehensile.

Moose or Elk (*Alces machlis*). This largest of deer, clumsy, heavy, short-necked, with long head and broad ears, small eyes, big upper lip hanging over the lower one, and far from a deer-like aspect, is the largest game animal of North America and Europe. It reaches a height of eight feet at the withers, and is clothed with long, coarse, brownish hair. Its nearest relative is the reindeer, but, unlike the latter, the male moose has palmate horns, which, in old males, have 14 snags each, weigh as much as 60 pounds, and are formidable weapons. The hoofs are also used as weapons. The moose, or true elk, which should not be confounded with the "American elk" (*Cervus canadensis*), an entirely different animal and preferably called wapiti, has a circumpolar distribution, usually living in forests. Its American range is from Maine to Oregon and northward. (See DEER.)

Mosquito (*Culicidae*). Mosquitoes are small, blood-sucking diptera, occurring in nearly all parts of the world. Most species are crepuscular or nocturnal, a few diurnal; many kinds attack birds and reptiles as well as mammals, yet probably the normal food of adult mosquitoes is vegetable. The eggs of certain kinds are deposited in boat-shaped masses that float on the water, but other kinds lay their eggs singly. The larvae live in fresh or brackish water, some preferring foul, others clear water. They breathe air, coming often to the surface of the water to take it in through a tube at the posterior end of the body. The proboscis, or biting organ, of the female is a penetrating lance made up of six sharp filaments. The male mosquito does not bite. Malarial fever is caused by a blood-parasite introduced into the human system by the bite of species of **Malarial Mosquito** (*Anopheles*). Yellow fever is transmitted by the **Yellow-fever Mosquito** (*Stegomyia fasciata*), which inhabits the warmer portions of the globe, and is common in southern parts of the United States, as far north as Virginia and Arkansas. Elephantiasis, a tropical disease, is also conveyed by the bite of mosquitoes (*Culex*). Remedies against the multiplication of mosquitoes consist in draining their breeding pools; in treatment of these pools with kerosene, and in the introduction of small fishes, their natural enemies.

AMERICAN ELK, or WAPITI. Cervus canadensis.

Moth. Moths and butterflies together constitute the order *Lepidoptera*, or scale-winged insects, the butterflies being diurnal in habits and having knob-tipped antennae; the moths crepuscular or nocturnal in habits, and with antennae of various forms. The North American moths number about 6,600 species. Moths mostly pass the pupal state in cocoons, often of silk, or pupate beneath the ground. The larvae are commonly injurious to vegetation. **Hawk Moths** or **Humming-bird Moths** (*Sphingidae*) are heavy bodied moths with rather narrow wings, the caterpillars of which generally have a spine above the posterior end of the body; the so-called **Tomato Worms** and **Tobacco Worms** are larvae of large kinds of hawk moths (*Phlegethontius*). The **Bombycine Moths** (*Bombycina*) include some of the largest moths, and a great number of small species, among them the **Silkworm Moth** (*Bombyx mori*); the **Gypsy Moth** (*Porthetria dispar*) and the **Brown-tail Moth** (*Euproctis chrysorrhoea*), both bombycine moths introduced into New England from Europe, are very destructive to fruit and forest trees. To the **Owlet Moths** (*Noctuidae*) belong some of the most injurious garden insects, their larvae including the various species of cutworms. The **Measure-worm Moths** (*Geometridae*) are so termed because their caterpillars progress by a kind of looping and seem to be measuring the surface beneath them. The smallest moths (*Tineina*) include those species of Tinea which attack clothing, carpets, furs, and food.

Moufion. Closely related to the domestic sheep (*Ovis aries*), the origin of which is unknown, are about 12 kinds of wild sheep, of which three species are called moufions. Moufions are gregarious ruminants, in general appearance and in the form of their horns recalling sheep, but they are hair-clad rather than woolly. The **Common Moufion** (*Ovis musimon*) inhabits Corsica and Sardinia, and is thought to have been formerly found in Spain. The **Cyprus Moufion** (*Ovis ophion*) is found in small

numbers on the island of Cyprus, and the other species occurs in the mountains of central Asia.

MOUFLON. Ovis musimon.

Mouse. The smaller species of the rodent mammalian family *Muridae* are known as mice, the larger species as rats. Mice are omnivorous, sometimes cannibals, and are nocturnal in habits. The name was originally applied to the house mouse (*Mus musculus*), a native of Asia, which has become established in all parts of the world, and needs no description. Though commonest in buildings and cultivated fields it sometimes occurs in woods. White (*albino*), piebald, and abnormally colored varieties of the common mouse have been bred, and have at times commanded fanciful prices.

Mullet. A name applied to several kinds of teleost (*percesocine*) fishes of the family *Mugilidae*. The **Common Mullet** (*Mugil capito*), a nearly cylindrical food fish about a foot long, is taken in fresh and salt water from Scandinavia to the Cape of Good Hope. It feeds on organic matter found in mud. In the United States the name mullet is rather loosely applied to a number of catastomid and cyprinid fishes (*teleosts*), but more especially to *Mugil cephalus*, not only found in Europe, but along the Atlantic coast of America from Cape Cod to Brazil and on the Pacific coast from Monterey to Chile. It is from one to two feet long, dark bluish above and pale yellowish below, with silvery sides and dark stripes along each row of scales. **Red Mullets** are small marine and brackish water food fishes of tropical regions, extending, however, to northern Europe. There are about 50 species; they belong to the teleost (*acanthopterygid*) family *Mullidae*, and feed on minute animals and decomposing matter.

Musk Ox (*Ovibos moschatus*). This gregarious ruminant mammal has habits and structure somewhat like the sheep, but is of the size of small cattle; it forms a subfamily (*Ovibovinae*) of its own. It is called also musk-sheep and musk-buffalo. It once ranged through northern Europe as far south as the plains of Germany and France, and in North America to Virginia, but is now confined to the North American continent north of 60 degrees latitude.

Muskrat or Musquash (*Fiber zibethicus*). A rodent belonging to the *Muridae*, is found from the northern barrens of British America to the boundaries of Mexico, and from the Atlantic to the Pacific. Its length, exclusive of its laterally flattened, nearly naked, scaly tail, is about a foot; it is dark brown, almost black above, and gray beneath. Both sexes have large inguinal glands of which the secretion has a musky odor, whence the name muskrat.

Mussel. Salt water mussels are bivalve mollusks of the family *Mytilidae*. The **Edible Mussel** (*Mytilus edulis*) 2 to 3 inches long, a native of the temperate shores of Europe, is an immigrant in North America north of Cape Hatteras and on the Pacific coast. Its shell is black on the outside, bluish on the inside. **Fresh-water Mussels**, also called clams, are bivalve mollusks of the famiy *Unionidae*. The thicker kinds of their pearly shells are used to make buttons, and pearls of considerable value are found in river clams.

Nautilus. Cephalopod mollusks with a flat, spirally coiled, many-chambered shell, immensely abundant in earlier geologic periods,—over 2,000 fossil species of the family being known; now represented by about six living forms, natives of eastern oceans, commonly called **Pearly Nautilus**, from the inner lining of the shell.

Night Hawk (*Chordeiles virginianus*). A bird of the goatsucker family (*Caprimulgidae*), related to the whip-poor-will, occurring throughout North America; about 9 inches long, mottled black, gray and buffy with a white spot on the throat; flying in flocks at evening, catching insects with widely open mouth. It builds no nest, laying two eggs on the ground or in stumps.

Nightingale (*Daulias luscinia*). A small Old World warbler, about 7 inches long, famous since ancient times for its exquisite song. It is a shy, inconspicuous, woodland bird, wintering in Africa, visiting Europe and western Asia in summer.

Noddy (*Anous stolidus*). A sea bird related to the tern, common on tropical coasts, so named because it exhibits so little fear of man as to appear stupid.

Ocelot (*Felis pardalis*). An American mammal of the cat family found from Texas to Paraguay, also called **Tiger Cat**, and sometimes leopard. It is a woodland animal, 3 feet long, hunting small animals and birds at night. Other species called ocelots occur in South America.

Octopus, Devil Fish. A cephalopod mollusk with a nearly spherical, sac-shaped body, two conspicuous eyes, and a large mouth surrounded by 8 long arms provided with suckers, with which it seizes fish and other sea animals upon which it feeds. There are nearly 100 species, found in all oceans—some Pacific coast species having an arm spread of 15 feet.

Okapi (*Ocapia johnstoni*). An African ruminant mammal very closely related to the giraffe, but with much shorter neck and fore legs, discovered in the Congo Free State in 1900 by Sir Harry Johnston. It resembles a large deer in size and form and is strikingly colored, the forehead being bright red, the cheeks yellowish white, the body reddish with the haunches and upper portions of the legs marked with zebra-like whitish stripes, and the lower parts of the legs white.

YOUNG MUSK OX.

Opossum (*Didelphis virginiana*). A North American marsupial mammal, occurring from New York to California and southward, about the size of a cat, with a long, scaly, prehensile tail, and

a pointed nose; dwelling in trees, hunting at night; living upon insects, small animals, and birds. The opossum is remarkable for its habit of feigning death when caught, and with one exception is the only genus of pouched mammals outside of the Australian region—the young being carried by their mother in a pouch for 2 months after birth. Some 20 more species of opossums occur in South America.

Orang-Utan (*Simia satyrus*). A large man-like ape, 4½ feet high when erect, native of Borneo and Sumatra, ranking below the chimpanzee and gorilla, living in trees, and subsisting upon fruits, nuts, and tender plants. It is a prime favorite in menageries, displaying remarkable powers of imitation and almost human actions such as dressing in clothes, sitting at table, and eating food with fork and spoon.

Oriole (*Icterus*). Some 40 species of beautiful singing birds of the New World, related to the blackbirds, building suspended, pouch-like nests of closely woven fibers. The **Baltimore Oriole** (*I. galbula*), so named because its colors corresponded with the orange and black of Lord Baltimore's livery, is common in the eastern United States. The **Orchard Oriole** (*I. spurius*), a fine songster, but slightly smaller and less conspicuously colored, has a similar range.

Otter. A fish-eating mammal of the weasel family, living along lakes and streams, highly prized for its fur. The **North American Otter** (*Lutra canadensis*) about 3 feet long, tail 18 inches, is most abundant in British America. The **Sea Otter** (*Latax lutris*), a most valuable fur animal, more stoutly built, with a woolly undercoat, formerly abundant, is now nearly extinct in Alaska.

Ounce (*Felis uncia*). A large, thick-furred cat, adapted to life in the cold mountain regions of Asia, about equal to the leopard in size, living upon smaller animals, never attacking man.

Owl (*Bubonidae, Strigidae*). A well-marked group of nocturnal birds of prey, containing about 200 species, found nearly throughout the world, usually solitary, preying chiefly upon mice, moles, and other small injurious animals, and hence generally beneficial to man. The **Great Horned Owl** (*Bubo virginianus*), the largest and boldest common species, 22 inches long, is abundant throughout the continent. The slightly larger **Snowy Owl** (*Nyctea nyctea*), 25 inches long, breeding from Labrador northward, visits the northern United States in winter. The **Long-eared Owl** (*Asio wilsonianus*), 15 inches long, common from Manitoba southward and eastward, nesting in holes in trees or in old crows' nests, is very destructive to mice. The **Short-eared Owl** (*Asio accipitrinus*), 15 inches long, almost cosmopolitan, lives and nests in marshes. The **Barred** or **Hoot Owl** (*Syrnium nebulosum*), common from Manitoba southward and eastward, is familiar by reason of its hooting call. The solemn visaged **Barn Owl** (*Strix pratincola*), 17 inches long, ranges from New York southeastward to Mexico. The **Screech Owl** (*Megascops asio*), only 10 inches long, is known everywhere from Minnesota eastward and southward on account of its weird cry. The **Burrowing Owl** (*Speotyta cunicularia*), 10 inches long, of Rocky Mountain plains, lives in the burrows of prairie dogs and squirrels, but the story that these owls, prairie dogs, and rattlesnakes live together is a myth.

Oyster (*Ostrea*). A marine bivalve mollusk, growing near shore, in 12 to 35 feet of water in nearly all oceans,—there being upwards of 50 species, the most common of which are *O. virginiana* of the east coast of the United States, and *O. edulis* of Europe, both of which are extensively cultivated in specially prepared beds for the markets. Oyster culture was probably first practised by the Romans.

Parrot (*Psittacidae*). A family of 350 species of birds, chiefly tropical, none occurring in Europe, China, or the Philippines, of striking form and plumage, some of which possess remarkable powers of imitating the human voice. Only one species, the **Carolina Parrot** or **Parakeet** (*Conurus carolinensis*), occurs in the United States and is now confined to southern Florida.

Partridge. A name popularly given to many hen-like game birds (*Tetraonidae*). The true partridge (*Perdix cinerea*) is the common game bird of Great Britain. In New England the ruffed grouse (*Bonasa umbellus*) is called partridge, while farther south the bob white or quail (*Colinus*) receives the name, and the ruffed grouse is called pheasant. There are several species of true partridges and quails in the southeastern United States and Mexico. (See GROUSE, QUAIL.)

Peccary (*Dicotyles*). A small forest-dwelling, hoofed mammal, allied to the swine, but with more slender legs, no visible tail, and only three toes on the hind feet. The **Collared Peccary** (*D. torquatus*), 14 inches high, 38 inches long, living in pairs or small parties, ranges from Arkansas and Texas to Patagonia. The larger **White-lipped Peccary** (*D. labiatus*) occurs in vast herds from Central America to Paraguay.

Pelican (*Pelecanus*). A large fish-eating bird with an immense bill provided with a pouch used as a scoop net for catching fish. The **White Pelican** (*P. onocrotalus*), abundant in the Mediterranean region, 5 to 6 feet long, wing spread 9 to 10 feet, was well known to the ancients. The American White

PELICAN.

Pelican (*P. erithrorhyncus*) of the Western and Southern states is very similar. The smaller, more active **Brown Pelican** (*P. fuscus*) is common on warm coasts of North and South America.

Perch (*Percidae*). A large family of northern fresh water fishes. The **Yellow Perch** (*Perca flavescens*), 10 to 15 inches long, of the Eastern States, is an excellent pan fish. The **Pike Perch** or **Wall-eyed Pike** (*Stizostedion vitreum*) of Lake Champlain to Lake Michigan and northward, a valuable food fish, 1 to 3 feet long, is distributed in millions by the U. S. Fish Commission.

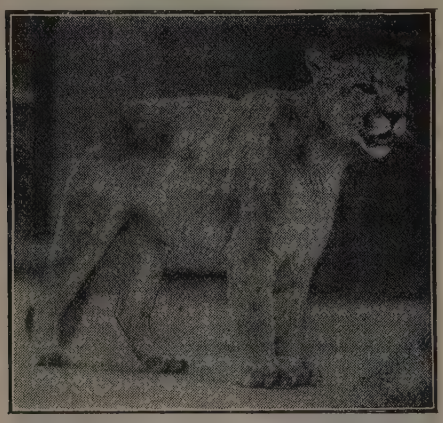
Petrel. A wandering, tube-nosed, oceanic bird, most abundant in southern seas, some apparently visiting land only at nesting season. The **Stormy Petrel** or **Mother Carey's Chicken** (*Procellaria pelagica*), about 6 inches long, the smallest of web-footed birds, breeds on Norwegian and British coasts.

Pheasant (*Phasianus colchicus*). A game bird, related to the peacock and turkey, native of Asia, now naturalized in Europe, particularly in England, where it is reared in great numbers. The **Golden Pheasant** (*Thaumalea picta*) and the **Silver Pheasant** (*Euplocomus nycthemerus*), both brilliant Chinese species, are reared in aviaries. The **Argus Pheasant** (*Argusianus giganteus*) is a beautiful south Asian species.

Pike (*Esox*). A slender, long-snouted, very voracious, fresh-water, game, and food fish. The **Common Pike** (*E. lucius*), ranging from New

York westward and northward, is 2½ to 4 feet long and sometimes weighs 40 pounds. The splendid **Muskallunge** (*E. masquinongy*), largest of all, attains 6 feet in length and 75 pounds weight. The well-known, gamy **Eastern Pickerel** (*E. reticulatus*), 30 inches long, is common in ponds east of the Alleghanies from Maine to Alabama.

Pintail (*Dafila acuta*). A duck common to northern Europe and America, breeding from Iowa and Illinois to the Arctic Ocean. So named from the long and sharp central feathers of the tail. (See plate of DUCKS.)



PUMA.

Plover. A group of about 75 species of wading birds, widely distributed over the world. The **Golden Plover** (*Charadrius dominicus*), 10 inches long, found throughout North America, also in South America, Europe, and Asia, is a well-known game bird.

Porcupine. True Old World porcupines are burrowing rodents; those found in America live in trees or in clefts of rocks. The **Canada Porcupine** (*Erethizon dorsatus*) of eastern North America, 3 feet long, is effectively protected by an array of barbed spines, loosely attached to its skin.

Porpoise (*Phocaena communis*). An aquatic mammal related to the whale, 4 to 6 feet long, abundant in northern oceans, going in schools, feeding upon fish, once used for food but now taken mostly for oil and leather.

Portuguese Man-of-War (*Physalia arethusa*). A colonial jellyfish whose beautifully colored sac-like float, about 6 inches long and filled with air, is surmounted by a sort of comb, while underneath are long streamers of many shapes, often 20 feet in length, some of which are armed with batteries of stinging cells of such power as to overcome large fish, which are devoured for food. The various grape-like or thread-like appendages are members of the colony. While common in the tropical waters some drift northward with the Gulf Stream and are seen off the New England coast.

Potato Beetle (*Leptinotarsa decemlineata*). A leaf beetle with a round yellow body with black stripes, very destructive to potato plants; native of Colorado, but migrating eastward in 1859, reaching the Atlantic coast in 1874; now common throughout the eastern United States and also introduced in other countries.

Prairie Dog (*Cynomys ludovicianus*). A small, burrowing rodent about a foot long, related to the gophers, living in large colonies called dog towns or villages, in the high plains in Wyoming and east of the Rocky Mountains. They are very timid, never venturing far from their burrows, and live upon grass and roots.

Ptarmigan (*Lagopus*). An arctic bird of the grouse family, brown and white in summer, turning pure white in winter, usually with feathered legs and feet. The **White** or **Willow Ptarmigan** (*L. lagopus*) visits the northern United States in winter.

Puma (*Felis concolor*). Called also cougar, panther, catamount, and mountain lion. A large cat, 7 feet long, weighing 200 pounds, tawny or reddish above, grading to nearly white below, ranging from British America to Patagonia, now rare east of the Mississippi, still abundant in the Rocky Mountains; very destructive to cattle, colts, and sheep, but rarely, if ever, attacking man.

Python. A huge, crushing, non-venomous Old World snake of the boa family, second only to the anaconda in size, dwelling in forests, living upon small mammals and birds. The **Regal Python** (*P. reticulatus*) of the East Indian region attains a length of 25 feet, and the **Rock Python** (*P. sebae*) of Africa exceeds 20 feet.

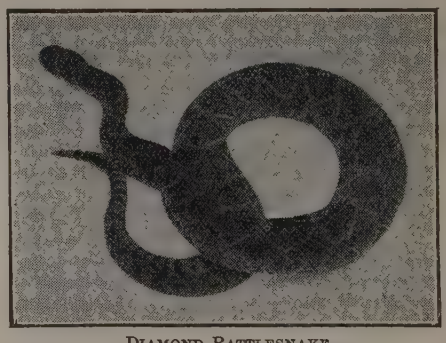
Quagga (*Equus quagga*). An African zebra-like mammal more nearly resembling the horse than the ass, formerly only of limited range, and now thought to be extinct.

Quail. The **American Quail** or **Bobwhite** (*Colinus virginianus*). A highly esteemed game bird, 9 inches long, occurs from the Great Plains eastward. It is usually called partridge in the Middle and Southern States. The true quail (*Coturnix*), slightly smaller, breeding abundantly in Europe and returning to Africa for the winter, is caught in immense numbers for the markets. (See PARTRIDGE.)

Quetzal (*Pharomacrus mocinno*). A Central American trogon, one of the most beautiful of birds, with the wings, chest, and throat metallic green, the under portions brilliant scarlet, and long white tail feathers with a black base, sometimes over 3 feet long, so much prized in millinery that the species is becoming rare.

Rabbit. A name applied in the United States to all the wild species of hares, but properly belonging to the European species (*Lepus cuniculus*). The European rabbit is smaller than the hare, with shorter limbs, and differs from it especially in the fact that the young are born blind. It is very prolific and the flesh is considered excellent food. Rabbits were introduced into Australia in 1850 and soon became so abundant as to be a plague. There are about 10 varieties of domesticated rabbits, among which is the Belgian hare.

Raccoon (*Procyon lotor*). A North American carnivorous mammal closely related to the bears. It is about 12 inches high and has long, yellowish gray fur with black rings around the tail. Raccoons are especially abundant in the southern United States, where they frequent wooded swamps and forests bordering streams.



DIAMOND RATTLESNAKE.

Rattlesnake (*Crotalus horridus*). A venomous American snake once common from the Rocky Mountains eastward, but now largely exterminated, sometimes 4 feet in length, distinguished by the rattle composed usually of 6 to 9 horny rings, terminating the tail, with which it almost invariably gives

warning before it strikes. The **Diamond Rattlesnake** (*C. adamanteus*) of Florida is larger, sometimes being 8 feet in length, and more dangerous. The small **Prairie Rattlesnake** or **Massasauga** (*Sistrurus catenatus*), 30 inches long, of the interior plains, is now becoming rare. There are 11 true rattlesnakes and 2 massasaugas in North America.

Rhea. The generic and English name of a family of ostrich-like birds of South America. The head and neck of the rhea are fully feathered, the wings, which are longer than those of the ostrich, are covered with long slender plumes, and the feet are three-toed.

ASIAN RHINOCEROS. Young.

Rhinoceros. A large, thick-skinned, hoofed mammal of tropical Asia and Africa, with a horned snout, second only to the elephant in bulk, though perhaps equaled by the hippopotamus. The **Indian Rhinoceros** (*R. unicornis*), the largest of all, exceeding 10 feet in body length, and standing fully 5 feet at the shoulder, has but 1 horn. Its exceedingly thick skin is arranged in shield-like folds. Two smaller one-horned species are found in southern Asia and adjacent islands. The **African Rhinoceros** (*R. bicornis*) of central and southern Africa, is somewhat smaller than the Indian rhinoceros. It possesses two horns and the skin is free from folds.

Robin. The **American Robin** (*Merula migratoria*), of the thrush family, found everywhere from the Rocky Mountains and Alaska eastward, is one of the best known and most affectionately regarded of American birds. It is much larger than the **Old World Robin** (*Erythacus rubecola*), which is a warbler, but resembles it in color, song, and disposition.

ROCKY MOUNTAIN GOAT.

Rocky Mountain Goat (*Oreamnos montanus*). A North American goat-like antelope, ranging from middle California northward to Alaska, much resembling the common goat, but more sturdy, usually weighing about 100 pounds, living at high elevations near the upper limit of trees, and feeding upon mosses, lichens, and shrubs. It is seldom taken by sportsmen, and is rare in zoölogical gardens, though it endures captivity better than the mountain sheep or bighorn.

Salamander. A name given to tailed amphibians of the order *Urodela* and family *Salamandridae*. They have a robust body, well developed limbs, 4 and 5 toes, and no external gills in the adult form. Salamanders are most abundant in the northern hemisphere, especially North America.

Sandpiper. A name applied to a large number of shore birds of the family *Scolopacidae*, closely related to the snipes. They are mostly birds which breed in the Arctic region and go to southern climates to pass the winter.

Sardine. A small fish of the genus *Clupanodon*, allied to the herring. The **European Sardine** (*C. pilchardus*), which is very common in the Mediterranean and adjoining ocean, is commonly put up in oil and canned.

Scallop. A common bivalve mollusk of the genus *Pecten*, with a fan-shaped shell. The **Common Scallop** (*Pecten irradians*), found along the Atlantic coast, is about 2½ inches in diameter and has a horn-colored shell. The adductor muscle of this species is in great demand as a delicacy.

Scorpion. A small, mostly tropical, animal of the family *Scorpionidae*, usually 2 to 8 inches long, and somewhat resembling a small lobster in shape. Scorpions have 4 pairs of legs, a pair of pincers much like those of a lobster, and a jointed, flexible tail ending in a sharp venomous sting. Although very painful, the sting is rarely if ever fatal to man. About 30 species are North American, mostly small in size and confined to warm regions.

Sea Anemone. A marine coelenterate animal similar to the coral polyp, so named for its resemblance to a flower,—the brilliantly colored tentacles expanding like petals. They are practically stationary, but possess some slight power of motion over the rocks to which they cling. They catch their prey, shrimps or small fish, by paralyzing it with the peculiar lasso cells in the tentacles.

Sea Cucumber (*Holothuroidea*). A group of marine animals (*Echinoderms*), with a soft, worm-like body having a tough, leathery covering, often cylindrical in shape and warty like a cucumber. The mouth is surrounded by a circle of food-grasping tentacles. Locomotion is effected by alternate elongation and contraction of the body. About 600 species are known. The larger forms supply the Chinese with "trepang" or bêche-de-mer, considered a great delicacy.

Sea Horse (*Hippocampus*). A small fish of the family *Syngnathidae*, having a head and neck somewhat resembling that of a horse, and a finless, prehensile tail. The body is covered with a bony shell arranged in rings. The male has a pouch on the breast, in which it carries the eggs until they are hatched.

Seal. True or hair seals are fin-footed, aquatic mammals of the family *Phocidae*, numbering about 15 species, mostly of cold seas, of which five or six occur in North American waters; among them the common harbor seal, ring seal, hooded seal, and the harp or Greenland seal, highly valued for oil and leather. The "fur" seal is a sea lion.

Sea Lion. An aquatic, pinniped mammal (family *Otariidae*), closely related to the seals, numbering 9 species, mostly Antarctic, of which 3 occur in the North Pacific. The **California Sea Lion** (*Zalophus californianus*), 7 feet long, weighing 450 pounds, is often kept in captivity. **Steller's Sea Lion** (*Eumetopias stelleri*) of the North Pacific, largest of all, is 10 feet long and stands 6 feet high. The so-called **Fur Seal** (*Callotaria ursina*), yielding beautiful fur, is found on islands in Bering Sea.

Sea Turtles (*Chelonidae*). Four species occur in North American waters: the **Loggerhead Turtle**, weighing 300 pounds, of tropical seas; **Kemp's Loggerhead Turtle** of the Gulf of Mexco; the **Green Turtle** (*Chelonia myas*), highly esteemed for food, rarely weighing 600 pounds; and the much smaller **Hawk's-bill Turtle** (*C. imbricata*), which yields the "tortoise shell" of commerce.

Sea Urchin (*Echinoidea*). A marine echinoderm related to the starfish, with spherical, heart-shaped, or disc-shaped body, provided with movable spines. The body is inclosed in a case of 10 double rows of calcareous plates, the 5 alternate rows being perforated to allow the exit of the feet or tentacles. Besides there are hundreds of small tubular feet by which the animal moves along with a rocking motion and with which it secures its food, usually seaweed and dead fish. Over 300 species are known.

Secretary Bird (*Serpentarius secretarius*). A large South African bird having long legs, a long tail, and a crest of feathers protruding from the back of the head. It feeds upon reptiles of all kinds and is much prized on account of its habit of killing snakes.

Shrew. A small, insectivorous mammal of the family *Soricidae*, having much the general appearance of a mouse, with a long pointed muzzle and soft fur. Shrews are very widely distributed, being found in most parts of the northern hemisphere.

Shrike (*Laniidae*). A family of passerine birds with habits like birds of prey, numbering 200 species, mostly of the Old World; only two are American. The **Great Northern Shrike** or **Butcher Bird** (*Lanius borealis*) breeds far north, but migrates southward in winter to Kansas and Virginia. The **Loggerhead Shrike** (*Lanius ludovicianus*) common in the Eastern and Southern States breeds northward to the Great Lakes and eastward to Maine.

Shrimp (*Crangon vulgaris*). A small, slender crustacean with a long tail, abundant on the coasts of Europe, and much prized for food in England and France. In the United States the so-called shrimps of the markets are usually prawns.

Skink. A lizard of the family *Scincidae*, widely distributed throughout the world, especially in warm regions. There are about 60 genera and 200 species. They have short limbs and most of them are terrestrial and burrowing. Several species are found in the United States.

Skunk. A carnivorous fur-bearing mammal of the family *Mustelidae*, found only in America. Skunks have a slender body, a bushy tail, and long hair with black and white markings. They protect themselves by means of a very offensive fluid which is ejected from glands under the tail. The **Common Skunk** (*Mephitis*), of which there are about 9 species, is widely distributed throughout the United States and Mexico. The fur is very extensively used, the white portion being colored black.

Sloth (*Bradypodidae*). A sluggish, wholly arboreal, edentate mammal, occurring in Central and South American forests, particularly in the Amazon region. The **Three-toed Sloth** (*Bradypus tridactylis*), about 20 inches long, has 3 toes on each foot, and 9 cervical vertebrae, while the slightly larger **Two-toed Sloth** (*Choloepus didactylus*) has 2 toes on the fore feet and only 6 cervical vertebrae.

Smelt (*Osmerus*). A small, finely-flavored, much-prized food fish, related to the salmon. The **American Smelt** (*O. mordax*) of the Atlantic coast and many New England lakes, greenish above with silvery sides, and attaining a length of 10 inches, is marketed in great quantities. The **European Smelt** (*O. eperlanus*) is very similar.

Snails (*Helicidae*). A very numerous group of gastropod mollusks, provided with a protective spiral shell containing the whole animal, embracing several thousand species, varying from the northern limits of trees to Patagonia, and from tropical plains to mountain elevations of 10,000 feet. The Romans reared the **Vineyard Snail** (*Helix pomatia*) for food which, together with other edible species, is still largely eaten in Europe, particularly during Lent.

Snipe (*Gallinago*). The common name of several game birds related to the woodcock and sandpipers, living on oozy shores of streams and ponds, where they search the mud with their long, straight bills for worms and insects. **Wilson's Snipe** (*G. delicata*), breeding from New England to Labrador and westward to Illinois, is highly prized by sportsmen, not only for its excellent flesh, but also on account of the skill in marksmanship required to secure it.

Sole (*Solea vulgaris*). A European flat fish, 10 to 20 inches long, much esteemed for its delicate flavor, very abundant on sandy British shores, where it is taken in nets. The somewhat smaller **American Sole** (*Achirus fasciatus*) occurs from Massachusetts to Texas, while the larger and excellent **California Sole** (*Eopsetta jordani*) ranges from Monterey to Puget Sound.

Sparrow (*Passer*). The common name given to many small birds of the finch family, chiefly field or plain inhabiting, with brown or streaked, protectively colored plumage; seed-eating and much less migratory than insect-eating birds. Among the better known common species in the United States are the house, or English sparrow, the tree, field, chipping, and song sparrows.

Six-eyed Spider.

Jumping Spider.

SPIDERS.

Spiders (*Araneida*). An order of *Arachnida*, distinguished by a round abdomen, provided with web-secreting spinnerets, 4 pairs of seven-jointed legs, biting mandibles connected with poison glands and usually 8 eyes. There are upwards of 30 families, embracing an immense number of species, ranging from minute forms to huge bird spiders 3 inches long with a leg spread of 10 inches. With reference to habit they may be considered in two classes: web-weaving spiders which entrap their prey in more or less elaborate webs, and wandering spiders, which capture by hunting. While their bite is poisonous only a few are dangerous—the dreaded tarantula being comparatively harmless, though the bite of the New Zealand **Katipo** (*Latrodectus*) sometimes causes death.

Sponges (*Porifera*). A large group of fixed, plant-like animals, ranking next to the protozoa in simplicity of structure. Sponges consist of a framework—sometimes of a fibrous or horn-like sub-

Ventriculites.

Dactylocalyx.

Sycandra.

SPONGES.

stance, and sometimes of an aggregation of hard, siliceous spicules—which supports in its meshes the soft, jelly-like animal parts. The fibrous framework or

skeleton of certain species freed from animal matter and dried is the sponge of commerce. Of several thousand species of sponges only about 6 are commercially valuable. The best dried sponges come from the Mediterranean, those from the Red Sea are next, while those from the West Indies are coarser and less durable. The **Wool Sponge** (*Spongia gossypina*) of Florida attains a weight of one tenth of a pound in 6 months' growth and is marketable in a year. **Venus's Flower-basket** is a peculiar siliceous sponge, as is also the curious **Glass-rope Sponge.**

Squid. A cephalopod mollusk, with a long body, wide lateral fins, a head encircled by 8 sucker-bearing arms and 2 longer, slender tentacular arms or feelers, also sucker-bearing. The **Common Squid** (*Loligo vulgaris*) of European waters, 12 inches long, is a much prized bait for cod, as is the very abundant **Flying Squid** (*Ommastrephes illecebrosus*), 6 to 12 inches long, of the New England coast, so named from its habit of leaping from the water. The **Giant Squid** (*Architeuthis princeps*) attains enormous size, a specimen washed ashore in Newfoundland measuring 44 feet in length.

Squirrel (*Sciurus*). A small rodent with soft fur, long bushy tail, large eyes, and long whiskers, diurnal and mostly arboreal in habit, numbering over 100 species, distributed nearly throughout the world, except Australia, the largest and most beautiful occurring in southern Asia. The **Red Squirrel** (*S. hudsonicus*), 14 inches long, tail 6 inches, ranging from Labrador to the Rocky Mountains and Alaska, is the hardiest American species, never hibernating in winter. The **Gray Squirrel** (*S. carolinensis*), 20 inches long, tail 9 inches, inhabiting forests from Maine to Minnesota southward, partially hibernating in winter, is abundant in parks and easily tamed. The southern **Fox Squirrel** (*S. niger*), 26 inches long, tail 12 inches, occurring in the south Atlantic and Gulf states, is the largest American species.

Starfish (*Asteroidea*). A class of marine echinoderms with a five-sided, usually five-rayed, star-shaped body covered with short small spines. There are 2 or 4 rows of feet or tentacles on the mouth side of the body which enable them to crawl. At the end of each ray is a rudimentary eye. Starfish are very destructive to snails, worms, clams, and small shellfish, particularly oysters, doing great damage to oyster beds. The starfish grasps the oyster with its tentacles, exerts a steady strain, finally compelling it to open. The starfish then protrudes its stomach and digests the soft parts of the oyster.

Starling (*Sturnus vulgaris*). An Old World bird of striking brown, black and buff plumage, resembling small crows in habits, often mimicking other birds and familiar sounds; well known to the ancients and still frequently kept as a cage bird.

Stork (*Ciconia alba*). A large, well-known heron-like European bird, standing fully 3 feet high and exceeding 3½ feet in length. In central Europe, where they are protected as scavengers, they build their nests on roofs and chimneys in immense numbers. Storks display remarkable fidelity to their young and have entered largely into folk lore, proverbs, and fable.

Sturgeon (*Acipenser*). A large, long-snouted, sea and river fish, occurring in northern regions. The **Common Sturgeon** (*Acipenser sturio*) of Europe and America, a shark-like fish, sometimes reaching a length of 12 feet, is much prized for food, caviare being made from its roe. The **Giant Sturgeon** (*A. huso*) of the Caspian and Black seas attaining 24 feet in length and weighing upwards of 1,200 pounds, is coarse-fleshed and inferior.

Sucker (*Catastomus*). A North American fresh-water fish distinguished by a toothless, sucker-like mouth, without barbels. There are upwards of 50 species, some of which are prized for food, though the flesh is rather inferior and somewhat tasteless.

Sunfish (*Lepomis*). A small perch-like, North American fish inhabiting still, clear streams and ponds, living on crustacea, worms, and other fishes. They are easily caught and are of fair quality as food fish.

Swallow (*Hirundinidae*). A passerine bird with a forked tail, long pointed wings, and a short, widely opening bill, found in nearly all regions. The **Barn Swallow** (*Petrochelidon erythrogaster*) nesting in colonies in barns, 7 inches long, steel-blue above, buff below, is exceedingly abundant from the Atlantic to the Pacific. The **Cliff Swallow** (*Petrochelidon lunifrons*), also called **Eave Swallow,** 5 inches long, steel-blue above, whitish below, usually builds under eaves. The **Tree Swallow** (*Tachycineta bicolor*), 6 inches long, steel-blue above, pure white below, ranging from Labrador to Alaska, usually nests in trees. The **Bank Swallow** (*Riparia riparia*), 5 inches long, grayish brown above, white below, nests in burrows in sand or gravel banks.

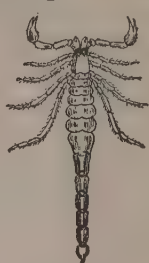
Swordfish (*Xiphias gladius*). A large, widely distributed fish, frequenting the open seas, reaching a length of 15 feet and weighing upwards of 400 pounds. The bones of the upper jaw are prolonged into a stiff, flattened sword, which it uses to kill other fish for food. Its oily flesh is highly regarded, resembling that of the halibut.

Tanager (*Tanagridae*). A family of small, usually brilliantly colored birds, related to the finches, numbering upwards of 300 species, mostly of tropical America. The **Scarlet Tanager** (*Piranga erythromelas*) of eastern North America from Manitoba southward, a fairly good song bird with brilliant scarlet body and black wings, is conspicuous in woodlands in summer. The **Summer Tanager** or **Redbird** (*P. rubra*) of the Eastern States, is similar in size, but deep rich red throughout. The **Louisiana Tanager** (*P. ludoviciana*), yellow and black with only the head red, occurs in the Western States and Canada.

AMERICAN TAPIR.

Tapir (*Tapirus*). A large, thick-skinned, hoofed mammal with a short, movable proboscis, small eyes, pig-like ears, distinguished from their nearest allies the rhinoceroses by having 4 toes on the fore feet, and 3 toes on the hind feet. In habit tapirs are solitary, shy, and harmless, living in the dense undergrowth of forests. The **American Tapir** (*T. americanus*) of South American forests east of the Andes, 6 feet long and 3½ feet high, is hunted for its flesh and sometimes domesticated. The **Malay Tapir** (*T. indicus*) of southern Asia, Sumatra, and Borneo, is the largest species, reaching 8 feet in length.

TARANTULA.



SCORPION.

Tarantula (*Lycosa*). A large, savage, preying spider, formerly reputed extremely poisonous, but found to be comparatively harmless. The

tarantula of southern Europe (*L. tarantula*) is sometimes 2 inches long, and the American species (*L. fatifera*) of New England and (*L. carolinensis*) of the Southern States are nearly equal to it in size.

Tarpon (*Tarpon atlanticus*). An immense American game fish, with enormous silver scales, sometimes 3 inches in diameter, ranging from Long Island to Brazil, most abundant in Florida and Porto Rico, reaching a length of 6 feet and 300 pounds weight, second in size only to the tuna or tunny among game fishes.

Teal (*Anas*). A small duck of the northern hemisphere, inhabiting lakes and swamps, usually easily insnared or shot, and highly esteemed for food. The **Blue-winged Teal** (*A. discors*), abundant east of the Rocky Mountains, about 16 inches long, is readily known by its sky-blue wing coverts. The slightly smaller **Green-winged Teal** (*A. carolinensis*), distinguished by a shining green patch behind the eye, ranges throughout North America. The **Cinnamon Teal** (*A. cyanoptera*) of the western United States, 17 inches long, has a cinnamon-colored head and neck and blue wing coverts. (See plate of DUCKS.)

Termites or **White Ants** (*Termes*). Isopterous insects somewhat resembling true ants in form and habits, though in no wise related to them. There are about 200 species, mostly of tropical regions, where they dwell in large colonies, sometimes constructing huge nests 10 feet high. They live chiefly upon dead wood and are very destructive to timber, wooden dwellings, and furniture.

Tern (*Sterna*). A sea bird related to the gulls, but swifter and more graceful in flight, often called the sea swallow. The **Common Tern** (*S. hirundo*), a beautiful bird about 15 inches long, grayish-blue and pearl gray in color, of the Atlantic coast, was once much more abundant, but has been nearly exterminated for millinery purposes.

Terrapin. Small carnivorous turtles, mostly aquatic, a few being terrestrial. There are about 80 species, 25 of which are North American. Some of the best known are the **Diamond Back** (*Malaclemmys centrata*) of the Atlantic coast, highly prized as a table delicacy; the **Painted Terrapin** (*Chrysemys picta*), common in ponds and shores (see plate of REPTILES), and the **Box Tortoise** (*Terrapene carolina*) of dry woods from New York to Missouri, which can shut itself in its shell like a box.

Thrush (*Turdidae*). The name for a large family of birds containing about 300 species, including many of the finest song birds. The **Wood Thrush** (*Turdus mustelinus*), frequenting woodlands of the eastern United States, is noted for its exquisite song, while the smaller **Hermit Thrush** (*T. aonalaskae*), occurring throughout North America, resembles the nightingale in appearance, and nearly equals it in song. The large **Missel Thrush** (*T. viscivorous*), the **Fieldfare** (*T. pilaris*), and the **Song Thrush, Throstle,** or **Mavis** (*T. musicus*) are common in Europe, the latter being one of the finest songsters.

Tiger (*Felis tigris*). A carnivorous mammal found exclusively in Asia, chiefly in India; a large, powerful, and active cat, second only to the lion in size, measuring when full grown, 6½ feet, besides the tail, about 3 feet in length, and weighing 350 to upwards of 500 pounds. The tiger is usually solitary in habit, lying hidden during the day, fond of water, and a strong swimmer. Game-hunting tigers live upon deer, antelope, wild pigs, and other small animals that destroy crops, and are rather beneficial than otherwise. Cattle-killing tigers, however, infest jungles near villages and wreak destruction upon cattle, horses, sheep, and goats, doing immense damage, and some of these, losing their fear of human beings, become man-eating tigers, which were a terrible scourge in India before European occupation. If taken very early, tiger cubs may be trained and remain good tempered when young, but are never trustworthy when full grown. Captive tigers were exhibited in ancient Rome and are now taken to most parts of the world, frequently living to an age of 25 years in captivity.

Toad (*Bufo*). A four-footed amphibian, related to the frog but lacking teeth, and more sluggish in habit, found chiefly on land, feeding on worms and insects, harmless except for slightly irritating secretions from its skin. The **American Toad** (*B. lentiginosus*) of the Eastern States is 3½ inches long, very warty when adult, brownish olive above and yellowish below, with several varieties.

Tortoise (*Testudinidae*). The name given to land turtles, which walk rather than swim, are herbivorous rather than carnivorous, and, though somewhat aquatic, none are marine. There

GIANT TORTOISE.

are about 20 species, the largest being found in the Galapagos Islands west of Ecuador, several kinds measuring 4 to 5 feet in length, and weighing several hundred pounds. Many are esteemed for their flesh, particularly some of the smaller species.

Tree Frog or **Tree Toad** (*Hyla*). A four-footed batrachian related to the frogs, with the toes provided with sticky discs for clinging to leaves and branches. The common **Tree Frog** (*H. versicolor*), 2 inches long, lives in trees from Kansas eastward. The **Cricket Frog** (*Acris gryllus*) somewhat smaller, with a sharp voice like that of a cricket, is found in swamps but rarely in trees.

Trichina (*T. spiralis*). A minute thread worm, infesting the intestines of the pig and some other mammals. When introduced into the human system encysted in raw or imperfectly cooked pork, trichinae develop in immense numbers, and in migrating to the muscles, produce the extremely painful and often fatal disease, trichinosis.

Trout (*Salvelinus*). A genus of fishes very closely related to the salmon, but smaller, more beautiful, and usually living in colder waters. The **Brook Trout** (*S. fontinalis*), the finest and most prized of inland game fishes occurring in cold streams, from New England to Minnesota northward, and introduced westward, is usually 6 to 10 inches long and seldom exceeds 2 pounds weight. The **Great Lake Trout** (*S. namaycush*), the largest species, very valuable for food, sometimes weighing 100 pounds, and averaging 15 to 20 pounds, occurs in large lakes from Maine to Vancouver and northward.

Tunny or **Tuna** (*Thunnus thynnus*). The largest of game fishes, in rare instances 10 to 15 feet long and weighing 1,500 pounds, but 50 to 250 pounds is a common size in California. Tunny fishing antedates the Christian era in the Mediterranean and is now the favorite sea sport of the California coast.

Turtle. The general name for any reptile of the order *Chelonia*, especially applied to marine forms, although in America land forms or tortoises as well as fresh-water species are called turtles. (See CHELONIA, SEA TURTLE, TERRAPIN, TORTOISE.)

Umbrella Bird (*Cephaloterus ornatus*). A South American bird similar to the crow in size, so named from a peculiar umbrella-like crest of feathers.

Ungulata, Ungulates. An order of mammals containing all hoofed animals, and including nearly all domestic animals, ox, horse, ass, sheep, goat, pig, reindeer, camel, llama, as well as the deer,

antelope, giraffe, elephant, zebra, tapir, rhinoceros, and hippopotamus.

Vampires. Certain South American leaf-nosed bats, mostly living upon insects and fruits, are called vampires. Popular superstition has invested the **Great Vampire** (*Vampyrus spectrum*), which has a hideous countenance beset with long canine teeth and a wing spread exceeding 2 feet with most horrible blood-sucking propensities, but it lives exclusively upon insects and fruits, and is entirely harmless. However, two small **Blood-sucking Vampires,** *Desmodus rufus* only 3 inches long, and *Diphylla ecaudata*, still smaller, attack men, cattle, horses, and other animals and are believed to subsist entirely upon blood.

VICUNA.

Vicuna (*Lama vicuña*). A mammal of the camel family, found in the high Andes from Ecuador to Bolivia, smaller than the guanaco, standing only about 2½ feet high at the shoulder, light brown or yellowish above and lighter below, still hunted by the native peoples for its flesh and wool.

Vinegar Eel (*Anguillula antiglutinis*). A small, slender worm living on the small fungi that grow in fermenting fruit juices, often seen in incompletely fermented or unfiltered vinegar.

Viper. Old World venomous snakes of the family *Viperidae*. The **Common Viper** (*Pelias berus*), the only poisonous snake of Great Britain, occurs throughout Europe and northern Asia. The **Chain Viper** (*Vipera russelli*), next to the cobra, is the most deadly serpent in India. The large **Puff Adder** (*V. arietans*), sometimes 6 feet long, is equally feared nearly throughout Africa. The small **Horned Viper** (*Cerastes cornutus*) of North Africa, only 2 feet long, is exceedingly dangerous.

Vulture. A carrion eating, diurnal bird of prey. Those of the New World (family *Cathartidae*) are large, long-winged birds of powerful and graceful flight, but voiceless, with naked head and neck, and clumsy and repulsive when on the ground. The **Black Vulture** (*Catharista urubu*), common in the Southern States and South America, and the **Turkey Buzzard** (*Cathartes aura*) with a wide range in the United States, and very abundant in the South and Southwest, are valuable scavengers in southern cities. The **California Vulture** (*Pseudogryphus californianus*), second only to the condor among birds of flight, sometimes attains a wing spread exceeding 10 feet. The **King Vulture** (*Gypagus papa*) of Mexico, is only slightly smaller, while the **Condor**, a South American vulture, is probably the largest bird of flight.

Walrus (*Odobenus*). A marine, carnivorous mammal, closely related to the seals; distinguished by the development of the upper incisor teeth into long, pointed tusks, an immense girth of body about the fore limbs, and the absence of external ears. The **Pacific Walrus** (*O. obesus*), sometimes 12 feet long, weighing 2,000 pounds, with tusks 2 feet in length, once ranged in large herds along the coasts of Alaska, but since 1860 has been nearly exterminated for its hide, ivory, and oil. The **Atlantic Walrus** (*O. rosmarus*), somewhat smaller, though occasionally exceeding 10 feet in length and 1,500 pounds weight, with tusks 18 inches long, was formerly abundant from Newfoundland northward, though it is now restricted to high latitudes by reason of its destruction for walrus oil, tusks, and leather.

Warblers. The name given to a large family (*Mniotiltidae*) of small American birds from their resemblance to the Old World warblers; usually brilliantly and variously colored; of about 100 species, a few are remarkable songsters, but most possess only feeble vocal powers. All are insect-eaters, and highly migratory; some species range from the tropics to beyond the Arctic circle and return during the year.

Wart Hog (*Phacochaerus*). Two closely related East African wild hogs are so named from large, wart-like protuberances on the sides of the face. Their heads are of enormous size, with long snouts and huge tusks. Except for the bristly mane surmounting the back their bodies are scantily covered with hair. The wart hogs are the ugliest in appearance of all swine, strong and fearless, and live chiefly on roots which they unearth with their tusks.

Wasp. A predatory, stinging insect, related to the bees, but differing in having strong jaws for biting, and lacking structures for gathering honey. Social Wasps, like honeybees, live in communities made up of males, workers, and females. The young are fed upon insects killed and prepared by the workers, while the grown wasps live upon meats, insects, fruit, and honey captured from honeybees in flight. Among the best known social wasps are the **Common Hornet** (*Vespa crabro*), and the **Yellow Jacket** (*Vespa arenaria*). Solitary Wasps do not form communities—each female making her own nest and rearing her young. These include the mud, sand, wood, and digger wasps. The **Common Mud Wasp** or **Mud Dauber** (*Eumenes fraterna*) plasters cells of clay on walls of houses, lays an egg in each and then fills them with insects paralyzed, but not killed, by stinging, which become food for the larvae when hatched.

Waxwing (*Ampelis*). A small passerine bird, so named from the small, red, horny, wax-like tips to the shafts of certain wing feathers. The **Bohemian Waxwing** (*A. garrulus*) is a graceful, beautifully crested bird about 8 inches long, ranging from the Great Lakes to Alaska, and also in Europe. The **Cedar Waxwing** or **Cedar Bird** (*A. cedrorum*), a somewhat smaller species, breeding from Virginia to Labrador, and wintering from the northern United States to Central America, is one of the most beautiful and attractive American birds.

Weasel (*Putorius*). A small carnivorous mammal of the marten family (*Mustelidae*), with a very slender body, short legs, and a long neck; very muscular, alert, and courageous; as savage and relentless as a tiger, preying upon mice, rats, birds, and other small animals, sometimes attacking poultry, but in the main beneficial to the farmer. Most weasels are reddish brown above, yellowish or white beneath, with a blackish tip on the tail, and in northern regions turn snow-white in the winter, when their fur is known as ermine.

Whale (Order *Cetacea*). A marine mammal, the largest of living animals, and, so far as known, the largest that ever existed. While fish-like in form, whales are air-breathing, warm-blooded, and suckle their young like land mammals. Some 25 species are known, distributed in all oceans, but most abundant in cold zones, grouped in two families: the **Baleen Whales** (*Balaenidae*), without teeth, but provided instead with baleen, which is the whalebone of commerce, and the **Sperm Whales** (*Physeteridae*) furnished with formidable teeth and containing in their enormous heads the peculiar oil called spermaceti. The baleen whales are largest, the giant **Sulphur-bottom Whale** (*Balaenoptera sulfureus*) of the California coast, largest of all, attaining nearly 100 feet in length; the **Atlantic Blue Whale** (*B. musculus*), next in size, reaching 85 feet, the **Rorqual** (*B. physalus*), 70 feet, and the **Arctic Bowhead** (*Balaena mysticetus*), the most valuable for whalebone and oil, sometimes exceeding 60 feet. The sperm whales range in size from the **Pygmy Sperm Whale** (*Kogia*), 15 feet long, to the **Great Sperm Whale** (*Physeter macrocephalus*), over 80 feet in length.

Whip-poor-will (*Antrostomus vociferus*). A peculiar bird of the goat-sucker family (*Caprimulgidae*), about 10 inches long, nocturnal in habits, ranging throughout the eastern United States and Canada, so named for its peculiar cry uttered for some time after sunset and before sunrise.

Whitefish (*Coregonus*). The common name, given on account of their silvery color, by which some forty species of excellent food fishes are known; found chiefly in the lake region of North America. The **Common Whitefish** (*C. clupeiformis*) of the Great Lakes, most valuable of all, and ranking very high among food fishes, is marketed in large quantities.

Wildcat. An indefinite name by which several of the smaller members of the cat family are popularly called. In the United States it is most commonly applied to the lynxes.

PRAIRIE WOLF, or COYOTE.

Wolf (*Canis*). A wild, carnivorous mammal of the dog family (*Canidae*). All are natives of the northern hemisphere, except one Antarctic species. Wolves in general are despicable cowards, and are readily frightened, usually obtaining their food by stealth, but when emboldened by hunger will attack cattle, horses, and even man. According to Hornaday, they are the only animals which make a regular practice of killing and devouring their wounded companions and eating their own dead. The **Gray** or **Timber Wolf** (*C. occidentalis*) ranges from northern Mexico almost throughout the continent to far beyond the Arctic circle. It attains a length of 4 feet, and is usually mixed black and white in color, but varies from black to white and reddish brown. In lairs in caves, burrows, or deep thickets, litters of 6 to 10 young are reared. It lives mostly upon small animals, particularly the sick and wounded, but when hunting in packs, will overpower the largest game. It has been largely exterminated in the Eastern States owing to its destructiveness to sheep and poultry. The **Coyote** or **Prairie Wolf** (*C. latrans*), similar, but smaller, being only about 3 feet long, common in the plains and mountains from central Mexico to Alberta, is very wary, cowardly, and is never dangerous to man, though it continually steals poultry, lambs, sheep, and pigs from ranches.

Wolverene or **Carcajou** (*Gulo luscus*). A small carnivore of the marten family (*Mustelidae*), about 30 inches long, with coarse, black outer fur, resembling a bear in form, but a marten in structure; noted for its cunning and voracity; becoming rare in America, now most abundant in the northern Rocky Mountains and Alaska.

Woodchuck or **Ground Hog** (*Arctomys monax*). A small, burrowing rodent, the best known of several North American marmots, about 18 inches long, clumsy, with short legs and a bushy tail, living on roots and herbs, hibernating early in winter, ranging from Hudson Bay to New England, Virginia, and Nebraska.

Woodcock (*Philohela minor*). A game bird of the snipe family, occurring from Manitoba to Labrador and southward, 11 inches long, with a long, straight bill, and large eyes set far back in the head, much prized for the table and, consequently, rapidly becoming scarce.

Wood Duck (*Aix sponsa*). The most beautiful of all ducks, noted for its resplendent plumage; occurs throughout North America, living in lowland woods, usually nesting in hollow stumps or trees, frequenting most portions of the United States during the summer, wintering southward and in Mexico and the West Indies. (See plate of DUCKS.)

Woodpecker (*Picidae*). The common name for a large group of arboreal, insect-eating birds, with a straight, strong bill, adapted for drilling in wood, a sharp-pointed, barbed tongue for spearing insects, and feet fitted for creeping and climbing, often brilliantly colored, but usually with harsh, unmelodious voices, numbering about 350 species, ranging throughout the world except in Australia and Madagascar, some 20 occurring in the United States.

Wren (*Troglodytes*). The name given to a group of small, passerine song birds, all plainly colored, very active, insect-eating, and mostly migratory, very widely distributed but most abundant in tropical America, there being over 150 species, of which the most familiar example is the **House Wren** (*T. aedon*) of the eastern United States.

Yellow Bird (*Spinus tristis*). A small bird of the finch family, about 5 inches long, bright yellow with black wings, occurring throughout eastern North America, also called **American Goldfinch** or **Thistle Bird.**

Yellow Hammer, Flicker, Golden-winged Woodpecker (*Colaptes auratus*). The largest as well as the most common and conspicuous woodpecker of eastern North America, ranging from Alaska southward east of the Rocky Mountains.

Yellow-legs (*Totanus*). A wading game bird of the snipe family, so called from the color of its long legs. Two species, the **Greater Yellow-legs** (*T. melanoleucus*) and the **Lesser Yellow-legs** (*T. flavipes*) are found in the eastern and central United States.

ZEBRA.

Zebra (*Equus*). An African ass-like animal, marked with conspicuous stripes, differing from the horse by having an erect mane, larger head, and larger ears. The **Mountain Zebra** (*E. zebra*) of Cape Colony is 4 feet high, white, striped with black on the head, body, and legs, resembling the ass more than the horse. **Burchell's Zebra** (*E. burchellii*), larger and more horse-like, 4½ feet high, sorrel above, white below with dark brown or black stripes only on the body and head, lives in herds on south African plains, where it is hunted for its hide and flesh.

GOVERNMENT

HISTORY OF GOVERNMENT
COLONIAL GOVERNMENT
CONSTITUTION OF UNITED STATES
STATE AND TERRITORIAL STATISTICS
PROPORTIONAL REPRESENTATION
SUFFRAGE LAWS
PRESIDENTIAL TABLE
HISTORIC PRESIDENTIAL STATEMENTS
MINOR POLITICAL PARTIES
MAJOR POLITICAL PARTIES
PRESIDENTIAL ELECTIONS
CABINET OFFICERS
BRITISH EMPIRE
PARLIAMENTARY LAW

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AMERICAN GOVERNMENTAL SESSIONS—I

President Herbert Hoover and Cabinet Officers

James J. Davis Robert P. Lamont Arthur M. Hyde Charles Curtis Ray Lyman Wilbur Charles Francis Adams
Walter F. Brown James W. Good Frank P. Kellogg Herbert Hoover Andrew W. Mellon William D. Mitchell

Supreme Court of the United States

Edward Terry Sanford George Sutherland Pierce Butler Harlan F. Stone
James Clark McReynolds Oliver Wendell Holmes William Howard Taft Willis Vandevanter Louis Dembitz Brandeis

BOOK XI.

GOVERNMENT.

GOVERNMENT.

Mural Painting in the Congressional Library, Washington,
BY ELIHU VEDDER.

HISTORY OF THE DEVELOPMENTS OF GOVERNMENTS: FAMILY, PATRIARCHAL, TRIBES, CLANS, VILLAGE, COMMUNITIES. FEUDALISM, DEMOCRACY, CONSTITUTIONAL MONARCHY, REPUBLIC. UNITED STATES GOVERNMENT AND DEPARTMENTS, FEDERAL, STATE, LOCAL AND MUNICIPAL GOVERNMENT. TERRITORIAL GOVERNMENT. SUFFRAGE. HISTORIC PRESIDENTIAL UTTERANCES. POLITICAL PARTIES: MAJOR AND MINOR. INDIAN AFFAIRS. BRITISH GOVERNMENT. PARLIAMENTARY LAW.

HISTORY OF GOVERNMENT.

Family and Patriarchal Forms.—The earliest known form of government which has come down from prehistoric times is the family or social unit. The Semitic family is patriarchal and polygamous; the Aryan family is monogamic.

Aryan Family.—In the Aryan family, such as was to be found in India, the family lived separately and possessed rights. The great idea was reverence of ancestors. Every home had a sacred fire, fed by certain kinds of wood, and never allowed to go out. This burned to the ancestors represented by Agni, just as in later days it burned to Vesta in Rome. The ancestral dead were buried near the home and reverenced as they are to-day in China. A woman, on marriage, left her home, her gods, and her ancestors, and assumed the gods, the ancestors, and the home of her husband. The daughter was not equal to the son, for upon him devolved the sacred duties of continuing the line and of keeping up the ever-burning fire.

Semitic Family.—Very early the Semites evolved the idea of obedience to one head, the patriarch. Members of the family knew very little personal liberty. The wives and children were practically slaves. Service and obedience were all they knew. Love was strongly marked, but it ranked second to the great idea of obedience. Discipline was severe and unbending. Land and possessions were chiefly held by families and not by individuals.

Greek Family.—From Homeric times family life in Greece was marked by the tenderest feelings, highest ideals, and most marked dignity. The love of Penelope for Ulysses, the tender and affectionate parting of Hector and Andromache, the heroism of Alcestis, the filial piety of Antigone, the majesty and grandeur of Polyxena, the sweet, modest love of Nausicaa, are, as Lecky says, "pictures of perennial beauty, which Rome and Christendom, chivalry and modern civilization, have neither eclipsed nor surpassed." Still, women were servants and performed the household duties, brought water, and ground flour. Even in the bright days in Athens, woman did not share the intellectual life of her husband.

Tribal Government.—Very early, as the family grew, the bounds of kinship were extended to embrace all distantly related members

for certain purposes, chiefly for protection. The chief was the eldest and governing member of the largest or most powerful family. Gradually other unrelated members were associated and a sort of social organization based upon real or assumed consanguinity grew up with military functions. The chief difference between a clan and a tribe appears to have been based upon the legal or juristic duties of the clan, and the military functions of the tribe. The clan settled its internal disputes; while the tribe, an aggregation of clans, settled differences with the outside world.

Village Communities.—The tribal system gradually changed into the village community, which was a settled agricultural form in place of the nomadic, pastoral form of tribal life. Village community government marks the change from pastoral or tribal to agricultural life and occupation. The tribe was divided into small groups of tillers of the arable land, spread over a moderately sized area, and governed by an overlord to whom they paid tribute.

Feudalism.—This form of government really gave shape to society during the greater part of the Middle Ages. After the Romans lost the world-power and the Germans invaded the neighboring countries, feudal government gradually appeared and endured until modern times in some form or other. The growth and the decline of feudal institutions were each gradual processes, and they did not appear instantly nor disappear suddenly. Very early in the feudal development it became customary for men of low rank and slight power to associate themselves with powerful men. The association was called *commendation*, and was performed by an oath of fealty and service. The subordinate was then a *vassal* or *man;* the superior was a *suzerain* or *lord;* and the ceremony was known as *homage and fealty*. This subordination became general, and often involved every one in a community, even kings becoming vassals of more powerful kings and suzerains.

The *fief*, *fee*, or *feud* was the foundation of the whole system. A *fief* was a piece of land held by a tenant from his lord without rent, but in exchange for certain feudal services. A ceremony called investiture attended the granting and acceptance of the land, when the tenant acknowledged his dependency and the lord gave his protection. The chief service tendered to lords by tenants was that of military service of himself and men for a certain period; and so general was this mode that the feudal system is often called military tenure.

Court service was a certain attendance at courts which the lord might exact. The lord claimed a guardianship or *wardship* over minor heirs of a deceased tenant, who were to be provided for and educated. The lord was also empowered to control the marriage of heirs, heiresses, and widows of deceased tenants. All of these services might be evaded by the payment of a fee. Cases in which fees were due to the lord were: a *relief* payable to the lord by an heir upon receipt of his property; an *aid* to defray the expenses of knighting the eldest son of the lord; of the marriage of the lord's daughter; and for his ransom in case of captivity. When there was no heir the land might revert to the king by an *escheat*, or, in cases of failure to render feudal service, by *forfeiture*.

In feudal society were to be found the nobles, who did the fighting, the clergy, and those who did the work. Among the nobles the titles of duke, marquis, and count were enjoyed by leaders who placed large forces in the field. Knights and barons ranked below these, and were, in turn, attended by squires. The peasants who worked upon the *manor*, as the lord's estate was called, were classed as *freemen* and *serfs*. The manor consisted of the *demesne* upon which the house was built, and the *outland*, held by the tenants, who dwelt in the village and who were nearly all *villeins*. The tenure of this land by the tenants was by *socage*, which involved the duty of performing a fixed number of days' work upon the farm, or of contributing food to the lord's table. When military service was rendered it was known as *knight service*. The divisions of the manors were *farms*. Free tenants were known as *franklins*, and ranked higher than the villeins or serfs, while the lower classes of serfs were the property of the master.

Democracy.—By the growth of democracy is meant the admission of the people to a larger share in administering the affairs of the country. It does not specify any particular form of government, for there may be a larger share of voice in public affairs allowed to the subjects in a constitutional monarchy than in a republic; and even under absolute monarchy and despotism there are occasions when the popular voice is unmistakably heard.

The democratic form of government was seen in Athens, where it reached a high stage of development in the way of free institutions and individual growth. Solon's reforms from 594 B. C. onward were the beginnings of democracy, which were furthered by Pisistratus, Cleisthenes, Themistocles, Ephialtes, and Pericles.

The struggles in Rome during its early period between the patricians or aristocrats, and the plebeians or democrats, mark the steady advance of democratic ideas and the recognition of the people in affairs of state. The expulsion of the kings in 509 B. C. and the adoption of the consular form of government, the agrarian laws and reforms, the establishment of the *comitia tributa*, the more general use of the word *populus* in affairs, the drawing up of the Twelve Tables (452 B. C.), and the overthrow of the decemviri (449 B. C.) mark the earliest advances of democracy in Rome. The grand attacks by plebeians upon the aristocratic forces during the following hundred years brought about the complete emancipation of the plebeians from all social and political disabilities. The Lex Canuleia (445 B. C.), which rendered valid the marriage of a plebeian and patrician; the opening of the office of military tribune to the plebs (445 B. C.); of the quæstorship (421 B. C.); of the dictatorship (356 B. C.); of the censorship (351 B. C.); of the prætorship (337 B. C.); and of the pontifical and augurial colleges (300 B. C.), are the chief events in this great struggle. While it may with great truth be said that this extension of privilege increased the power of the rich plebeians, and left the masses in little better condition socially, yet the growth of the democratic principle and the humbling of the aristocratic forces were most

evident through these reforms. Inadequate as remedies for the dissensions between classes as were the several agrarian laws and Licinian rogations, nevertheless the condition of the plebian farmers and middle classes was greatly improved thereby. The extension of Roman power by the defeat of Pyrrhus and the subjugation of all Italy brought about the threefold division of Roman subjects into: (1) *Cives Romani*, or Roman citizens with the fullest privileges; (2) *Nomen Latinum*, without the Roman franchise; and (3) *Socii* or allies, with privileges greatly varying in different localities. But with this military aggrandizement passed the powers of the lower classes, and there came in the growing power of a military oligarchy which subjected the lower classes to a condition of suffering and despotism which was not improved by the temporary successes of the Gracchi. Nor were these conditions improved by the wild confusion in Rome during the struggles between Marius and Sulla, when the aristocratic forces under Sulla triumphed in the name of order, and sought to rebuild from the rottenness of Roman society a political and social structure that might endure. But with the Cataline conspiracy, the triumvirate of Crassus, Pompey, and Cæsar (60 B. C.), the lawless and bloody tribunates of Claudius and Milo (58–57 B. C.), followed by the second triumvirate composed of Antonius, Lepidus, and Octavianus, the way was paved for the establishment of the Roman Empire under Augustus (29 B. C.), when the political life of the Republic was ended.

In the Dark and Middle Ages, the dominant feudal system admitted of no development or growth of democratic power in Europe. In the succeeding years there were in all countries spasmodic protests by rebellion of the people against injustice and tyranny; and these mark the desires of the people which led to the later organized efforts that brought about the needed reforms.

The most important of these was the wresting from King John at Runnymede, in 1215, those concessions and recognitions which have been called Magna Charta, the corner stone of English liberty. The establishment of parliament by Edward III. (1295), and the gradual extension of privileges by a number of acts, small in themselves but important in the aggregate, mark the track of the evolution of the principle, subject at times to checks and interruptions. The erection of the Commonwealth in England under Oliver Cromwell attacked the principle under which monarchs and despots held their power—the control of the standing army. So long as rulers were surrounded by armed guards who, from incentives of loyalty, or, more frequently, from mercenary motives, were ready to do the sovereign's bidding, there was every means at their disposal for suppression of the people. Cromwell's demand that Charles I. give up the command of the army, and the king's reply, "No, not for an hour," marked the power of the army as a safeguard of the tyrant and as a menace to liberty. Yet it may be said that the army was the force which Cromwell used to awe the royalists into obedience to his laws. With the restoration of the monarchy in the person of Charles II. came an apparent return to freedom from the austere morality of the Commonwealth and the undoing of the reforms of that time. But the true spirit of the people is seen in the adoption of the principle of cabinet government in England after the accession of William and Mary (1689). The king's ministers were now responsible to the people for royal acts, and, though the carrying out of the principle during a few years after its inception was crude and inefficient, the period is marked by events which led to a beneficent extension of popular control. Not the least of these was the establishment of the freedom of the press (1694), the extension of the franchise, and the adoption of measures of responsible government.

The great protest in France against the tyranny of the aristocrats, the French Revolution, appalled the world with the severity of its measures and the intensity of its power. In it the popular voice was heard, not alone demanding redress of its wrongs, but the right to redress its own wrongs. Following as it did the determination of the American colonists to adapt their government to meet the conditions of the New World, it intensified the object lesson in social economy which subsequent events were unable to obliterate. These, with the rebellion in Poland, magnificent in ideals and in effort but lamentable in results; the erection of the German Empire; the founding of the French Republic; and the unification of Italy, are among the salient features which mark the path of democratic growth and influence.

Monarchy.—This form of government covers nearly the whole of Europe, Asia, Africa, and half of North America. It may be divided into two kinds: that in which the power has been transferred wholly or in part to the body of the people, which form is called a limited monarchy; and that in which the sovereign control is vested in the hands of the monarch, which is called absolute or despotic monarchy. Sometimes the government is in the hands of a few, forming an oligarchy, while the ruler or the sovereign is a mere figurehead. This class is to be found in those countries in which caste or a class holds the ruling power, and may be either hereditary, as in Japan, tribal, as it was in China, or bureaucratic, as in Russia, where the head of a department or bureau controls that department absolutely, and makes recommendations to the monarch.

Every European government places in the hands of the people a very large share of power. Turkey was until 1908 an example of that form of monarchy which existed in feudal times.

Monarchies are called *limited* or *constitutional* because the powers of the sovereigns are limited by the constitution or by the will of the people. In fact, the purpose for which a constitution is provided is to specify clearly how far and in what direction governmental powers shall extend. Some governments are extremely complex because of the federation or union of states and provinces of different types under one rule. The British Empire, for instance, comprises under one monarch a variety of forms of government. There is the centralized government of England, Scotland, and Wales, which are all subject to Parliament. There are the self-governing colonies of Canada and Australia, in each of which separate states

or provinces with independent powers are federated under a general government of their own. There is India, a crown colony under direct control of Parliament; while Egypt is a dependency of Great Britain under still different forms of control. Germany was also a federated empire containing variously organized states and possessions. The United States is an example of the federated republic including under one rule many self-governing commonwealths.

The chief monarchies of the world are: Belgium, British Empire, Bulgaria, Denmark, Italy, Japan, Nepâl, Netherlands, Norway, Persia, Roumania, Jugo-Slavia, Spain, and Sweden.

The chief despotic governments of the world are: Abyssinia (empire), Afghanistan (principality), Egypt, Morocco (sultanate), Oman (sultanate), Siam.

Republics.—A republic is a form of administration in which the members of the governing body are chosen by electors to whom they are theoretically responsible. In some of the earlier forms of republics the electors comprised the whole adult male population of the state; in others a small group of persons exercised the power of election by constitutional right or by inheritance. The extent of the popular voice in the election of representatives in a republic varies according to the spirit of democracy which prevails at the time. Accordingly in the republics of later times, and especially in the western world, the franchise or right to vote has been enjoyed by a larger body of the members of a community than was customary in the earlier days of a more restricted democratic influence. In analyzing a form of government it must be observed that the name does not always convey the idea of the essential form of government. There are republics in fact which are not so in name; and there are republics in name that are really monarchies or empires. It may be conceived that a monarchy in which democratic principles are most pronounced and in which the monarch exercises no power or authority would really be a republic. Such a condition as existed in Rome under the Cæsars, though nominally republican, was none the less monarchical. Corresponding with these two types in modern days we find the English government as a monarchy rapidly approaching a republic in form; on the other hand, the despotic governments of South America, though republican in name, are in many cases truly monarchical. Europe witnessed, in 1848, a remarkable wave of democratic influence which threatened the thrones of the continent, and while the monarchical forms in Europe nearly all survived it, except in the cases of France and Switzerland, the reaction that has followed it has tended to change existing conditions rather than to abolish them and substitute others. Modern views upon the republican form of government hold that the essentials to its highest development are character, education on the part of the mass of the people, and a willingness to promote industrial progress rather than military power. Under such conditions it may be expected that the popular republican form of government will confer upon a nation stability, good order, and unequaled progress.

The chief republics of the world are: Andorra, Argentina (federal), Austria, Bolivia, Brazil (federal), Czecho-Slovakia, Chile, China, Colombia, Costa Rica, Cuba, Dominican, Ecuador, France, Germany, Guatemala, Haiti, Hungary, Honduras, Liberia, Mexico (federal), Nicaragua, Panama, Paraguay, Peru, Portugal, Russia, Salvador, San Marino, Switzerland (federal), United States of America (federal), Uruguay, Venezuela (federal).

The republican form of government offers almost limitless opportunities for experiment, and to this fact may be attributed the failure of many of them. The U. S., the world's first successful republic, drew upon colonial experience in writing her constitution, with the result that the government set up was in many ways already familiar to the people of the country. But when the people of France, Central and South America, and China attempted to model their governments after that of the U. S. the invariable result was unqualified failure. The lesson is plain: the form of government adopted by each nation should be the one that harmonizes with the political background of the people, and grants self-government only to the degree that the people are intellectually ready for it. China and Mexico prove that a republic may be only another name for anarchy, and that even a despotism may be better.

TYPICAL REPUBLICS.

France.—France is a strongly centralized republic, local governments having only the powers conferred on them by the Parliament. The President is elected for a term of seven years by Parliament. He possesses no independent political power, every act having to be countersigned by the responsible officer. Thus, officially, he can do neither right nor wrong. Parliament is composed of a Senate and a Chamber of Deputies. The Senate is composed of representatives chosen from the Departments by an electoral body composed of the Deputies from that Department and various other local officials. The term is nine years, one third retiring every third year. The Senate was originally intended to be equal in power to the Deputies, but experience has shown that the legislative branch to which the Cabinet is responsible will gain power at the expense of the other house. Thus the Senate has declined in importance. The Deputies are elected from the Departments under proportional representation for a term of four years, all retiring at the same time. The Cabinet is invariably drawn from Parliament, the President selecting a Premier to form a Cabinet. As there are so many political groups in France every Cabinet is a coalition, and seldom lasts longer than a few months. But it must be noted that the fall of a ministry does not disturb Parliament, as it does in England where a dissolution of the Commons is likely to result. France is becoming more republican each year.

Switzerland.—Switzerland is a federation of 22 cantons, a very great degree of local self-government being allowed. The central government is made up of a Federal Assembly which is composed of a State Council of 44 members, two for each canton; and a National Council composed of elected representatives from the cantons, one deputy for every 20,000 people. The executive power is placed in a Federal Council of 7, elected for three years by the Federal

Assembly. Each year the Council chooses a President, who is called the President of Switzerland, but who has no more power than the other members of the Council. Each member is the head of a department. The initiative and the referendum are used rather extensively.

The United States.

Government Functions.—The eight essential functions of Government are best outlined by Ex-President Wilson in his work, "The State."

(1). To keep order and provide for the protection of persons and property from violence and robbery.

(2). To fix the legal relations between man and wife, between parents and children.

(3). To regulate the holding, transmission and interchange of property, and the determination of its liabilities for debt or for crime.

(4). To fix contractual rights between individuals.

(5). To regulate means for the administration of justice in civil cases.

(6). To define crime and provide for punishment of criminals.

(7). To make clear, the political duties, privileges and relations of citizens to each other.

(8). To regulate the dealings of states with foreign powers; to preserve it from external danger and advance international interest.

First Steps Toward Union.—The Colonies being widely separated, from different countries, with different vocations and racial beliefs, had nothing in common from political or economic points of view to weld them together. In fact, the motive for the first colonial meetings of any consequence whatever, was largely for protection from the Indians.

(1). As for example during the period intervening between 1643 and 1684, Massachusetts Bay, New Plymouth, Connecticut and New Haven Colonies formed the New England Confederacy with the sole purpose of protection against the Indians, Dutch and French.

(2). The second coming together of the Colonies in convention was 1754, meeting at Albany, with a purpose of arranging a treaty between the Iroquois Indians and to consider other questions of common interest.

(3). In 1765 because of the passage of the *Stamp Act* by Great Britain, nine of the Colonies at the request of the Massachusetts Colony, sent representatives to New York, at which conference we find the first real outbreak of sentiment against the parental English Government.

(4). The next step was brought about through the *Townshend Act*, which led to the formation of committees of correspondence among the colonists. This did much toward fostering sentiment against England, and showed the need of laying aside intercolonial jealousies. This leads up to the *First Continental Congress*, called by Massachusetts in 1774, when the coercion acts were passed by the mother country against the colony of Massachusetts. All the Colonies sent delegates to Philadelphia, excepting Georgia. Here was first drafted the Declaration of Rights. Articles of Association were adopted which provided for further calling together of the colonists in May 1775, if necessary.

(5). In the meantime England had passed additional acts of coercion against the colonies; feeling was running high in New England and the battle of Lexington had been fought. It, therefore, became necessary for the meeting of the *Second Continental Congress* to provide for further means of resistance.

Confederation.—After the colonies declared their independence of Great Britain, they appointed a congressional committee composed of a delegate from each state to draw up a form of union. The articles thus drawn up were called the Articles of Confederation, were discussed in Congress for more than a year, and adopted by Congress in 1777, yet were not ratified by all until 1781. The inherent weakness in the confederation was its lack of central power. The individual states retained their sovereignty, freedom and independence, leaving the confederation largely an advisory body. This Congress consisted of from two to seven delegates from each state, each state having a right to cast but one vote.

Under the Articles of Confederation, Congress had no power for making a treaty, for carrying on war, or creating an army or navy, had no power to regulate any treaties with the Indians or even to settle disputes among the states themselves.

Under the Articles of Confederation, Congress was unable to set up a lasting government, inasmuch as:

(a). No important law could be passed without the consent of nine states.

(b). Congress had no means enabling it to raise revenue.

(c). It had no power to regulate interstate or foreign commerce.

(d). No power to enforce laws.

(e). No power to tax.

(f). Without the unanimous approval of the States, it had no right to amend the Articles of Confederation, and hence overcome its inherent difficulties.

During 1785 at a meeting of commissioners between Maryland and Virginia concerning commercial matters, the State of Virginia suggested a meeting of delegates of all the States at Annapolis in 1786. Only five states sent representatives. Among them were such men as Alexander Hamilton, who seeing the lack of central power in Congress, suggested the calling of a convention to amend the Articles of Confederation.

This Convention met at Philadelphia, May 25th, 1787. All States were represented excepting Rhode Island. Finally, September 17th, 1787 after much argument and many compromises being made, the Constitution was adopted, submitted to Congress, and sent to the States for ratification. New Hampshire ratified it, June 21st, 1788, making the necessary number of nine States for adoption. Rhode Island was the last state to ratify, May 29th, 1790. However, Congress in 1789 provided an act by which the Constitution went into operation.

Amendments.—In contrast to the Articles of Confederation, the power of Amendment was here created, and the first ten amendments were ratified by the State Legislatures soon after the adoption of the Constitution. Additional amendments have been passed from time to time. The entire list of Amendments of the Constitution are treated immediately after the Article on Constitution in this book.

UNITED STATES OF AMERICA.

The Second Continental Congress, representing the thirteen original colonies, assembled at Philadelphia, declared their independence of Great Britain, July 4, 1776, and thereafter each colony was known as a State.

Text of the Declaration of Independence.

In Congress, July 4, 1776. The unanimous Declaration of the Thirteen United States of America.

When, in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident: That all men are created equal; that they are endowed, by their Creator, with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness. That, to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed; that, whenever any form of government becomes destructive of these ends, it is the right of the people to alter or to abolish it, and to institute new government, laying its foundation on such principles, and organizing its powers in such form, as to them shall seem most likely to effect their safety and happiness. Prudence, indeed, will dictate that governments long established should not be changed for light and transient causes; and accordingly all experience hath shown that mankind are more disposed to suffer while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same object, evinces a design to reduce them under absolute despotism, it is their right, it is their duty, to throw off such government, and to provide new guards for their future security. Such has been the patient sufferance of these colonies; and such is now the necessity which constrains them to alter their former systems of government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute tyranny over these States. To prove this, let facts be submitted to a candid world.

He has refused his assent to laws the most wholesome and necessary for the public good.

He has forbidden his governors to pass laws of immediate and pressing importance, unless suspended in their operation till his assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other laws for the accommodation of large districts of people, unless those people would relinquish the right of representation in the legislature—a right inestimable to them, and formidable to tyrants only.

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their public records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved representative houses repeatedly, for opposing with manly firmness his invasions on the rights of the people.

He has refused, for a long time after such dissolutions, to cause others to be elected; whereby the legislative powers, incapable of annihilation, have returned to the people at large for their exercise, the State remaining, in the meantime, exposed to all the dangers of invasion from without, and convulsions within.

He has endeavored to prevent the population of these States; for that purpose obstructing the laws for naturalization of foreigners; refusing to pass others to encourage their migration hither, and raising the conditions of new appropriations of lands.

He has obstructed the administration of justice, by refusing his assent to laws for establishing judiciary powers.

He has made judges dependent on his will alone, for the tenure of their offices, and the amount and payment of their salaries.

He has erected a multitude of new offices, and sent hither swarms of officers to harass our people, and eat out their substance.

He has kept among us, in times of peace, standing armies, without the consent of our legislature.

He has affected to render the military independent of and superior to the civil power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his assent to their acts of pretended legislation:

For quartering large bodies of armed troops among us;

For protecting them, by a mock trial, from punishment for any murders which they should commit on the inhabitants of these States;

For cutting off our trade with all parts of the world;

For imposing taxes on us without our consent;

For depriving us, in many cases, of the benefits of trial by jury;

For transporting us beyond seas to be tried for pretended offenses;

For abolishing the free system of English laws in a neighboring province, establishing therein an arbitrary government, and enlarging its boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these colonies;

For taking away our charters, abolishing our most valuable laws, and altering fundamentally the forms of our governments;

For suspending our own legislatures and declaring themselves invested with power to legislate for us in all cases whatsoever.

He has abdicated government here, by declaring us out of his protection and waging war against us.

He has plundered our seas, ravaged our coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to complete the works of death, desolation, and tyranny, already begun with circumstances of cruelty and perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the head of a civilized nation.

He has constrained our fellow-citizens, taken captive on the high seas, to bear arms against their country, to become the executioners of their friends and brethren, or to fall themselves by their hands.

He has excited domestic insurrections among us, and has endeavored to bring on the inhabitants of our frontiers the merciless Indian savages, whose known rule of warfare is an undistinguished destruction of all ages, sexes, and conditions.

In every stage of these oppressions we have petitioned for redress in the most humble terms; our repeated petitions have been answered only by repeated injury. A prince whose character is thus marked by every act which may define a tyrant is unfit to be the ruler of a free people.

Nor have we been wanting in attention to our British brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity; and we have conjured them by the ties of our common kindred to disavow these usurpations, which would inevitably interrupt our connections and correspondence. They, too, have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity which denounces our separation, and hold them, as we hold the rest of mankind, enemies in war, in peace friends.

We, therefore, the Representatives of the United States of America, in General Congress assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the name and by authority of the good people of these Colonies, solemnly publish and declare, That these United Colonies are, and of right ought to be, free and independent States; that they are absolved from all allegiance to the British crown, and that all political connection between them and the State of Great Britain is, and ought to be, totally dissolved; and that, as free and independent States, they have full power to levy war, conclude peace, contract alliances, establish commerce, and to do all other acts and things which independent States may of right do. And, for the support of this declaration, with a firm reliance on the protection of Divine Providence, we mutually pledge to each other our lives, our fortunes, and our sacred honor.

JOHN HANCOCK.

NEW HAMPSHIRE.
Josiah Bartlett,
William Whipple,
Matthew Thornton.

MASSACHUSETTS BAY.
Samuel Adams,
John Adams,
Robert Treat Paine,
Elbridge Gerry.

RHODE ISLAND.
Stephen Hopkins,
William Ellery.

CONNECTICUT.
Roger Sherman,
Samuel Huntington,
William Williams,
Oliver Wolcott.

NEW YORK.
William Floyd,
Philip Livingston,
Francis Lewis,
Lewis Morris.

NEW JERSEY.
Richard Stockton,
John Witherspoon,
Francis Hopkinson,
John Hart,
Abraham Clark.

PENNSYLVANIA.
Robert Morris,
Benjamin Rush,
Benjamin Franklin,
John Morton,
George Clymer,
James Smith,
George Taylor,
James Wilson,
George Ross.

DELAWARE.
Caesar Rodney,
George Read,
Thomas M'Kean.

MARYLAND.
Samuel Chase,
William Paca,
Thomas Stone,
Charles Carroll, of Carrollton.

VIRGINIA.
George Wythe,
Richard Henry Lee,
Thomas Jefferson,
Benjamin Harrison,
Thomas Nelson, Jr.,
Francis Lightfoot Lee,
Carter Braxton.

NORTH CAROLINA.
William Hooper,
Joseph Hewes,
John Penn.

SOUTH CAROLINA.
Edward Rutledge,
Thomas Heyward, Jr.,
Thomas Lynch, Jr.,
Arthur Middleton.

GEORGIA.
Button Gwinnett,
Lyman Hall,
George Walton.

IN CONGRESS, JANUARY 18, 1777.

Ordered: That an authenticated copy of the Declaration of Independence, with the names of the members of Congress subscribing the same, be sent to each of the United States, and that they be desired to have the same put on record.

By order of Congress.

JOHN HANCOCK, *President.*

Attest, CHAS. THOMSON, *Secy.*

A true copy.

JOHN HANCOCK, *Pres't dt.*

Signers of the Declaration of Independence.

NAME.	Order.*	Colony.	Occupation.	Born,	Birthplace.	Died.	Age.†
Adams, John	6	Massachusetts Bay	Lawyer	Oct. 19, 1735	Braintree, Mass.	July 4, 1826	92
Adams, Samuel	2	Massachusetts Bay	Merchant	Sept. 22, 1722	Boston, Mass.	Oct. 3, 1803	81
Bartlett, Josiah	9	New Hampshire	Physician	Nov., 1729	Amesbury, Mass.	May 19, 1795	67
Braxton, Carter	51	Virginia	Planter	Sept. 10, 1736	Newington, Va.	Oct. 10, 1797	62
Carroll, Charles	31	Maryland	Lawyer	Sept. 20, 1737	Annapolis, Md.	Nov. 14, 1832	96
Chase, Samuel	44	Maryland	Lawyer	Apr. 17, 1741	Somerset Co., Md.	June 19, 1811	71
Clark, Abraham	14	New Jersey	Lawyer	Feb. 15, 1726	Elizabethtown, N. J.	Sept., 1794	69
Clymer, George	38	Pennsylvania	Merchant	Jan. 24, 1739	Philadelphia, Pa.	Jan. 23, 1813	75
Ellery, William	22	R. I. and Prov. Plan.	Lawyer	Dec. 22, 1727	Newport, R. I.	Feb. 15, 1820	93
Floyd, William	5	New York	Farmer	Dec. 17, 1734	Setauket, N. Y.	Aug. 1, 1821	87
Franklin, Benjamin	46	Pennsylvania	Printer	Jan. 17, 1706	Boston, Mass.	Apr. 17, 1790	85
Gerry, Elbridge	8	Massachusetts Bay	Merchant	July 17, 1744	Marblehead, Mass.	Nov. 23, 1814	71
Gwinnett, Button	40	Georgia	Merchant	1732	England	May 27, 1777	45
Hancock, John	1	Massachusetts Bay	Merchant	Jan. 12, 1737	Braintree, Mass.	Oct. 8, 1793	57
Hall, Lyman	47	Georgia	Physician	1731	Conn.	1784	53
Harrison, Benj.	54	Virginia	Farmer	1740	Berkeley, Va.	April, 1791	51
Hart, John	13	New Jersey	Farmer	1715	Hopewell, N. J.	1780	65
Hewes, Joseph	35	North Carolina	Lawyer	1730	Kingston, N. J.	Nov. 10, 1779	49
Heyward, Jr., Thos.	56	South Carolina	Lawyer	1746	St. Luke's, S. C.	March, 1809	63
Hooper, Wm.	23	North Carolina	Lawyer	June 17, 1742	Boston, Mass.	Oct., 1790	49
Hopkins, Steph.	12	R. I. and Prov. Plan.	Farmer	Mar. 7, 1707	Scituate, Mass.	July 13, 1785	79
Hopkinson, Francis	29	New Jersey	Lawyer	1737	Philadelphia, Pa.	May 9, 1791	54
Huntington, Sam'l	11	Connecticut	Lawyer	July 3, 1732	Windham, Conn.	Jan. 5, 1796	64
Jefferson, Thos.	32	Virginia	Lawyer	Apr. 13, 1743	Shadwell, Va.	July 4, 1826	83
Lee, Richard Henry	48	Virginia	Soldier	Jan. 20, 1732	Stratford, Va.	June 19, 1794	63
Lee, Francis Lightfoot	55	Virginia	Farmer	Oct. 14, 1734	Stratford, Va.	April, 1797	63
Lewis, Francis	7	New York	Merchant	March, 1713	Llandaff, Wales.	Dec. 30, 1803	91
Livingston, Philip	3	New York	Merchant	Jan. 15, 1716	Albany, N. Y.	June 12, 1778	63
Lynch, Jr., Thos.	43	South Carolina	Lawyer	Aug. 5, 1749	Pr. George's Co., S. C.	1779	30
M'Kean, Thos.	39	Delaware	Lawyer	Mar. 19, 1734	New London, Pa.	June 24, 1817	84
Middleton, Arthur	50	South Carolina	Lawyer	1743	Middleton Pl., S. C.	Jan. 1, 1788	44
Morris, Lewis	15	New York	Farmer	1726	Morrisania, N. Y.	Jan. 22, 1798	72
Morris, Robert	24	Pennsylvania	Merchant	Jan. 20, 1734	Lancashire, Eng.	May 8, 1806	73
Morton, John	16	Pennsylvania	Surveyor	1724	Ridley, Pa.	April, 1777	53
Nelson, Jr., Thos.	49	Virginia	Statesman	Dec. 26, 1738	York, Va.	Jan. 4, 1789	51
Paca, William	28	Maryland	Lawyer	Oct. 31, 1740	Wye Hall, Md.	1799	59
Paine, Robert Treat	4	Massachusetts Bay	Lawyer	1731	Boston, Mass.	May 11, 1814	84
Penn, John	18	North Carolina	Lawyer	May 17, 1741	Caroline Co., Va.	Sept., 1788	48
Read, George	41	Delaware	Lawyer	1734	Cecil Co., Md.	1798	64
Rodney, Cæsar	52	Delaware	General	1730	Dover, Del.	1783	53
Ross, George	37	Pennsylvania	Lawyer	1730	Newcastle, Del.	July, 1779	49
Rush, Benjamin	46	Pennsylvania	Physician	Dec. 24, 1745	Berberry, Pa.	Apr. 19, 1813	68
Rutledge, Edward	34	South Carolina	Lawyer	Nov., 1749	Charleston, S. C.	Jan. 23, 1800	51
Sherman, Roger	19	Connecticut	Shoemaker	Apr. 19, 1721	Newton, Mass.	July 23, 1793	73
Smith, James	36	Pennsylvania	Lawyer	1710	Ireland.	July 11, 1806	96
Stockton, Richard	10	New Jersey	Lawyer	Oct. 1, 1730	Princeton, N. J.	Feb. 28, 1781	51
Stone, Thomas	30	Maryland	Lawyer	1742	Pointoin Manor, Md.	Oct. 5, 1787	45
Taylor, Geo.	33	Pennsylvania	Physician	1716	Ireland.	Feb. 23, 1781	65
Thornton, Matthew	17	New Hampshire	Physician	1714	Ireland.	June 24, 1803	89
Walton, George	53	Georgia	Lawyer	1740	Frederick Co., Va.	Feb. 2, 1804	64
Whipple, William	20	New Hampshire	Sailor	1730	Kittery, Me.	Nov. 28, 1785	55
Williams, William	26	Connecticut	Statesman	Apr. 8, 1731	Lebanon, Conn.	Aug. 2, 1811	81
Wilson, James	42	Pennsylvania	Lawyer	1742	St. Andrews, Scot.	Aug 28, 1798	56
Witherspoon, John	21	New Jersey	Minister	Feb. 5, 1722	Yester, Scot.	Nov. 15, 1794	73
Wolcott, Oliver	25	Connecticut	Physician	Nov. 26, 1726	Windsor, Conn.	Dec. 1, 1797	72
Wythe, George	45	Virginia	Lawyer	1726	Elizabeth Co., Va.	June 8, 1806	80

*Order in which they signed. †Age at death.

As a result of the war with Great Britain, the latter acknowledged the independence of the United States November 30, 1782, and September 3, 1783, a definitive treaty of peace was concluded at Paris. The government of the United States continued under the Congress provided by the Articles of Confederation until March 4, 1789, when a constitution, which had been adopted by representatives of the different States September 17, 1787, went into effect. March 4, 1789, then, is the date of the inception of the present constitutional government of the American Union. The original, without amendments, contains only 4,000 words.

Constitution of the United States of America.

(Went into operation first Wednesday in March, 1789.)

PREAMBLE.—We, the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

ARTICLE I.

SECTION I. All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION II. The House of Representatives shall be composed of members chosen every second year by the people of the several States; and the electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislature.

No person shall be a Representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State in which he shall be chosen.

Representatives and direct taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three fifths of all other persons. The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of Representatives shall not exceed one for every thirty thousand, but each State shall have at least one Representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to choose three; Massachusetts, eight; Rhode Island and Providence Plantations, one; Connecticut, five; New York, six; New Jersey, four; Pennsylvania, eight; Delaware, one; Maryland, six; Virginia, ten; North Carolina, five; South Carolina, five, and Georgia, three.

When vacancies happen in the representation from any State, the executive authority thereof shall issue writs of election to fill such vacancies.

The House of Representatives shall choose their speaker and other officers; and shall have the sole power of impeachment.

SECTION III. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof for six years; and each Senator shall have one vote.

Immediately after they shall be assembled in consequence of the first election, they shall be divided as equally as may be into three classes. The seats of the Senators of the first class shall be vacated at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year, so that one third may be chosen every second year; and if vacancies happen by resignation, or otherwise, during the recess of the Legislature of any State, the executive thereof may make temporary appointments until the next meeting of the Legislature, which shall then fill such vacancies.

No person shall be a Senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State for which he shall be chosen.

The Vice-President of the United States shall be President of the Senate, but shall have no vote unless they be equally divided.

The Senate shall choose their other officers, and also a President pro tempore, in the absence of the Vice-President, or when he shall exercise the office of President of the United States.

The Senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. When the President of the United States is tried, the Chief Justice shall preside; and no person shall be convicted without the concurrence of two thirds of the members present.

Judgment in cases of impeachment shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust, or profit under the United States; but the party convicted shall nevertheless be liable and subject to indictment, trial, judgment, and punishment, according to law.

SECTION IV. The times, places, and manner of holding elections for Senators and Representatives shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by law make or alter such regulations, except as to the places of choosing Senators.

The Congress shall assemble at least once in every year; and such meeting shall be on the first Monday in December, unless they shall by law appoint a different day.

SECTION V. Each House shall be the judge of the election, returns, and qualifications of its own members, and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day, and may be authorized to compel the attendance of absent members, in such manner and under such penalties as each House may provide.

Each House may determine the rules of its proceedings, punish its members for disorderly behavior, and, with the concurrence of two thirds, expel a member.

Each House shall keep a journal of its proceedings, and from time to time publish the same, excepting such parts as may in their judgment require secrecy; and the yeas and nays of the members of either House on any question shall, at the desire of one fifth of those present, be entered on the journal.

Neither House, during the session of Congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two houses shall be sitting.

SECTION VI. The Senators and Representatives shall receive a compensation for their services, to be ascertained by law, and paid out of the treasury of the United States. They shall, in all cases, except treason, felony, and breach of the peace, be privileged from arrest during their attendance at the sessions of their respective Houses, and in going to and returning from the same; and for any speech or debate in either House, they shall not be questioned in any other place.

No Senator or Representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States which shall have been created, or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States shall be a member of either House during his continuance in office.

SECTION VII. All bills for raising revenue shall originate in the House of Representatives, but the Senate may propose or concur with amendments, as on other bills.

Every bill which shall have passed the House of Representatives and the Senate shall, before it become a law, be presented to the President of the United States; if he approve, he shall sign it, but if not, he shall return it, with his objections, to that House in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it. If after such reconsideration two thirds of that House shall agree to pass the bill, it shall be sent, together with the objections, to the other House, by which it shall likewise be reconsidered; and if approved by two thirds of that House it shall become a law. But in all such cases the votes of both Houses shall be determined by yeas and nays, and the names of the persons voting for and against the bill shall be entered on the journal of each House respectively. If any bill shall not be returned by the President within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law in like manner as if he had signed it, unless the Congress by their adjournment, prevent its return; in which case it shall not be a law.

Every order, resolution, or vote to which the concurrence of the Senate and House of Representatives may be necessary (except on a question of adjournment) shall be presented to the President of the United States; and before the same shall take effect shall be approved by him, or being disapproved by him, shall be repassed by two thirds of the Senate and House of Representatives, according to the rules and limitations prescribed in the case of a bill.

SECTION VIII. The Congress shall have power:

To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States; but all duties, imposts, and excises shall be uniform throughout the United States.

To borrow money on the credit of the United States.

To regulate commerce with foreign nations, and among the several States, and with the Indian tribes.

To establish an uniform rule of naturalization and uniform laws on the subject of bankruptcies throughout the United States.

To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures.

To provide for the punishment of counterfeiting the securities and current coin of the United States.

To establish post offices and post roads.

To promote the progress of science and useful arts by securing for limited times to authors and inventors

the exclusive right to their respective writings and discoveries.

To constitute tribunals inferior to the Supreme Court.

To define and punish piracies and felonies committed on the high seas, and offenses against the law of nations.

To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water.

To raise and support armies, but no appropriation of money to that use shall be for a longer term than two years.

To provide and maintain a navy.

To make rules for the government and regulation of the land and naval forces.

To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions.

To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress.

To exercise exclusive legislation in all cases whatsoever over such district (not exceeding ten miles square) as may, by cession of particular States and the acceptance of Congress, become the seat of the Government of the United States, and to exercise like authority over all places purchased by the consent of the Legislature of the State in which the same shall be, for the erection of forts, magazines, arsenals, dockyards, and other needful buildings; and

To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the Government of the United States, or in any department or officer thereof.

SECTION IX. The migration or importation of such persons as any of the States now existing shall think proper to admit shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight, but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.

The privilege of the writ of habeas corpus shall not be suspended, unless when in cases of rebellion or invasion the public safety may require it.

No bill of attainder or ex post facto law shall be passed.

No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

No tax or duty shall be laid on articles exported from any State.

No preference shall be given by any regulation of commerce or revenue to the ports of one State over those of another, nor shall vessels bound to or from one State be obliged to enter, clear, or pay duties in another.

No money shall be drawn from the Treasury but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

No title of nobility shall be granted by the United States. And no person holding any office of profit or trust under them shall, without the consent of the Congress, accept of any present, emolument, office, or title of any kind whatever from any king, prince, or foreign state.

SECTION X. No State shall enter into any treaty, alliance, or confederation, grant letters of marque and reprisal, coin money, emit bills of credit, make anything but gold and silver coin a tender in payment of debts, pass any bill of attainder, ex post facto law, or law impairing the obligation of contracts, or grant any title of nobility.

No State shall, without the consent of the Congress, lay any impost or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws, and the net produce of all duties and imposts, laid by any State on imports or exports, shall be for the use of the Treasury of the United States; and all such laws shall be subject to the revision and control of the Congress.

No State shall, without the consent of Congress, lay any duty of tonnage, keep troops or ships of war in time of peace, enter into any agreement or compact with another State, or with a foreign power, or engage in war, unless actually invaded, or in such imminent danger as will not admit of delay.

ARTICLE II.

SECTION I. The Executive power shall be vested in a President of the United States of America. He shall hold his office during the term of four years, and, together with the Vice-President, chosen for the same term, be elected as follows:

Each State shall appoint, in such manner as the Legislature thereof may direct, a number of electors, equal to the whole number of Senators and Representatives to which the State may be entitled in the Congress; but no Senator or Representative or person holding an office of trust or profit under the United States shall be appointed an elector.

[The electors shall meet in their respective States and vote by ballot for two persons, of whom one at least shall not be an inhabitant of the same State with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each, which list they shall sign and certify and transmit, sealed, to the seat of the government of the United States, directed to the President of the Senate. The President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the President, if such number be a majority of the whole number of electors appointed, and if there be more than one who have such majority, and have an equal number of votes, then the House of Representatives shall immediately choose by ballot one of them for President; and if no person have a majority, then from the five highest on the list the said House shall in like manner choose the President. But in choosing the President, the vote shall be taken by States, the representation from each State having one vote. A quorum, for this purpose, shall consist of a member or members from two thirds of the States, and a majority of all the States shall be necessary to a choice. In every case, after the choice of the President, the person having the greatest number of votes of the electors shall be the Vice-President. But if there should remain two or more who have equal votes, the Senate shall choose from them by ballot the Vice-President.][1]

The Congress may determine the time of choosing the electors and the day on which they shall give their votes, which day shall be the same throughout the United States.

No person except a natural born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to the office of President; neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years and been fourteen years a resident within the United States.

In case of the removal of the President from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the Vice-President, and the Congress may by law provide for the case of removal, death, resignation, or inability, both of the President and Vice-President, declaring what officer shall then act as President, and such officer shall act accordingly until the disability be removed or a President shall be elected.

The President shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period any other emolument from the United States, or any of them.

Before he enter on the execution of his office he shall take the following oath or affirmation:—

"I do solemnly swear (or affirm) that I will faithfully execute the office of President of the United States, and will, to the best of my ability, preserve, protect, and defend the Constitution of the United States."

SECTION II. The President shall be Commander-in-Chief of the Army and Navy of the United States, and of the militia of the several States when called into the actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments upon any subject relating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offenses against the United States except in cases of impeachment.

He shall have power, by and with the advice and consent of the Senate, to make treaties, provided two thirds of the Senators present concur; and he shall nominate, and by and with the advice and consent of the Senate shall appoint ambassadors, other public ministers and consuls, judges of the Supreme Court, and all other officers of the United States whose appointments are not herein otherwise provided for, and which shall be established by law; but the Congress may by law vest the appointment of such inferior officers as they think proper in the President alone, in the courts of law, or in the heads of departments.

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[1] Superseded by Article XII., Amendments.

The President shall have power to fill up all vacancies that may happen during the recess of the Senate by granting commissions which shall expire at the end of their next session.

SECTION III. He shall from time to time give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both Houses, or either of them, and in case of disagreement between them with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

SECTION IV. The President, Vice-President, and all civil officers of the United States shall be removed from office on impeachment for and conviction of treason, bribery, or other high crimes and misdemeanors.

ARTICLE III.

SECTION I. The judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain and establish. The judges, both of the Supreme and inferior courts, shall hold their offices during good behavior, and shall at stated times receive for their services a compensation which shall not be diminished during their continuance in office.

SECTION II. The judicial power shall extend to all cases in law and equity arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States, between a State and citizens of another State, between citizens of different States, between citizens of the same State claiming lands under grants of different States, and between a State, or the citizens thereof, and foreign States, citizens, or subjects.

In all cases affecting ambassadors, other public ministers, and consuls, and those in which a State shall be party, the Supreme Court shall have original jurisdiction. In all the other cases before mentioned the Supreme Court shall have appellate jurisdiction both as to law and fact, with such exceptions and under such regulations as the Congress shall make.

The trial of all crimes, except in cases of impeachment, shall be by jury, and such trial shall be held in the State where the said crimes shall have been committed; but when not committed within any State the trial shall be at such place or places as the Congress may by law have directed.

SECTION III. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court.

The Congress shall have power to declare the punishment of treason, but no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted.

ARTICLE IV.

SECTION I. Full faith and credit shall be given in each State to the public acts, records, and judicial proceedings of every other State. And the Congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

SECTION II. The citizens of each State shall be entitled to all privileges and immunities of citizens in the several States.

A person charged in any State with treason, felony, or other crime, who shall flee from justice, and be found in another State, shall, on demand of the Executive authority of the State from which he fled, be delivered up, to be removed to the State having jurisdiction of the crime.

No person held to service or labor in one State, under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labor, but shall be delivered up on claim of the party to whom such service or labor may be due.

SECTION III. New States may be admitted by the Congress into this Union; but no new State shall be formed or erected within the jurisdiction of any other State, nor any State be formed by the junction of two or more States, or parts of States, without the consent of the Legislatures of the States concerned, as well as of the Congress.

The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any claims of the United States, or of any particular State.

SECTION IV. The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion, and, on application of the Legislature, or of the Executive (when the Legislature cannot be convened), against domestic violence.

ARTICLE V.

The Congress, whenever two thirds of both Houses shall deem it necessary, shall propose amendments to this Constitution, or, on the application of the Legislatures of two thirds of the several States, shall call a convention for proposing amendments, which, in either case, shall be valid to all intents and purposes, as part of this Constitution, when ratified by the Legislatures of three fourths of the several States, or by conventions in three fourths thereof, as the one or the other mode of ratification may be proposed by the Congress; provided that no amendment which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the Ninth Section of the First Article; and that no State, without its consent, shall be deprived of its equal suffrage in the Senate.

ARTICLE VI.

All debts contracted and engagements entered into before the adoption of this Constitution shall be as valid against the United States under this Constitution as under the Confederation.

This Constitution and the laws of the United States which shall be made in pursuance thereof and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land, and the judges in every State shall be bound thereby, anything in the Constitution or laws of any State to the contrary notwithstanding.

The Senators and Representatives before mentioned, and the members of the several State Legislatures, and all executive and judicial officers, both of the United States and of the several States, shall be bound by oath or affirmation to support this Constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

ARTICLE VII.

The ratification of the Conventions of nine States shall be sufficient for the establishment of this Constitution between the States so ratifying the same.

Ratification of the Constitution by the Thirteen Original States.

	STATES.	Ratified the Constitution.	Vote.
1	Delaware	December 7....1787	Unanimous
2	Pennsylvania	December 12...1787	46 to 23
3	New Jersey	December 18...1787	Unanimous
4	Georgia	January 2.....1788	Unanimous
5	Connecticut	January 9.....1788	128 to 40
6	Massachusetts	February 6....1788	187 to 168
7	Maryland	April 28.....1788	63 to 12
8	South Carolina	May 23.....1788	149 to 73
9	New Hampshire	June 21.....1788	57 to 46
10	Virginia	June 26.....1788	89 to 79
11	New York	July 26.....1788	30 to 28
12	North Carolina	November 21..1789	193 to 75
13	Rhode Island	May 29.....1790	34 to 32

Amendments to the Constitution.

Ten amendments were added to the original Constitution Dec. 15, 1791; the eleventh amendment, Jan. 8, 1798; the twelfth, Sept. 25, 1804; the thirteenth, Dec. 18, 1865; the fourteenth, July 28, 1868; the fifteenth, March 30, 1870; the sixteenth, Feb. 4, 1913; and the seventeenth, Apr. 8, 1913. Amendments must be adopted by three fourths of the States, acting through their legislatures.

ARTICLE I.

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise there-

of; or abridging the freedom of speech or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

ARTICLE II.

A well-regulated militia being necessary to the security of a free State, the right of the people to keep and bear arms shall not be infringed.

ARTICLE III.

No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war but in a manner to be prescribed by law.

ARTICLE IV.

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ARTICLE V.

No person shall be held to answer for a capital or otherwise infamous crime unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service, in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.

ARTICLE VI.

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defense.

ARTICLE VII.

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any court of the United States than according to the rules of the common law.

ARTICLE VIII.

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE IX.

The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people.

ARTICLE X.

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

ARTICLE XI.

The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another State, or by citizens or subjects of any foreign State.

ARTICLE XII.

The electors shall meet in their respective States, and vote by ballot for President and Vice-President, one of whom at least shall not be an inhabitant of the same State with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President; and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit, sealed, to the seat of the Government of the United States, directed to the President of the Senate; the President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted; the person having the greatest number of votes for President shall be the President, if such number be a majority of the whole number of electors appointed; and if no person have such majority, then from the persons having the highest numbers, not exceeding three, on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two thirds of the States, and a majority of all the States shall be necessary to a choice. And if the House of Representatives shall not choose a President, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of the death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President shall be the Vice-President, if such number be a majority of the whole number of electors appointed; and if no person have a majority, then from the two highest numbers on the list the Senate shall choose the Vice-President; a quorum for the purpose shall consist of two thirds of the whole number of Senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

ARTICLE XIII.

SECTION 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

SECTION 2. Congress shall have power to enforce this article by appropriate legislation.

ARTICLE XIV.

SECTION 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

SECTION 2. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for President and Vice-President of the United States, Representatives in Congress, the executive and judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

SECTION 3. No person shall be a Senator or Representative in Congress, or elector of President and Vice-President, or hold any office, civil or military, under the United States, or under any State, who, having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State Legislature, or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But Congress may, by a vote of two thirds of each House, remove such disability.

SECTION 4. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations, and claims shall be held illegal and void.

SECTION 5. The Congress shall have power to enforce by appropriate legislation the provisions of this article.

ARTICLE XV.

SECTION 1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude.

SECTION 2. The Congress shall have power to enforce this article by appropriate legislation.

ARTICLE XVI.

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration.

ARTICLE XVII.

The Senate of the United States shall be composed of two Senators from each State, elected by the people thereof, for six years; and each Senator shall have one vote. The electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislatures.

When vacancies happen in the representation of any State in the Senate, the executive authority of such State shall issue writs of election to fill such vacancies: *Provided*, That the Legislature of any State may empower the executive thereof to make temporary appointments until the people fill the vacancies by election as the Legislature may direct.

This amendment shall not be so construed as to affect the election or term of any Senator chosen before it becomes valid as part of the Constitution.

ARTICLE XVIII.

1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from, the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

2. The Congress and the several states shall have concurrent power to enforce this article by appropriate legislation.

3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several states, as provided by the Constitution, within seven years from the date of the submission hereof to the states by the Congress.

ARTICLE XIX.

1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any state on account of sex.

2. Congress shall have power, by appropriate legislation, to enforce the provisions of this Article.

The Union comprises 48 states: 13 original states (New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia), and the following, of which 7 were admitted without having been territories and 28 have been territories. Admission is granted by special acts of Congress.

	States.	Admitted.
1	Vermont	1791, March 4.
2	Kentucky	1792, June 1.
3	Tennessee	1796, June 1.
4	Ohio	1803, February 19.
5	Louisiana	1812, April 30.
6	Indiana	1816, December 11.
7	Mississippi	1817, December 10.
8	Illinois	1818, December 3.
9	Alabama	1819, December 14.
10	Maine	1820, March 15.
11	Missouri	1821, August 10.
12	Arkansas	1836, June 15.
13	Michigan	1837, January 26.
14	Florida	1845, March 3.
15	Texas	1845, December 29.
16	Iowa	1846, December 28.
17	Wisconsin	1848, May 29.
18	California	1850, September 9.
19	Minnesota	1858, May 11.
20	Oregon	1859, February 14.
21	Kansas	1861, January 29.
22	West Virginia	1863, June 19.
23	Nevada	1864, October 31.
24	Nebraska	1867, March 1.
25	Colorado	1876, August 1.
26	North Dakota	1889, November 2.
27	South Dakota	1889, November 2.
28	Montana	1889, November 8.
29	Washington	1889, November 11.
30	Idaho	1890, July 3.
31	Wyoming	1890, July 11.
32	Utah	1896, January 4.
33	Oklahoma	1907, November 16.
34	New Mexico	1912, January 6.
35	Arizona	1912, February 14.

State and Territorial Statistics.

States and Territories.[1]	Gross Area in Square Miles.[2]	Extreme Breadth Miles.[3]	Extreme Length Miles.	Capitals.
Alabama	51,998	200	330	Montgomery
Alaska Ter.	590,884	800	1,100	Juneau
Arizona	113,956	335	390	Phœnix
Arkansas	53,335	275	240	Little Rock
California	158,297	375	770	Sacramento
Colorado	103,948	390	270	Denver
Connecticut	4,965	90	75	Hartford
Delaware	2,370	35	110	Dover
Dist. of Col.	70	9	10	Washington
Florida	58,666	400	460	Tallahassee
Georgia	59,265	250	315	Atlanta
Idaho	84,313	305	490	Boise
Illinois	56,665	205	380	Springfield
Indiana	36,354	160	265	Indianapolis
Iowa	56,147	300	210	Des Moines
Kansas	82,158	400	200	Topeka
Kentucky	40,598	350	175	Frankfort
Louisiana	48,506	280	275	Baton Rouge
Maine	33,040	205	235	Augusta
Maryland	12,327	200	120	Annapolis
Massachusetts	8,266	190	110	Boston
Michigan	57,980	310	400	Lansing
Minnesota	84,682	350	400	St. Paul
Mississippi	46,865	180	340	Jackson
Missouri	69,420	300	280	Jefferson City
Montana	146,572	580	315	Helena
Nebraska	77,520	415	205	Lincoln
Nevada	110,690	315	485	Carson City
New Hamp.	9,341	90	185	Concord
New Jersey	8,224	70	160	Trenton
New Mexico	122,634	350	390	Santa Fé
New York	49,204	320	310	Albany
North Carolina	52,426	520	200	Raleigh
North Dakota	70,837	360	210	Bismarck
Ohio	41,040	230	205	Columbus
Oklahoma	70,057	575	210	Oklahoma City
Oregon	96,699	375	290	Salem
Pennsylvania	45,126	300	180	Harrisburg
Rhode Island	1,248	35	50	Providence
South Carolina	30,989	235	215	Columbia
South Dakota	77,615	380	245	Pierre
Tennessee	42,022	430	120	Nashville
Texas	265,896	760	620	Austin
Utah	84,990	275	345	Salt Lake City
Vermont	9,564	90	155	Montpelier
Virginia	42,627	425	205	Richmond
Washington	69,127	340	230	Olympia
West Virginia	24,170	200	225	Charleston
Wisconsin	56,066	290	300	Madison
Wyoming	97,914	365	275	Cheyenne
New Poss'ions	125,671	....	....	
Total U. S.	3,743,344	2,720[4]	1,600[4]	

[1]Areas of the new possessions: Philippines, 115,026 square miles; Porto Rico, 3,435; Hawaii, 6,449. Tutuila and islets, 77; Guam, 210; Panama Canal strip, 474. [2]Gross area includes water as well as land surface. These areas are those published by the United States Census Office in 1900. [3]Breadth is from east to west. Length is from north to south. [4]Breadth from Quoddy Head, in Maine, to Cape Flattery, in Washington; length from the 49th parallel to Brownsville, on the Rio Grande. This is exclusive of Alaska.

By the Constitution, the government of the United States is conducted by three distinct departments, the executive, the legislative, and the judicial.

Executive.—The executive power is centered in a President, Vice-President, and nine chief officers or heads of departments called secretaries, who are collectively known by the popular term of the Cabinet.

President.—The head of the government holds office during the term of four years. Candidates for this office are nominated by the respective parties at what are known as national conventions. In the conduct of party affairs the chief instrument is the standing party committee composed of one member from each state. These are elected every year by the delegation of their states at the national convention. The first

year in which political parties had regular conventions, nominated candidates, and framed platforms was in 1840, and this system has been conducted uninterruptedly since. The Republican Convention at Chicago in 1860 was the first conducted in a large building in the presence of spectators. The membership of a national convention is composed usually of two delegates for each congressional district, four at large for each state, and six from each territory, making a total of about 1,080. To insure attendance of representatives a large number of alternates are appointed. A temporary chairman appointed by the national committee opens the convention. A permanent chairman is then elected, a committee on credentials is appointed, and the convention is organized ready to receive the report of the committee. Sometimes the platform is drawn up before the nominations are made. Friends of the aspirants for nomination present the name after a laudatory speech, and the selection is made by votes of the delegates. The candidate is notified of his nomination by a committee, before whom he makes a speech of acceptance, though this sometimes takes the form of a letter.

Campaign.—Political parties are thoroughly organized and are conducted upon sound business principles. This work is conducted by the party committees and their chairmen. The chairman of a political party is a man with large influence, which he exerts to the utmost in his efforts to bring out the vote and to influence the voters, and these efforts may take the form of simple persuasion, newspaper articles, intimidation, and even bribery in some cases.

Electors.—In 1845 Congress prescribed that presidential elections should take place on the Tuesday after the first Monday in November. At this election the voters do not elect a President, but choose a certain number of persons from each state who have the power of electing a President. These are known as electors, and together they form the Electoral College. In no case in the 28 elections since 1796 has a single elector voted differently from the way he was expected to vote.

Electoral College.—The respective state representatives to this body meet in each particular state on the second Monday in January following their election, cast their ballots for President and Vice-President, and send certified copies of the returns to Washington. These votes are counted by Congress, which meets for that purpose on the second Wednesday in February. Should there be no majority of the electoral votes for any one candidate, the Constitution directs that the House of Representatives shall elect a President from the three highest names on the list, each state having one vote; and the manner in which that vote shall be cast for a state in cases of a difference of opinion among the representatives from that state is decided by the majority of votes of the representatives. This provision has been resorted to only twice in the history of the country: namely, in 1801, when Jefferson and Burr had 73 votes each for President, and Jefferson was chosen by the House of Representatives; and in 1824, when there was no majority, the three highest being Adams, Jackson and Crawford, and John Quincy Adams was chosen.

Presidential Succession.—A vacancy resulting from the death or inability of the President is supplied by the Vice-President. There are five instances of such succession: namely, April 4, 1841, Tyler became President by the death of Harrison; July 9, 1850, Fillmore became President by the death of Taylor; April 15, 1865, Johnson became President upon the assassination of Lincoln; September 19, 1881, Arthur became President upon the assassination of Garfield; and September 14, 1901, Roosevelt became President upon the assassination of McKinley; August 4, 1923—Coolidge became President upon death of Harding. In 1792 Congress attempted to provide in case of the death or inability of both President and Vice-President by enacting that the President *pro tempore* of the Senate should discharge the duties of President, and after him the Speaker of the House, but that a new election should follow in two months. On January 19, 1886, Congress provided that in such cases the duties of President shall be discharged by a Secretary of a Department, ranking in order: Secretary of State, Secretary of the Treasury, Secretary of War, Attorney General, Postmaster General, Secretary of the Navy, and Secretary of the Interior. But no provision is made for a new election, the temporary incumbent holding the office of President until the end of the original term.

Term of Office.—The President is elected for four years, and his term begins at 12 o'clock noon on the 4th of March. Since 1841 five Presidents have held double terms; Lincoln, Grant, Cleveland, McKinley and Wilson. Every President until 1841 was a candidate for reëlection, and of these Washington, Jefferson, Madison, Monroe, and Jackson were elected, but John Adams, John Quincy Adams, and Van Buren were defeated. Between the years 1840 and 1860 no President was renominated. Cleveland was renominated and defeated in 1888, nominated and elected in 1892. Harrison was renominated in 1892 and was defeated. No President has held office for a third term, though Washington might have held it, and an effort was made to renominate Grant in 1880.

Eligibility.—Of all the officers in the United States government the President and Vice-President alone must be native-born citizens. A candidate for either of these offices must be 35 years of age and have lived 14 years in the country.

Duties of the President.—These are regulated by the Constitution and may be briefly stated as follows: Commander-in-chief of the army and navy, to which he appoints commissions and assigns officers; in time of war he is military chief. He names foreign ministers and consuls, judges of the Supreme Court, and other important federal officers, subject to the consent of the Senate. He may remove from public office without such consent. He directs foreign relations, submits treaties, can pardon any offense except cases of impeachment, can use the militia or naval forces to maintain the law, can veto bills, and may call the attention of Congress by messages to necessary legislation. In 1790 the President's salary was fixed at $25,000 a year; in 1871 raised to $50,000, in 1909 to $75,000, traveling expenses, $25,000. Congress provides for the care and repair of the White House, makes

allowance for lights, stable, hothouse, fuel, and steward's salary, and extends to the President the use of a government vessel for his sea trips. In the intervals between the sessions, the President may appoint temporary officeholders subject to the approval of Congress upon its reassembling. While the President is more powerful in Congress than any other individual, a majority in one or both Houses may resist his efforts to secure good legislation. Congress was opposed to Madison in 1809; the administration of John Quincy Adams suffered; Jackson struggled with Congress from 1831 to 1835, and the Whigs openly opposed Tyler in Congress.

Departments.—There are ten heads of Departments, or secretaries, who form the Cabinet, and these officers are appointed by the President and the appointment is confirmed by the Senate. The Departments of Foreign Affairs, Treasury, and War date from the Confederation. The offices of Secretary of State and Attorney General were created by an act of 1789, though the Department of Justice was not organized until 1870. The Navy Department was separated from the War Department in 1789. The Postmaster General existed under the Confederation but he was not recognized as equal to the other secretaries until Jackson's administration. The Department of the Interior was created in 1849. The Bureau of Agriculture became a department with a secretary in 1889, the Department of Commerce was organized in 1903, and the Department of Labor in 1913. Each secretary receives an annual salary of $12,000, and holds office during the pleasure of the President.

Secretary of State.—This officer controls foreign negotiations, American consuls, holds interviews and corresponds with the accredited representatives of foreign powers to the United States.

Secretary of the Treasury.—This officer controls the National finances, has charge of the public accounts, directs the plans for public buildings, for coining and printing money, and submits estimates of revenue and disbursements of the government to Congress every year.

Secretary of War.—He is the head of the army, under the President, and controls the several offices relating to the army. Within his department are the control of the United States military academy at West Point, of the National cemeteries, and of river and harbor improvements, and his consent must be obtained before any bridge may be built over any navigable river anywhere in the United States.

Department of Justice.—The Attorney General is the legal adviser to the President and to the heads of the other departments in questions of law relating to their work, prosecutes for the federal government and acts as its special counsel.

Postmaster General.—This officer directs and manages the postal business of the United States. In the discharge of his varied duties he appoints officers and employees of the department (except the four assistant postmasters general, who are appointed by the President); makes postal treaties with foreign governments; and manages the foreign and domestic mail service. He is responsible for the appointment of over 90,000 persons, including all postmasters whose remuneration does not exceed $1,000 a year.

Secretary of the Navy.—In this department is conducted the construction of ships, the manning, equipping and arming of the vessels of war, which is done in the navy yards and at the naval arsenal at Washington; it also controls the naval academy at Annapolis.

Secretary of the Interior.—Supervision over patents, pensions, public lands and surveys, Indians, education, railroads, public parks, and some of the public institutions within the District of Columbia are among his duties.

Secretary of Agriculture.—This officer controls the agricultural experiment stations, the quarantine stations, the weather bureau, forestry, and the bureau of animal industry.

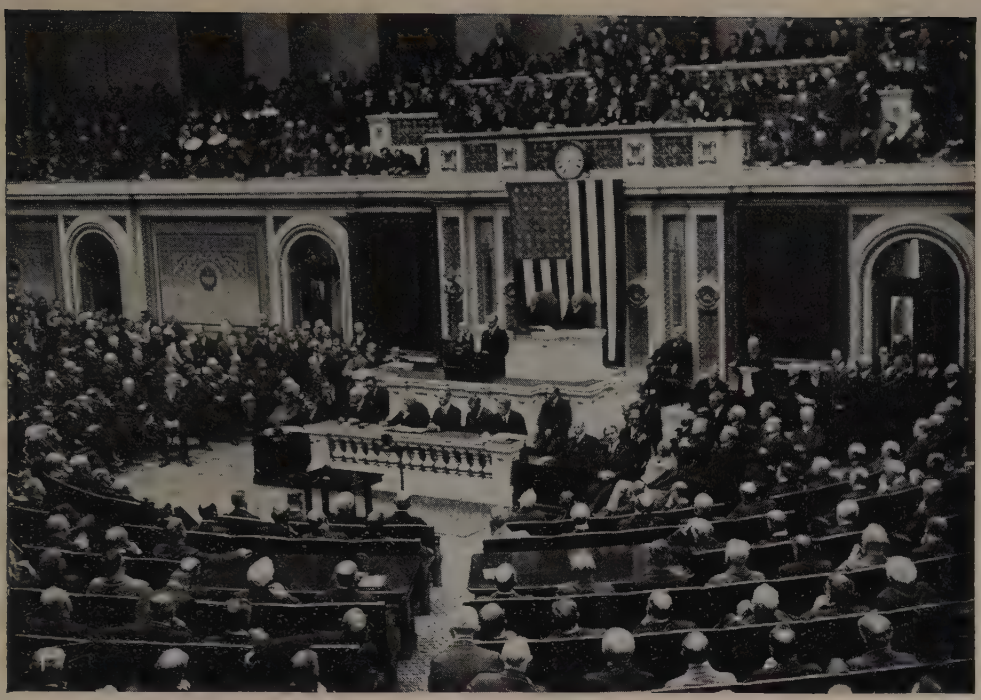
Secretary of Commerce.—This officer controls the census, steamboat inspection, lighthouses, coast survey, foreign and domestic commerce, shipping, fisheries, and investigation of corporations and trusts.

Secretary of Labor.—Under his direction are immigration, naturalization, labor statistics, and the Children's Bureau.

There are several independent services not controlled by any of these secretaries, and these include the government printing office, for which the printer is appointed by the President; the National Museum, Bureau of Ethnology; Smithsonian Institution; the Fish Commission; the Interstate Commerce Commission, created in 1887; and the Civil Service Commission, created in 1883, which examines candidates and provides for the appointment to such vacancies as may occur in about 228,000 positions.

Civil Service Employees.—The total number of officials and employees in the executive civil service was 391,350, of which number 28,191 comprised the unclassified and excepted working force of the Isthmian Canal Service. The officials in both houses of Congress and the judges, clerks, marshals, deputies, and other court officials are not under the Civil Service Commission.

Judiciary.—The American judiciary system was an evolution from the English courts in the early colonies. After the Revolution the judges were appointed by Congress. The history of the development of courts and of their organization is treated under the head of "Law" elsewhere. There are 9 supreme court justices, 27 circuit judges, 70 district judges, 5 judges of the United States Courts of Claims, and 5 judges of the United States Court of Private Land Claims. Each judge of the United States is appointed by the President, subject to approval by the Senate. Justices of the Supreme Court receive $14,500 a year; circuit judges, $8,500; and district judges, $7,500. Judges leave the bench by death, resignation, retiring on allowance of full salary after 70 years of age, by the discontinuance of the office, or by impeachment. The federal courts exercise a very great power over states, by the right to declare state acts unconstitutional and, consequently, void. By the federal constitution the power is conferred upon federal courts to disallow such state laws as conflict with the constitution or with laws and treaties made constitutional by the United States government. Instances in which the federal courts have passed unfavorably upon acts of Congress have been very few indeed, especially outside of the difficulties arising out of reconstruction after the Civil War. Although the constitution does not demand it, none but law-



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AMERICAN GOVERNMENTAL SESSIONS—II

1 President Calvin Coolidge reading his first message to the 68th Congress (assembled in the Hall of the House of Representatives, December 7th, 1923).

2 Pan-American Conference with late President Harding at White House; representatives of five Central-American countries and the President's Cabinet.

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AMERICAN GOVERNMENTAL SESSIONS—III

The Washington Arms Parley

Left to right: Garrett, Secretary General of Conference; Van Karnebeck, Netherlands; Dr. Sze, China; Lord Balfour, Great Britain; Secretary of State Hughes, U. S. A.; Premier Briand, France; Shanze, Italy; Baron de Marchienne, Belgium; Prince Tokugawa, Japan; Count D'Alte, Portugal.

English Debt Funding Mission

Left to right, seated: Secretary Hoover, U. S. A.; Rep. Burton, Ohio; Rt. Hon. Stanley Baldwin, Chancellor of Exchequer; M. C. Norman, Governor, Bank of England; Eliot Wadsworth, Asst. Secretary of Treasury, U. S. A.; Sen. Smoot, Utah; Secretary of State Hughes; Secretary of Treasury Mellon. Standing: Secretaries of the Conference.

LEGISLATIVE BODIES.

	Senate.	House of Representatives.
1. Number	Two from each state.	Four hundred and thirty-five members, appointed according to population—one to every 211,877 inhabitants.
2. How Elected	By direct votes in the several states.	By votes in the several Congressional Districts.
3. Term	For six years, but so arranged by states that one third of the entire Senate is elected every two years.	For two years, which is the life of a Congress, and is divided into two sessions. At the expiration of the term the members for a new House are chosen.
4. Qualifications of Candidates	A citizenship of the United States for at least nine years; a resident of the state; and at least 30 years of age.	A citizen of the United States for at least seven years; a resident of the state; and at least 25 years of age.
5. Salary	Annual of $10,000.	Annual of $10,000.
6. Presiding Officer.	The Vice-President of the United States is *ex officio* President of the Senate; salary, $15,000 a year.	The Speaker, elected by the House at the beginning of its first session; salary, $15,000 a year.
7. Powers	1. Elects a President of the Senate, *pro tempore*, to act in the absence of the Vice-President. 2. Passes upon nominations for office made by the President. 3. Meets on the second Wednesday in February after presidential election, with the House, to count the electoral vote, and, if an election results the President, *pro tempore*, of the Senate declares the election of the successful candidates for President and Vice-President. If no election results, the Senate elects the Vice-President. 4. Tries, as in a court, all persons who have been impeached. 5. Ratifies, amends, or rejects all proposed treaties between the United States and foreign countries.	1. Elects a Speaker of the House and other officers. 2. Originates all bills for raising revenues. 3. Meets on the second Wednesday in February after presidential election, with the Senate, to count the electoral votes; and, if no election results, the House votes by states, one vote for each state, to fill the office of President, the candidates being the three who received the greatest number of electoral votes. 4. Conducts, before the Senate, all impeachment prosecutions.

yers have ever been appointed to the position of judge of a federal court.

Apportionment of Representatives.—The number of representatives which a state shall have in Congress is appointed according to its population, and the number is adjusted before the meeting of the first Congress after the latest census. From 1789 to 1865 in estimating population 100,000 slaves were considered equivalent to 60,000 free men, but, as no slave voted, the white people of the South had greater representation than did the white people of the North. The Thirteenth Amendment in 1865 adjusted this matter. The number of representatives in the House has been increased after each census except that of 1840, when the number sank from 240 to 232. By the census of 1900 the number of members in the House of Representatives was increased from 356 to 391. In 1910 it was increased to 433, with one each from New Mexico and Arizona in 1912, making 435. In adjusting population the difficulty arises over the fractions that result from dividing the population of the state by the number decided upon as the ratio number, the latest estimate being 211,877. The method introduced in 1910 assumed that the divisor was a continuous quantity between certain limits, changing only by indefinitely small additions. The decisive point at which the decimal part of the quotient of each state passes one half can be easily determined, and divisors were selected midway between each two of these critical points. A series of tables was thus obtained, each apportioning one more representative than its predecessor, and each allotting one representative for every fraction greater than one half and none for the fractions less. Every state, large or small, has one representative. The following table shows the present distribution:—

Alabama	10	Nebraska	6
Arizona	1	Nevada	1
Arkansas	7	New Hampshire	2
California	11	New Jersey	12
Colorado	4	New Mexico	1
Connecticut	5	New York	43
Delaware	1	North Carolina	10
Florida	4	North Dakota	3
Georgia	12	Ohio	22
Idaho	2	Oklahoma	8
Illinois	27	Oregon	3
Indiana	13	Pennsylvania	36
Iowa	11	Rhode Island	3
Kansas	8	South Carolina	7
Kentucky	11	South Dakota	3
Louisiana	8	Tennessee	10
Maine	4	Texas	18
Maryland	6	Utah	2
Massachusetts	16	Vermont	2
Michigan	13	Virginia	10
Minnesota	10	Washington	5
Mississippi	8	West Virginia	6
Missouri	16	Wisconsin	11
Montana	2	Wyoming	1
		Total	435

The variation of the apportionment at the several censuses in the history of the country has been as follows:—

Under.	Census.		Apportionment.		Whole Number of Representatives.
	Year.	Populat'n.	Year.	Ratio.	
Constitution	....	.....	1789	30,000	65
First Census	1790	3,929,214	1793	33,000	105
Second Census	1800	5,308,483	1803	33,000	141
Third Census	1810	7,239,881	1813	35,000	181
Fourth Census	1820	9,633,822	1823	40,000	213
Fifth Census	1830	12,866,020	1833	47,700	240
Sixth Census	1840	17,069,453	1843	70,680	223
Seventh Census	1850	23,191,876	1853	93,423	234
Eighth Census	1860	31,443,321	1863	127,381	241
Ninth Census	1870	38,558,371	1873	131,425	292
Tenth Census	1880	50 155,783	1883	151,911	325
Eleventh Census	1890	62,622,250	1893	173,901	356
Twelfth Census	1900	75,994,575	1903	201,860	391
Thirte'nthCensus	1910	91,972,266	1913	211,877	435

Meetings of Congress.—Every Congress must hold at least two sessions. These are annual, but the President may call an extra session for the consideration of any matters of importance, and Congress itself may provide for one. The life of a Congress lasts from twelve o'clock on March 4 immediately following the election of representatives, until twelve o'clock noon on March 4 of the next odd year, when Congress is said to "die." The longest session on record was in 1890, when the adjournment took place on October 1, after 240 days of session. The time of meeting has been on the first Monday in December since 1789. From that date until 1791 Congress met in New York. From 1791 until 1800 in Philadelphia, since 1800 at the National Capitol in Washington.

Salaries.—Between the years 1789 and 1815 the salary of senators and representatives was six dollars a day; from 1817 until 1855, eight dollars; the Act of March 19, 1816, made the salary $1,500 a year, but was violently opposed by the people and was repealed. In 1855 the compensation was made $3,000 a year, and raised in 1865 to $5,000. On the last day of the session in 1873 the salary was made $7,500; this act was repealed early in the next session and the salary was placed at $5,000 a year. But in 1924 the salary was increased to $10,000 a year. Congress pays a total of $2,500,000 a year in salaries and mileage. Mileage is a grant made to senators and representatives to cover their traveling expenses from and to their homes. Between the years 1789 and 1815 each member was granted six dollars for every 20 miles of travel; from 1817 to 1865, eight dollars for every 20 miles; and since 1865 it has been 20 cents a mile. At one time a member from Oregon was obliged to travel 5,000 miles to Washington, drawing for this $2,000.

Speaker.—The presiding officer of the House of Representatives is elected by his party. From 1790 to 1910 the speaker appointed all committees. Party leadership was then taken from him and divided between the chairmen of the Committee on Rules and of the Ways and Means Committee. Both are held responsible to party rules. The caucus of the dominant party becomes the real source of all legislation. Each party is allowed to select its share of each committee. Under this rule the absolute control passes to the House itself and the Speaker's control of it rests in his authority as a presiding officer. His influence is still very great, for he decides which member is entitled to the floor during debates, and by refusing to recognize members may retard or prevent legislation; this power is further increased by his right to state questions, to put them, and to decide points of order.

Committees.—These are selected in the party caucuses, and are promptly elected by the House itself. The 600 committee places are thus distributed among the 435 House members. Committees in the Senate are supposed to be appointed by ballot. All committees meet in committee rooms, of which there are a great number in the Capitol, and such committee room is usually the headquarters upon all occasions for the chairman of that committee. Much of the work of legislation is done in the daily meetings of the committees, and it is not unusual for as many as 1,000 bills to be referred to one committee in a session. The meetings are usually private, though open at nearly all times to any especially interested. With the tremendous growth of business and the enormous amount of work to be done, committee work has become a necessity in order to consider sufficiently the several bills which are presented to the House, and a great deal of a representative's hardest work is done in the committee room. Reports upon bills that have been under consideration are made to the House, and final action is guided almost wholly by that report.

Sessions of Congress.—Both Houses usually meet at noon and the average duration of a session is from four to five hours. Sunday sessions, evening sessions, and all night sessions are not unknown. The sessions of the Senate during its first two years were private; in 1793 the public was admitted; and in 1802 a stenographic reporter was allowed. When a private session of the Senate is now required, the Senate resolves to go into executive session, during which time no spectators are allowed and the journals and records of such meeting are kept private. Secret sessions in the House are practically unknown, though in 1807 that on the Burr question, and in 1811 that on the Act for taking possession of West Florida, were secret. Newspaper reports of debates began in 1800; the *Congressional Globe* was privately started in 1833,

in which debates were published verbatim and so continued until 1873, when its place was taken by the *Congressional Record* conducted by Congress, in which reports of speeches are published daily, but members have the privilege of editing and changing their remarks after utterance, and in hurried sessions a member asks for and receives leave to print speeches which have never been delivered.

State Government.—The government of states, like that of the federal government, is threefold: legislative, executive, and judicial.

State Legislature.—This goes by the name of the General Court in New Hampshire and Massachusetts; of the Legislative Assembly in North Dakota, Oregon, and Montana; of the Legislature in many states; and of the General Assembly in an equal number. When a Legislature consists of two houses it is known as a bicameral form of government; when of only one, unicameral. Government in Georgia was unicameral from 1777 until 1789; in Pennsylvania from 1776 until 1790; and in Vermont until 1836. In all of the other states there were two houses and the upper house is always known as the Senate. In nearly all of the states the lower house is called the House of Representatives, except in West Virginia, Virginia, and Maryland, where it is known as the House of Delegates; in New York, Wisconsin, Nevada, and California, the Assembly; and in New Jersey, the General Assembly. Until 1868 the lower house in North Carolina was the House of Commons.

State Executives.—This comprises the Governor, Lieutenant Governor, and, in some cases, heads of departments.

Governor.—The Governor is responsible for the faithful execution of the law; informs the Legislature by message of affairs in the state; may call the Legislature in special session; nominates and appoints under confirmation of the Senate certain of the state officers; fills vacancies which occur during sessions; grants pardons or commutes sentences; has a limited power of veto; may call out the militia to his aid; and is a commander of the militia, with a military staff.

State Officers.—In each state the secretary of state keeps the state records and the great seal; the treasurer has charge of the state funds; an auditor or comptroller in some states audits the accounts; an attorney general looks after the state business at court and is counsel to the state; and the state superintendent of education has charge of all matters relating to public instruction. By their direct responsibility to the people these officials differ from the President's Cabinet in their relation to the executive.

Lieutenant Governor.—In many states this officer is elected to fill a possible vacancy in the Governorship, and to act as President of the Senate. Arkansas, Florida, Georgia, Maryland, New Hampshire, Maine, Tennessee, Utah, Wyoming, New Jersey, West Virginia, and Oregon have no Lieutenant Governor. In most of these the President of the Senate, elected by the Senate, fills any vacancy in the Governorship. But Oregon, Utah, and Wyoming provide that the Secretary of State shall be Governor; Maryland permits the Legislature to elect a successor if in session, otherwise, the President of the Senate takes the office.

District of Columbia.—Chosen in 1790 by act of Congress as the seat of government; Maryland and Virginia gave up claim to this territory. From 1790 until 1800 the seat of government was at Philadelphia. The limits of the District as now existing with its 70 square miles were defined in 1846 and lie wholly on the left bank of the Potomac River. In 1878, because of the heavy indebtedness of the government on a territorial basis, the present system of government by three commissioners was adopted. The people have no vote and no voice in the management of affairs, which is under the control of Congress.

Local Government.—There exist in the United States four forms of local government: (1) The Town System; (2) the County System; (3) the Mixed System; and (4) Municipal Government.

Town System.—This form was based upon the English idea which the early colonists brought with them. The charter is given by the state legislature. The town elects its own officers; imposes and collects its taxes; coöperates with the county and state in the collection of their taxes within its limits.

At the annual meetings reports of the departments for the past year are rendered; taxes are voted; and town officers are chosen. The officers are selectmen varying in number from three to nine; the school committee; the town clerk; town treasurer; assessors; overseers of the poor; surveyors of highways; fence-viewers, etc.

County System.—This system originated in Virginia and was carried to the West by emigrants from that state. The state legislature grants the charter; there is no assembly corresponding to the town meeting, but county officers administer the affairs; the governing body is the County Board or the County Court. Under it are the collector, assessor, superintendent of schools, sheriff, etc.

In some states the subdivisions of the county are called precincts; in others, townships; in Delaware, hundreds; in Georgia, militia districts; in Louisiana, wards; in Mississippi, beats; in Maryland, election districts; and in Tennessee, civil districts.

Mixed System.—In many states there is a combination of the town and the county systems, and the ratio of the one element to the other is of varying degrees. In New York there is more of the town than of the county; in Pennsylvania, more of the county than of the town. In both of these states the county as well as the town is a body corporate and politic. The mixed system and the county system are the only forms found in the West.

Municipal Government.—None of the forms of state government can possibly meet all of the demands of city administration. This is placed beyond the control of the state though the form is modeled to a greater or less degree upon state methods. The chief characteristic of municipal control is the strong centralizing of power. The charter of the city, given by the state legislature, is really the constitution of the city, limits its privileges and defines its duties. The city legislature often consists of a bicameral form of the board of aldermen and the common

council; but New York, Chicago, San Francisco, and a great number of small cities have only one chamber. This body passes city ordinances, levies taxes, and makes appropriations. The executive is the mayor, who stands to the city in much the same position as does the governor to the state. The several administrative departments of the city are under the direction of officials or salaried officers, sometimes by committees from the council. In some cities the mayor presides at the city council; but in larger cities a special judge, called the city or police judge.

The functions of a municipality embrace (1) ways and means of communication and transportation, as well as the supply of light and water; (2) disposal of wastes; (3) protection of life, health, and property; (4) education; (5) recreation; (6) municipal housing; (7) charities and correction.

(1) The providing of ways and means of communication and transportation is the first function of a municipality. In dealing with street traffic it rests with the municipal authorities either to provide street railways or to arrange for such by private enterprise. In Great Britain and her colonies many of the street railways are owned by the municipality, but in the United States private enterprise is the rule. When waterways are encountered, the municipality has to arrange for the construction of bridges, as well as, on occasion, docks, wharves, and harbors. Ferries, too, must be provided. The construction of harbors is usually a function of the national government, though municipal docks are common. The supply of water for household and industrial purposes, as well as for fire protection and street and sewer flushing, is one of the most important municipal services. Water and lighting supplies are usually municipal functions. Municipal markets and slaughter houses are often provided, or else a strict supervision is kept over private markets and food supplies.

(2) *Wastes.*—The provision of an adequate sewerage system, the disposal of garbage and rubbish, and the cleansing of streets are essentially municipal functions. Cemeteries, too, come within the province of the municipality.

(3) *Protection of Life, Health, and Property* comprises the work of the police, the courts, the board of health, the fire department, the provision of public baths, wash-houses, and latrines, as well as the building inspection service.

(4) *Education.*—This includes the work of elementary education, besides manual and technical training, night schools, vacation schools, museums, and libraries. In exercising these functions the municipality is acting as the agent of the state, and is subject to central control.

(5) *Recreation.*—This embraces the provision and maintenance of playgrounds, parks, gymnasiums, swimming baths, besides suitable halls for concerts and lectures.

(6) *Municipal Housing* is almost unknown in the United States but is a characteristic feature of municipal activity in Great Britain and even in India. Houses are built at municipal expense to provide sanitary dwellings for the poorest wage-earners.

(7) *Charities and Correction.*—These include organized poor relief and the maintenance of asylums, reformatories, and occasionally hospitals.

MUNICIPAL REFORM.

Each locality is confronted with its own problem of municipal reform, and too often partisan politics is allowed to run counter to the common weal. The remedy lies with the citizens and taxpayers, who frequently are too indifferent to insist on sound and honest government. A distinct reform was effected in Scotland in 1833, and in England and Wales in 1835, as the result of agitation against corrupt local government. These reform acts were supplemented until in 1888 an act was passed providing that cities and towns of over 50,000 inhabitants should be administrative counties. One of the most important reforms in many American states has been the adoption of constitutional amendments, from 1850 to 1880, prohibiting special acts of the legislature applying to a single municipality. Other agencies of municipal reform are the good government clubs, which are federated into the National Municipal League. One of the best known efforts to reform the abuses in city government is that termed the Federal Plan, which was put into effect in Philadelphia in 1887. All legislative power is vested in the council and all executive power in the mayor and the heads of certain departments nominated by the mayor with the consent of the council. The mayor has also the right of veto. The main advantage of this plan is that power and responsibility are centered in a few individuals.

Municipal Ownership.—From earliest times certain cities of importance have owned lands, constructed harbors, docks, and aqueducts, and made these a source of revenue. But in the nineteenth century municipal-owned water works, gas works, and the like became the rule almost throughout the civilized world. Authorities are at variance regarding the proper scope of municipal ownership; but in the main they are agreed on the following points: (1) it may include all services of a sanitary nature, such as sewerage and water supply; (2) it should restrict its activities to industries of a public character, and not enter into undue competition with private enterprise. But local conditions alone can determine the advisability of public or private ownership, and the relative efficiency and economy are the deciding factors. It is generally conceded that municipal ownership should be run on sound business principles, for in the event of reckless or mismanaged undertakings resulting in financial loss, the deficit would have to be met from the general tax rate.

Municipal ownership of sewerage is almost universal, and no country is better provided in this respect than the United States. Water works are the commonest form of revenue-producing services, while gas works, though frequently owned by the municipality in Europe, are rarely under such ownership in America. Street railways have been developed since 1850, but outside of Great Britain municipal ownership is rare. Electric lighting plants are frequently owned by the municipality in the United States and Great Britain, though very rarely on the continent of Europe. The telephone service is national rather than municipal, and in the United States is controlled by private companies, but in Great Britain the trunk lines are owned by the government postal authorities.

PROPORTIONAL REPRESENTATION

DEFINITION. Proportional representation is the general term used to denote any plan that aims to secure to each political group the number of representatives to which it should be entitled by virtue of its voting strength. It is a device for giving minorities representation in proportion to their numbers as found in a large electoral area.

NEED FOR PROPORTIONAL REPRESENTATION. Its advocates present the following arguments and illustrations: Under the single electoral district plan the minority party, if widely scattered throughout the state, will secure few if any representatives, although their state-wide vote may be almost as great as that of the majority party. In 1920 1,114,000 Republican votes in 36 Pennsylvania Congressional districts were enough to elect 35 Representatives, while 600,000 Democratic votes could elect but one Representative, thus making approximately 30,000 Republicans the voting equal of 600,000 Democrats. Besides giving the majority party an over-weight of representation the present system causes indifference among the voters of all parties. To take Pennsylvania again as an example, the Democratic voter says on election day, "Why should I waste my time voting when the Republicans are sure to win?" And the Republican voter argues that it is also a waste of time for him to vote because his party will win certainly. Thus citizens become careless about their civic duties.

WHAT PROPORTIONAL REPRESENTATION WOULD ACCOMPLISH. The single electoral district would be abolished, and each state would be divided into large electoral areas, each entitled to a number of representatives, possibly from 7 to 15. Then using some proven plan of proportional representation the parties would secure the number of representatives to which they were entitled by reason of their voting strength. In the case of Pennsylvania, mentioned above, the Republicans would elect possibly 24 Representatives and the Democrats 12. In the Democratic states the Republicans would likewise benefit. Since every vote would count there would be some incentive to go to the polls.

THE HARE PLAN. This is called the single-transferable vote system. By it each voter marks the figure "1" after the name of his first choice on the ballot; "2" after the name of his second choice, and so on. He is instructed that the more choices he expresses the better his chances of getting his candidates elected. The ballots are sorted out according to first choices and taken to the counting place. There the "quota" is found—the lowest number that is sufficient to elect. Any one having enough first choices is declared elected, and the second choices expressed on these ballots are put with the ballots where they were first choices and counted. Then the ballots at the lower end of the pile are taken up, and since the first choices on them are insufficient, the second choices are distributed on the proper pile. As these are being transferred more persons attain the quota and are declared elected. Sometimes it is necessary to go into the third and fourth choices, and even farther, but the result attained is always the same: the parties elect the exact number of representatives to which their voting strength entitles them. It is a mathematical certainty, its only drawback being the somewhat complicated system of counting the votes. Of course it keeps illiterates from voting.

THE LIST SYSTEM. Political parties are permitted to nominate as many candidates as they desire. The voters vote for these lists (or for individuals if they wish); the votes for each party are then ascertained and each party is given as many representatives as it is entitled to. The candidates heading each ticket are then declared elected. The list system is not as mathematically accurate as the Hare system, but it is simpler, and thus recommends itself to the Belgians and the French, both of whom use it in their general elections.

OTHER PLANS. The two plans outlined above by no means exhaust the possiblities of proportional representation, but all other schemes are modifications of these two.

WHY PROPORTIONAL REPRESENTATION IS OPPOSED. Party responsibility is done away with, with the result that legislative bodies lack leadership. The formation of small factional groups is encouraged, based frequently on jealousy and pique rather than principle. Government becomes a rule of "blocs," and no concerted policy is possible. It thus becomes especially obstructive in a state with a cabinet system such as England's, where the working of the system depends upon the existence of two major parties one of which always has the controlling majority in the popularly elected house. Party leaders (more frequently "bosses") oppose proportional representation because it would have a decided tendency to destroy their power.

TERRITORIAL GOVERNMENT.

ALASKA. Alaska was purchased by the United States from Russia, March 30, 1867, for $7,200,000. Congress passed a new civil government bill for the Territory, approved August 24, 1912, which created a Territorial legislature, to consist of a senate of 8, 2 elected for 4 years from each of the four judicial divisions, and a lower house of 16 representatives, 4 from each judicial division, elected for 2 years. The governor is appointed by the President for 4 years. The governor may veto bills within 3 days, if the legislature continues in session; otherwise, the bill becomes a law without his approval. His veto may be overridden by a two-thirds vote of each house.

HAWAII. The Hawaiian or Sandwich Islands became an independent kingdom in 1843. In 1893, the reigning queen, Liliuokalani, was deposed and a provisional government formed; a republic was proclaimed in 1894, and in August, 1898, it was formally annexed to the United States; on June 14, 1900, it was constituted as the Territory of Hawaii. In 1905 the Territory was divided into 5 counties, within which the local authorities have restricted powers; each county has its own independent financial basis with an elastic system of taxation and revenues according to its needs. The county of Oahu was changed to the city and county of Honolulu in 1909. There is a legislature of 2 houses, a senate of 15 members elected for 4 years, and a house of representatives of 30 members elected for 2 years. The governor and secretary are appointed for 4 years by the President of the United States. The Territory is represented in Congress by a delegate elected biennially.

VIRGIN ISLANDS. Comprising an area of 149 square miles. The entire group approximates fifty in number, St. Thomas, St. John, St. Croix being the three principal and best known islands. They were discovered by Columbus in 1494. First colonized by the Danes in 1672 and with the exception of the periods of 1801–02 and 1807–1815 during the Napoleonic wars when they were seized by the British, they have been under Danish control, a period of 245 years.

In 1916 the islands were purchased by the United States from Denmark for twenty-five million dollars. Under act of Congress March 3, 1917, all governing powers are vested in a Governor appointed by the President.

Danish laws continue in effect, wherever possible and unless modified by Congress.

They are extremely valuable because of their strategic relation to the Panama Canal, also, as a naval base and coaling station. The chief products of the islands are sugar, cotton, tobacco, bay rum and hides. The inhabitants are largely of mixed blood.

CANAL ZONE, acquired during Roosevelt's administration by treaty for the purpose of building the Panama Canal. It consists of a strip of land ten miles wide, with the use and control of waters and islands at each end, for the purpose of construction, maintenance or defense.

By act of Congress 1912, this interoceanic strip is placed under control of the President, who commits its administration to a Governor, responsible to the Secretary of War.

PHILIPPINE ISLANDS. These islands and islets were ceded by Spain to the United States, Dec. 10, 1898. The two largest are Luzon and Mindanao. The central government is composed of the governor general, who is

the chief executive and president of the Philippine Commission; of 8 commissioners, 4 Americans and 4 Filipinos, all appointed by the President of the United States. Since 1907 the Philippine legislature has consisted of the Commission for the upper house and delegates elected for 4 years beginning on the 16th day of October, 1912, for the lower. This body elects 2 resident commissioners to the United States for 4 years beginning on the 4th of March next following their election. The portion of the islands inhabited by Moros is under military officers. There are 4 executive departments: interior, finance and justice, commerce and police, and public instruction. A fifth department has been authorized by Congress. The islands are divided into 38 provinces, whose governors, with the exception of six, are elected by popular vote. The government of the towns is independent, the officials being elected by the qualified voters. About 650 towns have local government. The winter capital is Manila, and the summer capital, Baguio, in the mountains 120 miles north of Manila. The mayor and city council are appointed by the governor general with the consent of the Philippine commission.

PORTO RICO. This Territory was ceded to the United States by Spain in 1898, and its constitution determined by an act of Congress in 1900. It has representative government. Qualified voters must be 21 years of age, have been a resident 1 year, and be either a Porto Rican or an American. The governor and executive council, consisting of 6 heads of departments and 5 natives, are appointed for 4 years by the President of the United States; the house of delegates consists of 35 members, 5 from each of the 7 electoral districts. A resident commissioner to the United States is elected by the people for 2 years. The council and the house of delegates constitute the legislative assembly. The governor has veto power. In each of the 66 municipalities, the chief officials are elected by popular vote, and they, in turn, appoint their subordinates, subject to civil service regulations.

GUAM. This island, ceded to the United States by Spain in 1898, is in the southern extremity of the Marianas Archipelago in the Pacific Ocean. It is used as a naval station, whose commandant, appointed by the President, is the governor of the island. The Spanish colonial laws are in force, modified, if necessary, by the governor.

SAMOAN ISLANDS. In 1900, Tutuila and all the other islands of the Samoan group east of 171 degrees west longitude became territory of the United States. In 1872, the United States owned a naval and coaling station in Tutuila, which cession was confirmed in 1878. In 1889, a treaty recognizing the islands as neutral territory with an independent government, the natives to follow their own laws and customs, was agreed upon by Germany, Great Britain, and the United States. A criminal court under American jurisdiction was established. In 1898 trouble over the right of succession to the office of king arose and the kingship was abolished. In 1900, by the Anglo-German treaty all rights were renounced in favor of the United States over this territory. The commandant is the governor of the territory by appointment of the President. He appoints officers, and frames laws, but native customs are not changed without the consent of the people. The islands are organized into 3 political divisions, in each of which there is a native governor under whom are high chiefs for the counties, these controlling the village chiefs.

CUBA. After three years' administration by U. S. War Department, the constitution of Cuba was adopted by constitutional convention Feb. 21, 1901. It differs very slightly from that of United States. The President must be a native or naturalized Cuban, serving ten years in wars for independence, and is elected directly for four years, disqualified from more than two consecutive terms. There is a cabinet of 10 members. A Senate, of 4 members from each province, retires one half each four years; a House of Representatives, 1 for each 25,000 inhabitants, retires one half each two years. The franchise belongs to Cuban male citizens over 21 years (not ineligible by crime, etc.); to Spaniards resident since April 11, 1899; and to all foreigners resident since Jan. 1, 1899. Five years' residence is required for naturalization of foreigners arriving on the island after January 1, 1899. Congress meets annually. The municipal officers are elected directly by popular vote. For administrative purposes the republic is divided into six provinces; the governors and assemblies are elected directly every three years. The municipalities are administered by mayors and assemblies elected directly by popular vote.

DIRECT LEGISLATION.

COMMISSION GOVERNMENT. By 1913 253 cities in 34 states had adopted this form of government. Galveston, Texas, in 1910, was the first city to institute government by a commission instead of by a mayor and council. The usual form provides for an election of members, usually 5, from the city at large. These, in turn, elect one of their number to act as mayor, while the others have charge of special departments, choosing all their subordinates.

THE SHORT BALLOT. So many elective offices have developed that the ballot has become confusing and overburdened, many accepting the straight party ticket without regard to the fitness of the candidates. Some of the primary ballots in the state of New York in 1912 were 14 feet long. The commission form of government secures this reform. The voters would, by this means, choose only the most important officials. This is more generally considered in the East; in the West the effort is being made to make the votes more effective through direct legislation.

THE INITIATIVE. The initiative as the name implies gives the people the power to originate laws. A certain percentage of the voters (5 to 25 per cent) sign a petition for a law and file it with the proper official. The law then goes before the voters for their judgment. If a majority of votes shows approval, it becomes a law. Such laws cannot be vetoed. **THE REFERENDUM** has been defined as "the referring of legislation to the people for final acceptance or rejection." It has been in use in the United States in connection with constitutional amendments for many years. Since 1898, in connection with the initiative it has been applied to direct legislation in both cities and states. The following states have adopted both measures: South Dakota, Utah (with no enabling act), Oregon, Montana, Oklahoma, Maine, Missouri, Arkansas, Colorado, Nevada, Arizona, New Mexico, and California; Nevada has the referendum only. Several other states voted to submit amendments to their constitutions to the people providing for these changes.

THE RECALL. This is a legal method by which the people may remove from his position any elected official at any time. In order to do so a petition signed by a percentage of the voters, varying from 15 to 75, is required. It is less extreme than impeachment and is intended to apply to legislative officers mainly. It was first adopted in Los Angeles in 1903, and is in force in many cities. It was introduced into Oregon to apply to all state officials in 1908, California in 1911, Arizona and Washington in 1912. It applies to judges in the first three. Mr. Roosevelt suggested the recall of judicial decisions in 1912 and Colorado adopted a constitutional amendment for the recall of decisions by the state supreme court that laws were unconstitutional.

DIRECT PRIMARY. A plan by which the plain citizen participates in the choice of candidates for elective offices through the vote of the majority. Either by laws or party rule all but a half dozen of the states have accepted this method. **THE PRESIDENTIAL PREFERENCE PRIMARY.** A scheme to give voters an opportunity to vote directly for presidential candidates and to instruct delegates to national nominating conventions accordingly has developed from this. It originated in Oregon, and in 1911 4 others adopted it, and in 1912 it was established in 7, making 12. The New Jersey law is typical of them all. It provides that delegates to national conventions of parties recognized by law shall be directly selected by the voters, and may be pledged to support a particular candidate for presidential nomination. Party voters may indicate their preference directly between those candidates whose names shall have been placed on the primary ballot by petition of 1,000 of their party friends within the state.

CORRUPT PRACTICES ACT. This movement to prevent lavish use of money for campaign purposes began in 1890. The Federal law of 1907 prohibits all corporations from assisting candidates for national office, and all corporations chartered by the United States from making any contribution whatever; in 1910 it required the publication of receipts and expenditures after election made by individuals or organizations; the law of 1911 requires publication before and after both primaries and election, of all receipts and expenditures by or on behalf of any candidate for federal offices, besides limiting the total amount to $5,000 and $10,000 respectively which candidates to the House or Senate may spend personally. In 1913, 37 states had passed laws of this sort.

ITEMS OF NATIONAL INTEREST.

EMINENT DOMAIN. This term is of foreign origin but it is in use most commonly in the United States. It means the right of the sovereign power to take the property of the subject for public purposes; it is one of the implied powers of Congress granted by the Constitution; it belongs to the states as well, as evidence of their sovereignty. It applies to both real and personal property for which in most of the states compensation is made.

CONSERVATION. From the first vote of the Continental Congress in 1780 to about 1905, the accepted policy relating to public lands was that private ownership of land was the only desirable and natural condition. Public lands were accordingly given away too liberally. Practically all

of the usable agricultural land passed out of the hands of the Federal government. Finally, in 1909, the so-called "Conservation Movement" was organized and a national commission appointed to investigate the forest, water, land, and mineral resources. An inventory of the drain upon these resources was made and forms the basis of conservation. In 1910 Congress enacted legislation, providing for temporary withdrawal of public lands for certain purposes; agricultural entries on coal lands, which affect the separation of surface and mineral rights in land classified as coal lands; and authorized the President to make withdrawals of lands for "water power sites, irrigation, classification of lands, or other public purposes." On June 30, 1912, the area of public lands vacant and subject to entry and settlement was 682,984,762 acres of surveyed and unsurveyed land. The total receipts from the Land Office were $9,973,048.

DIPLOMATIC SERVICE. The highest officers are the Ambassadors, of whom the United States has 13, representing the government in Argentina, Austria-Hungary, Brazil, Chile, France, Germany, Great Britain, Italy, Japan, Mexico, Russia, Spain, and Turkey; salaries $17,500 per annum. The second class, the Ministers Plenipotentiary, numbers 28. **CONSULAR SERVICE.** There are 57 consuls-general, divided into seven classes: Class 1, salary $12,000, one at London and at Paris; Class 2, salary, $8,000, six, at Berlin, Havana, Hamburg, Hongkong, Rio de Janeiro, and Shanghai; Class 3, $6,000, eight, at Calcutta, Cape Town, Constantinople, Mexico City, Montreal, Ottawa, Vienna, and Yokohama; Class 4, $5,500, twelve; Class 5, $4,500, seventeen in all; Class 6, $3,500, nine in all; Class 7, $3,000, three in all. Admission to the consular service is secured by appointment of the President and successful examination in the necessary subjects. The duty of first importance relates to commerce, its promotion by introducing our products whenever possible, establishing cordial relations between commercial houses, American and foreign, and assisting in the marketing of American merchandise. Consuls are expected to maintain and promote the lawful interests of American citizens and protect them in all privileges.

COPYRIGHT LAW. By the act in force July 1, 1912, an author has the exclusive right to print, publish, translate, dramatize, arrange, adapt, and deliver or permit delivery of his copyrighted work in public for profit. A copyright is for 28 years from publication and may be renewed for another 28 years. All copyrighted works except periodicals, encyclopedias, or other composite works which are renewed by the proprietor, must be renewed by the author or his next of kin or executor. To secure copyright for work published in copies, one must first publish the work with the copyright notice affixed to each copy; 2 copies must be promptly sent to the office in Washington with an application for registration. To secure copyright, books must be manufactured in the United States, unless for the blind or of foreign language or origin, and English books seeking publication. In 1912 motion picture photo-plays and other motion pictures were added to the list of copyrighted matter. International relations are established with Austria, Belgium, Chile, Costa Rica, Cuba, Denmark, France, Germany, Great Britain and her possessions, Italy, Luxemburg, Mexico, Netherlands and possessions, Norway, Portugal, Spain, Sweden, Switzerland, Tunis, China, Japan, and Hungary.

INTERSTATE COMMERCE COMMISSION. This commission consists of 7 men with salaries of $10,000 annually, and was created by "an Act to regulate Commerce," approved in 1887. The regulating statutes apply to interstate traffic only; transportation within a single state is excepted. Frequent amendments have greatly enlarged the scope of this commission as the following will show: through rates, joint rates, freight classification, switch connections, long and short hauls, making of rate schedules, filing or rejection of same; safety appliances for all cars; arbitration in cases of controversy between companies and employees; reports of all accidents; hours of duty for engineers and brakemen; telegraph, telephone, and cable transactions; railway traffic in Panama Canal Zone; cooperation with the Postmaster-General regarding parcels post service.

THE HOUSE OF GOVERNORS. Early in 1907 a pamphlet bearing the following title was sent to the governors of all the states: "The House of Governors. A New Idea in American Politics, Aiming to Promote Uniform Legislation on Vital Questions, to Conserve State Rights, to Lessen Centralization, to Secure a Fuller, Freer Voice of the People and to Make a Stronger Nation." The first conference was held at Washington in 1908 to consider the question of conservation. In 1910 the governors themselves came together at Washington and effected an organization with a permanent secretary, William George Jordan, who first suggested the conference. Questions relating to uniform laws, matters between states and those of local interest in which each state can be helped by the experience of the others were considered. The third meeting was held at Louisville and Frankfort, Kentucky, in Nov. 1910—Discussion: Employers' liability, direct primaries, new nationalism, etc. Fourth meeting, Spring Lake, N. J., Sept., 1911—Discussion: Power of State executive, compensation acts, state inheritance tax, state control of public supplies, etc. Fifth meeting, Richmond, Va., Dec. 1912—Discussion: Rural credits, uniform state legislation, state income tax. Sixth meeting, Colorado Springs, 1913—Discussion: Good roads, conservation of national resources, papers on rural credits, Lincoln highway. Seventh meeting, Madison, Wis., 1914—Discussion: Uniform laws for foreign corporations doing business in a state, administration problems, extradition, etc. Eighth meeting, Boston, 1915—Discussion: Penology, greater efficiency in state administration, relation of state to national defense.

NATIONAL MONUMENTS. By an act of Congress, passed June 8, 1906, the President was authorized to declare by proclamation, historic landmarks, prehistoric structures, and other objects of interest upon lands controlled or owned by the United States, to be national monuments. The following have been created:—

Chaco Canyon, El Morro or Inscription Rock, Gran Quivira Ruin, and Gila Cliff Dwellings, New Mexico; Cinder Cone, Pinnacles Rocks, Devil's Postpile, Lassen Peak, and Muir Woods, California; Grand Canyon, Colorado Canyon, and Wheeler volcanic formations, Colorado; Devil's Tower, Wyoming; Mukuntuweap Canyon, Natural Bridges, and Rainbow Bridge, Utah; Jewel Cave, South Dakota; Oregon Caves, Oregon; Lewis and Clark Cavern, Montana; Montezuma Castle, Tonto Ruins, and Petrified Forest, Arizona; Mt. Olympus, Washington; Sitka battle site and totem poles, Alaska.

NATIONAL PARKS. These contain not only magnificent scenery and natural curiosities, but they are great game preserves and afford preservation of species of animals and birds which might otherwise become extinct. **Casa Grande Ruin** (1892), containing 480 acres, is in Pinal County, Ariz.; it is an interesting prehistoric ruin discovered by Padre Kino, a Jesuit missionary, in 1694; it is constructed of puddled clay, molded into walls and dried in the sun, and was originally 5 or 6 stories high, but the walls have disintegrated through the action of the elements. **Crater Lake** (1902), a tract of 249 square miles in Oregon, includes Crater Lake, a beautiful sheet of water with a surface of more than 21 square miles in the crater of an extinct volcano. **Glacier** (1910) is a park of a million acres, mainly ice, near the crest of the Rockies in Montana, south of the international boundary line; there are 250 lakes ranging from 10 miles to a few feet in area, more than 60 glaciers between 5 miles square and a few acres, wild animals, plants, flowers, and rocks in great quantity; the glaciers are said to be remnants of the glacial period. **Hot Springs.** The original reservation was made in 1832, boundaries established, the city of Hot Springs laid out, and the mountain and land (911 acres) reserved in 1877; upon this are 49 springs with a temperature varying from 100 to 150 degrees Fahrenheit, with an aggregate flow of 1,000,000 gallons daily; the waters have curative qualities due to their radioactivity. The government leases the waters to various bathhouses, but retains supervision over their conduct and management. **Mesa Verde** (1906) includes 65.5 square miles in Montezuma County, Col.; its principal objects of interest are the cliff dwellings, which are caves hollowed out of the canyon walls by the action of the water. **Mount Rainier** (1899), a tract nearly 18 miles square, lies wholly within the forest reserve in Washington, and includes the whole mass of the mountain. **Platt** (1902) has an area of 848.22 acres in Sulphur, Okla.; it has 33 known mineral springs and 2 non-mineral; sulphur predominates, but there are also bromide, soda, and iron varieties. **Sequoia and General Grant** are in Tulare and Fresno counties, Cal.; the former contains 250 square miles and was created in 1890; its chief natural features are the giant sequoia or giant redwood trees, some of which are supposed to be thousands of years old. The latter, about 2 miles square, contains two groves of redwood trees, one of which, a very large specimen, is known as the "General Grant." **Sully's Hill** (1904) is on the south shore of Devil's Lake, N. D., having 2 miles of shoreline; it has an ample supply of water, many rugged hills, and is well wooded. **Wind Cave** (1903), near Hot Springs and Custer, S. D., comprises 10,522 acres; it contains bridges, stairs, chambers, and paths, and is being explored. **Yellowstone** (1872) is located mostly in Wyoming, contains an area of 2,142,720 acres, and has an altitude of 8,000 feet; it is remarkable for its scenery, hot springs, geysers, and waterfalls. **Yosemite** (1890), California, includes about 1,080 square miles; this valley is shut in by granite walls 3,000 to 6,000 feet high, is 6 miles long and nearly 2 miles wide, and traversed by the Yosemite River, which contains some of the most remarkable falls in the world.

BIRD RESERVES. The first specific act of Congress providing for the protection of birds by means of bird reserves created by executive order became a law June 28, 1906. A number of these lie within tracts reserved for other purposes. In 1913, 55 such reservations had been created. The act made it unlawful to kill birds, take their eggs, or willfully disturb them upon the reservations, and provided punishment for each conviction secured.

WHAT UNCLE SAM IS DOING FOR US.

How many of us know that the answer to a large share of our problems can be obtained for the asking at the price of a two cent stamp?

Are you a farmer hampered by poor soil? Do your crops refuse to thrive, is a bug eating your fruit or annoying your family? Ask Uncle Sam; he knows what to do and he will tell you.

Have you found ore or oil on your land? Are you about to engage in manufacturing, hire hands, or buy raw material and do you distrust the authorities at hand? Ask Uncle Sam.

Do you wish to take your children or an invalid to just the kind of place the doctor orders? Ask Uncle Sam and find out just where those places are and how to get to them. Are you going to sea? Ask Uncle Sam about the seaworthiness of your vessel. Have you a friend in army or navy long unheard of? Ask Uncle Sam and find out all about him.

You will never know how much Uncle Sam is doing to help you to live and prosper until you have a better idea of this great mutual welfare work conducted on such a colossal scale by the government.

Perhaps the various good officers of the Department of Agriculture come closer to most of us than those of some of the other departments. Besides the ordinary queries to be answered there are other less obvious problems which come within its scope. For example, after the Parcel Post system had become an established part of our postal service, the subdivision of the Department of Agriculture known as the Office of Markets began a series of investigations and experiments with a view to facilitating speedy and safe transmission of products of all sorts between producer and consumer. In the course of the experiments over 700 dozen eggs were shipped in various containers, and when it was definitely proved that the Parcel Post system afforded a safe, inexpensive, and rapid means of shipment, the results were embodied in a circular giving full details concerning container, packing, rates, etc. This can be obtained by any one, together with any information made necessary or desirable by individual circumstances.

Specialists are constantly at work on problems of plant or tree or fruit disease; the Bureau of Entomology is studying not only the destructive but the beneficial insects; the Bureau of Biological Survey has, for your asking, all sorts of information about birds and animals in their relation to agriculture, their food habits, and the measures best suited to preserve beneficial species and destroy the harmful.

If your farm seems to be doing well but isn't paying, you can tell your troubles (for two cents) to the Secretary of the Department of Agriculture and get expert advice. There is no question of daily living, so far as the farmer or small householder is concerned, which cannot be brought to this department with the practical certainty that light will be turned into the dark places. Busy housekeepers, would you have expert advice about the nutritive value of your tables? Ask Uncle Sam.

If you are a manufacturer, remember that there are 700 consular officers scattered throughout the world as lookouts on the watchtowers of international trade. One New England manufacturer asked the Consular Bureau for a list of retail dealers in cutlery in England. He got it and is now shipping American knives to Sheffield with profit.

We all know the uses of the Department of State when we are travelers in foreign countries. From passports to shopping places, from personal safety to personal tastes, we are treated like its favored children.

Just in this year of 1916, the attention of everybody has been turned to the benefits derived from the Public Health Service of the Department of the Treasury. Aided by a splendid force of Federal surgeons, backed by Federal authority and using a Federal grant of $135,000, New York is fighting a splendid fight against Infantile Paralysis, one of the terrible diseases which the Public Health Service has been studying with all available means for some years. But the results of all the expert work of that fine department are as much at the personal service of any one of us, as at that of stricken New York.

If you have had enough of city dwelling, write the Department of the Interior and find out about your homestead rights. Have you devised a clever means of saving yourself or others time, expense, or labor, write to the Patent Office and protect yourself. Are you interested in any phase of education? All that experts can tell you is in the keeping of the Bureau of Education of the Department of the Interior and is yours for the asking.

Are you a mill owner desirous of employing imported laborers? Write to the Department of Labor and all the laws governing such action are at your door in a few days; also all the information obtainable bearing on your possible problems of wages, strikes, organization, etc.

Most of us know that we buy our groceries, drugs, etc., under the protection of standard weights and measures, but how many of us know that the same Department of Commerce will also give us information as to the seaworthiness of any steamer carrying American citizens or American goods?

We know that the United States census is taken regularly and think of it vaguely as furnishing a basis for determining representation, but if you wished to change your abiding place, by writing to the Census Bureau of the Department of Commerce you could obtain statistics not only as to the population of any given place, but its wealth, health, the occupations of its people, its educational and religious resources, the wages paid in its various industries, etc.

One of the most important things Uncle Sam has done for us in recent years is the establishing of the Postal Savings system, which brings within reach of every one over ten years of age, regular, reliable means of saving at small interest. Details of the system may be had at any post office, or by application to the Third Assistant Postmaster General, at Washington. It is almost as easy as mailing a letter and as safe as the United States government.

Another of Uncle Sam's growing benefits is the Rural Free Delivery system, which, in connection with the Parcel Post system, brings nearly everything to everybody's door. Send for one of the Parcel Post circulars and see how many things can be delivered to you; shopping made easy by Uncle Sam.

Finally, if you want information about something and do not know to which department to apply for documents, bulletins, or publications, write to the Government Printing Office, Washington, D. C., stating the nature of the information desired and you will receive not only the printed matter in question, but directions as to further inquiries.

In short, if you are in a quandary, don't despair. Ask Uncle Sam!

THE RECLAMATION SERVICE began in June, 1902, when the Reclamation act was passed. Most of the western half of the United States lacks sufficient rainfall for successful growth of crops, and consequently for long periods is arid. Much of this area is public land, belonging to the nation. Without water it supports but scanty vegetation and is worth but a few dollars an acre. But if water is brought to it the soil, otherwise fertile, will become highly productive and a wide variety of crops may be grown under the most favorable conditions, and the value of the land through irrigation be increased to several hundred dollars an acre.

The provisions of the act are as follows:—

1. A reclamation fund composed of receipts from the sale of public lands in the arid states in accordance with the various land laws. This fund is now nearly a hundred million dollars.

2. The construction of irrigation systems to water public and private lands.

3. Virtually free entry to the public lands under the irrigation projects, limiting any one citizen to a farm of such a size as is sufficient to support a family.

4. Subdivision of the private lands into small tracts, limiting the area to which water will be furnished one person to 160 acres.

5. Repayment of the cost of building the works by the holders of the lands benefited, in easy terms extending over a long period, the money being returned to the reclamation fund for use on other projects.

Since its beginning in 1902 the Reclamation Service has commenced work on nearly thirty projects, which are in various stages of completion according to the available funds, and the quickness with which the lands are taken up and utilized. When these projects are completed they will comprise an area of nearly 3,000,000 irrigable acres. In 1914, water was ready for nearly one half of this surface, or about 1,500,000 acres; an area exceeding that of some of the smaller states.

The principal work of construction includes masonry and earthen storage dams, diversion dams and headworks, canals, tunnels, flumes, pipe lines, and other smaller structures such as canal drops, siphons, culverts, and the like. The possibilities for hydraulic power have been utilized at many points to develop further irrigation water by pumping or to lift the water to higher levels than can be reached by gravity flow, and at the same time add to the general development of future settlements. Incidentally railroads have been constructed and electricity generated for light and power. In one case a cement mill was erected for the manufacture of cement on the ground, thereby saving a half million dollars over cost if purchased under competitive bids received for supplying that isolated region.

The Reclamation Service is also looking after the rights of the Indians upon the reservations and is at work on projects of irrigation and other improvements for them in Arizona, California, Montana, Oregon, and Washington.

The surveys and construction of the Government projects have occasioned a great deal of preliminary work, as they have mainly been carried on in isolated regions at long distances from railroads and towns—across pathless deserts or up difficult cañons of mountain streams.

Among the great projects practically brought to completion are:—

1. The Salt River Project in Arizona. This includes the Roosevelt Dam, built in a cañon of Salt River and forming when filled a storage lake of 17,000 acres surface area and contains 1,400,000 acre-feet or 450,000,000,000

gallons of water. The dam is an arch of rubble masonry 280 feet in maximum height and 1,125 feet along the crest. About 40 miles down the river is the Granite Reef diversion dam, a weir of rubble concrete 1,000 feet long by which the water is turned into canal systems north and south of the river for the irrigation of about 200,000 acres surrounding Phoenix. The canals aggregate about 680 miles in length and are supplemented by 1,325 structures to control, measure, and subdivide the water. At the foot of the Roosevelt Dam and at several points below where drops in the canal are available, power plants have been built. A transmission system carries the current to Phoenix and other points in the valley, also to mining camps near by. Considerable power is also used for pumping water from underground sources, increasing the area of irrigation by 10,000 acres.

2. The Boise Project, Idaho. Another large project recently completed is the Boise in Idaho. This is about equal in area to the Salt River and involves the storage and diversion of the waters of Boise River. The reservoir is formed by the Arrowrock Dam, the highest in the world, a rubble concrete arch rising 350 feet above the lowest point of the base and measuring 1,075 feet along the crest. The inaccessibility of this site and the large amount of material to be hauled for construction made it economical to build a 17-mile railroad connecting the site with Barberton, which is reached by the Oregon Short Line. About 12 miles below Arrowrock and 8 miles above Boise is the diversion dam of the project, which turns the water into the canal system and includes a main canal carrying the water to the Deer Flat Reservoir, another storage basin formed by a natural depression some distance from the river and several large earth embankments. As on the Salt River Project power is developed in connection with the Boise, but in smaller amount. A hydro-electric plant was built at the diversion dam and the power here developed was transmitted to Arrowrock, where it was used to build the larger dam.

3. Rio Grande Project. This is an inter-State and international project, using the waters of the Rio Grande to irrigate lands in New Mexico and Texas and supplying Mexico at the international boundary a quantity of water fixed by treaty made for this purpose. One of the largest reservoirs in the world is formed by the construction of the Elephant Butte Dam on the Rio Grande near Engle, New Mexico, which was completed May 13, 1916, at a cost of $5,000,000 and has a storage capacity of about 2,500,000 acre-feet, or nearly 1,000,000,000,000 gallons. The dam contains 500,000 cubic yards of rubble concrete and is 318 feet in maximum height and 1,674 feet along the top. The water is used to irrigate the series of narrow valleys bordering the river between Elephant Butte and El Paso, comprising about 150,000 acres in the United States. Favorable climate and soil combined with good local markets and transportation facilities make highly profitable the production of alfalfa, cereals, fruit, and truck crops.

THE FEDERAL FARM LOAN ACT. Through the approval of this act July 17, 1916, it is estimated that about 40 billion dollars' worth of farm property became available as a basis of credit for long-time loans at a low rate of interest on the amortization or debt extinguishment plan; that is, the principal is paid along with the interest in periodical installments. It is believed that the annual payments will be so small and the interest so low that the farmer may pay both about as easily as he formerly paid his interest. It is hoped and expected that the beneficent results of the law will be far reaching—that the time has passed when the farmer can only get short-time loans on farm mortgages and has to meet heavy payments, often at the cost of great inconvenience to himself and privation to his family.

The law will work co-operatively. In order to get a loan the borrower must subscribe for stock in a farm loan association to an amount equal to 5 per cent. of the loan desired, and thereby becomes a stockholder in the association to the amount of one share of stock for every one hundred dollars he receives in the loan. Thus he pays five dollars for each share—the par value. This stock is held by the loan association as further security for the loan. When the loan is fully paid the association redeems the stock at par value. As long as the loan runs the borrower gets dividends on the stock according to the prosperity of the association to which he belongs. These National loan associations are not private concerns but are created by the law as a part of the system by which it works.

The Federal Farm Loan Act creates in the Treasury Department a new bureau called the Federal Farm Loan Bureau, by which the system will be administered under the supervision of the Farm Loan Board. The latter consists of five members, one of whom is the Secretary of the Treasury, the other four appointed by the President with the advice and consent of the Senate. There is also created a system of Federal land banks on the same plan as the Federal reserve banks. The continental United States and Alaska are to be divided into twelve Federal land bank districts and in each of these the Federal Farm Loan Board will establish a Federal land bank to handle the business of that district. Provision is also made for joint stock land banks for the business of lending on farm mortgages and for issuing farm loan bonds.

The fundamental features of the bill as passed are the result of the labors of a commission appointed in 1912 by the Southern Commercial Congress to study the problem of rural credits in the various countries of Europe. The commission was recommended to the diplomatic courtesies of the various European governments by a joint congressional resolution and had abundant opportunity for an exhaustive study of the different systems in practical operation. It was upon the evidence collected and the deductions from it that this law was framed.

CHILDREN'S BUREAU. The Children's Bureau was created by an act of April 9, 1912, to investigate and report upon all matters pertaining to the welfare of children and child-life among all classes of our people, and especially to investigate the questions of infant mortality, the birth rate, orphanage, juvenile courts, desertion, dangerous occupations, accidents, and diseased children, employment and legislation affecting children in the several States and Territories.

The staff for the first two fiscal years of the bureau's existence (to June 30, 1914) consisted of fifteen persons, and a yearly appropriation of $25,640. For the fiscal years beginning July 1, 1914, and July 1, 1915, an appropriation of $164,640 was made by Congress, providing for a staff of seventy-six persons. With this staff and appropriation the organization of the bureau falls into certain divisions, as an industrial division, a social service division, a division on sanitation, a statistical division, and a division of exhibits.

Headquarters, Washington, D. C. Chief of Bureau, Miss Julia C. Lathrop; Lewis Meriam, Assistant Chief.

UNITED STATES COAST AND GEODETIC SURVEY. The Coast and Geodetic Survey of the Department of Commerce is charged with the survey of the coasts of the United States and coasts under the jurisdiction thereof, and the publication of charts covering said coasts. This includes base measure, triangulation, topography, and hydrography along said coasts; the survey of rivers to the head of tide water or ship navigation, deep sea soundings, temperature and current observations along said coasts and throughout the Gulf and Japan streams, magnetic observations and researches and the publication of maps showing the variations of terrestrial magnetism; gravity research, determination of heights, the determination of geographic positions by astronomic observations for latitude, longitude, and azimuth, and by triangulation to furnish reference points for State surveys and to co-ordinate Governmental surveys.

The results obtained are published in annual reports and in special publications; charts upon various scales, including sailing charts, general charts of the coast, and harbor charts; tide tables issued annually in advance; coast pilots with sailing directions covering the navigable waters; notices to mariners issued weekly as a joint publication of the Coast and Geodetic Survey and the Bureau of Lighthouses and containing current information necessary for safe navigation; catalogues of charts and publications, and such other publications as may be required to carry out the organic law governing the survey.

THE UNITED STATES GOVERNMENT PRINTING OFFICE. In this establishment practically all the printing for the United States Government is done except the manufacture of paper money and postage stamps. The Public Printer is the executive head of the Government Printing Office. Directly or through his principal officers he purchases all materials and machinery subject to the provisions of law, disburses all money, appoints all officers and employees, and exercises general supervision over the affairs of the office. The Superintendent of Documents has general supervision over the distribution of all public documents, excepting those printed for the use of the two Houses of Congress and for the Executive Departments. He is required to prepare a comprehensive index of public documents and consolidated index of Congressional documents, and is authorized to sell at cost any public document in his charge, the distribution of which is not specifically directed.

ELLEN WILSON MEMORIAL HOMES. By an act of Congress approved March, 1915, a corporate body was created to acquire property in the District of Columbia, for building, in memory of the late Mrs. Woodrow Wilson, one or more blocks of sanitary houses for the working classes, and renting the same at a rental sufficiently low to cause the abandonment of dilapidated and insanitary houses, as an object lesson in the housing of the working classes under good conditions and at reasonable rates.

NATIONAL ACADEMY OF SCIENCES. Incorporated by act of Congress, March 5, 1863. The articles of incorporation state that whenever called upon by any department of the United States Government it shall investigate, examine, experiment, and report upon any subject of science or art, and that it shall be paid for its services by appropriations which shall be made for the purpose. The academy holds a regular session annually in the city of Washington on the third Monday in April. An autumn meeting is also held at such a time and place as the council shall determine.

QUALIFICATIONS FOR VOTING IN EACH STATE OF THE UNION.

STATE.	CITIZEN AND DECLARANT.[2]	RESIDENCE.			TAXES.	EDUCATION.
		State.	County.	etc. Town,		
Alabama*.....	Every citizen of U. S.	2 yrs.[3]	1 year	3 mos.	Who has paid poll tax[4] and has (1) in his own right or that of his wife 40 acres of land upon which they reside, or (2) real or personal property assessed at $300 upon which he has paid taxes the previous year, or (3) possesses the educational qualification.[5]	Who, except for physical disability, (1) can read and write any article of the constitution of the United States in the English language, and has been lawfully employed the greater part of the previous twelve months, unless physically unable to work, or (2) possesses the property qualification.[5]
Arizona*.....	Every citizen of U. S.	1 year	30 days	30 days	.....	.....
Arkansas*...	Every citizen of U. S. Declarant.	12 mos.	6 mos.	1 month	Who has paid his poll tax.[6]	.....
California*...	Every citizen[7] of U. S. by nativity, or naturalization 90 days prior to any election.[8]	1 year	90 days	30 days	.....	Who is able to read the constitution in the English language, and write his name.
Colorado*....	Every citizen of U. S. Declarant not less than 4 mos. before offering to vote.	1 year	90 days	30 days	.....	.....
Connecticut*.	Every citizen of U. S. of good moral character.	1 year	.....	6 mos.	.....	Who shall be able to read the constitution, or statutes of the state.
Delaware*...	Every citizen of the state.	1 year	3 mos.	30 days	.....	Who must be able to read the state constitution in the English language, and write his name, unless prevented by physical disability.
Florida*.....	Every citizen of U. S.	1 year	6 mos.	6 mos.	Who has paid all taxes except for current year.	.....
Georgia*.....	Every citizen of U. S.	6 mos.	6 mos.	.....	.....	.....
Idaho*.....	Every citizen of U. S.[7]	6 mos.	30 days	.....	.....	.....
Illinois*.....	Every citizen of U. S.[15]	1 year	90 days	30 days	.....	.....
Indiana*.....	Every citizen; declarant resident in U. S. 1 yr.; in state 6 mos.	6 mos.	60 days	In ward 30 ds.	.....	.....
Iowa*.....	Every citizen of U. S.	6 mos.	60 days	10 days	.....	.....
Kansas*.....	Every citizen of U. S. Declarant.	6 mos.	.....	30 days	.....	.....
Kentucky*...	Every citizen of U. S.	1 year	6 mos.	60 days	.....	.....
Louisiana*...	Every citizen of U. S. born or naturalized.	2 yrs.	1 year	6 mos.	Who, if under 60 years of age, has paid poll tax for the preceding 2 years, before December 31 of each year.	Who (1) makes written application for registration in the English language, or in his mother tongue, in the presence of the registration officer, or his deputy, and under oath unless prevented by physical disability, or (2) owns property assessed in state at $300 or more, on which all taxes have been paid, if personal property only.[9]
Maine*.....	Every citizen of U. S.	3 mos.	.....		.....	Who, except for physical disability, is able to read the constitution in the English language, and write his name; this test shall not apply to those already voters, and those 60 years of age or above on first Wednesday of January, 1893.
Maryland*...	Every citizen of U. S.	1 year	6 mos.	.....	.....	.....
Massa'setts*.	Every citizen.	1 year	.....	6 mos.	.....	Who shall be able to read the constitution in the English language, and write his name.
Michigan*...	Every citizen of U. S. or alien declarant 2 years and 6 mos. prior to May 8, 1892.	6 mos.	20 days	20 days	.....	.....

STATE.	CITIZEN AND DECLARANT.[2]	RESIDENCE.			TAXES.	EDUCATION.
		State.	County.	Town, etc.		
Minnesota*..	Every citizen, of U. S., who has been such for 3 months preceding any election, of mixed white and Indian blood[10] or of Indian blood described in note.[11]	6 mos.	.....	30 days	.....	.....
Mississippi*.	All citizens of U. S.	2 yrs.	.....	1 year[12]	Who has paid taxes for 2 years previous.	Who is able to read the state constitution; or able to understand the same when read to him, or give a reasonable interpretation thereof.
Missouri*....	Every citizen of U. S. Declarant not less than 1 year nor more than 5.	1 year	60 days	60 days	.....	.....
Montana*....	Every citizen of U. S.	1 year	30 days	.....	.....	.....
Nebraska*....	Every citizen of U. S. Declarant at least 30 days prior to an election.	6 mos.	Term as provided by law.	Term as provided by law.	.....	.....
Nevada*.....	Every citizen of U. S.	6 mos.	40 days	10 days	Provided for by law.	.....
New Hamp.*.	Every citizen of U. S.	6 mos.	.....	.....	.....	Who, except for physical disability, is able to read the state constitution in the English language, and to write; the educational test shall not apply to those already voters, and those 60 years of age or above on Jan. 1, 1904.
New Jersey*	Every citizen of U. S.	1 year	5 mos.	.....	.....	.....
New Mexico.	Every citizen of U. S.	2 mos.	90 days	30 days	.....	.....
New York*..	Every citizen of U. S. who shall have been a citizen for 90 days.	1 year	4 mos.	30 days	.....	.....
No. Carolina.	Every citizen of U. S.	2 yrs.	3 mos.	4 mos.	Who, if under 50 years of age, has paid his poll tax for the previous years on or before May 1 of the year in which he proposes to vote.	Who is able to read and write any section of the constitution in the English language. All persons who were legal voters in any state on Jan. 1, 1867, or prior thereto, and all lineal descendants of the same, are excused from the educational test, provided they have registered prior to Dec. 1, 1908.
No. Dakota*.	Every citizen of U. S. Persons of Indian descent who have severed tribal relations 2 years next preceding any election.[13]	1 year	30 days	90 days	.....	Legislature shall establish an educational test, and may prescribe penalties for failing, neglecting, or refusing to vote at any general election.
Ohio*.....	Every citizen of U. S.	1 year	6 mos.	30 days	.....	.....
Oklahoma*..	Every citizen of U. S.	1 year	30 days	20 days	.....	Who is able to read and write any section of the state constitution.[14]
Oregon*.....	Every citizen of U. S. Declarant for 1 year previous to election.	6 mos.	.....	.....	.....	.....
Pen'sylv'nia*	Every citizen of U. S.	1 year	.....	2 mos.	Who shall have paid within 2 years a state or county tax assessed 2 months, and paid 1 month before election, if 22 years of age or upward.	.....
Rhode Is.*..	Every citizen of U. S.	2 yrs.		6 mos.	.....	PROPERTY: In his own right possessed of real estate of clear value of $134, or which shall rent for $7 per year clear.
So. Carolina.'	Every citizen of U. S.	2 yrs.[15]	1 year	4 mos.	Who has paid poll tax 6 months before election.	Who (1) can read and write any section of the state constitution.[16] or (2) owns property in the state assessed at $300 or more, and has paid all taxes upon the same during the previous year.

STATE.	CITIZEN AND DECLARANT.[2]	RESIDENCE.			TAXES.	EDUCATION.
		State.	County.	Town, etc.		
So. Dakota..	Every citizen of U. S. Declarant.	6 mos.	30 days	10 days	.....	.....
Tennessee...	Every citizen of U. S.	12 mos.	6 mos.	.....	Who has paid the poll taxes assessed against him for such preceding period as the legislature may prescribe.	.....
Texas*.....	Every citizen of U. S. Declarant not less than 6 months before any election.	1 year	6 mos.	6 mos.	.....	.....
Utah*.....	Every citizen of U. S., who has been such 90 days.	1 year	4 mos.	60 days	.....	.....
Vermont*....	Every native or naturalized citizen of U. S.	1 year	.....	3 mos.	.....	Who is of quiet and peaceable behavior.
Virginia*....	Every citizen of U. S.	2 yrs.	1 year	30 days	Who has paid at least 6 months prior to the election poll tax for the previous 3 years, unless he served in the army or navy during the late war between the states.	Who, except for physical disability, makes application for registration in his own handwriting done in the presence of the registration officers, and is able to prepare and deposit his ballot without aid.[17]
Washington*.	Every citizen of U. S. or a voter before 1889.	1 year	90 days	30 days	.....	Who can read and speak the English language.
W. Virginia*.	Citizens of the state.	1 year	30 days	10 days	.....	.....
Wisconsin*..	Every citizen of U. S. and persons of Indian blood described in note.[18] Declarant.	1 year	.....	.....	.....	.....
Wyoming*...	Every citizen of U. S.	1 year	60 days	10 days	.....	Ability to read.

*Australian ballot law or a modification of it in force. †All voters must be 21 years of age. [1]The constitutions of some states enumerate among those who are excluded from the suffrage idiots, lunatics, persons under guardianship, and soldiers and sailors in the service of the United States. The provisions of the constitutions of other states granting the suffrage generally to persons possessing certain qualifications are interpreted as excluding idiots, lunatics, and other persons who are deemed incapable of exercising legal volition. Apparently the legislatures of most, if not all, the states are held to be competent to prescribe by law such conditions to the exercise of the suffrage as registration before voting and use of a special form of ballot, which are deemed necessary and reasonable to protect the privilege, and to prevent impositions and other frauds. [2]Declarant means a person of foreign birth, who shall have declared his intention to become a citizen of the United States, conformably to the naturalization laws of the United States. [3]Immediately preceding the election at which he offers to vote. [4]Poll tax must be paid on or before the first day of February next preceding the election. [5]The property and educational qualifications given in the table apply to those who registered as electors after January 1, 1903. [6]Who shall exhibit a poll tax receipt or other evidence that he has paid his poll tax at the time of collecting taxes next preceding such election. (Const. Art. XXI.) [7]Provided no native of China shall ever exercise the privileges of an elector. [8]Or by the treaty of Queretaro. (Const. Art. 199.) [9]But those who were legal voters on January 1, 1867, or sons or grandsons of the same not less than twenty-one years of age at the date of the adoption of the present state constitution (1898), and those naturalized prior to January 1, 1898, are not required to possess the educational or property qualification, provided they had resided in the state for five years preceding their registration, and registered prior to September 1, 1898. [10]Who have adopted the customs and habits of civilization. [11]Persons of Indian blood residing in the state who have adopted the language, customs, and habits of civilization, and shall have been pronounced (by any district court of the state) capable of enjoying the rights of citizenship. [12]But any minister of the gospel in charge of an organized church shall be entitled to vote after six months' residence in the election district, if otherwise qualified. (Const. Art. 12, Sec. 241.) [13]The legislative assembly shall be empowered to make further extensions of suffrage hereafter, at its discretion, to all citizens of mature age and sound mind, not convicted of crime, without regard to sex; but no law extending or restricting the right of suffrage shall be in force until adopted by a majority of the electors of the state voting at a general election. (Const. Art. V, Sec. 122.) [14]But no person who was on January 1, 1866, or at any time prior thereto, entitled to vote under any form of government, or who at that time resided in some foreign nation, and no lineal descendant of such person shall be denied the right to register and vote because of his inability to read and write sections of such constitution. (Const. Art. III, Sec. 4a.) [15]*Provided* that ministers in charge of an organized church and teachers of public schools shall be entitled to vote after six months' residence in the state, otherwise qualified. (Const. Art. II, Sec. 4.) [16]Prior to January 1, 1898, those who could read any section of the state constitution, or explain it when read, were entitled to register, and after such registration were during life qualified electors. [17]A person registering after Jan. 1, 1904. [18]Who have once been declared by Congress citizens of the United States, and civilized persons of Indian descent, not members of any tribe.

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VIEWS OF WASHINGTON, D. C.

White House, East Entrance
Washington Monument and Cherry Blossom Walk

U. S. Capitol, West Front
New National Museum

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VIEWS OF WASHINGTON, D. C.

Pan-American Union Building
New Union Station
Connecticut Boulevard Bridge
Smithsonian Institute

White House—South Lawn
Emancipation Statue
House Office Building
Pennsylvania Avenue

MINOR POLITICAL PARTIES IN THE UNITED STATES.

ABOLITIONISTS. Those who worked together to secure the abolition of slavery.

ADAMITES. The supporters of John Quincy Adams (1821-1832).

AMERICAN PARTY. Originated in New York in 1835, organized as a national party (1852); later known as the Know-Nothing party, and adopted the motto, "America for the Americans."

ANTI-FEDERALISTS. Those who opposed the adoption of the Constitution of the United States and, later, objected to a liberal construction of its terms.

ANTI-IMPERIALISTS. Those who opposed the territorial expansion of the United States, especially to the Philippines.

ANTI-MASONS. Originated in New York in 1826 and was hostile to the Masonic body.

ANTI-NEBRASKA PARTY. Those opposed to the repeal of the Missouri Compromise; principally Northern Whigs; organized in 1854 after the passage of the Kansas-Nebraska Bill.

ANTI-RENTERS. New Yorkers who opposed the collection of rent from the tenants of the old patroon estates (1839-1847).

BARNBURNERS. Radicals of the Democratic party in New York opposed to the extension of slavery; flourished after 1844.

BLACK REPUBLICANS. Southern supporters of the Republican party in sympathy with the negro at the close of the Civil War.

BOURBONS. Old school Southern Democrats; later applied to those who hold obstinately to old traditions in politics.

BUCKTAILS. New York opponents to the policy of Governor Clinton (1815); distinguished by wearing bucktails in their hats.

CARPETBAGGERS. Northern politicians who invaded the South at the close of the Civil War.

CONSTITUTIONAL UNION PARTY. Composed of former Southern Whigs; organized in 1860.

COPPERHEADS. A name given by Republicans during the Civil War to those Northern Democrats who advocated closing the war and who sympathized with the Confederates.

CO-OPERATIONISTS. Those in the South who, just before the war, favored the secession of their own state only in the event of the coöperation of the other states.

COURT PARTY. Supporters of the two rival superior courts in Kentucky.

DOUGHFACES. A name given by John Randolph of Roanoke in 1820 to the Northern members of Congress who voted for the Missouri Compromise.

DRYS. Prohibitionists.

FREE-SOILERS. Those who opposed negro slavery and organized in 1848.

GOLD DEMOCRATS. Disaffected Democrats who, in 1896, refused their support to the regular party platform and favored a gold standard. J. M. Palmer of Illinois was their candidate for President.

GREENBACKERS. Those who between 1876 and 1886 favored the issue of an irredeemable paper currency.

HALF-BREEDS. The moderate wing of the New York Republicans who opposed the Stalwarts from 1881 to 1885.

HUNKERS. The moderate wing of the New York Democrats who opposed the Barnburners after 1844.

INDEPENDENCE PARTY. First organized as Independence League by W. R. Hearst; supported T. L. Hisgen for president, 1908.

KNOW NOTHINGS. The American party.

LIBERALS or LIBERAL REPUBLICANS. Those who opposed the reëlection of Grant in 1872 and sought a liberal policy in the South.

LIBERTY PARTY. Abolitionists about 1840.

LILY WHITES. White Republicans in the South who advocated the exclusion of the negro from the party.

LOCOFOCOS. A faction of New York Democrats in 1835.

LOOSE CONSTRUCTIONISTS. Federalists and Whigs who advocated a liberal interpretation of the Constitution of the United States.

MAHONISTS. Followers in Virginia of General William Mahone, who, in 1878, left the Democratic party.

MIDDLE-OF-THE-ROAD POPULISTS. Those of the Populists who, in 1896, voted for W. J. Bryan for President and Thomas E. Watson of Georgia for Vice-President.

MUGWUMPS. Those nominally identified with a particular party but claiming the right to vote with another party. The Indianapolis *Sentinel* first used the term in 1872; but its popular use dates from its application by the New York *Sun* in 1884 to those Independent Republicans who refused to indorse the candidacy of Blaine for President.

NATIVE AMERICANS. Know-Nothings.

NULLIFIERS. Those who claimed the right of any state to suspend within its borders the operation of any law of the United States; strong in North Carolina from 1828 until 1832.

PEOPLE'S PARTY. Populists.

POPULISTS. Organized in Cincinnati (May, 1891) from among the members of the Grange and the Farmers' Alliance.

PROHIBITIONISTS. Those who advocate the abolition of the liquor traffic; a national party since 1872.

RADICALS. The extreme wing of the Republicans after the Civil War.

READJUSTERS. The Mahonists of Virginia, who, in 1878, favored conditionally repudiating the state debt.

RELIEF PARTY. A movement in Kentucky (and in other states from 1830 to 1860) urging the legislature to enact laws to relieve the people of economic and financial burdens.

REPUDIATORS. Those in Mississippi who advocated repudiating the payment of a large issue of Union bank bonds guaranteed by the state.

SCALAWAGS. Native Southerners who, during the era of reconstruction, united with the Republicans.

SILVER GRAYS. Conservative Whigs.

SILVER PARTY. Largely disaffected Republicans who, in 1896, favored the free coinage of silver and supported the Democratic nominees.

SOCIALISTS. Those who urge the adoption of a socialistic policy in government; a national party since 1892.

STALWARTS. The "machine" wing of New York Republicans led by Roscoe Conkling from 1881 to 1885.

STRICT CONSTRUCTIONISTS. Those who favored a strict interpretation of the Constitution of the United States.

UNION LABOR PARTY. A national party in 1888.

UNION LEAGUES. Political organizations of negroes and white Republicans in the South after the Civil War.

WASHINGTONIANS. An early name for the Prohibitionist party.

WOMAN'S RIGHTS PARTY. Advocates of female suffrage; organized as a national party in 1884. In that year and again in 1888 candidates for President and Vice-President were nominated.

FACTS REGARDING

Order.	Presidents. Life Dates.	PARENTS' NAMES.	Education. Early Vocation. Religious Faith.	Wife's Name. Date of Marriage. Number of Children.
1	WASHINGTON, GEORGE. Born February 22, 1732, near Bridges Creek, Westmoreland County, Va. Died December 14, 1799, at Mt. Vernon, Va., of pneumonia, aged 67. Buried at Mt. Vernon, Va.	Eldest son of second family of Augustine Washington, a planter, of English descent. Mary Ball, second wife of Augustine Washington.	Limited education at school until 16. Surveyor, 1748; major, 1751; planter, 1758. Episcopalian.	Martha (Dandridge) Custis (1732-1802) widow with two children, in 1759, John and Martha Parke Custis. Washington had no children.
2	ADAMS, JOHN. Born October 30, 1735, at Braintree, now Quincy, Norfolk County, Mass. Died July 4, 1826, at Quincy, Mass., of debility, aged 90. Buried at Quincy, Mass.	Son of John Adams, a farmer, and descendant of Henry Adams, a Puritan emigrant of 1640 from England. Susanna Boylston.	Graduated from Harvard, 1755. Taught school for a short time; studied law, and admitted to the bar, 1758. Entered politics. Congregationalist.	Abigail Smith (1744-1818), daughter of Rev. William Smith, in 1764. Had three sons, of whom President John Quincy Adams was one, and two daughters.
3	JEFFERSON, THOMAS. Born April 13, 1743, at Shadwell, Albemarle County, Va. Died July 4, 1826, at Monticello, Va., of chronic diarrhœa, aged 83. Buried at Monticello, Albemarle county, Va.	Son of Peter Jefferson, a planter of Welsh descent, and of Jane Randolph, a sister of William Randolph of Tuckahoe.	Graduated from William and Mary, 1762. Read law under George Wythe of Virginia, and admitted to the bar, 1767. Entered politics. Liberal.	Martha (Wayles) Skelton (1748-1782), widow of Bathurst Skelton, in 1772. Had one son and five daughters.
4	MADISON, JAMES. Born March 16, 1751, at Port Conway, King George County, Va. Died June 28, 1836, at Montpelier, Va., of debility, aged 85. Buried at Montpelier, Hanover county, Va.	Son of James Madison, a planter of English descent, and of Nelly Conway.	Graduated from Princeton, 1771. Studied law. Became a statesman. Episcopalian.	Dolly (Payne) Todd (1772-1849), widow, in 1794. No children.
5	MONROE, JAMES. Born April 28, 1758, at Head of Monroe's Creek, Westmoreland County, Va. Died July 4, 1831, at New York City, of debility, aged 73. Buried at Hollywood Cemetery, Richmond, Va.	Son of Spence Monroe, a planter of Scotch descent, and of Eliza Jones.	Left William and Mary College to enter the army, 1776; abandoned the law for a public life. Episcopalian.	Eliza Kortwright (1768-1830), in 1786. Had two daughters.
6	ADAMS, JOHN QUINCY. Born July 11, 1767, at Quincy, Norfolk County, Mass. Died February 23, 1848, at Washington, D. C., of paralysis, aged 80. Buried at Quincy, Mass.	Son of the second President of the United States, John Adams, of English descent, and of Abigail Smith, a daughter of Rev. Wm. Smith.	Graduated from Harvard, 1787. Studied law with Theophilus Parsons, and was admitted to the bar, 1790. Congregationalist.	Louisa Catherine Johnson (1775-1852), in 1797. Had three sons, of whom the statesman and diplomat, Charles Francis Adams (1807-1886), was one, and one daughter.
7	JACKSON, ANDREW. Born March 15, 1767, near Cureton's Pond, Union County, North Carolina. Died June 8, 1845, at Hermitage, Tenn., of consumption, aged 78. Buried at Hermitage, near Nashville, Tenn.	Son of Andrew Jackson, a farmer of Scotch-Irish ancestry, and of Elizabeth Hutchinson.	Worked at saddler's trade, then, 1784, began the practice of law and was admitted to the bar. Appointed public prosecutor, in Tennessee, 1788. Presbyterian.	Rachel Donelson Robards (1767-1828), daughter of John Donelson, and divorced wife of Captain Robards, in 1791. No children.

THE PRESIDENTS.

Political Faith. Age at Election. Political Opponents. Electoral Vote.	Events During Term of Office.	After Life.
Federalist. Fifty-seven. *Election of 1789.* Washington, 69; John Adams, 34; John Jay, 9; R. H. Harrison, 6; John Rutledge, 6; John Hancock, 4; George Clinton, 3; Samuel Huntingdon, 2; John Milton, 2; James Armstrong, 1; Benj. Lincoln, 1; Edw. Telfair, 1. Washington was inaugurated in 1789. *Election of 1792.* Washington, 132; John Adams, 77; George Clinton, 50; Thomas Jefferson, 4; Aaron Burr, 1. Washington was inaugurated in 1793. Held office 7 years, 10 months, 4 days in all.	Admission of Vermont, Kentucky, and Tennessee, 1791-1796; Assumption of state debts, 1790; Chartering of bank, 1791; Erection of national mint, 1792; Whisky insurrection, 1794; Trouble with Indians, 1794; Retirement of Jefferson from the cabinet and the ascendency of Hamilton; Jay treaty, 1796; Scurrilous attacks on Washington by the followers of Jefferson. Invention of the cotton gin, 1793.	Followed agriculture. Was appointed commander-in-chief (1798) of the national army, because of prospect of war with France.
Federalist. Sixty-one. *Election of 1796.* John Adams, 71; Jefferson, 68; Thos. Pinckney, 59; Burr, 30; Samuel Adams, 15; Oliver Ellsworth, 11; Geo. Clinton, 7; John Jay, 5; James Iredell, 3; Geo. Washington, 2; John Henry, 2; S. Johnson, 2; C. C. Pinckney, 1. John Adams was inaugurated in 1797. Held office 4 years.	X. Y. Z. correspondence, 1798; Threatened war with France, 1798; The Alien and Sedition laws, 1798; Virginia and Kentucky resolutions, 1798-1799; Weakening of the Federalist Party by rivalry of Adams and Hamilton. City of Washington made the national capital, 1800.	Served in the Massachusetts Constitutional Convention of 1820.
Republican. Fifty-seven. *Election of 1800.* Jefferson, 73; Burr, 73; John Adams, 65; C. C. Pinckney, 64; Jay, 1; Tie vote for Jefferson and Burr; choice devolved upon House of Representatives. Jefferson had votes of ten states, which elected him president. Inaugurated in 1801. *Election of 1804.* Jefferson, 162; C. C. Pinckney, 14. Inaugurated in 1805. Held office 8 years in all.	War with Tripoli, 1802; Repeal of excise tax, 1802; Ohio admitted as a state, 1803; Purchase of Louisiana, 1803; Lewis and Clark expedition, 1804; Treaty of peace with Tripoli, 1805; Napoleon issues the Berlin decree, 1806; Burr conspiracy, 1807; Embargo act, 1807; Invention of steamboat, 1807; Non-intercourse act, 1809.	Jefferson retired to his plantation at Monticello, Va. He exerted an important influence on the government through his writings. He founded the University of Virginia
Republican. Fifty-seven. *Election of 1808.* Madison, 122; C. C. Pinckney, 47; Geo. Clinton, 6. Madison was inaugurated in 1809. *Election of 1812.* Madison, 128; DeWitt Clinton, 89. Madison was inaugurated in 1813. Held office 8 years in all.	British and French armed vessels excluded from American waters, 1810; Harrison defeats Indians at Tippecanoe, 1811; War of 1812; Louisiana admitted, 1812; Loan of $25,000,000, and issue of treasury notes for $10,000,000, 1814; Hartford convention, 1814; direct tax of $6,000,000, 1815; Treaty with eight Indian tribes east of the Mississippi, 1815; United States bank chartered by Congress, 1816; Indiana admitted, 1816.	Retired to Montpelier, Va., where he devoted himself in later life to promoting the interests of the University of Virginia. In 1829 he served in the Virginia Constitutional Convention.
Republican. Fifty-eight. *Election of 1816.* Monroe, 183; Rufus King, 34: Monroe was inaugurated in 1817. *Election of 1820.* James Monroe, 231; John Q. Adams, 1. Monroe was inaugurated in 1821. Held office 8 years in all.	Acquisition of Florida, 1819; Missouri compromise, 1821; the Monroe doctrine, 1823; Visit of Lafayette to United States, 1824; Treaty with Russia (54°, 40′, n. lat.), 1825; Admission of Missouri, Mississippi, Illinois, Alabama, and Maine.	Retired to private life in Virginia, where he served as a member of the Virginia Constitutional Convention in 1830.
Republican. Fifty-seven. *Election of 1824.* Andrew Jackson, 99; J. Q. Adams, 84; Wm. H. Crawford, 41; Henry Clay, 37. Vote given to House of Representatives, choosing from among the three highest; the Clay faction joined with that of Adams and defeated Jackson. Adams was inaugurated in 1825. Held office 4 years.	Completion of the Erie canal, 1825; Dispute between state of Georgia and United States upon the removal of the Creek Indians, 1825-1829; Rise of Anti-masonic Party, 1826; Completion of first railroad in United States, 1827; "Tariff of abominations," 1828.	After term of office had expired, he returned to Washington and entered the House of Representatives, serving from 1830 to his death.
Democrat. Sixty-one. *Election of 1828.* Jackson, 178; John Q. Adams, 83. Jackson was inaugurated in 1829. *Election of 1832.* A. Jackson, 219; Henry Clay, 49; John Floyd, 11; Wm. Wirt, 7. Jackson was inaugurated in 1833. Held office 8 years in all.	The President reforms the cabinet, 1831; "Spoils System," 1832; Bank bill vetoed by President, 1832; Black Hawk War, 1832; Nullification in S. Carolina, 1832; Henry Clay compromise tariff, 1833; Force bill, 1833; Removal of bank deposits from National bank, 1833; Treaty with Seminole Indians, 1834; Santa Anna captures the "Alamo," Texas, 1836; admission of Arkansas, 1836; Michigan, 1837.	Passed remainder of his life at the "Hermitage," near Nashville, Tenn., always taking a deep interest in public affairs.

Order.	Presidents. Life Dates.	PARENTS' NAMES.	Education. Early Vocation. Religious Faith.	Wife's Name. Date of Marriage. Number of Children.
8	VAN BUREN, MARTIN. Born December 5, 1782, at Kinderhook, Columbia County, N. Y. Died July 24, 1862, at Lindenwold, N. Y., of asthmatic catarrh, aged 79. Buried at Kinderhook, N. Y.	Son of Abraham Van Buren, a farmer of Dutch extraction, and of Maria Hoes.	Limited education. Studied law with William P. Van Ness in New York City, and was admitted to the bar, 1803. Entered politics. Reformed Dutch.	Hannah Hoes (1783-1819), in 1807. Had four sons, one of whom, John, was graduated from Yale (1828), and became attorney-general of New York (1845-1846).
9	HARRISON, WILLIAM HENRY. Born February 9, 1773, at Berkeley, Charles City County, Va. Died April 4, 1841, at Washington, D. C, of bilious pleurisy, aged 68. Buried at North Bend, Hamilton County, Ohio.	Son of Benjamin Harrison (1740-91), a statesman of English origin, and of Elizabeth Bassett.	Educated at Hampden-Sidney College, leaving in 1790 to enter the army. Entered politics in 1799. Episcopalian.	Anna Symmes (1775-1864), in 1795. Had six sons and four daughters.
10	TYLER, JOHN. Born March 29, 1790, at Greenway, Charles City County, Va. Died January 17, 1862, at Richmond, Va., of a bilious attack, aged 71. Buried at Hollywood Cemetery, Richmond, Va.	Son of John Tyler, a jurist of English ancestry, and of Mary Armistead.	Graduated from William and Mary, 1807. Was admitted to the bar, 1809. Entered the Legislature, 1811. Episcopalian.	Married first to Letitia Christian (1790-1842), in 1813. Had three sons and four daughters. Married a second time to Julia Gardiner (1820-1889), in 1844. Had five sons, one of whom, Lyon Gardiner, became president of William and Mary College in 1888, and two daughters.
11	POLK, JAMES KNOX. Born November 2, 1795, near Pineville, Mecklenburg County, North Carolina. Died June 15, 1849, at Nashville, Tenn., of chronic diarrhœa, aged 53. Buried at Polk Place, Nashville, Tenn.	Son of Samuel Polk (originally Pollock), a farmer of Scotch-Irish descent, and of Jane Knox.	Graduated, 1818, from University of North Carolina. Studied law with Felix Grundy of Tennessee, and was admitted to the bar, 1820. He entered politics, 1823. Presbyterian.	Sarah Childress (1803-1891), in 1824. No children.
12	TAYLOR, ZACHARY. Born November 22, 1784, near Orange C. H., Orange County, Va. Died July 9, 1850, at Washington, D. C., of bilious fever, aged 65. Buried at Springfield, Ky.	Son of Col. Richard Taylor, an officer of the Revolutionary War, a planter of English origin, and of Sarah Strother.	Received an elementary education, and worked on a plantation. Entered the army, 1808, where he was gradually promoted. Episcopalian.	Margaret Smith (1788-1852), in 1810. Had one son and three daughters.
13	FILLMORE, MILLARD. Born January 7, 1800, at Summerhill, Cayuga County, N. Y. Died March 9, 1874, at Buffalo, N. Y., of debility, aged 74. Buried at Buffalo, N. Y.	Son of Nathaniel Fillmore, a farmer of English descent, and of Phebe Millard.	Had little opportunity for an education. Studied law and was admitted to the bar, 1823. Entered political life by his election as an Antimason to State Legislature. Unitarian.	Married first time to Abigail Powers (1798-1853), in 1826. Had one son and one daughter. Married a second time in 1858, Caroline Carmichael McIntosh (1813-1881), a widow.
14	PIERCE, FRANKLIN. Born November 23, 1804, at Hillsborough, Hillsborough County, N. H. Died October 8, 1869, at Concord, N. H., of inflammation of stomach, aged 64. Buried in Concord, N. H.	Son of Benjamin Pierce, a farmer of English descent, and of Anna Kendrick.	Graduated from Bowdoin, 1824. Studied law under Senator Levi Woodbury. Was admitted to the bar, 1827. Entered politics, 1829. Episcopalian.	Jane Means Appleton (1806-1863), in 1834. Had three sons.
15	BUCHANAN, JAMES. Born April 23, 1791, at Cove Gap, Franklin County, Penn. Died June 1, 1868, at Wheatland, Penn., of rheumatic gout, aged 77. Buried at Lancaster, Penn.	Son of James Buchanan, a merchant of Scotch-Irish descent, and of Elizabeth Speer.	Graduated from Dickinson College, 1809. Was educated for the bar. Began the practice of law, 1812. Served as a private in War of 1812. Entered politics, 1814. Presbyterian.	Unmarried.

THE PRESIDENTS.

Political Faith. Age at Election. Political Opponents. Electoral Vote.	Events During Term of Office.	After Life.
Democrat. Fifty-four. *Election of 1836.* Van Buren, 170; W. H. Harrison, 73; Hugh L. White, 26; Daniel Webster, 14; Willie P. Mangum, 11. Van Buren was inaugurated in 1837. Held office 4 years.	Commercial panic of 1837: Sub-treasury bill, 1840; Disturbance in Canada, 1837; Resumption of specie payments in New England and New York, 1838.	Renominated in 1840 for the Presidency. Defeated by W. H. Harrison. In 1844 again renominated, but was defeated. In 1848 nominated by Free-soil Party.
Whig. Sixty-eight. *Election of 1840.* W. H. Harrison, 234; Van Buren, 60; Jas. G. Birney, —. Harrison was inaugurated in 1841. Held office 1 month.	Vice-president Tyler takes the oath of office, as president, April, 1841.	
Democrat. Fifty-one. Took oath of office as president on the death of Pres. Harrison, Apr., 1841. Held office 3 years, 11 months.	Bill to re-charter the Bank of United States vetoed by President, 1841; Repeal of Sub-treasury act, 1841; Dorr rebellion in Rhode Island, 1842; Ashburton treaty with England, 1842; Dedication of Bunker Hill monument, 1843; Morse and the telegraph, 1844; Annexation of Florida, 1845; Mormons and Abolitionists.	Retired to his estate in Charles City County, Va. Presided over Peace Convention at Washington in 1861.
Democrat. Forty-nine. *Election of 1844.* Polk, 170; Henry Clay, 105; Jas. G. Birney, —. Polk was inaugurated in 1845. Held office 4 years.	Admission of Texas, 1845, and Iowa, 1846; Hostilities begun between Mexico and the United States, 1846; Independent Treasury system re-enacted, 1846; Wilmot proviso, 1846; Treaty with Great Britain, 54°, 40′, n. lat., 1846; Admission of Wisconsin, 1848; Gold discovered in California, 1848.	
Whig. Sixty-four. *Election of 1848.* Taylor, 163; Lewis Cass, 127; Martin Van Buren, —. Taylor inaugurated 1849. Held office 1 year, 4 months, 5 days.	Clay compromise regarding the slavery dispute ("Omnibus Bill"), 1850. Vice-president Fillmore takes oath of office, as president, July 10, 1850.	
Whig. Fifty. Took oath of office as president on the death of Pres. Taylor. Held office 2 years, 7 months, 26 days.	Fugitive Slave Law signed, 1850; Filibustering expeditions, 1851.	Candidate for President in 1852 before the National Convention of the Whig Party. In 1856 he was candidate for President on the ticket of the Know-Nothing or American Party. Spent the remaining years of his life at Buffalo.
Democrat. Forty-eight. *Election of 1852.* Pierce, 254; Winfield Scott, 42; John P. Hale, —; Daniel Webster, —. Pierce was inaugurated in 1853. Held office 4 years.	Purchase of Arizona and New Mexico, 1853; opening of the World's Fair at New York, 1853; Perry's treaty with Japan, 1854; Kansas-Nebraska bill, 1854; Ostend Manifesto, 1854; Assault on Senator Sumner, 1856; Rise of the Republican Party, 1856.	Traveled in Europe.
Democrat. Sixty-five. *Election of 1856.* Buchanan, 174; John C. Fremont, 114; Millard Fillmore, 8. Buchanan was inaugurated in 1857. Held office 4 years.	Dred Scott decision, 1857; Tariff of 1857; Panic of 1857; Minnesota admitted, 1858, Oregon, 1859; Discovery of silver in Nevada and Colorado, 1859; John Brown's raid, 1859; Election of Abraham Lincoln, 1860; Secession of South Carolina, 1860; Formation of Southern Confederacy, 1861; Jefferson Davis president; Morrill tariff, 1861.	Published a defense entitled, "Mr. Buchanan's Administration on the Eve of the Rebellion."

Order.	Presidents. Life Dates.	PARENTS' NAMES.	Education. Early Vocation. Religious Faith.	Wife's Name. Date of Marriage. Number of Children.
16	LINCOLN, ABRAHAM. Born February 12, 1809, near Hodgensville, Larue County, Ky. Died April 15, 1865, by assassination at Washington, D. C., aged 56. Buried in Springfield, Ill.	Son of Thomas Lincoln, a farmer of English descent, and of Nancy Hanks.	Self-educated farm hand. Entered for service in the Black Hawk War, 1832. Read law. Entered politics, 1836. Liberal.	Mary Todd (1818-1882) in 1842. Had four sons, of whom Robert Todd Lincoln, a prominent lawyer and politician, was one.
17	JOHNSON, ANDREW. Born December 29, 1808, in Raleigh, Wake County, N. C. Died July 31, 1875, at Carter's Depot, Tenn., of paralysis, aged 66. Buried at Greeneville, Greene County, Tenn.	Son of Jacob Johnson, a sexton and constable of English descent, and of Mary McDonough.	Limited education; self-educated. Tailor in early life. Entered politics, 1828. Methodist.	Eliza McCardle (1810-1876) in 1827. Had three sons and two daughters.
18	GRANT, ULYSSES SIMPSON. Born April 27, 1822, at Point Pleasant, Clermont County, Ohio. Died July 23, 1885, at Mt. McGregor, N. Y., of cancer, aged 63. Buried at Riverside Park, New York City.	Son of Jesse Root Grant, a tanner of Scotch ancestry, and of Hannah Simpson, daughter of John Simpson.	Graduated from West Point, 1843. Entered the army as brevet second lieutenant. In the Mexican War, 1847; commander in chief of the armies of the U. S., 1864. Methodist.	Julia Dent (1826-1902) in 1848. Had three sons and one daughter.
19	HAYES, RUTHERFORD BIRCHARD. Born October 4, 1822, at Delaware, Delaware County, Ohio. Died January 17, 1893, at Fremont, Ohio, of paralysis of the heart, aged 70. Buried at Fremont, Ohio.	Son of Rutherford Hayes, a merchant of Scotch ancestry, a descendant in the sixth generation of Geo. Hayes, who left Scotland in 1680 and settled in Windsor, Conn., and of Sophia Birchard.	Graduated from Kenyon College, 1842. Studied law under Thomas Sparrow of Columbus, and spent two years in the Harvard Law School (1843-1845). Admitted to the bar, 1845. Fought in Civil War. Entered politics. Methodist.	Lucy Ware Webb (1831-1889) in 1852. Had seven sons and one daughter.
20	GARFIELD, JAMES ABRAM. Born November 19, 1831, at Orange, Cuyahoga County, Ohio. Died September 19, 1881, at Long Branch, by assassination, aged 49. Buried in Cleveland, Ohio.	Son of Abram Garfield, a farmer of English descent, and of Eliza Ballou.	Graduated from Williams College, 1856. Learned the carpenter's trade and worked at it in school vacation of 1850. Worked on a farm. Taught Latin and Greek in Hiram Institute. Practised law. Joined the army, 1861. Entered politics. Disciples of Christ.	Lucretia Rudolph (1832-——) in 1858. Had four sons, one of whom, Harry A., is president of Williams College, and James Rudolph was secretary of the interior in the Roosevelt cabinet, and one daughter.
21	ARTHUR, CHESTER ALAN. Born October 5, 1830, in Fairfield, Franklin County, Vt. Died November 17, 1886, at New York City, of Bright's disease, aged 56. Buried in Albany, N.Y.	Son of William Arthur, a clergyman of Scotch-Irish ancestry, and of Malvina Stone.	Graduated from Union College, 1848. He began to practise law, 1853. Entered politics. Episcopalian.	Ellen Lewis Herndon (1837-1880) in 1859. Had one son and one daughter.
22 & 24	CLEVELAND, STEPHEN GROVER. Born March 18, 1837, at Caldwell, Essex County, N. J. Died June 24, 1908, at Princeton, N. J., of debility, aged 71. Buried at Princeton, N. J.	Son of Richard Falley Cleveland, a clergyman of English descent, and of Anna Neal.	Public school education. Taught school (1853). Studied law; admitted to practice, 1859. Entered politics. Presbyterian.	Frances Folsom (1864-——) in 1886. Had one son and three daughters.

THE PRESIDENTS.

Political Faith. Age at Election. Political Opponents. Electoral Vote.	Events During Term of Office.	After Life.
Republican. Fifty-two. *Election of 1860.* Lincoln, 180; Stephen A. Douglas, 12; J. C. Breckinridge, 72; John Bell, 39. Lincoln was inaugurated in 1861. *Election of 1864.* Abraham Lincoln, 212; Geo. B. McClellan, 21. Lincoln was inaugurated in 1865. Held office 4 years, 1 month, 11 days.	Attack on Fort Sumter, April 12, 1861; Civil War between North and South, 1861-1865; Admission of new states (Kansas, 1861, West Virginia, 1863, Nevada, 1864); Emancipation proclamation, 1863; Assassination of the President, April 14, 1865; Vice-president takes oath of office; The Trent affair; New York riots.	
Republican. Fifty-six. Took oath of office as president on the assassination of President Lincoln, for the remainder of the term from April 15, 1865-1869.	Reorganization of Southern states, 1865; Payment of national debt begun, 1865; Tenure of office act, 1867; Purchase of Alaska, 1867; Impeachment of the President, 1868; Six states re-admitted, 1868; Burlingame treaty with China, 1868; Thirteenth and Fourteenth amendments 1865 and 1868; Full pardon to citizens of seceded states, 1868; Atlantic cable, 1866; Admission of Nebraska, 1867.	Retired to home in Greeneville, Tenn. Was chosen United States senator in 1875, and sat during the short extra session in March.
Republican. Forty-six. *Election of 1868.* Grant, 214; Horatio Seymour, 80. Grant was inaugurated in 1869. *Election of 1872.* Grant, 286; Horace Greeley, ——; Charles O'Conor, ——; James Black, ——; Thomas A. Hendricks, 42; B. Gratz Brown, 18; Charles J. Jenkins, 2; David Davis, 1. Grant was inaugurated in 1873. Held office 8 years in all.	Completion of the Pacific Railroad, 1869; All Southern states re-admitted to the Union, 1870; Fifteenth Amendment to the Constitution, 1870; Tweed ring in N. Y., 1871; Ku-Klux Klan, 1871; Great fires at Chicago, 1871, and Boston, 1872; Treaty of Washington, 1871; Settlement of the Alabama claims, 1872; Business panic of 1873, Whisky ring, 1875; Sioux War, 1876; Centennial exposition, at Philadelphia, 1876.	Retired to private life in New York. Wrote the recollections of his military life.
Republican. Fifty-four. *Election of 1876.* Rutherford B. Hayes, 185; Samuel J. Tilden, 184; Peter Cooper, ——; Green Clay Smith, ——; James B. Walker, ——. Hayes was inaugurated in 1877. Held office 4 years.	Withdrawal of troops from the South, 1877; Great railroad strikes, 1877; Yellow fever at the South, 1878; Remonetization of silver, 1878; Resumption of specie payment, 1879; Eads improvement of the navigation of the Mississippi, 1879; Treaty with China, 1880.	After his retirement he supported philanthropy and education. Acted as president of the States Board for the instruction of freedmen, and as president of the National Prison Association.
Republican. Forty-nine. *Election of 1880.* Garfield, 214; W. S. Hancock, 155; James B. Weaver, ——; Neal Dow, ——; John W. Phelps, ——. Garfield was inaugurated in 1881. Held office 6½ months.	Assassination of President Garfield July 2, 1881. Vice-president Arthur takes oath as president.	
Republican. Fifty. Took oath of office as president, 1881, on the assassination of President Garfield. Held office 3 years, 5½ months.	Passage of the Edmunds bill, 1882; Completion of East River Suspension Bridge, 1883; civil service reform commission, 1883; Reduction in rates of letter postage to two cents, 1883 and 1885; Cincinnati riot, 1884; New Orleans exhibition, 1884.	
Democrat. Forty-seven. *Election of 1884.* Cleveland, 219; James G. Blaine, 182; John P. St. John, ——; Benjamin F. Butler, ——; P. D. Wigginton, ——. Cleveland was inaugurated in 1885. Held office 4 years. *Election of 1892.* Opponents. Cleveland, 277; Benjamin Harrison, 145; James B. Weaver, 22; John Bidwell, ——; Simon Wing, ——. Cleveland was inaugurated in 1893. Held office 4 years.	First term, 1885-1889; civil service reform, 1885; Riot at Chicago, 1886; Charleston earthquake, 1886; Presidential succession act, 1886; Interstate commerce act, 1887; Chinese immigration act, 1888; Mills tariff, 1888; Western blizzards, 1888. Second term, 1893-1897; World's Fair at Chicago, 1893; Panic of 1893; Repeal of Sherman act, 1893; Coal strike, 1894; Wilson tariff act, 1894; Amnesty granted to the Mormons, 1894; Extension of civil service reform, 1894; Atlanta exhibition, 1895; Admission of Utah, 1896; Arbitration of the Venezuela question, 1896.	At end of his first term he retired to New York to the practice of law, but kept in touch with the political interests of his party. At end of second term he retired to Princeton, N. J., where he lived to the time of his death.

Order.	Presidents. Life dates.	PARENTS' NAMES.	Education. Early Vocation. Religious Faith.	Wife's Name. Date of Marriage. Number of Children.
23	HARRISON, BENJAMIN. Born August 20, 1833, at North Bend, Hamilton County, Ohio. Died March 13, 1901, at Indianapolis, Ind., of pneumonia, aged 67. Buried at Indianapolis, Ind.	Son of John Scott Harrison, a farmer of English descent, and of Elizabeth F. Irwin. Benjamin was a grandson of the ninth president of the U. S., Wm. Henry Harrison.	Studied at Farmers College, near Cincinnati, and graduated from Miami University in 1852. Studied law. Reporter of the Supreme Court of Indiana, 1860. Entered the Federal army, 1862. Entered politics. Presbyterian.	Married first Caroline Lavinia Scott (1832–1892), daughter of Rev. J. W. Scott, in 1853. Had one son and one daughter. A second time he married Mary Scott (Lord) Dimmick (1858—). Had one daughter.
25	MCKINLEY, WILLIAM. Born January 29, 1843, at Niles, Trumbull County, Ohio. Died September 14, 1901, by assassination, at Buffalo, N. Y., aged 57. Buried at Canton, Ohio.	Son of William McKinley, an iron manufacturer of Scotch-Irish ancestry, and of Nancy C. Allison.	Received a partial education at Poland Academy and entered Alleghany College, at Meadville, Penn., but he soon withdrew and taught school for several years. Engaged with his father in the iron manufacture. Entered the Civil War, 1861. Studied law under Judge Glidden and in the Albany Law School. Admitted to bar in 1867. Entered politics in 1869. Methodist.	Ida Saxon (1844–1907) in 1871. Had two daughters, who died in infancy.
26	ROOSEVELT, THEODORE. Born October 27, 1858, at 28 East 20th st., New York City. Died at Oyster Bay, Jan. 6, 1919.	Son of Theodore Roosevelt, a merchant of Dutch ancestry, and of Martha Bulloch.	Graduated from Harvard in 1880, afterward attending the Columbia Law school. Entered politics, 1881. Member N. Y. Legislature, 1882–1884; ranching in N. D., 1884–1886; U. S. civil service commissioner, 1889–1895; president of N. Y. police board, 1895–1897; assistant secretary of navy, 1897–1898; aided in organizing "Rough Riders," 1898; governor of N. Y., January 1, 1899–December 31, 1900; Vice-President of the U. S. March 4–September 14, 1901. Reformed Dutch.	Married Alice Lee (—— 1884), daughter of George Cabot Lee of Boston, Mass. in 1883. Had one daughter, Alice, now Mrs. Nicholas Longworth. Married a second time Edith Kermit Carow (——), daughter of Chas. Carow of New York City, in 1886. Had four sons and one daughter by second marriage.
27	TAFT, WILLIAM HOWARD. Born September 15, 1857, at Cincinnati, Ohio.	Son of Alphonso Taft, secretary of war under Grant, 1876, a lawyer of English descent, and of Louise M. Torrey.	Graduated from Yale in 1878, law school University of Cincinnati, 1880; collector internal revenue, 1882–1883; assistant county solicitor, 1881-1882, 1885–1887; judge superior court, Ohio, 1887–1890; solicitor general of U. S., 1890–1892; dean and professor in law department, University of Cincinnati, 1896–1900; U. S. circuit judge, 1892–1900; president of Philippine Commission, 1900–1904; first civil governor of P. I., 1901–1904; sent to Rome, 1902; secretary of war, 1903–1908; Cuban insurrection adjusted, 1906; sent to Panama, Cuba, Porto Rico, 1907. Unitarian.	Helen Herron in 1886. Has two sons and one daughter.
28	WILSON, THOMAS WOODROW. Born December 28, 1856, at Staunton, Va. Died at Washington, D. C. Feb. 3, 1924, age 68. He was buried at Washington, D. C.	Son of Joseph R. Wilson, a clergyman of Scotch-Irish descent, and of Jessie Woodrow.	Graduated from Princeton, 1879; from law school of University of Virginia, 1882; post graduate at John Hopkins University, 1883–1886; associate professor of history and political economy, Bryn Mawr, 1885–1888; at Wesleyan University, 1888–1890; professor of jurisprudence and politics, Princeton, 1890–1902; president of Princeton, 1902–1910; governor of New Jersey, 1910–1913. Presbyterian.	Helen Louise Axson in 1885, who died at the White House, August 6, 1914. Had three daughters. Married a second time, Dec. 18, 1915, Mrs. Edith (Bolling) Galt.

Political Faith. Age at Election. Political Opponents. Electoral Vote.	Events During Term of Office.	After Life.
Republican. Fifty-five. *Election of 1888.* Benjamin Harrison, 233; Grover Cleveland, 168; Clinton B. Fisk,——; Alson J. Streeter, ——; R. H. Cowdry, ——; James L. Curtis, ——. Harrison was inaugurated in 1889. Held office 4 years.	Opening of Oklahoma lands, 1889; Montana and Washington admitted, 1889; Samoan difficulty, 1889; Pan-American Congress, 1889–1890; New pension act, 1890; Sherman silver purchase act, 1890; McKinley tariff, 1890; Idaho and Wyoming admitted, 1890; International copyright act, 1891; Seal fishery arbitrated, 1891; Hawaiian protectorate, 1892; Chinese exclusion law, 1892; civil service reform extended, 1893.	After leaving office he was professor of international law at Leland Stanford University, Cal. In 1899 appeared as counsel for Venezuela before commission appointed to arbitrate boundary dispute with England. Was principal representative of the United States at the Hague Conference in 1899. Wrote magazine articles.
Republican. Fifty-three. *Election of 1896.* McKinley, 271; William J. Bryan, 176; Joshua Levering, ——; John M. Palmer, ——; Charles M. Matchett, ——; Charles E. Bentley, ——. McKinley was inaugurated in 1897. *Election of 1900.* McKinley, 292; William J. Bryan, 155; John G. Woolley, ——; Wharton Barker, ——; Eugene V. Debs,——; Joseph F. Malloney, ——; J. F. R. Leonard, —— Seth H. Ellis,——. McKinley was inaugurated in 1901. Held office 4 years, 6 months, 10 days.	Dingley tariff, 1897; Spanish-American War, 1898–1899; Hawaii becomes a part of the United States, 1898; United States receives Samoa, 1899; Exposition at Buffalo, 1901; Assassination of the President at Buffalo, September 6, 1901; Theodore Roosevelt becomes president September 14, 1901.	
Republican. Forty-two. Took oath of office as president on the death of President McKinley, September 14, 1901. *Election of 1904.* Roosevelt, 336; Alton B. Parker, 140; Eugene V. Debs, ——; Silas C. Swallow, ——; Thomas E. Watson,——; Charles H. Corrigan,——. Roosevelt was inaugurated in 1905. Held office 7 years, 5 months, 18 days.	Hay-Pauncefote treaty ratified, 1901; Coal strike, peace and amnesty in the Philippines, reciprocity treaty between United States and Newfoundland, 1902; Cuban reciprocity treaty with amendments, commercial treaty with China, department of commerce and labor, 1903; Louisiana purchase exposition, St. Louis, 1904; New Panama canal commission, Lewis and Clark exposition, Portland, Ore., Portsmouth treaty, 1905; Brownsville, Tex., riot, coal strike, 1906; pure food law, National Arbitration and Peace Congress at New York, Oklahoma admitted, 1907; arbitration treaty with France, two-cent postage rate between United States and Great Britain. Arbitration treaty with China, 1908.	In March, 1909, Mr. Roosevelt headed a scientific expedition to Africa, outfitted by the Smithsonian Institution. Contributing editor to the *Outlook* (1909–1914). From October, 1913, to May, 1914, Mr. Roosevelt was occupied in what he termed a "zoo-geographical reconnaissance" in South America. He traveled widely, penetrating far into the interior of tropical Brazil, where he spent about five months. Among other adventures here was a canoe voyage down the river Duvida (River of Doubt), whose course had never before been mapped, and which has been renamed in his honor Rio Teodoro.
Republican. Fifty-one. *Election of 1908.* William H. Taft, 321; William J. Bryan, 162; Eugene V. Debs,——; Eugene W. Chafin,——; Thomas E. Watson,——; August Gilhaus,——; Thomas L. Hisgen,——. Taft was inaugurated in 1909. Held office 4 years.	Payne-Aldrich tariff bill passed, 1909; Tariff commission, Railroad rate bill, Statehood bill, Campaign publicity bill, Postal savings bank law, Rivers and Harbors act, Conservation law, 1910; New Commerce Court organized, Judicial code recodified, Postal savings established, Fortification of Panama canal secured, Japanese treaty ratified; three tariff bills vetoed; Canadian reciprocity bill; Arbitration treaties with Great Britain and France signed; Russian treaty of 1832 to be abrogated, 1911; New Mexico and Arizona admitted as states. Workmen's compensation and employers' liability laws; Panama canal bill, Pension bill; Committee of Industrial Relations; Civil service extended, 1912; Parcels post established, pension agencies abolished, XVIth Amendment, Department of Labor; vetoed many bills, 1913.	Kent professor of law at Yale, 1913. Appointed Chief-Justice of the U. S. Supreme Court in 1921 by Pres. Harding.
Democrat. Fifty-six. *Election of 1912.* Woodrow Wilson, 435; Theodore Roosevelt, 88; William H. Taft, 8; Eugene V. Debs,——; Eugene W. Chafin,——; Arthur E. Reimer,——. Wilson was inaugurated in 1913. *Election of 1916.* Woodrow Wilson, 276; Chas. E. Hughes, 255; Allan L. Benson,——; J. Frank Hanley,——; Arthur E. Reimer, ——; Wm. Sulzer,——. Wilson was inaugurated in 1917. Held office 8 years.	XVIIth Amendment ratified; a competitive tariff law with income tax provisions enacted; a currency law; an act for Federal construction, ownership, and operation of railways in Alaska; a law in relation to trusts. War measures: American merchant ships armed; Council of National Defence organized; food and coal supplies put under national administrations; U. S. Government took over railroads; Emergency Fleet Corporation. Wilson failed to get Senate ratification of Versailles Treaty; also Congress refused to grant independence to the Philippines.	Retired from office broken in health, due to the excessive strain of the past 4 years. Lived in Washington, D. C., until his death.

Order	Presidents. Life Dates.	Parents' Names.	Education Early Vocation. Religious Faith.	Wife's Name. Date of Marriage. Number of Children.
29	Harding, Warren Gamaliel. Born Nov. 2, 1865, at Corsica, Ohio. Died at San Francisco, Aug. 2, 1923, age 58. Buried at Marion, Ohio.	Son of George T. Harding, a physician, and Phebe Dickerson. His ancestry was Scotch-Dutch.	Graduated from Ohio Central University; worked as a printer on a Marion (Ohio) newspaper; State Senator, 1900–1904; elected to U. S. Senate, 1915. Baptist.	Florence Kling, married in 1891. No children. Mrs. Harding died in 1924.
30	Coolidge, Calvin. Born July 4, 1872, at Plymouth, Vt.	Son of John C. Coolidge and Victoria Moor. His parents were farmers, of English ancestry.	Graduated from Amherst College in 1895. Read law at Northampton, Mass., and was admitted to practice in 1897. Elected State Senator, 1912. Senate president, 1913–1915. Lieut.-Governor, 1916–1918. Governor of Mass. 1918. Re-elected 1919. Congregationalist.	Grace Goodhue, of Burlington, Vt., married in 1905. Had two children, John and Calvin. The latter died from blood-poisoning in 1924.
31	Hoover, Herbert Clark. Born Aug. 10, 1874, at West Branch, Iowa.	Son of Jesse Clark Hoover and Hula Randall Minthorn.	Worked way through Leland Stanford; mining engineer in many lands, 1895–1913; chairman Amer. and general Com. on relief in Belgium, 1914–1919, and of various com. on relief and other agencies and commissions, 1919–1921, and Sec. of Interior till July, 1928.	Lou Henry, of Monterey, Calif., married in 1899. Two sons are Herbert C. Hoover, Jr. and Allan Henry.

HISTORIC UTTERANCES OF OUR PRESIDENTS.

"To be prepared for war is one of the most effectual means of preserving peace."—*Washington.*

"Knowledge is in every country the surest basis of public happiness."—*Washington.*

"The more homogeneous our citizens can be made—the greater will be our prospect of permanent union; and a primary object of such a national institution (university) should be the education of our youth in the science of government."—*Washington.*

"Toward the preservation of your government and the permanency of your present happy state, it is requisite not only that you steadily discountenance irregular oppositions to its acknowledged authority, but also that you resist with care the spirit of innovation upon its principles, however specious the pretexts."—*Washington.*

"If national pride is ever justifiable or excusable it is when it springs, not from power or riches, grandeur or glory, but from conviction of national innocence, information, and benevolence."—*John Adams.*

"All, too, will bear in mind this sacred principle, that though the will of the majority is in all cases to prevail, that will to be rightful must be reasonable; that the minority possess their equal rights, which equal law must protect."—*Jefferson.*

"A wise and frugal government, which shall restrain men from injuring one another, shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government."—*Jefferson.*

"We are firmly convinced—that with nations as with individuals our interests soundly calculated will ever be found inseparable from our moral duties, and history bears witness to the fact that a just nation is trusted on its word when recourse is had to armaments and wars to bridle others."—*Jefferson.*

"The destined career of my country will exhibit a Government pursuing the public good as its sole object . . . ; a Government which watches over the purity of elections, the freedom of speech and the press, the trial by jury . . . ; a Government which avoids intrusions on the internal repose of other nations, and repels them from its own . . . ; and which . . . seeks by appeal to reason and by its liberal examples to infuse into the law which governs the civilized world a spirit which may diminish the frequency or circumscribe the calamities of war . . . ; a Government, in a word, whose conduct within and without may bespeak the most noble of all ambitions—that of promoting peace on earth and good will to man."—*Madison.*

"Let us by all wise and constitutional measures promote intelligence among the people as the best means of preserving our liberties."—*Monroe.*

"To impose taxes when the public exigencies require them is an obligation of the most sacred character—. To dispense with taxes when it may be done with perfect safety is equally the duty of their representatives."—*Monroe.*

"The history of the late wars in Europe (Napoleonic) furnishes a complete demonstration that no system of conduct, however correct in principle, can protect neutral powers from injury from any party; that a defenceless position and distinguished love of peace are the surest invitations to war, and that there is no way to avoid it other than by being always prepared and willing for just cause to meet it."—*Monroe.*

"Our political creed is—that the will of the people is the source and the happiness of the people, the end of all legitimate government upon earth; . . . that the firmest security of peace is the preparation during peace of the defenses of war; that a rigorous economy and accountability of public expenditures should guard against the aggravation and alleviate when possible the burden of taxation;—that the policy of our country is peace and the ark of our salvation union . . . ."—*John Q. Adams.*

"The duties of all public officers are so plain and simple that men of intelligence may readily qualify themselves for their performance; and I can not but believe that more is lost by the long continuance of men in office than is generally to be gained by their experience."—*Jackson.*

"No free government can stand without virtue in the people and a lofty spirit of patriotism, and if the sordid feelings of mere selfishness shall usurp the place which ought to be filled by public spirit, the legislation of Congress will soon be converted into a scramble for personal and sectional advantages."—*Jackson.*

"All communities are apt to look to government for too much.—They (the framers of the Constitution) wisely judged that the less government interferes with private pursuits the better for the general prosperity."—*Van Buren.*

"I can conceive of no more sublime spectacle . . . than a rigid adherence to the principles of justice on the part of a powerful nation in its transactions with a weaker and uncivilized people whom circumstances have placed at its disposal."—*Wm. Henry Harrison.*

"It may be laid down as an axiom founded in moral and political truth that no greater taxes should be imposed than are necessary for economical administration of the Government, and that whatever exists beyond should be reduced or modified."—*Tyler.*

"After so much experience it can not be said that absolute unchecked power is safe in the hands of any one set of representatives, or that the capacity of the people for self-government, which is admitted in its broadest extent, is a conclusive argument to prove the prudence, wisdom, and integrity of their representatives."—*Polk.*

Electoral Vote. Political Opponents. Age at Election. Political Faith.	Events During Term of Office.	After Life
Republican. Fifty-five. *Election of 1920.* Warren G. Harding, 404; James M. Cox, 127; Eugene V. Debs, ——; P. P. Christensen, ——; A. S. Watkins, ——. Harding was inaugurated in 1921.	Ratification of Colombian Treaty; Fordney-McCumber Tariff Act; Agricultural Credits Act; British Debt Refunding Act. Harding vetoed a Bonus Bill, and Congress sustained the veto. He failed to get Congress to pass a Ship Subsidy Bill. During this period the "Farm Bloc" was organized. Routine legislation was concerned mainly with post-war question.	
Republican. Fifty-one. Took oath of office as President Aug. 4, 1923, at Plymouth, Vt., immediately upon hearing of President Harding's death. *Election of 1924.* Calvin Coolidge, 382; John W. Davis, 136; Robt. M. La Follette, 113. Coolidge was inaugurated in 1925.	Mexican government recognized. Bonus bill passed over Coolidge's veto. Mellon Tax Bill passed in form not pleasing to Coolidge. Oil scandals involved Sec. Fall, Sec. Denby, and Daugherty. All resigned. Government economy stressed. Vetoed Barsum Bill increasing pensions and bill increasing pay of postal employees.	Writes articles for Cosmopolitan Magazine. Becomes director of large insurance company.
Republican. Fifty-five. *Election of 1928.* Herbert C. Hoover, 444; Alfred E. Smith, 87. Hoover was inaugurated in 1929.	Called special session of Congress. Farm relief measure passed. Tariff somewhat revised. Commission appointed to study law enforcement.	

"By holding the representatives responsible only to the people, and exempting him from all other influences, we elevate the character of the constituent and quicken his sense of responsibility to his country."—*Taylor.*

"Among the acknowledged rights of nations is that which each possesses of establishing that form of government which it may deem most conducive to the happiness and prosperity of its own citizens, of changing that form as circumstances may require, and of managing its own internal affairs according to its own will. . . . The great law of mortality ought to have a national as well as a personal and individual application."—*Fillmore.*

"Public affairs ought to be so conducted that a settled conviction shall pervade the entire Union that nothing short of the highest tone and standard of public morality marks every part of the administration and legislation of the General Government."—*Pierce.*

"Next in importance to the maintenance of the Constitution and the Union is the duty of preserving the Government free from the taint of even the suspicion of corruption. Public virtue is the vital spirit of republics, and history proves that when this has decayed and the love of money has usurped its place, although the forms of free government may remain for a season, the substance has departed forever."—*Buchanan.*

"Labor is prior to and independent of capital. Capital is only the fruit of labor, and could never have existed if labor had not first existed. Labor is the superior of capital, and deserves much the higher consideration."—*Lincoln.*

"With malice toward none, with charity toward all, with firmness in the right as God gives us to see the right, let us strive to finish the work we are in, to bind up the nation's wounds, to care for him who shall have borne the battle and for his widow and his orphan, to do all which may achieve a just and lasting peace among ourselves and with all nations."—*Lincoln.*

"Monopolies, perpetuities, and class legislation are contrary to the genius of free government, and ought not to be allowed."—*Johnson.*

"The education of the masses becomes of the first necessity for the preservation of our institutions. They are worth preserving, because they have secured the greatest good to the greatest proportion of the population of any form of government yet devised."—*Grant.*

"The corrupting doctrine that 'to the victors belong the spoils' is inseparable from Congressional patronage as the established rule and practice of parties in power. . . . Members of Congress will not be relieved from the demands made upon them with reference to appointments to office until by legislative enactment the pernicious practice is condemned and forbidden."—*Hayes.*

"We have no standard to measure the disaster that may be brought upon us by ignorance and vice in the citizens when joined to corruption and fraud in the suffrage."—*Garfield.*

"A nation is justified in repudiating its treaty obligations only when they are in conflict with great paramount interests. Even then all possible means for modifying or changing those obligations by mutual agreement should be exhausted before resorting to the supreme right of refusal to comply with them."—*Arthur.*

"It is the duty of those serving the people in public places to closely limit public expenditures to the actual needs of the Government economically administered, because this bounds the right of the Government to exact tribute from the earnings of labor or the property of the citizen, and public extravagance begets extravagance among the people."—*Cleveland.*

"The lessons of paternalism ought to be unlearned, and the better lesson taught that while the people should patriotically and cheerfully support their Government its functions do not include the support of the people."—*Cleveland.*

"Every thoughtful American must realize the importance of checking at its beginning any tendency in public or private station to regard frugality and economy as virtues which we may safely outgrow. The toleration of this idea results in the waste of the people's money by their chosen servants and encourages prodigality and extravagance in the home life of our countrymen."—*Cleveland.*

"If the educated and influential classes in a community either practice or connive at the systematic violation of laws that seem to them to cross their convenience, what can they expect when the lesson that convenience or a supposed class interest is a sufficient cause for lawlessness has been well learned by the ignorant classes?"—*Benj. Harrison.*

"No political party can long pursue advantage at the expense of public honor or by rude and indecent methods without protest and fatal disaffection in its own body."—*Benj. Harrison.*

"The severest economy must be observed in all public expenditures, and extravagance stopped wherever it is found, and prevented wherever in the future it may be developed."—*McKinley.*

"The preservation of public order, the right of discussion, the integrity of courts, and the orderly administration of justice must continue forever the rock of safety upon which our Government securely rests."—*McKinley.*

"The man who advocates anarchy directly or indirectly, in any shape or fashion, or the man who apologizes for anarchists or their deeds, makes himself morally accessory to murder before the fact."—*Roosevelt.*

"Organized capital and organized labor alike should remember that in the long run the interest of each must be brought into harmony with the interest of the general public; and the conduct of each must conform to the fundamental rules of obedience to the law, of individual freedom, and of justice and fair dealing toward all."—*Roosevelt.*

"We are neither for the rich man as such nor the poor man as such; we are for the upright man, rich or poor."—*Roosevelt.*

"Never before have men tried so vast and formidable an experiment as that of administering the affairs of a continent under the forms of a democratic republic. . . . If we fail, the cause of free self-government throughout the world will rock to its foundations, and therefore our responsibility is heavy, to ourselves, to the world as it is today, and to the generations yet unborn."—*Roosevelt.*

"Votes are not bread, constitutional amendments are not work, referendums do not pay rent or furnish houses, recalls do not furnish clothing, initiatives do not supply employment or relieve inequalities of condition or of opportunity."—*Taft.*

"Power in the hands of great business men does not make me apprehensive, unless it springs out of advantages which they have not created for themselves. Big business is not dangerous because it is big, but because its bigness is an unwholesome inflation created by privileges and exemptions which it ought not to enjoy."—*Wilson.*

"Great democracies are not belligerent. They do not seek or desire war. Their thought is of individual liberty and of the free labor that supports life and the uncensored thought that quickens it. Conquest and dominion are not in our reckoning, or agreeable to our principles."—*Wilson.*

"I believe in my heart that the world has never witnessed a case, and never will witness a case where one people desired to make war on another people."—*Wilson.*

"I have said to the people we meant to have less of government in business as well as more business in government."—*Harding.*

"Government's obligation affirmatively to encourage development of the highest and most efficient type of citizenship is modernly accepted, almost universally."—*Harding.*

"The unrestrained tendency to heedless expenditures and the attending growth of public indebtedness, extending from Federal authority to that of State and municipality and including the smallest political subdivision, constitute the most dangerous phase of government today."—*Harding.*

"Anybody can reduce taxes, but it is not easy to stand in the gap and resist the passage of increasing appropriation bills which would make tax reduction impossible."—*Coolidge.*

"Nothing is so fundamental to the integrity of a republican form of government as honesty in all that relates to the conduct of elections."—*Coolidge.*

"I want the people of all the earth to see in the American flag the symbol of a Government which intends no oppression at home and no aggrandisement abroad, which, in the spirit of a common brotherhood, provides assistance in time of distress."—*Coolidge.*

AN OUTLINE HISTORY OF THE MAJOR POLITICAL PARTIES IN THE UNITED STATES.

Name.	Period.	Leaders.	Principles.	Accomplishments.	Reasons for Break-up.
Federalist.	1789 to 1824 (approximate).	Hamilton, Adams, Jay, Marshall.	Strong central government. U. S. Bank. Excise. Opposed to French radicalism.	U. S. finances stabilized. Federal authority asserted. Mississippi River opened up. Treaty with Eng. (Jay's).	Growth of democracy in U. S. Passage of Alien and Sedition Laws. Disagreements among leaders.
Republican or Democratic-Republican.	1789 to 1828 (approximate).	Jefferson, Burr, Madison, Monroe, Gallatin.	Strict limits on power of Federal government. Government by masses rather than classes. Anti-British. Extreme personal liberty. Few laws.	Checked aristocratic tendencies of Federalists. Purchased Louisiana and Florida. Reduced national debt and taxes. Chartered second U. S. Bank. Prosecuted second War with Great Britain.	This party imperceptibly merged into the modern Democratic party about the time Jackson became leader.
National Republican.	1824 to 1834 (approximate).	Clay, Webster, J. Q. Adams.	Protective tariff. Internal improvements by Federal appropriations. Federal Bank.	Textile and iron industries protected. New South American republics encouraged.	Anti-Jackson elements came together to form Whig party.
Democratic.	1828 to present day.	Calhoun, Hayne, Jackson, Benton, Van Buren, Douglas, Davis, Tilden, Cleveland, Bryan, Wilson.	States-rights. Free-trade (merging into low protection). No Federal money for local improvements. Opposed to colonial expansion.	Annexed Texas. Maintained low tariff before Civil War. Supported Civil Service reform. Fought high tariff. Supported interests of farmer and working man as opposed to the privileged classes. Supported laws intended to check trusts.	
Whig.	1834 to 1856 (approximate).	Clay, Webster, Seward.	Protective Tariff. Internal Improvements. Federal Bank.	Being an opposition party most of the time it accomplished little, the Compromise of 1850 being its greatest achievement.	The Northern and Southern Whigs divided on the subject of slavery. The death of Clay and Webster left the party without leaders.
Republican.	1854 to present time.	Seward, Lincoln, Chase, Conklin, Blaine, Sherman, McKinley, Roosevelt, Aldrich, Taft, Lodge, Penrose, Coolidge.	High Protection. Imperialism. Sound money. Extension of power of Federal government. Internal improvements.	Saved the Union from disruption. Imposed military rule on the South after the Civil War, thus preventing reconciliation of the sections. Resumed specie payment after the Civil War. Adopted deflation measures. Annexed Hawaii, The Philippines, and Porto Rico. Built the Panama Canal. Adopted Sherman Anti-Trust Law. Created Interstate Commerce Commission.	

PRESIDENTIAL ELECTIONS.

There is, properly speaking, no popular vote for President and Vice-President; the people vote for electors, and those chosen in each state meet therein and vote for the candidates for President and Vice-President. The record of any popular vote for electors prior to 1824 is so meager and imperfect that a compilation would be useless. In most of the states, for more than a quarter of a century following the establishment of the government, the State Legislatures "appointed" the Presidential electors, and the people therefore voted only indirectly for them, their choice being expressed by their votes for members of the Legislature. In this tabulation only the aggregate electoral votes for candidates for President and Vice-President in the first nine quadrennial elections appear.

1789. Previous to 1804, each elector voted for two candidates for President. The one who received the largest number of votes was declared President, and the one who received the next largest number of votes was declared Vice-President. The electoral votes for the first President of the United States were: George Washington, 69; John Adams, of Massachusetts, 34; John Jay, of New York, 9; R. H. Harrison, of Maryland, 6; John Rutledge, of South Carolina, 6; John Hancock, of Massachusetts, 4; George Clinton, of New York, 3; Samuel Huntington, of Connecticut, 2; John Milton, of Georgia, 2; James Armstrong, of Georgia, Benjamin Lincoln, of Massachusetts, and Edward Telfair, of Georgia, 1 vote each. Vacancies (votes not cast), 4. George Washington was chosen President and John Adams Vice-President.

1792. George Washington, Federalist, received 132 votes; John Adams, Federalist, 77; George Clinton, of New York, Republican (*a*), 50; Thomas Jefferson, of Virginia, Republican, 4; Aaron Burr, of New York, Republican, 1 vote. Vacancies, 3. George Washington was chosen President and John Adams Vice-President.

1796. John Adams, Federalist, 71; Thomas Jefferson, Republican, 68; Thomas Pinckney, of South Carolina, Federalist, 59; Aaron Burr, of New York, Republican, 30; Samuel Adams, of Massachusetts, Republican, 15; Oliver Ellsworth, of Connecticut, Independent, 11; George Clinton, of New York, Republican, 7; John Jay, of New York, Federalist, 5; James Iredell, of North Carolina, Federalist, 3; George Washington, of Virginia, John Henry, of Maryland, and S. Johnson, of North Carolina, all Federalists, 2 votes each; Charles Cotesworth Pinckney, of South Carolina, Federalist, 1 vote. John Adams was chosen President and Thomas Jefferson Vice-President.

1800. Thomas Jefferson, Republican, 73; Aaron Burr, Republican, 73; John Adams, Federalist, 65; Charles C. Pinckney, Federalist, 64; John Jay, Federalist, 1 vote. There being a tie for Jefferson and Burr, the choice devolved upon the House of Representatives. Jefferson received the votes of ten States, which, being the largest vote cast for a candidate, elected him President. Burr received the votes of four States, which, being the next largest vote, elected him Vice-President. There were 2 blank votes.

1804. The Constitution of the United States having been amended, the electors at this election voted for a President and a Vice-President, instead of for two candidates for President. The result was as follows: For President, Thomas Jefferson, Republican, 162; Charles C. Pinckney, Federalist, 14. For Vice-President, George Clinton, Republican, 162; Rufus King, of New York, Federalist, 14. Jefferson was chosen President and Clinton Vice-President.

1808. For President, James Madison, of Virginia, Republican, 122; Charles C. Pinckney, of South Carolina, Federalist, 47; George Clinton, of New York, Republican, 6. For Vice-President, George Clinton, Republican, 113; Rufus King, of New York, Federalist, 47; John Langdon, of New Hampshire, 9; James Madison, 3; James Monroe, 3. Vacancy, 1. Madison was chosen President and Clinton Vice-President.

1812. For President, James Madison, Republican, 128; De Witt Clinton, of New York, Federalist, 89. For Vice-President, Elbridge Gerry, of Massachusetts, 131; Jared Ingersoll, of Pennsylvania, Federalist, 86. Vacancy, 1. Madison was chosen President and Gerry Vice-President.

1816. For President, James Monroe, of Virginia, Republican, 183; Rufus King, of New York, Federalist, 34. For Vice-President, Daniel D. Tompkins, of New York, Republican, 183; John Eager Howard, of Maryland, Federalist, 22; James Ross, of Pennsylvania, 5; John Marshall, of Virginia, 4; Robert G. Harper, of Maryland, 3. Vacancies, 4. Monroe was chosen President and Tompkins Vice-President.

1820. For President, James Monroe, of Virginia, Republican, 231; John Q. Adams, of Massachusetts, Republican, 1. For Vice-President, Daniel D. Tompkins, Republican, 218; Richard Stockton, of New Jersey, 8; Daniel Rodney, of Delaware, 4; Robert G. Harper, of Maryland, and Richard Rush, of Pennsylvania, 1 vote each. Vacancies, 3. Monroe was chosen President and Tompkins Vice-President.

Year of Election.	Candidates for President.	States.	Political Party.	Popular Vote.	Plurality.	Electoral Vote.	Candidates for Vice-President.	States.	Political Party.	Electoral Vote.
1824	Andrew Jackson,	Tenn.	Rep.	155,872	50,551	(*b*) 99	John C. Calhoun,*	S. C.	Rep.	182
	John Q. Adams,*	Mass.	Rep.	105,321	....	84	Nathan Sanford,	N. Y.	Rep.	30
	Henry Clay,	Ky.	Rep.	46,587	....	37	Nathaniel Macon,	N. C.	Rep.	24
	Wm. H. Crawford,	Ga.	Rep.	44,282	....	41	Andrew Jackson,	Tenn.	Rep.	13
							M. Van Buren,	N. Y.	Rep.	9
							Henry Clay,	Ky.	Rep.	2
1828	Andrew Jackson,*	Tenn.	Dem.	647,231	138,134	178	John C. Calhoun,*	S. C.	Dem.	171
	John Q. Adams,	Mass.	Nat. R.	509,097	....	83	Richard Rush,	Pa.	Nat. R.	83
							William Smith,	S. C.	Dem.	7
1832	Andrew Jackson,*	Tenn.	Dem.	687,502	157,313	219	M. Van Buren,*	N. Y.	Dem.	189
	Henry Clay,	Ky.	Nat. R.	530,189	....	49	John Sergeant,	Pa.	Nat. R.	49
	John Floyd,	Ga.	Ind.	33,108	....	11	Henry Lee,	Mass.	Ind.	11
	William Wirt,	Md.	Anti-Mas'nic		....	7	Amos Ellmaker (*c*),	Pa.	Anti-M	7
							Wm. Wilkins,	Pa.	Dem.	30
1836	Martin Van Buren,*	N. Y.	Dem.	761,549	24,893	170	R. M. Johnson (*d*)*	Ky.	Dem.	147
	W. H. Harrison,	O.	Whig.	736,656	....	73	Francis Granger,	N. Y.	Whig.	77
	Hugh L. White,	Tenn.	Whig.			26	John Tyler,	Va.	Whig.	47
	Daniel Webster,	Mass.	Whig.			14	William Smith,	Ala.	Dem.	23
	Willie P. Mangum,	N. C.	Whig.			11				
1840	W. H. Harrison,*	O.	Whig.	1,275,017	146,315	234	John Tyler,*	Va.	Whig.	234
	Martin Van Buren,	N. Y.	Dem.	1,128,702	....	60	R. M. Johnson,	Ky.	Dem.	48
	James G. Birney,	N. Y.	Lib.	7,059	....	....	L. W. Tazewell,	Va.	Dem.	11
							James K. Polk,	Tenn.	Dem.	1
							Thomas Earle,	Pa.	Lib.	....
1844	James K. Polk,*	Tenn.	Dem.	1,337,243	38,175	170	George M. Dallas,*	Pa.	Dem.	170
	Henry Clay,	Ky.	Whig.	1,299,068	....	105	T. Frelinghuysen,	N. J.	Whig.	105
	James G. Birney,	N. Y.	Lib.	62,300	....	....	Thomas Morris,	O.	Lib.	....

*Elected. (*a*) The first Republican party is claimed by the present Democratic party as its progenitor. (*b*) No candidate having a majority of the electoral vote, the House of Representatives elected Adams. (*c*) Candidate of the Anti-Masonic Party. (*d*) Elected by Senate.

PRESIDENTIAL ELECTIONS—*Continued.*

Year of Election.	Candidates for President.	States.	Political Party.	Popular Vote.	Plurality.	Electoral Vote.	Candidates for Vice-President.	States.	Political Party.	Electoral Vote.
1848	Zachary Taylor,*	La.	Whig.	1,360,101	139,557	163	Millard Fillmore,*	N. Y.	Whig.	163
	Lewis Cass,	Mich.	Dem.	1,220,544	....	127	William O. Butler,	Ky.	Dem.	127
	Martin Van Buren,	N. Y.	F. Soil.	291,263	....	....	Charles F. Adams,	Mass.	F. Soil.	...
1852	Franklin Pierce,*	N. H.	Dem.	1,601,474	220,896	254	William R. King,*	Ala.	Dem.	254
	Winfield Scott,	N. J.	Whig.	1,380,576	....	42	William A. Graham,	N. C.	Whig.	42
	John P. Hale,	N. H.	F. D. (*i*)	156,149	....	....	George W. Julian,	Ind.	F. D.	...
	Daniel Webster, (*k*)	Mass.	Whig.	1,670	....	....				
1856	James Buchanan,*	Pa.	Dem.	1,838,169	496,905	174	J. C. Breckenridge,*	Ky.	Dem.	174
	John C. Fremont,	Cal.	Rep.	1,341,264	....	114	William L. Dayton,	N. J.	Rep.	114
	Millard Fillmore,	N. Y.	Amer.	874,538	....	8	A. J. Donelson,	Tenn.	Amer.	8
1860	Abraham Lincoln,*	Ill.	Rep.	1,866,352	491,195	180	Hannibal Hamlin,*	Me.	Rep.	180
	Stephen A. Douglas,	Ill.	Dem.	1,375,157	....	12	H. V. Johnson,	Ga.	Dem.	12
	J. C. Breckinridge	Ky.	Dem.	845,763	....	72	Joseph Lane,	Ore.	Dem.	72
	John Bell,	Tenn.	Union.	589,581	....	39	Edward Everett,	Mass.	Union.	39
1864	Abraham Lincoln,*	Ill.	Rep.	2,216,067	407,342	(*e*) 212	Andrew Johnson,*	Tenn.	Rep.	212
	George B. McClellan,	N. J.	Dem.	1,808,725	....	21	Geo. H. Pendleton,	O.	Dem.	21
1868	Ulysses S. Grant,*	Ill.	Rep.	3,015,071	305,456	(*f*)214	Schuyler Colfax,*	Ind.	Rep.	214
	Horatio Seymour,	N. Y.	Dem.	2,709,615	....	80	F. P. Blair, Jr.,	Mo.	Dem.	80
1872	Ulysses S. Grant,*	Ill.	Rep.	3,597,070	762,991	286	Henry Wilson,*	Mass.	Rep.	286
	Horace Greeley,	N. Y.	D. & L.	2,834,079	....	(*g*)	B. Gratz Brown,	Mo.	D. & L.	47
	Charles O'Conor,	N. Y.	Dem.	29,408	....	....	John Q. Adams,	Mass.	Dem.	...
	James Black,	Pa.	Temp.	5,608	....	....	John Russell,	Mich.	Temp.	...
	Thomas A. Hendricks	Ind.	Dem.	.....	....	42	George W. Julian,	Ind.	Lib.	5
	B. Gratz Brown,	Mo.	Dem.	.....	....	18	A. H. Colquitt,	Ga.	Dem.	5
	Charles J. Jenkins,	Ga.	Dem.	.....	....	2	John M. Palmer,	Ill.	Dem.	3
	David Davis,	Ill.	Ind.	.....	....	1	T. E. Bramlette,	Ky.	Dem.	3
							W. S. Groesbeck,	O.	Dem.	1
							Willis B. Machen,	Ky.	Dem.	1
							N. P. Banks,	Mass.	Lib.	1
1876	Samuel J. Tilden,	N. Y.	Dem.	4,284,885	250,935	184	T. A. Hendricks,	Ind.	Dem.	184
	Rutherford B. Hayes*	O.	Rep.	4,033,950	....	(*h*)185	William A. Wheeler,*	N. Y.	Rep.	185
	Peter Cooper,	N. Y.	Gre'nb.	81,740	....	....	Samuel F. Cary,	O.	Gre'nb.	...
	Green Clay Smith,	Ky.	Pro.	9,522	....	....	Gideon T. Stewart,	O.	Pro.	...
	James B. Walker,	Ill.	Amer.	2,636	....	....	D. Kirkpatrick,	N. Y.	Amer.	...
1880	James A. Garfield,*	O.	Rep.	4,449,053	7,018	214	Chester A. Arthur,*	N. Y.	Rep.	214
	W. S. Hancock,	Pa.	Dem.	4,442,035	....	155	William H. English,	Ind.	Dem.	155
	James B. Weaver,	Iowa.	Gre'nb.	307,306	....	....	B. J. Chambers,	Tex.	Gre'nb.	...
	Neal Dow,	Me.	Pro.	10,305	....	....	H. A. Thompson,	O.	Pro.	...
	John W. Phelps,	Vt.	Amer.	707	....	....	S. C. Pomeroy,	Kan.	Amer.	...
1884	Grover Cleveland,*	N. Y.	Dem.	4,911,017	62,683	219	T. A. Hendricks,*	Ind.	Dem.	219
	James G. Blaine,	Me.	Rep.	4,848,334	....	182	John A. Logan,	Ill.	Rep.	182
	John P. St. John,	Kan.	Pro.	151,809	....	....	William Daniel,	Md.	Pro.	...
	Benjamin F. Butler,	Mass.	Peop.	133,825	....	....	A. M. West,	Miss.	Peop.	...
	P. D. Wigginton,	Cal.	Amer.	.....	....	....			Gre'nb.	
1888	Grover Cleveland,	N. Y.	Dem.	5,538,233	98,017	168	Allen G. Thurman,	O.	Dem.	168
	Benjamin Harrison,*	Ind.	Rep.	5,440,216	....	233	Levi P. Morton,*	N. Y.	Rep.	233
	Clinton B. Fisk,	N. J.	Pro.	249,907	....	....	John A. Brooks,	Mo.	Pro.	...
	Alson J. Streeter,	Ill.	U. L.	148,105	....	....	C. E. Cunningham,	Ark.	U. L.	...
	R. H. Cowdry,	Ill.	U. L.	2,808	....	....	W. H. T. Wakefield,	Kan.	U. L.	...
	James L. Curtis,	N. Y.	Amer.	1,591	....	....	James B. Greer,	Tenn.	Amer.	...
1892	Grover Cleveland,*	N. Y.	Dem.	5,556,918	380,810	277	Adlai E. Stevenson,*	Ill.	Dem.	277
	Benjamin Harrison,	Ind.	Rep.	5,176,108	....	145	Whitelaw Reid,	N. Y.	Rep.	145
	James B. Weaver,	Iowa.	Peop.	1,041,028	....	22	James G. Field,	Va.	Peop.	22
	John Bidwell,	Cal.	Pro.	264,133	....	....	James B. Cranfill,	Tex.	Pro.	...
	Simon Wing,	Mass.	Soc. L.	21,164	....	....	Charles H. Matchett,	N. Y.	Soc. L.	...
1896	William McKinley,*	O.	Rep.	7,104,779	601,854	271	Garret A. Hobart,*	N. J.	Rep.	271
	William J. Bryan,	Neb.	Dem.	6,502,925	....	176	Arthur Sewall,	Me.	Dem.	149
	William J. Bryan,	Neb.	Peop.		....	....	Thomas E. Watson,	Ga.	Peop.	27
	Joshua Levering,	Md.	Pro.	132,007	....	....	Hale Johnson,	Ill.	Pro.	...
	John M. Palmer,	Ill.	N.Dem.	133,148	....	....	Simon B. Buckner,	Ky.	N.Dem	...
	Charles H. Matchett,	N. Y.	Soc. L.	36,274	....	....	Matthew Maguire,	N. J.	Soc. L.	...
	Charles E. Bentley,	Neb.	Nat. (*j*)	13,969	....	....	James H. Southgate,	N. C.	Nat. (*j*)	...
1900	William McKinley,*	O.	Rep.	7,207,923	849,790	292	Theodore Roosevelt,*	N. Y.	Rep.	292
	William J. Bryan,	Neb.	Dem. P.	6,358,133	....	155	Adlai E. Stevenson,	Ill.	Dem. P.	155
	John G. Woolley,	Ill.	Pro.	208,914	....	....	Henry B. Metcalf,	O.	Pro.	...
	Wharton Barker,	Pa.	M.P. (*m*)	50,373	....	....	Ignatius Donnelly,	Minn.	M.P. (*m*)	...
	Eugene V. Debs,	Ind.	Soc. D.	87,814	....	....	Job Harriman,	Cal.	Soc. D.	...
	Jos. F. Maloney,	Mass.	Soc. L.	39,739	....	....	Valentine Remmel,	Pa.	Soc. L.	...
	J. F. R. Leonard,	Iowa.	U.C. (*n*)	1,059	....	....	John G. Woolley,	Ill.	U.C. (*n*)	...
	Seth H. Ellis,	O.	U.R. (*o*)	5,698	....	....	Sam'l T. Nicholson.	Pa.	U.R. (*o*)	...
1904	Theodore Roosevelt,*	N. Y.	Rep.	7,623,486	2,545,715	336	C. W. Fairbanks,	Ind.	Rep.	336
	Alton B. Parker,	N. Y.	Dem.	5,082,754	....	140	Henry G. Davis,	W. Va.	Dem.	140
	Thomas E. Watson,	Ga.	Pop.	117,935	....	....	Thomas H. Tibbles,	Neb.	Pop.	...
	Eugene V. Debs,	Ind.	Soc.	402,286	....	....	Benjamin Hanford,	N. Y.	Soc.	...
	Silas C. Swallow,	Pa.	Pro.	258,787	....	....	George W. Carroll,	Tex.	Pro.	...

*Elected. (*e*) Eleven southern states not voting. (*f*) Three southern states disfranchised. (*g*) Horace Greeley died after election, and Democratic electors scattered their vote. (*h*) There being a dispute over the electoral vote of Florida, Louisiana, Oregon, and South Carolina, they were referred by Congress to an electoral commission composed of eight Republicans and seven Democrats, which, by a strict party vote, awarded 185 electoral votes to Hayes and 184 to Tilden. (*i*) Free Democrat. (*j*) Free Silver Prohibition party. (*k*) In Massachusetts. There was also a Native American ticket in that state, which received 184 votes. (*m*) Middle of the Road or Anti-Fusion People's party. (*n*) United Christian party. (*o*) Union Reformed party.

PRESIDENTIAL ELECTIONS—*Continued.*

Year of Election.	Candidates for President.	States.	Political Party.	Popular Vote.	Plurality.	Electoral Vote.	Candidates for Vice-President.	States.	Political Party.	Electoral Vote.
1908	Wm. H. Taft,* Wm. J. Bryan, Eugene W. Chafin, Eugene Debs, Thos. E. Watson,	Ohio Neb. Ariz. Ind. Ga.	Rep. Prohib. Soc. Peoples	7,679,006 6,409,106 252,683 420,820	1,269,900	321 162	Jas. S. Sherman,* John W. Kern, Ben Hanford, Aaron S. Watkins,	N. Y. Ind. Ohio	Rep. Dem. Soc. Prohib.	321 162
1912	Woodrow Wilson,* Theodore Roosevelt, Wm. H. Taft, Eugene Debs, A. E. Reimer,	N. J. N. Y. Ohio Ind. Mass.	Dem. Prog. Rep. Soc. Soc. L.	6,286,214 4,126,020 3,483,922 897,011	2,160,194	435 88 8	Thos. Marshall,* Jas. S. Sherman,[1] Nicholas M. Butler, Hiram Johnson, Emil Seidel, August Gillhaus,	Ind. N. Y. N. Y. Calif. Wis. N. Y.	Dem. Rep. Rep. Prog. Soc. Soc. L.	435 8 88
1916	Woodrow Wilson,* Chas. E. Hughes, J. F. Hanly, A. L. Benson, A. E. Reimer,	N. J. N. Y. Ind. N. Y. Mass.	Dem. Rep. Prohib. Soc. Soc. L.	9,129,606 8,538,221 220,506 585,113	591,385	277 254	Thos. Marshall,* C. W. Fairbanks, G. R. Kirkpatrick, Ira Landrith, Caleb Harrison,	Ind. Ind. N. J. Tenn. Ill.	Dem. Rep. Soc. Prohib. Soc. L.	277 254
1920	Warren G. Harding,* Jas. M. Cox, Eugene Debs, P. P. Christensen, A. S. Watkins,	Ohio Ohio Ind. Utah Ohio	Rep. Dem. Soc. Prohib.	16,152,200 9,147,353 919,799 265,411 189,408	7,004,847	454 127	Calvin Coolidge,* Franklin D. Roosevelt, Max S. Hayes, Seymour Stedman, August Gillhaus,	Mass. N. Y. Ohio Ill. N. Y.	Rep. Dem. Soc. Prohib. Soc. L.	454 127
1924	Calvin Coolidge,* J. W. Davis, Rob't La Follette, Duncan McDonald, F. T. Johns,	Mass. W. Va. Wis. Ill. Ore.	Rep. Dem. Prog. F. L. P.[1] Soc. L.	15,748,356 8,617,454 4,686,681	7,130,902	382 136 13	Chas. Dawes,* Chas. W. Bryan, Burton Wheeler, W. Bouck, V. L. Reynolds,	Ill. Neb. Mont. Wash. Md.	Rep. Dem. Prog. F. L. P.[2] Nat. I.	382 186 13
1928	Herbert Hoover,* Alfred E. Smith, All others combined,	Calif. N. Y.	Rep. Dem.	21,426,869 15,005,961 431,250	6,020,908	444 87	Charles Curtis,* Joseph T. Robinson,	Kas. Ark.	Rep. Dem.	444 87

* Elected. [1] Sherman died before the election and Butler was substituted. [2] Farmer-Labor-Progressive. [3] Commonwealth Land Party.

VICE-PRESIDENTS OF THE UNITED STATES

	Name.	Birthplace.	Year.	Paternal Ancestry.	Residence.	Qualified.	Politics.	Place of Death.	Year.	Age at Death.
1	John Adams	Quincy, Mass.	1735	English	Mass.	1789	Fed.	Quincy, Mass.	1820	90
2	Thomas Jefferson	Shadwell, Va.	1743	Welsh	Va.	1797	Rep.	Monticello, Va.	1826	83
3	Aaron Burr	Newark, N. J.	1756	English	N. Y.	1801	Rep.	Staten Island, N. Y.	1836	80
4	George Clinton	Ulster Co., N. Y.	1739	English	N. Y.	1805	Rep.	Washington, D. C.	1812	73
5	Eldridge Gerry	Marblehead, Mass.	1744	English	Mass.	1813	Rep.	Washington, D. C.	1814	70
6	Daniel D. Tompkins	Scarsdale, N. Y.	1774	English	N. Y.	1817	Rep.	Staten Island, N. Y.	1825	51
7	John C. Calhoun	Abbeville, S. C.	1782	Scotch-Irish	S. C.	1825	Rep.	Washington, D. C.	1850	68
8	Martin Van Buren	Kinderhook, N. Y.	1782	Dutch	N. Y.	1833	Dem.	Kinderhook, N. Y.	1862	79
9	Richard M. Johnson	Louisville, Ky.	1780	English	Ky.	1837	Dem.	Frankfort, Ky.	1850	70
10	John Tyler	Greenway, Va.	1790	English	Va.	1841	Dem.	Richmond, Va.	1862	72
11	George M. Dallas	Philadelphia, Pa.	1792	English	Pa.	1845	Dem.	Philadelphia, Pa.	1864	72
12	Millard Fillmore	Summerhill, N. Y.	1800	English	N. Y.	1849	Whig	Buffalo, N. Y.	1874	74
13	William R. King	Sampson Co., N. C.	1786	English	Ala.	1853	Dem.	Dallas Co., Ala.	1853	67
14	J. C. Breckinridge	Lexington, Ky.	1821	Scotch	Ky.	1857	Dem.	Lexington, Ky.	1875	54
15	Hannibal Hamlin	Paris, Me.	1809	English	Me.	1861	Rep.	Bangor, Me.	1891	81
16	Andrew Johnson	Raleigh, N. C.	1808	English	Tenn.	1865	Rep.	Carter Co., Tenn.	1875	66
17	Schuyler Colfax	New York City, N. Y.	1823	English	Ind.	1869	Rep.	Mankato, Minn.	1885	62
18	Henry Wilson	Farmingham, N. H.	1819	English	Mass.	1873	Rep.	Washington, D. C.	1875	63
19	William A. Wheeler	Malone, N. Y.	1812	English	N. Y.	1877	Rep.	Malone, N. Y.	1887	68
20	Chester A. Arthur	Fairfield, Vt.	1830	Scotch-Irish	N. Y.	1881	Rep.	New York City, N. Y.	1886	56
21	Thos. A. Hendricks	Muskingum Co., O.	1819	Scotch-Irish	Ind.	1885	Dem.	Indianapolis, Ind.	1885	66
22	Levi P. Morton	Shoreham, Vt.	1824	Scotch	N. Y.	1889	Rep.	Rhinebeck, N. Y.	1920	96
23	Adlai E. Stevenson	Christian Co., Ky.	1835	Scotch-Irish	Ill.	1893	Dem.	Chicago, Ill.	1914	78
24	Garrett A. Hobart	Long Branch, N. J.	1844	English	N. J.	1897	Rep.	Paterson, N. J.	1899	55
25	Theodore Roosevelt	New York City, N. Y.	1858	Dutch	N. Y.	1901	Rep.	Oyster Bay, N. Y.	1919	61
26	C. W. Fairbanks	Unionville Center, O.	1852	English	Ind.	1905	Rep.	Indianapolis, Ind.	1918	66
27	J. S. Sherman	Utica, N. Y.	1855	English	N. Y.	1909	Rep.	Utica, N. Y.	1912	57
28	Thos. R. Marshall	N. Manchester, Ind.	1854	English	Ind.	1913	Dem.	Washington, D. C.	1925	71
29	Calvin Coolidge	Plymouth	1872	English	Vt.	1921	Rep.			
30	Chas. G. Dawes	Marietta, O.	1865	English	Ill.	1925	Rep.			
31	Chas. Curtis	Topeka, Kans.	1860	Eng.-Fr.-Indian	Kans.	1929	Rep.			

SPEAKERS OF THE U. S. HOUSE OF REPRESENTATIVES.

Congress.	Years.	Name.	State.	Born.	Died.	Congress	Years.	Name.	State.	Born.	Died.
1	1789-91	F. A Muhlenburg...	Pa...	1750	1801	30	1847-49	Robert C. Winthrop.	Mass..	1809	1894
2	1791-93	Jonathan Trumbull...	Ct....	1740	1809	31	1849-51	Howell Cobb.....	Ga....	1815	1868
3	1793-95	F. A. Muhlenburg...	Pa....	1750	1801	32, 33	1851-55	Linn Boyd.....	Ky....	1800	1859
4, 5	1795-99	Jonathan Dayton....	N. J..	1760	1824	34	1855-57	Nathaniel P. Banks.	Mass..	1816	1894
6	1801--07	Theo. Sedgwick.....	Mass..	1746	1813	35	1857-59	James L. Orr.....	S. C...	1822	1873
7-9	1799-1801	Nathaniel Macon.....	N. C..	1757	1837	36	1859-61	Wm. Pennington....	N. J...	1796	1862
10, 11	1807-11	Joseph B. Varnum...	Mass..	1750	1821	37	1861-63	Galusha A. Grow...	Pa....	1823	1907
12, 13	1811-14	Henry Clay.....	Ky...	1777	1852	38-40	1863-69	Schuyler Colfax.....	Ind....	1823	1885
13	1814-15	Langdon Cheves.....	S. C..	1776	1857	41-43	1869-75	James G. Blaine....	Me....	1830	1893
14-16	1815-20	Henry Clay.....	Ky...	1777	1852	44	1875-76	Michael C. Kerr....	Ind....	1827	1876
16	1820-21	John W. Taylor.....	N. Y..	1784	1854	44-46	1876-81	Samuel J. Randall..	Pa....	1828	1890
17	1821-23	Philip P. Barbour...	Va....	1783	1841	47	1881-83	John W. Keifer.....	Ohio..	1836	....
18	1823-25	Henry Clay.....	Ky...	1777	1852	48-50	1883-89	John G. Carlisle....	Ky.. .	1835	1910
19	1825-27	John W. Taylor.....	N. Y..	1784	1854	51	1889-91	Thomas B. Reed....	Me....	1839	1902
20-22	1827-34	Andrew Stevenson....	Va...	1784	1857	52, 53	1891-95	Charles F. Crisp....	Ga....	1845	1896
23	1834-35	John Bell.....	Tenn.	1797	1869	54, 55	1895-99	Thomas B. Reed....	Me....	1839	1902
24-25	1835-39	James K. Polk.....	Tenn.	1795	1849	56, 57	1899-03	David B. Henderson.	Ia	1840	1908
26	1839-41	R. M. T. Hunter....	Va...	1809	1887	58-61	1903-11	Joseph G. Cannon...	Ill....	1836	....
27	1841-43	John White.....	Ky...	1805	1845	62-65	1911-19	Champ Clark.....	Mo....	1850	1921
28	1843-45	John W. Jones.....	Va...	1805	1848	66-68	1919-25	Frederick H. Gillett	Mass..	1851	....
29	1845-47	John W. Davis	Ind..	1799	1859	69, 70	1925-	Nicholas Longworth.	Ohio..	1869	....

PRESIDENTAL CABINET OFFICERS.

SECRETARIES OF STATE.

Presidents.	Cabinet Officers.	Residence.	Date of Appointment.	Presidents.	Cabinet Officers.	Residence.	Date of Appointment.
Washington..	Thomas Jefferson.....	Va....	1789	Lincoln.....	William H. Seward....	N. Y..	1861
"	Edmund Randolph....	"	1794	Johnson.....	"	" ..	1865
"	Timothy Pickering....	Mass..	1795	Grant.....	Elihu B. Washburne...	Ill. ..	1869
Adams.....	"	" ..	1797	"	Hamilton Fish.....	N. Y..	1869
"	John Marshall.....	" ..	1800	Hayes.....	William M. Evarts....	" ..	1877
Jefferson.....	James Madison.....	Va....	1801	Garfield.....	James G. Blaine.....	Me.. .	1881
Madison.....	Robert Smith.....	Md.. .	1809	Arthur.....	F. T. Frelinghuysen....	N. J. .	1881
"	James Monroe.....	Va....	1811	Cleveland...	Thomas F. Bayard....	Del. ..	1885
Monroe.....	John Quincy Adams ...	Mass..	1817	Harrison....	James G. Blaine.....	Me. ..	1889
J. Q. Adams ..	Henry Clay.....	Ky....	1825	"	John W. Foster.....	Ind. ..	1892
Jackson.....	Martin Van Buren.....	N. Y..	1829	Cleveland...	Walter Q. Gresham....	Ill. ...	1893
"	Edward Livingston....	La....	1831	"	Richard Olney.....	Mass..	1895
"	Louis McLane.....	Del. ..	1833	McKinley...	John Sherman.....	Ohio..	1897
"	John Forsyth.....	Ga....	1834	" ...	William R. Day.....	" ..	1898
Van Buren ...	"	" ...	1837	" ...	John Hay.....	" ..	1898
Harrison.....	Daniel Webster.....	Mass..	1841	Roosevelt ...	Elihu Root.....	N. Y..	1905
Tyler.....	" ..	" ..	1841	Taft.....	Philander Chase Knox .	Pa....	1909
"	Hugh S. Legare.....	S. C..	1843	Wilson.....	William J. Bryan.....	Neb...	1913
"	Abel P. Upshur.....	Va....	1843	"	Robert Lansing.....	N. Y..	1915
"	John C. Calhoun.....	S. C...	1844	"	Bainbridge Colby.....	N. Y..	1920
Polk.....	James Buchanan.....	Pa....	1845	Harding.....	Chas. E. Hughes.....	N. Y..	1921
Taylor.....	John M. Clayton.....	Del...	1849	Coolidge....	Frank B. Kellogg.....	Minn.	1925
Fillmore.....	Daniel Webster.....	Mass..	1850	Hoover.....	Henry T. Stimson.....	N. Y..	1929
Fillmore.....	Edward Everett.....	Mass..	1852				
Pierce.....	William L. Marcy.....	N. Y..	1853				
Buchanan....	Lewis Cass.....	Mich..	1857				
"	Jeremiah S. Black.....	Pa....	1860				

POSTMASTERS GENERAL.

Washington..	Samuel Osgood.....	Mass....	1789	Johnson....	Alexander W. Randall..	Wis.....	1866
"	Timothy Pickering.....	" ...	1791	Grant.....	John A. J. Cresswell...	Md.....	1869
"	Joseph Habersham.....	Ga.....	1795	"	James W. Marshall....	Va.....	1874
Adams.....	"	"	1797	"	Marshall Jewell.....	Ct.....	1874
Jefferson....	"	"	1801	"	James N. Tyner.....	Ind.....	1876
"	Gideon Granger.....	Ct.....	1801	Hayes.....	David McK. Key.....	Tenn....	1877
Madison.....	"	" ...	1809	"	Horace Maynard.....	" ...	1880
" ...	Return J. Meigs, Jr...	Ohio....	1814	Garfield....	Thomas L. James.....	N. Y....	1881
Monroe.....	"	" ...	1817	Arthur.....	Timothy O. Howe.....	Wis.....	1881
" ...	John McLean.....	" ...	1823	"	Walter Q. Gresham....	Ind.....	1883
J. Q. Adams.	"	" ...	1825	"	Frank Hatton.....	Iowa....	1884
Jackson.....	William T. Berry.....	Ky.....	1829	Cleveland...	William F. Vilas.....	Wis.....	1885
" ..	Amos Kendall.....	"	1835	"	Don M. Dickinson.....	Mich....	1888
Van Buren...	"	"	1837	Harrison....	John Wanamaker.....	Pa.....	1889
" ...	John M. Niles.....	Ct.....	1840	Cleveland...	Wilson S. Bissell.....	N. Y....	1893
Harrison....	Francis Granger.....	N. Y....	1841	"	William L. Wilson....	W. Va...	1895
Tyler.....	"	" ...	1841	McKinley...	James A. Gary.....	Md.....	1897
"	Charles A. Wickliffe...	Ky.....	1841	"	Charles Emory Smith..	Pa.....	1898
Polk.....	Cave Johnson.....	Tenn....	1845	Roosevelt...	Henry C. Payne.....	Wis.....	1902
Taylor.....	Jacob Collamer.....	Vt.....	1849	"	Robert J. Wynne.....	Pa.....	1904
Fillmore....	Nathan K. Hall.....	N. Y....	1850	"	Geo. B. Cortelyou.....	N. Y....	1905
" ...	Samuel D. Hubbard....	Ct.....	1852	"	Geo. Von L. Meyer....	Mass....	1907
Pierce.....	James Campbell.....	Pa.....	1853	Taft.....	Frank H. Hitchcock....	Ohio....	1909
Buchanan....	Aaron V. Brown.....	Tenn....	1857	Wilson.....	Albert S. Burleson....	Texas...	1913
" ...	Joseph Holt.....	Ky.....	1859	Harding....	Will H. Hayes.....	Ind.....	1921
" ...	Horatio King.....	Me.....	1861	"	Hubert Work.....	Colo.....	1922
Lincoln.....	Montgomery Blair.....	Md.....	1861	"	Harry S. New.....	Ind.....	1923
Lincoln....	William Dennison.....	Ohio....	1864	Coolidge....	"	Ind.....	1925
Johnson....	" ...	"	1865	Hoover.....	Walter F. Brown.....	Ohio..	1929

Presidential Cabinet Officers—*Continued.*

SECRETARIES OF THE INTERIOR.

Presidents.	Cabinet Officers.	Residence.	Date of Appointment.	Presidents.	Cabinet Officers.	Residence.	Date of Appointment.
Taylor	Thomas Ewing	Ohio	1849	Cleveland	Lucius Q. C. Lamar	Miss.	1885
Fillmore	James A. Pearce	Md.	1850	"	William F. Vilas	Wis.	1888
"	Thos. M. T. McKennon	Pa.	1850	Harrison	John W. Noble	Mo.	1889
"	Alexander H. H. Stuart	Va.	1850	Cleveland	Hoke Smith	Ga.	1893
Pierce	Robert McClelland	Mich.	1853	"	David R. Francis	Mo.	1896
Buchanan	Jacob Thompson	Miss.	1857	McKinley	Cornelius N. Bliss	N. Y.	1897
Lincoln	Caleb B. Smith	Ind.	1861	"	Ethan A. Hitchcock	Mo.	1899
"	John P. Usher	"	1863	Roosevelt	" "	"	1901
Johnson	" "	"	1865	"	James R. Garfield	Ohio	1907
"	James Harlan	Iowa	1865	Taft	Richard A. Ballinger	Wash.	1909
"	Orville H. Browning	Ill.	1866	"	Walter L. Fisher	Ill.	1911
Grant	Jacob D. Cox	Ohio	1869	Wilson	Franklin K. Lane	Cal.	1913
"	Columbus Delona	"	1870	"	John B. Payne	Ill.	1920
"	Zachariah Chandler	Mich.	1875	Harding	Albert B. Fall	N. M.	1921
Hayes	Carl Schurz	Mo.	1877	"	Hubert Work	Colo.	1923
Garfield	Samuel J. Kirkwood	Iowa	1881	Coolidge	Hubert Work	Colo.	1925
Arthur	Henry M. Teller	Colo.	1882	"	Ray O. West	Ill.	1928
				Hoover	Ray L. Wilbur	Cal.	1929

SECRETARIES OF AGRICULTURE.

Cleveland	Norman J. Colman	Mo.	1889	Wilson	David F. Houston	Mo.	1913
Harrison	Jeremiah M. Rusk	Wis.	1889	"	Edwin T. Meredith	Iowa	1920
Cleveland	J. Sterling Morton	Neb.	1893	Harding	Henry C. Wallace	Iowa	1921
McKinley	James Wilson	Iowa	1897	Coolidge	Henry C. Wallace	Iowa	
Roosevelt	James Wilson	Iowa	1901	"	Howard M. Gore	W. Va.	1924
Taft	"	"	1909	"	William H. Jardine	Kan.	1925
				Hoover	Arthur M. Hyde	Mo.	1929

ATTORNEYS GENERAL.

Washington	Edmund Randolph	Va.	1789	Lincoln	Edward Bates	Mo.	1861
"	William Bradford	Pa.	1794	"	Titian J. Coffey *(ad int*	Pa.	1863
"	Charles Lee	Va.	1795	"	James Speed	Ky.	1864
Adams	" "	"	1797	Johnson	" "	"	1865
"	Theophilus Parsons	Mass.	1801	"	Henry Stanberry	Ohio	1866
Jefferson	Levi Lincoln	"	1801	"	William M. Evarts	N. Y.	1868
"	Robert Smith	Md.	1805	Grant	Ebenezer R. Hoar	Mass.	1869
"	John Breckenridge	Ky.	1805	"	Amos T. Ackerman	Ga.	1870
"	Cæsar A. Rodney	Del.	1807	"	George H. Williams	Ore.	1871
Madison	" "	"	1809	"	Edwards Pierrepont	N. Y.	1875
"	William Pinkney	Md.	1811	"	Alphonso Taft	Ohio	1876
"	Richard Rush	La.	1814	Hayes	Charles Devens	Mass.	1877
Monroe	" "	"	1817	Garfield	Wayne MacVeagh	Pa.	1881
"	William Wirt	Va.	1817	Arthur	Benjamin H. Brewster	"	1881
J. Q. Adams	" "	"	1825	Cleveland	Augustus H. Garland	Ark.	1885
Jackson	John McP. Berrien	Ga.	1829	Harrison	William H. H. Miller	Ind.	1889
"	Roger B. Taney	Md.	1831	Cleveland	Richard Olney	Mass.	1893
"	Benjamin F. Butler	N. Y.	1833	"	Judson Harmon	Ohio	1895
Van Buren	" "	"	1837	McKinley	Joseph McKenna	Cal.	1897
"	Felix Grundy	Tenn.	1838	"	John W. Griggs	N. J.	1898
"	Henry D. Gilpin	Pa.	1840	"	Philander C. Knox	Pa.	1901
Harrison	John J. Crittenden	Ky.	1841	Roosevelt	" "	"	1901
Tyler	" "	"	1841	"	W. H. Moody	Mass.	1904
"	Hugh S. Legaré	S. C.	1841	"	Chas. J. Bonaparte	Md.	1906
"	John Nelson	Md.	1843	Taft	George W. Wickersham	N. Y.	1909
Polk	John Y. Mason	Va.	1845	Wilson	James C. McReynolds	Tenn.	1913
"	Nathan Clifford	Me.	1846	"	Thomas Watt Gregory	Texas	1914
"	Isaac Toucey	Ct.	1848	"	A. Mitchell Palmer	Pa.	1919
Taylor	Reverdy Johnson	Md.	1849	Harding	Harry M. Daugherty	Ohio	1921
Fillmore	John J. Crittenden	Ky.	1850	Coolidge	Harlan F. Stone	N. Y.	1924
Pierce	Caleb Cushing	Mass.	1853	"	John G. Sargent	Vt.	1925
Buchanan	Jeremiah S. Black	Pa.	1857	Hoover	William D. Mitchell	Minn.	1929
"	Edwin M. Stanton	Ohio	1860				

SECRETARIES OF THE TREASURY.

Washington	Alexander Hamilton	N. Y.	1789	Jackson	Levi Woodbury	N. H.	1834
"	Oliver Wolcott	Ct.	1795	Van Buren	" "	"	1837
Adams	" "	"	1797	Harrison	Thomas Ewing	Ohio	1841
"	Samuel Dexter	Mass.	1801	Tyler	" "	"	1841
Jefferson	" "	"	1801	"	Walter Forward	Pa.	1841
"	Albert Gallatin	Pa.	1801	"	John C. Spencer	N. Y.	1843
Madison	" "	"	1809	"	George M. Bibb	Ky.	1844
"	George W. Campbell	Tenn.	1814	Polk	Robert J. Walker	Miss.	1845
"	Alexander J. Dallas	Pa.	1814	Taylor	William M. Meredith	Pa.	1849
"	William H. Crawford	Ga.	1816	Fillmore	Thomas Corwin	Ohio	1850
Monroe	" "	"	1817	Pierce	James Guthrie	Ky.	1853
J. Q. Adams	Richard Rush	Pa.	1825	Buchanan	Howell Cobb	Ga.	1857
Jackson	Samuel D. Ingham	"	1829	"	Philip F. Thomas	Md.	1860
"	Louis McLane	Del.	1831	"	John A. Dix	N. Y.	1861
"	William J. Duane	Pa.	1833	Lincoln	Salmon P. Chase	Ohio	1861
"	Roger B. Taney	Md.	1833	"	William P. Fessenden	Me.	1864

Presidential Cabinet Officers—*Continued.*

SECRETARIES OF THE TREASURY—*Continued*

Presidents.	Cabinet Officers.	Residence.	Date of Appointment.	Presidents.	Cabinet Officers.	Residence.	Date of Appointment.
Lincoln	Hugh McCulloch	Ind.	1865	Harrison	William Windom	Minn.	1889
Johnson	"	"	1865	"	Charles Foster	Ohio	1891
Grant	George S. Boutwell	Mass.	1869	Cleveland	John G. Carlisle	Ky.	1893
"	William A. Richardson	"	1873	McKinley	Lyman J. Gage	Ill.	1897
"	Benjamin H. Bristow	Ky.	1874	Roosevelt	Leslie M. Shaw	Iowa	1902
"	Lot M. Morrill	Me.	1876	"	George B. Cortelyou	N. Y.	1907
Hayes	John Sherman	Ohio	1877	Taft	Franklin MacVeagh	Ill.	1909
Garfield	William Windom	Minn.	1881	Wilson	William G. McAdoo	N. Y.	1913
Arthur	Charles J. Folger	N. Y.	1881	"	Carter Glass	Va.	1918
"	Walter Q. Gresham	Ind.	1884		David F. Houston	Mo.	1920
"	Hugh McCulloch	"	1884	Harding	Andrew W. Mellon	Pa.	1921
Cleveland	Daniel Manning	N. Y.	1885	Coolidge	"	"	1925
"	Charles S. Fairchild	"	1887	Hoover	"	"	1929

SECRETARIES OF WAR.

Washington	Henry Knox	Mass.	1789	Lincoln	Simon Cameron	Pa.	1861
"	James McHenry	Md.	1796	"	Edwin M. Stanton	"	1862
Adams	"	"	1797	Johnson	"	"	1865
"	Samuel Dexter	Mass.	1800	"	U. S. Grant *(ad int.)*	Ill.	1867
Jefferson	Henry Dearborn	Mass.	1801	"	Edwin M. Stanton	Pa.	1868
Madison	William Eustis	"	1809	"	John M. Schofield	N. Y.	1868
"	John Armstrong	N. Y.	1813	Grant	John A. Rawlins	Ill.	1869
"	James Monroe	Va.	1814	"	William T. Sherman	Ohio	1869
"	William H. Crawford	Ga.	1815	"	William W. Belknap	Ia.	1869
Monroe	Isaac Shelby	Ky.	1817	"	Alphonso Taft	Ohio	1876
"	Geo. Graham *(ad int.)*	Va.	1817	"	James Don Cameron	Pa.	1876
"	John C. Calhoun	S. C.	1817	Hayes	George W. McCrary	Ia.	1877
J. Q. Adams	James Barbour	Va.	1825	"	Alexander Ramsey	Minn.	1879
"	Peter B. Porter	N. Y.	1828	Garfield	Robert T. Lincoln	Ill.	1881
Jackson	John H. Eaton	Tenn.	1829	Arthur	"	"	1881
"	Lewis Cass	Ohio	1831	Cleveland	William C. Endicott	Mass.	1885
"	Benjamin F. Butler *(ac*	N. Y.	1837	Harrison	Redfield Proctor	Vt.	1889
Van Buren	Joel R. Poinsett	S. C.	1837	"	Stephen B. Elkins	W. Va.	1891
Harrison	John Bell	Tenn.	1841	Cleveland	Daniel S. Lamont	N. Y.	1893
Tyler	"	"	1841	McKinley	Russell A. Alger	Mich.	1897
"	John C. Spencer	N. Y.	1841	"	Elihu Root	N. Y.	1899
"	James M. Porter	Pa.	1843	Roosevelt	William H. Taft	Ohio	1904
"	William Wilkins	"	1844	"	Luke E. Wright	Tenn.	1908
Polk	William L. Marcy	N. Y.	1845	Taft	Jacob McG. Dickinson	Ill.	1909
Taylor	George W. Crawford	Ga.	1849	"	Henry L. Stimson	N. Y.	1911
Fillmore	Winfield Scott *(ad int.)*	Va.	1850	Wilson	Linley M. Garrison	N. J.	1913
"	Charles M. Conrad	La.	1850	"	Newton Diehl Baker	Ohio	1916
Pierce	Jefferson Davis	Miss.	1853	Harding	John W. Weeks	Mass.	1921
Buchanan	John B. Floyd	Va.	1857	Coolidge	John W. Weeks	Mass.	1925
Buchanan	Joseph Holt	Ky.	1861	"	Dwight F. Davis	Mo.	1925
				Hoover	James W. Good	Iowa	1929

SECRETARIES OF THE NAVY.

Adams	George Cabot	Mass.	1798	Fillmore	William A. Graham	N. C.	1850
"	Benjamin Stoddert	Md.	1798	"	John P. Kennedy	Md.	1852
Jefferson	"	"	1801	Pierce	James C. Dobbin	N. C.	1853
"	Robert Smith	"	1801	Buchanan	Isaac Toucey	Ct.	1857
"	Jacob Crowninshield	Mass.	1805	Lincoln	Gideon Welles	"	1861
Madison	Paul Hamilton	S. C.	1809	Johnson	"	"	1865
"	William Jones	Pa.	1813	Grant	Adolph E. Borie	Pa.	1869
"	B. W. Crowninshield	Mass.	1814	"	George M. Robeson	N. J.	1869
Monroe	"	"	1817	Hayes	Richard W. Thompson	Ind.	1877
"	Smith Thompson	N. Y.	1818	"	Nathan Goff, Jr.	W. Va.	1881
"	Samuel L. Southard	N. J.	1823	Garfield	William H. Hunt	La.	1881
J. Q. Adams	"	"	1825	Arthur	William E. Chandler	N. H.	1882
Jackson	John Branch	N. C.	1829	Cleveland	William C. Whitney	N. Y.	1885
"	Levi Woodbury	N. H.	1831	Harrison	Benjamin F. Tracy	"	1889
"	Mahlon Dickerson	N. J.	1834	Cleveland	Hilary A. Herbert	Ala.	1893
Van Buren	"	"	1837	McKinley	John D. Long	Mass.	1897
"	James K. Paulding	N. Y.	1838	Roosevelt	William H. Moody	"	1902
Harrison	George E. Badger	N. C.	1841	"	Paul Morton	Ill.	1904
Tyler	"	"	1841	"	Charles J. Bonaparte	Md.	1905
"	Abel P. Upshur	Va.	1841	"	Victor H. Metcalf	Cal.	1906
"	David Henshaw	Mass.	1843	"	Truman H. Newberry	Mich.	1908
"	Thomas W. Gilmer	Va.	1844	Taft	George Von L. Meyer	Mass.	1909
"	John Y. Mason	"	1844	Wilson	Josephus Daniels	N. C.	1913
Polk	George Bancroft	Mass.	1845	Harding	Edwin Denby	Mich.	1921
"	John Y. Mason	Va.	1846	Coolidge	Curtis D. Wilbur	Cal.	1924
Taylor	William B. Preston	Va.	1849	Hoover	Chas. F. Adams	Mass.	1929

Presidential Cabinet Officers—*Continued.*

SECRETARIES OF COMMERCE.

Presidents.	Cabinet Officers.	Residence.	Date of Appointment.	Presidents.	Cabinet Officers.	Residence.	Date of Appointment.
Roosevelt....	Geo. B. Cortelyou.....	N. Y..	1903	Wilson.....	Joshua W. Alexander ..	Mo. ..	1919
"	Victor H. Metcalf.....	Cal. ..	1904	Harding.....	Herbert Hoover.....	Cal...	1921
"	Oscar S. Straus.....	N. Y..	1909	Coolidge....	Herbert Hoover.....	Cal. ..	1925
Taft.....	Charles Nagel.....	Mo...	1906	"	William F. Whiting....	Mass..	1928
Wilson.....	Wm. C. Redfield.....	N. Y..	1913	Hoover.....	Robt. P. Lamont.....	Ill. ...	1929

SECRETARIES OF LABOR

Wilson.....	Wm. B. Wilson.....	Pa....	1913	Coolidge....	Jas. J. Davis.....	Pa....	1925
Harding.....	Jas. J. Davis.....	Pa....	1921	Hoover.....	"	Pa....	1929

JUSTICES OF THE UNITED STATES SUPREME COURT.

(Names of the Chief Justices in Italics.)

Name.	Service. Term.	Service. Yrs.	Born.	Died.	Name.	Service. Term.	Service. Yrs.	Born.	Died.
John Jay, N. Y.....	1789-1795	6	1745	1829	David Davis, Ill.....	1862-1877	15	1815	1885
John Rutledge, S. C.....	1789-1791	2	1739	1800	Stephen J. Field, Cal.....	1863-1897	34	1816	1899
William Cushing, Mass.....	1789-1810	21	1733	1810	*Salmon P. Chase*, Ohio....	1864-1873	9	1808	1873
James Wilson, Pa.....	1789-1789	9	1742	1798	William Strong, Pa.....	1870-1880	10	1808	1895
John Blair, Va.....	1789-1796	7	1732	1800	Joseph P. Bradley, N. J..	1870-1892	22	1813	1892
Robert H. Harrison, Md....	1789-1790	1	1745	1790	Ward Hunt, N. Y.....	1872-1882	10	1811	1886
James Iredell, N. C.....	1789-1799	9	1751	1799	*Morrison R. Waite*, Ohio...	1874-1888	14	1816	1888
Thomas Johnson, Md.....	1791-1793	2	1732	1819	John M. Harlan, Ky.....	1877-1911	34	1833	1911
William Paterson, N. J.....	1793-1806	13	1745	1806	William B. Woods, Ga....	1880-1887	7	1824	1887
John Rutledge, S. C.....	1795-1795	..	1739	1800	Stanley Matthews, Ohio...	1881-1889	8	1824	1889
Samuel Chase, Md.....	1796-1811	15	1741	1811	Horace Gray, Mass.....	1881-1902	21	1828	1902
Oliver Ellsworth, Ct.....	1796-1800	4	1745	1807	Samuel Blatchford, N. Y...	1882-1893	11	1820	1893
Bushrod Washington, Va....	1798-1829	31	1762	1829	Lucius Q. C. Lamar, Miss.	1888-1893	5	1825	1893
Alfred Moore, N. C.....	1799-1804	5	1755	1810	*Melville W. Fuller*, Ill....	1888-1910	22	1833	1910
John Marshall, Va.....	1801-1835	34	1755	1835	David J. Brewer, Kan.....	1889-1910	21	1837	1910
William Johnson, S. C.....	1804-1834	30	1771	1834	Henry B. Brown, Mich....	1890-1906	16	1836	1913
Brockholst Livingston, N. Y.	1806-1823	17	1757	1823	George Shiras, Jr., Pa....	1892-1902	10	1832	1924
Thomas Todd, Ky.....	1807-1826	19	1765	1826	Howell E. Jackson, Tenn...	1893-1895	2	1832	1895
Joseph Story, Mass.....	1811-1845	34	1779	1845	*Edward D. White*, La.....	1894-1921	27	1845	1921
Gabriel Duval, Md.....	1811-1836	25	1752	1844	Rufus W. Peckham, N. Y..	1895-1909	14	1838	1909
Smith Thompson, N. Y.....	1823-1843	20	1767	1843	Joseph McKenna, Cal.....	1898-1925	27	1843	1926
Robert Trimble, Ky.....	1826-1828	2	1777	1828	Oliver W. Holmes, Mass...	1902-....	..	1841	....
John McLean, Ohio.....	1829-1861	32	1785	1861	William R. Day, Ohio.....	1903-1922	19	1849	1922
Henry Baldwin, Pa.....	1830-1844	14	1779	1844	William H. Moody, Mass...	1907-1910	4	1853	1917
James M. Wayne, Ga.....	1835-1867	32	1790	1867	Horace H. Lurton, Tenn....	1909-1914	5	1844	1914
Roger B. Taney, Md.....	1836-1864	28	1777	1864	Charles E. Hughes, N. Y..	1910-1916	5	1862	....
Philip P. Barbour, Va.....	1836-1841	5	1783	1841	Joseph R. Lamar, Ga.....	1910-1916	5	1857	1916
John Catron, Tenn.....	1837-1865	28	1786	1865	Willis Van Devanter, Wyo.	1910-....	..	1859	....
John McKinley, Ala.....	1837-1852	15	1780	1852	Mahlon Pitney, N. J.....	1912-1923	11	1858	1924
Peter V. Daniel, Va.....	1841-1860	19	1785	1860	James C. McReynolds, Ky..	1914-....	..	1862	....
Samuel Nelson, N. Y.....	1845-1872	27	1792	1873	Louis D. Brandeis, Ky.....	1916-....	..	1856	....
Levi Woodbury, N. H.....	1845-1851	6	1789	1851	John H. Clarke, Ohio.....	1916-1922	6	1857	....
Robert C. Grier, Pa.....	1846-1870	23	1794	1870	*Wm. H. Taft*.....	1921-....	..	1857	....
Benjamin R. Curtis, Mass..	1851-1857	6	1809	1874	George Sutherland.....	1922-....	..	1862	....
John A. Campbell, Ala.....	1853-1861	8	1811	1889	Pierce Butler,.....	1922-....	..	1866	....
Nathan Clifford, Me.....	1858-1881	23	1803	1881	Edward T. Sanford.....	1923-....	..	1865	....
Noah H. Swayne, Ohio.....	1861-1881	20	1804	1884	Harlan F. Stone.....	1925-....	..	1872	....
Samuel F. Miller, Iowa....	1862-1890	28	1816	1890					

UNITED STATES SUPREME COURT. The Constitution vests the judicial power of the United States in one Supreme Court and in such inferior courts as Congress may from time to time ordain and establish. The jurisdiction of the Supreme Court is appellate only, excepting in cases affecting ambassadors, other public ministers and consuls, and those in which a state shall be a party, as to which the court shall have original jurisdiction. Salary of chief justice, $15,000; associate justices, $14,500 each; clerk, $6,000; marshal, $4,500; reporter, $4,500.

UNITED STATES COURT OF CLAIMS. Instituted in 1855 for the purpose of determining claims against the United States. It consists of a chief justice and four associate judges. Salary of chief justice, $8,000; associate judges, $7,500.

UNITED STATES CIRCUIT COURT. The principal federal court below the Supreme Court, having a large original jurisdiction within a defined circuit, besides deciding appeals from district courts under its jurisdiction. The United States is divided judicially into nine circuits, as follows—First: Maine, Massachusetts, New Hampshire, Rhode Island, Porto Rico. Second: Connecticut, New York, Vermont. Third: Delaware, New Jersey, Pennsylvania. Fourth: Maryland, North Carolina, South Carolina, Virginia, West Virginia. Fifth: Alabama, Florida, Georgia, Louisiana, Texas, Canal Zone. Sixth: Kentucky, Michigan, Ohio, Tennessee. Seventh: Illinois, Indiana, Wisconsin. Eighth: Arkansas, Colorado, Oklahoma, Iowa, Kansas, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, South Dakota, Utah, Wyoming. Ninth: Alaska, Arizona, California, Idaho, Montana, Nevada, Oregon, Washington, Hawaii. Salaries, $8,500 each. The judges of each circuit and the justice of the Supreme Court for the circuit constitute a Court of Appeals.

UNITED STATES DISTRICT COURTS, the lowest courts of the federal judicial system, having jurisdiction chiefly in admiralty, bankruptcy, and criminal matters. Salaries of district judges, $7,500 each.

SOME FAMOUS INDIAN CHIEFS.

ATTUCKS, CRISPUS (*c.* 1720-1770). The first person killed in the Boston Massacre, which is considered the opening of the American Revolution. He was an Indian-negro half-blood, living at Framingham, Mass. Attucks was a sailor and is said to have been the leader of the crowd who fired upon the soldiers in front of the old State House. Massachusetts honored his memory by erecting a monument on Boston Common in 1888.

BLACK HAWK (1767-1838). Chief of the Sac Indians (1788-1838). Took part against the Americans in the War of 1812; made and broke treaties with the United States and precipitated the Black Hawk War (1831-1832); defeated by General Dodge near the Wisconsin River (July 21, 1832), and at Bad Axe River by General Atkinson (August 1-2, 1832); Black Hawk surrendered August 27.

BLUE JACKET. A famous Shawnee chief, who is known chiefly as leader of the Indian forces in the battle at Presque Isle, Ohio, with General Wayne, August 20, 1794. Blue Jacket was opposed to peace, but after Wayne defeated the Indians he signed the treaty of 1795 with the General at Greenville, Ohio, and also the treaty of Ft. Industry, Ohio, July 4, 1805.

BRANT, JOSEPH (THAYENDANEGEA) (about 1742-1807). A famous Mohawk chief, who served with the British during the War of Independence; fought at Cherry Valley, Minisink, and Oriskany. He was not at the Wyoming Massacre; visited England (1786). Fiske says, "He was perhaps the greatest Indian of whom we have any knowledge."

COLBERT, WILLIAM. Chickasaw chief, termed the warrior of his nation. Aided the Americans in the Revolution, leading the Chickasaw allies against the hostile tribes. Served nine months in the regular infantry during the war of 1812, and then led his warriors against the hostile Creeks.

CORNPLANTER (1732-1836). Chief of the Seneca Indians, a half-breed, the son of John O'Bail, or O'Beal, a trader. Became unpopular because of taking part in the treaties of Ft. Stanwix, 1784, and Ft. Harmon, 1789, by which large grants of land were made to the United States, and by signing the treaties of September 15, 1797, and July 30, 1802. In 1790, he, with Halftown, laid before Gen. Washington at Philadelphia the grievances of his people. Six hundred and forty acres of land within Pennsylvania were granted to him by that state March 16, 1796, "for his many valuable services to the whites." In 1866 a monument to his memory was erected on his reservation by the state of Pennsylvania.

CRAZY HORSE (-1877). A great chief of the Oglala Sioux. Leader with Sitting Bull in Custer's massacre. Later surrendered to General Miles. Being suspected of stirring up another war was arrested in 1877, but escaped from the guard and was shot.

GERONIMO (*c.* 1834-1909). A medicine man and prophet of the Chiricahua Apaches. Native name Goyathlay. On account of depredations committed against frontiersmen the government decided to remove the tribe from their reservation in San Carlos, Arizona. Geronimo fled to Mexico with others, returned and was arrested. In 1882 hostile movements were made against the inhabitants of New Mexico and Arizona, and General Crook had orders to capture the chief and his band. An agreement was made and surrender agreed upon in March, 1886, but Geronimo and his followers fled across to Mexico. General Miles, who was in command, pursued, and the following August they were captured. Three hundred and forty, comprising the entire band with leaders, were sent to Florida as prisoners of war, later to Alabama and finally to Ft. Sill, Oklahoma.

HOLLOW-HORN BEAR (1850-1913). Brulé Sioux chief. Attacked United States troops in Wyoming and Montana in 1868, and the next year took part in a raid on laborers on the Union Pacific Railroad. Later he became captain of police at Rosebud Agency, South Dakota, and five years afterwards was appointed second lieutenant under Agent Spencer, but ill health compelled him to resign. As an orator of great ability, he was chosen by the Sioux to be their speaker in 1889, when General Crook was sent to Rosebud to make an agreement with the Indians there. Took part in the inaugurations of Presidents Roosevelt and Wilson.

JOSEPH (-1904). A great general of the Nez Percés, and their leader in the hostilities of 1877. Joseph and his band did not recognize the treaty of 1863, whereby their ancient home in northeast Oregon was given to the whites, and continued to live there, collisions between Indians and whites steadily increasing. A peaceful settlement by the removal of the Indians to Lapwai reservation in Idaho was nearly effected when outrageous acts of the whites brought on war. The whites lost heavily in several engagements, after which extraordinary generalship was exhibited by Joseph in a retreat of over 1,000 miles, "worthy to be remembered with that of Xenophon's ten thousand."

KEOKUK (*c.* 1780-1848). A Sac leader and diplomat of great ability. Became chief councilor in the Sac assembly, enjoying great popularity among his people until the Black Hawk War, during which he remained so passive that he lost influence both socially and politically. At this time the political union of the Sacs and the Foxes was broken, largely as a result of intrigues by Keokuk, and he, with a band of unpatriotic Sacs obtained protection from the Foxes under their chief Padweshik. In the negotiations following the Black Hawk War, Keokuk aided the government so cleverly that he was made chief of the Sacs, his appointment being received by Sacs and Foxes with ridicule and contempt. In 1845 he removed to Kansas, where his death occurred. His remains were removed to Keokuk, Iowa, in 1883. There they were reinterred in the city park, and the citizens of the town erected a monument over his grave. In the capitol at Washington stands a bronze bust of Keokuk.

LONE WOLF (-1879). Kiowa chief. In 1867 signed the treaty of Medicine Lodge, Kansas, whereby his people first agreed to be placed on a reservation; in 1872 leader of a delegation to Washington. His son was killed by the Texans in 1873, which enraged Lone Wolf, and in the outbreak of 1874 he became the leader of the hostile part of his tribe; surrendered in 1875 and was kept three years at Ft. Marion, Florida.

MASSASOIT (1580-1661), Sachem of the Wampanoags; visited Plymouth (1621), and concluded with Governor Carver a treaty of friendship, which was faithfully adhered to for 54 years, the first diplomatic act recorded in the history of New England.

OSCEO'LA (1804?-1838). Famous Seminole chief; he grew up among the Seminoles and when the whites pushed southward opposed them. In 1835 Osceola's wife, being the daughter of a fugitive slave woman, was claimed by her mother's former owner. Infuriated at this, Osceola resolved vengeance on the whites, and began the Second Seminole War; taken prisoner (1837) and held in captivity at Ft. Moultrie till his death.

PHILIP or METACOMET (? -1676). Famous Indian chief; son of Massasoit; sachem of the Wampanoags; at first firm friend of white settlers, but, realizing that settlement of the country by them meant the destruction of his own people, began what is known as "King Philip's War" in 1774; 13 towns destroyed, 600 inhabitants killed. The Indians were defeated and King Philip was killed at Mount Hope.

PONTIAC (*c.* 1720-1769). A famous Ottawa chief; leader of confederated tribes against the English (1763-1765) though professing loyalty to English king; by concerted action, all but four of the fourteen English posts were captured; peace being declared between England and France, Pontiac also made a treaty; murdered by an Illinois Indian.

RED JACKET (1751-1830). Seneca Indian chief. During the Revolution he fought for the English; helped the United States against Tecumseh (1810). Probably the most eloquent of the Indian race.

SITTING BULL (1837-1890). Famous Sioux chief. Slaughtered whites. On his refusal to settle down on a reservation General Sheridan with his troops in 1876 opened a campaign against him. General Custer carried on Sheridan's work and at Little Big Horn in June of 1876 there was a slaughter of the troops by the Indians. The chief escaped to Canada but returned in 1881 with a general pardon from General Miles. In 1888, by the advice of Sitting Bull, the Sioux refused to sell their lands. In 1890 he was the leader of the impending uprising among the Indians during the "Messiah" affair. He was killed in North Dakota in 1890 while an attempt was being made to save him from arrest.

TECUMSEH (1775-1813). Celebrated chief of the Shawnee Indians; in the battle of Tippecanoe (1811) his followers were defeated by Harrison. The importance of his aid to the British in the war of 1812 cannot be overestimated.

UNCAS (-about 1683). A famous sachem of the Mohegan Indians of Connecticut. As a Pequot chief he revolted (1635) and with a number of Indians formed the Mohegans. He fought against the Indians and with the English in the Pequot War (1637) and was given a grant of the Pequot lands. He defeated the Narragansett chief, Miantonomoh, in 1643 and later caused his death.

THE BRITISH EMPIRE.

The United Kingdom.—In England the term "Constitution" has not quite the same meaning as in the United States. In this country it denotes a written instrument, which constitutes the supreme law of the land. In England, the Constitution implies the whole political organism, with its laws, usages, and unwritten traditions. A republican constitution is "framed" artificially by a convention; the English Constitution is the natural growth of generations, and is broad-based on the principles of personal liberty and equality. Being for the most part unwritten, its growth and adaptability are unimpeded; and it has developed steadily and securely along the lines of progress, keeping pace with the march of civilization. This flexibility, far from endangering the stability of the government, is the mainstay of its strength, due largely to the conservatism of the English mind. The Constitution forms a part of the English Common Law; yet, unlike the United States, there is no positive law for the establishment of the national representation. The Cabinet, though the actual organ of executive government, is a body unknown to the law, and has never been recognized by any statutes, any rule of Common Law, or any resolution of either House of Parliament. In form, the government is a constitutional or limited monarchy: but in reality, it is a government by the people, a true democracy ruled by a king.

The supreme political authority in the United Kingdom is vested in the Sovereign and Parliament. There is a maxim that "the King can do no wrong"; which means that as every official act is necessarily done in accordance with the law, and as no unlawful act can be recognized as an act of the Crown, whatever the King does officially is done lawfully. "*Nihil enim aliud potest rex nisi id solum quod de jure potest.*" The Legislative is vested in Parliament, but the latter possesses no independent authority, being merely the council of the Crown. Its functions are deliberative, and the control which it exercises over every department of the Executive is indirect. Every act of state remains the act of the King, who by his powers of prorogation and dissolution has the means of checking rash or unwise legislation. In practice the executive authority rests with the Cabinet—a committee of ministers nominated by the Crown on the recommendation of the Prime Minister, but whose power depends upon the possession of a majority in the Commons. The Cabinet thus provides an additional check in the modern system of Parliamentary Government. The ministers are the natural leaders of both Houses. The chief of the Cabinet and the ministry is the Prime Minister or Premier, who exercises important functions and is the chief adviser of the Crown. He is personally appointed by the Sovereign, and is the medium between the Cabinet and the Crown. His resignation or death dissolves the Cabinet. His colleagues are of his own selection, though subject to Royal approval. In the same manner, he fills vacancies in the ranks of deans, bishops, and archbishops, and on his recommendation titles and honors are conferred. "Nowhere in the wide world," says Gladstone, "does so great a substance cast so small a shadow; nowhere is there a man who has so much power, with so little to show for it in the way of formal title or prerogative." Like the Cabinet, the Premier is unknown to the Common Law. His office has no legal existence, but his actual official position is usually that of First Lord of the Treasury. The Premier is the leader of the particular House of which he is a member. The following offices invariably entitle the holder to Cabinet rank: First Lord of the Treasury, Lord Chancellor, Lord President of the Council, the Secretaries of State for the Home Department, Foreign Affairs, the Colonies, for War, and for India, Chancellor of the Exchequer, and First Lord of the Admiralty. The offices which may or may not carry with them a seat in the Cabinet include those of Lord Privy Seal, Chancellor of the Duchy of Lancaster, Postmaster General, First Commissioner of Works, President of the Board of Trade, President of the Board of Agriculture, President of the Local Government Board, Lord Lieutenant of Ireland, Lord Chancellor of Ireland, Chief Secretary for Ireland, Secretary for Scotland. Members of the Cabinet are necessarily Privy Councilors, and their deliberations are confidential. It is the duty of ministers to prepare for Parliament all business connected with the administration, to furnish a suggested budget for the current year, to advise specific improvements in the laws, and to criticise measures brought forward by non-official members. The ministerial control is, however, merely persuasive and advisory, and does not in any way interfere with any member's freedom of action. Every member of Parliament has the right to bring forward whatever proposal he thinks fit, without asking leave of the Crown or of any committee. There are no references to Standing Committees as in the Congress of the United States. A ministry remains in power so long as it holds the confidence of the Commons. It usually resigns when it is defeated upon some question of supreme importance. In such a case the Premier either resigns, or asks leave to appeal to the country, and in the latter course being determined upon a general election ensues.

The Three Estates.—Parliament consists of the Sovereign and the Three Estates of the Realm, viz., the Lords Spiritual, the Lords Temporal, and the Commons; the Lords Spiritual and Temporal together forming the House of Lords. Parliament, unless dissolved by the Crown, exists for seven years. It is one of the curiosities of Parliament that the French language is still used in proclaiming the Royal assent to any bill. When a public measure is approved, the Clerk of the Parliaments (the chief officer of the House of Peers) says, "*Le roy* (or, *la reyne*) *le veult.*" In the case of a private bill he says, "*Soit fait comme il est desire.*" Should the bill pertain to subsidies, the formula is, "*Le roy* (or, *la reyne*) *remercie ses bons sujets, accepte leur benevolence, et ainsi le veult.*" In case of the Crown giving a refusal, the official then says, "*Le roy* (or, *la reyne*) *s'avisera.*" This power of rejection was last exercised in 1707 by Queen Anne.

The House of Lords is composed of (1) Spiritual Peers (2 archbishops and 24 bishops); (2) Temporal Peers by hereditary right, or by creation; (3) representative peers of Scotland

and Ireland; (4) Lords of Appeal (of whom there may not be more than four). By the Act of Union between England and Scotland, the Scottish peers send 16 representatives to the Lords, who sit till Parliament is dissolved. The Irish peers elect 28 representatives for life. The number of Peers on the "Roll" in 1911 was 632. The House of Lords has both legislative and judicial authority, and is the highest appellate court of the realm. The Lord High Chancellor is by prescription Speaker of the House of Lords, and is the chief legal adviser of the Crown. The office may not be held by a Roman Catholic.

The House of Commons is composed of representatives from county, borough, and university constituencies in the United Kingdom. The word "commons" meant originally all those who enjoyed common rights, and were subject to common duties. The House of Commons thus means the House, not of the common people, but of the communities. Any male of full age, with certain exceptions, may be elected to the House of Commons. The following are disqualified: English and Scotch peers (though Irish peers, with the exception of the 28 representatives in the House of Lords, may be elected for any constituency in Great Britain); all English, Scotch, and Irish judges, clergymen of the established church of either England or Scotland; Roman Catholic priests; unnaturalized aliens; government contractors; imbeciles; persons convicted of certain offenses; sheriffs and returning officers. No property qualification is needed. Each member receives £400 a year, unless receiving salary for some other office. By the law of 1918 all the former complicated qualifications for voting were swept away and three simple ones substituted: six months residence; or the occupation of business premises; or the holding of a University degree. If a man is engaged in business in one constituency and has his residence in another he may vote in both constituencies; or if he is a graduate of an accredited University he may vote for the University representative. Plural votes are limited to two. In the case of women the voting age was fixed at 30. Seats were also redistributed by this act, making the representative districts more nearly equal in population, except in Ireland which was left with its over-representation in the Commons. The Act of 1918 enfranchised over 8,000,000 voters, 6,000,000 being women. Unnaturalized aliens, and men who, within twelve months, have received parochial assistance other than medical relief, are disqualified. Elections for members of Parliament are by secret ballot. At the general election in 1924 the Conservatives won a sweeping victory over their Labor and Liberal opponents, and Stanley Baldwin became Prime Minister. This was a blow to the Laborites, who had been steadily gaining, but its effect on the historic Liberal party was worse, for it was almost wiped out. The business of the Commons is conducted in public, on the principle that what directly concerns all should be heard by all. A striking feature of the procedure is the power vested in the Speaker, who ranks as first Commoner, and is responsible for order in the House. The Speaker takes no part in debate, and never votes unless it is necessary to give a casting vote. The House of Commons holds the exclusive and historic right to initiate all Money Bills. No member of the Commons can resign his seat, but by accepting the stewardship of the "Chiltern Hundreds" this can be effected. Under a statute of Anne any member of the House of Commons who accepts a remunerative office thereby forfeits his seat. This Act is now skillfully applied to meet the convenience of unwilling members. As soon as the vacancy is produced, the "stewardship" is immediately resigned that it may be at the disposal of any other member.

The bicameral system, and the *Lex et Consuetudo Parliamenti*—the code of rules governing parliamentary procedure—are peculiar to the Anglo-Saxon race, and have been copied by the legislatures of many other countries. The merit of the bicameral system lies in the mutual restraint exercised by the two Houses, as well as in the fact that this dual divison of power is an essential guarantee for freedom.

Dominions Beyond the Seas.—The outlying dominions of Great Britain consists of her Colonies, Dependencies, and Protectorates (a complete list of which will be found elsewhere). The colonies fall naturally into three divisions:—

(1) *Crown Colonies*, ruled by the Imperial Government; e. g., Hongkong.
(2) *Respresentative Governments*, in which the legislature is partly elective and partly controlled by the Governor; e. g., Jamaica.
(3) *Responsible Governments*, possessing a separate Constitution; e. g., Canada and Australia.

Throughout the British colonial dependencies the power of the Crown is exercised by the Secretary of State for the Colonies, who submits the names of Governors for the Royal approval, and who deals with all enactments of colonial legislatures. The Colonial Office confines its direct executive authority to Crown Colonies and Protectorates; and in regard to the self-governing colonies is the channel through which pass all communications dealing with Imperial matters. The colonies possessing responsible governments are represented in London by High Commissioners or Agents General; and the Crown Colonies by Crown Agents, who act as their commercial and financial agents.

I. Crown Colonies.—Taking Hongkong as an illustration of a Crown Colony, it is administered by a Governor, with Executive and Legislative councils. The Executive Council consists of the Colonial Secretary, the Attorney General, the general officer commanding the troops, the Treasurer, the principal civil medical officer, the Director of Public Works, and two unofficial members. The Legislative Council is composed of seven official and six unofficial members, four of whom are nominated by the Governor, one by the justices of the peace, and one by the Chamber of Commerce.

II. Representative Governments.—As a type of a partially autonomous colony we may instance Jamaica, where the Crown merely reserves the right of veto on the local legislation,

and appoints the chief public officials. A representative council was established in Jamaica as early as 1661 (six years after the taking of the island); but this was abolished in 1866, and in 1884 a partially elective assembly was instituted. The government now consists of a Governor, a Legislative Assembly of 29 members (5 official, 10 appointed by the Crown, and 14 elected), and a consultative Privy Council. In the case of elected members the term of service is limited to five years. All financial measures must be sanctioned by the Governor before they are submitted to the consideration of the Legislature. Boards are elected in each of the 15 parishes for the administration of local affairs.

III. Responsible Governments.—The Common Law is an Englishman's birthright, and the principles by which he is governed are the same throughout the British dominions. These principles, however, necessarily differ in their local application. Just as every town in the United Kingdom makes its own by-laws, though conforming to the general law of the realm, so by an extension of this idea does each colony determine its own laws for its own internal needs, whilst in other respects maintaining its allegiance to the home government. Colonists are thus subject to two kinds of law; one Imperial and personal, the other local and territorial. The British constitution is the parent of all the colonial governments, and as these young institutions grow to manhood the inherited features become more pronounced. Each colony has its Governor, who takes the place of the King. In the Dominion of Canada and the Commonwealth of Australia (the two examples of responsible government which we are giving), the local representative of the Imperial Government is called the Governor General. His position is a dual one. First, he must safeguard Imperial interests; and, second, he must discharge his duties as a local constitutional ruler—as agent of the Crown in the domestic government of the colony. (1) He is a constituent part of the Legislature, and at his discretion gives his assent or veto to any bill which has passed both Houses. In practice, however, the Governor General does not veto a bill, but reserves any to which he deems it unwise or improper to assent. His consent may be overridden by the home government, Canadian bills within two years, and Australian within one. In both colonies no vote, resolution, or bill appropriating public moneys may be passed unless first recommended by him. The reason is that the Executive, being responsible for the finances of the colony, must have the chief voice in the national expenditure. (2) The Governor General is head of the Executive, and as such the majority of his functions are exercised. In both capacities he acts mostly on the advice of ministers; in Canada he has the King's Privy Council, in Australia the Executive Council. He nominates the members of these councils, but in doing so observes the principles of responsible government, and selects them from the dominant party in the Lower House. In domestic administration, he invariably acts on the advice of the council. His chief power lies in summoning, proroguing, and dissolving Parliament. This constitutes a real check and balance, and the knowledge that the Executive has this power effectually chastens the caprice to which all assemblies are prone. In military and naval affairs the Governor General has extensive powers; whilst in connection with the judicial system he exercises important functions. In Canada he has control over provincial legislation and administration, and the appointment and dismissal of the Lieutenant Governor is in his hands. The nomination of the chief permanent officials rests with the Governor General in Council, but in Canada that of the subordinate officers is regulated by a Civil Service Act, which restricts the powers of the political head. Australia, too, has its Civil Service Act, which effectually prevents all jobbery and "graft." This act provides for a non-political method of appointment by a body of Commissioners, who are permanent officers and free from party influence.

In both these great federations the Legislature is composed of the Crown, a Senate, and a Lower House, called in Canada the House of Commons, in Australia the House of Representatives. Of the two federations the Canadian is the more monarchical, the Australian the more democratic. The Canadian constitution is a gift of the home parliament. Authority is largely centralized, and the provinces have a restricted measure of legislative power. The senators, like English peers, are nominees of the Crown, *i. e.*, of the ministry of the day. They represent the provinces in unequal but prescribed proportions, and hold office for life. The Senate is thus only a revising and restraining body, though ostensibly a Council of Provinces; and it suffers from the inherent weakness of such a body, when it chances to clash with the Lower House, which is truly representative. The constitution of the Commonwealth is equally an Act of the Imperial Parliament, but was won only after years of debate and insistence. But the position of the Australian Senate in the body politic is totally different from that of the Canadian Upper House. It is essentially a Council of States, representing the states as states; and its members are directly elected by the people voting as distinct and separate elements. It is as democratic a body as is conceivable and its members are largely drawn from the laboring classes. In Australia, no member of either House is permitted to take, or agree to take, any fee for services rendered to the Commonwealth, or in the Parliament to any person or state. This clause virtually debars professional men such as barristers from entering Parliament, and results in the inordinate representation of labor. Members of both Houses in both Federations are paid; in Australia each member receiving £400 a year, and in Canada a sessional allowance of $2,500 and an additional grant for traveling expenses. The authority of the Federal Parliament is more restricted in Australia than in the Dominion; for the constituent states have each retained almost the same powers they had previous to the Federation. The Canadian provinces on the other hand relegated most of their legislative rights to the Federal Parliament. But whereas the Dominion stands solid as a nation, the Commonwealth is still but a coterie of states torn by inter-provincial jealousy and suspicion.

PARLIAMENTARY LAW.

Definition.—*Parliamentary Law* is the term used to denote that body of rules and usages which govern the conduct of legislative or deliberative assemblies. First developed in England its spread has coincided with the growth of popular government and each year witnesses an increase in the number of such rules.

Obtaining the Floor.—To obtain the floor one must rise and address the presiding officer by his official title, as, "*Mr. President*," or "*Madam President*," etc. If recognized the chairman will call the member by name, which is equivalent to permission being given to speak. If one rises while another member is speaking he is out of order and can not claim the floor when the member has finished. If several members rise at the same time the chairman should recognize the one whose business requires prior consideration, or the question may be left to the vote of the assembly. The member who has the floor can only be interrupted by (1) *a motion to reconsider*, (2) *a point of order*, (3) *an objection to the consideration of the question*, (4) *a call for the orders of the day*, (5) *a question of privilege*, (6) *a demand that the question be divided*, (7) *a request for information that requires immediate answer.*

Motions and Resolutions.—A motion is a proposal that the assembly take certain action or indorse certain views. A lengthy motion is usually put in the form of a written resolution, which begins with the words, *Resolved, That—.*" If the introducer wishes to give the reason for his motion the preamble should begin, "*Whereas* ——". The preamble is amended last.

Seconding Motions.—With certain exceptions all motions require a second. In small assemblies it is not necessary for the seconder to rise or be recognized. Nominations, inquiries, motions to reconsider, questions of order, and call for division, do not require a second.

Debate.—A member may not speak twice on the same question so long as there are persons who have not had the floor and who desire to speak. Members must confine their remarks to the immediate question under consideration.

Putting the Question.—When the discussion appears to be over the chairman asks "*Are you ready for the question?*," and if no one speaks he puts the question, first calling for the affirmative and then the negative. The usual form of putting the question is as follows: "*The question is on the adoption of the resolution (reading it). Those in favor of the resolution say aye; those opposed say no. The ayes have it and the resolution is adopted.*" Or the chairman may request a show of hands and announce the result after counting them.

Common Motions and Their Objects.—(1) *To modify or amend.* If a re-wording is necessary it is well to submit it to a committee. (2) *To defer action.* This motion should fix the time at which the motion will be considered, and requires only a majority vote. By a two-thirds vote it may be made the order of the day for a fixed hour or day and take precedence over all other business. A motion to lay on the table postpones action indefinitely. (3) *To suppress debate.* This may be done by calling for the previous question, and requires a two-thirds vote. (4) *To suppress the question.* This may be done by objecting to its consideration, moving to postpone indefinitely, moving the previous question, or moving to lay on the table. All require a two-thirds vote.

Privileged Motions.—(1) *Fix time of adjournment.* This motion should state the exact time for the meeting of the assembly. (2) *To adjourn.* This is usually a privileged motion and not debatable. (3) *Take a recess.* Upon re-assembling business is continued where it left off. (4) *Questions of privilege.* These usually relate to personal matters such as defamation of character, etc. (5) *Orders of the day.* This is a motion that the regular order of business for the day be taken up. It can not be debated or amended and requires a two-thirds vote to defeat it. *A General Order* is made by postponing a question to a certain day or hour. It does not suspend any rule and does not interrupt business. To make a *Special Rule* requires a two-thirds vote because it suspends all rules that interfere with its consideration except those relating to motions for adjournment or recess, or to questions of privilege, or to special orders made previously.

Incidental Motions.—*Questions of order and appeal.* Such questions take priority over all but privileged motions; are decided by the presiding officer without debate unless he appeals to the assembly or two members appeal from the decision.

Suspension of the Rules.—This is done by a two-thirds vote and only when there is no question before the assembly. It can not be debated or amended. A more common practice is for a member to ask unanimous consent to bring up the business out of its order. If the chairman announces that he hears no objections the member proceeds.

Division of a Question.—Only principal motions and amendments are subject to division. The question to divide is not debatable. The chairman usually divides a question by paragraphs when several subjects are involved, but if he does not a member may take a motion to divide.

Motions Relating to Voting.—After the question has been put a division may be called for if a vote has already been taken viva voce or by show of hands. This is done by rising or by calling the roll.

Requests.—*Parliamentary Inquiry.* A member may at any time address a parliamentary question to the chairman who will answer it if the question is pertinent. *Request for information.* This may be addressed either to the chairman or the person who is speaking. If to the latter the chairman asks the speaker if he will yield to a question, and if he consents directs the questioner to put his question. *Leave to withdraw.* The introducer of a motion may request the privilege of withdrawing it, and, without objection, it will be granted. After the question has been stated he can not withdraw without the consent of the assembly. *Reading papers.* This may only be done with the consent of the assembly. *To be excused from duty.* A member does not have to accept an appointment, but

once having accepted he must get the permission of the chairman to resign it.

Subsidiary Motions.—*To lay on the table.* This motion only yields to privileged motions and is not debatable. It may be applied to any main motion, or to any question of privilege or order of the day. When a motion is taken from the table it must be unchanged in form. If a motion to lay on the table has been lost a similar motion can not be made until the question has been debated. A vote to lay on the table can not be reconsidered. *The previous question.* This motion takes precedence over all subsidiary motions except to lay on the table. It can not be debated or amended and requires a two-thirds vote. Its object is to bring about an immediate vote on the pending question, and its effect is to terminate debate. *Fixing the time limit of debate.* This is not a debatable question. If passed the order applies to all incidental and subsidiary motions and the motion to reconsider. An order to extend debate applies only to the pending question and such others as are specifically mentioned. When the assembly has voted to close debate or limit it any motion to postpone or to commit can not be moved until the vote adopting the order has been reconsidered; but the pending question may be laid on the table, and if it is not taken from the table until the hour appointed for closing the debate and taking the vote no debate or motion to amend is allowed, as the chair should immediately put the question. *To postpone to a certain time.* This may be debated, but the arguments must not be on the main question. This motion takes precedence over the motions to amend, to commit, and to postpone indefinitely. It must fix the time during the present session or the next one immediately following. The effect of postponing a question is to make it the order of the day for the time fixed for its consideration, and if it is not then disposed of it becomes unfinished business. To amend this motion requires a two-thirds vote.

Reference to Committee; Commit.—This motion takes precedence over motions to amend or to postpone indefinitely, but gives way to all other subsidiary and privileged motions. It may be debated as to the main question. The chairman usually refers the motion to the proper committee but he may refer the matter to the assembly to decide. If it goes to a special committee he may appoint the members of the committee or the assembly may elect them. Each member is limited to one nomination and the chairman usually chooses from the list nominated. The purpose of reference to committee is to have a thorough investigation made or to have the question put in better form. Unless a chairman of the committee is designated the member first selected becomes the chairman, and thus it is important to have the first-named member one who is competent to serve in that capacity.

Discharging a Committee.—After a special committee has submitted its final report it is discharged without motion. During the consideration by the committee the assembly can not discuss the question referred to the committee, although it may "*discharge the committee from further consideration*" of the business.

Amending.—The motion to amend takes precedence over the motion to postpone indefinitely but yields to all other motions. It can be amended and debated. Amendments require only a majority vote even though the main question requires a two-thirds vote, the only exception being amendments to constitutions, by-laws, or rules of order all of which require a two-thirds vote. *Form of amendments:* (1) *To insert or add;* (2) *to strike out;* (3) *to strike out and insert, or to substitute,* as when a paragraph is struck out and a new one offered. The motion to insert should always specify the word before or after which the insertion is to be made. The motion to strike out should locate the word or words wherever they occur. It is the duty of the chairman to state accurately the new form of the motion or question even showing what effect the revision will have upon the original motion. Amendments are voted on first, and after they have all been disposed of the chairman will call for a vote on the original resolution. After words have been added or inserted they can not be struck out except by striking out the entire paragraph or by a reconsideration. Only consecutive words may be struck out. If it is desired to strike out separated words a motion must be made for each one or group. The motion to strike out and insert is a combination, and in considering it the words to be struck out are first taken up and then the new words are debated. While an amendment is being considered it is not in order to make a motion to insert or strike out a paragraph. A motion to substitute one paragraph for another is considered by taking up first the amendments to the paragraph to be omitted, and then the amendments to the new paragraph. *Improper amendments:* Amendments must be germane to the question to be amended; they must not have the effect of nullifying the meaning of the original question; they must not change one form of amendment to another form; they must have a serious meaning, and they must not be identical with another question previously decided upon. *The following motions can not be amended:* To adjourn; call for the orders of the day; question of order, and appeal; objection to consideration of a question; call for a division; leave to withdraw a motion; a request of any kind; lay on the table; take from the table; reconsider; the previous question; postpone indefinitely; amend an amendment; nomination.

To Take from the Table.—This motion can not be made while a question is under consideration, and gives way to privileged and incidental motions. It is not debatable nor can it be made until some business has been taken up since the question was laid on the table. A member who rises to make a motion to take from the table takes the floor over a member who rises to make a main motion. The question taken from the table must be the same one that was laid on the table.

Reconsider.—*The motion to reconsider can only be made on the day the vote was taken or the day immediately following. This motion must be made by one who voted for the question,* but any member may second it. It can be made even when another member has the floor, or when another question is pending, or after the motion to adjourn has been carried provided the chairman has not declared the assembly adjourned.

The motion to reconsider can not be amended, postponed indefinitely, or referred to a committee. If the reconsideration is laid on the table or postponed definitely the question to be reconsidered and all adhering questions go with it. The previous question and the motions limiting or extending the limits of debate may be applied to it when it is debatable. It is undebatable only when the motion to be reconsidered is undebatable. When the motion to reconsider is lost it can not be made again except by general consent. *The following motions, after being voted on, can not be reconsidered:* Adjourn; take a recess; lay on the table; take from the table; suspend the rules or order of business; reconsider. *Affirmative votes on the following can not be reconsidered.* Proceed to the orders of the day; adopt or amend; repeal or rescind the constitution, by-laws, or rules of order. *A negative vote on the motion to postpone indefinitely can not be reconsidered.* After a committee has taken up the question referred to it a motion to reconsider is not in order. After the motion to reconsider is passed the business is taken up in the same form as it was before the motion to pass it was carried, and may be debated or amended. Rules limiting debate, etc., apply just as though the question had not been voted on. A vote can not be reconsidered in the committee of the whole.

Rescind, Repeal, or Annul.—A vote may be rescinded by a two-thirds vote, or by a majority vote, provided notice of the motion has been given at the previous meeting. This motion is the same in effect as the one to strike out the entire resolution, paragraph, rule, section, etc. It can only be introduced when nothing is before the assembly. It can not be made if the question can be reached by calling up the motion to reconsider which has previously been made. It is debatable and yields to all privileged and incidental motions. The motion to reconsider is not in order after something has been done as a result of the vote, or where a contract is involved, or where a resignation has been acted upon, or an election or expulsion has been voted.

Renewal of a Motion.—*The following motions can not be renewed at the same session:* To adopt or postpone a main motion indefinitely; to amend; to reconsider, unless the question has been altered materially; to object to the consideration of a question; to fix the time of adjournment; to suspend the rules for the same purpose at the same meeting. The chairman must use firmness in preventing motions for renewal being made for the purpose of delay.

Ratify.—This motion is made for the purpose of confirming some action which needs the consent of the assembly to make it valid, but the motion to confirm is not in order when it applies to something which could not be regularly done under the constitution or by-laws.

Dilatory, Absurd, or Frivolous Motions.—The chairman is the judge of such motions, but an appeal may be taken to the assembly. Where the purpose of the motion is clearly to delay or make ridiculous it is the duty of the chairman to protect the assembly.

Debate.—The length of time allowed for debate is a subject that should be covered by local rules, ten minutes being the usual time allowed. *No member should be permitted to speak more than twice on the same subject without leave being given, the two-thirds rule applying.* Every member should be permitted to speak once, if he desires, before any one has spoken twice. These rules do not apply to the committee of the whole. The member who sponsors the business before the assembly is allowed to close the debate after all others have finished. Amendments are treated as new questions to be governed by the rules governing debates in general. A member is not allowed to speak against his own motion, though he may vote against it. The chairman can not arbitrarily shut off debate by putting the question before the assembly is ready for it.

Conduct of Debate.—Members must confine their remarks to the question under consideration. It is customary to avoid the use of names in referring to members, rather speaking of them in such manner as "*the gentleman who preceded me,*" etc. Officers should be spoken of and addressed by their official titles, as "*Mr. Secretary.*" If it is desired to ask a question of one who is speaking the person desiring information rises and says, "*Mr. Chairman, I should like to ask the gentleman a question.*" The chairman then asks the speaker if he is ready to yield to a question. If he yields the time comes out of the time alloted to him. The two members do not address each other directly, but use the chairman as the intermediary. The chairman may interrupt the speaker at any time to state a point of order or to give information. While the chairman is speaking the one who has the floor takes his seat.

Closing Debate and Preventing Debate.—When the discussion appears to be ended the chairman asks, "*Are you ready for the question?*" If no one rises to speak the question is put. Debate is not formally closed until both the affirmative and negative are put. Debate may be closed at any time by a two-thirds vote under the rules governing the previous question; or the length of time to be allowed for debate may be fixed in advance by the assembly. *While it requires a mere majority vote to lay on the table the same vote may take from the table.* Discussion may be prevented altogether by a two-thirds vote.

Principles of Debate and Undebatable Motions.—Motions to suppress, extend the limits of, or to limit debate are undebatable. A subsidiary motion is debatable if its effect is to interfere with the right of the assembly to take up the original question at some future time. By "undebatable" is not meant that the motion may not be explained or questions asked and answered concerning it. *The following motions open the main question to debate:* Postpone indefinitely; reconsider a debatable question; rescind; ratify. *The following are the undebatable motions:* Fix the time of re-assembling; adjourn; take a recess; call for the orders of the day; suspension of the rules; objection to the consideration of the question; incidental motions; lay on the table; previous questions, and motions to close, limit, or extend the limits of debate; amend an undebatable motion; reconsider an undebatable motion.

Voting.—The usual method of voting is *viva voce* (by the voice). Another way is by "*show of hands.*" Other methods are by *rising*, by *ballot*, by *roll call*("*yeas and nays*"). Since the re-

sponsibility of announcing the decision rests upon the chairman he may require a second vote, a rising vote, or a show of hands. Any member may demand a rising vote (division), which will be granted if it has sufficient support, the number depending upon the local by-laws. Where the chairman is in doubt as to the result he says, *"the ayes seem to have it";* then, if no one objects, he says, *"the ayes have it."* In announcing the vote the chairman states first whether or not the motion is carried; second, what the effect of the vote may be; third, what business will next be taken up. *A plurality is not sufficient to carry a motion or to elect, a majority being necessary.* In case of a tie the motion is lost. The chairman, though a member of the assembly, can not vote to make it a tie, and then vote to break the tie. A member may change his vote up to the time the result is announced. Voting is not compulsory. Voting by ballot is not usual except in secret societies. When a record of the votes is desired the yeas and nays are ordered, and the secretary or clerk calls the roll, the members answering "yea" or "nay" as their names are called. Any one not desiring to vote answers "present." If it is desired to save time the chair can assume general consent to unimportant motions and dispense with motions, unless there are objections. Under general consent business can be transacted almost as though there were no rules of procedure. *The following motions require a two-thirds vote:* Change any part of the constitution, by-laws, or rules; amend or rescind a standing rule, a program or order of business, or a resolution previously adopted, without notice being given at a previous meeting; to take up a question out of its proper order; suspend the rules; make a special order; discharge an order of the day before it is pending; refuse to proceed to the orders of the day; sustain an objection to the consideration of a question; previous question; limit, or extend the limits of, debate; extend the time appointed for adjournment or for taking a recess; close nominations; expel from membership; discharge a committee when previous notice has not been given.

Committees (Special and Standing).—A special committee is appointed for the purpose of considering some special matter, and is discharged once it presents its report. A standing committee is one that remains through the entire session. The first member named becomes the chairman unless the rules provide for a different mode. Discussion is carried on in an informal manner, the chairman usually taking the leading part. The privilege of reconsidering a vote is freely granted. A quorum must be present to transact business, but a smaller number may meet for the purpose of discussion and investigation. The report of the committee is the majority report but is always referred to as the committee report, not the majority report. A minority report may be submitted, but if there is objection to receiving it a vote of the assembly must be taken, a majority being necessary to receive. If the committee appoints a sub-committee the latter makes its report directly to the committee. Committee reports are made at the time provided for them in the order of business, the chairman generally making the report. To call a committee report up out of its order requires a two-thirds vote. The acceptance of a report takes place when the report is read, without any formal motion. *A vote to accept the report adopts it.*

The Committee of the Whole.—This form of committee is usually resorted to when a large legislative or deliberative assembly wishes to discuss informally some matter that it does not want to refer to a special or standing committee. The presiding officer of the assembly appoints some one to act as chairman of the committee of the whole; rules of debate are less rigid; most voting is viva voce; and, when the motion that the committee rise is carried, the presiding officer resumes his place, and the chairman makes his report as from an ordinary committee.

Officers and their Duties.—*"Mr."* or *"Madam"* is always prefixed to the title of the presiding officer. He always refers to himself as *"the chair." His principal duties are as follows:* To call the meeting to order; announce the business to be taken up in proper order; recognize members who desire to speak; put votes and announce the result; preserve order and protect the assembly from time-wasting motions; decide questions of order (subject to appeal); sign all orders and resolutions which require his signature. *The secretary or clerk:* The secretary is the recording officer of the assembly and the keeper of all records not otherwise taken care of. *His duties are as follows:* To call the roll; notify officers and committees of their appointment; furnish information that he may have; keep the minutes; send out call for meetings. Sometimes these duties are divided betwen a Recording Secretary and a Corresponding Secretary. An important duty of the secretary is to furnish the presiding officer with an order of business for the day.

The Minutes.—The record of the business of an assembly is usually called the minutes. *The following are the essential features of the minutes:* The kind of meeting, regular, stated, etc.; name of the assembly; date and place of the last meeting; officers present; whether or not the minutes were approved; all the main motions and points of order and appeals, whether sustained or lost, and all other motions that were not lost or withdrawn; hour of adjournment.

Miscellaneous.—A session of an assembly is, in theory, a continuous meeting which is not terminated by a recess or temporary adjournment. Usually a meeting is closed by a simple motion to adjourn; the society meets again at the time provided for by the rules or by resolution. In case of the illness of the presiding officer the assembly can not elect a chairman pro tem to serve through the session unless notice of such election has been given in advance. A quorum is the number that must be present in order to transact business and is usually a majority, although where it is found difficult to get so large a number, getting a quorum is made easier. When some member calls attention to the fact that there is no quorum present business is suspended until a quorum is secured.

Order of Business.—Unless the rules provide for a different order the following may be used as a satisfactory order of business:

(1). Reading the minutes of the previous meeting.

(2). Reports of boards and standing committees.
(3). Reports of special committees.
(4). Special orders.
(5). Unfinished business and general orders.
(6). New business.

Nominations and Elections.—Nominations may be made on the floor of the assembly, or they may be referred to a nominating committee. When the committee makes its report other nominations may be made by members not on the committee. Nominations do not require a second. The usual method of election is by ballot, but where just enough candidates have been nominated to fill the offices a motion may be made that the secretary cast the ballot for the offices, naming each one separately.

Constitutions.—*A Constitution should contain only the following:* (1) Name and object of the society; (2) Qualification of members; (3) Officers and their election; (4) Meetings of the society (including only what is essential, leaving details to the by-laws); (5) Method of amending the constitution. These main articles are usually divided into sections. It is well not to load down the constitution with details. To amend the constitution it is necessary to give notice of the amendment, and to require a two-thirds or three-fourths vote.

By-Laws.—All the rules which are of such importance that they can not be changed without previous notice, except those included in the constitution or the rules of order, are included in the by-laws. It is customary for societies to adopt a few rules of order in their by-laws, and then adopt a standard work on parliamentary law as their authority.

Rules of Order.—These should contain only the rules that have to do with the transaction of business in an orderly fashion, and they are largely the same in all societies. *Every society should adopt a rule such as the following: "The rules contained in (a standard work on parliamentary law) shall govern the society in all cases to which they are applicable, and in which they are not inconsistent with the by-laws or the special rules of order of this society."*

The Organization of Mass Meetings, Conventions, and Permanent Societies.—*Mass meetings.* Those responsible for the meeting should meet in advance and decide where the meeting shall be held, who shall nominate the temporary and the permanent chairman, and, in general, make up in advance a business program for the meeting. The meeting is called to order by some one chosen by the committee or the persons responsible for the meeting, and he calls for nominations for the position of chairman. When the latter is elected he at once takes the chair and calls for the election of a secretary, who, when elected, takes his seat near the chairman. Then the chairman directs the secretary to read the call for the meeting and then calls on the person who seems to know most about it to make further explanations. Then a series of resolutions, prepared in advance, may be offered for consideration. If such resolutions are not prepared a committee on resolutions is appointed, to report as soon as possible. *Permanent societies.* All preliminary steps should be carefully taken before the first meeting is held, including the securing of copies of constitutions and by-laws which might serve as a model. The first meeting is conducted very much in the same manner as a mass meeting, described above, the usual topic of speech being the purposes of the proposed society. Then a vote is taken on the advisability of forming such an organization. If carried, a motion is made for the appointment or election of a committee to draft a constitution and by-laws. The meeting usually adjourns after such business is transacted, to meet at a stated time. At the second meeting the former officers serve until their successors are elected. The secretary reads the minutes, and they are approved. The report of committees is next taken up, the one on the constitution and by-laws coming first. The chairman of the committee reads the constitution and by-laws and moves their adoption. The chairman of the meeting directs them to be read paragraph by paragraph, when amendments may be made. After it has been adopted in this manner it is voted on as a whole. If carried, a recess is taken while the members come forward and sign the constitution. Upon re-assembling the secretary reads the list of the members of the society. Then the by-laws are taken up, the procedure being the same as that of the constitution. After the adoption of the by-laws the election of permanent officers takes place, the mode of nomination and election usually being prescribed in the by-laws. If nomination by committee has been agreed upon the meeting may take a recess until the committee is ready to report. Any member is entitled to make nominations after the committee has made its report. *Conventions.* As a general thing conventions maintain an organization which render the preliminary steps described above unnecessary. At the last meeting committees on credentials, registration, and program are provided for. The first business after the opening of the convention is the report of the committee on credentials, which includes merely a list of the accredited delegates and alternates. After this report has been approved the report of the program committee is heard, and, if adopted, becomes the order of business. The procedure from then on follows the usual order.

DEVELOPMENT OF LAW
INTERNATIONAL LAW
NATURALIZATION
CONSTITUTIONAL LAW
COMMERCIAL LAW
CONTRACTS
NEGOTIABLE INSTRUMENTS
CORPORATIONS
LANDLORD AND TENANT
EIGHT-HOUR LAWS
PROPERTY RIGHTS
DECISIONS OF UNITED STATES SUPREME COURT
DICTIONARY OF POLITICAL SCIENCE

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EMINENT AMERICAN JURISTS

John Marshall
William H. Taft, Chief Justice Supreme Court
Joseph McKenna, Supreme Court Justice
Joseph Choate
Edward D. White, Chief Justice
George W. Wickersham

BOOK XII.

LAW.

LAW.

From a Mosaic in the House Reading Room, Congressional Library, Washington.
By FREDERICK DIELMAN.

HISTORY OF THE DEVELOPMENT OF LAW. MOSAIC LAW. ORIENTAL LAW. CODES OF LYCURGUS, SOLON, DRACO, AND OTHER GREEKS. ROMAN LAW. JUSTINIAN PANDECTS AND INSTITUTES. TRIAL BY ORDEAL, TORTURE, COMBAT AND JURY. INTERNATIONAL LAW. CONSTITUTIONAL LAW. CRIMINAL LAW. COMMERCIAL LAW. EXEMPTION LAWS. PROPERTY RIGHTS OF MARRIED WOMEN. EPOCH MAKING DECISIONS OF SUPREME COURT. DICTIONARY OF POLITICAL SCIENCE TERMS.

THE DEVELOPMENT OF LAW.

Early Laws.—Early laws are the outgrowth of social customs or habits. It is very difficult to distinguish clearly between early religion, morals, and law. In the earliest times each man was a law unto himself, and he punished offenses against himself and righted his own wrongs according to his own strength. Vengeance is sanctioned by early laws, and redress and justice are left to a man or his kin. Not only Mosaic but early Anglo-Saxon codes are specific in stating exactly what degree of vengeance each offense deserves according to a list. This action cannot in any sense be regarded as legal; it is only moral. But it is the germ from which law as applying to right and justice was evolved. Just as soon as the community assumes the responsibility of righting the wrongs of others, then the punishment begins to take on a legal rather than a religious or moral aspect. Where the right to be enforced was clear, and where the violation of it was beyond doubt as to both the fact and the agent, early legal codes were ample and explicit. But there was no provision for settling controversies or disputes in the earliest times. The need of this, and the means of doing it, was the evolution or the institution of the court.

Mosaic Law.—This is at once the fullest and, presumably, the most familiar of the codes of ancient times. In the Book of Leviticus are two codes: the Law of Holiness and the Priestly Code. The Law of Holiness was compiled during the Exile and nearly conforms to the Priestly Code, which was presented to the Jewish community at Jerusalem through Ezra and Nehemiah and finally adopted as a binding law in 444 B. C. These codes are both religious and moral. The hygienic and sanitary obligations imposed upon the people have been shown to be of the very nature that the existing conditions most demanded, and are abundant proof of the wise administration by which they were issued.

Babylonian Law.—This great commercial nation developed highly complex laws. The code of Hammurabbi (2000 B. C.) contained 280 edicts. Forms of deeds, mortgages, leases, contracts of sale and partnership, together with records of loans and interest, have been preserved. The earliest known will is that of Sennacherib (700 B. C.).

Medes and Persians.—The codes of these early peoples have become proverbial for their severity and especially for their immutability. "The law of the Medes and Persians which changeth not" carries with it an idea of a law of

unusual severity and an impartial and certain dispensation of punishment. The people are known to have been cruel and merciless as is recorded in Isaiah xiii., and this spirit, most probably aggravated by their ambitious struggle against repression by the Assyrians, was manifested in their code of laws.

India.—The law of India, originally indistinguishable from religion, was derived primarily from the Vedas (*c.* 1000 B. C.), supplemented by the Dharmasmriti, or traditions in rhythmical form, including the Mahabharata (*c.* 100) and by innumerable commentaries or handbooks, the most noted being the Manava Dharmasastra, or laws of Manu (about 200), all of which were rules of life rather than authoritative codes.

Lycurgus.—Whether or not Lycurgus was legendary, it remains true that the laws of Sparta brought about her military supremacy. The law was practically military discipline. The child was inured to hardship, taught gymnastics and military drill. Specific punishment was laid down for each offense, and justice was administered impartially and inflexibly.

Draco.—In the seventh century B. C., Draco compiled a code of laws for the government of Athens. So severe were the penalties attaching to crime, that it was said that the code was written in blood.

Solon.—What Lycurgus did for Sparta, Solon effected for Athens. Archon in 594 B. C., he compiled a code of laws, based upon his Eastern experience, which, by their wise and just provisions, served as models for other nations.

Roman Law.—Romans defined three kinds of law: *jus civile*, the law which governed citizens; *jus gentium*, the law of nations; and *jus naturale*, the law of nature. The earliest versions of Roman civil law were essentially religious until 500 B. C. at least. It would seem that there were some laws in which the plebeians did not share. The laws were at first dispensed by patricians. The frequent complaints of injustice and partiality which the plebeians made, led (about 451 or 450 B. C.) to the formulation of the Twelve Tables. By them the law was the same for both classes except in the matter of marriage, which difference disappeared in 445 B. C. This Law of the Twelve Tables was to the Roman people a charter of liberties, and they were loath to change or amend its laws. The priests alone interpreted the law until 252 B. C., when the office of pontifex maximus was opened to a plebeian. Roman civil law was not applicable to allies or conquered peoples unless expressly provided by treaty. For them special laws grew up out of decrees by rulers and senate between 250 and 150 B. C.

Roman citizenship was gradually extended throughout all Italy until Caracalla in the third century made all free inhabitants of the empire Roman citizens. In this way Roman civil law became the law of the whole empire. Papinian, Paul, and Ulpian were prominent jurists during this period.

Among the many attempts at codification of Roman laws the most important are:—

1. *The Codex Gregorianus*, 295.
2. *The Codex Hermogenianus*, early in the fourth century.
3. *The Codex Theodosianus*, published under the direction of Emperor Theodosius II. of the Byzantine Empire, in 438.
4. *The Codex Justinianus*, by Emperor Justinian, consisting of:—
   (*a*) *The Institutes* (of November, 533), based on the Institutes of Gaius.
   (*b*) *The Digest* or *Pandects* (of December, 533), composed of excerpts from the law literature from 100 B. C. to 300.
   (*c*) *The Codex* (between April, 529, and December, 534).

These were written in Latin, to which some new (*novellae*) constitutions were added in Greek. These law books persisted until the tenth century, when they were condensed into a Greek code called the *Basilica*. This latter lasted until the capture of Constantinople by the Turks in 1453.

Roman Law with Teutonic Modifications.—In the Middle Ages those Teutonic governments erected upon the ruins of the western Roman Empire were governed by Roman law, of which several compilations were made. Among these were:—

1. *Lex Romana Visigothorum*, or the "Breviary of Alaric" (506), issued at Aire in Gascony by authority of Alaric II. This was the chief authority in western Europe until the eleventh century.
2. *The Leges Barbarorum*, a name given to compilations to govern other nations, including:—
   (*a*) *The Lex Antiqua of the Visigoths*, fifth century.
   (*b*) *The Lex Gundobada of the Burgundians*, fifth century.
   (*c*) *The Lex Salica of the Franks*, fifth century.
   (*d*) *The Law of the Riparian Franks*, sixth century.
   (*e*) *The Law of the Longobards*, seventh century.

Local laws gradually superseded these *leges barbarorum*. Special systems of law gradually grew out of the changes which occurred within the nations, especially from the development of municipalities. For a time the works of Justinian lost something of their eminence. Later, in the tenth and eleventh centuries, they were used in the colleges and universities, and were soon restored to the position of the leading authority on jurisprudence.

Trial by Ordeal.—As a religious ceremony, ordeal was a common means of proving the guilt or innocence of suspected persons from the most ancient times. Prior to the introduction of Christianity among the peoples of northern Europe, ordeal was practised among the Celts of Ireland, the Germans, and the Slavs. Trial in the ordinary sense was unknown among these peoples in the Middle Ages. The accused submitted to tests by boiling water, from which he took objects by plunging in his bare hand; by fire, into which he thrust his hand; by red-hot iron, either by carrying an iron rod from three to nine paces or walking upon red-hot plowshares, sometimes by walking blindfolded among 6, 9, or 12 of these; by cold water, in which the innocent sank and the guilty floated; by the cross, where both accused and accuser held uplifted hand before the cross, the decision

being given in favor of the one who endured the test for the longer time. Among the Anglo-Saxons the eating of a piece of bread or cheese by the accused was regarded as an infallible test of innocence. After religious exercises a piece of bread or cheese was given to him and if he was able to swallow it this power was regarded as a proof of his innocence. The ordeal of the bier required the suspected murderer to touch the body of the murdered person, and in cases of guilt it was expected that blood would flow from the wounds. Religious ceremonials were forbidden to be practised at trials by ordeal in 1215, and by the end of the thirteenth century its practice had nearly ceased.

Trial by Torture.—Apart from its use as a means of punishment or of revenge, torture, or the infliction of severe bodily pain, has had its uses in the past to extort confession or evidence. In the Middle Ages it was made use of in Europe as a means of securing evidence in cases of suspected heresy, and it was not until 1816 that its use was forbidden by Papal bull. The rack, scourge, fire, hooks, boots, pincers, and manacles are a few of the ingenious contrivances employed by different peoples and at different times in the administration of torture. As an instrument of torture the rack was introduced into England by the Duke of Exeter, and popularly known as "the Duke of Exeter's Daughter." When practised by the more enlightened nations, its use has been deplored as a necessary evil. At the same time, writers are found who have condemned its use not only on humanitarian grounds but by reason of its unreliability in discovering the truth, for very often innocent persons either from weakness or exhaustion pleaded guilty or accused others wrongfully to escape its pains. The last recorded use of torture in England was during the reign of Charles I. (1640). Its use was abolished by Prussia, Saxony, Austria, and Switzerland before 1750. Russia finally abolished it in 1801. It was practised in France as late as 1814 under the Bourbons; in Württemberg (1806), Bavaria (1807), Hanover (1822), and Baden (1831).

Trial by Combat.—This mode of determining the right or of proving innocence was much in vogue in feudal times. It flourished during the age of chivalry and was an essential feature of knighthood. The Norman kings firmly established the practice throughout England and gave it a regular place in the judicial procedure. A most elaborate code of regulations prescribed the details. In its earliest stages the appeal to this form of trial was permitted in a great variety of cases, but it was soon limited to the decision of cases of felony in criminal law and to disputes regarding the title to lands. In cases of women, infirm persons, or children, a champion might be chosen or any knight might offer his services to protest by single combat against the accusation. Victory was supposed to decide the question of innocence. The modern system of dueling was in many respects a survival of the trial by combat. Its decline was very largely due to the proved and acknowledged superiority of methods in the ordinary courts of law and it was gradually superseded by trial by jury. As an appeal in cases of felony, the last known case of trial by battle occurred in England as late as 1818 in the case of Ashford *v.* Thornton. The practice was forbidden in England by an act passed in 1819. This method of trial was never practised in the United States.

Trial by Jury.—A form of trial in which a body of laymen act as the judges of the truth of facts in dispute at a trial or an action at common law. Its origin is obscure, but it is known that it was customary in the reign of Henry II. (1154-1189). In these earlier times the jurymen were not only judges, but very often witnesses as well. The sheriff acting under a writ known as venire facias, summons citizens residing in the county to attend a term of court for the purpose of acting as jurors. The group of men so summoned are known as talesmen, and from them are chosen a sufficient number to compose a jury. In the process of choice both sides have the privilege of challenging the fitness of any of these to serve as jurymen, after examination into such fitness. The jury is then sworn and the trial begun. All evidence must be given in the hearing of the jurymen, after which the respective lawyers address the jury and sum up the evidence. The judge then makes a review of the case for the instruction and benefit of the jury, and this review is known as the charge. The jury then retires from the court room and is locked in a room until a verdict has been arrived at, or until there is sufficient reason to believe that a unanimous verdict cannot be reached. In the latter case a new trial may be had. It is necessary for all of the jurors to agree upon a verdict, and in a criminal trial this verdict is either guilty or not guilty, and in a civil action either for the plaintiff or for the defendant. The qualifications for jury service vary in the several jurisdictions, but, speaking generally, all persons between the ages of 21 and 60 are liable to be called upon unless they are exempted or disqualified by insanity, conviction of some crime, or by sex, for women are generally not eligible. After the jury is sworn, its members are then entitled to compensation for their services. A special, or struck, jury is selected with a special regard to the intelligence and education of its members to try difficult or complicated cases. In some courts, as in probate, surrogate, and in special cases of equity, questions of fact are decided by the judges and no jury is employed. Especially is this true when the questions involved are those of law and not of fact. In practice, the absence of a single juror suspends the trial until his return, and in cases of death or withdrawal of a single juror at any stage of the trial before a verdict is reached the trial is terminated immediately and proceedings must be begun anew and a new jury selected. The grand jury consists of not more than 23 nor fewer than 12 members, who are good and sufficient men chosen by order of the sheriff to attend court to consider the various indictments or bills which are laid before them, and it is their duty to inquire into each case to ascertain whether or not there is sufficient ground to require a trial. When they find sufficient evidence to warrant a trial they are said to return a true bill. They have the further power of making suggestions to the court for the application of any remedial action to any condition of affairs existing within the jurisdiction as may seem to them advisable.

INTERNATIONAL LAW.

Rights, Powers, and Obligations of States.—The essential rights of a state are (1) sovereignty, (2) independence, and (3) equality. These bear upon one another and are, perhaps, only different phases of sovereignty. (1) Sovereignty implies the exclusive, uncontrolled exercise of powers within the state, whether of making treaties with other states or of governing itself. It is the great essential of existence, for without it the community would not be a state. The sovereignty of the United States dated from July 4, 1776, and not from 1782, when the English treaty recognized its independence. (2) Independence denies the right of any other state to interfere with the sovereignty of a state. (3) Equality is the right of a state to have all of the rights which other states enjoy; and is in no way dependent upon relative size or power.

Where a state is made up of a number of united states the central government is responsible for the acts of the individual units, over whose acts it may not have any control.

No state can render assistance to the colonies or provinces in revolt against the parent state.

The rule of non-interference in the affairs of another state is to be observed except in unusual cases. The interference of the United States in Cuban affairs against Spain was based upon self-protection of commerce and individual rights and upon the laws of humanity. France interfered with affairs in Mexico in 1861 and 1863 ostensibly to protect the rights and property of French citizens in Mexico, but really to check the growth of the United States and to increase French prestige.

The balance of power is really the recognition by international law of the right of interference as a means of protection of contiguous nations, one against the encroachments of another.

The Monroe Doctrine promulgated by President Monroe in his message in 1823 was aimed at the absolutists of Spain, who wished to bring back the Latin countries of America into subjection to the mother country; and it opposed any foreign interference which meditated the changing of the constitution or altering the form of government of an American state and also any interference by force. Since that time many absurd constructions have been put upon the original views. It was quite in harmony with this doctrine for the United States, as soon as her hands were freed in the Civil War, to march her troops to the frontiers of Mexico and to cause the withdrawal of the French and the collapse of the government of Maximilian there in 1866. But it was absurd for Congress to attempt to invoke the principle against the French company which had secured the right or concession to dig the canal across the Isthmus of Panama. There is nothing intended in the principle which will cause the United States to police the continent of America or to become a party in the wars of any little Latin republic which may choose to solicit its aid.

Equality involves national etiquette and is very elaborately observed in some of the monarchies of Europe. The tendency is strongly setting towards equality of rank.

The precedence of ambassadors of equal rank is now decided by the length of residence. The question of whether the German or the English ambassador should take precedence at Washington would be decided by the greater length of residence or priority of appointment.

Property Rights of a State or the Acquisition of Territory.—A nation's right to territory or property is based upon (1) occupation of land that was vacant before and by public and uninterrupted prescription, or (2) from occupation by colonies or other incorporation of land previously occupied, or (3) by conquest generally accepted by other nations and so recognized, or (4) by purchase or gift.

Mere discovery is not enough to establish a claim to territory; there must be some occupation which is of benefit to the territory claimed The United States based its claim to Oregon on Gray's discovery of the Columbia River in 1792, on Lewis and Clark's exploration in 1805 and 1806, on the settlement made at Astoria, and on contiguity to United States possessions, which then extended to the Rocky Mountains.

A nation has rights over (1) all land within its boundaries and over such rivers, lakes, inland seas, and other waters as lie wholly within its boundaries; (2) the mouths of rivers, bays, and estuaries providing access to the land; (3) the sea along its coasts to the distance of a marine league (three miles).

The high sea is open and free to all nations. All nations have equal rights to fish upon the high seas or upon banks and shoals in them. The Banks of Newfoundland are open to all nations to fish in; but the right to cure and dry fish upon the shores or to fish in bays or mouths of rivers is a private right of the nation owning them. Such waters are often called a *mare clausum*, or closed sea. Such are bays of the sea, such as Delaware Bay, which was declared in 1793 to belong to the United States alone. The Black Sea was made neutral by the treaty of Paris in 1853.

A river which forms the boundary between two nations is to be used equally by both nations and the dividing line is presumed to run through the middle of the river, unless other causes determine otherwise. Where the upper waters of a river belong to one nation and the lower courses to another, the former is considered as having only a moral right to use the lower courses. But this is generally arranged by treaty. The St. Lawrence, after forming the boundary between parts of the United States and Canada, flows wholly in its lower courses through British territory. Previous to the Reciprocity Treaty of 1854 Great Britain refused to acknowledge any right to its use by citizens of the United States. That treaty gave to the United States rights to its use equal to those enjoyed by British subjects; though these rights are subject to termination on notice. In exchange the United States gave British subjects equal rights to the use of Lake Michigan.

Right of Intercourse and Rights of Foreigners within a State.—Where a nation resorts to non-intercourse, it ceases to be protected by international law.

A nation which prevents another nation from commercial intercourse for the purpose of procuring actual necessaries not elsewhere obtainable commits an act of hostility towards that nation.

No nation can prevent another nation from

peaceably using its usual mode of communication with a third nation. No nation can prevent another from intercourse with a third nation against the will of the latter. Every nation is bound to truth and honesty in its intercourse with other nations.

No state can in time of peace exclude property accredited to subjects of a friendly state or expel them after admission without good reasons properly submitted to their home government. Shipwrecked, stranded, or other unfortunate visitors must be treated humanely and all their property rights observed.

Foreigners admitted into a country are subject to the laws of that country.

Naturalization.—Each nation has the right to regulate the manner in which aliens may become naturalized. An alien may become a citizen of the United States in the following manner:—

Declaration of Intention.—First, he shall declare upon oath before any authorized court or his authorized deputy, in the district in which the alien resides, 2 years at least prior to his admission, and after he is 18 years of age, that it is his intention to become a citizen of the United States. Such declaration shall give the name, age, occupation, personal description, place of birth, last foreign residence and allegiance, the date of arrival, and the present place of residence.

Conditions for Citizenship.—Second, not less than 2 years, nor more than 7, after he has made such declaration, he shall make and file a petition in writing which shall set forth that he is not a disbeliever in or opposed to organized government, or affiliated with any body of persons so disbelieving, a polygamist, or a believer in it, and that it is his intention to become a citizen of the United States, to renounce absolutely and forever all allegiance to any foreign prince, potentate, state, or sovereignty, and that it is his intention to reside permanently within the United States, and further state whether he has ever been denied admission as a citizen and upon what grounds, which he must prove have been removed.

Oath of Allegiance Upon Application.—Third, he must take oath in open court that he will support the Constitution of the United States, that he absolutely and entirely renounces and abjures all allegiance and fidelity to any foreign prince, potentate, state, or sovereignty, and particularly by name, of which he was before a subject or citizen; that he will defend and support the Constitution of the United States against all enemies, foreign and domestic, and bear true faith and allegiance to the same.

Conditions of Citizenship.—Fourth, he must satisfy the court that he has resided continuously within the United States 5 years at least, and within the state or territory where the court is held, 1 year preceding his application, and during that time has behaved as a man of good character.

Titles of Nobility.—Fifth, he must renounce any hereditary title or order of nobility in the kingdom or state from which he came.

Widow and Minor Children.—Sixth, if the alien who has declared intention dies before he is actually naturalized, the widow and minor children may be naturalized by complying with the other provisions of this act without declaring intention.

Children of Naturalized Persons.—The children of persons who have been duly naturalized under any law of the United States, or who, previous to the passing of any law on that subject, by the government of the United States, may have become citizens of any one of the states, being under the age of 21 years at the time of the naturalization of their parents, shall, if dwelling in the United States, be considered citizens thereof.

Citizens' Children Born Abroad.—The children of persons who now are, or have been, citizens of the United States, shall, though born out of the limits and jurisdiction of the United States, be considered citizens thereof.

Citizenship of Women by Marriage.—Any woman who is now or may hereafter be married to a citizen of the United States, and who might herself be lawfully naturalized, shall be deemed a citizen.

Aliens in the Army and Navy.—Any alien at the age of 21 years and upwards who has enlisted or may enlist in the armies of the United States, and has been or may be honorably discharged, shall become a citizen upon his petition without any previous declaration, if he proves at least 1 year's residence within the country. Aliens honorably discharged from service in the Navy or Marine Corps, having served 5 consecutive years in the former, or after one enlistment of 4 years in the latter, shall become citizens without previous declaration.

Naturalization Prohibited.—(*a*) No alien shall be admitted to become a citizen who has not for the continued term of 5 years next preceding his admission resided within the United States.

(*b*) No alien who is a native citizen or subject, or a denizen of any country, state, or sovereignty with which the United States is at war, at the time of his application, shall then be admitted to citizenship.

(*c*) No person who disbelieves in or is opposed to organized government, or who is a member of or affiliated with any organization entertaining or teaching such disbelief in or opposition to organized government, or who advocates or teaches the necessity or propriety of the unlawful assaulting or killing of any officer or officers, either specified individuals or officers of the government, because of his or their official character, or who is a polygamist, shall be naturalized or made a citizen of the United States.

(*d*) No alien shall be naturalized or admitted as a citizen of the United States who cannot speak the English language, unless prevented by some physical disability, if otherwise qualified.

(*e*) No state or court shall admit Chinese to citizenship.

Protection Abroad to Naturalized Citizens.—All naturalized citizens of the United States while in foreign countries are entitled to and shall receive from this Government the same protection of persons and property which is accorded to native-born citizens.

The Right of Suffrage.—The right to vote comes from the State, and is a State gift. Naturalization is a Federal right and is a gift of the Union, not of any one State. (See Table

of Qualifications for Voting in each State, page 286.)

Extradition.—Almost all nations refuse to punish their subjects for foreign crimes against foreign states or their subjects. The right of asylum or of shelter of criminals seeking refuge in foreign countries is becoming more and more limited. It is usually met by an agreement or treaty of extradition. The United States has extradition treaties with nearly all nations. When extradition of a refugee criminal is asked by another nation, certain judges may issue a warrant for his arrest, try him to see that the crime charged comes within the scope of the treaty, and to see that there is some evidence of his guilt. If satisfied the criminal is handed over to the executive. The President, through the Secretary of State, shall then surrender him within two months to the officer or agent of the nation claiming him. If not so surrendered he is liberated. The crimes usually covered by extradition treaties are murder, forgery, assault with intent to kill, piracy, arson, and robbery.

Ambassadors and Consuls.—One nation is not bound to be represented by an ambassador at the court of another, but, if diplomatic relations have once existed, it is a breach of friendship to discontinue them, and this discontinuance precedes a declaration of war. A nation is not forced to receive an ambassador from another nation, if there is good reason for a refusal, such as the uncertainty of the sovereignty of the state he represents in times of civil war; or if the person of the ambassador is obnoxious, or if he is of notoriously bad character.

When an ambassador is sent abroad he is furnished with credentials which specify the degree of power with which he is invested and a list of the subjects upon which he is entitled or empowered to treat. Until such credentials have been presented at the court to which he is sent and are received by that court, he is not recognized officially. The first duty, then, of an ambassador at a foreign court is to present his credentials and establish his status.

An ambassador enjoys very great privileges of exemption from laws and immunity while in a foreign country in his official capacity. This is to secure the fullest freedom to act at all times in the interests of his country. These privileges exist even in case of a declaration of war against his country until he has time to leave the country after the declaration. He is then entitled to liberty of exit. Should he remain longer than is necessary after such dismissal or declaration of war, his status then becomes that of an ordinary traveler.

No private or public person may use force or violence against the person of an ambassador; and the state is bound to afford him, his property, household, and servants full protection.

An ambassador cannot be arrested or imprisoned for any offense, civil or criminal. Any punishment or civil redress must come through the ambassador's sovereign.

The papers of an ambassador relating to his official business are in all cases inviolate.

An ambassador is not usually subject to taxes or to customs duties on goods imported for his own use.

An ambassador may be recalled, sent home, or declare his mission terminated for good reason. It is his duty to call upon the chief executive of the country, present his letter of recall, and ceremoniously take his leave.

The commercial agents of a country residing abroad are called consuls, and include consuls general, consuls, vice-consuls, and consular agents.

A consul's duties mainly consist in expediting matters of commercial importance and of representing his country in all such transactions. Diplomatic powers may or may not attach to his office.

Consuls enjoy no such immunities as are accorded to ambassadors. They are amenable to the laws of the country in which they reside just as are other foreigners.

Treaties.—Treaties, conventions, or contracts may be made by a nation with an individual, body of individuals, or with other nations.

Only properly constituted authorities or persons deputed by them can make treaties.

No treaty can be made which will in any way override the constitution; nor to bind a nation to do anything that flagrantly sacrifices the interests of the nation; nor to bind the nation to do anything which is morally wrong.

Treaties made through false representations or by force are not binding.

Defensive treaties are made to secure the parties mutually against encroachments by other nations.

Treaties of neutrality are mutual obligations binding the parties to take no part in conflicts between other powers.

Offensive and defensive alliances bind the parties to aid one another in all cases of conflict of either of the parties against other powers.

If a treaty has been made and signed by representatives having full powers, the treaty becomes binding at the time of signature. In such cases the ratification by the respective governments becomes retroactive.

It may be specified that the treaty shall become binding only upon ratification by the respective governments. In such cases the states are bound only from the date of ratification. The constitution of the United States requires that all treaties must be ratified by the consent of two thirds of the Senate before it becomes valid. The right of changing terms of conditions is also claimed by the Senate; and such changes are not to be regarded as violations of the treaty.

Where a treaty is flagrantly and repeatedly broken by one party, the other party may regard it as broken and either claim redress or demand its observance.

In interpreting a treaty the common usage of words is to be followed unless it involves an absurdity. If two meanings are possible, that one is chosen which confers the least benefit or advantage to the party who caused or demanded the insertion of the clause. That party is penalized for not making his meaning perfectly clear. Obscure passages may often be explained or cleared up by a consideration of other parts or passages of the treaty. In such cases causes of insertion and reasons for the act are to be considered. Clauses involving hard conditions or cruelty to one of the parties are to be considered strictly so as to minimize the hard conditions; while those which favor justice, equity, and hu-

manity are to be interpreted broadly so as to confer the fullest benefits.

War.—The causes of a just war are (1) the defense of any right which the state is bound to protect; (2) the redress of a wrong; (3) the prevention of an apprehended injury; (4) the protection of individual inhabitants; (5) to avenge insults to national reputation, to the flag, to an ambassador, or to its good name; (5) to enforce terms of a treaty or contract; and (6) to punish great wrongs against religion or liberty.

Rights of a nation are often enforced by acts short of actual war, such as embargo, which detains foreign vessels in port; or reprisal, which consists in seizing from a nation an equivalent of what it has taken, in the failure to get back the actual things taken, and corresponds to levying by force upon property to an equal amount of a debt or damage. Other means are the pacific blockade and a demonstration of force.

A declaration is not now insisted upon by international law, nor is it always practised by nations. This does not arise from a desire to take advantage of the unpreparedness of another nation, but is caused by the superior means of communication and publicity which the age affords. No one can plead ignorance of the prospect of war, which nearly always is preceded by a long chain of portentous events and communications. It is, however, advisable to give notice that a state of war exists, to enable neutrals, foreigners within the nation, and others to act in accordance with the laws governing such cases.

Weapons Forbidden in War.— The use of poisoned weapons, the poisoning of springs of water, use of hired assassins, a copper bullet poisoning the wound, explosive and dumdum bullets, detachable lance heads, barbed bayonets, and similar devices which entail needless suffering are forbidden in war.

Rules of War.—Private persons taking no part in the war are to be unmolested; but those participating are not afforded protection. The property of non-participants is to be uninjured. Contributions and requisitions are permissible. The commander of any detached force may require from the people supplies of food, shelter, and means of transportation, for which receipts are given. But pillage and devastation are neither justifiable nor politic. Spies in disguise may be punished by death; but those in their own uniform are to be treated as ordinary prisoners of war.

Humanity in Warfare.—In addition to the prohibition of weapons which entail needless suffering, much has been done to alleviate the suffering which the use of modern death-dealing agencies have caused. The Convention of Geneva in 1864, and again in 1868, introduced the Red Cross movement. Those engaged in hospitals, ambulances, and similar work were distinguished by wearing a badge of a red cross on a white ground. Another conference at Brussels in 1874 at the call of the czar of Russia, the Oxford Code of 1880, and the several meetings at The Hague in recent years have sought to bring about a more humane treatment of sufferers in war.

CONSTITUTIONAL LAW.

Constitutional law is that which refers to the constitution as a permanent system of government as distinguished from statutory and common law, which relates to matters subordinate to the constitution. It consists of rules and laws relating to the sovereign body, that is, how that body is composed, what are the mutual relations of its constituents, and how the various functions of legislation, judicature, and administration are performed. These rules may or may not take the form of absolute laws; for example, the constitutional rule that the British king and Parliament constitute the sovereign cannot be strictly called a law It is also a rule that the king shall not withhold his assent to a measure which has passed both Houses of Parliament; this neither can be termed a law. At the most the royal veto would in such a case be unconstitutional, but not illegal.

Constitutionalism implies a representative or popular form of government, and as such is of comparatively modern growth. One of the fundamental parts of a complete constitution is the organization of the state so that the "amending power" is duly provided for. Where the constitution is a written one, like that of the United States, the line of demarcation between constitutional law and ordinary statute law is clearly defined; but in England, which has in the main an unwritten constitution, it is not so easy to determine of what constitutional law consists, seeing that the enacting authority in both cases is identical. Its principles must be chiefly gathered from parliamentary statutes, customs, and precedents. Generally speaking, the sovereignty inherent in the constitution, the accepted principles of liberty, the construction of the government, and the question and character of popular representation, are essentially subjects of constitutional law. In England such questions are perforce dealt with by Parliament the same as any ordinary law. In a constitutional crisis the House of Commons appoints a committee to "search its journals for precedents." The unwritten constitution of Great Britain is mobile, adaptative, and constantly undergoing change. This is in contrast with the fixed constitution of the United States, written out in one authoritative code.

The constitution of the United States, which was ratified by each state separately, clearly defines the relationship between the central and the local government, so that neither can destroy nor modify the other. It is worthy of record that the first written American constitution (the "Articles of Confederation," of November, 1777) was defective in that it made no provision for the continuing organization of the state. It created only a central government, which could not legally assume sovereign power. In other words the sovereign, the state, had no legal organization in the system. This defect was rectified in the convention which met at Philadelphia, in May, 1787, the change being brought about largely through the instrumentality and adroitness of Abraham Baldwin and Alexander Hamilton.

The legislative powers of the United States legislature are not to extend to particular kinds of bills, e. g., *ex post facto* bills; the President's

veto can only be overridden by a majority of two thirds in both houses; the constitution itself can only be changed in any particular by the consent of the legislature or conventions of three fourths of the several states; and lastly, the judges of the supreme court are to decide in all cases when the constitutionalism of any act of the legislature is in dispute. In the face of these provisions few changes are ever introduced; and in point of fact, only fifteen constitutional amendments have been passed since the framing of the constitution. The unwritten constitution of England has, on the other hand, changed much, particularly in curtailing the powers of the Crown and the Lords, and correspondingly increasing the power of the Commons through their nominees, the Ministry. The constitution of the United States more nearly approached the model of the British constitution at the end of the eighteenth century, and the president to-day has very much the same powers as the British sovereign of that period.

The bicameral system, which, in England, has made generally for good government by reason of its "checks and balances" is not an ideal form for a democratic legislature, although in practice its advantages far outweigh its drawbacks. In the American constitution, as Bagehot points out, "the Upper House has as much authority as the second; it could produce the maximum impediment, the deadlock, if it liked; if it does not do so it is owing, not to the goodness of the legal constitution, but to the discreetness of members of the chamber." In England the two Houses are far from having equal power, and in the end the will of the Commons must prevail.

In the United States, as in Switzerland and Germany, the constitution is in form an alliance among a number of independent states, and it is always a moot point how far the independence of each state has been sacrificed by submission to a federal constitution. In the United States constitutional progress is somewhat hampered by reason of every amendment requiring ratification by the separate vote of three fourths of the states. A distinguishing feature of the United States constitution is the categorical completeness with which it treats of civil liberty. In England and France, for example, the question of civil liberty is at all times at the mercy of the government. In the matter of organization and the details of administration we have much to learn from European constitutions; but as regards the position and true relations of liberty, imperfect though many of our conceptions be, the American system stands as a model for the constitutions of the Old World.

CRIMINAL LAW.

The criminal or penal law is that portion of the law which deals with crimes. Crimes have been described as offenses against the state and prosecuted by the state, in contradistinction to civil injuries, which are offenses against individuals and prosecuted by private persons. Strictly speaking, all illegal acts are offenses against the state. Torts or civil injuries are offenses for which the injured party may seek redress in the courts. A tort may also be a crime which is punishable both civilly and criminally.

The criminal law of England rests on a basis of common law, modified by judicial interpretation and by statute. In the United States the criminal law is largely based on the common law of England and that of the United States. Several of the states have recast and codified their criminal law. Each state has criminal jurisdiction for all ordinary crimes perpetrated within its borders and is independent of the jurisdiction of the federal courts. The crimes dealt with by the latter are treason, piracy, and other offenses against the laws of nations, crimes committed in the District of Columbia, in the territories, and other dependencies of the United States and on the high seas, and other criminal offenses specially defined by act of Congress, e. g., counterfeiting of securities or United States coin, fraudulent naturalization, and bankruptcy, and the like.

Crimes are divided into treasons, felonies, and misdemeanors. Treasons include offenses against the state, for example, resistance to the authority of the sovereign power; felonies and misdemeanors are not always easy to distinguish from each other, but, generally speaking, felonies are the more serious crimes, such as murder, homicide, arson, house-breaking, etc., while misdemeanors are minor crimes prosecuted civilly as in personal actions for injuries. Attempts to commit crimes are themselves crimes. It is laid down in Russell *On Crimes* (Vol. I. p. 189) that "an attempt to commit a felony is a misdemeanor, and an attempt to commit a misdemeanor is a misdemeanor, whether the offense be so by common law or by statute." Until 1861 under this ruling an attempt to commit murder was only a misdemeanor at common law in England punishable by two years' imprisonment; but now such an attempt is a felony and punishable accordingly. Persons accused of a crime may be either principals of the first or second degree, or accessories before or after the fact. Participation in the commission of a felonious act is in itself a felony.

In the United States criminal procedure follows generally the procedure of the common law. Misdemeanors are invariably dealt with by police magistrates. In cases of felony the accused is entitled to trial by jury, the latter being drawn from the state or district in which the crime was committed. An accused person is further protected by the amendment of the constitution, article V., which reads: "No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." Article VIII. is likewise in the interest of the accused: "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted."

COMMERCIAL LAW.

Speaking strictly there is no separate and distinct commercial law in the Anglo-American legal system as there is in countries whose legal systems are based upon the Civil Law, where there are codes of commerce and separate commercial tribunals. The origin of the distinct body of commercial law to be found in the countries of continental Europe and their colonies elsewhere was in the Law Merchant or custom of merchants, i. e., the usages of the mercantile class in the Middle Ages and the centuries immediately succeeding. In England this Law Merchant was incorporated into the general law in the eighteenth century and became part of the common law governing particular transactions. As such, it was adopted in the United States. The subjects usually dealt with in the Commercial Codes of European and Latin American countries are Mercantile Persons, i. e., persons whose transactions are within the Commercial and not the Civil Code, Partnerships and Companies, Agents, Factors, and Brokers, Commercial Paper, Loans and Pledges, Maritime Law, Carriers and Transportation, Warehousemen, Bankruptcy, Trademarks and Patents.

Contracts: Conception, Definition, and Classification.—One person may acquire rights against another because of some act of the latter or of both, intended to create such rights, or because of some act not so intended but which the law visits with liability and to which it attaches the consequence of creating such rights. Contracts belong to the first class. They belong to the class of what are called legal transactions or acts-in-the-law, that is, acts intended to produce legal consequences to which the law concedes the effect of creating the consequences intended. Such acts require:—

(1) That the parties doing them have legal capacity so to act,

(2) That they act freely, with knowledge of the facts and without being deceived,

(3) That they act with reference to some possible or permissible subject matter, and

(4) Usually that the act be expressed in or accompanied by some prescribed form. If the third or fourth requirements are not complied with, the acts have no legal effect and are said to be *void.* If the act is deficient with respect to the third requirement, the act is subject to be set aside by the person compelled or mistaken or deceived and is said to be *voidable.* If the defect is in the first requirement in some cases it is void (married women, except as changed by statute, and lunatics under guardianship) and in some (infants and lunatics not under guardianship) it is voidable. These general propositions apply also to contracts.

A Contract is a promise or agreement enforceable by law. The law does not enforce every promise a person may make nor every agreement a number of persons may enter into. Not only must the four requirements above noted be complied with, but the purpose must be to create a legal result. If the parties did not intend the promise or agreement to be legally binding—as, for example, if they intended a joke, or a banter, or an example for instruction, or if they were merely acting, there is no contract.

Classification of Contracts proceeds upon the fourth requirement above set forth, that is, the form in which the act is expressed or by which it is accompanied. If the form is that of a writing, sealed by the party or parties and delivered, there is a formal contract. In the case of *negotiable instruments* (see *infra*) the form is of some importance also, and they are quasi-formal contracts. Where the contract, whether written or oral, does not take on either of these forms, it is said to be a simple contract.

Contracts under Seal.—In legal parlance any instrument in writing to which the parties have set their seals is called a deed. Where such instruments contain promises, such promises are called, technically, covenants. If such an instrument acknowledges a debt or promises to pay money, it is called a bond. Contracts under seal are also called specialties. The requisites of such contracts are:—

(1) That they be in writing,

(2) That the party or parties seal them,

(3) That they be delivered—that is, that the person to be bound part with control, intending the instrument to take effect. In America it is also generally required that they be accepted by the party to whom the promise is made. Promises or agreements so made require no consideration. Originally a seal was an impression on wax or on the substance written on, made by the party or by some one in his presence and by his direction as his seal. But by legislation or judicial decision a wafer or scroll, or the word "seal," or the letters "L. S." now suffice where seals are in use. The distinction betwen contracts under seal and simple contracts is abolished in Alaska, Arizona, California, Idaho, Indiana, Iowa, Kentucky, Mississippi, Missouri, Montana, Nebraska, Nevada, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Texas. In these states, except Nebraska, Nevada, Ohio, and Oklahoma, any contract in writing is presumed to have been made upon consideration, but the contrary may be shown and will invalidate it. In Alabama, Michigan, New Jersey, New York, Oregon, and Wisconsin, the presence of a seal, by statute, only creates a presumption of consideration—that is, the contract may be proved to be without consideration, but stands unless and until such proof is made.

Simple Contracts.—In simple contracts the form is of no consequence. The requisites are:—

(1) That the parties be agreed, or, in legal parlance, that there be a meeting of their minds, and (2) that there be consideration.

Offer and Acceptance.—It takes two or more parties to make a simple contract. The everyday saying that silence gives consent cannot be relied upon in this connection. Agreement is composed of two elements, *offer* and *acceptance.*

An offer is a proposal by the one party, called the offerer, that something be agreed to between them; an acceptance is an assent to or compliance with that proposal by the other party, called the offeree, with the intention and for the purpose of entering into the agreement proposed. An offer

(1) Must be communicated;

(2) Must be complete, so that it needs nothing but acceptance to make a complete contract;

(3) Must be intended seriously (except that if the person to whom it is made understands it seriously and a reasonable man in his place would have done so, there is a contract), and

(4) May be revoked (i. e., recalled) unless there is a collateral contract, with all the requisites of an independent contract, not to revoke it. It will remain open and capable of acceptance for the time fixed by its terms, unless revoked, and if no time is fixed, will remain open for a reasonable time. It may be so made as to be capable of several successive acceptances, in which case there is a new contract upon each acceptance; but after each the offerer may revoke it before there is any further acceptance. An offer comes to an end, so as not to be capable of acceptance thereafter, by lapse of the time fixed for acceptance, by lapse of a reasonable time if none is fixed, or by death of either offerer or offeree before acceptance. It also comes to an end by the making of a counter-offer or by rejection by the offeree, in which cases it is no longer open even though the time fixed for acceptance has not yet elapsed. But it may be renewed after lapse of the time fixed by acts or words of the offerer which amount to treating the offer as still in force.

Revocation of an offer must be communicated to the offeree before acceptance or it has no effect. But it need not be communicated by the offerer himself. Moreover, where the offer is made by advertisement, as in the case of offers of rewards, it may be revoked in the same way, provided the revocation is given the same publicity as was given to the offer.

Acceptance may be in the form of

(1) A promise, so that the contract consists of a promise on each side, the promise of the one being given in exchange for the promise of the other, or

(2) An act, so that the contract consists of a promise on one side and an act on the other, the promise being made in exchange for the doing of the act and the act being done in exchange for the promise. In the former case the contract is *bilateral;* in the latter it is *unilateral.* The acceptance must cover the whole offer and must coincide with it. If not, or if it changes the terms of the offer, there is no acceptance, but only a counter-offer. A mere inquiry, however, as to what the offer means or whether the offerer will make a different offer is not a counter-offer and will not put an end to the original offer. Also the promise or act claimed to constitute an acceptance must have been intended as such. Cross-offers in the same terms do not make a contract. The acceptance must refer to the actual offer made by the offerer, and not to something else understood by the offeree. Otherwise there is said to be no meeting of minds. But if a reasonable man could only understand the offer as made in one way, a person who accepts it on that understanding makes a contract even if the offerer did not so mean it. Likewise if the acceptance would be understood in one way only by a reasonable man, the offerer has a right to rely on it as having that meaning, and if he does so, there is a contract, though the offeree had another meaning. Where an offer is sent by telegraph and the message is incorrectly transmitted and accepted in the form in which it is received, the authorities are not agreed whether there is a contract.

Consideration.—All simple contracts require a consideration. The reason for this is in reality historical, so that consideration is as much a form as a seal. Except in case of formal contracts, Anglo-American law does not enforce a promise unless it is made upon a consideration. The consideration of a promise is the thing given or done in exchange for the promise, provided such thing is regarded legally as a detriment to the promisee or person to whom the promise is made. If a promise is given in exchange for another promise, there is a bilateral contract. If an act is done in exchange for a promise, there is a unilateral contract. As the consideration is something given or done in exchange for the promise, it follows that there must be, as lawyers put it, a present consideration; that is, there must be something which is regarded legally as a detriment to the promisee at the time of and in exchange for the promise. Something done or given or forborne in the past will not suffice. But if the prior act, done at the request of the promisor, was such as to give rise to a duty on the part of the promisor to pay the reasonable value of the service rendered him or benefit received by him, or if the prior act was something which it was the duty of the promisor to do and was done under such circumstances as to give rise to a duty of reimbursement for the service rendered (see *infra* QUASI-CONTRACTS), a subsequent promise to pay a fixed sum in liquidation of such liability is supported by a present consideration. Also, where a pre-existing obligation is voidable by the promisor, or he has a statutory defense which he may or may not interpose, such as a discharge in bankruptcy or the statute of limitations, a subsequent promise to pay is often said to be sustained by the past consideration of the pre-existing obligation. But it is more correct to say that the new promise operates as a waiver of the defense and enables the original obligation to be enforced.

If there is what is legally deemed a detriment to the promisee, the amount or the proportion it bears to the value of the promise is not material. Adequacy of consideration is not taken into account in this connection. But there must be a detriment. Hence a promise to pay a *greater* sum in consideration of payment of a liquidated *smaller* sum is unenforceable.

In a bilateral contract, each promise is consideration for the other. Hence if either is *void*, as against public policy or for incapacity of the promisor to make it or for any other reason, or is too indefinite to be enforceable, there is no consideration for the other. But a promise that is merely *voidable* is consideration for the other.

By "detriment" in this connection the law means simply the doing by promisee of something he is not bound to do. It is no matter that what he does is actually no harm to him pecuniarily or otherwise. His doing in exchange for the promise what he is not bound to do is held legally to be a detriment to him. He has exerted himself to do what he was under no obligation to do and so is to that extent worse off in exchange for the promise. Hence doing what is for the doer's benefit, if he is not bound to do it and does it at the instance of the promisor in exchange for the latter's promise, is a consideration. But doing what one is already bound to do is not a detriment and hence is not a consideration.

Part Payment of a Debt.—It follows from the conception of consideration that payment or promise to pay less than the whole amount of a *liquidated and undisputed* indebtedness is no consideration for release, discharge, extension, or promise to discharge, extend, or not to sue upon such indebtedness. This is the general and well-settled common-law rule. But it is subject to some qualifications and explanations. These may be stated conveniently as four propositions:—

1. Payment of part before maturity is consideration for discharge, extension, or promise to discharge or extend the remainder.

2. Giving or promising to give something other than money or doing something or promising to do something other than pay money in settlement or satisfaction or for an extension of a debt is a consideration, and in such case the pecuniary value of what is given or done or promised is of no consequence.

3. A payment of part or promise to pay part of a debt, made by a third person, not a party to the indebtedness, is consideration for discharge or extension of the remainder.

4. If the debtor binds himself to pay interest for a fixed period beyond maturity, so that he cannot tender the money owing during that time and require the creditor to accept it, there is consideration for an extension for that time.

Promises to do what one is bound to do.—It may be said, as a general proposition, that doing or promising to do what one is already bound to do by reason of contract with the other party or of contract with a third person or of some legal relation or official duty, is not a consideration. But in Alabama, Maryland, Massachusetts, New Jersey, and Vermont, the courts hold to the contrary where the thing done or promised was owing to the promisor already or to a third person by contract of the promisor. And where the general proposition is recognized, it must be noted that where there is a pre-existing contract duty on the part of the promisor to the promisee, the parties may by mutual agreement rescind, that is, put an end to, the contract and thus terminate the duty; and if they do, the doing or promising to do a part or all of what was due before is consideration for a new agreement.

Compromises.—Discontinuance of a pending action or dismissal of a suit in which person or property has been attached, or release of such person or property without discontinuance or dismissal, is consideration for a promise when the holding of the person or property under such attachment is lawful or it is a doubtful question whether such holding is lawful or not; but it is no consideration where the attaching party is clearly liable in damages for so holding or continuing to hold. In the latter case he only does his legal duty in releasing the person or property and his performance of that duty is nothing to give in exchange for a promise. But giving up a legal right is a consideration, and honest litigation of bona fide claims in the courts is a right. Hence settlement of or forbearance to sue upon a claim is consideration for a promise given in exchange therefor in case the promisee had a cause of action, that is, a right to recover in court upon his claim, or in case, although in fact or in law he did not have one, it was doubtful at the time of the compromise whether he had one or not or he believed in good faith and on reasonable grounds that he had one. If he had no cause of action and did not believe he had one, a compromise or forbearance to sue upon his claim is not a consideration.

Accord and Satisfaction.—"Accord," says Blackstone, "is a satisfaction agreed upon between the party injuring and the party injured, which, when performed, is a bar of all action upon this account." "Injury" here means cause of action—a right to sue and get relief in the courts—not a mere property or contract right uninfringed. If such a cause of action exists, the parties may agree on a satisfaction to be given and received, and when the thing agreed on as satisfaction is done, or, as the law books say, the accord is executed, it is a defense to the original claim. An unexecuted accord, that is, a promise to give or do something in satisfaction of a cause of action, is no defense unless the creditor or claimant agreed to take the promise in satisfaction of his claim. But if the accord is executed, i. e., the promise is performed, or the promise as such was taken in satisfaction of the claim, it is a defense to the original cause of action.

Subscriptions.—A subscription, in which a number of persons unite in agreeing to pay the sums set opposite their names for some purpose set forth in the paper, may be a mercantile or business subscription or a charitable subscription. In the former case it is fair to assume that a business transaction was intended and hence that acceptance of the subscription by the payees implies a promise on their part to use the money for the specified purpose in exchange for the promise to contribute it. This is consideration. But it is always wiser to put an express counter-promise of this sort in the paper itself. In the case of a charitable subscription, it is fair to assume that the parties intended a gratuity rather than a business transaction. Hence it is the more advisable to insert the express counter-promise or else, where seals are in use, to have the subscribers affix their seals. The prevailing view appears to be that the subscribers or any of them may revoke (withdraw from) the subscription until work has been done or liabilities have been incurred by the payee in reliance upon it, and that upon the beginning of work or incurring of liability on the faith of the subscription it becomes binding.

Assignment of Contracts.—Where the contract is unilateral, there is practically a debt due from the promisor to the promisee. Hence, an assignment in this case is like any other assignment of a right to recover in the court, or, as it is called in law, of a chose in action. (See *infra*, PERSONAL PROPERTY.) But an assignment may attempt to do more than this. It may purport to transfer not only the assignor's right to the benefit of performance by the promisor, but the right to control or direct such performance as well. In that case, as a general proposition, the promisor must agree to the assignment or the assignee cannot hold him to the performance. But assent to such an assignment is said to be implied from the nature of the contract where from its terms it is evident that there is no choice of persons involved and that the performance may take place between any two men with-

out material difference to those who take part. The rule is the same, and for the same reasons, where the assignment purports both to transfer the rights and to delegate the duties of the assignor under the contract. But if it tries to go further and to relieve the assignor from liability to the other party to the contract, it must be assented to by the latter, or it cannot have that effect.

Joint Contracts.—Contracts, with respect to the promisors, may be joint, or joint and several, or several. With respect to the promisees, they are either joint or else several. A promise is the joint promise of two or more where, for the purpose of the promise, they are to be taken as one; where it is the promise of all of them collectively, but not that of each individually. It is the several promise of each when each promises for himself, so that there is no collective promise, but only an individual promise of each promisor. It is joint and several where it is so made that, although expressed as one, it is really two; made up of (1) the collective promise of all and (2) the individual promises of each. Joint contracts must be enforced against all the promisors jointly. If less than the whole number are sued, that fact may be shown in abatement of the action. But legislation has greatly relaxed this rule in most jurisdictions. Moreover, if the claim is put in judgment against less than all, those who were not sued may show the judgment as a bar to any action against them on the promise, because there was but one promise and that one has already changed its form and become a judgment. Where two or more persons make the same promise at the same time or in the same instrument, *prima facie*, it is a joint promise. But if there are what are called "words of severance," the promise will be joint and several. By "words of severance" are meant any words indicating that the collective promise of all is also the individual promise of each, as "we jointly and severally promise," or "I promise" (when two or more execute the promise), or "I, we, or either of us." Where the promise is joint and several all the promisors may be sued jointly or each or any one separately; but not a number less than all jointly.

In case there is a judgment for or against any one promisor, it does not bar pursuit of the claim against the others, as in case of a joint contract; but there can only be one satisfaction. A release or discharge of one joint promisor or debtor releases all. But this is not so if the right to pursue the others is reserved in the release or discharge; and a contract not to sue one does not discharge the others, nor can the others use it as a defense. In case one of the joint promisors or joint debtors dies, the survivors may be sued, and at common law they alone were liable, and could only hold the estate of the deceased for its share by proceeding in equity. But statutes to-day allow the creditor to enforce his claim directly against the estate or the representatives of the deceased in such cases. If one of a number of joint promisees dies, the survivors succeed to the right to collect the money or enforce the promise, but the estate of the deceased may compel them to account for its share of the proceeds. Also all the joint promisees, or, if some have died, all the survivors, must join in an action to enforce the promise. But there is a great diversity of legislation in the several states modifying these rules and a lawyer should be consulted with reference to the details.

Statute of Frauds.—Although the law prescribes no form for a simple contract, certain contracts must be *proved* by a written instrument or written memorandum or they are not enforceable. This does not mean that such contracts must of necessity be reduced to writing when made. They are not *void* if not expressed in writing. But when an action is brought upon such a contract, the contract must be proved by written evidence, either in the form of a written instrument in which it was set forth when made, or by some subsequent memorandum of its terms. This requirement grows out of an English statute, enacted in 1676, called the Statute of Frauds and Perjuries, or, shortly, the Statute of Frauds. The provisions of that statute which have to do with contracts are contained in the fourth and seventeenth sections. The fourth section provides that no action shall be brought upon any of the following five classes of contracts unless evidenced by some written instrument or note or memorandum thereof in writing, signed by the party sought to be charged or some one lawfully authorized by him:—

1. Special promises by executors or administrators to pay debts of the deceased out of their own property.
2. Contracts of guaranty.
3. Contracts upon consideration of marriage.
4. Contracts for the sale of land or sales of lands or any interests in lands.
5. Contracts not to be performed within one year from the making thereof. These provisions have been reënacted everywhere in America. The seventeenth section provides that contracts for the sale of goods, wares, and merchandise for the price of £10 or more shall not be enforced unless the buyer shall accept and actually receive part of the goods sold or shall make a part payment or give something by way of earnest money to bind the bargain, or a note or memorandum in writing of the bargain shall be made, signed by the parties to be charged or their authorized agents. The provisions of this section have been reënacted in most American jurisdictions, but they are not in force in Alabama, Arizona, Delaware, Illinois, Kentucky, Louisiana, New Mexico, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, and West Virginia.

Fourth Section.—Taking up the fourth section first, the first and third provisions speak for themselves. The second provision covers all agreements by one person to become responsible for any civil liability incurred by another. The undertaking is said by lawyers to be "collateral"; and it is said that "original" undertakings are not included in the statute. In other words, to come within the statute, there must be three persons concerned; a creditor, a principal debtor, and a guarantor. Hence if one promises to pay his own debt or the debt of a partnership of which he is a member, the promise need not comply with the statute. For the same reason, there must be a subsisting and legal liability of the debtor to the creditor, or the promise of the third person to pay the claim is not gov-

erned by the statute. Other exceptions to this provision are:—

1. Contracts of indemnity, that is, contracts to save the promisee from loss in case he permits another to incur a liability to him or incurs liability to another.

2. Promises to the debtor (not the creditor) to pay the former's debt.

3. Contracts which discharge the debtor's liability to the creditor and substitute a newly-created liability of the promisor.

4. Contracts to pay the creditor out of property of the debtor put in the hands of the promisor for that purpose.

5. Contracts to pay or assume the debt of another made by the promisor for his own benefit and for a consideration inuring to the promisor alone. But the first of these exceptions is not recognized by the courts in Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, and Tennessee, and there is not entire agreement as to the details of the fifth. The fourth subdivision of section four applies not only to contracts for the sale of land and for the creation of estates or interests in or liens or charges upon land, but also for the disposition of buildings and fixtures which in law are regarded as a part of the land. But growing crops are not within the provision; nor is a contract to sever a fixture from the land and dispose of it when severed. With respect to sales of timber growing upon land, most American jurisdictions hold that the statute applies. The fifth provision of section four applies only to promises which cannot, according to their terms, be performed within a year. Hence it has no application:—

(1) Where no time for performance is fixed,

(2) Where performance is made to depend on a condition or contingency which may be performed or may happen within a year,

(3) Where performance is to take place within a period longer than a year, but may, consistently with such provision, take place within a year.

Seventeenth Section.—The seventeenth section, where it is in force, applies to all sales and contracts for the sale of tangible personal property. And, in this country, it includes also shares of stock and other choses in action (see *infra*, PERSONAL PROPERTY) which have a tangible form. Whether contracts for the future delivery of property are within this section has been the subject of much controversy. In this country, two rules exist. In Massachusetts, a contract is governed by the statute where it is for the sale of articles existing at the time of the contract or for the making and sale of articles such as the seller manufactures or procures for the general market in the ordinary course of his business, whether on hand at the date of the contract or not. This rule is adhered to in California, Connecticut, Georgia, Maine, Michigan, Minnesota, New Hampshire, New Jersey, New Mexico, Washington, Wisconsin, and Wyoming. In New York, if the article to be sold is not in existence at the time the contract is made, or is not at that time in a condition to be delivered, the contract is not covered by the statute, unless the acts to be done by the seller are such as will not alter the essential character of the article contracted for. This rule is adopted in Iowa, Maryland, South Carolina, and Vermont.

The Note or Memorandum in Writing.—The note or memorandum need not be made at the time of the contract; a subsequent memorandum will suffice unless made after suit is brought. It need not be in any particular form. Indeed, it may consist of several distinct letters or papers provided they are connected and complete and do not need to be eked out by oral testimony. It must show the terms of the contract and show who are the parties to it. Whether and how far it must express the consideration of the contract has been the subject of much dispute and no general rules can be laid down safely within the compass of this discussion. Only the party who is sought to be held need sign. And the signature need not be at the end. The name written or printed anywhere on the paper, even as a letter-head, will suffice, if adopted by the party to identify the writing as his.

Conditions.—A promise may be absolute, that is, it may be a promise to do something at all events, or it may be subject to limitations. Such limitations may be in respect of the time of performance, or accompany performance, or supervene and defeat a liability to perform. A condition is an act or event which must precede some change in the legal relations of the parties. With respect to the mode of their creation, conditions are express, implied in fact, or implied in law. With respect to the mode of their operation, they are precedent, concurrent, or subsequent. An express condition is one stated in the agreement or promise in express terms. A condition implied in fact is one not expressed in the agreement or promise, but intended by the parties—such intention appearing from the fact that the condition must be performed in order that the promise may be performed. A condition implied in law is one which, without being either expressed or intended by the parties, is supplied or imported into the contract by the courts in the interest of fair dealing. A condition precedent is an act or event which must be performed or exist before any liability accrues under the promise. Conditions are concurrent where liability to perform on each side of a bilateral contract is dependent upon simultaneous performance on the other side. In such cases, the *act* which must precede liability on each side is a tender of performance on the other side. A condition is subsequent where it provides that an existing liability to perform is to terminate or be put an end to by some act or event other than performance itself. Conditions precedent and conditions concurrent may be express, implied in fact, or implied in law. All conditions subsequent are express. In the law of contracts, the courts prefer and imply conditions concurrent wherever possible. As between conditions precedent and conditions subsequent, courts prefer the latter in the law of property, the former in the law of contracts.

Express Conditions, Warranties, Representations.—A representation is a statement, express or by implication (i. e., by acts or conduct), of some material fact affording a reason or motive to another for entering into a legal transaction. A warranty is a contract, collateral to a legal transaction (which may be and usually is itself another contract) by which a party thereto undertakes or promises that cer-

tain facts are or shall be as he represents them to be. The untruth of a representation does not give rise to a cause of action or affect a contract unless the representation was made fraudulently or was made recklessly in known ignorance of the facts represented. The untruth of a warranty, of itself, gives rise to a cause of action upon the warranty. In insurance policies and charter parties a representation or promise, which is made by the parties an essential part of the contract, is called a warranty, and is a condition precedent to liability upon the contract. Whether a representation or promise in a policy of insurance or a charter party is also a warranty, depends on whether the parties have expressly, or by unexpressed intention, gathered from the whole contract, made the validity of or liability under the contract dependent on the truth or the performance of such representation or promise. Express conditions must be complied with strictly, while conditions implied in law require a substantial compliance only. The rule as to express conditions is subject to some qualifications. Courts incline to construe express conditions so as not to work unjust forfeitures or oppressions, as contrasted with mere loss of privilege. Again, in New York, express conditions in building contracts, such as a requirement of production of an architect's certificate as a condition of payment, are treated the same as conditions implied in law. The prevailing American doctrine is that such conditions must be complied with literally, except that fraud of the architect or his refusal to exercise an honest judgment, will excuse a failure to produce his certificate, even though he did not collude with the owner. But fraud of the party who insists upon the condition, or collusion between the owner and the architect in the case put, will excuse from performance of an express condition in all jurisdictions. Where performance of something by the promisee to the satisfaction of the promisor is made an express condition precedent to the liability of the promisor, if the subject matter is one of personal taste and judgment, the decision of the promisor is decisive, even though wrong and unreasonable, if it is honest; but where the subject is one of which any one else may judge equally well, the courts generally construe the condition to require only such performance as ought to satisfy a reasonable man.

Conditions Implied in Law.—The law implies conditions in bilateral contracts only. The reason for implying them in such contracts is that, as there are two promises, each given in exchange for the other, justice and fair dealing demand that neither party be permitted to enforce the promise of the other while in default of performance of his own. Hence, wherever it is possible, consistently with the terms of the contract, the courts will hold that performance, or at least tender of performance, on one side is a condition of calling for performance upon the other side; and they will hold that the two sides of a bilateral contract are conditions concurrent wherever they can reasonably do so. There are, however, cases where this cannot be done, and conditions precedent are implied. A breach of promise gives rise to a cause of action. But if the promise is also a condition, the breach is a defense and an excuse for non-performance on his part of the promise given by the promisee in exchange for the one broken. It is not every breach of the promises made in a bilateral contract which will be held a breach of condition also. If the breach takes place at the outset, before any part of the contract has been performed, a less breach will be held a breach of condition than where it takes place after part performance. But in general, and especially after part performance, the breach of contract on one side, in order to be a breach of condition available to the other side as a defense or as ground for non-performance on that side, must go to the essence of the contract, i. e., must defeat the chief object or at least a very important object of the agreement. In America, the courts generally hold that in mercantile contracts provisions as to time are of the essence of the contract. In other cases the terms and circumstances of the contract must determine the question. A majority of American jurisdictions make it a condition implied in law that the promisor shall not repudiate his promise or announce in advance of the time for performance that he will not perform. In such jurisdictions the other party in such case may treat the contract as broken completely and may sue at once. But in some jurisdictions he must wait till the time fixed for performance has elapsed before suing.

Impossibility of Performance.—Impossibility of performance of a promise may be inherent, that is, the promise may have been to do a thing intrinsically impossible or impossible under circumstances existing when it was made, or supervening; that is, it may have been possible of performance when made or possible intrinsically, but a change of circumstances may have occurred which has made performance impossible. As it is one of the requisites of all legal transactions that the intention of the parties be directed to a possible result, in case a promise is intrinsically impossible it is void. If it was apparently possible, but circumstances unknown to the parties exist which render it impossible, the promise may be voidable for mistake. In case of supervening impossibility some distinctions must be taken. If the promise was intrinsically possible, and the promisor assumed the risk of supervening impossibility, unless the contract is a wager, he is absolutely liable. But in contracts for personal service, it is a condition implied in fact that the person who promises such service shall be able physically to perform.

Contracts in Restraint of Trade.—A contract in restraint of trade may be made as part of and incident to a transfer of a business and its good will from promisor to promisee, or independent thereof. If made as a part of such a transfer it is valid and enforceable, provided it does not go beyond what is reasonably necessary for the protection of the business sold or transferred. In general the restriction should be limited both with respect to time and with respect to space. A general promise not to engage in the business in question anywhere at any time would hardly be reasonable under any circumstances. In drawing such agreements, care should be taken to limit the time and the place to the demands of a reasonable protection of the business transferred, and, in practice, it is safest to have the agreement drawn or passed

upon by a lawyer. An agreement not to engage in any business—not limited to the particular business sold or transferred—is obviously unreasonable and is invalid. Sales of existing business concerns to competitors for the purpose of suppressing competition and creating combinations in restraint of trade are now rendered invalid or at least are visited with penalties by legislation in the several states, and, so far as interstate commerce is affected, by federal legislation.

Wagering Contracts.—Originally wagers were not held intrinsically invalid, but were only invalid legally where the wager involved something inherently illegal or immoral. But legislation changed the rule in England, and in the United States many jurisdictions refused to follow it, so that by judicial decision or legislation all wagers are held contrary to public policy, and void. With respect to wagering contracts of a commercial nature, it may be said that wagers upon the prices of provisions, grain, stock, securities, and the like, upon the basis of "settlement of differences," are unlawful. But this does not mean that all agreements for future sale or partial delivery, even though made on margin or by way of option, are necessarily illegal. In an increasing number of states option contracts of this sort are being declared illegal by statute. But, except as modified by statute, contracts for future delivery are valid, even though the seller does not have the property sold; and buying and selling on margin is not unlawful, provided actual transactions are intended, and not colorable ones to cover actual gambling. Consequently option contracts are not inherently and necessarily unlawful, and the burden of showing that they are colorable and are mere cloaks for what are in fact gambling transactions is upon the person who asserts their invalidity. But if it is shown that neither party intended an actual transaction, each contemplating simply an adjustment by settlement of the difference between the contract price and the market price at the time of settlement, the transaction is void. If both parties, when the contract was made, contemplated actual sale and delivery, they may afterwards settle differences in price by way of performance. If neither intended actual sale and delivery at the time, a subsequent contract providing for actual delivery will nevertheless be upheld. If one of them contemplated actual sale and delivery, but the other intended only a settlement of differences, the former may enforce the contract but the latter may not.

Other Contracts Against Public Policy.—As was said at the outset, it is true of all legal transactions that they must be directed to a legally permissible result. The law will not sanction acts or agreements which have for their purpose anything illegal or contrary to good morals. Hence contracts which have for their plain and acknowledged purpose the violation of the laws of another state are unenforceable. So also the sale of articles which can only be used for illegal or immoral purposes creates no obligation. But sales of ordinary articles of merchandise which can be and usually are used for proper and lawful purposes, are valid, even if the purchaser intends and makes a different use. Yet there may be cases where the purpose is so obviously for use in immoral or unlawful pursuit that the transaction is void, as in case of a letting to a notorious prostitute. All promises and agreements also which tend to corruption, public or private, are void. That is, they are void not only where they involve breach of duty on the part of public officers or deceit of or fraud upon the public, but also where they involve breach of private relations of trust and confidence or fraud upon individuals. Moreover, all promises and agreements that obstruct the administration of justice are invalid. Hence any agreement to stifle a prosecution for a criminal offense, or any agreement, the consideration of which is that one who has committed a crime shall not be prosecuted or that evidence that might convict him shall be suppressed, concealed, or withheld, is void.

Alteration of Written Instruments.—As a general proposition, alteration of a written instrument in any material respect, whether by addition, interlineation, erasure, or substitution, deprives the instrument of legal effect; but to have this consequence the alteration must be made intentionally. An alteration made with the consent of the other party amounts to a new agreement, changing the terms of the original, and will be upheld as such.

Interpretation.—The purpose of interpretation is to find out exactly what the parties intended. To this end the primary clue or index is the literal meaning of the words they have used, or, if the words used have a special significance in the trade, art, or profession in which they were engaged, or a customary meaning in the locality where they contracted, such special or local meaning. If, so considered, their language is ambiguous or the apparent meaning does not seem reasonable, resort is to be had to the context, that is, to the remainder of the instrument or agreement or to instruments or documents executed at the same time or at other times as parts of the same transaction. If the intention still remains in doubt, the intrinsic merit of the various possible interpretations must be considered, and that interpretation is to be adopted which appears most fair, just, and reasonable under all the circumstances. In general, the language of a writing in case of doubt will be taken more strongly against the party who drew it, and hence, presumably, chose language most favorable to himself. The instrument will be construed, so far as possible, so as to reconcile every part of it with every other and thus give effect to every clause and provision; as between an interpretation that would make the instrument or the agreement or any part of it illegal, or invalid, and one that would give it full effect, the latter is to be adopted, and as between those parts which are printed or typewritten and those inserted in writing (or in case of a printed form inserted in typewriting) the inserted matter, in case of conflict, is to be followed.

Drawing Written Contracts.—If an agreement is of enough importance to be reduced to writing, it is usually of enough importance to be drawn or passed upon by a lawyer. A trifling fee at the outset will often save controversy, expense, and litigation later. In general, the danger of contracts drawn up by laymen is, not defect of form, for form counts for little or noth-

ing, but neglect to consider and provide against possible contingencies, so that when something occurs that should have been but was not guarded against or provided for, the writing affords no guide and differences arise. A lawyer, from experience, knows what these contingencies are. It is very rare that a layman appreciates them or that his experience covers all of them. If, however, the layman insists upon drawing his own contract, the chief things for him to do are: (1) to be sure that he clearly understands exactly what the several terms of the agreement are; (2) to state the several things agreed to in plain, simple, non-technical language so clearly that no one can misunderstand, and (3) to ask himself diligently what contingencies may arise to alter or modify the situation, determine what is desired or intended in each of such contingencies, if they happen, and provide fully and clearly for each. Do not try to use technical expressions. Do not try to fill out blank forms. Both are apt to be blind guides, except to the expert. The great thing is to ascertain and to say exactly what you mean. Clear understanding of the precise terms of the agreement and of the contingencies that may affect it is worth more than all the forms that were ever invented. There is always danger that the attention of the layman will be diverted from the substance of the agreement to the form he is trying to follow or the blank he is trying to fill out. No amount of formality will supply deficiencies in substance.

Quasi-Contracts.—The underlying principle of quasi-contract is that one person ought not to be enriched unjustly at the expense of another, and hence where the former, because of mistake, oppression, failure of consideration, or non-performance, impossibility of performance or unenforceability of a contract, is found holding money or property or the benefit of labor or services of the latter, not given to him voluntarily, i. e., as a mere gift, for which he has rendered no equivalent, and which, therefore, it is inequitable and unconscientious for him to retain the law requires the person holding such money or property to restore the money or the value of the property or services as if he had actually promised so to do.

One who holds money or property paid or delivered to him under a mistake of material fact, is bound to restore the money or the value of the property, unless the person to whom it was paid or delivered has, before he knew of the mistake, changed his position; that is, done something in reliance on or because of such payment or delivery whereby he would suffer loss if compelled to make restitution. Unless there has been a change of position, it does not matter that the mistake was a negligent one on the part of the person who made it. By "material" mistake is meant a mistake inhering in the transaction itself as contrasted with a mistake in the "inducement" thereto—i. e., in the motive or in matters which led to the transaction. To be material, the mistake must be as to the transaction itself, as where one signs a note supposing it is a receipt or a deed of conveyance supposing it is a lease, as to the person, as where one believes he is dealing with one person when in fact it is another person, or as to the object dealt with, as where the parties have one piece of land in mind and actually contract about another. But mistake as to the person is only material in those transactions in which there is a choice of persons. Where, as in sales for cash of property taken after inspection, the person dealt with is wholly indifferent, a mistake in the person is of no consequence. It is generally laid down that mistake of law will not afford ground for relief. But there are many exceptions.

Compulsion.—In the same way money paid by one person to another under compulsion may be recovered back, unless it was actually owing. The compulsion need not be actual physical compulsion. Threatened seizure of or sale of property under legal process, injury to business, or arrest may put such pressure on a person that he does not pay voluntarily. On the same principle, if any one, but especially a public officer or a public service company, extorts money to induce the performance of a duty it owes already without any such payment, the money may be recovered.

Default Under Contract.—Where a party to a contract who has received benefit or advantages thereunder fails to perform his part of the agreement, the other party who has performed or has performed part, may, instead of prosecuting his ordinary remedy for damages for breach of the contract, choose to repudiate the contract on his part also. In such case it follows that the former holds something, not given him as a mere gift, for which he has rendered no equivalent, and he is liable to restore it, if money, or its value, if property or services. In case of services, however, some courts allow only the contract wage or compensation to be recovered. If performance of a contract becomes impossible, money paid or property delivered or services performed thereunder, without any equivalent, may be recovered on the same principle. So also, if the contract is not enforceable because of the Statute of Frauds. But if the contract is void for illegality, there can be no recovery upon Quasi-Contract for money paid, property transferred or services rendered thereunder, because, the parties being equally at fault (in legal phrase, *in pari delicto*), the law will not help either of them. If they are not equally at fault, as, for example, if one of them has been in a position to and has exerted pressure upon the other, or if the transaction was made illegal in order to protect the one from the other, the one less at fault may recover benefits conferred upon the other under the contract for which he has received no equivalent. In most jurisdictions, also, there are special statutes permitting recovery of money lost in gambling.

Negotiable Instruments: Bills of Exchange, Promissory Notes and Checks.—Negotiable instruments, so-called because, unlike other "choses in action" (see *infra*, PERSONAL PROPERTY) the legal title to them could be transferred, and transfer of them by indorsement and delivery to a purchaser in good faith, for value, before maturity, will have the effect of cutting off defenses which the maker may have had against the prior holder, are now governed in most jurisdictions by a statute known as the Negotiable Instruments Law. That statute is modeled upon the English Bills-of-Exchange Act, 1882. It had its inception in this country

in the Conference of Commissioners on Uniform State Laws, which, in 1895, instructed its committee on Commercial Law to prepare a draft of a statute codifying the law of bills and notes. The draft was prepared accordingly, was adopted by the Conference of Commissioners in 1896, and, on the recommendation of the Commissioners, has been adopted in the following jurisdictions: Alabama, Arizona, Colorado, Connecticut, District of Columbia, Florida, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Virginia, Washington, West Virginia, Wisconsin, Wyoming. Probably in a few years it will be in force throughout the United States. In the main the statute does not change the substance of the law as it has existed heretofore, but puts it in a more simple and orderly form and reconciles or eliminates conflicts and inconsistencies, which had grown up gradually in the course of decision in the several states. A summary of its provisions, as nearly as possible in its very words, with an indication of the most important local differences and rules recognized in jurisdictions where the statute is not in force, follows:—

Form and Interpretation.—An instrument to be negotiable must (1) be in writing, signed by the maker or drawer, but pencil writing suffices; (2) contain an unconditional promise or order to pay a sum certain in money; but in Georgia, Illinois, and Indiana, notes payable in produce or merchandise are negotiable by virtue of special statutes, and in the same way notes payable in cotton are negotiable in Mississippi; (3) be payable on demand or at a fixed or determinable future time; (4) be payable to order or to bearer—hence if the instrument is payable to a person named and not to his order or to bearer, it is not negotiable; also (5) where the instrument is a bill of exchange the drawee (person on whom it is drawn) must be named or otherwise indicated with reasonable certainty.

By "sum certain" is meant a fixed, definite sum of money. But the sum payable is a "sum certain" within the meaning of the Negotiable Instruments Law, although it is to be paid with interest or by stated installments or by stated installments with a provision (called an acceleration clause) that upon default in payment of any installment or of interest the whole shall become due, or with exchange, either at a fixed rate or at the current rate, or with costs of collection or an attorney's fee in case payment shall not be made at maturity. Where the Negotiable Instruments Law is not in force, authorities differ as to the effect of making the note payable with exchange. In Minnesota and Texas the rule is the same as that prescribed by the Negotiable Instruments Law. But in Indiana and South Carolina such a provision makes the note non-negotiable. Provisions for payment of an attorney's fee in case of non-payment at maturity are unenforceable in Arkansas, Kentucky, Michigan, Nebraska, North Carolina, Ohio, Oregon, and Virginia. Such a provision destroys negotiability in California, Minnesota, South Carolina, and South Dakota.

A promise to pay is unconditional within the meaning of the Negotiable Instruments Law, although it is coupled with an indication of a particular fund out of which reimbursement is to be made or a particular account to be debited with the amount paid or a statement of the transaction which gives rise to the instrument, such as, for instance, that the instrument was given for the purchase price of something named therein. But an order or promise to pay out of a particular fund is not unconditional, and hence the instrument containing it is not negotiable.

By "fixed or determinable future time" the statute means that the instrument must be payable (1) at a fixed period after date or sight, or (2) on or before a fixed or (absolutely) determinable specified future time, or (3) on or at a fixed period after the occurrence of a specified event which is certain to happen (such as the death of the maker), though the *time* of its happening may be uncertain. But if it is payable upon a contingency, it is not negotiable, even if the event does actually take place. For example, a note payable when some person specified comes of age is not negotiable, because he may not live to come of age, and so the note may not become payable.

If the instrument contains an order or promise to do anything beyond payment of money, it is not negotiable. Exceptions to this are provisions authorizing the sale of collateral securities if the instrument is not paid, provisions for confession of judgment upon the instrument, waivers of exemption and other like laws for the benefit of the maker or drawer, and provisions allowing the holder, if he chooses, to require something to be done instead of payment. Provisions for confession of judgment and for waiver of legal protection or benefits are not allowed in many states, and in these the statute does not change the rule. It merely prevents such provision from affecting the negotiability of the instrument.

It is not necessary that the instrument be dated or recite that value has been received or specify the place where it is drawn or the place where it is payable. In many states, however, there are special statutes requiring notes given in payment for patent rights to state that such is the consideration. Where these or similar statutes are in force, the general provision of the Negotiable Instruments Law does not alter the rule. If no time for payment is expressed, the instrument is payable on demand. When it is knowingly made payable to the order of a fictitious or non-existent person, or the name of the payee does not purport to be the name of any person or the only or last indorsement is an indorsement in blank (that is, an indorsement of the name of the indorser only) the instrument is payable to bearer as well as when it is payable "to bearer" or to a person named "or bearer." Ante-dating or post-dating, unless done for an illegal or fraudulent purpose, does not affect the validity of the instrument.

Consideration.—Every negotiable instrument is presumed to have been issued for a valuable consideration, and every one whose signature appears upon it is presumed to have become a party thereto for value. Any consideration that would support a simple contract (see *supra*, CONTRACTS—*Consideration*) is held to be "value," and in addition (differing from simple

contracts) any antecedent or pre-existing debt. A holder who has a lien upon the instrument (as, for example, a pledgee of a note as collateral security) is considered a holder for value to the extent of his lien. Want of consideration or failure of consideration (i. e., that in exchange for which the instrument was given proves to be of no value or non-existent, or, if a promise, is not done or performed) is a defense against any one except a holder "in due course" (i. e., one who took for value, before maturity, without notice of any defense). If the failure of consideration is partial it is a defense to the extent of such failure except against the holder in due course. An accommodation party (i. e., one who becomes a party to the instrument, without receiving value, in order to lend his name to another), is liable to a holder for value, although such holder knew him to be an accommodation party only.

Negotiation.—A negotiable instrument is negotiated (i. e., transferred so as to make the person to whom it is transferred the "holder" of it) by delivery if it is payable to bearer, and by indorsement and delivery if it is payable to order. The indorsement must be written upon the instrument itself or upon a paper attached thereto.

Indorsements.—An indorsement may be either special or in blank, and may also be restrictive, qualified, or conditional. The holder may convert a blank indorsement into a special indorsement by writing over the signature of the indorser in blank any contract consistent with the character of the indorsement. A special indorsement specifies the indorsee, so that the indorsement of the latter becomes necessary to any further negotiation of the instrument. An indorsement is restrictive when it prohibits further negotiation of the instrument or makes the indorsee agent of the indorser for collection (e. g., "pay John Stiles, for collection," or simply "for collection"), or makes the indorsee a trustee for some one else (e. g., "pay John Stiles for account of Thomas Jackson"). A special indorsement to a person named without adding "or order" or "to the order of" is not restrictive. An indorsee who takes by a restrictive indorsement acquires the right to receive payment and to sue upon the instrument. If the restrictive indorsement authorizes him to indorse (e. g., "pay John Doe or order for collection"), he may transfer his rights as indorsee to another; but in that case his indorsee acquires only the title of the first indorsee under the restrictive indorsement. One who takes by restrictive indorsement takes subject to defenses which the maker might have set up had there been no indorsement. Where the Negotiable Instruments Law is not in force, most jurisdictions hold, as the statute prescribes, that an indorsee for collection may sue upon the instrument. But he cannot do so in Minnesota. A qualified indorsement relieves the indorser of all liability *as indorser*, and operates only to transfer the instrument to the indorsee. It may be made by adding to the indorser's signature the words "without recourse," or any words of similar import. Such an indorsement does not impair the negotiability of the instrument and does not serve to put the indorsee on inquiry as to equities between the original parties. Where the indorsement is conditional, a party liable on the instrument may disregard the condition and pay the holder whether the condition has been fulfilled or not, and the holder will take the money subject to the rights of the conditional indorser. If an instrument payable to bearer is indorsed specially, the instrument is still subject to negotiation by delivery, but the person who indorsed specially is liable as indorser only to such holders as take through his indorsement. If an instrument is drawn or indorsed to a person as cashier or other fiscal officer of a bank or corporation, it is *prima facie* (that is, unless and until the contrary is shown) payable to the bank or corporation and negotiable by its indorsement or by that of the officer. Unless the indorsement bears a date which shows the contrary, every negotiation *prima facie* is considered to have taken place before maturity.

Rights of the Holder.—The holder may sue in his own name (whereas at common law the assignee of non-negotiable choses in action had to sue in the name of his assignor). Payment to the holder in due course of business discharges the instrument. A "holder in due course" is one to whom the instrument was negotiated under the following conditions: (1) it was complete and regular upon its face; (2) he became the holder before it was overdue and without knowledge that it had been previously dishonored, if such was the fact; (3) he took it in good faith (that is, intending actually to buy it as a business transaction, and not merely to cut off defenses of the maker or some other party thereto) and for value; (4) at the time it was negotiated to him, he had no notice of any infirmity in the instrument or defect in the title of the person negotiating it. If the instrument is payable on demand, and is negotiated an unreasonable time after its issue, the holder is not a holder in due course. What is a reasonable time depends upon the facts of each case. A few days could not suggest to any one that the instrument had been dishonored. A few months might, depending on circumstances. A year or more would almost certainly do so. The holder must not only have taken the instrument but must have paid the full amount agreed to be paid therefor before receiving notice of any infirmity in the instrument or defect of title in the person negotiating it, or he will not be a holder in due course. If he has paid part before receiving notice, he is a holder in due course to the extent of such payment. The title of the person who negotiates an instrument is considered defective when he obtained it, or any signature to it, by fraud, compulsion, or other unlawful means, or for an illegal consideration, or when his negotiating it is a breach of faith or amounts to fraud. To constitute notice of an infirmity in the instrument, or defect in the title of the person negotiating it, the person to whom it is negotiated must have had actual knowledge of the infirmity or defect or knowledge of such facts that his taking the instrument amounted to bad faith. A holder in due course holds the instrument free from any defect of title of prior parties and free from defenses available to prior parties among themselves, and may enforce payment for the full amount of the instrument against all parties liable upon it. In the hands of any holder other than a holder in due course,

a negotiable instrument is subject to the same defenses as if it were non-negotiable. But a holder who derives his title through a holder in due course, and who is not himself a party to any fraud or illegality affecting the instrument, has all the rights of the holder in due course through whom he takes as against all parties prior to the latter. By "prior" parties are meant those who became parties by making, drawing, accepting, or negotiating before the indorsement in question. Every holder is taken to be a holder in due course unless and until the contrary is shown. But when it is shown that the title of any person who has negotiated the instrument was defective, the burden is on the holder to prove that he, or some person under whom he claims, took as a holder in due course.

Liability of Parties.—The maker of a negotiable note contracts to pay it according to its terms, and is the person primarily liable upon it. The drawer of a bill of exchange or of a check contracts that the instrument will be accepted or paid, as the case may be, on due presentment, according to its terms, and that if it is dishonored and due notice is given, he will pay the amount to the holder or to any indorser who may be compelled to pay it. The acceptor of a bill contracts to pay it according to the terms of his acceptance, and is the person primarily liable. A person who places his signature upon a negotiable instrument otherwise than as maker, drawer, or acceptor, is taken to be an indorser unless he uses words that clearly show an intention to be bound in some other way (e. g., as guarantor). Where a person who is not maker or drawer or payee puts his signature in blank upon a negotiable instrument before delivery, he is called an irregular indorser. The Negotiable Instruments Law provides that an irregular indorser shall be liable as indorser, subject to three rules: (1) If the instrument is payable to the order of a third person, he is liable to the payee and to all subsequent parties; (2) if the instrument is payable to the order of the maker or drawer, or is payable to bearer, he is liable to all parties subsequent to the maker or drawer; (3) if he signs for the accommodation of the payee (i. e., to enable the payee to negotiate it), he is liable to all parties subsequent to the payee. Every person negotiating an instrument by delivery (i. e., where payable to bearer or indorsed in blank prior to the negotiation) or by a qualified indorsement (i. e., one "without recourse") warrants (1) that the instrument is genuine and in all respects what it purports to be; (2) that he has good title to it; (3) that all prior parties had capacity to contract; and (4) that he has no knowledge of any fact which would impair the validity of the instrument or render it valueless. He is liable for damages for breach of any of the warranties which the law creates, even though he did not indorse at all or indorsed "without recourse." But where the negotiation is by delivery only, only the immediate transferee has the benefit of the warranty involved in the transfer, and the warranty of capacity of the parties to contract does not apply to municipal or corporate bonds or to public or private securities other than bills of exchange and promissory notes. An indorser, except one who makes a qualified indorsement, warrants (1) that the instrument is genuine and what it purports to be; (2) that he has a good title to it; (3) that all prior parties had capacity to contract; and (4) that the instrument is valid and subsisting at the time of his indorsement. In addition to the warranties involved in his indorsement, his indorsement is a contract that on due presentment the instrument shall be accepted, or paid, or both, according to its tenor, and that if it is dishonored, and due notice is given, he will pay the amount of it to the holder or to any subsequent indorser who may be compelled to pay it. Among themselves, in the absence of special agreement, indorsers are liable in the order in which they indorsed.

Presentment for Payment.—Presentment for payment is not necessary in order to hold the person primarily liable on the instrument, but it is necessary in order to hold the drawer of a bill or check and in order to hold indorsers. Where the instrument is not payable on demand, presentment must be made on the day it falls due. If payable on demand, presentment must be made within a reasonable time after the instrument is "issued" (i. e., first delivered, complete in form, to a person who takes it as holder). But a bill of exchange payable on demand may be presented for payment within a reasonable time after the last negotiation of it. Presentment must be made by the holder or by some one authorized to receive payment on his behalf, at a reasonable hour on a business day, to the person primarily liable, or, if he is absent or cannot be reached, to any person found at the place where presentment is to be made. Presentment for payment must be made at the place of payment specified in the instrument, if any is specified. If no place is specified, but the address of the person to make payment is given in the instrument, it must be presented there. Otherwise it is to be presented at the usual place of business or residence of the person who is to make payment. If no such place may be found, with reasonable inquiry, it may be presented to the person who is to make payment, wherever found, or at his last known place of business or residence. If payable at a bank, presentment for payment must be made during banking hours, unless the person to make payment has no funds there to meet it at any time during the day, in which case presentment at any time before the bank is closed on that day is sufficient. If the party primarily liable is dead, and no place of payment is specified, presentment must be made to his executor or administrator, if any. Where the persons primarily liable are liable as partners, and no place of payment is named, presentment may be made to any one, even though the partnership has been dissolved. But in other cases of joint debtors on the instrument, unless a place of payment is named, presentment must be made to all. If the drawer has no right to expect or require that the drawee or acceptor will pay the instrument, presentment for payment is not necessary to hold the drawer; nor is it necessary to charge an indorser where the instrument was made or accepted for his accommodation, and he has no reason to expect that it will be paid if presented. If delay in making presentment is caused by circumstances beyond the control of the holder, it will be excused. But he must make presentment with reasonable diligence after the cause of delay

ceases to operate. Presentment is dispensed with where, after the exercise of reasonable diligence, it cannot be made and where the drawee is a fictitious person. It may also be waived in writing or orally, and waiver may be shown by the usage of the parties or the business. The instrument is dishonored by non-payment when it is duly presented and payment is refused or cannot be obtained, or where presentment is not necessary or dispensed with and the instrument is overdue and unpaid. When the instrument has been dishonored, and notice has been given, it is said that the liability of drawers, indorsers, and parties secondarily liable has "become fixed." The holder now has a right to resort to them for payment, and they are no longer regarded as sureties for the person primarily liable. By the Law Merchant, three days of grace were allowed for payment after the date fixed by the instrument. The Negotiable Instruments Law has abolished days of grace, but it provides that if the instrument falls due on Sunday or a holiday, it is payable on the next succeeding business day. This was the rule of the Law Merchant also. Where days of grace exist, if the last day of grace falls on Sunday or a holiday, but two days are allowed.

Notice of Dishonor.—Notice of dishonor must be given to the drawer and to each indorser, and, in general, any drawer or indorser to whom such notice is not given is discharged. It may be given by or on behalf of the holder or by or on behalf of any party who might be compelled to pay the holder, and on so doing could claim reimbursement from the party notified. It may be given by agent, and the agent may give the notice in his own name. If given by or on behalf of the holder all subsequent holders and all prior parties who have a right of recourse against the party notified are entitled to the benefit of the notice. It may be written or oral. If written it need not be signed, and may be supplemented by an oral communication. A misdescription of the instrument does not invalidate it unless the misdescription actually misleads the party notified. But it must identify the instrument and must indicate that the instrument has been dishonored by non-acceptance or non-payment. It may be given by personal communication or delivery or through the mails, and either to the party himself or his agent. If the party to be notified is dead, it must be given to his executor or administrator, if any. If there is none, it may be sent to his last residence or last place of business. With respect to partners and joint debtors, the rule is the same as in case of presentment. The notice may be given as soon as the instrument is dishonored, and, if the parties reside in the same place, must be given as follows: (1) If given at the place of business of the person to receive notice, before the close of business hours on the day following; (2) if at his residence, before the usual hours of rest on the day following; (3) if sent by mail it must be deposited in the post office so as to reach him in the usual course of mail on the day following. If the parties reside in different places, if the notice is sent by mail, it must be deposited in the post office in time to go by mail the day following the day of dishonor, or if there is none at a convenient hour, by the next mail thereafter. If given in some other manner, it must be within the time in which a notice by mail, duly given, would have been received. If properly addressed and deposited in the post office, there is due notice, notwithstanding any miscarriage in the mails; and the term post office in the statute includes branch post offices and letter boxes. Where a party has added an address to his signature; notice must be sent to that address. If he has given no address, it must be sent to the post office where he is accustomed to receive letters, either his place of business, or his office, or any place where he is staying. If he actually receives it in time, it is no matter where it was addressed. Notice may be waived, and a waiver of "protest" is held to waive presentment and notice. Delay is excused and notice itself dispensed with in like circumstances as in case of presentment. But in addition, if drawer and drawee are the same person, or the drawee is a fictitious person, or the drawer has stopped payment, the drawer is not entitled to notice of dishonor. Notice need not be given to an indorser where the drawee is a fictitious person, and he knew it, or where the instrument was made or accepted for his accommodation.

Bills of Exchange.—An inland bill of exchange is a bill which on its face is both drawn and payable within the state. Any other bill is called a foreign bill. The bill may be drawn on two or more drawees jointly, but not in the alternative or in succession. But the drawer or any indorser may insert the name of a "referee in case of need," that is, of a person to whom the holder may apply, in case the bill is not accepted or is not paid. In such a case, the holder may resort to such person or not as he sees fit.

Acceptance of Bills of Exchange.—The acceptance must be in writing, signed by the drawee. The usual form is "accepted," followed by the signature of the drawee. The holder has the right to insist that the acceptance be written on the bill, and may treat the bill as dishonored if this is not done. But an acceptance on another paper will bind the acceptor in favor of any one to whom it is shown and who takes the bill for value on the faith of it. The drawee is allowed 24 hours after presentment in which to decide whether or not to accept, but if he destroys the bill or refuses to return it after 24 hours, he is held to have accepted. This provision is not in force in Illinois.

Protest.—Protest is only necessary in case of dishonor of a foreign bill of exchange by non-acceptance, or, if not previously dishonored by non-acceptance, by non-payment. If it is not made the drawer and indorsers are discharged. But it is much better and safer to resort to a notary public and have protest made in all cases, as the record of the notary affords a certain and convenient mode of proof, and the notary usually has given an official bond upon which recourse may be had if he makes a mistake resulting in loss. The protest must be in writing, signed and sealed by the notary, and must be attached to the bill or to a copy of it. It must be made at the place and on the day of dishonor of the bill. In other respects the rules governing it are similar to those governing notice of dishonor.

Checks.—The Negotiable Instruments Law provides expressly that its rules applicable to bills of exchange payable on demand shall apply to checks, except as otherwise provided. Three special points should be noted: (1) a check must be presented for payment within a reasonable time after it is issued, or the drawer will be discharged from liability to the extent of any loss caused by the delay (e. g., intervening insolvency of the drawee); (2) where the check is certified by the bank on which it is drawn, the certification is equivalent to an acceptance; (3) if the holder procures the check to be certified, the drawer and all indorsers are discharged.

Agency.—An agent is a person appointed to do some act or to act generally on behalf of another. The latter is called the "principal"; and what the agent does in execution of his agency is regarded legally as if done by the principal. An attorney-at-law is an agent who conducts the legal business of his principal, here called his "client." An attorney in fact is an agent appointed by a deed, called a power of attorney. (See *infra*, CONVEYANCING). A factor is an agent to whom goods are consigned for sale upon commission. If he undertakes to become responsible to the principal for payment by or solvency of those to whom he sells, he is called a *"del credere* agent." A broker is an agent employed to buy or sell without having possession of the property or to go between the parties and bring them together.

Appointment of Agents.—In general, no form is necessary. A course of conduct which shows an intention that the agent act for and on behalf of the principal will suffice. And if the course of conduct is such that a reasonable man would so interpret it, those who deal with the supposed agent in reliance on the appearance so created will be permitted to hold the supposed principal as what his acts have made him appear.

Ratification.—Although one who acts as agent has no authority, the person for whom he has assumed to act may treat the act as authorized and thus become bound thereby as if he had authorized it in the first instance. This is called ratification. One may ratify expressly or by accepting the benefit of the transaction with knowledge of all the facts. But one who ratifies must ratify the whole. He cannot ratify that part which is to his advantage and repudiate the remainder.

General and Special Agents: Execution of the Agency.—A general agent is one employed either to manage the whole business of the principal or in a position of a generally recognized character, which, from its nature, carries a considerable apparent authority. A special agent is one appointed for a particular occasion or purpose which does not involve any apparent authority beyond what is specially given. The principal is bound by what the general agent does within the scope of his authority, even if contrary to the instructions given him. He is only bound by the acts of the special agents so far as they were authorized. The agent ought always, if only for his own protection, to act in the name of his principal. Thus he should not sign "Richard Roe, Agent," but "John Doe, by Richard Roe, his agent." Otherwise there is danger that he may be held personally upon a transaction into which he intended to enter as agent only. If he acts in his own name without disclosing his principal, the principal may nevertheless sue or be sued upon the transaction, because in truth it is his. But the agent may be held personally, because the other party dealt with him supposing him to be the party in interest. Also if the principal sues in such a case, the other party may make any defense he might have made against the agent. The agent having been chosen because of the confidence reposed in him personally, cannot delegate his agency to another. But he has the power to do anything reasonably necessary to execution of his agency, which includes the employment of sub-agents for whose acts he is liable as principal. He is responsible to the principal for execution of his authority according to the terms thereof. If he exceeds his authority or violates his instructions, he may make the principal liable to third persons, but he will himself be liable to the principal for the resulting loss. When he deals with third persons as agent, he impliedly warrants his authority, and is liable to them if his acts fail to bind the principal for lack of authority.

Rights and Duties of Agents.—An agent is a fiduciary, that is, he occupies a relation of trust and confidence. Hence he must deal with his principal in the utmost good faith, must fully disclose to him all facts bearing on transactions between himself and the principal, must not make any secret profit out of the agency, and must account to the principal for it if he does, and occupies the position of a trustee with respect to money and property in his hands. He is entitled to be reimbursed for expenses properly incurred in the course of the agency. Whether or not he is entitled to compensation depends upon his contract with the principal.

Revocation.—Agency is terminated by death of either principal or agent. It may also be revoked by the principal unless the agency is "coupled with an interest" (i. e., unless the agent is agent of the principal for some purpose of the agent's as well as of the principal's). But if the agency is generally known, the principal on revoking should notify third persons who have been in the habit of dealing with the agent as such, or he may be bound by the appearance of agency which he suffers to continue.

Suretyship and Guaranty.—A surety enters into a joint or joint and several contract along with the principal debtor (called the principal) upon the same consideration, so that in form both principal and surety have joined in the promise or undertaking. A guarantor enters into an independent contract, collateral to the contract or obligation of the principal, upon an independent consideration, if made after the principal's obligation is incurred, to be answerable for performance by the principal. A guaranty must be evidenced by writing (see *supra*, CONTRACTS, STATUTE OF FRAUDS). As between principal and surety, the former ought to pay or perform. Hence he is said to be primarily and the latter to be secondarily liable. As between the creditor and the surety, the latter is a joint or joint and several debtor. But if the principal knows the latter to be surety, he is bound so to act as not to interfere with the rights of the

surety, as between him and the principal, growing out of the surety's secondary liability.

Release or Discharge of Surety or Guarantor.—As the contract of a guarantor is collateral, obviously he cannot be liable unless there is an obligation on the part of a principal, to which his agreement may be collateral. Hence if the principal is not liable or the liability of the principal is extinguished, the collateral liability comes to an end also. Moreover, the surety or guarantor may be discharged (1) by acts of the creditor without his consent, altering materially the contract with the principal; (2) by acts which, without his consent, take away his right to pay the creditor, and for his own protection obtain thereby the immediate power to enforce the creditor's rights against the principal. Hence an extension of time to the debtor on consideration and for a definite period, a surrender of securities to the principal, or a material variation of the surety's or guarantor's risk, without the latter's consent, is a discharge. In the absence of statute, the better opinion (though the matter is in dispute) is that surety or guarantor cannot compel the creditor to sue the principal first; his remedy is to pay the debt and enforce the creditor's rights against the principal himself for his own protection. But statutes allow him to notify the creditor to sue, and release him in case the notice is not complied with, in Alabama, Arkansas, Illinois, Indiana, Iowa, Kentucky, Mississippi, Missouri, North Carolina, Ohio, South Dakota, Tennessee, Texas, Virginia, and Washington. The same result is reached by judicial decision in New York, Pennsylvania, and partially in Minnesota.

Rights of Surety.—In addition to the right to pay the debt and succeed to the creditor's rights against the principal debtor for his own protection, a surety has a right against the principal to be indemnified for whatever he has been compelled to pay on the debt, against his co-sureties to compel them to contribute their shares of what he has had to pay, supposing he has paid more than his share, and against the principal to compel the latter to exonerate him by paying the debt.

Rights of the Creditor.—The creditor, except when notice is allowed as above explained, may proceed immediately against guarantor or against surety, if he is jointly and severally liable, or against principal and surety jointly, if they are jointly liable, to collect the debt. He also has a right to require the guarantor or surety to apply on the debt any securities the principal may have given him for his indemnity.

Partnership. — Partnership is the relation between persons who have agreed to combine their money or property or labor or skill or some of them in a joint enterprise or business, and to share the profits. The basis of partnership is agreement, and the law does not recognize the partnership as an entity or legal person. Herein it differs from a corporation, the basis of which is the authority of the state creating a legal entity or person distinct and apart from the individual incorporators. Hence, while a corporation owes debts, not the stockholders or members, a partnership does not owe debts legally, but the partners owe them. That is, the liability of members or stockholders in a corporation is a limited one, usually extending only to the amount unpaid upon their shares. But the partners in a partnership are joint debtors, and are liable for the whole amount of the partnership indebtedness. It is common, however, for statutes to provide for special or limited partnership, in which a special partner, who advances or has advanced money to the business, receives a share of the profits for the use of his money, and is not liable for debts. Such statutes require that the name of the special partner shall not appear in the firm name, and that the partnership agreement (or articles) shall be filed in some specified public office. It follows also from the legal conception of a partnership that debts due to it are legally due to the partners as joint creditors. Hence, if one partner dies, the debt, in legal understanding, is due to the surviving partner. But he must account to the estate of the deceased partner for the latter's share. Conversely, the legal liability for partnership debts, in case of death of one partner, is imposed on the survivor. But the latter is entitled to be repaid out of the estate of the deceased for anything he may pay upon such debts beyond his share. On the same ground, suits against the partnership originally had to be, and, even after modern legislation allowing suits by or against partnerships in the partnership name, may be brought against the partners jointly, just as against any other joint debtors, and either the property of any partner or the partnership property may be levied upon under execution to pay the debt. Moreover, a creditor of a partner, for a debt in which the partnership has nothing to do, may levy execution upon the partnership property and sell the debtor's interest therein, as in any other case of joint ownership.

Powers and Duties of Partners.—Each partner is the agent of the partnership, and hence of all the partners, with respect to the partnership business. If among themselves they have agreed to limit the authority of some one partner, he may become liable to his co-partners if he exceeds such limitation. But persons who deal with the partnership are entitled to assume that any partner may bind all, unless they know of the limitation. Partnership is a fiduciary relation, and all that was said above (see AGENCY, *supra*) as to the nature and consequences of such a relation applies here also. A partner cannot sell or transfer his share or any part of it so as to bring a new partner into the partnership without the consent of all his co-partners. And if a new one is so brought in, he becomes a co-owner of partnership property and joint debtor for its debts from the time he is taken in. He is not liable for prior debts, and the former partner whose place he takes is still liable therefor. But it may be agreed that he shall assume the liability of the retiring partner.

Dissolution.—A partnership, if formed for a fixed and limited time, is dissolved by expiration of that time; if not, it may be dissolved by notification of any one to the others that it is dissolved. In either case, it is dissolved if all consent, if a partner dies, or if one of the partners becomes bankrupt. It may also be dissolved by a court if one of the partners become insane or incapable of acting, or so conducts

himself as to prevent proper carrying on of the business, or if the business can only be carried on at a loss. Where a court winds up a partnership, it will pay the partnership creditors first out of the partnership assets, and will allow creditors of the individual partners to take only what is left.

Corporations.—A corporation is regarded in law as a person distinct from its members, so much so that it may have rights against them and they in turn have rights against it or toward it. It derives its existence from the state. Formerly each corporation was created by a special act, for that purpose called a charter. The practice now is to provide by general law, that ordinary business corporations may be formed by a simple process of adopting articles of association or incorporation and filing them or a certificate thereof in some designated public office.

Corporations are of two kinds, public and private. A public corporation is one created for some purpose of government, such as a city, a village, a school district. Other corporations, even where they are public-service corporations, like railway, telegraph, telephone, and express companies, are called private corporations. In case of charitable, religious, library, and sometimes social institutions or societies, which are permitted to incorporate, the statutes prescribe an organization without capital stock. But in other cases the interest which the members have in the corporation is represented by shares in the capital stock, the total amount of which is fixed by the charter or articles. The stockholders are not in any sense the owners of the property or assets of the corporation. The corporation owns them. The stockholders own merely the shares, which give them a right to participate in the control of the corporation, receive dividends, if any are declared, and upon winding up of the corporation, to receive a share in the residue after payment of all claims against the corporation in the proportion which their shares of stock bear to the whole capital.

Powers of Corporations.—A corporation may sue and be sued in the corporate name, may have and use a seal, and may make reasonable by-laws, not inconsistent with law, for its government. It also has what is called legally "perpetual succession"; that is, the corporate existence is in no way affected by changes in its membership, and its property and obligations belong to and are those of the legal entity, no matter who are the members or how the membership changes. But the corporation only has the powers and can only use its powers for the purpose provided in its charter articles. An act outside of what is so provided is said to be *ultra vires*, that is, beyond its powers. If it attempts to do *ultra vires* acts, any stockholder may obtain an injunction. The corporation cannot enforce *ultra vires* contracts against third persons, and some authorities hold that *ultra vires* acts are wholly void.

Management of Corporations.—The charter or articles provide how a corporation shall be managed or governed. As a general proposition, the ultimate government is in the meeting of all the stockholders, in which each has one vote for each share which he holds. The immediate management is usually in a board of directors. These directors occupy a fiduciary relation to the corporation and to the stockholders (see *supra*, AGENCY). In case of mismanagement, in breach of the duties imposed by this relation, a stockholder may bring a suit on behalf of the corporation to enjoin the mismanagement and compel restitution to the corporation of money or property it is equitably entitled to.

Stock and Stockholders.—Shares are usually evidenced by certificates and are transferable on the books of the corporation by surrender of the old certificate and taking out a new one running to the new shareholder. The usual practice is to execute a blank power of attorney on the back of the certificate authorizing the holder to make such transfer, so that practically when the original holder has indorsed it, the certificate can pass by delivery. But at law the person who is registered on the books as stockholder is regarded as owning the shares, and he only is entitled to vote at meetings and to receive dividends.

Dissolution.—A corporation may be dissolved by expiration of the time fixed in its charter or articles, by voluntary surrender of its franchises, or by forfeiture, either for not using its franchises or for misusing them, at suit of the state. Statutes in many jurisdictions also provide for the judicial winding up of insolvent corporations, on the vote of the stockholders, or at the instance of certain public officers.

Property.—The law distinguishes two kinds of property, real property and personal property. The distinction is an arbitrary and technical one, and is by no means as easy as the layman usually supposes it. Real property, on the death of the owner, descends at once to the heir or heirs, unless disposed of by will; personal property, whether there is a will or not, passes at once to the executor or administrator, by whom, if disposed of by legacies in the will, it is turned over to the legatees, or, if there is no will, it is distributed among the next of kin of the deceased owner. Estates in land, except for a fixed period of time, i. e., for years, and certain rights called "incorporeal hereditaments," such as rights of way and other like rights in another's land, rights to take something from another's land (called profits), franchises, annuities and rents, are real property. Everything else that may be owned, including estates in land of definite duration, is personal property.

Personal Property.—The technical term for personal property is "chattels" or "goods and chattels." Chattels are of two kinds: chattels real, that is, estates in land less than freehold (i. e., for years or at will), and chattels personal, that is, all other forms of personal property. Chattels personal are classified as choses in possession, that is, tangible corporeal chattels and choses in action, that is, incorporeal chattels, such as notes, book accounts, shares of stock, bonds, judgments, and the like.

Choses in Action.—Originally the law did not allow choses in action to be transferred. Later it allowed transfer of claims upon contract or for injury to property to the extent that the assignee might sue and collect in the assignor's name. Statutes now allow him to sue in his own name in most jurisdictions. But

claims for salary of public officers not yet earned cannot be assigned.

Joint and Common Ownership. — Where two or more persons own a chattel in undivided shares they are to-day owners in common. Partners as to debts due the firm, and trustees, executors, and administrators are an exception. They are held joint owners, so that is one dies the legal title goes to the survivors. In case of ownership in common, the share of a deceased owner is treated like any other property. Ownership in common of chattels is a very unsatisfactory form of ownership. Each owner is entitled to possession, and the possession of one is that of all. Hence unless the chattel is divisible (e. g., so many tons of hay or bushels of grain), if one owner in common excludes the other from the use of the chattel, the latter's only remedy is to go and take it, if he can, without breach of the peace. Even if there is a contract how it shall be used, he can only sue for breach of that contract. If the chattel is divisible, there may be partition by either taking his share. In any case there may be partition by agreement, or if the chattel is indivisible and they cannot agree, by suit for that purpose. If repairs are necessary, either may repair, and if the other has agreed or has been notified and refused to do anything, the latter may be held for his share of the reasonable expense of necessary repairs.

Acquisition of Chattels.—There are two modes of acquisition: original acquisition, by which one gets a new and independent title (without regard to any pre-existing rights of others), and derivative acquisition, in which one gets whatever title the person from whom he takes has to give him. One mode of original acquisition is occupation, i. e., taking possession with intent to become owner, of wild animals (not on another's land), or of abandoned chattels (provided one is rightfully on the land where he finds them). An abandoned chattel is one of which the owner has relinquished possession intending to give up all his rights in it. Another mode is adverse possession of the chattel for the period of the statute of limitations. Another mode is called accession. The person seized of land for the time being, even if wrongfully, becomes the owner of the fruits and products of the soil he removes therefrom while seized. The owner of animals becomes owner of the increase born to such animals. Another form of accession takes place where materials of two persons are united or where one person expends labor upon another's materials so as to change their form. In the former case, if they cannot be separated, the whole belongs to the owner of the principal materials, but the other has a claim for the value of what he thus loses. In the latter, if the new form is of a value greatly in excess of the old one, the person who has made the change by his labor in good faith is owner, but the other has a claim for the value of the materials; if the new form is not of a value greatly exceeding that of the old one, the original owner does not lose his property. Still another mode is confusion. If the property of two persons is confused so that the original components of the new mass cannot be distinguished, each owns an undivided share in the new mass to the extent to which his property is represented therein. If the proportion of the original components to the new mass cannot be ascertained, and the confusion was made willfully and fraudulently by one of the parties, the whole is awarded to the innocent party.

Derivative acquisition takes place by law when one who has converted to his own use another's chattel and has been sued for the conversion pays the judgment. By satisfying the judgment he becomes owner as of the date of the conversion. It takes place by act of the parties in case of gift, legacy, sale, or mortgage.

Gifts.—A gift is a gratuitous transfer of a chattel from one person to another. Gifts must be accepted by the donee (person to whom the gift is made), but acceptance is presumed. They are of two kinds: *inter vivos*, i. e., between living persons, and *causa mortis*, i. e., in contemplation of death and conditioned on death ensuing. Gifts of each kind require delivery of the article to the donee or to some one for him. A gift *causa mortis* is one made in contemplation of death from disease or from some impending peril. If death does not ensue, the gift does not take effect. And the donor (giver) may revoke the gift at any time. When a gift *inter vivos* is complete by delivery or one *causa mortis* by delivery in the lifetime of the donor and death of the donor from the disease or casualty feared, it is not revocable.

Sales.—A uniform statute on the subject of sales of personal property has been approved by the Commissioners on Uniform State Laws, and has been adopted in six jurisdictions. It is likely that eventually it will be put in force throughout the United States. At present, however, the common law on the subject is generally in force. The word "sale" is used in two senses. Strictly it means an agreement by which the seller (legally called the vendor) transfers to the buyer (vendee) the whole of some existing property right for a price in money. But the term is also used to mean a contract to make such a transfer at some future time (executory sale). In an executory sale, one need not be owner; he may bind himself to procure and transfer in the future. But no one can give any better or greater title by a sale than he has to transfer. Even though the buyer takes for value without notice, except in the case of negotiable instruments, he only gets the title of the seller, whatever that was. If, however, one sells something he does not own and warrants the title, in case he afterwards acquires title to it, that title will pass to the vendee, because the law will not allow the vendor to deny the title he purported to convey and warranted. If a bill of sale, i. e., a written transfer of the property under seal (except where seals are abolished, see CONTRACTS, *supra*), is executed and delivered, title passes thereby at once. If not, and the subject of the sale is not specific, e. g., 10 horses, but not 10 particular horses, 10,000 bushels of wheat, but not the wheat in a particular elevator, title passes to the buyer on delivery. If the subject is specific, when title passes depends on the intention of the parties; if they intend an immediate transfer, it passes; if they intend an executory sale to be completed later by carrying out the agreement, it does not. Until title has passed to the buyer, the risk of loss of the article (e. g., by destruction, burning, death, etc.) is on the seller. Delivery to a common

carrier consigned to the buyer is a delivery which passes title to the buyer unless the parties have agreed otherwise. Where the sale is on credit and the property is sent to the buyer by a common carrier or any agency other than the buyer's agent or servant, the seller may stop it while in transit and retake it, in case it has not come into the buyer's possession and control, if the buyer becomes insolvent. This is called the right of stoppage *in transitu*. Where section 17 of the Statute of Frauds is in force (see CONTRACTS, *supra*) it applies to sales.

Warranty.—Every sale of a chattel which at the time of the sale is in the seller's possession carries with it by implication a warranty that the seller has title to what he sells. But there is no implied warranty of quality. As to that the buyer takes the risk unless there is an actual (express) warranty. There are exceptions, however. If something is ordered from a manufacturer for a special purpose of which he has knowledge, he warrants by implication that it shall be reasonably fit for that purpose. Express warranties are subject to an exception that if the buyer had an opportunity to inspect the thing warranted, the warranty does not cover obvious defects which any one could discover by an ordinary examination. If the sale is procured by fraud, it is voidable (see CONTRACTS, *supra*). But if not, a mere breach of warranty does not give the buyer a right to set aside an executed sale. His remedy is to sue for breach of the warranty.

Chattel Mortgages.—A chattel mortgage is in form a conveyance of personal property to a creditor upon a condition that if the debt is paid according to the terms of the obligation, the transfer shall be void and the property revest in the mortgagor. Originally if the debt was not paid at maturity, the mortgagee simply had a complete title to the property. But equity allowed the mortgagor to redeem and the mortgagee to sue in equity to require him to do so, and cut off (foreclose) the right of redemption if he did not. To-day statutes everywhere provide a simple and inexpensive foreclosure by taking possession of the property, selling at public sale after notice, and applying the proceeds on the debt. Blanks for chattel mortgages adapted to local requirements may be procured in any community, but a few suggestions and warnings about the use of them may be made. The description of the property should be such as to afford notice to third persons. Hence the property must not only be described clearly but *located*. The place where the property is situated is an important element of the description, and should not be omitted. It is also important to bear in mind that a power of sale by the mortgagor, without requiring him to account to the mortgagee for the proceeds of sales, is a fraud on other creditors, and makes the mortgage void as to them. If there is nothing in the mortgage upon this matter, but the mortgagee knows of and permits sales without an accounting for the proceeds, other creditors may set the mortgage aside. Where a mortgage is given upon a stock of goods, therefore, one ought to be careful to insert a provision therein covering this point. The mortgagee should also see to it that the form or blank used contains a clause authorizing foreclosure in case the mortgagee feels "unsafe or insecure." This will enable him to take the property, if with good reason he believes his security is becoming impaired. If the mortgage is for a small sum, it is for the advantage of both parties to include a waiver of the statutory requirements as to notice of sale, and even to agree to a private sale. Unless waived, all statutory provisions must be substantially complied with. If not, the mortgagee may become liable to the mortgagor for conversion of the property. Statutory provisions as to recording or filing chattel mortgages vary greatly in the different states. These should be looked up and carefully complied with. Otherwise other creditors may defeat the security.

Possession of Chattels: Bailments.—Without being the owner of a chattel, one may nevertheless have the right to possession of it against every one, including the owner, or against every one but the owner, by reason of bailment, or pledge, or lien, or finding. A bailment is a delivery of possession of a chattel by one person (called the bailor) to another (called the bailee) to be held by the latter for the purpose of the bailment and redelivered when that purpose is accomplished. Bailments are of three kinds: (1) those for the sole benefit of the bailor, such as a deposit for safe keeping without compensation; (2) those for the sole benefit of the bailee, such as gratuitous loan of an article; and (3) those for the benefit of both, such as delivery to a carrier for transportation for hire or delivery to a creditor by way of pledge. In the first class, the bailee is excused if the property is lost or stolen or destroyed unless he was grossly negligent. In the second he is held to a high degree of care, and is liable if the property is lost or stolen or destroyed unless he uses such care. In the third class he is held to ordinary care such as prudent men generally employ.

Pledges.—A pledge or pawn is a bailment of a chattel as security for a debt, the pledgee acquiring a right to retain possession until the debt is paid. If the debt is not paid, he may foreclose by suit for that purpose or he may give reasonable notice to the owner and proceed to sell at auction and apply the proceeds on the debt. The pledgee may assign his rights to another, or even pledge them, if he does so subject to the rights of the pledgee, but he has no right to sell before the debt is due or to repledge as his own so as to cut off the right to redeem. If he does so, the pledgor may sue for conversion and recover the difference between the value of the property and the amount of the debt. Whatever pledgee may do, the pledgor is not entitled to possession until he pays or tenders the amount of the debt. In case of pledges of negotiable instruments or other choses in action, called collateral securities, the instruments, indorsed where necessary, are delivered to the pledgee and a written contract is usually entered into specifying the manner in which the securities shall be disposed of in case the debt is not paid. Reference may be made to Jones, *Pledges* (2 ed.), Boston, 1901, or Colebrooke, *Treatise on the Law of Collateral Securities* (2 ed.), Chicago, 1898.

Liens.—A lien is a right to hold possession of the property of another until some claim of the person in possession is satisfied. This is the original use of the term, and a lien of this sort

is called a "common-law lien." There are also statutory liens, which give a right to sell for satisfaction of the claim, and even, in some cases, to take possession of the property and have it sold. With respect to extent, liens are special or general, that is, they are rights to hold (or hold and sell) for a particular claim, or to hold (or hold and sell) for all sums due from the owner to the lien holder. Of the latter type is the lien of the factor upon goods of the principal in his hands. Special liens are given by the common law to the carrier for freight upon the property transported (but not on other property), to the innkeeper upon all property brought into the inn by a guest which the innkeeper is bound to receive, as security for the board and lodging on that occasion (but not on prior occasions), and to any other person to whom a chattel is delivered in order that he do some work upon or perform some service with respect to it, provided its value is increased by such work or service. Such liens give a right to hold until the claim is paid, but not to sell for payment. Strictly, such a sale can only be had by foreclosure in court. Statutes now give liens also to stable keepers for the keep of horses, and to persons who take animals for pasturage (called "agisters"), and in many diverse cases of the sort. These statutory liens may usually be foreclosed by notice to the debtor and public sale, as in case of a pledge. If the lien holder gives up possession, he loses his lien, and can only sue for the debt.

Finding Chattels.—One who finds a lost chattel (even if on the land of another, provided he is there rightfully at the time) acquires a right to take and hold possession against every one except the owner. He must deliver to the owner, and has no right to hold for expenses incurred or for a reward, unless a definite sum has been offered by way of reward, in which case he can hold for that sum. If a finder loses, a second finder must restore to the former, subject to the paramount right of the owner. An important distinction exists between lost chattels and those that are merely mislaid. An article is lost when, without intending it, the owner has let it get out of his control or possession. If he puts it in a place which is in the custody or control of another intentionally, and then forgets to remove it, the person in charge of such place has the right to hold it, and another cannot claim the right to take possession of it as a finder.

Real Property: Conveyancing.—The law of real property is the most technical and difficult part of our legal system. Hence, unless one is sure that he knows what he is about, it is very unwise for the layman to do anything of consequence involving a point of real property law without the advice of a lawyer. It is particularly necessary to remember that rights and interests in land are governed by the law of the place where the land is situated, and that the laws of the several states differ greatly in many important details in the law of real property. One should not assume that rules with which he is familiar in his own locality will govern estates in land in other jurisdictions. Conveyancing blanks adapted to local requirements may be had of stationers almost everywhere. Hence it would subserve no useful purpose to insert forms here, especially as the practice of different jurisdictions varies so greatly. But a few suggestions and cautions may be of use.

Forms and Conveyancing Blanks.—Care should be exercised in the selection of blank forms of conveyances. There is often a great difference in forms, and one ought never to fill out a form and assume that it will suffice without first reading it very carefully, unless it is one with which he is familiar. Many clauses which are highly desirable in such instruments as mortgages, for instance, will not be found in every blank. It is wise also to look a blank over before using it unless one is familiar with it, in order to avoid mistakes in filling it out. Never abbreviate. Neither the names of parties nor the description of the property should be abbreviated. Avoid also erasures, alterations, and interlineations. They are dangerous and may be fatal to some subsequent use of the instrument which may be desired. Draw it over rather than erase or alter.

Deeds.—Title to freehold estates in land (i. e., for life or in fee simple, that is, to one and his heirs and assigns forever) can only be transferred by a formal conveyance, which takes place to-day by execution and delivery of a deed. Except where private seals are abolished (see CONTRACTS, *supra*), the deed must be under seal. It takes effect when it is delivered, i. e., when the grantor (person who conveys) puts it out of his control with the intention that it operate. He may deliver it upon condition (technically *in escrow*), so that it is beyond his control, and yet will not be turned over to the grantee or will not operate till the condition is performed. A deed which releases or conveys the interest or estate of the grantor without any covenant or covenants as to title is generally called a quit-claim deed. One which contains covenants warranting the title is generally called a warranty deed. The covenants in a warranty deed not only subserve the purpose of assuring the grantor's title, but they also operate to transmit to the grantee or his successors in interest any title which the grantor acquires afterwards, unless he reacquires the title he warranted. Hence a warranty deed is much to be preferred.

In describing the parties, the first name of grantor and grantee ought to be given in full, as, if litigation ensues, it may be essential to know the full name. If in the chain of title the grantor is described by his initials, it is better to have him make the conveyance by his full name and add a recital to show that he is the person referred to by the initials, as "John Doe, described in a certain conveyance from ..... to ....., dated ....., and recorded in ....., as J. Doe. It often happens that errors creep into conveyances, and that the name under which the title is held is not the real name of the grantor. In such case it is best to describe him by his true name, and refer to the prior conveyance and the description therein as illustrated above. The residence of grantor and grantee respectively ought also to be inserted carefully. While this is in no way essential, it is often highly convenient subsequently when some claim arises with respect to title.

Great care should be taken to have the description of the property complete, certain, and accurate. Avoid such crude and ambiguous descriptions as "the east ten feet of lot one," or "ten feet off of lot two." If it is not possible to describe by reference to a plat or government subdivision, so that the tract must be bounded, always begin at a known point or at a point on a known line, or, if that is impossible, at a point located by course and distance from two known points. So far as possible, run along known lines, stating direction and distance, and, where this cannot be done, wherever possible run parallel to known lines, stating the line to which you run parallel, the direction and the distance. Be careful to see that your boundaries connect. Remember that, in case of discrepancy, monuments and known points prevail over distances, and also that, in general, where a highway or stream is described as a boundary, or a line is run along a stream or highway as a boundary, the middle of the stream or highway is understood. If the parties intend otherwise, care should be taken to make their intention manifest.

Where witnesses are required, be sure that they are disinterested. If different grantors sign at different times, the witnesses ought to indicate whose signature they attest.

With respect to acknowledgment, the following points are important: It should be taken by a magistrate authorized to take it; the magistrate should not be beneficially interested in the conveyance in any way; he should be careful to distinctly ask each grantor if the conveyance is his voluntary act and deed, otherwise, in many jurisdictions, a conveyance of a homestead may fail; if he has a seal he should affix it to his certificate, and he should sign the certificate officially; if the instrument conveys lands outside of the state, the acknowledgment should always be taken before some officer having a seal. Finally, one should see to it that the signatures conform to the names in the body of the deed.

If covenants or conditions restricting the use of the land are desired, a lawyer should be consulted, as the law on this subject is complex and technical.

Mortgages.—What has been said as to deeds applies also to mortgages, which are a form of deed.

Leases.—The foregoing suggestions apply also to leases. But a few further suggestions may be made. At common law the landlord is not bound to make repairs. Hence, if it is intended he shall repair, there must be a covenant to that effect in the lease. In a lease of land with buildings there should also, in most jurisdictions, be a provision as to rent in case of destruction by fire. There should also be provisions as to sub-letting and assignment. If restrictions upon the use of the property are inserted, in order to make them effective there should be a condition that the term shall cease in case they or any of them are not adhered to.

Abstracts of Title.—The purpose of an abstract is to enable a lawyer passing upon the title to do so conveniently and intelligently. *An abstract is of no particular value unless it is examined and the title approved by some competent person.* It must be borne in mind also that there are a number of very important points which an abstract cannot meet for the reason that the record does not and cannot disclose them. Among these are (1) a forged deed; (2) a false certificate of acknowledgment upon conveyance of a homestead; (3) insanity of a grantor; (4) false returns of service in judicial proceedings; (5) the possibility that there are persons in possession whose claims are not of record. These are not all of equal importance in all jurisdictions. But in one jurisdiction or another each one might be fatal.

Landlord and Tenant.—In order to be liable to pay rent, or for the use and occupation of land, one must be occupying as tenant. One who is in possession claiming adversely cannot be held for rent. The remedy against him is to sue for the profits he has received while wrongfully in possession. One may be a tenant, however, without a formal lease, if he is in possesion in subordination to and acknowledging the title of the landlord. The most important incidents of the relation of landlord and tenant are: (1) that the tenant is estopped to deny the landlord's title, that is, having entered as tenant, he cannot assert any claim of ownership or title adverse to the landlord or claim to hold under a different landlord, no matter how well founded the claim may be, without first giving up possession; and (2) that every letting carries with it by implication a covenant on the part of the lessor that the lessee shall quietly enjoy the premises let, that is, that neither the lessor nor any one claiming under or adversely to him shall evict the lessee. The eviction may take place by actual ouster or by depriving the lessee of the use of a substantial part of the demised premises. In case of such an eviction the lessee may sue the lessor for damages, or he may surrender his term. Except in case of eviction, the lessee cannot surrender without the assent of the lessor. Rent is also an incident of the relation. If none is provided for, and it is not intended that the lessee shall hold gratuitously, he will be liable for the reasonable value of use and occupation from the time he took possession. For the lease of itself gives no estate. It merely gives a right to enter on the land and get possession. When possession is taken under the lease, the lessee acquires an estate. Usually rent is provided for by covenants in the lease. In such case, the covenants provide when it is to be given and when it is payable.

Tenancies may be for years, that is, for a definite period of a year or longer, at will, that is, so long as the parties wish, or periodical, that is, for a certain period, as a month, a quarter, or a year, and then for successive like periods until terminated by notice. A tenancy for a definite, fixed period comes to an end by its own limitation when the period elapses. No notice is necessary. A tenancy at will terminates whenever either party so notifies the other, or does any act manifestly inconsistent with the tenancy, or dies. A periodical tenancy may be terminated by notice given by either party. If from week to week, or month to month, or quarter to quarter, notice must be given at or prior to the beginning of a new period to terminate the tenancy at the end of that period. Where it is from year to year, six months' notice suffices at common law, but this has been altered in some jurisdictions by statute. Tenancies may terminate also, under provisions of the lease, for failure to pay rent, for breach of covenant as to use of the land, and the like, if the landlord enforces the forfeiture. Statutes usually provide to-day that a tenant whose rent is in arrears may be treated as holding over his term.

A tenant who holds over his term is called a tenant at sufferance. If, however, he holds over with the consent of the landlord, he is held to be a tenant upon the same conditions as those in the prior lease. Where one is tenant, but no term is specified, he is considered a periodical tenant, according to the nature of the property and custom with respect thereto. In case of farms, which are usually rented by the year, he would be held a tenant from year to year. In case of houses, which are usually rented by the month, a tenancy from month to month would be presumed.

A tenant is liable for damages, and, if the lease so provides, to forfeiture of his term, if he commits waste, that is, if he destroys or permanently alters, without the consent of the landlord, any appurtenance to the land to the injury of the reversion. He may, however, before or at the end of his term, remove trade, ornamental, or domestic fixtures, which he has placed thereon during the tenancy, if he can do so without destroying them or injuring the land. If he accepts a new lease, after having put on such fixtures, he should be careful to expressly reserve the right to remove them.

Wills.—No one ought to attempt to draw any but a very simple will without legal advice. But the following suggestions and cautions may be of use:—

1. If there is any room for dispute as to the sanity of the testator (person who makes the will), care should be taken to fortify against litigation, not only in the scheme of disposition of the estate, but by seeing to it that adequate proof is at hand as to the condition of the testator at the time the will was made.

2. If the circumstances are such that undue influence may be claimed, great care should be taken to meet such claim. The witnesses should be persons whose integrity is not open to question, and who will carry weight with a jury; and the testator should make a clear and explicit statement to them, in a manner in which they will not be likely to forget, and under circumstances precluding all inference that the testator is under compulsion or coercion at the time.

3. Uncertainty in gifts and in descriptions must be carefully avoided. The will cannot be reformed. The testator will be dead when questions arise under it, and oral evidence of what he meant will not be admissible. Hence one should be absolutely sure of all descriptions, both of persons and of property.

4. Remember that property must be given to some one, either specifically or by a residuary gift (i. e., gift of all that remains after specific gifts). Mere exclusion of an heir without a gift to some one else will accomplish nothing.

5. Bear in mind that shares or gifts may lapse by death of the donees before the gifts take effect, and make proper provision therefor.

6. If a paper or document is referred to, and its provisions are to be part of the will, *it must be in existence* when the will is made, and *must be identified* clearly.

7. There ought always to be a gift of the residue of the estate.

8. If there is any reason to suspect a prior will has been made, insert a clause revoking all prior wills. It is safer to insert such a clause in all cases.

9. *Do not alter the instrument after execution.* If a change is desired, re-execute, or execute a codicil.

10. The witnesses ought to be thoroughly disinterested, clear-headed persons, who will be believed by a jury in case of contest. No one should be a witness who benefits under the will in any way.

11. As a contest by disappointed persons, who, if there was no will, would take as heirs or next of kin, is a possibility, if not a probability, see to it that beneficiaries under the will, who will be charged with undue influence, are not about when it is executed and witnessed.

Form of a Will.—The following short form may be used as a guide:—

I, John Doe, of the city of ....., county of ....., and state of ....., do make this my last will and testament, that is to say:—

1. I appoint Richard Roe of said city of ....., executor of this will.

2. I give and bequeath to John Stiles of ....., county of ....., the sum of one thousand ($1,000.00) dollars.

3. I give and devise to Thomas Jones of said city of ....., all of lot numbered one (1) in block numbered one (1) in said city of .....

4. All the rest and residue of my property, both real and personal, of which I shall die seized or possessed, I give, devise, and bequeath to my wife, Mary Doe.

5. I hereby revoke any and all former wills by me made.

In testimony whereof I have hereunto set my hand this ..... day of ..... 19...

John Doe.

Signed, published, and declared by the above named John Doe as and for his last will and testament, in the presence of us and each of us, who, in his presence, and at his request, and in the presence of each other, have hereunto set our hands as witnesses.

George Jackson,
of ....., County of .....
James Brown,
of ....., County of .....

INTEREST LAWS AND STATUTES OF LIMITATIONS.

States, Territories, and Provinces.	Interest Laws.		Statutes of Limitations.			States, Territories, and Provinces.	Interest Laws.		Statutes of Limitations.		
	Legal Rate. Per ct.	Rate Allowed by Contract. Per ct.	Judgment, Years.	Notes, Years.	Open Accounts Years.		Legal Rate. Per ct.	Rate Allowed by Contract. Per ct.	Judgment, Years.	Notes, Years.	Open Accounts Years.
Alabama	8	8	20	6	3	New York	6	6**	20 *j*	6	6§
Alaska	8	12	10	6	6	North Carolina	6	6	10	3*	3
Arizona	6	10	4	4	3	North Dakota	6	10	10	6	6
Arkansas	6	10	10	5	3	Ohio	6	8	5	15	6
California	7	any	5	4	4	Oklahoma	6	10	5	5	3
Colorado	8	any	20	6	6	Oregon	6	10	10	6	6
Connecticut	6	6	*k*	6	6	Pennsylvania	6	6	5 *f*	6‡	6
Delaware	6	6	10 *h*	6	3	Porto Rico	6	12 *e*	5	3	3
District of Col.	6	6 *g*	12	3	3	Rhode Island	6†	any	20	6	6
Florida	8	10	20	5	3	South Carolina	7	8	10	6	6
Georgia	7	8	7	20	6	South Dakota	7	12	20	6	6
Hawaii	8 *a*	12	20	6	6	Tennessee	6	6	10	6	3
Idaho	7	12	6	5	4	Texas	6	10	10	4	2
Illinois	5	7	20	10	5	Utah	8	12	8	6	4
Indiana	6	8	20	10	6	Vermont	6	*m*	8	6 *n*	6
Iowa	6	8	*d*	10	5	Virginia	6	6	20	5*	5
Kansas	6	10	5	5	3	Washington	6	12	6	6	3
Kentucky	6	6	15	15	2	West Virginia	6	6	10	10	5
Louisiana	5	8	10	5	3	Wisconsin	6	10	20 *b*	6	6
Maine	6	any	20	6	6	Wyoming	8	12	21	10	8
Maryland	6	6	12	3	3	Alberta	5	any	20	20	6
Massachusetts	6	any	6 *c*	6	6	British Columbia	5	any	20	20	6
Michigan	5	7	6	6	6	Manitoba	6	any	6‡	6	6
Minnesota	6	10	10	6	6	New Brunswick	5	any	20	6	6
Mississippi	6	8	7	6	3	Nova Scotia	5	any	20	6	6
Missouri	6	8	10	10	5	Ontario	5	any	20	6	6
Montana	8	12	10	8	5	Prince Edward Is.					
Nebraska	7	10	5	5	2	Quebec	5	any	30	5	5
Nevada	7	12	6	6	4	Saskatchewan					
New Hampshire	6	6	20	6	6	Territories					
New Jersey	6	6	20	6	6	Newfoundland	6	any	6	6	6
New Mexico	6	12	7	6	4	Mexico	6	6	6	3	3

*Under seal, 10 years. †Unless a different rate is expressly stipulated. ‡Under seal, 20 years. **New York has legalized any rate of interest on call loans of $5,000 and upward, on collateral security. §Six years from last item. (*a*) Judgments, 6 per cent. (*b*) Justice Court judgments, 6 years. (*c*) Witnessed, 20 years. (*d*) Twenty years from time when new suit may be brought, which is 15 years after first judgment. (*e*) Pawnbrokers, 4 per cent. per month. (*f*) Ceases to be a lien after the period unless revived. (*g*) Licensed money lenders may receive 12 per cent. (*h*) Subject to renewal. (*j*) Not of record, 6 years. (*k*) No limit. (*m*) No statute. (*n*) Except witnessed promissory note, 14 years.

Penalties for usury differ in the various States. California, Colorado, Maine, Massachusetts (except on loans of less than $1,000), Montana, and Nevada have no provisions as to penalties. Loss of *principal and interest* is the penalty in Arkansas and New York. Loss of principal in Delaware and Oregon. Loss of interest in Alabama, Alaska, Arizona, District of Columbia, Florida, Idaho, Illinois, Iowa, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, New Jersey, North Carolina (double amount if paid), North Dakota (double amount if paid), Oklahoma, Porto Rico, South Carolina, South Dakota, Texas, Virginia, Washington (double amount if paid), Wisconsin, Hawaii, and Wyoming. Loss of excess of interest in Connecticut, Georgia, Indiana, Kansas, Kentucky, Maryland, Missouri, New Hampshire (three times), New Mexico, Ohio, Pennsylvania, Tennessee, Vermont, and West Virginia. Loss of principal and interest in Rhode Island, also fine or imprisonment.

Interest.—In nearly all jurisdictions it is allowed by law to demand interest on all overdue accounts calculated at a fixed rate from the time the account became due. But the usual business procedure is not to demand the interest unless the creditor is forced to sue for his claim.

By "legal rate" is meant the rate which is usually allowed by law when no rate has been agreed upon by the parties, or in cases in which the law allows interest. "Conventional rate" is the highest rate which may be agreed upon by contract. In Ohio, for instance, the legal rate is 6, while the conventional rate is 8.

Limitations.—Laws of limitation affecting the time at which an action may be begun, measured from the time at which a cause for action occurred. Such laws were passed in the reigns of Edward I. and Henry VIII. The law known as the "Statute of Limitations" was passed in 1624 in the reign of James I. This act has been adopted by the states of the Union with very slight modification.

Generally speaking, actions in which the title to real estate is involved, or those based upon a contract under seal, must be brought within 20 years; upon contracts not under seal, within 6 years; and those based upon personal tort, within 2 years. Some states reduce the longer period to 10 years. Many states make short periods in special cases of administrators and executors in order to expedite the winding-up of estates.

In cases of debt a new promise to pay or a payment on account in many states revives the debt, and the period of limitation would be calculated from the last payment or from the date of the new promise to pay executed in writing. The defense of limitation must be pleaded in the courts of most of the states to be effective.

Judgment.—A temporary or final decision or adjudication of the rights of the parties in an action or a proceeding before a court of justice. This judgment expires or becomes dormant in the states as indicated in the table, and in some states may be revived from time to time. Other modifications are also noted there.

Usury.—Any excess of interest over and above that which is established by law. In some states, as shown above, penalties for usurious rates of interest are provided. When the fact is shown that interest beyond the legal rate has been taken, no plea can justify it. Where a contract has been made involving the payment of a higher rate of interest than the legal rate, no action for usury would lie unless the contracted rate exceeds that allowed by contract.

EIGHT-HOUR LAWS.

ALASKA.—Eight hours constitute a day's labor on all public works, and in all mines and workings, smelting and reduction works, and at coke ovens.

ARIZONA.—Eight hours constitute a day's labor on all public works and in all mines and workings, smelting and reduction works, blast furnaces, rolling mills, etc.

ARKANSAS.—Eight hours are a day's work on public highways and bridges and for railway telegraph operators.

CALIFORNIA.—Unless otherwise expressly stipulated, eight hours constitute a day's work. The time of service of all laborers, workmen, and mechanics employed upon any public works of, or work done for, the State, or for any political subdivision thereof, whether the work is to be done by contract or otherwise, and of employees in mines and smelters, is limited and restricted to eight hours in any one calendar day.

COLORADO.—A day's work for all workingmen employed by the State, or any county, township, school district, municipality, or incorporated town, and for all employees in underground or open cut mines or workings, and in smelting and refining works, is restricted to eight hours.

CONNECTICUT.—Eight hours of labor constitute a lawful day's work unless otherwise agreed. Railroad telegraph operators controlling the movement of trains may work but eight hours, except at stations kept open only in the daytime. Engineers, firemen, machinists and other mechanics employed in State institutions may work but eight hours, except in case of emergency.

DELAWARE.—Eight hours are a lawful day's work for all municipal employees of the city of Wilmington.

DISTRICT OF COLUMBIA.—A day's work for all laborers and mechanics employed by the District of Columbia, or by any contractor or sub-contractor upon any public works of the District, is limited to eight hours.

HAWAII.—For all mechanics, clerks, laborers, and other employees on public works and in public offices eight hours of actual service constitute a day's work.

IDAHO.—Eight hours' actual work constitutes a lawful day's labor for manual laborers employed by the day on all state, county, and municipal works. Labor in mines and smelters is limited to eight hours per day.

ILLINOIS.—Eight hours are a legal day's work in all mechanical employments, except on farms, and when otherwise agreed; the law does not apply to service by the year, month, or week. Eight hours constitute a day's labor on the public highways.

INDIANA.—Eight hours of labor constitute a legal day's work on the public roads, and for all classes of mechanics, workingmen, and laborers, excepting those engaged in agricultural and domestic labor. Overwork by agreement and for extra compensation is permitted.

IOWA.—Eight hours are a day's labor on public roads.

KANSAS.—Eight hours are a day's work for all laborers, mechanics, or other persons employed by or on behalf of the State or any county, city or township, or other municipality.

KENTUCKY.—Eight hours constitute a day's work on all public works of the State.

MARYLAND.—No mechanic or laborer employed by the mayor or city council of Baltimore, or by any agent or contractor under them, shall be required to work more than eight hours as a day's labor.

MASSACHUSETTS.—Eight hours shall constitute a day's work for all laborers, workmen, and mechanics employed by or on behalf of the Commonwealth or any county therein, or of any city or town in the Commonwealth upon acceptance of the statute by a majority of voters present and voting upon the same at any general election.

MINNESOTA.—Eight hours constitute a day's labor for all laborers, workmen, or mechanics employed by or on behalf of the State, whether the work is done by contract or otherwise.

MISSISSIPPI.—Eight hours are a day's labor on highways.

MISSOURI.—Eight hours constitute a legal day's work. The law does not prevent an agreement to work for a longer or a shorter time and does not apply to agricultural laborers. It is unlawful for employers to work their employees longer than eight hours per day in mines and smelters, or as train dispatchers, etc., on railroads, unless the office is open only during the daytime. Eight hours are a day's labor on highways, and on all public works in cities of the second class.

MONTANA.—Eight hours constitute a legal day's work for persons engaged to operate or handle hoisting engines at mines. The law applies only to such plants as are in operation sixteen or more hours per day, or at or in mines where the engine develops fifteen or more horse-power, or where fifteen or more men are employed underground in the twenty-four hours. A day's labor on public works and in smelters, underground mines and in railroad and other tunnels is limited to eight hours.

NEBRASKA.—Eight hours constitute a day's work on public roads and on all public works in cities of first class.

NEVADA.—For labor on public highways, in and about all mines, in smelters, plaster and cement mills, as train dispatchers, etc., on railroads, and on all works and undertakings carried on or aided by the State, county, or municipal governments, the hours of labor are fixed at eight per day.

NEW JERSEY.—Eight hours is the limit of a day's work by any person employed by or on behalf of the State or any municipality thereof.

NEW MEXICO.—Eight hours constitute a day's labor in all employment by or on behalf of the State or municipality.

NEW YORK.—Eight hours constitute a day's work on highways, and on work done by or for the State, or a municipal corporation, whether directly by contractors or sub-contractors; also for all classes of employees, except in farm or domestic labor, though overwork for extra pay is permitted in private employments.

NORTH CAROLINA.—Train dispatchers, etc., on railroads may work only eight hours except by permission of the corporation commission.

NORTH DAKOTA.—Eight hours are a day's labor on the public roads.

OHIO.—Eight hours constitute a day's work on all public works; also in all engagements to labor in any mechanical, manufacturing, or mining business, unless otherwise expressly stipulated in the contract.

OKLAHOMA.—Eight hours constitute a day's labor on all public works, and in underground mines.

OREGON.—Eight hours constitute a day's labor on all public works, and in underground mines yielding metal.

PENNSYLVANIA.—Eight hours of labor shall be deemed and held to be a legal day's work in all cases of labor and service by the day where there is no agreement or contract to the contrary. This does not apply to farm or agricultural labor or to service by the year, month, or week. Eight hours constitute a day's labor for all mechanics, workmen, and laborers, in the employ of the State or of any municipal corporation therein, or otherwise engaged on public works. This act shall be deemed to apply to employees of contractors. Engineers hoisting workmen at anthracite coal mines may work but eight hours per day.

PHILIPPINE ISLANDS.—Eight hours constitute a day's work on highways.

PORTO RICO.—No laborer may be compelled to work more than eight hours per day on public works.

SOUTH DAKOTA.—For labor on public highways a day's work is fixed at eight hours.

TENNESSEE.—Eight hours shall be a day's work on the highways.

TEXAS.—Eight hours constitute a day's work on the highways; and by train dispatchers, etc., except at stations where but one operator is employed.

UTAH.—Eight hours constitute a day's labor on all works carried on or aided by the State, county, or municipal governments, in all underground mines or workings, in smelters and all other establishments for the reduction of ores.

WASHINGTON.—Eight hours in any calendar day shall constitute a day's work on any work done for the State, or for any county or municipality, and in underground coal mines.

WEST VIRGINIA.—Eight hours shall constitute a day's work for all laborers, workmen, and mechanics who may be employed by or on behalf of the State, and for telegraph operators directing the movements of trains where three or more passenger or 10 or more freight trains pass in 24 hours.

WISCONSIN.—In all engagements to labor in any manufacturing or mechanical business, where there is no express contract to the contrary, a day's work shall consist of eight hours, but the law does not apply to contracts for labor by the week, month, or year. Eight hours constitute a day's labor on the public highways. Employees on public works and train dispatchers may be employed but eight hours per day.

WYOMING.—Eight hours' actual work constitute a legal day's labor in all undeground mines, in smelters, and on all State and municipal works.

UNITED STATES.—A day's work for all laborers, workmen, and mechanics employed by the United States, or by any contractor or sub-contractor upon any public works of the United States, including dredging and rock excavation in river and harbor work, is limited to eight hours.

CANADA.—Eight hours shall constitute a day's work for all laborers, workmen, and mechanics who may be employed by or in behalf of the Dominion of Canada.

REQUIREMENTS FOR ADMISSION TO THE BAR.

The Committee on Legal Education of the American Bar Association recommended the following provisions "as forming a consistent system that shall both protect the profession and guide the student":—

CITIZENSHIP, AGE, CHARACTER. — No one should be admitted to the bar unless he is of good moral character, is 21 years of age, and is a citizen of the state.

REGISTRATION. — Upon beginning professional study a student should register his name in the office of a clerk of a court of record or in a law school that is incorporated, or is a department of an incorporated university.

GENERAL EDUCATION.—Prior to registration a student should prove that he has received at least the equivalent of a high school education, such proof being made by filing certificates, or by passing examinations, as may be determined by the law examiners.

TERM OF STUDY.—A candidate should not be admitted to the bar until the end of three full calendar years of law study.

BOARD OF EXAMINERS.—In all parts of the state the requirements for admission to the bar should be uniform, and should be administered by a State Board of Law Examiners, appointed by the court of last resort, for three years, part of them being appointed each year; they should recommend an appropriate order of study and should designate the statutes, leading cases, and practical forms with which students must become familiar, and in all other practicable ways should aid candidates to study in a systematic and useful manner.

EXAMINATIONS, REGULATIONS, SCOPE, ETC.— No candidate should be admitted to the bar without examination, except as herein provided.

Law examinations should be held at such times and places as the court of last resort may see fit, due announcement being made as to times, places, and subjects; they should consist chiefly of written answers to printed questions; they should be devoted chiefly to solving and discussing legal problems similar to those arising in office practice and in litigation; and questions should not be so framed as to admit "yes" and "no" answers. A candidate should be permitted, if he desires, to divide the law examination into two parts; the first part to cover the more elementary subjects and to be taken not earlier than one year after registration, and the second part to cover the more advanced subjects and to be taken not earlier than three years after registration.

ADMISSION OF ATTORNEYS FROM OTHER JURISDICTIONS.—Upon petition, the law examiners should relieve from all requirements, save character, age, and citizenship, a candidate who is already a member of the bar of a state in which there are equivalent requirements for admission, or in which, after admission, he has been in active practice for five years.

These recommendations are practically in force in all the states with a few variations.

Proof of good moral character required by all.

Residence within the state and citizenship of the United States is required in Alabama, Alaska, Arizona, Arkansas, Colorado, Illinois, Maine, Michigan, Minnesota, Mississippi, Montana (either), Nebraska, New Mexico, New York, Ohio, Oklahoma, Oregon (either), Rhode Island, Washington, Wisconsin, and Wyoming; citizenship only required in California, Connecticut, Georgia, Hawaii, Kansas, Louisiana, Massachusetts, New Hampshire, Porto Rico, South Carolina, Tennessee, Utah, and Vermont; residence only is required in Delaware, Idaho, Iowa, Kentucky, Maryland, Nevada, North Dakota, Philippines, South Dakota, Texas (six months), Virginia (six months), and West Virginia: District of Columbia, Florida, New Jersey, North Carolina, and Pennsylvania no requirements; Indiana admits any voter.

ALABAMA.—Study of law 18 months; if other than legal qualifications are satisfactory, the applicant may take written examination; fee, $10; a diploma from University of Alabama, conferring degree of B.L., admits without examination; attorneys from other states admitted after two years' practice before the Supreme Court of their own state.

ALASKA.—Examination by the judges of the district court; fee, $10; women admitted to practice. Attorneys from other jurisdictions admitted if practising in highest court of their own states.

ARIZONA.—Three years' course in law; written examination, oral, if necessary; 70 per cent. average; fees, $20 for examination and $10 for a license; other attorneys of six years' active practice admitted.

ARKANSAS.—A test in open court following the acceptance of the applicant's general qualifications; a diploma from the University of Arkansas admits without examination upon payment of $5.

CALIFORNIA.—Oral examination upon the books read, by two lawyers of at least four years' practice; fee, $10; women admitted; application is made before one of the District Courts of Appeal; other attorneys present licenses from their own states.

COLORADO.—A 30-count certificate from the regents of the University of New York, or graduation from an approved high or preparatory school, or a successful examination before the state superintendent required; three years of law study in an office or approved law school; test, oral or written; fee, $20; women as well as men admitted; five years' practice in a foreign state or country admits to this state.

CONNECTICUT.—Graduates from college, high, or preparatory school of approved standing, or candidates having passed a literary examination; three years in a law school or office; written examination; fee, $10; license, $5; attorneys from other states examined unless they have had three years' practice.

DELAWARE.—A diploma from a university or college in good standing, or an academic examination necessary; three years' law course in office of practising attorney; written examination; three years' practice in another state required from other attorneys.

DISTRICT OF COLUMBIA.—Three years' law study; fee, $10; written examination; other attorneys admitted without examination, if their states reciprocate.

FLORIDA.—Written examination upon prescribed legal works; certificate, $5.

GEORGIA.—Examination by two practising attorneys admits applicant to final written examination before the judge of the Superior Court; 70 per cent. minimum average; fee, $15; graduates of the various law schools in the state are admitted without examination; $5 for license; attorneys from other states permitted to practise without examination, if the same courtesy is reciprocated.

HAWAII.—Applicants file a written application, giving character and term of study; practice in the Supreme Court permitted members of the bar of the highest court in another state or territory, or those who have studied law two years; fee, $10; Hawaiian citizens may qualify as practitioners in the District Courts.

IDAHO.—A certificate from two reputable attorneys as to the legal attainments of the applicant must be filed with the clerk of the Supreme Court; written examination; fee, $25; license, $2; a certificate of good standing and admission to the highest court in another state or territory admits to practice in the Supreme Court.

ILLINOIS.—Preliminary education equal to that of high school; three years' law study; written examination; other attorneys exempt from examination, if standards of admission in both states are equal, or five full years' successful practice has been accomplished.

INDIANA.—The constitution limits the power of the court to regulate admissions; brief oral examinations; none as to legal attainments can be made over the objection of the applicant; women admitted; other attorneys permitted to practise during the term in which they apply by taking the prescribed oath.

IOWA.—Preliminary education equal to three years' high school course; three years in law office or school; 50 questions, with written answers, and as many as necessary orally; 75 per cent. minimum average; fee, $5; attorneys from other states licensed without examination if otherwise satisfactory.

KANSAS.—A diploma or certificate of graduation from the State University or other accredited institution, or satisfactory evidence from his teachers, entitles an applicant to examination in law after a three years' course; fee, $25; all other attorneys examined.

KENTUCKY.—Examination by circuit judge and at least two lawyers; 75 per cent. average secures a license to practise in all the courts of the state; other attorneys comply with the same conditions.

LOUISIANA.—Two years' study of law; public examination; fee, $10; other attorneys examined in open court; diplomas from the law department of the State or Tulane University admit directly.

MAINE.—Three years' law study; written and oral examination; average, 70 per cent.; fee, $20; women admitted; lawyers from other states present state certificate, a judge's recommendation, and evidence of three years' practice.

MARYLAND.—Two years study of law; written examination; fee, $25; diplomas from law department of State or Baltimore University displace examination; women admitted; five years' experience as practitioners, judges, or teachers of law admits from other states without examination; fee, $25.

MASSACHUSETTS.—Applicants file proof of general and legal courses of study; written examination; fee, $15; women admitted; three years' practice in another state admits without examination, but proofs of admission and recommendations from the judge of the highest court, with that of two members of the Massachusetts bar, are necessary; fee, $15.

MICHIGAN.—Holders of bachelor's degrees, graduates of normal or high schools, or applicants possessing a teacher's certificate from the state of Michigan are exempt from preliminary examination; law course, three years; examination, written and oral; 70 per cent. minimum average; fee, $10; graduates of State University or Detroit law departments exempt; all others furnish certificate from their own state with a judge's recommendation.

MINNESOTA.—Applicants must pass examination in one year's Latin, English and American history, English composition and rhetoric, and the common school branches; three years' study of law; 75 per cent. average; fee, $15; graduates of the College of Law in the State University, St. Paul's, or any law school in the state holding the Supreme Court certificate, admitted without examination; attorneys of five years' practice admitted with certificates.

MISSISSIPPI.—Examination in open court before the chancellor; written answers submitted to chancellor in another district; state license, $10 annually, city, $5; graduates of the State University exempt from examination; other attorneys admitted on same conditions granted by their own states.

MISSOURI.—Common or grammar school education; written examination; fee, $10; 75 per cent. average; proofs of three years' practice in other states admit without examination.

MONTANA.—Two years' study; written examination; fee, $5; others file certificates, examined at discretion of the court.

NEBRASKA.—Preliminary education equivalent to three years' high school course; three years' law study; oral and written examination; fee, $5; other attorneys must have had five years' practice.

NEVADA.—Written examination in open court; fee, $35; women admitted; English law is the basis.

NEW HAMPSHIRE.—Three years' study in law office or school; examination; average, 70 per cent.; practice in highest court of another state admits here.

NEW JERSEY.—Three years before taking the bar examination an applicant must have passed the final one for graduation in a college, university, public high school, or private school; a clerkship for three years shall be served with a practising lawyer of the court; not more than 18 months to be spent at a reputable law school; written and oral examination; women licensed; an attorney from another state who has practised 10 years is not examined.

NEW MEXICO.—Two years' study of law; examination in open court, partly written and partly oral; 50 per cent. average; fee, $5; other attorneys licensed without examination after three years' practice.

NEW YORK.—Applicants not graduates of colleges, or attorneys outside the state, examined to show their general education; three years' study of law; oral or written examination; fee, $10; other attorneys of three years' practice, or who have diploma or degree, may be admitted without examination.

NORTH CAROLINA.—Legal study, three years; written test; fee, $23.50; other applicants file license from their own states.

NORTH DAKOTA.—Two years' law study; written and oral examination; fee, $13; graduates of law department of State University admitted without examination; satisfactory qualifications and three years' practice admit others without examination.

OHIO.—Preliminary education equivalent to a four-year course in high school; three years of law study; fee, 50 cents; written examination; 75 per cent. average; fee, $6; women admitted; attorneys of three years' study in other states examined; of two years' study followed by five years' practice not examined.

OKLAHOMA.—Educational attainments equal to high school education; three years' law study; oral and written examination; 75 per cent. average in latter; fee, $12; ex-judges of other state or federal courts, or of the District of Columbia, admitted without examination; other attorneys examined in their own state, after three years' practice, also admitted.

OREGON.—A certificate of three years' study from an attorney, a college diploma and two years' study, or graduation from a reputable law school required; written or oral examination; fee, $10; women admitted; an attorney admitted in the highest court of any other state or country is here admitted for nine months upon recommendation.

PENNSYLVANIA.—A preliminary academic examination; fee, $15; three years' law study; advertisement of intention to apply for admission in newspapers; written examination; fee, $5; attorneys from other states with five years' practice therein admitted here without examination.

PHILIPPINE ISLANDS.—Applicants must have completed the course formerly required by the Spanish legation for the degree of Bachelor of Arts, or its equivalent, or the course found in the curriculum of the Government Normal School; three years' study of law; written examination; 75 per cent. average; fee, 30 pesos, Philippine currency; examination in the codes of the islands for all other attorneys.

PORTO RICO.—Applicants holding a diploma from any accredited law school in the United States are admitted to practice upon presenting such diploma to the Supreme Court and passing a general examination in local law; without a diploma, written examination necessary; 75 per cent. average; two years' active practice, including one year in the District Court of Porto Rico, admits without examination.

RHODE ISLAND.—Education equivalent to that of a city high school; a classical education and two years' law study or three years of law alone; a test; fee, $10; other attorneys of three years' practice must study six months in this state before an examination; with ten years' practice, no study required.

SOUTH CAROLINA.—A written examination of the candidates' legal attainments; fee, $5; graduates of the law school of the State University admitted without examination; any person admitted to a court of record in the United States is licensed here.

SOUTH DAKOTA.—General education equivalent to three years' high school course; three full years of law; fee, 50 cents; all applicants, except graduates of the State College of Law, are examined in open court; 75 per cent. average; women admitted; admission by the highest court in another jurisdiction and five years' practice admits without examination.

TENNESSEE.—A fee of $5 accompanies application; written examination, 75 questions; 75 per cent. average; attorneys from other states with requirements equal to those in Tennessee not examined.

TEXAS.—A good general education necessary; written examination; general average, 75 per cent.; fee, $10; applicants from other states are examined.

UTAH.—Statements of the application and legal attainments of the candidate thoroughly investigated by the board of examiners; fee, $25; attorneys admitted to highest courts in own state not examined.

VERMONT.—Equivalent of high school education; three years' study in the office of a practising attorney or two years of that time in a law school; examination; other attorneys: six months' residence next preceding application, one year's practice, and proof of qualifications.

VIRGINIA.—A certificate of qualifications; written examination; fee, $2.50; three years' law practice secures license without examination for other persons.

WASHINGTON.—Two years in office of practising attorney or graduation from a two years' course in law school; written test one day, and oral the next; fee, $20; women admitted; graduates of the law department of the State University admitted without examination; others furnishing affidavits of good standing and admission to the highest court of another state admitted to the Supreme Court; fee, $20.

WEST VIRGINIA.—A high school education; two years' study of law; written test; fee, $5; a certificate of general qualifications, with a diploma from the law school of the State University, admits without examination; attorneys practising in other courts present evidence of admission therein.

WISCONSIN.—Graduates of college, university, or free high school omit educational test; three years' law study; written and oral examination; 75 per cent. average; a diploma from the State University law department admits to all courts; certificates of admission and proof of two years' actual practice admit from other states.

WYOMING.—Study of law three years; written examination; fee, $15; proof of admission to the highest court of any other state, with the names of five judges or attorneys therein, admits to this state.

EXEMPTION LAWS.

ALABAMA. A homestead not exceeding 160 acres of land, or a lot in a city, town, or village, with a dwelling house thereon, not exceeding the value of $2,000; personal property to the value of $1,000; may be selected by the debtor; lot in cemetery used as a burial place for family; pew in church; wages to amount of $25 a month. Waiver of exemption is not valid unless joined in by the wife.

ALASKA. No homestead law. Specified articles of personal property, $750 to $1,000; wages for 30 days preceding judgment.

ARIZONA. Homestead of the head of a family not to exceed $2,500; personal property of every family, $500 besides wearing apparel, and half month's wages.

ARKANSAS. For single person, personal property besides wearing apparel, $200; for head of a family, personal property value of $500; for a head of a family outside of any town or city, 160 acres of land not to exceed $2,500 or not less than 80 acres without regard to value; in city or town, not exceeding one acre, $2,500, or not less than one fourth of an acre without regard to value; wages of laborers and mechanics for sixty days.

CALIFORNIA. The homestead on which debtor resides value of $5,000, if he is the head of a family; if not, $1,000. Personal property exempt includes chairs, tables, desks, and books, $200; necessary household and kitchen furniture, sewing machine, stoves, beds, etc.; provisions for family for three months, three cows, four hogs, two horses, oxen or mules; seed, grain, and vegetables for sowing, not above $200 in value; tools and implements of husbandry of the debtor, not exceeding $1,000; the necessary instruments of a surgeon, physician, surveyor, or dentist, with professional library and necessary office furniture; the professional library of attorneys, judges, ministers of the gospel, editors, school teachers, and music teachers, and their necessary office furniture; miner's cabin, not exceeding $500, with all tools and gear necessary for his business, not exceeding $500. Two horses or mules with harness, and the miner's claim worked by him, not exceeding $1,000 in value.

COLORADO. A homestead consisting of house and lot in town or city, or a farm of any number of acres, in value not exceeding $2,000, is exempt if occupied by a householder and head of a family, provided it has been entered on record as a homestead and so specified in the title. Personal property, including wearing apparel of the debtor and his family, pictures, schoolbooks, library, etc., and household furniture, not exceeding $100; provisions for six months, tools, implements or stock in trade, $200; one cow and calf, 10 sheep and necessary food for six months; working animals up to $200; the library and implements of a professional man up to $300; pew in church and burial sites and one half month's wages, but in no case less than $30. Pensions are also exempt. The head of a family may select personal property to the value of $1,000; others, $300.

CONNECTICUT. The homestead actually occupied by the owner not exceeding in value $1,000 is exempt. Personal property is exempt as follows: Libraries not above $500 in value; a cow worth $150; 10 sheep, not exceeding in all $150; poultry not exceeding $25 in value; two hogs and 200 pounds of pork; implements of trade, the horse, harness, buggy, and bicycle of a practising physician, and the boat, not exceeding $200 in value, of a person engaged in fishing, and used for that purpose; necessary apparel, bedding, and household furniture; pew in church and lot in burial ground; one sewing machine; wages due and not exceeding $25, and, under conditions, money due from insurance and mutual benefit societies, are also exempt.

DAKOTA (NORTH and SOUTH). A homestead consisting of not more than 160 acres, with buildings and appurtenances thereon, and personal property defined by statute, aggregating in value not to exceed $5,000 (N. D.), is exempted to a householder. A firm can claim but one exemption, not a several exemption for each partner. Tools and implements of a mechanic to the value of $200, books and instruments of a professional man to the value of $600, are also exempt.

DELAWARE. Family pictures, family Bible, and library; lot in burial ground and pew in church; family wearing apparel and tools and implements necessary to carry on business, the whole not exceeding $75 in value, are exempt from attachment. In addition to the above the head of a family may claim $200 of personal property. In Newcastle county wages of laborers are also exempt. No homestead law. In the county of Kent the amount of exemption is reduced from $75 to $50 and from $200 to $150 on household goods.

DISTRICT OF COLUMBIA. Family wearing apparel; household furniture to the amount of $300; provisions and fuel for three months; tools or instruments necessary to carry on any trade, to the value of $200; library and implements of a professional man or artist not above $300; family pictures and library to the value of $400; one horse, mule, or yoke of oxen; one cart, wagon, or dray, and harness for such team; one cow, one hog, six sheep, farming utensils, with food for team for three months, are exempt from attachment or sale on execution, except for servants' or laborers' wages. There is no homestead exemption.

FLORIDA. A homestead of 160 acres of land, together with improvements, in the country, or a residence and one half acre of ground in a village or city, is exempted to the head of a family; also personal property to the value of $1,000. No property is exempt from sale for taxes or for obligations contracted for its purchase or for the erection of improvements thereon. The wages of every laborer who is the head of a family are also exempt under any process of law.

GEORGIA. Each head of a family, or guardian, or trustee of a family of minor children, and every aged or infirm person, or person having the care and support of dependent females of any age, who is not the head of a family, is entitled to realty, or personalty, or both, to the value in the aggregate of $1,600. Said property shall be exempt from levy and sale by virtue of any process whatever, under the laws of this state, except for taxes, purchase money of the homestead, labor done thereon, or material furnished therefor, or for the removal of incumbrances.

IDAHO. A homestead worth $5,000 is exempted to a householder who is head of a family; either husband or wife may select the homestead. Personal property is also exempted to the value of $300. Exemption does not extend to purchase-money or to mortgages on the property. Any person other than the head of a family is entitled to an exemption of $1,000.

ILLINOIS. A homestead valued at $1,000 is exempted to every householder who has a family; such exemption not covering liabilities for purchase-money or improvement of the homestead. After the death of a householder his family are entitled to the exemption so long as the survivor occupies it, or until the youngest child is 21 years of age. There are also exempted to every person wearing apparel, schoolbooks, family pictures and family Bible, and $100 worth of other property selected by the debtor. In addition to this, $300 worth may be selected by the debtor if head of a family; but such selection cannot be made from any money or wages due; no exemption is allowed when the debt is for the wages of laborer or servant; $50 of wages is exempt to every head of a family if residing with the same.

INDIANA. There is no homestead exemption; any resident householder has exempted real or personal property, or both, to the amount of $600 on any debt founded on contract since May 31, 1879. On debts founded on contracts made previous to that date, exemption is $300. Exemption does not, in any event, affect liens for labor, purchase-money, or taxes.

IOWA. A homestead in country of 40 acres, or in town or city of one half acre, with improvements and buildings to the aggregate value of $500, is exempted to the head of every family. If less than $500 in value, it may be increased to that amount. It is not exempted from execution for the purchase-money thereof, or for debts contracted prior to its acquirement. Upon the death of either husband or wife the homestead passes to the survivor. Professional men are allowed their libraries, instruments, etc., and a team and wagon; printers retain their presses and type to the value of $1,200. The head of a family may claim wearing apparel, tools, a gun, his library, and furniture to the extent of $200 in value. The personal earnings of the debtor for 90 days preceding the execution, certain stock, with food for them for six months, a pew in church and a lot in a burving ground are also exempt. Non-residents and unmarried persons, not being heads of families, can only claim their ordinary wearing apparel and trunk necessary to carry the same to the value of $75.

KANSAS. An independent fortune is exempted in this state. A homestead of 160 acres of farming land, or of one acre within an incorporated town or city, with buildings and improvements thereon, with no limit to value. The head of every family is allowed personal property as follows: the family library, schoolbooks, and family Bible; family pictures and musical instruments in use; pew in church and lot in burial ground; all wearing apparel of the family, beds, bedsteads and bedding, one cooking stove and appendages, and all

other cooking utensils, and all other stoves and appendages necessary for the use of the debtor and his family; one sewing machine, spinning wheel, and all other implements of industry, and all other household furniture not herein enumerated, not exceeding $500 in value; two cows, ten hogs, one yoke of oxen and one horse or mule, or in lieu of one yoke of oxen and one horse or mule, a span of mules or horses; 20 sheep and their wool; food for the support of the stock for one year; one wagon, two plows, drag and other farming utensils not exceeding in value $300; grain, meat, vegetables, groceries, fuel, etc., for the family for one year; the tools and implements of any mechanic, miner, or other workman, kept for the purpose of carrying on his business, together with stock in trade not exceeding $400 in value; library, instruments, and office furniture of any professional man. Residents, not the head of a family, have tools, implements, and stock in trade up to $400. No personal property is exempt for the wages of any clerk, mechanic, laborer, or servant. A lien on the homestead may be created by husband and wife joining in the mortgage.

KENTUCKY. To bona fide housekeepers with a family are exempted from execution and attachment for debt: a homestead to the value of $1,000; two work beasts, or one work beast and one yoke of oxen; two cows and calves; one wagon or cart; two plows and gear; ten head of sheep; provisions for family and provender for stock not exceeding $70 value; the tools and stock of a mechanic who is a housekeeper and has a family, not exceeding $100 in value; libraries or instruments of professional men, which may not exceed in value $500; the wages of a laboring man to the amount of $50, except for house rent and necessaries.

LOUISIANA. A homestead of 160 acres of land, with buildings and improvements thereon, is exempted to the head of a family, if owned and occupied as a residence, together with personal property, the whole not to exceed $2,000; all wearing apparel, implements, stock, etc., with provisions and supplies necessary for the plantation for one year. If the wife own separate property in her own right to the value of $2,000 there is no exemption.

MAINE. Homestead, $500; $100 wearing apparel, bedding, and furniture; $150 library; $300 team; $50 poultry; $100 sewing machine; $10 lumber; cow and heifer, 10 sheep and lambs, plow, wagon, mowing machine, a two-ton boat, the flax, raw and manufactured, from one acre of ground; provisions, fuel, seed, grain, provender for stock, and tools. After the debtor's death his family has the benefit of the exemptions.

MARYLAND. Besides wearing apparel, books, and tools used for earning a living, there is exempt other property to the value of $100. No homestead.

MASSACHUSETTS. Homestead, $800 (must be recorded as such); furniture, $300; sewing machine, $100; library, $50; tools and implements, $100; stock in trade, $100; boats and outfit, $100; one cow, one hog, and six sheep, and wages under $20.

MICHIGAN. Forty acres of land, with improvements, in the country, or house and lot worth $1,500 in town; furniture, $250; library, $150; two cows, five hogs, 10 sheep, team, tools, provisions, and fuel. No exemptions from execution for purchase-money.

MINNESOTA. Eighty acres, with improvements, in country, or lot with dwelling on it, in town; household property, $500; wagon, plows, and farming implements, $300; three cows, 10 hogs, 20 sheep, yoke of cattle, and a horse, or, instead, a pair of horses; one year's provisions, fuel, feed for stock, and seed grain; a miner's or mechanic's tools and stock in trade to $400; the library and instruments of a professional man; $25 in wages of a laboring man, earned within the last 30 days, and, where the debtor is publisher of a newspaper, his complete outfit to value $2,000, and stock $400.

MISSISSIPPI. To householding head of family, 160 acres of land and improvements in country, or house and lot in town, either to value of $3,000; tools and farming implements necessary for two male laborers; library and instruments of professional man to value of $250; two horses or mules or a yoke of oxen; two cows and calves, 10 hogs, 20 sheep; wagon, $100; personal property, $250; one sewing machine; provisions and provender; wages of a laborer, $50 a month.

MISSOURI. To head of family, 160 acres in the country to the value of $1,500, a lot (30 rods) in small town of same value, or lot (18 rods) in city having 40,000 inhabitants, to value of $3,000; 10 choice hogs, 10 choice sheep and their wool, two cows and calves; all necessary farm implements for one man; two work animals and $25 worth of feed; wearing apparel of family; four beds, bedding, tools, and implements of any mechanic; necessary books for professional men and teachers.

MONTANA. House and a quarter acre lot in town or a farm of 160 acres, neither to exceed $2,500 in value; personal property to the value of $1,400. No exemptions are good against a mortgage, a mechanics' lien, or a claim for purchase-money.

NEBRASKA. Dwelling and 160 acres of land in country, or two adjoining lots in town, value $2,000. If he has no real property, the debtor may retain personal property to value $500. Clothing, furniture, provisions, animals, tools, and other things as per statute, and 90 per cent. wages of laborer. Exemptions are not good against mechanics' lien, mortgage, or purchase-money.

NEVADA. Homestead, $5,000; tools, implements, and other personal property, as per statute; miner's cabin, $500.

NEW HAMPSHIRE. Homestead, $500; $100 furniture; $100 tools; $200 books; $50 fuel and provisions; sewing machine, cook stove, bedding and clothing, one hog, six sheep, one yoke of oxen or one horse, and four tons of hay.

NEW JERSEY. Homestead, $1,000, and $200 household property.

NEW MEXICO. Homestead, $1,000; $10 furniture; $20 tools; $25 provisions.

NEW YORK. Homestead, $1,000; $250 furniture, tools, team, and other personal property; wages, $20.

NORTH CAROLINA. A homestead to the value of $1,000, and personal property worth $500. No exemption is good against taxes, purchase-money, or mechanics' liens.

OHIO. Homestead is exempt to the value of $1,000; if appraised to a higher value, a partition is made, or an appropriate rental is charged. Clothing and necessary furniture are exempted; tools and farming implements to value $100; $50 worth of provisions and three months' wages; one horse or yoke of cattle, harness, and wagon; one cow, two hogs, six sheep, and 60 days' provender, or, instead, $65 in household property; a professional man's books, $100. When resident debtor, being head of a family, has no homestead, he may retain personal property to the value of $500, besides other exempted property.

OKLAHOMA. Exemption to head of a family outside of city or town not to exceed 160 acres; and in a city or town not more than one acre; in addition thereto, certain personal effects and equipment appertaining to the various vocations. These exemptions do not apply to corporations for profit, to a non-resident, or a debtor who is in the act of removing his family from the territory, or who has absconded, taking with him his family. To a single person: wearing apparel, tools, apparatus, and books belonging to a trade or profession; one horse, saddle, and bridle, or one yoke of oxen; current wages for personal service. In certain classes of debts all exemptions are invalid.

OREGON. Homestead 160 acres not in town, $1,500; if in town or city, not to exceed one block, but in no case to be reduced to less than 20 acres nor one lot. Musical instruments, books, and pictures, $75; household effects, $300; clothing, $100, and clothing to each member of the family, $50; team, tools, instruments, library, or whatever is needed in the trade or profession of debtor, $400; 10 sheep, two cows, five hogs, three months' provisions and six months' provender. No exemption is good against a claim for purchase-money.

PENNSYLVANIA. Clothing, books, sewing machine, and $300 worth of other property. Right may be waived. No homestead.

RHODE ISLAND. Furniture and supplies for family, $300; tools, $200; library, $300; wages, $10; clothing; one cow and one hog; debts secured by negotiable paper. No homestead.

SOUTH CAROLINA. Homestead, $1,000; this right cannot be waived. Furniture, wagons, live stock, and tools, to value of $500. Homestead exemption cannot hold against an execution for the purchase-money, a lien for improvements or for taxes. Any person not the head of a family may have clothing, tools, etc., to $300.

TENNESSEE. Only the head of a family can have the benefit of exemptions; $1,000 homestead and a variety of personal property designated by statute, prominent items, being horses, mules, oxen, cows, calves, wagon, tools, lumber, grain, provisions, beds, bedding, furniture, and $30 wages.

TEXAS. Two hundred acres of land with improvements in the country, or city property to value at time of being designated as homestead (regardless of the value of after improvements) of $5,000; furniture, farming implements, tools, books, five cows and calves, two yoke of cattle, two horses and wagon, a carriage or buggy, 20 hogs, 20 sheep, provision, provender, and many other articles. The exemption of the homestead is not good against taxes, purchase-money, or mechanics' lien; but in this last case the contract must have been signed by both husband and wife. On the death of a husband, the widow and children may have one year's support out of the estate, and if the property be not in such shape as to be exempted by law, enough may be sold to raise an allowance for homestead to value of $5,000 and other property $500. Any person not the head of a family may have exempted clothing, books, horse, bridle, and saddle.

UTAH. Homestead, $1,500; $250 worth of chairs, tables, desks, also musical instruments actually used by the family; necessary house and kitchen furniture, $300; sewing machine, pictures, wearing apparel, farming implements, $300; seed for planting, $200; crops growing or harvested, $200; miner's cabin, $500; also working appliances for same amount.

VERMONT. Homestead, $500; growing crop, clothing, furniture, sewing machine, tools, one cow, 10 sheep, one hog, three hives of bees, poultry, one yoke of oxen or two horses, fuel, provisions, and provender; also the instruments and library of a professional man, $200.

VIRGINIA. The head of a family who is a householder has a homestead exemption to the value of $2,000, which may be in real or personal property, both or either; also clothing, sewing machine, furniture, and animals; books, $100; tools, $100. The value of the exemptions outside of the homestead is varied according to the number in family, and ranges from $50 to $500.

WEST VIRGINIA. Homestead, $1,000, where the property has been granted or devised for the purpose, to the head of a family, or where he has devoted such property to that purpose by having it so recorded; also personal property to value of $200; tools to mechanic, $50.

WASHINGTON. Homestead (must be actually occupied) to the value of $2,000; clothing, books, bedding, and household goods to value of $500; one small boat to value of $50; two cows, five hogs, bees, poultry, fuel, and provisions. To a farmer, two horses, or two yoke of oxen, and farming implements to value of $500. To professional man, library worth $1,000, office furniture, and fuel. To lighterman, his boats, to value of $250. To drayman, his team.

WISCONSIN. Forty acres in the country, or one quarter of an acre in town, with the dwelling thereon; clothing, household furniture, $200; books, two cows, 10 hogs, 10 sheep, one horse, and yoke of cattle, or a pair of horses and mules, farming tools, one year's provisions and provender. To a mechanic, tools $200; professional man, his library, $200; a publisher or printer, his outfit for $1,500. To any head of a family, three months' earnings, not to exceed $60 a month. No exemption good against a mechanics' lien or claim for purchase-money.

WYOMING. House and lot in town or 160 acres of land in the country, either to value of $1,500; tools, team, and stock in trade of mechanic, miner, or other person, $300. Benefit of exemption can only be claimed by a bona fide resident householder.

ONTARIO. The exemptions from execution are, speaking generally: the beds and bedding in ordinary use by the debtor and his family; necessary wearing apparel and a list of domestic utensils necessarily incident to living, not to exceed in value the sum of $150; necessary provender for 30 days not to exceed in value the sum of $40; a cow, six sheep, four hogs, and 12 hens, in all not to exceed the value of $75; tools and implements ordinarily used in the debtor's occupation to the value of $100, or the debtor may elect to receive the proceeds of the sale of such tools up to $100. Under the Free Grants and Homestead Act, there is an exemption from liability for any debt incurred before the issue of the patent and for 20 years from date of location, except where the land itself is mortgaged or pledged or for the payment of taxes.

QUEBEC. The exemptions from execution are: beds, bedding, and bedsteads in ordinary use by debtor and his family; necessary wearing apparel; one stove and pipes, and a number of smaller articles; all necessary fuel, meat, vegetables, fish, flour not more than sufficient for ordinary consumption of debtor and family for three months; four cows, six sheep, four hogs, and food therefor for the winter; tools and implements or chattels ordinarily used in debtor's occupation. No real estate.

NEW BRUNSWICK. Wearing apparel; beds, kitchen utensils; tools of trade to the value of $100 are exempted.

NOVA SCOTIA. Necessary wearing apparel; beds, bedding, and bedsteads of debtor and his family; household utensils not exceeding in value $20; food enough for 30 days' consumption and not exceeding in value $40; one cow, two sheep, and hay and food therefor for 30 days; tools or chattels ordinarily used in the debtor's occupation to the value of $30. No real estate.

PRINCE EDWARD ISLAND. Necessary wearing apparel and bedding for the debtor and his family; tools and instruments of his trade or calling; £5 in money and his last cow are exempted from execution out of Supreme Court; wearing apparel and bedding of debtor and his family; the tools and implements of his trade; one cook stove and one cow, in all amounting in value to $50, are exempt from process out of County Court.

MANITOBA. Household goods to the value of $500; tools, agricultural implements, and necessaries used by the debtor in his trade, occupation, or profession, to the value of $500; homestead to the extent of 160 acres being the residence of the debtor, the buildings and improvements thereon; or the town residence of the debtor to the value of $1,500, provided that no real or personal property shall be exempt from seizure or sale under execution for the purchase price of the same. A debtor cannot waive his exemption from seizure and sale under execution.

NORTHWEST TERRITORIES. Necessary clothing of the defendant and his family; furniture and household furnishings belonging to defendant and his family to the value of $500; also certain personalty exclusive of the foregoing and homestead not exceeding 160 acres; house and buildings occupied by the defendant, also the lot or lots on which same is situate according to the registered plan, to the extent of $1,500; defendant is entitled to his choice from a greater number of articles from the same class.

BRITISH COLUMBIA. Personal property of debtor to the value of $500 is exempt from execution. No goods or personalty, however, is exempt from seizure in respect to debts contracted in regard to the identical goods. The stock in trade of a merchant is not exempt from seizure although under $500, and it can be sold to satisfy a judgment. Registered homesteads are exempt from execution to the value of $2,500.

PROPERTY RIGHTS OF MARRIED WOMEN.

ALABAMA. Married women may hold all property, real and personal, acquired before and after marriage, as a separate estate not liable for the husband's debts, and it may be devised or bequeathed as by a single woman. This separate estate is liable for debts contracted by the woman before marriage, and for contracts after marriage for articles of comfort and support of family. The wife is entitled to dower of one half of husband's real estate, if he leave no lineal descendants and his estate is not insolvent; if insolvent, then to one third; one third if there are any descendants, provided she has no separate estate; if her separate estate is less than the dower interest would be, she is entitled to as much as would make it equal. Women attain their legal majority at 21, but may marry without consent of their parents at 18.

ARIZONA. Married women may carry on business and sue and be sued in their own names. All property acquired before marriage, and all afterwards acquired, by gift, grant, devise, or inheritance, is separate estate, liable for her own but not for her husband's debts. She may control it and dispose of it in all respects like a single woman. The wife must join in all deeds and mortgages of real estate except unpatented mining claims.

ARKANSAS. Married women have absolute and unqualified right in property of every kind and are not liable for debts or contracts of the husband. But a schedule under oath, and verified by some other reputable person, must be made by the husband and wife, and filed in the recorder's office of the county where the property is, and of the county where they reside. The wife may control her property, may carry on business on her sole and separate account, may sue and be sued, may make a will and may insure her husband's life for her benefit. The widow is entitled to one third part of the estate unless legally relinquished by her.

CALIFORNIA. All property acquired in any manner before marriage, or afterwards by gift, grant, inheritance, or devise, is wife's separate property, controlled by her and not liable for debts of the husband. The husband's property similarly acquired is not liable for debts of the wife. All property acquired after marriage by husband or wife, except as above, shall be common property, but under the husband's control. Dower and curtesy are abolished, but the survivor takes half the common property after payment of debts and expenses of administration. A married woman may dispose of her separate estate by will without the consent of her husband and insure her husband's life for her benefit.

COLORADO. Married women are treated in all respects, as to their property rights, as if they were single. A wife may carry on trade or business, sue or be sued, contract debts, transfer real estate, and in all ways bind her separate property, without the husband's joining. She may make a will, but cannot bequeath more than half her property away from her husband without his consent in writing. The husband cannot by will deprive his wife of over one half of his property. Dower is abolished. The husband is liable for debts of the wife contracted before marriage to the extent of the property he may receive through her, but no further.

CONNECTICUT. Previous to the year 1877, the husband acquired a right to the use of all the real estate of the wife during her life and if he had a child by her and survived her, then during his own life as tenant by curtesy. By the Act of May 20, 1877, the rights of married women are materially enlarged. Any woman married after that date retains her real estate as if unmarried. She may make contracts, convey real estate, and sue or be sued in regard to any property owned by her at the time of marriage, or afterwards acquired. The estate is liable for her debts, and, jointly with her husband, for debts contracted for joint benefit of both or household expenses. The separate earnings of a wife are her sole property. A surviving husband or wife is entitled to use for life of one third in value of real and personal property legally or equitably owned by the other at the time of death.

DAKOTA (NORTH and SOUTH). Married women may transact business in all respects the same as if unmarried. Neither husband nor wife has any interest in the separate estate of the other. The earnings and accumulations of the wife are her separate property and not liable for the husband's debts nor even for household debts contracted by her as her husband's agent. Her separate property is, however, liable for her own debts, contracted before or after marriage, if such debts are contracted on her own responsibility.

DELAWARE. Married women, married since 1873, retain all real and personal property held at marriage, or since acquired from any person other than the husband, as their separate estate, and not subject to the disposal of the husband or liable for his debts. They may receive wages for personal labor, sue or be sued in respect to their own property as if unmarried; and the rents, issues, and profits of their separate estate are not controlled by the husband. The widow is entitled to one third dower of all the lands and tenements whereof the husband was seized at any time during her marriage, unless she shall have relinquished such right for and during the term of her natural life. She may be an administratrix, and the husband's life may be insured for her benefit if premium does not exceed $150.

DISTRICT OF COLUMBIA. Married women may bequeath, devise, or convey property or interest therein in the same manner as if unmarried. Real or personal property belonging to the wife at marriage or afterwards acquired is separate estate. She may sue and be sued in all matters pertaining to her property, and the husband is not liable for any contracts made by her in respect to her personal estate.

FLORIDA. Married women retain all real or personal property owned at marriage or acquired thereafter, and are not liable for the husband's debts, without his consent in writing and legally executed. In order that it shall be free from his debts, the property must be inventoried and recorded within six months after marriage or subsequent acquirement of the property. The wife may sell and convey all real estate inherited by her the same as if she were unmarried; but her husband must join in all sales, transfers, and conveyances of her property, both real and personal. She is entitled to dower in a life estate in one third of all the real estate of which her husband was seized and possessed at his death or at any time during his life, unless she has relinquished the same; also an absolute one third of his personalty.

GEORGIA. Married women retain as a separate estate all property in their possession at the time of marriage, or afterwards acquired, and are not liable for any debts, defaults, or contracts of the husband. By consent of her husband advertised for four weeks she may become a free trader, in which event she is liable the same as if unmarried. The wife may not bind her estate by any contract of suretyship, either in behalf of her husband or any other person. The widow takes dower in one third of all the lands of which her husband was seized at his death; and wife and children, after the husband's death, are entitled to one year's support from his property, all other claims yielding to this.

IDAHO. All property, both real and personal, owned at marriage or afterwards acquired, by either wife or husband, remains a separate estate. All property acquired after marriage is held in common. Separate property of the wife should be inventoried with the county recorder; the husband has control of it during marriage, but cannot create a lien or encumbrance unless joined by the wife, who is examined separately. If the husband mismanages, or commits waste, the district court may, on application of the wife, appoint a trustee to manage her separate property. Upon the death of husband or wife, half the common property goes to survivor; if no direct descendants, all goes to survivor.

ILLINOIS. Married women may own in their own right realty and personalty, may sue and be sued, contract and incur liabilities, the same as if unmarried; but they may not enter into or carry on any partnership business without consent of the husband, unless abandoned by him or he is incapable of giving assent. Beyond the necessaries, the husband is not liable for debts of the wife, except in cases where he would be jointly liable if the marriage did not exist. The estate of both is liable for family expenses, but the wife's separate earnings are her own. A surviving wife or husband takes one third of all the realty of the deceased, unless relinquished in due form. The husband and wife are put upon the same footing as to dower, and the estate of curtesy is abolished.

INDIANA. Married women retain all realty and personalty owned by them at marriage, or afterwards acquired, and are not liable for the husband's debts. The husband is liable for debts of the wife contracted before marriage only to the extent of the personal property he may receive from or through her, or derive from sale or rent of her lands. She may sell personal property but she may not convey or encumber her real estate unless the husband joins. Suits against her separate estate should be brought in the name of both. A widow takes one third of her deceased husband's real estate in fee simple, free from all demands of creditors, where the estate does not exceed $10,000; where the estate is over $10,000 and under $20,000 she takes one fourth; and one fifth if it exceeds $20,000. She also takes one third of the personalty after payment of debts, and in all cases takes $500, without accounting, and may occupy the dwelling and forty acres of land for one year, rent free.

IOWA. Married women may own in their own right real and personal property acquired by descent, gift, or purchase, may sell, convey, and devise the same, may sue and be sued, make contracts and buy goods in their own name. Wife or husband is not liable for the debts of the other before marriage, or for separate debts incurred afterwards. The wife's earnings are her own, and her note is good against her own estate. Women attain majority at 18, or earlier, upon marriage; a female of 14 may marry. The surviving wife or husband is entitled to one third of the real estate of the deceased, free from all claims of creditors. If they leave no children, survivor takes one half, parents the other half.

KANSAS. Married women have the same property rights as men, and may make contracts, carry on business, sue and be sued, and sell or convey real estate precisely as their husbands; their earnings or profits are their own. A note or indorsement made by a married woman will bind her property the same as if unmarried. Homestead is absolute property of widow and children, and neither wife nor husband may bequeath more than half their property without written consent of the other. If either dies intestate and without children, the entire property goes to the survivor.

KENTUCKY. Married women may hold real or personal property as a separate estate free from the control of the husband or liability for his debts. By petition to the circuit court, in which the husband must join, she may acquire the right to transact business in her own name. Unless dower be barred, forfeited, or relinquished, she takes one third of the real estate and one half of the personal property.

LOUISIANA. Married women may hold and control both real and personal property owned at time of marriage; all property or revenues of separate property acquired by either husband or wife after marriage is held in common, and is divided equally between them at dissolution of the marriage either by death or divorce. The wife may carry on a separate business, but her husband will be bound by her contracts, so long as the community of property exists; she cannot sue without the concurrence of her husband, nor bind herself or her property for his debts. There is no right of dower to the wife.

MAINE. A married woman holds real and personal property, acquired in any way except from the husband, the same as if single. She may make contracts, sue and be sued, and do business in her own name; and her property may be taken to satisfy judgments against her. Her property is liable only for her own debts. She joins husband in a deed selling his property to relinquish dower. He joins with her in selling hers only when such property comes from him. A wife, being abandoned by her husband, may be allowed to take and use his personal property. Dower, life estate in one third of all husband's real property owned during coverture; one half if no children. He has same interest in deceased wife's estate.

MARYLAND. Property acquired by a married woman is her own, controlled by herself, and is free from her husband's debts. She conveys by joint deed with the husband, but devises and bequeaths the same as if single. She may be sued with her husband on joint contracts made by them, and the property of both is equally liable. Dower one third, if they have children; one half, if none.

MASSACHUSETTS. The property of a married woman is managed by herself, and is not liable for her husband's debts. She may make contracts, sue and be sued, and do business in her own name, provided a certificate is filed by her or her husband in the office of the town clerk. Contracts and conveyances between husband and wife are not allowed. Her conveyances of real estate are subject to husband's tenancy by curtesy. A wife cannot make a will affecting her husband's right to one half of the personal property, or his tenancy by curtesy in her real estate, without his written consent. Dower as by common law.

MICHIGAN. Married women own and control property the same as if single. A wife may do business in her own name and make contracts, even with her husband. Her separate property is liable for wrongs committed by her. Widow has dower, but there is for the surviving husband no right of tenancy by curtesy.

MINNESOTA. A married woman holds property in her own name. She may make contracts, and her property is liable only for her own debts. She cannot sell or convey real estate further than a mortgage for purchase money or a three years' lease, without her husband joining her. Contracts between husband and wife are void. The surviving husband or wife keeps the homestead for life.

MISSISSIPPI. A married woman holds property acquired in any manner, and the revenues therefrom, for her own use and free from control or liability of her husband. She may convey and encumber the same as if single, but husband joins in conveyance. She may devise and bequeath. Deed from husband to wife is void as to creditors at time of making it. A wife may not encumber her estate by mortgage or otherwise for her husband's debts; she may do business on her own account the same as if single, and is then liable for her contracts, housekeeping, and family expenses. She joins her husband in conveyance of homestead, but not in that of his other property. Dower in property of which the husband dies seized.

MISSOURI. A married woman controls her own property, and holds it through a trustee, free from liability for her husband's debts. She may make contracts, sign notes, and do business in her own name. She may make a will. She joins her husband in his conveyances to release dower. Her dower is one third for life of all lands owned by husband.

MONTANA. A list of married woman's property filed and recorded saves it from being liable for the husband's debts, except necessaries for herself and children under 18. A married woman may become a sole trader by recording her intention. If she invests more than $10,000 in business she must make oath that the surplus did not come from her husband. The husband is not liable for debts contracted by her in business. She is also responsible for the maintenance of her children. A surviving husband or wife takes one half of deceased's property, if no children; one third if there are.

NEBRASKA. A married woman holds her separate property free from the disposal of her husband and from liability for his debts. She may bargain, sell, make contracts, do business, sue and be sued, all so far as her separate estate may warrant; but she cannot become surety for another, not even being allowed to bind herself for her husband's debts. Property coming to the wife from the husband is not privileged as her separate property.

NEVADA. The separate property of a married woman which is controlled by herself is such as she may have owned before marriage or acquired afterwards by gift, devise, or descent. All property acquired otherwise, by either husband or wife, is common property, and under the absolute control of the husband. On the death of the husband the widow receives one half of the common property.

NEW HAMPSHIRE. A married woman holds property owned before marriage or acquired afterwards, except what may come from the husband, for her own use. She may sell, convey and encumber, devise and bequeath, do business, give notes, sue and be sued. Her contracts are binding, excepting that there can be no contracts or conveyances between husband and wife, nor can the wife become security for her husband. Wife is entitled to dower.

NEW JERSEY. The property owned before marriage, and such as she may acquire afterwards by gift, descent, or bequest, is the sole property of a married woman and is not liable for the husband's debts. She may make contracts, but cannot sell or encumber her real estate without consent of husband. She cannot indorse notes or become security. She joins husband in his conveyances and mortgages. Dower and curtesy.

NEW MEXICO. The separate property of a married woman is what she owned previous to marriage, or what she may inherit. All that she acquires afterwards, and the revenues of her separate estate, go into the common property. The husband has control and management of her separate estate and the common property. There is no dower, but on decease of the husband the wife's private property is first deducted; then she receives one half of the common property, after all debts are paid. If there be no children she has a right to all the common property.

NEW YORK. Married women may have real and personal property, buy and sell, and do business in their own names. A married woman is liable for debts contracted in her own trade or business, or when an agreement or contract has been made for the benefit of her separate property, when, by the terms of such instrument, her separate property is to be charged with the liability. Dower.

NORTH CAROLINA. A married woman's separate property is not liable for her husband's debts. She may devise and bequeath, but must have husband's consent to convey. Unless she be a free trader, she can make no contract other than for personal or family necessities or for payment of antenuptial debts, without the consent of her husband. She becomes a free trader, the husband assenting, by filing her intention. Common law dower and one year's subsistence.

OHIO. The property of a married woman is not liable for her husband's debts; beyond a three years' lease or a contract for the improvement of her real estate, she cannot sell or encumber it without the consent of her husband. If a married woman engages in trade, her separate property is liable for the debts she may then contract, and she may sue and be sued the same as if single. A deserted wife must procure an order from court, by which she shall have all property rights as a *feme sole*. Dower in all real estate owned by husband during coverture.

OKLAHOMA. Neither husband nor wife has any interest in the property of the other. Either may enter into any engagement or transaction with the other, or with any other person, respecting property which either might, if unmarried, subject, between them, to rules which control the actions of persons occupying confidential relations. The wife may,

without consent of husband, convey her separate property. Woman retains the same legal existence and personality after marriage as before, and receives the same protection of her rights as does her husband. She may hold and transfer real and personal property; may buy and sell goods, give notes or other obligations, and sue and be sued, same as if unmarried.

OREGON. A married woman holds her property free from the control or debts of her husband. She may make contracts, buy and sell, and give notes, and her own property will be liable. The husband joins in her conveyances. She may make a will, but it must not interfere with her husband's rights of curtesy.

PENNSYLANIA. The property of a married woman is held as her separate estate, but is chargeable for family necessaries ordered by her. A wife cannot make a contract or conveyance without her husband joining her. By obtaining leave from the court she may have the benefit of her own earnings. She may make a will, saving the husband's rights by curtesy. She may deposit money in bank and write checks against it in her own name. Dower, one third of all real estate owned by husband during coverture.

RHODE ISLAND. A married woman's property is held by trustees for her separate use free from her husband's debts. She cannot make contracts of do business. She may make a will subject to husband's right by curtesy.

SOUTH CAROLINA. The property of a married woman cannot be seized for her husband's debts. A married woman can bequeath, devise, and encumber her separate property. She can buy in her own name, and have conveyances made to her, and make contracts, the same as if she were single. A gift from husband to wife is not good against a creditor's claim. Dower rights.

TENNESSEE. A married woman has her separate property free from the husband's control and from liability for his debts. She may encumber, convey, or devise her separate property without being joined by her husband in the deed. Widow has dower in one third of husband's real estate, and a child's share in his personalty. The husband dying intestate, leaving no heirs, the wife inherits all his property.

TEXAS. The property owned by husband or wife before marriage, and what either may acquire afterwards, by gift, devise, or descent, is community property. The husband controls the common property and the wife's separate estate. The common property is liable for the debts of either, and the husband may dispose of it. At the death of either, the survivor takes one half and the children the other half of the common property. The husband joins wife in conveyance of her separate property. She joins him in conveyance of homestead. A married woman cannot do business in her own name, but she may become security for her husband by mortgaging her separate estate.

UTAH. A married woman's separate property is held, managed, controlled, and disposed of by herself. A wife may carry on business, sue and be sued, give notes and make contracts same as if single.

VERMONT. The property of a married woman is held separate, and is not liable for her husband's debts. In conveyance of the wife's real estate the husband must join in deed. A married woman may make a will. Widow has dower in one third the real estate of which the husband died seized.

VIRGINIA. A married woman holds the property owned by her previous to marriage, and what she may afterwards acquire, as sole trader, free from the control of her husband, and from liability for his debts. She may make a will subject to husband's rights by curtesy. Common law dower.

WEST VIRGINIA. The property of a married woman, however acquired, except from the husband, is held for her sole and separate use. Husband must join in conveyances of real estate. Dower.

WASHINGTON. The property owned before marriage by husband or wife, and all acquired afterwards by gift, devise, or descent to either, is separate property. All otherwise acquired is common property, subject to control of the husband. He also controls the separate property of the wife, but cannot sell or convey it without her joining in the deed. To save the separate property of the wife from attachment for husband's debts, there must be an inventory of it on record.

WISCONSIN. A married woman has all property rights the same as if single. She may buy and sell, lend and borrow, make conveyances, and have real estate conveyed to her, and all such business may be transacted between her and her husband as between strangers. She may sue alone, but in being sued she must be joined to husband. Dower, life interest in one third of all husband's realty held during the marriage. Husband has wife's realty for life.

WYOMING. A married woman may carry on business, make contracts, keep her own earnings, hold property, real or personal, receive the rents in her own name, sue and be sued, make a will, free from any control or interference of her husband, the same as if she were single. Her property is not liable for the debts of her husband. Women in this state have the right to vote and hold office.

CANADA. In the provinces of the Dominion, generally, a married woman holds all her property and earnings, free from the control of her husband. It is liable for her debts before marriage, and her husband is not. She may manage it and bequeath it. She is entitled to dower, but there is no tenancy by curtesy. In the province of Quebec the law is modified by the French law. There all the personal property and gains of both parties are put together, and form the community property, which the husband administers. Each can bequeath only his or her interest, and the heirs of each inherit the interest of each.

EPOCH-MAKING DECISIONS OF THE UNITED STATES SUPREME COURT.

MARBURY vs. MADISON. The only point at issue in this case was that of the power of the U. S. Supreme Court to issue a writ of mandamus, but Chief-Justice John Marshall, after giving the opinion that the Court had no such power, went out of his way to lay down the much more important doctrine that whenever a law of Congress was at variance with the U. S. Constitution the courts must cling to the Constitution and refuse to obey that act. Few single events have played so great a part in molding the history of this country as this decision.

McCULLOCH vs. MARYLAND. The question in this famous case was whether or not the states could tax a bank chartered by the U. S. John Marshall, after upholding the right of the U. S. to charter such an institution, declared that such a tax was not constitutional since it tended to put an agency of the Federal government under the control of the states. The most important part of this decision had to do with Marshall's enunciation of the doctrine of implied powers—that Congress, in carrying out the powers specifically granted to it by the Constitution, was justified in exercising other powers if the latter aided in the more perfect execution of the former.

MARTIN vs. HUNTER'S LESSEE. The decision in this case, establishing a very important precedent, was that the U. S. Constitution operated upon states in their corporate capacity; that the law-making bodies of the states were in every case under the U. S. Constitution, and bound by the paramount authority of the U. S. The centralizing influence of this decision was great.

COHENS vs. VIRGINIA. Another decision asserting the supremacy of the U. S. over the states. This time Marshall upheld the right and the duty of U. S. courts to hear cases appealed from state courts. A Virginia court had previously denied this power.

DARTMOUTH COLLEGE CASE. By this decision a charter became a contract as the word contract was understood in common law, and even a state legislature could not break or modify it without the consent of the other party. The importance of this decision is to be found in the fact that charters of private corporations were perpetual unless a time limit was fixed in them.

GIBBONS vs. OGDEN. Could a state grant a monopoly to a private corporation doing an interstate transportation business? John Marshall answered "no"; that this was clearly interstate commerce, and by the Constitution Congress controlled interstate commerce. This decision was the first of a number of decisions widening the meaning of the word "commerce." Marshall's declaration that "commerce" was synonymous with "intercourse" has been always accepted since.

COLLECTOR vs. DAY. By this decision salaries of state officials were declared to be exempt from a Federal income tax.

SLAUGHTER HOUSE CASES. The Fourteenth Amendment had declared that "all persons born or naturalized in the U. S. are citizens of the U. S. and the state wherein they reside." And that "no state shall make or enforce any law which shall abridge the privileges and immunities of citizens of the U. S." When were the privileges and immunities of U. S. citizens abridged? In the

Slaughter House cases the Supreme Court wisely decided that too broad an interpretation of the word "abridge" would have the effect of limiting too much, the power of the states over their own citizens. The effect of the indefinite wording of the Fourteenth Amendment has been unfortunate as it has resulted in endless litigation. The good results of the Amendment have been negligible.

GRANGER CASES. In these cases the Supreme Court upheld the right of the states to control corporations within their boundaries, even though they might be interstate railroads. The result of these decisions was a confusing mass of regulatory laws passed by western legislatures in their efforts to curb the growing power of railroads.

NORTHERN SECURITIES CASE. The Sherman Act had declared every combination a conspiracy in restraint of trade. To get around this definition holding companies were organized for the purpose of controlling the stock of hitherto-competing corporations. But the Supreme Court decided that holding companies came under the Sherman Act, and were therefore illegal.

BRENNAN vs. TITUSVILLE. (153 U. S. 289). A tax upon persons selling goods by sample is inoperative as to persons soliciting orders for a house without the state "interstate commerce cannot be taxed at all even though the same amount should be laid on domestic commerce." A state cannot demand a license fee from citizens of other states selling goods within its limits, it can levy a tax or demand a license fee if the article offered for sale is in the possession of the seller, even if it is the produce of another state.

DICTIONARY OF TERMS USED IN POLITICAL SCIENCE.

ABSOLUTISM. A system of government in which the sovereignty is lodged in a single authority without legal restraint. Absolute authority may be exercised by an individual in a republican as well as a monarchical form of government.

ADJOURNMENT. A temporary suspension of the meetings of a legisaltive assembly.

ADMINISTRATION. The group of officials entrusted with the execution of the laws. (See Government). The work of actually carrying laws into execution is called administration. The states of continental Europe have a distinct body of law known as administrative law, which applies only to administrative officers.

ADVISORY OPINIONS. Informal opinions rendered by judges in regard to the constitutionality of a bill being considered by a legislative body. Such opinions do not have the force of law, but are given in order to keep legislatures from passing acts which might be declared unconstitutional. The courts of Maine, Massachusetts, New Hampshire, and Rhode Island are authorized to render such decisions.

ALIEN. In international law the term is used to denote a citizen of a foreign state residing or visiting in a country other than his own. Upon naturalization he loses the status of alien.

ALLEGIANCE. A term of constitutional law used to denote the obligation that binds the subject or citizen to his state. It may be natural (by birth), or acquired (by naturalization). Some states have taken the position that natural allegiance can never be thrown off,—"Once an Italian, always an Italian."

ALLOCATION. As used in connection with government this term usually refers to the process of dividing up lands and distributing them among the landless. This may be done, as in Ireland, by parliamentary enactment, or, as in Russia, by direct confiscation.

ALTERNATE. A person designated lawfully to act in place of another, usually at a political gathering.

AMBASSADOR. The highest rank of diplomatic representatives.

AMENDMENT. As used in U. S. constitutional law the term refers to the formal addition of a new clause to a constitution.

AMNESTY. An act of a sovereign power wiping out past offences. It differs from a pardon in the fact that the latter presupposes guilt and the former does not. It may take the form of a general amnesty applying to a number of persons.

ANARCHY. A political and social theory based on the principle that each individual should rule himself without the intervention of government.

APPELLATE JURISDICTION. The power and authority of a superior court to take cognizance of, to hear and determine a cause, upon appeal, for the purpose of correcting or revising the proceedings of a lower court.

APPORTIONMENT. The fixing of the number of representatives to which electoral areas shall be entitled, by virtue of population or some other basis fixed by law.

APPROPRIATION. A legislative act determining the objects for which the public moneys may be spent.

ARBITRATION. The settlement of disputes by reference to parties not interested in the questions involved. Used principally in international disputes, and disputes between employers and employees.

ARCHIVES. The records, files, correspondences, accounts, and other documents arising in the transaction of public business.

ARISTOCRACY. A form of government in which the power resides in the hands of the few, usually the "well-born." Or, a term used to denote the upper class of society whether or not they enjoy special political privileges.

ARMISTICE. A suspension of military hostilities, usually for the purpose of discussing peace.

ASSESSMENT. The authoritative fixing of property valuation for the purpose of taxation.

ATTACHE. A person assigned by a government to the suite of an ambassador or minister.

ATTAINDER. The loss of civil rights because of conviction of treason or some other heinous offence. A bill of attainder is a legislative act imposing punishment.

BALLOT. A slip of paper used by voters in expressing their choice for elective offices.

BALLOT, AUSTRALIAN. The method of secret, written voting, first used in Australia.

BALLOT, SHORT. A ballot containing the names of only a few elective offices.

BELLIGERENCY. A term of international law used to denote a state of armed and legally recognized hostility. In the case of rebels or insurgents a recognition of their belligerency puts them on the plane of organized states in most respects.

BICAMERAL. The division of a legislative assembly into two houses or chambers.

BILL. A proposed legislative enactment formally introduced by a member of the body.

BILL, OF RIGHTS. A document solemnly assented to by a sovereign whereby the rights of the people will be respected. Or, formal constitutional enactments protecting the rights of the people.

BIMETALLISM. The legal parity of gold and silver as units of exchange.

BLOCKADE. A measure of war by which one belligerent aims to cut off the communication of other belligerents. A "paper" blockade is one that can not be enforced, and, according to international law, need not be respected by neutrals.

BOARD. A group of persons appointed or elected for the duty of administering some law or laws.

BOROUGH. A unit of local self-government. In England a borough was an electoral area for the election of representatives to the House of Commons.

BOSS. A term used to denote an autocratic party leader.

BOUNTY. Money paid by the government to private industries for the purpose of encouraging them to continue in that particular business. See Subsidy.

BOYCOTT. An agreement entered into by a number of persons whereby they will have no dealings with another person or association of persons.

BUDGET. The financial statement of a government for a definite period outlining the object and amount of expenditures; the sources and expected amounts of revenue, and the balancing of these two estimates.

BUNDESSTAAT. A term invented by German political scientists and used to signify that form of federal government in which the states are subordinate to the central government.

BUREAU. The largest subdivision of an executive or administrative department.

BUREAUCRACY. A system of government in which administrative officers, usually responsible only to an

autocrat, carry on the government in a high-handed manner. The "bureaucratic" tendency is noticeable in all countries today.

BY-ELECTION. A special election held to fill a vacancy in a legislative assembly. (British term).

BY-LAW. Rules and regulations which govern voluntary associations.

CABINET. The group of advisors constituting the principal executive officers of a state.

CABINET GOVERNMENT. As now used this term implies the existence of a responsibility of the chief executive officers to the popularly elected house of Parliament. The Cabinet remains in power until it loses the confidence of the legislative body, when it must resign.

CALENDAR. A register containing a list of the bills reported from committees.

CAMPAIGN. The period preceding an election devoted to bringing before the people the issues involved.

CANDIDATE. A person who seeks some political office, appointive or elective.

CANVASS. A party or individual survey of the political field preliminary to the election.

CAPITULATION. Restriction placed upon semi-barbarous or non-Christian states interfering with their control over Christian aliens within their borders.

CARTEL. An agreement between belligerents regulating intercourse during war.

CAUCUS. An informal meeting of party members for the purpose of deciding questions of party policy or the choosing of candidates.

CENTRALIZATION. A term used to signify that form of government in which the local governments are subordinated to the central government. There may be degrees of centralization.

CHALLENGE. The formal questioning by an authorized person of another's right to vote.

CHANCELLOR. A high dignitary of government, as The Lord High Chancellor; Chancellor of the Exchequer. In Germany the Chancellor corresponds to the English Premier.

CHANCERY. A court of general equity jurisdiction.

CHARGE D'AFFAIRS. A person acting temporarily in the place of a diplomat of high rank.

CHARTER. The organic law of colonies, granted by the mother-country; or a document granted by a state to public, quasi-public, or private corporations conferring upon them privileges.

CHECKS AND BALANCES. A system whereby the departments of government act as a check against each other, restraint being considered more important than co-operation.

CITY. A local self-governing area which has conferred upon it the greatest amount of power.

CITIZEN. An individual who owes obligations to a certain state, and in return possesses rights not granted to non-citizens.

CIVIL SERVICE. Technically, the whole body of public officials occupying subordinate positions.

CIVIL SERVICE, REFORM. A reform designed to do away with the "spoils system" by providing for competitive examinations and secure tenure of office.

CIVIL SERVICE, COMMISSION. A body appointed to enforce civil service regulations.

CLOSURE. A term used to include all rules of legislative assemblies which shut off debate.

CODIFICATION. The reduction of a body of law to direct and systematize legislative form.

COLLECTIVISM. The ownership by the community of all agencies of production.

COMBINE. The popular name for combination or trust.

COMMISSION. Group of persons appointed or elected to administer law.

COMMISSION FORM OF GOVERNMENT. A system of municipal government which centralizes all legislative and executive authority in the hands of a small elective body.

COMMITTEE. A selected group of persons in a legislative body appointed or elected to consider certain proposed laws and prepare reports of their deliberations.

COMMITTEE OF THE WHOLE. The whole body of a legislative chamber sitting as a committee.

COMMON CARRIER. One engaged in the business of transportation for the general public.

COMMUNISM. A social system in which there is no private property.

COMPTROLLER. A high fiscal officer in a state.

CONCURRENT JURISDICTION. The authority of different tribunals to hear the same kind of cases.

CONCURRENT POWERS. Powers that may be exercised equally by two governments, such as the states and the United States.

CONFEDERATION. A federal form of government in which the component states retain the greater portion of the power. See Staatenbund.

CONFIRMATION. As used in the U. S. this signifies the consent of a legislative body to the acts of an executive.

CONGRESS. The legislative branch of the U. S. government. Or, a group of persons gathered together for diplomatic or other purposes.

CONSTITUTION. The organic law of a state.

CONSTRUCTION. The method of interpreting constitutions. By broad construction is meant that the constitution is stretched to cover many things not specifically mentioned in the document. By strict or narrow construction is meant that the constitution is narrowly interpreted.

CONTRABAND. Goods which may be seized by belligerents if destined for the enemy.

CONTRACT THEORY OF GOVERNMENT. The theory that the state first began when people voluntarily surrendered their rights of complete government to rulers.

CONVENTION. A custom of long standing (British). A group of persons assembled for the purpose of setting on foot some political program.

CORPORATION. "An artificial being, invisible, intangible, and existing only in contemplation of law." (John Marshall). They are either public, as cities, or private, as a manufacturing company, or quasi-public, as a railroad company.

COUNTY. An important subdivision of a state possessing powers of self-government.

CROWN. In English political terminology the term crown is now used to denote the executive department.

CURRENCY. As used in the U. S. currency refers only to paper money.

DARK HORSE. A comparatively unknown person brought forward as a candidate for some important political office.

DECLARATORY STATUTES. Statutes passed to remove doubts or to settle conflicting judicial decisions as to what the common law is upon given points.

DE FACTO GOVERNMENT. As distinguished from a de jure government, one that has been irregularly set up and which has not been generally recognized by other states.

DE JURE GOVERNMENT. The government recognized by other nations as the real government, even though it may not be actually in power at the time.

DEMOCRACY. That form of government in which the people rule. A monarchy may be a true democracy.

DEPENDENCY. A country which is not directly a part of but which is under the control of another country.

DISFRANCHISEMENT. The legal deprivation of the privilege of voting.

DISTRICT SYSTEM. The ordinary method of representation by which the area to be represented is divided into small sections, each electing one representative.

DIVISION OF POWERS. A term used to denote the separation of the powers of government functionally into the legislative, the executive, and the judicial branches.

DUAL GOVERNMENT. A form of political structure, such as the U. S., where the work of government is divided between two organizations, both supreme in their own spheres.

DUE PROCESS OF LAW. A term for which jurists will not make a general definition, but apply it to the case at hand. If an individual has been wronged in the process of a trial he may plead "due process."

ELASTIC CLAUSE. That clause in the U. S. Constitution which states that Congress shall have the power to "make all laws that are necessary and proper for carrying into execution the foregoing powers." (Art. I, sec. 8, par. 18).

ELECTION. The selection by the voters of persons to hold public office.

ELECTORAL COLLEGE. The name given to the meeting of the state electors in the process of choosing a President of the U. S.

EMBARGO. In international law an embargo is a form of reprisal by which ships or other property are seized or detained by a state.

EQUITY. That body of principles which brings about the solution of a case in some way beyond the normal action of the common law.

ESCHEAT. The reversion of property to the state by reason of the lack of competent heirs.

ESTIMATES. The official analysis of necessary expenditures for the ensuing year.

EXCISE. Duties imposed upon the process of manufactures or upon domestic trade.

EXECUTIVE. That branch of the government entrusted with the enforcement of the law.

EXEQUATUR. The official writ of authority granted by an executive to consuls representing that state.

EXPATRIATION. The renunciation or the abandonment of nationality.

EX POST FACTO. A law which in operation punishes persons for the commission of an act which was not criminal at the time of its commission, or increasing the penalties thereof.

EXTRADITION. The legal process of returning persons accused of crime to the state in which the crime was committed.

EXTRATERRITORIALITY. The principle of international law by which certain persons, royal or diplomatic usually, and certain lands are out of the jurisdiction of the state in which they happen to be found.

FABIAN SOCIALIST. A group of English socialists who use and co-operate with existing institutions for their own purposes. Their theory is that socialism will come by process of evolution.

FAVORITE SON. A phrase used to denote a presidential candidate little known outside of his own state who receives the support of that state in the nominating convention.

FEDERAL. That form of government in which the powers of government are distributed among a number of co-ordinate bodies.

FILIBUSTERING. As used in legislative bodies filibustering means the deliberate obstruction of proceedings by such devices as unnecessary roll-calls, etc.

FRANCHISE. An authorization by the state to a corporation to occupy a particular street or other public property with its wires, tracks, etc.

FUSION. The union of two or more parties for the purpose of defeating a majority party.

GENERAL COURT. As now used this term is the official appellation of the legislatures of Massachusetts and New Hampshire.

GENTLEMEN'S AGREEMENTS. Verbal agreements entered into by officials of corporations whereby competition between them will not take place.

GERRYMANDER. A political device used by politicians to unite the electoral areas of the state in such a way that their party will be enabled to elect a greater number of representatives than they would if the districts were symmetrically laid out.

G. O. P. "The Grand Old Party," the Republican.

GOVERNMENT. The agency through which the state puts its will into execution.

GRAFT. Public money wrongfully taken by public officials.

GRANDFATHER CLAUSE. One of the methods resorted to by some of the southern states in order to disfranchise the negroes, basing voting on the citizenship of grandparents.

HABEAS CORPUS. A legal process used to prevent unlawful detention of a person accused of crime.

HENCHMAN. One of the assistants of a political boss.

HIGH SEAS. That part of the water area of the earth over which no state can claim jurisdiction.

IMPEACHMENT. The act of bringing formal charges or accusations against a person holding public office before a tribunal competent to take cognizance of such cases.

IMPERIALISM. The policy of colonial expansion.

IMPLIED POWERS. The doctrine of constitutional interpretation set forth first by John Marshall that incidental powers were to be implied from the express powers granted to Congress.

IMPOSTS. As used in the U. S., this refers only to indirect taxes.

INDICTMENT. A written accusation of crime formally presented by a grand jury.

INDIVIDUALISM. The theory of government best expressed by Thomas Jefferson who stated that "that government is best that governs least."

INFORMATION. A formal charge brought against some person by a state attorney accusing him of committing a crime. Similar to an indictment.

INITIATIVE. A form of direct legislation in which the voters, by petition, propose laws.

INJUNCTION. A court order restraining a person or group of persons from doing something.

INSURGENT. As now used this term refers to members of a legislative body who leave their party.

INTERPELLATION. A formal, written question addressed to a Cabinet officer by a hostile member of Parliament. In France ministers are often overthrown by ministers failing to answer these questions satisfactorily.

INTERVENTION. In international affairs, the interference of one state in the internal affairs of another.

ISOLATIONIST. A term used to describe those persons who believe that the United States should live unto itself as much as possible.

JINGO. A term, of English origin, applied to excessively patriotic persons, who are always willing for their country to "fight at the drop of a hat."

JURISPRUDENCE. The science of law.

JURY, GRAND. The body of persons charged by the state with the duty of bringing indictments against persons accused of crime.

JURY, PETIT. A body of persons charged by the state with the duty if passing upon the guilt or the innocence of persons accused of crime.

JUS SANGUINIS. The practice adhered to by some states of identifying the nationality of the child with that of its parents, no matter where it is born.

JUS SOLI. The practice adhered to by some states of determining the nationality of a person by the place of his birth, rather than by parentage.

LAISSEZ FAIRE. An individualistic doctrine holding that the state should not interfere in the personal affairs of citizens for the purpose of regulating relations between individuals or groups of individuals. Opposes all "social legislation."

LANDSLIDE. An overwhelming party victory.

LAW. Any rule that the courts will enforce.

LAW, CIVIL. That body of national law which is distinct from the "common law."

LAW, COMMON. That body of national law which is distinct from written law.

LAW, CONSTITUTIONAL. That body of rules and principles which determines the form of governmental organization in a state, and assigns to the respective departments their powers and duties.

LAW, CRIMINAL. The body of laws and customs which defines and determines the degree of punishment of offences against the state.

LAW, FUNDAMENTAL. Another term for constitutional law.

LEGAL TENDER. Money which may be used in the payment of debts, and which the creditor is obliged to accept.

LEGISLATION, DIRECT. The enactment of laws by the voters directly without the intervention of the legislature.

LEGISLATIVE REFERENCE BUREAU. An agency of the state whose duty it is to draft bills for members of the legislature. In some cases its duties extend also to investigation.

LIBERAL. A term applied to persons whose political, social, and economic views lie somewhere between the radical on the one hand, and the reactionary or conservative on the other.

LOBBY. A modern term applied to persons who, because of personal interest or of pay, use their influence to have legislators vote for the bills desired by them.

LOG-ROLLING. An expression, peculiarly American, which means, in effect, "you vote for my bill and I will vote for yours."

MACHINE. A political organization.

MANDAMUS. A command issuing from a court directing some corporation or public officer to preform some duty.

MINISTERIAL RESPONSIBILITY. The system, best worked out in England, whereby the ministers are responsible for all their acts to the popularly elected chamber of Parliament.

MINISTER PLENIPOTENTIARY. The diplomatic rank next below that of Ambassador.

MINORITY REPRESENTATION. (See proportional representation).

MODUS VIVENDI. Temporary agreement pending the permanent settlement of an international issue.

MONARCHY. That form of government in which the political head is a king or prince.

MUCK-RACKING. Indiscriminate attacks upon persons holding public office.

MUGWUMP. A term used to denote a person independent in politics, especially one who deserts his party.

NATION. Strictly, a term applied to people of a common race. Broadly, a term applied to persons having a common allegiance.

NATIONALIST. One who adheres to a racial group as a political unit.

NATURALIZATION. A process of formally changing citizenship from one state to another.

NEUTRALIZATION. A term of international law meaning the bestowal "by convention of a neutral character upon states, persons and things which would or might otherwise bear a belligerent character."

NIHILISM. A political theory closely resembling anarchism.

NOMINATION. The choice within a party of persons to represent that party in the general election. Also, the selection of persons to fill public office by executive choice.

OBITER DICTUM. That part of the opinion of a judge which passes upon points not connected in any close degree with the main point or points at issue.

ORDINANCE, EXECUTIVE. Regulations issued by a chief executive or heads of executive departments.

ORDINANCE, MUNICIPAL. Statutory enactments of a city or borough council.

ORIGINAL JURISDICTION. The authority possessed by courts to hear cases instituted for the first time.

PAIRING, LEGISLATIVE. The practice of members of opposite political parties in legislative assemblies agreeing not to vote in the absence of the other person.

PANEL. The list of names drawn for jury service.

PARISH. A local district possessed with some power of self-government, but commonly used, as in England, for the purpose of administering ecclesiastical and charitable affairs.

PARLIAMENT. The name applied to the general legislative body of nearly all countries.

PARTICULARISM. Attachment of persons for their own region or section of a country rather than devotion for the national state.

PARTY. A group of persons united for the purpose of securing political measures considered advantageous to the group.

PATERNALISM. A social theory which holds that the state should take over all functions which, in private hands, have a tendency to divide the people into unequally-privileged classes.

PATRONAGE. Public offices which are within the bestowal of legislators.

PLATFORM. The publicly announced principles of a party or candidate for public office.

PLURALITY. The highest number of votes received by any candidate, regardless of what percentage of the whole number it constitutes.

PLUTOCRACY. The government by the wealthy.

POLICE POWER. The power of the state to take care of the health and safety of its citizens.

POLL. The place where the electors vote (U. S.). Or, the voting itself.

POOLING. The practice of railroads of dividing the business among themselves according to some basis agreed upon, for the purpose of doing away with competition.

PORK BARREL. An expression referring to public funds which are used by legislators for local and selfish interests.

PRECINCT. The smallest political subdivision of an electoral area.

PREFECT. The chief administrative officer of a French department.

PREMIER. The head of a Cabinet in a state having the system of ministerial responsibility.

PRESENTMENT. A charge brought by a grand jury on its own responsibility without the evidence having been put before it by the state prosecuting officer.

PRESIDENT. The chief executive or presiding officer of a state or organization.

PRESIDENT, PRO TEM. One who acts in the place of the regular presiding officer.

PRESIDENTIAL ELECTORS. Persons chosen by the voters of the states to elect a President of the U. S.

PRESIDENTIAL SUCCESSION. The Law of Congress regulating the succession to the presidency, providing that the office, in case of the death or inability of the President and Vice-President to perform the duties of the office, shall devolve upon the members of the Cabinet in order of the establishment of their offices.

PRIMARY. A party election at which candidates for public office are chosen.

PRIMARY, DIRECT. A party election at which the voters vote directly for candidates to fill public office.

PRIME MINISTER. See Premier.

PROPORTIONAL REPRESENTATION. A system devised to allow minority parties to have representation in legislative assemblies in proportion to their voting strength in a large electoral area.

PROROGATION. The formal ending of a session of Parliament.

PROTECTORATE. A state whose sovereignty is impaired by reason of the fact that another state exercises control over it.

PROTOCOL. A term of international law referring to the points of agreement entered into between states serving as the basis for a definitive treaty.

PROXY. A written authority authorizing one person to act as the agent of another in voting. This is only legal in private corporations or fraternal organizations.

QUORUM. The specified number of voters which must be present in a legislative body in order legally to transact business.

QUO WARRANTO. A writ issued by a competent court against a person holding office.

RADICAL. The term applied to persons who believe that the rights of property should give way completely before the rights of persons.

RECALL. A political device which enables the voters to remove from office persons whom they have elected.

RECIPROCITY. A tariff agreement between nations making mutual concessions.

REFERENDUM. The submission to the electorate of proposed statutory or constitutional laws.

REPUBLIC. A state in which the titular head is elected or appointed, by contrast with monarchy.

RESULTING POWERS. Powers resulting from a liberal interpretation of the U. S. constitution as a whole.

RIDER. A bill, order, or resolution attached to another proposed legislative enactment containing subject matter entirely different from that of the primary bill.

RING. A closely-knit group of political leaders who are in politics for their own selfish ends.

SECTIONALISM. The tendency toward the formation of groups based on geographical divisions.

SENATE. A legislative chamber.

SEPARATION OF POWERS. The division of the powers of government among the legislative, the executive, and the judicial departments.

SERVITUDES. In international law this term refers to the restrictions on the jurisdiction of a state over some internal questions.

SHIRT SLEEVE DIPLOMACY. The carrying on of diplomatic relations in a direct, somewhat informal manner, as distinguished from the traditional indirect manner.

SOCIALISM. A theory which upholds the belief that the state should own and operate the means of production and distribution.

SOVEREIGNTY. The original, supreme and unlimited power inhering in all politically independent commonwealths.

SPEAKER. The presiding officer of popularly-elected legislative houses.

SPHERE OF INFLUENCE. A part of a territory inhabited by uncivilized people marked out by one of the European powers as a field for exploitation.

SPOILS SYSTEM. The practice of filling offices with party workers and favorites.

STAATENBUND. A confederation of states in which the central government plays a subordinate part.

STAMPEDE. The mass action of delegates to a nominating convention in hastening to cast their votes for the candidate who seems sure to win.

STAND PAT. A term meaning conservative partisan.

STARE DECISIS. The prevailing principle in courts of law that precedents will generally be recognized as binding.

STATE. A group of people permanently occupying a fixed territory, with a government competent to carry on the business of a sovereign people.

STATUTE. The legislative will of the state embodied in written form.

STEAM-ROLLER. The action of the leaders of a political convention in suppressing freedom of action among the rank and file of the delegates.

SUBSIDY. Government grant to private corporations.

SUFFRAGE. The act of the electorate in choosing representatives or deciding issues.

SYNDICALISM. A radical movement aiming to unite the workmen of the world for the purpose of destroying the capitalist.

TORY. A term, British in its origin, meaning a reactionary person.

TOWN. A local unit of government possessing varying degrees of autonomy.

TOWNSHIP. A subdivision of a county, corresponding to a district in southern states.

TREATY. A formal, written agreement between two or more states.

TRUST. A business company formed for the purpose of controlling the stock of a number of companies engaged in the manufacture of similar articles of commerce.

ULTRA VIRES. A term meaning that a corporation has exceeded the powers granted to it by its charter.

UNIT RULE. The rule prevailing in Democratic national nominating conventions that states must vote as a unit, that is, the vote of the delegates can not be divided among different candidates.

UNITARY STATE. The form of government in which all power is centered in the general government.

VETO. The power given to executives to refuse assent to legislative enactments.

WARD. Territorial subdivision of a city.

WARD-HEELER. Satellite of the political boss of a ward.

WHIG. A party which stood for progress, as contrasted with Tory (England).

WIRE-PULLING. Use of political influence for selfish ends.

ECONOMICS

CAPITAL
LABOR
WAGES
TRADE UNIONS
EIGHT-HOUR DAY
STRIKES AND LOCKOUTS
ARBITRATION
UNEMPLOYMENT
BANKS AND BANKING
SAVINGS BANK
TRUST COMPANIES
LOAN INSTITUTES
MONEY
DICTIONARY OF COINS AND COINAGE
STOCK EXCHANGE
BONDS AND SECURITIES
INSURANCE
PUBLIC FINANCE
PUBLIC INDEBTEDNESS
BUDGET
CUSTOM DUTIES
UNITED STATES TREASURY
LEADING FINANCIAL EVENTS
DICTIONARY OF BUSINESS AND FINANCIAL TERMS

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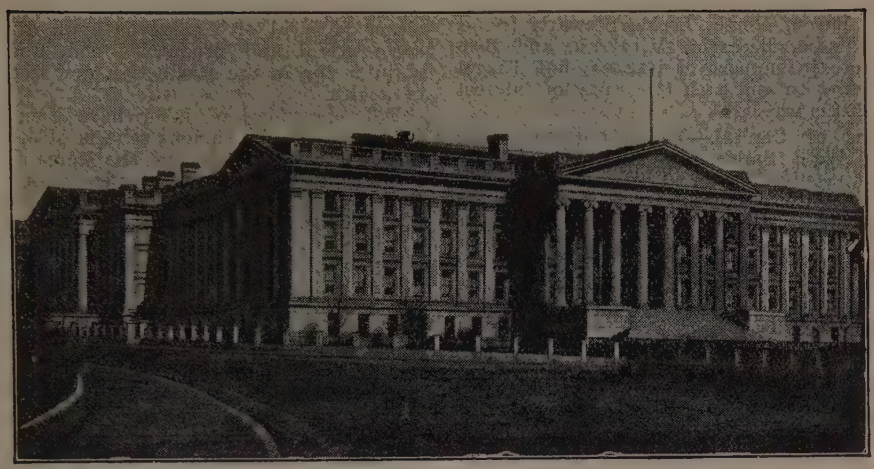
GREAT INDUSTRIES—LUMBERING

1 A group of Redwoods. 2 Felling a giant fir, at least 500 years old. 3 Logs on the way to the mill, Washington. 4 Trucking logs, Oregon. 5 Log rafts floating down stream. 6 Logs in "boom" awaiting cutting. 7 On its way to become useful lumber. 8 Loading lumber at mill, Oregon.

BOOK XIII.

ECONOMICS.



U. S. Treasury, Washington, D. C.

CAPITAL, LABOR, AND WAGES. TRADES UNIONS. STRIKES. BANKS AND BANKING. LOAN INSTITUTES. DICTIONARY OF COINS AND COINAGE. SINGLE AND DOUBLE MONETARY STANDARDS. PAPER MONEY. STOCKS AND STOCK EXCHANGES, BONDS. CREDIT. INTEREST. INSURANCE. PUBLIC FINANCE. REVENUE. PUBLIC SECURITIES. FINANCES OF UNITED STATES AND GREAT BRITAIN. POSTAL SAVINGS BANKS. UNITED STATES TREASURY. SUMMARY OF FINANCIAL EVENTS. DICTIONARY OF BUSINESS AND FINANCIAL TERMS.

CAPITAL.

Capital is "that part of wealth which is devoted to obtaining further wealth." The money used to provide shelter, protection, tools, materials, food, and maintenance of the laborers is capital, according to Mill. Though still in dispute, it is generally conceded that capital, from the standpoint of political economy, ought not to include immaterial things such as health, skill, or strength, nor the free gifts of nature.

Circulating capital is that which performs the whole of its office in a single use.

Fixed capital exists in a durable shape, and a return to it is made at definite periods.

Wage capital is that which provides food, shelter, clothes, and protection to the laborer.

Auxiliary capital provides tools, machines, factories, buildings, and even railroads, canals, roads, and ships as well as raw materials.

History of Capital.—Among savage races and primitive men, weapons and implements for hunting and fishing represent the sole capital. As man advanced to the pastoral stage, flocks and herds constituted a larger and richer capital. In the agricultural stage which followed, his agricultural implements and stock formed a more complicated form of capital. In the industrial development of nations the invention of machinery caused such heavy investments that capital took a new and independent position in production. Since the invention of the steam engine and its perfection (1776) the importance of capital has constantly increased until, in the United States at least, one who is without capital, however skilled he may be, is forced to become the hired employee of others.

The natural result from capital is interest. In the Mosaic law and in the early Christian days there was a deep-rooted objection to interest. It would appear that in those days arts and productions were of the simplest kinds, and in the manufactures there was slight need of credit. Whatever was loaned was for immediate use and to relieve distress. Hence the idea that one who profited by the sufferings of others was to be censured. Even the Greek and Roman philosophers—Plato, Aristotle, the Catos, Cicero, Seneca, and Plautus,—all without giving any good reason, were loud in their condemnation of interest. But interest came to be allowed by Greek and Roman laws, and was generally recognized until the Middle Ages, when the Church took up a crusade against it. And while greater reason for its condemnation is given by Gonzalez Tellez, Thomas Aquinas, and others within the

Church, the Protestant reformers such as Zwingli, Luther, Melanchthon, and Calvin more or less openly approved of it. In 1640, chiefly through the profuse writings of Salmasius, the tide turned in favor of interest, and it was defended and supported by nearly all of the great writers. Bacon, North, Locke, Stewart, Hume, Galiani, Vasco, Beccaria, Mirabeau, and Bentham wrote in support of interest, but Turgot was the first to approach the study of interest in a scientific way.

Theories of Capital.—Turgot's theory, like that of Adam Smith, was unsatisfying and somewhat contradictory. For convenience of reference it has been called the Fructification theory, because it likens capital to rent-bearing land, and interest from capital to the fruit which the rented land bears.

Ricardo's theory deals more with the rate of interest than with the reasons for interest, except that if no interest were given capitalists would not invest. Torrens, McCulloch, and others are among the supporters of Ricardo.

The Productive theory maintains that capital produces wealth and that the investor is entitled to a share of what his wealth produces. This theory was first advanced by J. B. Say in 1803, and it has been supported in recent times by Roscher, Leroy-Beaulieu, Scioloja, and others. Roscher claimed that capital produces more goods. Lord Lauderdale in 1804 taught that capital produces more value. This view is supported by Malthus, Henry Carey, Peshine Smith, Thünen, and Strassburger.

J. B. Say advanced the theory that capital, in some unexplained way, has a use value, and that the capitalist ought to be paid interest for being deprived of its use when he invests it. This theory has been taken up and elaborated by German writers; but modern economists criticise it by asking what possible use he would make of it as capital if he did not invest it.

The Abstinence theory was elaborated by N. W. Senior (1836) from hints given by the writings of both Adam Smith and Ricardo. It holds that as all capital is the result of labor, the surplus represents the results of labor performed not with a view to satisfying immediate needs but with an eye to the future. As the capitalist gained this capital by self-denial and abstinence he ought to be indemnified by interest. Though this theory is now generally abandoned it had the support of such eminent economists as J. S. Mill, Jevons, Cairnes, Roscher, Schiiz, Max Wirth, Rossi, Molinari, and Garnier.

The Labor theory is a modification of the abstinence theory, and holds that the capitalist ought to be paid for labor performed, and regards capital as stored-up labor. James Mill, McCulloch, Courcelle-Seneuil, Rodbertus, and Schäffle support this view.

The Exploitation or Socialist theory holds that all goods are the product of human labor; that the laborer does not hold the full value of his labor; but that the capitalist takes advantage of the needs of the laborer who is compelled by hunger to sell his labor to the capitalist at a less rate than its true value. Adam Smith and Ricardo advanced the idea that labor is the source of value; Hodgskin and Sismondi contributed to the development of the idea; but Proudhon, Rodbertus, Lasalle, and Marx took it up and have been its most ardent advocates.

LABOR.

In an economic sense labor is human effort, either physical or mental or both, directed to some useful and productive end, and is the main factor in the production and distribution of wealth.

Different views of labor have been held at different times by various schools of economists. On the decay of feudalism, the Mercantilists set greater store on the accumulation of the precious metals than on the development of labor. Mercantilism differed from modern protectionism in that its chief aim was to perpetuate cheap labor and cheap agricultural products. The French school of Physiocrats, the founder of which (Quesnay) is by many regarded as the father of political economy, held that all labor except agricultural was unproductive, since the latter alone produces a surplus beyond the immediate needs of the laborer. Hume and Adam Smith advanced a broader conception, and showed that labor is the chief factor in the production of wealth. Adam Smith made a curious distinction between productive and unproductive labor, maintaining that the former includes only such activities as lead to some concrete commodity. According to this reasoning, the workers who supply man's material needs are representative of productive labor, whereas the services of the physician who saves a human life must be classed under the category of unproductiveness. The fallacy of such reasoning was emphasized by John Stuart Mill, who pointed out that labor does not create commodities but utilities. It is the form alone which is changed. Whatever adds to the supply of consumable utilities is essentially productive, the difference between one kind of service and another being merely in degree.

Since the days of the old economists, two lines of thought have been developed. The socialists, led by Karl Marx, argue that, since increase of labor produces increase of wealth, private property in capital and land ought to be abolished that labor may receive its proper share of the value which it alone creates. The other school of economists hold that value is not in direct ratio to the quality of labor, but is regulated by the incidents of supply and demand, and is, moreover, a wise adjustment and interdependence of capital and labor.

Labor is of two kinds, forced and free. Arguments in favor of forced labor are no longer seriously adduced; for since the introduction of free labor into England in the fifteenth century and the abolition of slavery in America during the nineteenth, the progress of economic thought has kept pace with the widening conceptions of labor.

Wages.—In its restricted sense wages is the compensation given for hired services. The Physiocrats and the earlier economists, such as Adam Smith and, to a certain extent, Ricardo, taught that the price of labor should afford the worker neither more nor less than a mere subsistance. John Stuart Mill and Malthus developed the wages fund theory, which more recent

economists have generally discarded. Mill and his followers reasoned that, as labor is dependent on capital, wages must be paid out of and limited by the accumulated wages fund at the employers' disposal; hence increase of capital must be the foremost consideration, since by this means a larger sum can be apportioned for wages. The alternative method of increasing wages would be to cut down the number of participants. The fallacy of this theory was not generally recognized till about 1870, when Thornton and Walker vigorously attacked it, and advanced what is known as the productivity theory. Wages, instead of being paid out of capital, represent the price of a product already created by labor. Economically, the product itself is the reward of labor; and, since increase of wages tends to enhance the efficiency of labor and the value of the product, it is clearly demonstrated that higher wages are essentially more economical.

Wages depend both on the productivity of the laborer and on the supply and demand of labor. Generally speaking, the standard of wages in civilized countries tends to keep pace with the standard of living. In comparing the wages of one country or period with those of another, the purchasing power of money must not be lost sight of, for this is the true criterion. A carpenter in India getting 25 cents a day is comparatively better paid than a similar artisan in the United States receiving $3.00 a day. The amount of purchasing power then, and not the amount of money received by the worker for his services, is the true determinant of his standard of living. This is well illustrated by the findings of the National Bureau of Economic Research as shown in the following table of per capita incomes of those gainfully employed in the United States, expressed in terms of dollars and purchasing power:

Year	Number of persons	Income per capita	Purchasing power at 1913 price level
	millions	dollars	dollars
1910	33.82	923	940
1911	34.35	907	923
1912	34.81	931	939
1913	35.08	955	955
1914	34.87	936	932
1915	34.91	1,028	1,005
1916	37.65	1,214	1,068
1917	38.73	1,397	1,025
1918	40.92	1,515	943
1919	39.52	1,690	951
1920	.....	.....	.....

The table shows that the per capita money incomes increased much more rapidly than purchasing power during the prosperous years from 1916 to 1919 inclusive. But per capita income does not show the wages of particular groups and classes of workers. Tables which give only the increase in money wages do not show the change in real wages or purchasing power of the workers. In order to understand, for example, whether real wages were higher or lower in 1920 than in 1914, it is necessary to compare change in money wages with the changes in cost of living. It should also be remembered that an average wage does not represent the income of any particular group or class of workers. In June, 1923, for example, factory wages for men in New York State were approximately $31.50 while those for women were about $16.50.

The wages of women in industry are in general much lower than those of men and believed by many to be pitiably inadequate in many cases for the recipients to maintain themselves in health and reasonable comfort. In 1900, the median rate of wages for women in all industries was 53 per cent of the rate for men. According to a survey made in California in 1915–1916, 53.3 per cent of the women in the industries investigated received less than the accepted minimum wage which was set at $10 per week. In 1919 and 1920 the median wage of women workers in Kansas was $11.95 per week, with 20 per cent of the women receiving less than an average of $9 per week. The United States Bureau of Labor Statistics found that in 1920 the average wages of women were inadequate to maintain a proper standard of living. The survey covered 21 industries in 32 states.

The low wages received by women not only have a very depressing effect on the women engaged in industrial pursuits, but it also affects the male labor because of increased competition. The women overcrowd the industries open to them and lower the wages of men engaged in similar work. It is held that the competition of women in industry will in the future be less effective in keeping wages low, because of the breaking down of binding custom and tradition which has in the past effectively barred women from many of the trades and professions. This greater freedom for women has been aided and encouraged through the advent of woman suffrage.

According to official reports the average weekly earnings of children in 1921 were about $3.46.

Trades Unions.—One of the most characteristic features of modern industrialism has been the growth of various organizations for the promotion of the interests of wage-earners. The idea is by no means new. The merchant guilds of the Middle Ages had their counterpart in the various clubs of journeymen, while in its elaborate system of caste India for centuries has possessed many of the essentials of trades unionism. But with the rise of new industrial conditions, the lines of demarcation between capital and labor, employer and employed, became more pronounced, and the forces of labor felt the growing need of union to combat the encroachments of the capitalists. As such unions became more numerous and aggressive, rigorous laws were passed against them in England, culminating in the Combination Acts of 1799 and 1800, which made every form of trade combination unlawful. But the principles involved were too deep-rooted; and urged on by the teachings of socialistic propagandists, the trades unionists struggled manfully for recognition till the Trades Union Act of 1871 gave a legal status to their unions. Their rights and powers were further established by the Employers' and Workmen's Act of 1875. The granting of the franchise and the increased political importance of the workman has still further stimulated the

development of labor organizations. Employers have come to regard trades unions as a necessary part of the economic machinery, while the employees no longer plead for concessions in the matter of wages and hours of labor, but frequently dictate the conditions of employment.

In the United States, labor organizations first became prominent about 1830, the same as in England. They began to figure in politics in 1829, when a labor delegate was elected to the assembly of the state of New York. The first national union is said to have been the International Typographical Union of North America, established in 1850. Since then almost every trade has been banded together on local or national lines, and many of these organizations, by virtue of their numbers and corporate wealth, have become powerful industrial and political factors. They have their recognized organs; their representatives are prominent in the legislatures of every state; their claims and demands are voiced in Congress. Generally they realize that it is more effectual to redress their grievances by constitutional means than to have constant recourse to the final weapons of all such unions—the boycott and the strike. Boards of arbitration and reconciliation have been introduced by many trades, and public opinion has been assiduously educated and won over. The modern trades union does not usually seek to gain its ends by restricting the output and interfering with production; it relies rather on the effectiveness of the so-called "common rule," that is, a standard rate, a normal day, and collective bargaining. It insists on the maintenance of a minimum wage and satisfactory conditions in the factories and shops. Some economists hold that the "common rule" tends to improve and develop business enterprise, for with its application arises the necessity of increasing the output, and to do this improvements in equipment and management must constantly be devised.

Knights of Labor.—This general labor organization in the United States was founded in Philadelphia, in 1869, by Uriah H. Stevens, a garment cutter, and embraces all sorts and conditions of persons over 16 years of age, barring only bankers, lawyers, liquor dealers, and gamblers. At first the order was clothed in secrecy, its very name being guarded; but this policy was abandoned in 1882. The original aim of the founders was to bring about a system of coöperative industry in place of the wages system. They later sought to bring about social and political reforms, such as the nationalization of land, unlimited coinage of silver, the prohibition of child labor and convict labor, the establishment of direct legislation, and compulsory arbitration. It was the first organization of workingmen to admit employers, women, and unskilled laborers, and was opposed to the exclusiveness of trades unions generally. From 1878 to 1887 its membership leaped from 10,000 to 800,000. The least desirable element of the working classes gladly swelled its ranks to batten on its funds in emergencies. Strikes were so recklessly indulged in that the resources of the body were almost depleted, and in 1893 the membership had declined to about 40,000. Though no official figures are published, it is estimated that the membership has not since appreciably increased.

American Federation of Labor.—One of the most remarkable phases of the industrial movement within the last 50 years has been the federation of unions. These confederations have the same general objects as their constituent bodies, and their relationship is somewhat analogous to that of Congress towards the states therein represented. Among such organizations the most important is the American Federation of Labor, organized in Pittsburgh in November, 1881, under the name of "The Federation of Organized Trades and Labor Unions," with the idea of establishing a federation of trade unionists distinct from the Knights of Labor. Its present name was adopted in December, 1886, on which date it comprised 13 national and international trades unions, 6 local unions, and 6 city federated unions, with a total membership of about 350,000. With the decline of the Knights of Labor, the federation became paramount. It is composed of a federation of unions. Each of the organizations that make up the federation is an autonomous body and governs itself according to its own needs and requirements based upon the experiences of the members of the organization. The powers of the federation are given to it by the component organizations. The local union is the basic unit of the federation, and in the absence of a national or international union, a local may be directly affiliated with the American Federation of Labor. In 1921 the Federation was composed of 36,247 local unions, 110 national and international unions, 973 city central unions, 941 local trade and federal trade unions, 5 departments, 783 local department councils, and 48 state federations, not including the District of Columbia. The largest affiliated body is the United Mine Workers of America. A general convention of delegates meets annually in November to elect officers and enact laws and regulations concerning the management and policies of the federation. The official organ is the *American Federationist*, which is published monthly.

While the growth and success of the American Federation of Labor is unparallelled in the history of American labor organizations, it has at various times suffered losses in membership. Its numerical strength usually declines during a period of depression, and increases during times of industrial activity. The membership of the American Federation of Labor since 1900 is as follows:

Year.	Membership.	Year.	Membership.
1900	548,321	1912	1,770,145
1901	787,537	1913	1,996,004
1902	1,024,399	1914	2,020,671
1903	1,465,800	1915	1,946,347
1904	1,676,200	1916	2,072,702
1905	1,494,300	1917	2,371,434
1906	1,454,200	1918	2,726,478
1907	1,538,970	1919	3,260,068
1908	1,586,885	1920	4,078,740
1909	1,482,872	1921	3,906,528
1910	1,562,112	1922	3,195,635
1911	1,761,835	1923	2,926,468

Collective Bargaining.—Employers have been forced to recognize that labor troubles can not be eliminated by merely raising wages. While the question of wages is the cause of a large per cent of the strikes, the demand for collective bargaining is becoming increasingly important as a cause of misunderstanding between the employers and wage earners. Trade unions, by encouraging their members to demand the right to bargain collectively with their respective employers, have done much to break down the old system of individual bargaining.

A movement toward collective bargaining received its greatest impetus in England during the World War. But even as far back as 1863, references are found to committees representing men in a given shop or department of a plant. Such committees have come to be known as "shop committees." The Reconstruction Committee of the British Government appointed a committee in 1916 which later came to be known as the Whitley Committee, to study the problem of "securing a permanent improvement in the relations between employers and workmen" and to "recommend means for securing that industrial conditions affecting the relations between employers and workmen shall be systematically reviewed by those concerned, with a view to improving conditions in the future."

The Whitley Committee made its first report in March 1917 and a final report in June 1918, recommending a "three-fold system, comprising works committees, district councils, and the national industrial council, in each industry in which employers and employees were sufficiently well organized for the purpose."

It will be noted that the Whitley plan necessitated that the workers be combined in a strong organization and that the employers organize so that collective bargaining could be carried out through the machinery of the labor unions and employers' organizations. In other words, collective bargaining was made a supplement to trade unionism.

The Whitley Committee recognized that the worker is at a great disadvantage when bargaining as an individual with his employer. He has only his services to sell and he can not afford to be unemployed for long periods, because it means that he and his family must go hungry and inadequately clothed. This fear of unemployment will often cause the worker to accept the wages and conditions offered by his employer even though he knows them to be inadequate, because he realizes that he must choose between the employers offer or unemployment.

According to the Whitley plan an attempt is made to adjust disputes when they arise in a given plant, by having the causes of the trouble investigated by the shop committee composed of representatives of employers and employees in the particular shop or department. In case the shop committee fails to effect a settlement, the dispute is carried on to the district council. The national council acts as a court of last resort. Collective bargaining has developed much further in England than in the United States.

In the United States the employers accepted the principle of collective bargaining in general, but many of them have refused to use it in connection with trade unions. They take the stand that they are willing to bargain collectively with the men in their own employ, but that they are unwilling to deal with outside union representatives. In other words, employers who hold this view are attempting to make collective bargaining a substitute for trade unionism rather than a supplement to unionism as is done in England.

Trade Unions and Injunctions.—An injunction is a writ issued by a court of equity restraining the "defendants from doing, or permitting others under their control, to do, an act which is deemed to be inequitable as regards the rights of some other party to such proceedings in equity." The purpose of the injunction, then, is to prevent wrongs or injuries for which there are no adequate compensating damages or when there is no certain pecuniary standard for the measurement of the damage.

There is a feeling on the part of the labor unions that the injunction was used against them in an unjust manner during the period immediately following the signing of the armistice. They felt that each case which went against them served as a precedent for the next decision and that each succeeding decision tended to further limit the legal activities of the workers. There was some ground for the existence of this view on the part of the workers, because during the prosperous years before 1920, when the workers were in an unusually strong bargaining position, there were comparatively few injunctions issued against them. A few of the states had issued orders restraining the workers from certain acts but no federal restraining orders were granted until the latter part of 1919 when the United Mine Workers were enjoined from calling a strike and distributing strike funds. The request for the injunction was based primarily upon the Lever Food and Fuel Control Act, a law enacted as a wartime measure to prevent monopolizing, hoarding and manipulating the supply and distribution of necessities during the war. The court was therefore using wartime measures against labor a year after the war was over. Workers resented this action still more when the court held in one case that the terms of the Lever Act which applied to profiteering were unconstitutional, and so refused to use it against profiteers.

The workers even felt that the protection granted them by the Clayton Act of 1914 had been unjustly taken from them by some of the decisions rendered at this time. The Clayton Act was passed as an amendment to the Sherman Anti-trust Law of 1890 and provided in part that the labor of human beings should not be considered as a "commodity or article of commerce." It also stated that labor organizations were not to be construed as illegal combinations in restraint of trade under the Anti-trust Law. Section 20 provided that no restraining order or injunction should be granted by the judge or court of the United States in a case between employers and employees growing out of a dispute concerning terms and conditions of work, unless necessary to prevent irreparable injury to the party making the application and where there is no adequate legal remedy for such injury. Peaceful picketing was made legal by this section of the act.

Tactics used by the employers during this period were probably due in large part to a reaction after the disturbing consequences of war conditions and were not continued for very long.

International Labor Congresses.—The first international labor congress was held at Geneva, Switzerland, in 1866, when over 60 delegates assembled from England, Germany, France, and Switzerland. The second international congress was held in the following year at Lausanne, and in 1869 the third and more widely representative congress sat at Basal. This congress almost unanimously resolved that all landed property should be held in common, and advocated "the destruction of all states, national and territorial, and on their ruins the founding of the International State of Laborers." International congresses were held at Dresden (1871), The Hague (1872), at which there was a rupture with the socialistic faction, Paris (1886), Berlin (1891), Zurich (1897). After the congress at The Hague in 1872, the socialists worked on more independent lines, and the first avowedly socialistic labor congress met in Paris (1889). A second was held at Brussels in 1891, when America and every European country except Portugal and Russia were represented. Two years later 385 social delegates met at Zurich, when it was decided that anarchists should not be admitted. The fourth congress at London (1896) was still more important, and its 800 delegates included representatives from Argentina and Australia. This congress urged the abolition of (1) the capitalist class, (2) landed property, and (3) standing armies. The miners, too, have held international congresses annually since 1890, but these assemblages have come largely under the dominance of the radical socialists.

Eight Hour Day.—The effort to shorten the hours of labor in all countries has led to the rather general acceptance of eight hours as the proper period for a day's work. The success of the eight-hour day has resulted from the pressure of public opinion, because of the alleged advantages of the shorter working day. It is held that shorter hours in industry will provide work for the unemployed; increase the market for commodities by augmenting the consumption power of the population; increase the efficiency of labor; improve the conditions of the worker and make him a better citizen; and increase the opportunities of the workers to enjoy and live a fuller, social, cultural and religious life. According to the 1909 census of manufactures, 76 per cent of the 6,500,000 employees covered by the report were working more than 54 hours per week. Considerable progress was made for the next few years as is shown by the 1914 census of manufacturers. According to this census report, 25 per cent of the employees in industry were working from 60 to 72 hours per week. With the outbreak of the World War and the consequent unprecedented demand for labor, the workers gained many concessions in the way of shorter hours. The 1919 census, shows that 48.6 per cent of the 9,096,372 wage-earners reported were working 48 hours or less per week. In 1914 only 11.8 per cent of the workers were employed in establishments where the prevailing hours of labor per week were 48 or less. Without attempting to give in detail the history of the movement toward the shorter working day, it may be briefly outlined as follows:

1780. London bookbinders worked 14 hours less meal hours.
Trades unions formed by them to reduce the day by one hour.
1786. Day reduced for London bookbinders to 13 hours.
1790. Hours of labor practically unlimited in England.
Children often worked 15 hours a day and over.
1794. Day reduced for London bookbinders to 12 hours.
1796. A board appointed to investigate the condition in the mills at Manchester.
1802. The elder Sir Robert Peel carried a bill to mitigate the worst evils. It accomplished little, but was a precedent for further work.
Hours of only the little children limited to 12 a day.
The English workman labored from 11 to 14 hours.
1806. Unsuccessful strike of London bookbinders.
Shipbuilders and caulkers of New York City organize for ten hour day.
1810. Ten hour day granted to London bookbinders.
1815. Parliamentary inquiry into labor conditions in England.
1817. Robert Owen of New Lanark introduced a ten-and-a-half-hour day in his mill.
1819. Act forbade employment of children under nine in English mills.
Children between nine and sixteen to work 72 hours a week exclusive of meals.
1824. English bill repealing Combination Laws gives trades unions the right to organize.
1825. Sir John Hobhouse carried a bill legalizing Saturday half holiday.
Strikes for ten hour day common in New York.
Artisans in New York work 12 hours a day. Textile workers, from 13 to 15 hours. Women and children often began at 4:30 A. M. and worked 15 hours.
1830. Richard Oastler, "the Factory King," began an agitation for a ten hour day, for which he sufferd persecution and imprisonment.
1831. Sir John Hobhouse carried a law forbidding any cotton operatives under 21 from working at night; and limiting the week's work for all under 18 to 69 hours.
Workingmen organized in Boston, Mass., to secure a ten hour day.
1832. Tom Sadler, the factory representative, moved a ten hour bill.
Factory girls in Lowell, Mass., worked 78 hours a week.
1833. Lord Ashley (Earl of Shaftesbury) limited the working hours for children under 13 to 48 a week.
1835. Ten hour day became general in Baltimore, Md., before 1840, as a result of strikes.
1840. English commission took up the question of labor and hours.
Mining act forbade employment of women or boys under ten in underground work.
President Martin Van Buren declared a ten hour day in the navy yard at Washington and in other public works.
Shipbuilders generally adopted a ten hour day.
1844. Sir Robert Peel's government passed factory acts lightening the burdens of operatives.
1845. Mass meeting at Pittsburg, Pa. (June 16), attended by over 5,000 persons, advocated ten hour day.
First national industrial convention of the United States held at New York (October) to agitate for ten hours.
Strikes and mass meetings held in many places, and some successful.
Textile workers in Massachusetts petition the legislature for ten hours.
1847. Ten hour bill passed in England by Mr. Fielden.
Shipbuilders in the United States try unsuccessfully to do away with the ten hour day.
1848. Hours of labor in Paris fixed at 10; and at 11 elsewhere in France.
Law of September 9 makes a day of 12 hours the maximum.
1849. First labor legislation in the United States was the law in Pennsylvania which fixed the ten hour day for cotton, woolen, silk, paper, bagging, and flax operatives, and for masons.
1853. Some mills at Lowell, Mass., adopted the ten hour day.
1856. Public meeting of stone masons held at Melbourne, Australia, for eight hour day.
"Eight hour league" formed at a meeting of the united trades in Melbourne, and all union men forbidden to work more than eight hours after

April 21, 1856. The 22d of April is there yet known as "Eight Hour Day."

1860. Nine hour movement revived in England, but was unsuccessful on account of depression in trade.
1864. English act extended ten hour day to many trades.
1865. Mills at Stourbridge still running 13 hours.
1866. The National Labor Union formed at Baltimore.
1867. Connecticut passes a law that eight hours shall be a day's work unless otherwise agreed.
1869. General Banks (June 24) introduced an eight hour bill which passed both houses of Congress and was signed at once by President Grant. Law went into force in Charlestown navy yard (July 6), though wages were cut one fifth. Those who wished might work ten hours for the old wages.
Boston Eight Hour League formed by Ira Steward and George E. McNeill.
20,000 workmen parade in New York and demand the eight hour day.
Eight hour leagues formed in many places, and strikes are numerous.
1871. Many strikes in England for a nine hour day.
1872. Nine hours granted in England to many skilled workmen.
1873. Depression retards the movement.
1874. Massachusetts enacts a ten hour law for women and for children under 18.
Hours for textile workers in England reduced from 60 to 56½ per week.
Fifteen inspectors appointed in France to carry out the law of 1848. More stringent factory laws passed in France.
1877. Great railway strikes in the United States caused by wages disputes.
Germany limits working hours.
Switzerland passed the Federal Factory Labor Law limiting maximum working hours to 11 in all factories and to ten on Saturdays and public holidays.
1878. English Factory Acts codified.
Many strikes in England over the efforts of employees to revive the ten hour day
1880. Massachusetts amends Factory Laws.
Employers endeavor to have law repealed. Bureau of Labor statistics conducts an investigation.
1881. Report of Carroll D. Wright, Chief of the Bureau, completely vindicated the ten hour law.
Socialist movement began in England.
1882. Royal commission investigates eight hour law conditions in Australia.
1883. Eight hour clause added to the Knights of Labor demand.
1886. Great labor agitation and strikes in the United States. Haymarket riots in Chicago.
1887. Germany limits the day to ten hours for those under 16.
Labor Day instituted in the United States.
1888. Matchmakers' strike in England leads to the forming of many new unions.
Coal miners in Westphalia strike for eight hours.
Gas workers in England have the day reduced from 12 to 8 hours.
American Federation of Labor at a convention held in St. Louis, decided upon a general demonstration for the eight hour day to be held May 1, 1890.
1889. Masons at Leipzig carry a ten hour day.
1902. The hours in English textile factories were restricted to 55½ hours.
1908. Danbury Hatter's Case. The court held the Union liable for the acts of its members.
1909. The English coal miners obtained reductions averaging about four hours per week.
1915. Munition workers in Connecticut won a succession of strikes for the eight hour day.
The coal miners won the eight hour day.
1916. The Adamson act gave the basic eight hour day to the railroad workers.
1924. Eight hour day introduced into the steel industry of the United States. This is one of the last and largest industries to accept the eight hour day. It seems to indicate that the eight hour day has come in the United States to stay.

Strikes and Lockouts.—A strike is a concerted refusal to work on the part of a body of employees till their demands are complied with by the employer. A cessation of work due to the employer closing down his establishment in order to force his employees into submission is a lockout. In almost all serious labor disputes both strikes and lockouts occur, and are not always easily distinguishable. In actual effect they are the same. Whether it is called a strike or a lockout is largely a question of tactics, each side having due regard to the important factor of public opinion. To defeat the attitude of the men the employer may seek to employ non-union men to fill the posts of the strikers; while the men, on their side, usually try to prevent this by boycotting and picketing.

Previous to the repeal of the combination laws in 1825, strikes in England were prohibited by law. In the United States, strikes were comparatively few before the Civil War. The first strike of serious proportions was that of railway employees in 1877. From 1881 to 1905 there were 38,303 strikes and lockouts in the United States, affecting 199,954 establishments, and throwing 9,529,434 employees out of work. In the building trade alone during that period there were 9,564 strikes, involving 69,899 establishments, 917,905 strikers, and throwing 1,083,699 out of work.

Practically every country experienced an unprecedented number of strikes and lockouts during the World War. This is because strikes and lockouts are manifestations of industrial unrest and they are, therefore, more prevalent in some phases of the business cycle than in others. During periods of great prosperity when prices are rapidly rising, strikes increase in number, and take the nature of offensive strikes. This is because in periods of great business activity, laborers take the offensive in trying to maintain their standard of living by demanding that their money wages be increased at least as rapidly as prices are rising. During periods of depression the employers take the initiative in an attempt to lower wages, while workers act on the defensive in resisting wage reductions. In periods of prosperity, therefore, it is found that the major portion of the strikes result from acts or demands of the laborers, whereas in periods of declining activity the majority of the strikes are due to the acts of employers. The following table shows the total number of strikes and lockouts reported to the Bureau of Labor Statistics each year between 1916 and 1921:

Matter of Dispute.	Strikes and Lockouts.					
	1916.	1917.	1918.	1919.	1920.	1921.
Increase of wages	1,301	1,571	1,397	1,074	1,327	118
Decrease of wages	35	36	36	86	141	866
Nonpayment of wages	13	18	31	11	20	5
Increase of hours	7	18	6	25	8	18
Decrease of hours	113	132	79	117	62	263
Increase of wages and decrease of hours	481	378	256	578	266	34

Matter of dispute	Strikes and Lockouts					
	1916.	1917.	1918.	1919.	1920.	1921.
Decrease of wages and increase of hours	....	....	....	....	....	77
Recognition of union	349	292	179	350	119	48
Recognition and wages	93	132	79	78	86	103
Recognition and hours	20	27	16	16	6	14
Recognition, wages, hours	56	48	49	76	44	11
General conditions	59	104	61	70	74	69
Conditions and wages	58	71	54	62	56	39
Conditions and hours	3	18	2	5	2	7
Conditions, wages, hours	25	26	8	37	43	6
Condition and recognition	4	13	7	14	6	6
Discharge of foreman demanded	17	38	54	19	30	7
Discharge of employees	127	208	138	144	139	37
Employment of non-union men	73	79	60	12	37	23
Objectionable persons hired	1	8	2	11	22	16
Discrimination	9	12	32	52	31	12
Open or closed shop	13	22	45	42	112	80
Closed shop and other causes	42	19	17	128	72	48
Unfair products	7	9	1	5	23	12
In regard to agreement	40	84	46	50	58	66
New agreement	40	24	4	36	11	31
Sympathy	33	71	35	107	63	36
Jurisdiction	19	21	16	16	20	9
Unsatisfactory food	4	11	1	8	2	....
Miscellaneous	116	168	181	100	72	46
Not reported	631	812	461	248	302	160
Total	3,689	4,470	3,353	3,577	3,254	2,267

According to the table, more strikes and lockouts occurred in 1917 than in any other year, but more people were involved in disputes of this nature in 1919. Of the total number of strikes and lockouts reported to the Bureau of Labor Statistics, the number of persons involved was as noted in the tabulation at the right.

Year.	Strikes.	Lockouts.	Total.
1916	1,546,735	53,182	1,599,917
1917	1,208,121	19,133	1,227,254
1918	1,196,928	43,061	1,239,989
1919	3,992,585	162,148	4,154,733
1920	1,417,456	17,736	1,435,192
1921	998,805	86,848	1,085,653
Total	10,370,630	382,108	10,742,738

The duration was not given for all of the strikes and lockouts reported to the Bureau of Labor Statistics, but of those giving information as to duration, it was found that the majority were for relatively short periods of time, as shown in the following table:

Time.	1916 Per cent of total.	1917 Per cent of total.	1918 Per cent of total.	1919 Per cent of total.	1920 Per cent of total.	1921 Per cent of total.
2 days or less	17.2	28.7	24.0	9.4	11.9	8.3
3 to 6 days	24.3	18.9	21.8	14.2	14.3	12.7
7 to 14 days	24.0	21.4	23.0	18.8	22.1	16.7
15 to 31 days	18.1	14.6	17.2	21.7	19.5	16.6
32 to 91 days	10.3	11.6	10.5	26.2	20.7	27.1
92 to 200 days	4.6	3.9	1.8	8.3	9.3	14.6
Over 200 days	1.0	.7	1.2	1.2	2.3	3.9

The Bureau of Labor Statistics reports that in 1916 "the total duration of strikes was 46,305 days and of the lockouts 3,375 days, the average duration of the former being 22 days and of the latter 64 days. In 1917 the total duration of these strikes was 25,077 days and of the lockouts 1,904 days, the average duration of the former being 18 days and of the latter 56 days. In 1918 the total duration of these strikes was 28,779 days and of the lockouts 1,116 days, the average of the former being 17 days and of the latter 19 days. In 1919 the total duration of the strikes was 60,715 days and of the lockouts 2,215 days, an average of 34 days and 37 days respecively. In 1920 the total duration of the strikes was 47,508 days and of the lockouts 1,376, an average of 38 days and 68 days, respectively. In 1921 the total duration of the strikes was 56,101 days and of the lockouts 4,064 days, an average of 49 and 71 days, respectively."

The employees were more successful in winning their strikes in 1917, 1918, and 1919. The following table shows the results of strikes and lockouts between 1916 and 1921:

Result.	Strikes and Lockouts Ending in–					
	1916.	1917.	1918.	1919.	1920.	1921.
In favor of employers	750	395	465	680	643	679
In favor of employees	749	631	627	583	372	233
Compromised	777	720	691	797	441	283
Employees returned pending arbitration	73	137	204	50	61	80
Not reported	101	191	211	57	211	204
Total	2,450	2,074	2,198	2,167	1,728	1,479

Strikes and lockouts are extremely costly to both employers and employees. According to data collected by officials of the Federal Government in 1921, it is estimated that wage-earners throughout the United States were incurring losses approximating $4,000,000,000 per year as a result of strikes, lockouts, and voluntary absenteeism. The losses incurred by the employers and employees because of the strike in the New York garment industry in 1921 were estimated at more than $750,000 a day. Industrial disputes in Pennsylvania between 1916 and 1919 caused a loss of more than $28,000,000 in wages.

Arbitration.—Many plans have been put forward with a view to the adjustment of labor disputes, and the prevention of strikes altogether. Many of these hinge on arbitration in some form or other, such, for example, as an arbitration board formed by the National Civic Federation, or by mutual arrangement, or by government authority. The weak point of all unofficial boards is that their services and decisions may or may not be entertained, whereas in the case of an official board no such possibility arises. It is argued that as men discover that commercial wars are unprofitable, and that their interests are promoted by agreement, the days of strikes will pass away without any state interference whatever. But statistics show no clear indication of any such tendency; whereas, in New Zealand, on the other hand, since the inauguration of compulsory arbitration in 1895, there have been no serious strikes, and such as have occurred have, for the most part, been quickly and satisfactorily adjusted.

But it is pointed out by economists that conditions in Australia are different from those in America. The Australian population is more homogeneous, and industrial development is more complex in the United States than in Australia. Attempts have been made in the United States to settle disputes by compulsory arbitration but they have not met with much success. Voluntary arbitration has been more successful. The Erdman Act of 1898 provided for arbitration of railroad disputes. Several disputes were adjusted through the machinery provided by this act, but in 1913 when it was seen that a strike of railroad firemen was inevitable, the Newlands Act was passed in order to provide for additional machinery of arbitration. The pending strike was averted, but in 1916 the Board of Mediation and Conciliation provided for in the Act, failed to effect an agreement in a railroad dispute. The Adamson law, providing for the eight hour day for railroad employees was passed in September 1916 to avert the strike. Under wartime federal control of railroads which began in December 1917, a Board of Railroad Wages and Working Conditions was established to handle disputes. Four railway boards of adjustment were established later. At the termination of federal control of railroads, provided for in the Transportation Act of 1920, the Railroad Labor Board was created to supersede the four adjustment boards. It consists of nine members representing the employers, employees, and the public. It has no compulsory power for enforcing its decisions, but depends upon influencing public opinion by publishing its decisions.

During the period of the United States' participation in the World War, several other adjustment agencies were created for settling labor disputes. The Emergency Construction Wage Adjustment Commission was created in June 1917; the Shipbuilding Labor Adjustment Board was established in August 1917; the President's Mediation Commission was appointed in September 1917; the National Adjustment Commission was created in October 1917; the National War Labor Board was established in March, 1918. These boards were all very successful in effecting adjustment of labor disputes during the war, but they failed to function successfully under peace time conditions and were, therefore, abolished.

An attempt at compulsory arbitration was tried in Kansas after the war. In 1920 the Kansas Court of Industrial Relations was created with mandatory powers. The court consisted of three members, and its functions were administrative rather than judicial. Strikes and lockouts were prohibited and the court had power to take over and operate industry in cases where production was curtailed. In 1923, the Supreme Court of the United States rendered the Kansas Court practically impotent by declaring that it was unconstitutional for the Court to determine wages since it would be denying the freedom of contract and labor.

England passed the Industrial Courts Act in 1919 based upon recommendations of the Whitley Committee. The Act contains no antistrike clause, and arbitration is purely voluntary. The machinery of arbitration is to be used only in cases of emergency when the employers and employees fail to effect an agreement. At the present time (1925) collective bargaining seems to offer greatest possibilities for averting and amicably adjusting labor disputes.

Labor Bureaus.—Led by Massachusetts, which instituted a "Bureau of Statistics of Labor" in 1869, other states have established similar bu-

reaus. The United States Bureau of Labor (later the Department of Labor) was created in 1885 with Carroll D. Wright as commissioner. Its purpose will be indicated by enumerating some of its annual reports: *Building and Loan Associations; Convict Labor; Cost of Iron and Steel and Cognate Products in This and Other Countries; Economic Aspect of the Liquor Traffic; Hand and Machine Labor; Industrial Depressions; Industrial Education in Different Countries; Railroad Labor; Strikes and Lockouts; Wages and Hours of Labor in the Principal Commercial Countries of the World; Water, Gas and Electric Light Plants Under Private and Municipal Ownership; Work and Wages of Men, Women, and Children; Working Women in the United States.* An appropriation of $175,000, exclusive of the printing allowance, is voted annually by Congress for the administration of this department. Many of the state bureaus have assumed the functions of free employment agencies, besides the inspection of mines and factories, and arbitration in labor disputes.

France instituted a labor bureau in 1891, Germany in 1892, and England in 1893. Almost all European countries and the British colonies now possess similar departments; and the exact and unbiased information they supply, apart from other services, has proved most valuable.

Labor Legislation.—Legislation in favor of the working classes is a product of the nineteenth century, for only then was the principle of industrial liberty fully recognized and applied. England led the way with its factory acts, intended to safeguard the life and limb of the worker. In the United States, labor legislation was later and has been much fostered by trades unionism. Among the statutes enacted by the states in the interest of labor, the most common are those referring to (1) the protection of life and health, (2) the hours of labor, (3) child labor, (4) convict labor, and (5) employers' liability.

1. Protection of Life and Health.—Various laws are devised differing in detail, but having for their common object the protection of the work-people from accident, disease, and fire, and the maintenance of sanitary surroundings.

2. Hours of Labor.—In 1892 Congress passed a law that eight hours shall constitute a day's work in the government service. Many states, especially in the South, have no legislation at all on the matter; while some states have a ten hour law and others one of eight hours. Labor unions have persistently advocated a compulsory eight hour day which should be universal in its application.

3. Child Labor.—In most states it is illegal to employ child labor in mines, factories, and workshops before a certain age is reached. The age varies from 10 to 14. In the Northern states it is usual to insist on a child receiving so many years' schooling before being allowed to work at all. In most Southern states, especially in Alabama, child labor is legal, and little mites of six years old are sometimes sent to work in the cotton mills.

4. Convict Labor.—Legislation is commonly directed against the products of convict labor being placed upon the open market, the state preferring to support its prisoners in complete or partial idleness rather than let them work usefully for their own maintenance.

5. Employers' Liability.—The employer is held liable for damage to life or limb as a result of his negligence to carry out the requirements of the common law. He must provide a safe work-place, as well as safe tools and appliances; he must give notice of any hidden danger, and issue and enforce rules necessary for the adequate protection of his work-people. Except in a case where any of these statutes are violated by the employer, an employee is held to assume the ordinary risks of his employment, as well as the risk of injury from the negligence of another employee. The principle of employers' liability was extended in England by the Workmen's Compensation Act of 1897, which in effect abolished the question of contributory negligence. In 1900, and again in 1906, the application of this law was still further extended. By a statute of the United States relating to "common carriers by railroad," approved April 22, 1908, it is enacted:—

[SEC. 2.] That every common carrier by railroad in the Territories, the District of Columbia, the Panama Canal zone, or other possessions of the United States shall be liable in damages to any person suffering injury while he is employed by such carrier in any of said jurisdictions, or, in case of the death of such employee, to his or her personal representative, for the benefit of the surviving widow or husband and children of such employee; and, if none, then of such employee's parents; and, if none, then of the next of kin dependent upon such employee, for such injury or death resulting in whole or in part from the negligence of any of the officers, agents, or employees of such carrier, or by reason of any defect or insufficiency, due to its negligence, in its cars, engines, appliances, machinery, track, roadbed, works, boats, wharves, or other equipment.

[SEC. 3.] That in all actions hereafter brought against any such common carrier by railroad under or by virtue of any of the provisions of this act to recover damages for personal injuries to an employee, or where such injuries have resulted in his death, the fact that the employee may have been guilty of contributory negligence shall not bar a recovery, but the damages shall be diminished by the jury in proportion to the amount of negligence attributable to such employee: Provided, That no such employee who may be injured or killed shall be held to have been guilty of contributory negligence in any case where the violation by such common carrier of any statute enacted for the safety of employees contributed to the injury or death of such employee.

[SEC. 4.] That in any action brought against any common carrier under or by virtue of any of the provisions of this act to recover damages for injuries to, or the death of, any of its employees, such employee shall not be held to have assumed the risks of his employment in any case where the violation by such common carrier of any statute enacted for the safety of employees contributed to the injury or death of such employee.

Beginning with the enactment of workmen's compensation laws by four of the states in 1911, the movement spread rapidly until at the present time almost all of the states have such laws. Some of the laws cover the whole range of industrial employments, while others are restricted to hazardous occupations. The insurance provided under these laws is carried in different ways: (1) exclusive state fund, (2) competitive state fund, (3) private insurance, and (4) self insurance.

6. Minimum Wage. Several states in the United States have passed minimum wage laws which provides minimum standards of pay for certain groups of laborers. These laws apply only to the lowest wage groups, which are com-

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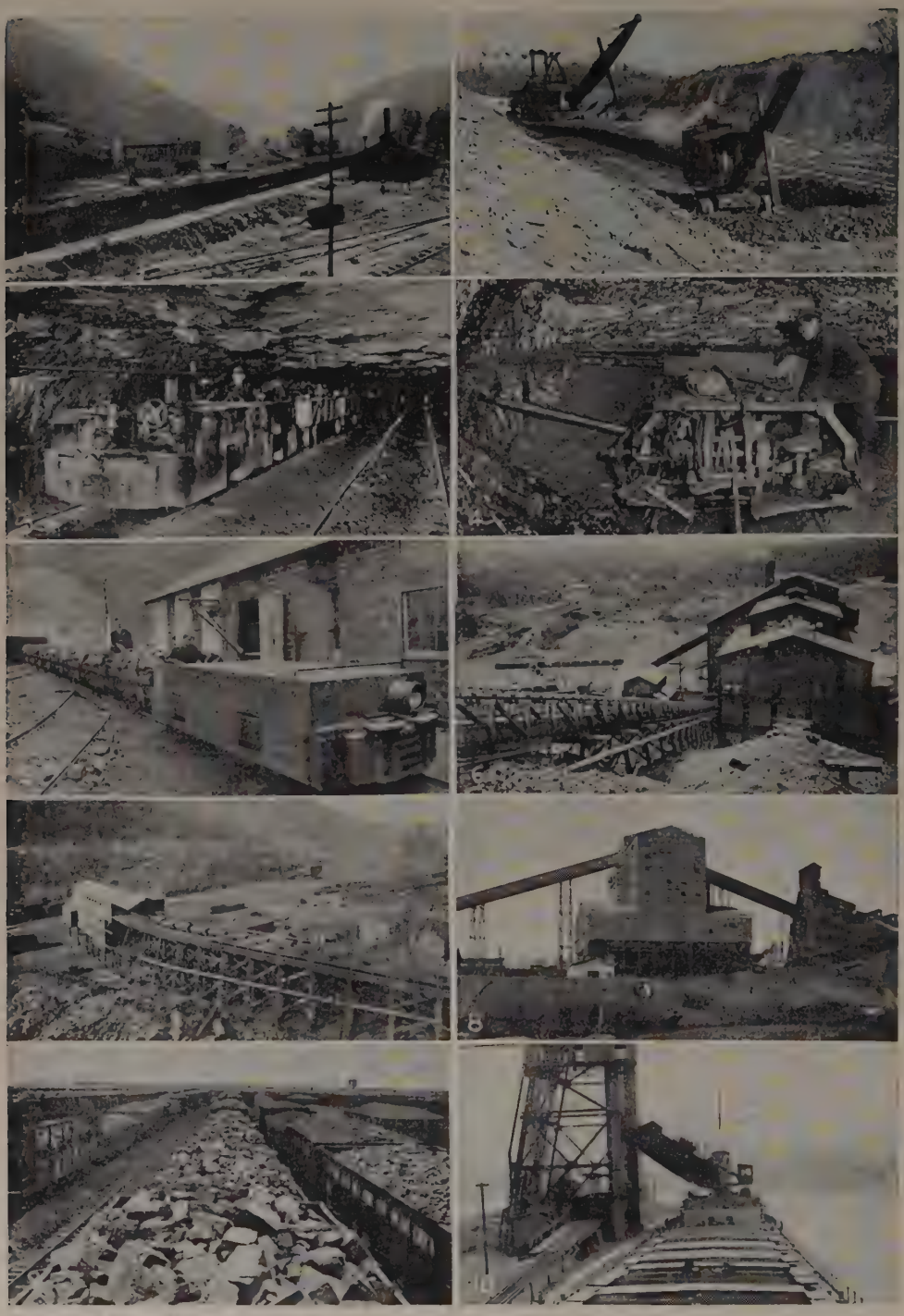
GREAT INDUSTRIES—STEEL

1 Steel Mills, Birmingham, Ala. 2 Gigantic Bridge Crane, Bethlehem Steel Co. 3 Converter, Pittsburgh, Pa.
4 Open hearth furnace, pouring—Bethlehem Steel Co. 5 Blast Furnaces, Pittsburgh. 6 Steel Mills at night.
7 14,000 ton Hydraulic Forging Press. 8 Rolling Steel Rails.



Photos 1 and 6 from Underwood and Underwood; 2, 9 and 10 copyright by Ewing Galloway; 3, 4, 5 and 7 from Ewing Galloway; 8 from Keystone View Company.

GREAT INDUSTRIES—COAL

1 Coal mining, West Virginia. 2 Strip mining (open-pit), Danville, Illinois. 3 Electric locomotives used in mines. 4 Electric coal cutter at work. 5 Typical hillside mine entrance with train emerging. 6 Anthracite breaker house. 7 Coal Tipple, Bottom Creek, West Virginia. 8 The huge D. L. & W. breaker. 9 Hocking Valley R. R. coal yards for Great Lakes shipping. 10 Loading coal barges, Toledo, Ohio.

posed of women, miners, and low skilled male workers. Australia was the first country to enact minimum wage laws. Her example was followed by other countries including Great Britain. The United States was rather tardy in enacting legislation of this kind, but in 1912, Massachusetts made the first start by passing the minimum wage law as a result of recommendations of a commission appointed in 1911. In 1925, twelve states had minimum wage laws. In some states, these laws are administered by a commission without powers of enforcement. In others, the minimum wage boards have compulsory powers. In 1923, the minimum wage law of the District of Columbia was declared unconstitutional by the United States Supreme Court.

Among other statutes relating to labor may be mentioned those regarding the specific payment of employees in money; the forbidding of employers to withhold wages for imperfect work or damage to material, or to measure wages by screened coal; the restriction of an employer's right to engage whom he will, as, for example, non-union employees; old age pensions (though not as yet in the United States); prohibition of woman's labor in mines; laws pertaining to arbitration; and laws prohibiting boycotting and blacklisting.

Unemployment.—The incomes of workers are affected to a very great extent by unemployment. It was found by the Unemployment Conference called by the President in September, 1921, that in the first quarter of 1922 there were 5,033,000 fewer workers employed in American industries than there were in the third quarter of 1920. It is estimated that industrial wage earners lose from 10 to 14 per cent of their working time because of unemployment. This means that more than a million and a half wage earners in American industries are constantly unemployed. Investigations show that the per cent of working time lost through unemployment in particular industries under normal conditions is approximately as follows:

Industry.	Per Cent of Idle Time
Building trades workers	37
Clothing workers	31
Shoe makers	35
Bituminous coal miners	32

According to a survey made by the Bureau of Labor Statistics in August, 1921, there were over 5,000,000 workers unemployed with a like number working only part time. Unemployment is much greater during periods of industrial depression than in periods of business prosperity. But even during the peak of industrial activity and prosperity, the problem of unemployment is more serious than is ordinarily known. During the phenomenal years of 1917 and 1918, a period when unemployment reached its lowest ebb in 20 years, there were over a million workers unemployed. The effect of business conditions on unemployment is shown by decrease in employment between January, 1920 and January, 1921. The post war depression did not begin until the spring of 1920.

PER CENT OF DECREASE IN EMPLOYMENT IN SPECIFIC INDUSTRIES BETWEEN JANUARY 1920 AND JANUARY 1921.

Industry.	Per Cent Decrease
Mechanical Industries	36.9
Metal products, machinery, electrical and foundry products	30.5
Building trades	52.4
Packing and food products	19.0
Textile products, clothing, hosiery and underwear	35.5
Leather, boots and shoes	34.9
Automobiles and accessories	69.2
Lumber, furniture and wood products	32.3
Clay, glass, cement and stone products	19.3
Average	36.6

BANKS AND BANKING.

A bank is an institution for the custody, loan, exchange, or issue of money. Banks receive from their depositors money on current account or on deposit account. The former is subject to withdrawal by check to suit the convenience of the depositor; the latter can only be withdrawn at the expiration of a certain interval. Interest may or may not be allowed according to the kind of bank and the nature of the arrangement. Banks are authorized to invest and reloan the money intrusted to them, their transactions being subject to state and national laws. Banks perform other services, such as issuing and collecting drafts and bills of exchange, etc., each bank having its own special function.

The history of banking carries us back to dim antiquity. The primitive idea of banking was the custody of other people's money, combined with foreign money-changing. Bills of exchange would seem to have been the first credit transactions of the ancients, and it has been proved that the Assyrians were familiar with these instruments many thousands of years ago; while the *Bunnyas*, or native bankers, in India have negotiated their *Hoondees* for many centuries. In Greece and Rome bankers, or *argentarii*, as they were called by the Romans, received money on current and deposit account, and dealt in foreign bills of exchange. They also loaned the money in their keeping, charging a higher interest than that allowed to the depositor. So firmly established had the banking system become that by the time of Justinian a special body of laws had been formed dealing with the subject. In the Middle Ages, the Jews performed some of the functions of bankers, but owing to the insecurity of property and the instability of commerce, banking was little more than money lending. The bank of Venice was founded in 1157 to facilitate the handling of a forced government loan, the interest of which was punctually paid. But it was not till after the levying of similar loans in 1480 and 1510 that the Bank of Venice may be considered a bank in the modern sense of the word.

Both Florence and Venice had long been famous for their bankers and money lenders, but not till the rise of the Banco di Rialto at

Venice, in 1587, may modern banking be said to have been inaugurated. This bank received deposits on call, and allow depositors the privilege of transferring their credits by written order. Perhaps the first bank to undertake the custody of depositors' money on an extensive scale was the Bank of Amsterdam, founded in 1609. Like the Bank of Hamburg, and the Banco del Giro, founded in the same century, this bank was not authorized to issue notes or to lend money. The credits of these banks, resting on actual coin deposited, prepared the way for the check and deposit system associated with our modern system of banking. The eighteenth century saw the evolution of two distinctive features of modern banking, viz., the issue of bank notes depending for their acceptance and circulation on the credit of the bank, and the granting of deposit accounts on the credit of the customers. Although bank notes had been employed for many centuries in the East, they were unknown in Europe before 1661. In that year the Bank of Sweden issued notes mainly to avoid the shipment of copper coin. The first bank notes issued in England were the receipts given by the London Goldsmiths for money given into their safe keeping, and these receipts (known as "Goldsmiths' notes") freely circulated in the latter half of the seventeenth century.

In the history of banking in the United States, banks of issue figure most prominently. The old Colonial idea of a "bank" was an institution for loans and not deposits, the loans being usually in the form of notes issued by authority of the Colonial governments. When the Continental paper currency collapsed in 1781, Congress chartered the Bank of North America, with power to issue notes, and so provide a circulating medium for the whole country. Three years later the Bank of New York and the Bank of Massachusetts at Boston were chartered; but the issue of paper money by the various states continued till such issues were prohibited by the Federal Constitution. The First Bank of the United States was chartered on February 25, 1791, with an authorized capital of $10,000,000, one fifth of which was subscribed by the government. Its notes were receivable for all dues to the United States government. Congress failed to recharter the bank in 1811, and its business passed to the State banks. Five years later, the Second Bank of the United States was chartered with an authorized capital of $35,000,000, one fifth subscribed by government. Its efforts to regulate the issues of state banks rendered the bank unpopular. Largely owing to the opposition of President Jackson, the bank was not rechartered, and in 1836 it ceased to be a national institution.

I. State Banks.—In the years following 1811 the banks specially chartered by the various states rapidly increased, more especially after the suspension of specie payments in 1814. When President Jackson's campaign (known as the "Bank war") against the Second Bank of the United States began in 1830, the aggregate note issues were $61,000,000, while the total amount of specie in the country was only $30,000,000. In 1834 the note issues rose to $94,000,000 and the specie to $41,000,000. The number of state banks had increased to 713 in 1836, with an aggregate note circulation of over $140,000,000. Unsound principles of banking prevailed, and note issues were frequently expanded beyond all prospect of redemption. In consequence the state banks collapsed at one of the most critical periods of the history of the United States. The panic of 1837, however, had a salutary effect on banking methods, and the note circulation, which had been inflated to $149,000,000 in 1837, shrank to $58,000,000 in 1843, steadily rising again to $202,000,000 in 1861.

The five years' financial crisis from 1837 to 1842 was a memorable epoch in the annals of American development, ranking in importance with the funding of the public debt (1783–1790) and the financing of the Civil War (1861–1865). This crisis decided the fate of the state banks and determined the fundamental policy of all future governments. It took the state banks about 20 years to recover from the widespread disaster. The number of banks increased steadily year by year after 1853, and at the beginning of the Civil War there were about 1,500 state and local banks operating in the Union.

State banks are practically the same as national banks in their operations, except that they have not the privilege of note issue. Previous to 1865 they issued bank notes, but in that year Congress passed a law taxing these notes 10 per cent., which soon resulted in their retirement. In the Eastern States, state banks have virtually disappeared, though they are numerous in other sections of the country.

II. National Banks.—To secure a uniform bank currency, as well as to extend the market for United States bonds, the United States Congress, in 1863, passed a law authorizing the establishment of a number of banks under federal charter, with an aggregate circulation not exceeding $300,000,000. The act was recast in 1864 when the present system was laid down. Each national bank must invest a certain proportion of its capital in United States registered bonds to be deposited at the Treasury. This must not be less than one fourth when the capital is over $150,000 and not less than one third when the capital is below that figure. The provision that no bank was allowed to have a smaller capital than $50,000 was amended in 1900, when the organization of banks with a capital of $25,000 was permitted in towns of 3,000 population. New York was made a central reserve city, and one half of the reserves of banks in reserve cities might be deposited in New York banks. Chicago and St. Louis were subsequently made central reserve cities. The chief amendments to the national banking law were the act of 1874, making the United States Treasury the agency for the redemption of notes, and requiring each bank to deposit with the Treasurer the equivalent of 5 per cent. of its circulation as a redemption fund; the act of 1875, which abolished all limitations upon the volume of circulation, and the act of March 14, 1900, which authorized the issue of notes to the par value of bonds deposited in the Treasury, provided such bonds are not selling at a discount.

All national banks, except the Bank of North

America, Philadelphia, are obliged to have the word "National" as part of their name, others not so chartered being prohibited from using this title. This affords protection to the public by giving assurance that such an institution is safeguarded by national restrictions. A national bank may receive on deposit money subject to check—on which it does not, as a rule, allow interest,—issue national bank bills, make loans, collect drafts, and, to a limited extent, may purchase and hold real estate. Among its important duties are the buying and selling of exchange; making collateral loans; discounting and negotiating bills of exchange, promissory notes, and other forms of indebtedness.

Ten per cent. of its paid capital stock was formerly the limit which a national bank might loan to any one person. This limit was increased to 10 per cent. of the capital and surplus (provided that 30 per cent. of the capital is in no case exceeded) by an act of Congress in 1906.

National banks are not allowed to establish branches, although they are permitted to operate branches acquired by merger with national banks. This is because the national bank absorbed with its branches must have been established under state charters and acquired its branches prior to its nationalization.

Since the incorporation of these banks only 5¼ per cent. of their total number have been closed on account of insolvency, in nearly every case violations of the national bank laws or fraudulent management being the reason.

National Bank Notes.—The issue of circulating notes by the national banking associations was first authorized for a term of twenty years by a law that was enacted February 25, 1863, and which was recast in the act of June 3, 1864, entitled "An Act to provide a national currency secured by a pledge of United States bonds, and to provide for the circulation and redemption thereof." This act, with subsequent amendments, was embodied in the Revised Statutes of the United States in 1873. The law has been amended from time to time, and is now contained in what is known as the "National Bank Act."

National bank notes are of equal value throughout the length and breadth of the United States, and complete protection is given to the holder; for each bank must secure unmatured interest-bearing United States bonds, in registered form, equal in amount to the total issue of the notes desired. Thus a safe and sound currency, circulating without discount or distrust throughout the country, is provided.

To provide against too great a contraction in the currency, the total amount of national bank notes outstanding is not allowed by the government to be reduced more than $9,000,000 in any one month, except that notes secured by bonds called for redemption may be retired.

In payment of taxes, excises, public lands, and all other dues to the United States except duties on imports, national bank notes shall be received at par in all parts of the United States. With the exception of the redemption of the national currency and the interest on the public debt, they are also receivable for all salaries and other debts and demands owed by the United States to corporations, associations, and other individuals within the United States. They must not be counted in the "reserve" of a national bank, as they are not legal tender. The notes of each national bank must be received at par by all other national banks. The Treasurer, but not the assistant treasurers, may redeem the notes in "lawful money" of the United States.

III. Federal Reserve Banks.—The Federal Reserve Act became a law on December 23, 1913, when it was signed by the President. Beyond any question, this Act is one of the most important laws ever passed by the Congress of the United States. Its purpose, as stated in the preamble of the bill, is "to provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes."

For a generation or more it has been generally admitted that our banking and currency laws were inadequate and unscientific, and attempts have been made, more or less spasmodically, to reform them. This legislation, which was not in full force for three years, gave to the people a new banking and currency system which, while designedly not revolutionary in nature, does, nevertheless, add what may be called a superstructure to the present national banking system.

The Act provides for the division of the entire continental United States, except Alaska, into twelve districts, known as Federal reserve districts. In each of these districts a city is designated as a Federal reserve city, and in each of these cities is to be a bank known as the Federal Reserve Bank of Boston, or Chicago, as the case may be. The twelve cities so designated are Boston, New York, Philadelphia, Cleveland, Richmond, Altanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco. Every national bank in each district is required to become a member of the system. State banks and trust companies may also join, although not compelled to do so. Member banks must subscribe for stock of the Federal reserve bank of their district to the amount of 6% of their capital and surplus, one half of this being paid in practically at once, and the other half subject to call. The capital stock of each Federal reserve bank must be not less than $4,000,000, and is entitled to 6% cumulative dividends.

The Federal reserve banks receive deposits only from member banks and from the United States Government. The deposits carried by member banks are the reserves of those banks, except their cash reserves.

Next to the mobilization of reserves, as mentioned above, the most important function of the Federal reserve banks is that of rediscounting for member banks. All paper rediscounted must have a maturity at the time of rediscount of not more than ninety days and must be commercial paper, that is to say, notes, drafts, and bills of exchange issued or drawn for agricultural, industrial, or commercial purposes, or the proceeds of which have been used or are to be used for such purposes.

The next most important service rendered by the Federal reserve banks is that of issuing what is known as Federal reserve currency. This

currency is an obligation of the United States Government, issued through the Federal reserve banks. When a reserve bank wants currency it delivers to the Federal Reserve Board, or its agent, commercial paper to the amount of currency desired. It pays interest to the Federal Reserve Board for the currency received, and also must carry a reserve of gold equal to 40% of the currency received and outstanding. Therefore, back of each dollar of Federal reserve currency, there is 100% of commercial paper and 40% of gold.

We have here an elastic currency, a currency that expands as business expands, and contracts as business contracts. It is a scientific currency, similar in principle to that which the experience of the world has demonstrated to be sound and responsive to the demands of business.

At the head of the Federal reserve system stands the Federal Reserve Board, in Washington. This Board is composed of seven members, the Secretary of the Treasury, the Comptroller of the Currency, and five citizens appointed by the President of the United States for ten year terms, subject to confirmation by the Senate. This board is given powers greater, perhaps, than are possessed by any other board or commission in the country, except the Supreme Court of the United States. In addition to exercising general supervision over the Federal reserve banks, the board has power to permit or require one reserve bank to rediscount for another reserve bank; to suspend, for not over 30 days, the reserve requirements; to supervise the issue and retirement of reserve notes; to remove any officer or director of a reserve bank; to permit national banks to act as trustee, executor, administrator, or registrar of stocks and bonds; to suspend, for cause, and operate a reserve bank; to examine, at its discretion, the accounts, books, and affairs of each Federal reserve bank and each member bank, etc. It will thus be seen that the powers granted the Federal Reserve Board give that body great influence and authority over the banking and currency systems of the country.

SEPTEMBER EARNING ASSETS, CASH RESERVES, TOTAL DEPOSITS, FEDERAL RESERVE NOTE CIRCULATION, AND RESERVE PERCENTAGES FOR FEDERAL RESERVE BANKS.

Year	Total Earning Assets	Total Cash Reserves	Total Deposits	Federal Reserve Notes in Circulation	Percentages Reserve
1924	930,965	3,156,623	2,188,401	1,750,498	80.1
1923	1,123,472	3,187,000	1,908,193	2,264,090	76.4
1922	1,113,343	3,192,420	1,866,300	2,225,457	78.0
1921	1,740,474	2,836,396	1,716,162	2,493,910	67.4
1920	3,329,481	2,139,280	1,912,070	3,275,535	43.3[1]
1919	2,471,515	2,157,932	1,930,969	2,627,295	50.4[1]

[1]Calculated on basis of net deposits and Federal reserve notes in circulation.

There are other important provisions of the Act, but these are the most important.

The Federal Reserve Act as passed does not differ very greatly in structure or in operation from the Aldrich Bill except in the fundamental principle of Government control. The Aldrich Bill provided that the directors of the "Central Reserve Association" should be elected by the bankers and the circulating notes issued by the banks; the Federal Reserve Act provides that the members of the "Federal Reserve Board" shall be appointed by the President, and the circulatory notes issued by the Government. Under the Aldrich Bill the currency associations were limited to national banks, who might or might not be members; under the Federal Reserve Act all national banks must be members of national reserve banks, and state banks and trust companies may be. The Federal Reserve Act provides an elastic currency based upon assets; the National Bank Act, an inelastic currency based upon Government bonds.

IV. Bank of England.—This greatest of financial institutions is situated in the center of London, and covers an area of about four acres. Its corporate name is, "The Governor and Company of the Bank of England," and its management is in the hands of a governor, deputy governor, and 24 directors, who are elected by the shareholders. Every Thursday the directors meet, and the influence of this gathering is felt throughout the world. The bank is a private corporation. Over 925 persons are employed. "Bank of England" notes are issued by it, and no interest is allowed on deposits. Every night since the riot of 1780 a guard of soldiers has been marched into the bank for its protection.

The institution was devised and founded by William Paterson, the first charter being issued on July 27, 1694, by authority of an act of Parliament. It was stipulated that the entire subscribed capital ($6,000,000) was to be lent to the government at 8 per cent., and an allowance of $20,000 for management. The bank was granted the privilege of issuing "bills payable in coin on demand," and transferable "to bearer on demand." At first these promissory notes had to be indorsed on transference, but in 1704 this statutory requirement was repealed, and from that time the banks in England have issued notes of £5 and upwards. The original charter was for only eleven years, but it has been constantly renewed, the last renewal being in 1844. By the act of Peel's government, the Bank of England was divided into two separate departments—the "issue" and the "banking." The monopoly of the bank to issue notes in London and within a radius of 65 miles (granted in 1826) was left untouched, and is in force to this day. The "issue department" deals only with the circulation of notes, some $150,000,000 being constantly in the hands of the public. The "banking department" differs from other banking concerns, having the management of the public debt and paying the dividends upon it. It also holds the government deposits, assists in the collection of the revenue, and is universally recognized as the bank of other banks. At present the currency of England is largely in the hands of this bank, and the reserves of all London banks are kept there.

In the bank's weekly published statements is given the discount at which it will handle first-class paper. The rate of interest allowed by all

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GREAT INDUSTRIES—OIL

1 Signal Hill Derricks, San Pedro, Calif. 2 Warren Wagonner Oil Well, Range, Texas. 3 Oil Stills in Sinclair Refinery, East Chicago, Ind. (End of Oklahoma and Texas pipe lines). 4 The Jesse Willard Gusher Well at Eureka, Kan. 5 Oil Well on Fire, Texas. 6 Famous Goose Creek Oil Field, Texas. 7 Car loading racks, Sinclair Refinery, East Chicago, Ind. 8 An Oil Refinery, Sinclair Refinery, East Chicago, Ind.

All Photos copyright by Ewing Galloway.

GREAT INDUSTRIES—WHEAT

1 Harvesting wheat, Saskatchewan. 2 100,000 sacks of wheat, Henrietta Ranch, California. 3 Harvester and Thresher drawn by 33 horses, Pacific Northwest. 4 Enormous Pennsylvania Railroad grain elevator, Canton, Maryland. 5 An old waterpower mill, New Jersey. 6 Unloading grain by gravity, car tilting device in Pennsylvania Railroad elevator. 7 Unloading barge by suction, New Orleans, Louisiana.

the London joint-stock banks on deposits is usually at the rate of one and one half per cent. less than the rate of discount given by the Bank of England. The rate of interest on overdrafts, the discount rate throughout Great Britain, and the interest rates allowed by London banks on cash balances of foreign correspondents are all established by the rate of discount allowed by the Bank of England. It also fixes the rate of discount on documentary bills, as to the rebating of interest on account of anticipating repayment. The influence of this rate of discount is felt by all international bills of exchange, and it often acts as a protection to the gold held by the bank itself, increasing the value of money in London, encouraging imports, and checking exports of gold.

The Bank of England is known as the "Old Lady of Threadneedle Street."

V. Bank of England Notes.—The only form of paper money—or bank bills—in general use in Great Britain; their promise to pay, in paper money,—similar to our national bank circulation. Notes are printed and all the machinery of issuing, redeeming, cancellation, etc., is performed by the "issue department." A debt due to the Bank of England from the government is the security of the notes to the sum of £11,015,100; £7,434,900 may be issued against securities, but there must be a deposit of coin or bullion against all additional notes issued. The use of one fifth silver is granted by law, but only gold is used. Bank of England notes are legal tender except in Scotland and Ireland.

VI. Bank of France.—After Napoleon had become First Consul, he desired a financial institution that would be subservient to the government, as well as of use to it, and therefore established in 1800 the Bank of France. Its central, or head, office is in Paris, where the interest rates used throughout the country are regulated. These same rates are used in the transaction of the business of discounts and advances at the branches or auxiliaries of the central bank, in or connected with all the principal cities and towns of the country. The rate of discount has never been raised by the bank above 9 per cent.

The government nominates the gevornor and two sub-governors, while the stockholders, with the exception that three of the regents must be chosen from the treasury disbursing agents, select the general council, consisting of 15 regents and three censeurs.

While very largely under control of the government, shares held by individuals represent ownership in the Bank of France.

Bank notes can be issued by no other institution in the country, and are under the supervision of the regents, who are held responsible and must report to the government. While the bank makes it a point to keep on hand a large amount of bullion and coin, its general assets and credit are the only security for the notes; but if necessary the bank would be supported by the credit of the government. While redeemed in specie, these notes are legal tender. Payments are generally made by bank notes or specie, since checks are seldom used in France. As a result, a large issue of bank notes is demanded, and six or seven times the amount of deposits is frequently issued by the bank. When gold is demanded for export, a premium is charged, to protect the reserve.

Deposits of public money are received by the bank. It is, in large measure, the government's fiscal agent.

The following is a statement of the Bank of France on December 25, 1924:

Gold Holdings.	Francs.
In France	3,680,798,018
Abroad	1,864,320,907
Total Gold	5,545,118,925
Silver	305,740,000
Bills Discounted	5,240,692,000
Advances	2,930,215,000
Note Circulation	40,603,956,000
Treasury Deposits	19,520,000
General Deposits	1,959,371,000

VII. Bank of Germany.—The Reichsbank, or Imperial Bank of Germany. In 1765 the king of Prussia founded a state institution called the Royal Bank, which in 1846 became a bank of issue. This was succeeded by the Imperial Bank of Germany, on December 31, 1875, which continued in operation until 1924 when the new Reichsbank was organized. Like the Bank of France, the old Reichsbank ownership was represented by shares held by individuals, but in reality it was under government control. The Reichsbank was in Berlin, but had many branches throughout the empire. When its discount rate reached 4 per cent., all other banks had to agree; if lower, they could cut under not more than one quarter of 1 per cent. The rate of discount before the war was never higher than 7 per cent, and only once in 30 years, for a brief period, did it reach that point.

Discounting bills, both inland and foreign, formed a large part of the bank's business. It also received, held, and disbursed government funds, received deposits, and issued circulation, but was obliged by law to keep in its vaults the value of one third of its outstanding notes in cash, which consisted of bullion, coin, or notes of the imperial treasury. Discounted bills had to represent the remainder. Upon presentation at any of the branches, its notes had to be paid in gold, as they were not legal tender. They were part of the general liabilities of the bank, and had no prior claim upon its assets. The note issue was bound by three limitations. First, in excess of what was covered by its cash reserve, no more than 472,829,000 marks (known as its "Kontingent") could be issued, although this could be increased by the "Kontingent" of a smaller bank of issue, which passed to the Reichsbank when the former went out of business; second, any excess above this list was taxed 5 per cent. per annum; third, the previously mentioned holding of one third cash.

The New Reichsbank.—On August 30, 1924, laws were passed by the Reichstag providing for the establishment of a new bank of issue in Germany. These laws were drafted in compliance with the Dawes Committee plan for financial reorganization and currency stabilization.

The new Reichsbank has a practical monopoly of the note issue for a period of 50 years. Notes

issued by the bank are called reichsmarks. These reichmarks are exchangeable for the present circulation at the rate of one trillion marks for one reichsmark.

The capital of the new bank must amount to at least 300,000,000 and may not exceed 400,000,000 gold marks. The organization of the new Reichsbank is very similar to that of the old bank, but certain foreign powers exercise supervision acting through the board of managers. There is a general board composed of seven foreign and seven German members. The president of the bank is elected by majority vote of the general board. The president then appoints the members of the managing board, who must all be of German nationality. The managing board exercises the predominating influence in the administration of the bank.

In addition to note issue, the bank has other important functions, such as conducting the country's clearing system; furnishing a discount market by discounting good commercial paper running 90 days or less; and acting as the fiscal agent of the government.

The new bank is required to maintain a 40 per cent. reserve against notes, 75 per cent. of which must be in gold and the remainder of the reserve can be in the form of bank notes, bills of exchange, foreign checks, and deposits in banks located in a foreign financial center. Against the balance of the note issue not protected by the 40 per cent gold reserve, the bank must hold bills of exchange or checks.

Deposits are protected by a 40 per cent. reserve consisting of deposits in other banks or abroad, checks on other banks, bills of exchange maturing in 30 days or less, and callable secured loans. The present condition of the new Reichsbank for October 15, 1924 is given in the following statement taken from the Federal Reserve Bulletin, November, 1924:

Assets.	Reichsmarks.
Shares not yet issued	210,000,000
Gold and Bullion (of the gold and bullion 172,143,000 reichmarks are deposited abroad)	613,625,000
Reserves in foreign currencies	204,541,000
Bills of exchange and checks	2,153,943,000
Silver and other coins	59,359,000
Notes of other German banks	none
Advances on collateral	15,947,000
Securities	77,517,000
Other assets	929,901,000
Total assets	4,264,833,000

Liabilities.	Reichmarks.
Capital	90,000,000
Increase of capital as decided upon at recei general meeting	210,000,000
Surplus	900,000
Notes in circulation	1,396,748,000
Other demand liabilities	828,511,000
Due to Rentenbank	800,000,000
Other liabilities	938,674,000
Total liabilities	4,264,833,000

VIII. Clearing House.—Previous to the establishment of the London Clearing House in 1775, each banker was obliged to send his clerk to every other banker in London in order to collect his dues. In that year a "clearing house" or common center of exchange was decided upon, where the representatives of each bank could meet daily for the exchange of bills and the settlement of differences. Eventually the clearing house and each bank making use of it opened an account at the Bank of England, and at the close of each day the balances are now adjusted by transfers from one account to another. What each bank owes the clearing house is shown by the total, and if the amount held by any particular bank is larger than the total amount against it, the clearing house owes it the balance, and it is called a "creditor bank." But if it owes more than the amount of checks which it holds against the other banks, it must pay that amount to the clearing house, and is a "debtor bank." Of course, the total amount of debits will just offset the credits at the close for the day of the clearing house transactions, since that merely acts as a medium for settlement. Naturally checks drawn by a bank's depositor in favor of another depositor of the same bank do not pass through the clearing house. To enjoy full privileges, a bank must be a member of the clearing house association, and the expenses are shared among the banks.

The country banks are represented in the London Clearing House by their London agent. The more important provincial towns have clearing houses of their own. The great public usefulness of such institutions may be inferred from the fact that checks aggregating about $45,000,000,000 pass through the London Clearing House each year. In the United States similar institutions have been established in over 100 cities, the most important being the New York Clearing House, founded in 1854.

Transactions of New York Clearing House during the years 1900 to 1923 were as follows.—

Year ending Sept. 30.	No. of banks.	Capital.	Clearings.	Balances paid in money.	Average daily clearings.	Average daily balances paid in money.	Balances to clearings.
1900	64	$74,222,700	$51,964,588,564	$2,730,441,810	$170,936,147	$8,981,716	5.25
1901	62	81,722,700	77,020,672,464	3,515,037,741	254,193,639	11,600,785	4.56
1902	60	100,672,700	74,753,189,435	3,377,504,072	245,898,649	11,110,210	4.51
1903	57	113,072,700	70,833,655,940	3,315,516,487	233,005,447	10,906,304	4.68
1904	54	115,972,700	59,672,796,804	3,105,858,576	195,648,514	10,183,143	5.20
1905	54	115,972,700	91,879,318,369	3,953,875,975	302,234,600	13,006,171	4.33
1906	55	118,150,000	103,754,100,091	3,832,621,023	342,422,772	12,648,914	3.69
1907	54	129,400,000	95,315,421,238	3,813,926,108	313,357,569	12,545,809	4.00
1908	50	126,350,000	73,630,971,913	3,409,632,271	241,413,022	11,179,122	4.63
1909	51	127,350,000	99,257,662,411	4,194,484,028	326,505,468	13,797,644	4.22
1910	50	132,350,000	102,553,959,089	4,195,293,967	338,461,911	13,845,855	4.09
1911	67	170,275,000	92,420,120,091	4,388,563,113	305,016,897	14,483,706	4.74

Year ending Sept. 30.	No. of banks.	Capital.	Clearings.	Balances paid in money.	Average daily clearings.	Average daily balances paid in money.	Balances to clearings.
1912	65	174,275,000	96,672,300,863	5,051,262,291	319,050,497	16,670,832	5.22
1913	64	179,900,000	98,121,520,297	5,144,130,384	323,833,400	16,977,328	5.24
1914	62	175,300,000	89,760,344,971	5,128,647,302	296,238,762	16,926,229	5.71
1915	62	178,550,000	90,842,707,724	5,340,846,740	299,810,917	17,626,557	5.87
1916	63	185,550,000	147,180,709,461	8,561,624,447	484,147,070	28,163,238	5.82
1917	62	200,750,000	181,534,031,388	12,147,791,433	601,106,064	40,224,475	6.69
1918	59	205,850,000	174,524,179,029	17,255,062,671	575,987,390	56,947,402	9.88
1919	60	220,350,000	214,703,444,468	20,950,477,483	708,592,226	69,143,490	9.75
1920	55	261,650,000	252,338,249,466	25,216,212,386	830,060,031	82,948,067	9.99
1921	52	286,150,000	204,082,339,376	20,860,245,122	673,539,074	68,845,693	10.22
1922	43	288,100,000	213,326,385,752	21,032,674,952	706,378,761	69,644,619	9.86
1923	40	309,125,000	214,621,430,807	23,281,765,385	713,028,009	77,368,058	10.85
1924	36	312,650,000	235,498,649,044	26,389,851,777	774,666,608	86,808,722	11.20
1925	36	326,350,000	276,873,934,638	29,721,103,272	913,775,361	98,089,449	10.73
1926	33	329,500,000	293,443,346,914	32,197,090,791	968,459,890	106,261,025	10.96

The exchanges of the various clearing houses of the United States cities were as follows for the years ending September 30, 1915 and 1923:—

	1915.	1923.
New York	$90,842,708,000	$214,621,431,000
Boston	7,481,341,000	19,068,369,000
Chicago	15,404,167,000	30,899,662,000
Philadelphia	7,968,006,000	24,649,000,000
St. Louis	3,883,252,000	7,190,929,000
San Francisco	2,583,278,000	7,917,589,000
Baltimore	1,727,833,000	4,141,820,000
Pittsburgh	2,527,701,000	8,069,488,000
Cincinnati	1,274,149,000	3,419,567,000
Kansas City	3,615,489,000	7,009,938,000
New Orleans	898,763,000	2,647,808,000
Minneapolis	1,327,106,000	3,576,232,000
Detroit	1,358,216,000	6,448,116,000
Louisville	671,018,000	1,534,040,000
Cleveland	1,368,429,000	5,447,342,000

IX. Savings Banks.—Organized under state laws or, if in the District of Columbia, under Federal laws, with the expectation that the deposits received shall be chiefly the savings of small earners,—laborers, wage-earners, and small salaried persons in general. These are supposed to be unable to intelligently invest money for themselves, and a suitable form of investment for their small savings is not easily found. The "Board of Investment" or "Finance Committee" is elected for the purpose of safely investing the aggregate savings deposited in the bank. In some states the legal restrictions controlling the investment of savings bank funds are very lax and unsafe, in other very strict and conservative. Of the latter class are those of New York, Massachusetts, Connecticut, and possibly Vermont, Maine, and New Hampshire.

According to the rules and regulations of the bank, interest ranging from three to five per cent. is paid on money deposited. Savings institutions consider safety before profit, and afford a sound investment.

The rise of modern banking really dates from the establishment at Venice of the Banco di Rialto, in 1587. Daniel Defoe originated the modern "savings bank" idea, suggesting it in 1697. But "father of savings banks" is the title given to Rev. H. Duncan, of Ruthwell, Dumfriesshire, who, in 1810, established one which accumulated $5,800 in four years.

The following table, compiled from the report of the comptroller of the currency, shows the savings banks, depositors, and deposits in the United States every ten years from 1830 to 1900 and annually since 1905:—

Year.	Number of savings banks.	Number of depositors.	Deposits.
1830	36	38,085	$6,973,304
1840	61	78,701	14,051,520
1850	108	251,354	43,431,130
1860	278	693,870	149,277,504
1870	517	1,630,846	549,874,358
1880	629	2,335,582	819,106,973
1890	921	4,258,893	1,524,844,506
1900	1,002	6,107,083	2,449,547,885
1905	1,237	7,696,229	3,261,236,119
1906	1,319	8,027,192	3,482,137,198
1907	1,415	8,588,811	3,690,078,945
1908	1,453	8,705,848	3,660,553,945
1909	1,703	8,831,863	3,713,405,710
1910	1,759	9,142,908	4,070,486,246
1911	1,884	9,597,185	4,212,583,598
1912	1,922	10,010,304	4,451,818,522
1913	1,978	10,766,936	4,727,403,950
1914	2,100	11,109,499	4,936,591,849
1915	2,159	11,285,755	4,997,706,874
1916	1,864	11,148,392	5,099,853,129
1917	1,807	11,367,013	5,324,425,532
1918	1,819	11,379,553	5,471,787,881
1919	1,719	11,434,881	5,903,427,000
1920	1,707	11,427,556	6,538,194,000
1921	1,601	10,737,843	6,017,998,000
1922	1,685	12,538,997	7,171,248,000
1923	1,637	13,330,332	7,897,909,000
1924	1,603	13,971,793	8,439,855,000
1925	1,586	14,656,527	9,065,181,000
1926	1,524	15,161,799	9,599,118,000

In European countries savings banks have been principally encouraged by public authorities. The prevailing type in Germany is the municipal savings bank. Similar banks are common in France, Austria, and Italy; there are also a few in Denmark, Sweden, Russia, and Japan. Many of these banks pay as much as four per cent. interest, and are thus a great attraction to small depositors. In England postal savings banks were established under an act of 1861, and largely took the place of the trustee savings banks. In 1870 Belgium reorganized the state savings bank and made the post office the medium for the collection and payment of deposits. Postal savings banks were introduced into Italy in 1876, the Netherlands in 1881, France and Sweden in 1882, Austria in 1883, and Hungary in 1886, but were not fully adopted for several years. Japan, Russia, India, and most of the self-governing British colonies have adopted the postal savings bank system.

Statistics of savings banks in specified countries is as follows:—

Country.	Date of report.	Number of depositors.	Deposits.	Average deposit account.	Average deposit per inhabitant.
Austria	1921-2		$751,444		$.12
Belgium	1920	3,507,872	93,677,255	$26.70	12.55
British Empire	1921	2,261,849	260,918,148	115.36	5.52
Australasia	1922	3,491,755	758,396,753	217.20	134.59
Canada	1922	.....	9,350,808	....	1.07
Chili	1922	1,050,912	26,264,314	24.99	6.88
Denmark	1920	1,552,959	266,201,423	171.42	81.46
France	1920	8,755,194	344,807,413	39.38	8.79
Germany	1922	.....	139,920,500	....	2.36
Italy	1922	.....	434,126,100	....	11.18
Japan	1920	12,426,928	199,526,765	16.06	3.57
Netherlands	1920	619,807	63,434,965	102.35	9.09
Norway	1920	1,697,048	326,411,770	192.34	124.02
Finland	1921	529,256	22,470,456	42.46	6.60
Spain	1920	1,001,379	93,057,846	92.93	4.36
Sweden	1920	2,270,318	101,197,660	44.57	17.00
Switzerland	1918	2,587,947	496,732,891	191.20	127.83

X. Legal Investments for Savings Banks.—Circulars of bond houses often contain expressions such as "Legal for New York savings banks," "Legal for Connecticut savings banks," given that a bank official will know that he may in strict compliance with the law purchase such bonds, and, since that is true, the private investor may feel safe in purchasing the same. For in what stocks, bonds, etc., a savings bank may invest the money of its depositors is specifically regulated by the laws of the greater number of states. Of all the eastern states, New Hampshire, Maine, Vermont, Connecticut, Massachusetts, and New York, in climax order, most strictly limit their savings banks investments, while there is very little limitation upon those of Maryland, Pennsylvania, and New Jersey, and practically none upon those of Rhode Island. Naturally the investments of the first named are generally considered the safest for the public.

XI. Trust Company.—A corporation chartered under state laws to receive and execute trusts. Unlike national banks they are not subject to government control, though they may perform the functions of ordinary banking institutions, but may not issue bank bills. The laws regulating the transactions of trust companies differ widely in the various states. The first corporation in the United States with the powers of trustee is the Farmers' Insurance and Loan Company (later the Farmers' Loan and Trust Company) chartered in New York in 1822. Eight years later the New York Life Insurance Company was established, and in 1836 the Pennsylvania Company was incorporated as a trust by the State of Pennsylvania. The number of such companies increased more rapidly after the Civil War. Remarkable increase has been made within the last three decades; from 149 in 1890, to 290 in 1900, the number has become 1,091 in 1910, more than ten times the number in 1880. This enormous growth is largely due to the fact that many corporations have been chartered as trust companies instead of banks in order to benefit by the greater latitude allowed to the former under the laws.

Trust companies receive deposits subject to check, allowing as a rule interest of from two to three per cent. on such accounts. It is probably due to this fact that their business has increased so extensively in recent years. Another reason is that their public usefulness is being more generally recognized, and it is becoming more usual to appoint a trust company as executor, trustee, guardian, or administrator than to appoint private individuals; for the company is regarded as a permanent institution, and consequently more to be relied upon.

The following statement shows the resources and liabilities of loan and trust companies, as well as state banks, savings banks, and private banks, June 30, 1923:—

IN THOUSANDS OF DOLLARS.

Resources.	18,043 state (commercial) banks.	1,643 loan and trust companies.	1,029 stock savings banks.	618 mutual savings banks.	604 private banks.	21,937 total banks.
Loans and discounts	$8,723,666	$5,058,954	$1,181,848	$3,360,898	$86,409	$18,411,775
Overdrafts	41,120	5,146	505	.....	781	47,552
Investments (including premiums on bonds)	2,587,002	2,423,803	370,077	3,186,872	35,090	8,602,844
Banking house (including furniture and fixtures)	353,702	216,270	51,706	55,650	5,446	682,774
Other real estate owned	106,342	40,107	10,298	7,282	4,957	168,986
Due from banks	1,083,349	386,250	100,486	171,209	25,297	1,766,591
Lawful reserve with Federal Reserve Bank and other reserve agents	475,706	567,783	31,064	10,446	239	1,085,238
Checks and other cash items	147,354	254,522	5,901	1,186	711	409,624
Exchange for Clearing House	129,912	23,523	6,362	177	283	160,257
Cash on hand	314,057	123,438	24,854	39,411	4,233	505,993
Other resources	200,652	399,463	7,582	71,744	2,070	681,511
Total	$14,162,862	$9,499,259	$1,790,683	$6,904,825	$165,516	$32,523,145

IN THOUSANDS OF DOLLARS.

Liabilities.	18,043 State (Commercial) Banks.	1,643 Loan and Trust Companies.	1,029 Stock Savings Banks.	618 Mutual Savings Banks.	604 Private Banks.	21,937 Total Banks.
Capital stock paid in	$1,041,413	$591,431	$81,120	.....	$9,512	$1,723,476
Surplus	571,461	606,648	41,362	$496,513	12,894	1,728,878
Undivided profits (less expenses and taxes paid)	217,377	133,346	17,325	107,973	1,919	477,940
Due to all banks	445,817	744,674	8,454	317	1,751	1,201,013
Certified checks and cashier's checks	75,579	27,088	1,982	35	239	104,923
Individual deposits (including dividends unpaid and postal savings)	11,130,142	6,831,618	1,609,358	6,288,551	131,666	25,990,735
United States deposits (exclusive of postal savings)	16,696	24,919	4,658	.....	31	46,304
Notes and bills rediscounted	130,443	41,233	8,959	.....	1,270	181,905
Bills payable (including advances received from war finance corporation and certificates of deposit representing money borrowed)	269,744	128,515	8,380	269	2,932	409,840
Other liabilities	264,190	370,387	9,085	11,167	3,302	658,131
Total liabilities	$14,162,862	$9,499,259	$1,790,683	$6,904,825	$165,516	$32,523,145

LOAN INSTITUTES.

Various organizations, for the most part co-operative, are designed to provide a safe investment for the savings of persons of small means, and to loan funds to members at reasonable rates, for the purpose of housebuilding and the like. They exist under various designations, such as homestead aid associations, mutual loan associations, coöperative banks, coöperative savings and loan associations, building societies, etc. In Great Britain such associations are incorporated by registration by the registrar of friendly socities, with whom their rules must be filed. A society is there permitted to borrow to the extent of two thirds of the amount advanced on mortgages; for sums beyond this the members of the managing committee are personally liable. In the United States, building and loan associations are in many states placed under the same laws as savings banks, while in others they are free from special regulations.

Building and Loan Associations.—Incorporated under the laws of many of our states, this form of bank encourages real estate investments, owning of homes, and saving of money, by assisting those of limited means to accumulate money for improvements on lands, paying incumbrances thereon, and erecting buildings. Over 700,000 homes have been acquired by this means. A large percentage of shareholders in the local associations are working people.

To join a Building and Loan Association, a person has to subscribe for one or more shares whose final value is usually $200. By so doing he pledges himself to pay a stated sum in fixed periodical installments, and must suffer prescribed penalties if he fails to do so. These payments he agrees to make until the shares are fully paid, that is, reach their stated values, these requirements being more quickly met because of the proportion of the earnings of the institution allotted to the shareholders' credit. When an association has on hand money to loan, a shareholder may borrow from it money upon real estate up to the face value of his

STATISTICS OF BUILDING AND LOAN ASSOCIATIONS, 1922–1923.

States.	No. of ass'ns.	Total membership.	Total assets.
Pennsylvania	3,316	1,251,000	$624,000,000
Ohio	875	1,169,828	564,348,517
New Jersey	1,098	678,973	359,268,557
Massachusetts	209	327,157	225,092,157
Illinois	741	390,000	201,928,358
New York	282	321,044	153,161,292
Indiana	369	270,725	140,945,474
Nebraska	80	143,456	91,994,730
Maryland[1]	785	177,150	88,575,000
Wisconsin	115	114,179	71,821,023
Louisiana	70	91,000	69,189,443
California	112	63,825	64,732,760
Missouri	201	104,214	60,497,796
Michigan	81	114,730	58,546,237
Kansas	120	118,220	55,613,521
Oklahoma	82	89,164	51,713,296
Kentucky	120	111,000	48,000,000
N. Carolina	235	65,000	44,398,834
Dist. of Columbia	21	51,109	35,830,000
Washington	52	75,238	29,696,405
Iowa	72	52,800	24,659,855
Arkansas[2]	54	28,225	17,997,261
Utah	22	31,220	15,609,399
Minnesota	66	30,575	14,686,752
Colorado	50	28,635	14,304,330
West Virginia	44	35,300	13,780,294
Maine	38	18,400	10,585,468
Rhode Island	8	20,537	10,545,499
Oregon	14	24,990	10,000,000
Connecticut	34	25,600	9,633,382
S. Carolina	152	20,404	7,626,890
Texas	88	23,545	7,162,995
New Hampshire	27	12,393	5,791,551
Montana	26	23,936	5,460,973
North Dakota	13	9,075	4,529,065
South Dakota	18	7,850	4,500,000
Delaware	33	8,950	4,430,385
Tennessee	11	5,750	3,472,527
New Mexico	13	5,200	2,170,000
Arizona	4	3,750	1,415,308
Vermont	8	1,955	818,521
Other States	250	218,547	113,997,098
Total	10,009	6,864,144	$3,342,530,953

[1] Estimated.
[2] Figures for 1921.

shares, paying a small premium in addition to legal rate of interest. The plan of fixing the premium is now generally adopted; but formerly the shareholders were offered at stated intervals the loanable money of the association, it being awarded to best bidders. Using the shares as collateral, some associations loan money to members up to a certain percentage (say 90 per cent.) of amount paid in.

When all the required payments upon shares have been made, the return of his money, plus his share of the earnings of the association, may be demanded by the subscriber.

In the United States the first institution of this kind was organized in Frankford, Pa., in 1831, and in the next twenty years a number of similar associations were established in Philadelphia, though none were incorporated till 1849. After the Civil War their numbers rapidly increased until in 1876 there were in Philadelphia alone over 450 associations.

In England building and loan associations are known as "building societies"; the first originating in Birmingham in 1781. Their numbers increased considerably during the nineteenth century, and special legislation was enacted in 1838 and 1874. Similar societies exist in most European countries; in Germany they are called *Baugenossenschaften.*

Money.—Money is both an accepted medium of exchange and a measure of value. Any article of value will suffice for the purpose, but stamped metal, and especially gold and silver or their representative in paper notes, are the most convenient and universally acceptable. In primitive forms of commerce object was bartered for object, as is occasionally done to-day in many parts of the world. But soon the need was felt for some fixed standard of value so as to render exchanges easier and more equitable. For this purpose objects which were in popular demand either for use or ornament became the first media of exchange. Various commodities and objects have been utilized as money; tin was used in Britain and Syracuse; lead in Burma; iron in Sparta; furs in Siberia and Alaska; skins and platinum in Russia; silk and other fabrics of fixed length in China, Tibet, and certain parts of Africa; nails in Scotland; soap in Mexico; bullets and wampum in Massachusetts; logwood in Campeche; tobacco in Virginia. Various kinds of eatables have also been employed as money; rice grains by the ancient Koreans as well as by the modern Filipinos; grains of salt in Abyssinia and at Laos; cubes of pressed tea in Mongolia; codfish in Newfoundland; sugar in the West Indies; cattle in Germany and Rome. In the early days of Rome money of wood and leather was in circulation. The next stage in the development of money was in the selection of objects whose value was determined by their rarity, and even in our times we can find numerous instances of these primitive forms. The Pelew islanders treasure up as current money a certain number of obsidian or porcelain beads and terra-cotta prisms. In the island of Yap blocks of aragonite take the place of money; this rock, being unknown on the island, has to be sought for in the Pelews, and the larger the block the greater its value. This illustration will serve to show that the rarity of a substance is not enough to answer all the essentials of money. A condition of suitable money is that it may be easily handled, and though small in size may represent a high value, either real or fiduciary. Such, for example, are the teeth of the Wapiti deer (*Cervus canadensis*), which the Shoshone Indians and the Bannocks of Idaho and Montana still utilize in their transactions. Such also is the skin-money of the ancient Scandinavians and Carthaginians, the cocoa-seed money of the ancient Mexicans, the animal skull-money of the Mishmee, etc.

Several kinds of shells are still used as money; the *Dentalum entalis* by the Indians of the northwest; the *Venus mercenaria*, transformed into wampum, by the Indians of the Atlantic coast, etc., and in particular the cowry shell, which is commonly used in various parts of Asia, Africa, and the islands of the Indian and Pacific oceans. In Bengal about a century ago 2,400 to 2,560 cowries were worth a rupee. But the cowry most widely circulates in tropical Africa, which fact is largely explained by its rarity; in consequence the rate of exchange is much higher in Africa than in Asia.

The origin of true money must however be traced to metals. Iron or bronze plates were used as money in Assyria, among the Mycenians, and the ancient Britons. Metal plates of varying form are still generally employed as money in Africa, for example, the *loggos* or pickaxes of the negroes of the Upper Nile, the iron plates of the natives of the Ubangi district, the spearheads of the Jurs, the X-shaped bronze objects made in Lunda and current all over the Kongo, and rings of copper in central Africa; while up to fifty years ago in Cambodia thin iron rings about six inches long and weighing about seven ounces each were used as money.

In regard to primitive money it will be noted that it could easily be transformed into articles of utility (lance-iron, arrowhead, sword, shovel and the like). In China the first bronze money was in the form of a knife, the handle of which terminated in a ring; eventually the blade disappeared altogether leaving only the ring, which was transformed into the well-known Chinese money, pierced with a square hole, called *sapec* or "cash." In central Africa brass or copper wire which may be readily utilized is employed as money. Silver bars, which are cut up into pieces as required, are also current money in China, just as they were in Russia in the fifteenth century.

Whatever article or substance is invested with the functions of money the result is the same in that it fixes the measure of value for all commodities; not only for those actually bought and sold but for all those which are marketable. Some economists hold that money is more important as a measure of value than even as a medium of exchange. Money also serves as a standard of value, enabling us to estimate the relative value of commodities at different periods. This function is distinct from, though subordinate to, that of money as a measure of value, for the latter function is that of a common denominator for one and the same time.

It is important that money should be stable in value, hence the choice of the precious metals among civilized nations. Precious stones,

though answering many of the requisites of money, lack the essential qualities of divisibility and uniformity. Stability of value becomes the more important when deferred payments are to be taken into account; and the precious metals perform this function better than any other commodity.

The value of money is largely dependent upon the law of supply and demand. The supply is obviously the quantity of money in existence; the demand is determined by many factors, chief of which are (1) the volume of exchanges to be effected; (2) the rapidity of circulation, stimulated greatly by savings banks; (3) the universal employment of credit. The latter in particular exercises a dominant influence on the demand for money. The elaborate organizations which owe their origin to the use of credit do the greater part of their transactions without the actual interchange of money, balances alone being settled in specie. Money as a medium of exchange is thus greatly economized by the establishment of such agencies.

The early American colonists experienced much difficulty with regard to their currency, for as the supplies of money drawn from England were much in excess of their exports to that country it followed that their metallic wealth rapidly left these shores, driving the colonists back on other devices. Articles of food and produce were made "legal tender" in some states; the wampum of the Indians was used in others. Another plan adopted by the colonists was to increase the nominal value of the English current coins. A similar device is employed to-day in the Azores, the continental Portuguese money being rated at 25 per cent. in advance of its face value.

The paper money first issued in Massachusetts in 1690, though serving to form the habits of the people, collapsed altogether about the time of the Revolution, for the paper was practically irredeemable. In 1782 as much as $500 of this paper currency had to be given in exchange for one Spanish silver dollar. Specie, secured through foreign loans, for a time bolstered up the circulation. The chartering of the Bank of North America at Philadelphia in 1782, and the coinage of money by the Federal government, gradually overcame these difficulties. Of foreign coins which circulated in the country first place must be given to the Spanish dollar, which even as late as 1857 was accepted as legal tender in all of the United States post offices. Specie payments were suspended from January 1, 1862, to January 1, 1879, and during the greater part of that period gold and silver coins were not in circulation except on the Pacific coast, where, it is estimated, the specie circulation generally was about $25,000,000. (The monetary system of the United States will be found fully treated in the Dictionary of Financial Terms.

The stock of money in the United States between 1890 and 1924 is as follows:

Year.	Gold Coin and Bullion.	Silver Dollars.	Subsidiary Silver.	Federal Reserve Notes and Bank Notes.	National Bank Notes.	Total.
1890[1]	$695,563,029	$380,083,304	$76,825,305		$185,970,775	$1,685,123,429
1895	636,256,023	547,777,049	76,954,434		211,691,035	1,819,359,557
1900	1,034,384,444	566,131,027	82,863,742		309,640,444	2,339,700,673
1905	1,357,655,988	568,228,865	114,824,189		495,719,806	2,883,109,864
1910	1,636,043,478	568,277,508	155,158,748		713,430,733	3,419,591,483
1911	1,753,196,722	568,279,367	159,607,364		728,194,508	3,555,958,977
1912	1,818,188,417	568,278,020	170,588,205		745,134,992	3,648,870,650
1913	1,870,761,835	568,273,263	175,195,996		759,157,906	3,720,070,016
1914	1,890,656,791	568,272,478	182,006,687		750,671,899	3,738,288,871
1915	1,985,539,172	568,271,655	185,430,250	$84,260,500	819,273,593	3,989,456,186
1916	2,449,739,010	568,270,319	188,858,483	185,168,450	744,174,660	4,482,891,938
1917	3,019,146,563	568,269,513	198,274,719	560,198,205	715,420,010	5,407,990,026
1918	3,075,788,838	499,515,930	231,856,580	1,863,024,445	724,205,485	6,741,072,294
1919	3,113,168,661	308,145,759	242,870,438	2,875,223,965	719,276,732	7,605,366,571
1920	2,709,463,700	268,857,494	258,855,239	3,607,102,920	719,037,730	7,909,998,099
1921	3,297,729,834	288,788,378	271,314,375	3,151,202,260	743,290,374	8,099,006,237
1922	3,784,651,712	381,174,404	271,210,886	2,635,557,060	758,202,027	8,177,477,105
1923	4,049,553,748	491,886,769	269,186,084	2,698,985,380	747,439,719	8,603,732,716
1924	4,490,807,303	503,754,851	277,614,378	2,849,644,200	778,011,779	8,746,513,527

[1] Since 1890, there have been $346,681,016 of United States notes in circulation.

Paper Money.—Primarily paper money was representative, that is, it was metallic currency in another and more convenient form. Such is the function of the United States gold and silver certificates, each of which represents an equivalent amount of specie deposited in the treasury. But paper money in the strict sense of the term is based on credit, and is merely a promise to pay without any absolute guarantee being afforded that the promise will be fulfilled. So long as "inconvertible" paper money is not issued in excess of public demands, its value does not tend to depreciate, but immediately the supply becomes excessive paper is at a discount, gold and silver being correspondingly at a premium. Unlike metallic money, there is always the danger of overissue regardless of the actual requirements of the community. Modern history furnishes examples of excessive issues of paper money, notably the *mandats* and *assignats* of the French Revolution, the "greenbacks" of the Civil War, the irredeemable currency of Italy, Russia, and Austria. The effect of overissue is usually disastrous to commerce and international credit.

Paper money in America was first issued by the colonists; Massachusetts, as already referred to, issuing bills aggregating £7,000 in 1690, and soon increasing to £10,000, to pay the soldiers who had served in the war with Quebec. What was originally only intended as a make-

shift became a practice. Rhode Island issued paper money so recklessly that in 1750 it had depreciated to one twenty-fifth of its par value. Parliament in 1751 vetoed the further issue of such money on the part of the New England colonies, and in 1754 extended the veto to the remaining colonies. To carry on the Revolutionary war, paper money was issued again and again, the amount authorized by Congress aggregating $41,000,000 by 1779, while the states on their own accord issued paper amounting to $209,000,000. The ratio of paper to silver was 40 to 1 in 1780; and at this ratio the central government paid $119,000,000 for paper retired and destroyed. By the funding act of 1790 paper was accepted in exchange for government stock at one per cent of its face value. In this way $6,000,000 was received and canceled.

The first paper money ever issued by the government of the United States was authorized by the acts of July 17 and August 5, 1861. The notes issued were called "demand notes," because they were payable on demand at certain designated subtreasuries. They were receivable for all public dues, and the secretary was authorized to reissue them when received, but the time within which such reissues might be made was limited to December 31, 1862. The amount authorized by these acts was $50,000,000. An additional issue of $10,000,000 was authorized by the act of February 12, 1862, and there were reissues amounting to $30,000. The demand notes were paid in gold when presented for redemption and they were received for all public dues, and these two qualities prevented their depreciation. All other United States notes were depreciated in value from 1862 until the resumption of specie payments. The act of February 25, 1862, provided for the substitution of United States notes in place of the demand notes, and the latter were therefore canceled when received. By July 1, 1863, all except $3,770,000 had been retired, and nearly three millions of this small remainder were canceled during the next fiscal year. These notes were not legal tender when first issued, but they were afterwards made so by the act of March 17, 1862.

The principal issue of United States paper money was officially called United States notes. These were well-known "greenbacks" or "legal tenders." The act of February 25, 1862, authorized the issue of $150,000,000, of which $50,000,000 was in lieu of an equal amount of demand notes, and could be issued only as the demand notes were canceled. A second issue of $150,000,000 was authorized by the act of July 11, 1862, of which, however, $50,000,000 was to be a temporary issue for the redemption of a debt known as the temporary loan. A third issue of $150,000,000 was authorized by the act of March 3, 1863. The total amount authorized, including the temporary issue, was $450,000,000, and the highest amount outstanding at any time was $449,338,902 on January 30, 1861. There are still outstanding $346,681,016.

Single and Double Monetary Standards.—The needs of exchange have given rise to various systems of currency, in which gold, silver, and paper are generally combined. When only one metal is used as a standard of value the system is termed "monometallism"; when the use of both gold and silver at a fixed relative value is authorized as legal tender to any amount, it is known as "bimetallism."

Most of the great powers have adopted a monometallic system, gold being received at the mints without limit and converted into coin. Where a gold standard obtains, silver and baser coins have merely a subsidiary value, and are regarded as tokens, that is, their nominal value is in excess of their intrinsic value. These subsidiary coins are usually legal tender only up to a limited amount, and the quality issued from the mints is likewise restricted and determined by circumstances. Gold is invariably the standard of value under a monometallic system, though this is not absolutely essential. When the gold mines of California and Australia were producing an enormous output, the Belgian government about 1851 demonetized gold and substituted silver as the standard.

Under a bimetallic system if the market ratio between gold and silver differs from the legal ratio, one of the metals is sure to be shipped abroad. To meet such a contingency bimetallic countries reduced the fineness of the silver currency, and introduced a token coinage. This provision, combined with the issuing of certificates to represent the larger coins, placed the subject of bimetallism in a new light, and the question was narrowed down as to whether gold alone or gold and silver in conjunction provided the better standard of value, the question of circulation being no longer potent.

It is the fundamental requirement of bimetallism that both metals should be on exactly the same legal footing, and not merely that they should circulate conjointly. In the United States the present currency is not bimetallic; for the silver dollar, though not limited in legal tender, is yet limited in amount, and cannot be freely coined at the instance of any individual.

The question as to the respective merits of a single or a double monetary standard has given rise to much controversy. The arguments for and against bimetallism may be briefly stated. The bimetallists contend that (1) bimetallism would assure the maintenance of a par value between the two metals; (2) steadiness of exchange between gold-using and silver-using countries; (3) a more stable standard of value than is possible in a gold standard, since bimetallism rests on a broader basis and a decline in prices is less likely to occur. The monometallists argue (1) that bimetallism has been thoroughly tried by individual nations and found unsatisfactory, owing chiefly to one or other metal being exported when its bullion value was greater in some other country, since law cannot fix values; (2) that international bimetallism, if such could be brought about, would not be a guarantee of a universal ratio being either established or maintained; (3) the evils for which bimetallism is proposed as a remedy are of small consequence, and so far as affording relief goes it is held that bimetallism is only theoretical besides being more complicated and artificial, and would break down in practice; while some contend that (4) changes in prices have either no relation to the money supply at all, or else their influence is not so disturbing as the bimetallists claim, while their

compensations more than counterbalance their disadvantages.

To the argument that one or other metal would be likely to be exported, the bimetallists reply that the demand for the use of metals for coinage far outstrips any other demand; and furthermore the law can and does influence the value of metals, and the commercial ratio would perforce adjust itself to the legal ratio. This point is refuted by their opponents, who successfully argue that the French law of 1801, which fixed the ratio between gold and silver at 15½ to 1, did not control the market ratio. To this the bimetallists rejoin that the area was too restricted, and that if an international bimetallic system could be brought about, such a possibility would be absolutely eliminated.

Between 1871 and 1873 Germany substituted a gold standard, being enabled to do this by reason of the enormous indemnity paid by France, $54,600,000 of which was paid to Germany in gold coin. In 1873 the coinage of silver was suspended by the Paris mint, while in the United States, silver had almost entirely gone out of use, and Congress suspended the coinage of the standard silver dollar. The opening up of new silver mines, together with the huge surplus stock of silver thrown upon the market by Germany, caused the price of silver to rapidly decline. Public pressure was brought on Congress, and in 1878 an act was passed providing for the purchase of silver and the coinage of silver dollars. In twelve years 368,000,000 standard silver dollars were issued, but the price of silver began to fall, for it was not possible to keep this enormous quantity of silver in circulation. The government therefore by an act of March 14, 1900, extended the policy of issuing silver certificates, each representing actual coins deposited in the treasury. This act limited the denominations to $10 and under, except that ten per cent. of the total value of such certificates may be issued in denominations of $20, $50, and $100 at the discretion of the secretary of the treasury. Neither silver certificates nor silver dollars are redeemable in gold.

In 1890 the Sherman Act was passed, by which the secretary of the treasury was forced to purchase 4,500,000 ounces of silver each month, and to use it as a basis for legal tender notes payable in coin. This act was repealed in 1893, the year of a serious financial panic, and Congress entirely suspended the issue of silver coinage. The gold reserve rapidly diminished and government bonds aggregating over $260,000,000 were issued to cope with the difficulty. The question of the restoration of silver was the main issue in the presidential campaigns of 1896 and 1900. The outlook was improved in 1900 and Congress authorized the secretary of the treasury to redeem greenbacks, silver treasury notes, and silver notes of 1890 in gold coin, and to issue bonds to maintain a sufficient reserve. This quieted the financial interests, for it was feared that if the United States should establish a different monetary standard to that of the leading European countries, the currency would be subject to disastrous fluctuations.

The recent history of bimetallism is intimately associated with the question of Free Silver, but the controversy is no longer acute, and the present tendency is rather towards universal monometallism than the reverse. The term "Free Silver" means the right of any individual to deposit "standard silver bullion" at any of the United States mints in any amount, and have it coined at the expense of the government, such depositor to receive in return for his bullion silver coins containing in the aggregate the same weight of fine silver as brought to the mint.

The following table taken from the treasury report gives the monetary stock of the principal countries of the World, at the end of the calendar year, 1922, stated in United States money:—

(000 omitted).

Country.	Monetary standard.	Stock of Gold	Stock of Silver.	Population.	Per Capita.		
					Gold.	Silver.	Paper.
North America:							
United States	Gold	$3,933,476	$740,067	110,560	$35.57	$6.69	$35.91
Canada	Gold	138,435	26,621	8,361	16.56	3.18	51.84
Mexico	Gold	50,000[1]	30,000[1]	15,502	3.23	1.94	.....
British Honduras	Gold	.....	65	45	.....	1.44	7.55
Costa Rica	Gold	596	.....	469	1.27	.....	30.17
Cuba	Gold	37,105	16,368	2,899	12.80	5.65	72.93
South America:							
Argentine	Gold	493,146	.....	8,533	57.79	.....	159.68
Bolivia	Gold	8,244	12	2,890	2.85	.....	11.68
Brazil	Gold	48,025	.....	30,492	1.57	.....	75.43
Chile	Gold	30,025	331	3,755	9.06	1.22	80.42
Columbia	Gold	23,399	7,343	6,000	3.88	.97	1.82
Ecuador	Gold	4,625	1,931	2,000	2.31	.....	8.00
Paraguay	Gold	652	.....	1,000	.65	1.02	180.00
Peru	Gold	22,873	4,725	4,610	4.96	2.10	1.18
Uruguay	Gold	56,806	3,000	1,430	39.72	3.76	48.95
Venezuela	Gold	15,440	9,071	2,412	6.40	.....	16.17
Europe:							
Austria	Gold	784	.....	6,067	.12	1.40	672,519.73
Belgium	Gold	51,901	10,623	7,577	6.85	.63	907.53
Bulgaria	Gold	7,411	3,569	5,598	1.32	.36	693.83
Denmark	Gold	61,173	1,197	3,268	18.72	1.34	140.56
France	Gold	708,407	55,777	41,476	17.08	.29	876.63
Great Britain	Gold	240,537	17,865	60,899	3.94	6.68	25,184.47
Germany	Gold	742,740	316,323	47,308	15.70	.....	9.37

Country.	Monetary Standard.	Stock of Gold.	Stock of Silver.	Population.	Per Capita.		
					Gold.	Silver.	Paper.
Greece	Gold	5,983	.....	4,950	1.21	.....	636.36
Hungary	Gold	3,152	120	21,410	.14	3.89	3,544.46
Ireland	Gold	.....	17,033	4,380	.....	.62	4.56
Italy	Gold	217,300	22,800	36,740	5.91	5.60	551.91
Netherlands	Gold	233,879	38,258	6,831	34.23	2.52	152.83
Norway	Gold	39,474	6,673	2,646	2.52	.39	145.38
Poland	(2)	9,769	10,511	26,386	.39	3.19	30,070.39
Portugal	Gold	9,767	19,012	5,958	3.19	.01	175.73
Roumania	Gold	7,585	161	17,398	.01	.....	871.73
Russia	Gold	2,607	.....	182,183	.....	.....	10,947.78
Spain	Gold	487,278	124,600	21,283	5.85	5.85	194.37
Sweden	Gold	73,727	5,811	5,904	.90	.90	98.94
Switzerland	Gold	101,584	22,748	3,862	5.89	5.89	256.61
Turkey	Gold	.....	.....	21,274	.....	.....	730.19
Yugoslavia	(2)	12,354	3,193	13,908	.23	.23	362.32
Asia:							
Ceylon	Gold	14	8,027	4,504	.....	1.78	8.72
China	Silver	10,000	81,389	427,679	.02	.19	.45
Japan	Gold	912,255	.....	77,529	11.77	.....	23.62
Persia	Silver	.....	22,620	9,500	.....	2.38	6.32
Philippine Islands	Gold	960	18,836	10,779	.09	1.75	29.61
Siam	Gold	.....	53,245	8,809	.....	6.04	8.69
Straits Settlement	Gold	1,599	8,638	714	2.24	12.10	130.57
Africa:							
Abyssinia	Silver	.....	335	8,000	.....	.04	.03
Algeria	Gold	.....	.....	5,162	.....	.....	130.25
Egypt	Gold	566	36,546	12,751	.05	2.87	2.61
Australasia:							
Australia	Gold	126,719	.....	5,346	23.33	.....	9.68
New Zealand	Gold	.....	.....	1,227	.....	.....	5.46

[1] Last Year's figures.
[2] Monetary standard not established.

DICTIONARY OF COINS AND COINAGE.

FOREIGN AND DOMESTIC

ABAS. A Persian silver coin, equal to 4½ cents. It is a fiftieth part of a toman.

ABASSI. A Russian silver 20-kopeck piece, worth about 8½ cents.

ABYSSINIA. The current coin is the Maria Theresa dollar of Austria. But a new coin, the Menelik dollar, or talari, worth about 2 shillings or nearly 50 cents of United States money, weighs 28.075 grams of .835 fine silver. The half, quarter, eighth, and sixteenth (guerche or piaster) of a talari are of silver. The besa (one hundredth of a talari) and the half and quarter guerche are of copper.

AFGHANISTAN. The rupee seems to be the usual currency. The mint at Kabul was for some years under the supervision of a European. The smallest silver coin yet minted is the kiran of the value of half the Kabuli rupee, but a smaller coin of the value of a British threepence is to be issued. In addition a gold coin of the value of the British sovereign ($4.86), new silver coins of the value of the British crown ($1.21) and half crown, and a large bronze coin of the size of the British crown and the value of about 10 cents were determined upon, but have never yet been issued as currency. Small copper "pice" are coined and of these 72 are reckoned as equal to a Kabuli rupee.

AKEY. The monetary unit on the Gold Coast of Africa, equal to 20 grains of gold dust or 80 cents.

ALGERIA. The money is the same as that of France.

ALTIN. A Russian money of account, equal to 3 kopecks or 2¼ cents.

ANGEL. An old English gold coin bearing the figure of an angel. First struck in the reign of Edward IV. in 1465; equal in value to 6s. 8d., later to 8s., and afterward to 10s. or $2.43. Last struck by Charles I. in 1634.

ANGELET. An old English gold coin; a half-angel.

ANGELOT. (1) An old French gold coin first struck in 1340 by Philip VI.; equal to a half-angel. (2) A gold coin struck by Henry VI. of England for use in his French dominions.

ANNA. An East Indian coin, equal to one sixteenth of a rupee or 2 cents. Half an anna in copper and 2-anna silver pieces were issued by Queen Victoria.

ARGENTEUS. A Roman silver coin introduced by the emperor Caracalla and equal to a denarius and a half. It took the place of the denarius, and later became a copper coin plated with silver. Equal to 25½ cents.

ARGENTINE REPUBLIC. The silver peso fuerte or dollar of 100 centavos has a par value of 4 shillings or about 97 cents of United States money. The 5-dollar gold coin weighs 8.0645 grams .900 fine and contains 7.25805 grams of pure gold. The silver dollar weighs 25 grams of .900 fine and contains 22.5 grams of fine silver. Silver coins of 50, 20, and 10 centavos, with both nickel and copper fractional pieces, are also struck. The paper dollar is worth about 44 cents of United States money.

AS. A Roman copper coin varying in value from 12½ to 1 cent.

ASAR. A Persian gold coin, equal in value to $1.60. Not current.

ASPER. A Turkish money of account, equal to a 100th or 120th of a piaster, or four ninths of a United States mill.

ATT. A Siamese coin; a 64th of a tical; equal to 1 cent.

AUSTRALIA. The legal currency is that of Great Britain. Accounts are kept in pounds, shillings, and pence.

AUSTRIA-HUNGARY. By the law of August 2, 1892, the monetary system was reformed on a gold basis and the coins under that act are: gold 20-crown piece of 6.775067 grams of .900 fine and containing 6.09756 grams of pure gold equals 16s. 8d. or $4.06 United States money; gold 10-crown piece equals $2.03; gold ducat equals 11 crowns 29 heller, or 9s. 4¾d., or $2.28; silver crown of 5 grams .835 fine and containing 4.175 grams of pure silver equals 100 heller, or half a gulden, or 10d., or 20 cents; nickel 20-heller equals 10 kreuzer of the old coinage, or 2d., or 4 cents; nickel 10-heller equals 5 kreuzer (old), or 1d., or 2 cents; bronze 2-heller equals 1 kreuzer (old), or 0.2d., or about 4 mills; bronze 1-heller equals ½ kreuzer (old), or 0.1d., or about 2 mills. Silver gulden or florins are still legal tender.

BAHAMAS. British silver and bronze coins are legal tender for all sums. American half-dollars and quarter-dollars are current at the rate of 2s. and 1s. respectively.

BAHREIN ISLANDS. Coins in use are British sovereigns, Indian rupees worth 16d. or 33 cents, Austrian (Maria Theresa) dollars worth from 19d. to 27d. or from 39 to 45 cents, and Turkish lire worth from 18s. 4d. to 19s. 4d. (about $4.45 to $4.70).

BARBADOS. British gold, silver, and bronze coins are circulated as well as 5-dollar notes of the Colonial Bank.

BASUTOLAND. The currency is exclusively British.

BECHUANALAND PROTECTORATE. The currency is British money.

BELGIUM. Belgium belongs to the Latin Monetary Union. The standard coin of value is the franc of a par value of 25.22½ francs to the English pound sterling, or about equal to 19.3 cents of United States money.

BERMUDA. The currency is British. Silver is legal tender for any amount. There is no paper money in circulation except a few Bank of England notes.

BOKHARA. The Russian ruble is current everywhere. The Bokhara silver tenga is valued at 10 cents of United States money.

BOLIVIA. Gold standard was adopted September, 1906. The unit of account will be the gold peso, weighing 1.5976 grams .916 fine and worth about 97.3 cents of United States money. The boliviano in use at present has a nominal value of 96 cents, but is actually worth about 49.9 cents.

BORNEO, BRITISH. The decimal or dollar system is in use. The coins are ½ cent and cent in bronze; 1, 2½, and 5 cents in nickel. The rest of the money is in the shape of notes of 25 cents, 50 cents, and 1, 5, 10, and 25 dollars.

BRAZIL. The milreis of 1,000 reis has a par value of 54.6 cents of United States money. In December, 1905, the government was authorized to coin silver into 2, 1, and ½ milreis pieces, weighing 20, 10, and 5 grams respectively of silver .900 fine.

BULGARIA. There are a few gold coins of 100, 40, 20, and 10 leva or francs, but 10 and 20 franc foreign pieces supply the demand. The 5 leva (francs), 2 leva, 1 lev, and ½ lev are of silver; the 20 stotinki (centimes), 10, 5, and 2½ are of nickel; and the 10, 5, 2, and 1 stotinki are of copper. The franc is equal to 19.3 cents.

CANADA. The value in Canada of the money of the United Kingdom is fixed by law as follows:—

Sovereign or pound	equals	$4.86
Crown	equals	1.20
Half-crown	equals	.60
Florin	equals	.48
Shilling	equals	.24
Sixpence	equals	.10

Canada has no gold coinage of its own, the English sovereign and the United States gold eagle of $10, with its multiple and half, are legal tender. Notes or bills are issued exclusively by the government for $4, $2, $1, and for 25 cents. No bank is allowed to issue notes for a less sum than $5.

CAPE OF GOOD HOPE (CAPE COLONY). The currency is exclusively British. All accounts are kept in pounds, shillings, and pence.

CENT. A coin of the United States and of Canada, equal in value to one hundredth of a dollar. In the United States the word *cent* dates from the act of 1786.

1787. A mint was established at New Haven, Conn., and "Fugio" or "Franklin" cents were coined.
1791. Pattern cents with the head of Washington were struck in England.
1792. Congress authorized the issue of a cent of 264 grains of copper, and a corresponding half-cent.
1793. These coins issued, but the cent was reduced to 208 grains.
1796. Weight of the cent reduced to 168 grains and the half-cent proportionately. New design.
1808. The Head of Liberty changed.
1816. Head of Liberty again changed.
1815 and 1835. No copper coins issued.
1851. Three-cent piece of ¾ silver authorized—12⅜ grains.
1853. Weight of 3-cent piece reduced to 11.52 grains.
1857. Half-cent discontinued. Old large copper cent reduced to 72 grains of the proportion of 88 parts copper to 12 of nickel.
1864. Bronze cent authorized; weight, 48 grains and composed of 95 parts copper and 5 parts tin and zinc. The 1-cent and 2-cent pieces made a legal tender for sums not to exceed 10 and 20 cents. The 2-cent piece weighed 96 grains.
1865. The 1-cent and 2-cent coins were made legal tender for only 4 cents. The 3-cent coin was ordered of ¾ copper and ¼ nickel and to weigh 30 grains. Legal tender for not more than 60 cents.
1866. A 5-cent piece authorized of ¾ copper and ¼ nickel, to weigh 77.16 grains and to be legal tender for sums not exceeding $1.
1873. The 2-cent piece discontinued. The 5-cent piece weighing 77.16 grains and the 3-cent piece of 30 grains were to consist of ¾ copper and ¼ nickel, and a 1-cent piece of 95 parts copper and 5 parts tin and zinc to weigh 48 grains were authorized. Legal tender for not more than 25 cents.
1890. The 3-cent piece was discontinued.
1909. Lincoln cent, new design, authorized.

The rare cents are those of 1793, 1799, 1804, and the copper cent of 1856. The rare half-cents are those of 1793, 1831, 1840 to 1848, and 1852.

CEYLON. A decimal coinage, using the rupee of India with cents in place of annas and pice.

CHILE. The gold coins of Chile are the 20, 10, and 5 peso coins called respectively the condor, doblon, and escudo. The 10-peso piece weighs 5.99103 grams .916 fine and contains 5.49178 grams of pure gold, and is valued at $8.65 of United States money. The silver peso weighs 20 grams of .835 fine silver and is worth about 36.5 cents of United States money. The 2½, 2, 1, and ½ centavo are of bronze.

CHINA. The monetary unit of China is the copper cash, of which about 17½ equal 1 cent of United States money. Another coin largely used is the "hundredth of a dollar" or the "10 mills" piece. Its face value is about 6 mills and its intrinsic value about ¼ cent in United States money. The Haikwan or customs tael is 1 tael weight (1.3 oz.) of pure silver and is equal to about 83.2 cents. The dollar, equal in value to the Mexican dollar, is commonly used. By the treaty with England (1902) China promised to take steps to make her coinage uniform, but results of any effort are not yet apparent.

COLOMBIA. The gold dollar is the monetary unit and weighs 1.59765 grams .916 fine and its value is the same as the United States dollar. Gold coins are 1, 2½, and 5 dollars. The silver coins are the dollar (.900 fine), the half dollar (.835 fine), the peseta of 20 cents, and the real of 10 cents (.900 fine). Thirty-three grams of silver are considered equal to 1 gram of gold.

CONGO INDEPENDENT STATE. The legal money is that of Belgium, but on the Upper Congo the currency consists of brass rods.

COSTA RICA. The gold colon is the monetary unit. It is of .900 fine gold, weighs .778 grams, and is equal to 46.5 cents of United States money. Fractions of the colon are of silver and include the 50, 25, 10, and 5 cent pieces of .750 fine silver.

CRETE. Cretan money is similar to that of Greece. The drachma of 100 lepta is equal to the French franc of 19.3 cents.

CROWN. An English 5-shilling silver coin, equal in value to $1.21 of United States money. A half-crown is 2s. 6d., equal to 60 cents of United States money.

CUBA. There is no Cuban currency or paper money. The Spanish gold dollar is worth 90½ cents; the silver dollar, 80 cents; and the American dollar, 99 cents. The peso is worth 60 cents; the half-peso, 30 cents; the peseta, 12 cents; the real, 6 cents; and the half-real, 3 cents. The French louis is worth $3.82.

CYPRUS. English gold coins; and Cyprus silver and Cyprus copper piasters, half-piaster, and quarter-piaster. Of these, 9 piasters equal 1 English shilling or 24 cents of United States money.

DENMARK. The monetary unit is the krone of 100 öre, of a value of 26.8 cents. The 20 and 10 kroner pieces are of gold. The 2-kroner silver piece contains 12 grams of pure silver. The öre is equal to about ¼ of a cent of United States money.

DOLLAR. The monetary standard of value of the United States and Canada. It contains 100 cents and is equal to 4s. 1.3d. of English money. Established in the United States by resolution of Congress, July 6, 1787. The silver dollar and the decimal system were established by act of Congress, August 8, 1786. The coinage was begun April 2, 1792, when the mint was established. The weight of the silver dollar has varied as follows.—

Act of April 2, 1792, 371¼ grains of pure silver or 416 grains of standard silver.
Act of January 18, 1837, 412½ grains .900 fine, containing 371¼ grains of pure silver.
Act of March 3, 1849, gold dollars were 25.8 grains .900 fine of 23.22 pure gold.

Act of February 12, 1873, this latter was made the unit of value in the United States.
Act of September 26, 1890, suspended the coinage of gold dollars.
Act of February 28, 1878, ordered the secretary of the treasury to buy every month silver bullion to the value of not less than $2,000,000 nor more than $4,000,000 to be coined into standard silver dollars.
Sherman act of July 14, 1890, repealed the last mentioned law and ordered the monthly purchase of 4,500,000 ounces of silver and the coinage of 2,000,000 ounces. This act was repealed in 1893.
The gold dollar of 25.8 grains (or 1.6718 grams) .900 fine is the monetary unit according to the law of March 14, 1900.
The silver dollar weighs 412.5 grains or 26.730 grams .900 fine and contains 371.25 grains or 24.057 grams of fine silver.

EAGLE. A United States gold coin; a 10-dollar gold piece. An eagle weighs 258 grains or 16.71818 grams .900 fine and contains 232.2 grains or 15.0464 grams of fine gold. The eagle is worth in English money £2 1s. 1d. A double eagle is a 20-dollar coin, and a half-eagle a 5-dollar gold piece.

ECUADOR. The gold condor is equal to the English sovereign ($4.8665). It contains 7.3224 grams of fine gold. It is composed of 10 sucrés (each equal to 48.7 cents).

EGYPT. The monetary unit is the gold Egyptian pound of 100 piasters. It weighs 8.5 grams .875 fine and contains 7.4375 grams of fine gold and is worth $4.943 of United States money. There are also 20, 10, 5, 2, and 1 piaster silver pieces; 1, ½, one fifth, one tenth piaster pieces in nickel; and one twentieth and one fortieth piaster in bronze. Most of the gold coin in Egypt and Sudan is English.

FALKLAND ISLANDS. Same as in Great Britain.

FARTHING. An English bronze coin of which 4 make a penny. A farthing is equal to half a cent of United States money.

FIJI ISLANDS. Money is the same as in Great Britain.

FINLAND. The markka of 100 penni is equal to a franc or 19.3 cents of United States money. There are 20 and 10 markka gold pieces; 2, 1, ½, and ¼ markka pieces in silver; and 10, 5, and 1 penni pieces of copper.

FLORIN. An English 2-shilling silver coin, equal in value to 48½ cents of United States money. A Netherlands gold coin of the value of 40.2 cents.

FORMOSA. Coinage is the same as in Japan.

FRANC. A French silver money of account which is the unit of the French monetary system. It has also been adopted as the unit of currency by Belgium and Switzerland, and for the lira of Italy and the drachma of Greece. It is of the value of 19.3 cents in United States money.

FRANCE. The franc of 100 centimes is the monetary unit. It is equal to about 19.3 cents of United States money. The 20-franc, and the 10-franc pieces are of gold. Silver coins are 5 francs, 2 francs, 1 franc, ½ franc, and 20 centimes. The bronze coins are the 10 and 5 centime pieces.

FRENCH INDO-CHINA. The silver pieces are piaster (worth about 48 cents), ½ piaster, one fifth piaster, and one tenth piaster. The Mexican dollar has the same value as the piaster.

FRENCH WEST AFRICA. The use of French money is compulsory.

GAMBIA. The legal currency is British, but French 5-franc pieces are freely circulated to the extent of about £90,000.

GERMANY. The mark of 100 pfennige has a value of 23.8 cents of United States money and nearly that of the English shilling. The thaler is 3 marks. The 10-mark gold piece is called a krone; and the 20-mark and doppel-krone. Silver coins are the 5 marks, 2 marks, 1 mark and 50 pfennige. The 10-pfennige and 5-pfennige pieces are of nickel. The smaller coins are of bronze.

GIBRALTAR. The legal currency is that of Great Britain, but Spanish money is freely circulated.

GOLD COAST. A silver currency has been lately introduced on a British standard, but cowries are still used for small purchases.

GREECE. The drachma of 100 lepta is equal to the franc or 19.3 cents of United States money. The gold coins of the United States, Great Britain, Austria, Germany, Denmark, Russia, Spain, Turkey, and Egypt are legal at a reduction of ¼ per cent. from their nominal value.

GUATEMALA. The dollar or peso of 100 centavos has a value of about 49.9 cents of United States money. The real of nickel has a nominal value of 12½ cents. The half-real and quarter-real are also of nickel.

GUIANA, BRITISH. The colonial currency is in gold dollars worth 4s. 2d. or of the same value as the United States dollar. Some British gold, silver, and bronze coins are in circulation.

GUINEA. An English gold coin formerly in use. The guinea is now only a money of account and is made up of 21 shillings or one shilling more than a pound or a sovereign.

HAITI. The gourde or dollar has a nominal value of 97 cents, and is equal to 5 francs but has a fluctuating value. The 10, 5, 2, and 1 gourde pieces are of gold; the 50-centime, 20-centime, and 10-centime pieces are of silver; the 3-centime, 2-centime, and 1-centime pieces are of bronze.

HONDURAS. The silver peso or dollar of 100 cents weighs 25 grams .900 fine. The other silver pieces are 50, 25, 20, 10, and 5 cents.

HONDURAS, BRITISH. United States gold was adopted as the standard on October 15, 1894. The British sovereign and half-sovereign are legal tender for $4.86 and $2.43 respectively.

HONG-KONG. The following are current in Hong-kong:—

Mexican dollar equals 100 Hong-kong cents, equal to 54.2 United States cents.
British dollar equals 100 Hong-kong cents, equal to 53.8 United States cents.
Chinese tael equals 10 mace or from 75 to 83 United States cents.
100 candareens equal 1,000 cash or about 80 cents.
Hong-kong 50, 20, 10, 5, and 1 cent pieces imported from England. The mil or cash is no longer coined.

INDIA, BRITISH EAST.

Pie equals .33 farthing or ¼ cent.
3 pie equal 1 pice, or 1 farthing, or ¾ cent.
12 pie or 4 pice equal 1 anna, or 1 penny, or 2 cents.
16 annas equal 1 rupee, or 1s. 4d., or 33 cents.
15 rupees equal £1 or $4.8665.
100,000 rupees equal 1 lac of rupees.
10,000,000 rupees equal 1 crore of rupees.

ITALY. Money is similar to that of France, the names being altered to the Italian form. The lira of 100 centesimi is the same as the franc (equal to 19.3 cents of United States money). The 20-lire and 10-lire pieces are of gold; the 5-lire, 2-lire, and 1 lira are of silver; the 20 and 25 centesimi of nickel; the 10, 5, 2, and 1 centesimo of bronze.

JAMAICA. The legal currency is that of Great Britain, but various United States coins are freely circulated. Notes of the Colonial Bank and of the Bank of Nova Scotia are current.

JAPAN. The yen is the standard of value but is not coined. It is equal to 49.8 cents of United States money. The gold coins are 20, 10, and 5 yen pieces; the silver are 50, 20, and 10 sen pieces; the 5-sen piece of nickel; and the 1-sen and 5-rin of bronze. The sen is the hundredth part of a yen, and the rin is the tenth of a sen.

KOREA. The coinage is the same as that of Japan, excepting that Korean characters are inscribed instead of Japanese.

LEEWARD ISLANDS. The legal currency is that of Great Britain.

LIBERIA. The coins are those of Great Britain, but accounts are usually kept in dollars and cents of the United States. There is a Liberian coinage in silver and copper. The silver coins are 50, 25, and 10 cent pieces; copper, 2 and 1 cent pieces.

MADAGASCAR. The only legal coin is the 5-franc piece with subdivisions in silver, and copper 5 and 10 centimes. Italian, Belgian, and Greek coins are also current. The natives used to cut the coins into small parts and weigh them to make fractional parts, but the government is now withdrawing these pieces from circulation at the rate of 30 grams of silver for each 5-franc piece.

MALTA. The legal currency is that of Great Britain.

MARIA-THERESA THALER OR DOLLAR. An Austrian silver coin. It is still coined with the date of 1780 for circulation in Abyssinia and Zanzibar. It is equal to $1.02 of United States money, nominally, but its value fluctuates. In Bahrein it is worth from 19d. to 27d.

MARK. A silver coin of the German empire containing 5 grams of silver, or 0.20784 of that of a United States silver dollar. Silver coins of the value of 2 marks, and

gold coins of the value of 5, 10, and 20 marks are also current. The gold coins contain 0.3584229 gram of fine gold per mark, the value of which is consequently $0.23821 in United States money.

MAURITIUS. The standard coin is the Indian rupee with annas and pice. All accounts are kept in rupees.

MEXICO. The monetary unit since March, 1905, is the silver peso or dollar, the legal value of which is fixed at .75 gram of pure gold. The silver peso weighs 27.073 grams .9027 fine and .0793 copper, and contains 24.438 grams of fine silver. It is divided into 100 centavos. The 50, 20, and 10 centavo pieces are of silver .800 fine and .200 copper. The bronze coins are 2 and 1 centavo pieces. The 5-centavo piece is of nickel. The Mexican dollar is equal to 49.8 cents of United States money.

MONTENEGRO. Montenegro has no coinage of its own. Austrian paper money, Turkish silver, and French and English gold circulate freely. There are three banks, the Bank of Montenegro at Cettinje and the banks of Podgoritza and Niksic at these places.

MOROCCO. The blankeel or muzoona is equal to 6 floos, or 0.08 English pence, or about 0.16 cents of United States money. The ounce or okia is equal to 4 blankeels or 0.64 cents, and the mitkal is equal to 10 ounces or 6.4 cents. Spanish dollars, pesetas, and Moorish coins minted in France are current. In silver, the dollar is equal to 10 dirhems. The dirhem is usually worth about 7½ cents.

NEPAL. The silver mohar is valued at 6 annas and 8 pies of British India currency. Copper pice, 50 of which make a silver mohar, are also coined. The rupee of India is current everywhere.

NETHERLANDS. The monetary unit is the 10-florin gold piece, which weighs 6.720 grams .900 fine and contains 6.048 grams of fine gold. The florin weighs 10 grams .945 fine and contains 9.45 grams of pure silver. The florin is worth 40.2 cents of United States money. The gulden, guilder, or florin of 100 cents; the rijks daalder or 2½ guilders; and the cent, ½ cent, and 2½ cents are the other common coins.

NEWFOUNDLAND. A decimal system is used, of which the legal coin is the gold dollar of 100 cents, equal to 4s. 1.3d. of British money.

NEW GUINEA, BRITISH. The legal currency is that of Great Britain.

NEW ZEALAND. The legal currency is that of Great Britain.

NICARAGUA. The system is the same as that of Honduras, though Mexican, Chilean, Peruvian, and other South and Central American coins are issued. The silver peso or dollar is worth about 49.9 cents of United States money.

NIGERIA. No uniform currency exists. British coins have been introduced and are freely used.

NORTHERN NIGERIA. The barter system prevails, but is being gradually displaced by the use of British coinage.

NORWAY. The Norwegian krone of 100 öre is equal in value to 26.8 cents of United States money. The 20-kroner gold piece weighs 8.960572 grams .900 fine, containing 8.0645 grams of pure gold.

ORANGE RIVER COLONY. The currency is exclusively British.

PANAMA. The monetary unit since September, 1904, is the gold balboa, weighing 1.672 grams .900 fine, and is legally equivalent to the gold dollar of the United States. The peso and its divisions are of silver. Two silver pesos of Panama currency are reckoned as one United States gold dollar.

PARAGUAY. The peso or dollar of 100 centavos has a nominal value of 97 cents of United States money. Five gold dollars of Paraguay equal 1 pound sterling of $4.8665.

PENNY. An English bronze coin, equal in value to 2 cents of United States money. A penny weighs 145.83 grains or 9.45 grams of a mixture of copper, tin, and zinc.

PERSIA. The monetary unit of Persia is the krân, a silver coin of fluctuating value, now worth about 10 cents. Gold coins are the 10 toman, 5 toman, 2 toman, 1 toman, ½ toman, and the ¼ toman; a gold toman being worth about $1.75, while a silver toman is worth only about 80 cents. Accounts are reckoned in dinars, of which 1,000 make a krân.

PERU. The libra, of gold, is of the same value as an English sovereign ($4.8665). The 5-sol piece (gold) is half a libra. The silver sol (one tenth of a libra), one half sol, one fifth sol, one tenth sol, and one twentieth sol; the 2 centavo and 1 centavo (100 centavos equal 1 sol) are of bronze.

PIASTER. (1) The unit of the Turkish currency, a silver coin worth about 4.4 cents in United States money. (2) The Spanish dollar or peso, worth about 97 cents.

PORTUGAL. The milreis or 1,000 reis is equal to $1.08 of United States money. The 10, 5, 2, and 1 milreis are of gold; the 10, 5, and 2 testoon pieces are the silver 1,000, 500, and 200 reis pieces; the 100 reis and 50 reis are of nickel; while the 20, 10, and 5 reis are of bronze.

POUND SCOTS. Equal to only one twelfth of a pound sterling. It, too, was composed of 20 shillings, each of which was equal to only an English penny.

POUND STERLING. An English money measure consisting of 20 shillings, 240 pence, or 960 farthings. It was originally equal to a pound weight of silver. It is equal in value to $4.8665 of the money of the United States or Canada. There is no coin by this name.

ROUMANIA. The legal unit is the lĕu, equal to the franc or 19.3 cents of United States money. The 20, 10, and 5 leï pieces are of gold; the 20, 10, and 5 bani (centimes) are of nickel.

RUPEE. An East Indian silver coin. It is current in Bahrein Islands and in other remote places with a fluctuating value. In India it is largely only a money of account. Nominally it is equal to 33 cents of United States money, or 1s. 4d. of English money, or 16 annas of East Indian money.

RUSSIA. The ruble of 100 kopecks is the legal unit of money. A ruble is worth 51.5 cents of United States money. The imperial of 15 rubles, the half-imperial of 7½ rubles, the 10 rubles, and 5 rubles are of gold.

SALVADOR. The dollar of 100 centavos is worth about 49.9 cents of United States money.

SANTO DOMINGO. The United States gold dollar has been the standard of value since 1897. The silver coinage and the paper money which are in circulation are debased and depreciated.

SERVIA. The dinar is equal to a franc or 19.3 cents of United States money. The 20-dinar gold piece is the milan-d'or. There is also a 10-dinar gold piece. The 5, 2, 1, and ½ dinar are of silver; the 10 and 5 paras are of bronze; and the 20, 10, and 5 paras of nickel.

SEYCHELLES. The currency is based on the Indian rupee with annas and pice.

SHILLING. An English silver coin weighing 87.27 grains or 5.6552 grams .925 (or 37–40) fine and containing 80.727 grains or 5.231 grams of fine silver. An English shilling equals 24 cents of United States money.

SIAM. The tical, a silver coin, worth about 29 cents of United States money; the salung, equal to ¼ of a tical; the fuang, or ⅛ of a tical. Three dollars are equal to 5 ticals. The tical is made up of 64 atts, 4 ticals make a tamlung, and 80 ticals make a catty.

SIERRA LEONE. The legal currency is that of Great Britain.

SOMALILAND PROTECTORATE. The currency is based upon that of India, the rupee having the same value as there.

SOVEREIGN. An English gold coin of the value of $4.8665 in United States money. It weighs 123.274 grains or 7.9881 grams .916 (or eleven twelfths) fine and contains 113.001 grains or 7.3224 grams of fine gold.

SPAIN. The peseta of 100 centesimos is equal to 19.3 cents of United States money. The 20, 10, and 5 peseta pieces are of gold; the 5 peseta and 1 peseta pieces are of silver and are of the same weight and fineness as the French equivalents.

STRAITS SETTLEMENTS. By Order of Council (February 11, 1907) a Straits Settlements dollar of 312 grains or 20.217 grams .900 fine was authorized. Other subsidiary coins are 50, 20, 10, and 5 cents silver; and cent, half-cent, and quarter-cent in copper. The value of a dollar has been fixed at 56.8 cents in United States money.

SWEDEN. The krona or crown is equal to 26.8 cents of United States money and is made up of 100 öre. There is a 20-kronor gold piece and a silver krona.

SWITZERLAND. The franc is equal to 19.3 cents of United States money and is made up of 10 batzen or 100 rappen or centimes. The 20-franc piece is of gold; the 2-franc, franc, and ½-franc are of silver.

TASMANIA. The legal currency is that of Great Britain.

TONGA (FRIENDLY ISLANDS). Since May 1, 1905, British coin is the only legal tender. Accounts are kept in dollars, shillings, and pence.

TRANSVAAL COLONY. The currency is British. Money of the late South African Republic is also current.

TRINIDAD. There is a Colonial Bank and a branch of the Union Bank of Halifax, each of which issues 5-dollar notes. The British currency is legal.

TUNIS. Pieces similar to those of France and coined in France.

TURKEY. The piaster of Turkey is equal to 4.4 cents of United States money. The Turkish lira or gold medjidié is equal to 100 piasters or to $4.40 of United States money.

UGANDA PROTECTORATE. Currency is based on the Indian rupee of 1s. 4d. or 33 cents, with silver and copper fractional pieces. Cowrie shells are used by the natives but are not accepted by the government.

URUGUAY. Uruguay has no gold coins. The peso of silver, 25 grams in weight and .900 fine, worth 93 cents of United States money, and the fractional ½ peso, peso, and one tenth peso are of silver. One, 2, and 4 centesimo pieces are of bronze.

VENEZUELA. The bolivar is valued at 19.3 cents of United States money. Five bolivars are equal to one Venezuelan silver dollar. The Venezuela peso is not in circulation, but is a money of account, equal to 4 bolivars.

WINDWARD ISLANDS. Currency is that of Great Britain, but United States coins circulate freely.

ZANZIBAR. The Maria Theresa dollar is the unit, under the Sultan's authority but the British Indian rupee circulates almost universally. The dollar is the standard unit of business value, and has a fixed value of 2 rupees 2 annas, and the rupee is worth 47 cents.

Stock Exchange.—An association of stockholders designed for organized speculation and investment in securities. The primary function of a stock exchange is to provide a regular market for stocks, bonds, and other securities, and to establish prices based on the most reliable and accurate information. The stock exchange exercises an enormous influence on commerce, both domestic and international, and is so highly organized and delicately adjusted that it reflects movements and influences from every corner of the globe. Furthermore, the leading exchanges of the world are so intimately related and interdependent that whatever affects one affects the others.

The modern stock exchange was foreshadowed in London nearly 200 years ago, when, during the South Sea Bubble in 1720, the London brokers carried on their work at Garraway's Coffee-house in 'Change Alley, and other temporary quarters. This association developed into the London Stock Exchange, whose records, however, do not date farther back than 1798. The Paris Bourse was established in 1724, Vienna in 1761, and the New York Stock Exchange in 1792. The first definite organization in America was really formed early in the eighteenth century, when a number of stockbrokers drew up and adopted a constitution in Philadelphia.

The membership of the London Stock Exchange is nearly 6,000, the entire body of members being re-elected annually. The qualification for membership is that the applicant must be a British subject, guaranteed by three members to the extent of £500 each. The Bourse at Paris, as at Berlin and Vienna, is restricted as regards trading membership; in the latter Exchange trading is confined to a *Sensale* consisting of 40 licensed brokers elected from the members of the stock exchange at large. The London Stock Exchange is the leading financial mart of the world. The transactions consist of (1) investments; (2) speculative purchases and sales of shares, on margins or "covers"; (3) speculation on the rise and fall of the quotation of shares, in which there is no expectation of actual delivery and payment; (4) "option" dealing, or trading in what are called in the United States "put" and "call," and "straddle" contracts, or "privileges."

As generally understood, a "stock exchange" is any place, even in the open air, where securities are bought and sold, but in the largest cities such transactions are carried on in a special building, or some part of one, occupied for that purpose.

The New York Stock Exchange is a voluntary association of about 1,100 members, and is not an incorporated stock company, like the London Exchange. It occupies one of the finest building in New York not many yards away from the cottonwood tree opposite No. 60 Wall Street, where on May 17, 1792, twenty-four brokers assembled and signed an agreement fixing the rates of commission, and creating a protective league. Subsequent meetings were held at the Tontine Coffee-house, Wall and Water streets, but not until 1817 was the New York Exchange organized on present lines. In 1827 it was housed at Merchant's Exchange on Wall Street on the site of the old Custom-house. Thence in 1854, after having been removed to 43 Wall Street and back again, it was located at William and Wall Streets; in 1856 at Lord's Court at William and Beaver Streets; and in 1865 on its present site.

By a decision of the New York Supreme Court, stock exchanges may enact such rules and regulations governing their affairs as seem necessary for the carrying on of their business, provided such rules and regulations are not contrary to the law of the land.

Stock Exchange Clearing House.—As actual deliveries to each and every broker caused much over-certification of checks, the "clearing-house" system was introduced for simplifying the delivery of securities sold between members of a stock exchange. This system was successfully operated in Europe before its introduction in America, and was established in Philadelphia and Boston before its adoption in New York in 1892.

The New York system is based on daily deliveries, the European on the "fortnightly settlement" plan.

Each stock exchange member at the close of a day's business delivers a "clearance sheet" on which his sales and purchases of active securities are recorded. That as little money as possible may be handled in the settlement, the clearing house reconciles all deliveries between different parties and adjusts the cash differences by paying or receiving the balances due, thus delivering all intermediate parties who are "even" in stock.

Each day a delivery price is fixed for each stock, the clearing house basing its reckoning thereon in assigning the receipts or deliveries. It is generally the even price, most nearly that of the last of the day for the stock in question.

Bonds are cleared only on special occasions.

For clearing each 100 shares of stock of $100 par value a charge of 2½ cents is made, and only 100-share lots or multiples thereof are cleared.

To facilitate the borrowing of money on the stock exchange is a very important duty of this clearing-house system. If Rice & Co. bought 500 shares of Labrador and Florida at 100, the next day they would, in the ordinary course of business, be obliged to pay perhaps $50,000 to take up the stock, and then make a loan with their bank, furnishing a margin of 20 per cent., thus necessitating a cash outlay of about $10,000. But they in turn, at an agreed rate of interest, loan these 500 shares to Travers & Co., the clearing house just offsetting the next day. As may be seen, no money changes hands in the transaction, and Rice & Co. are not obliged to first pay for the 500 shares of stock before loaning them to Travers & Co.

Stock Exchange Seat.—The interest in a stock exchange which enables a person to buy or sell securities thereupon is not called a share of stock, but a "seat," to own which one must be duly elected a member of the exchange, pay his initiation fee, and share in the exchange's assets and liabilities.

The business transacted naturally affects the demand for seats, which vary in price accordingly. The record price on the New York Exchange up to December 1, 1927, was $305,000; but the quotation was as low as $2,750 in 1871, and down to $13,000 in 1896. On this exchange the initiation fee is $2,000; on the Boston Exchange, $500; up to January 1, 1907, the price for a seat on the latter was $37,500. By permission of the proper authorities the owner of a seat may transfer or sell to another person.

Commissions for the sale or purchase of securities can be charged by the owner of a seat only in accordance with the rules of the exchange. Between members rates are less than for others. If Alfred White owns a "seat" but does not wish to go upon the "floor" to personally buy or sell securities, he may employ some other member to act for him, paying him a reduced commission amounting to $2.00 for 100 shares; from which the term "two dollar man" originated.

Bond.—A coupon-bearing (or registered) note under seal. The instrument by which a government, municipality, or corporation contracts and agrees to pay a certain sum of money on a particular date, though sometimes reserving the right for earlier payment. Quarterly, semi-annual, or annual interest is represented by the coupons. A note is simply a definite promise for the payment of money signed by the party bound without the formality of witnesses or seal, while a bond, according to the rule in many jurisdictions, must be witnessed in the same way as a deed or other formal conveyance of property, and requires a seal.

Usually a government or municipality simply issues its promise to pay under seal in the form of a bond, although to pay the principal or interest, or both, certain revenues are sometimes pledged; but it is unnecessary to mortgage property to secure the issue, as is generally done in the case of a "corporation bond."

When corporations have issued the limit of stock legally permitted, but require additional money; or when the issuing of stock at satisfactory prices does not bring in sufficient funds for the capital of the corporation, it issues "bonds." If a prosperous company earning and paying, for instance, 10 per cent. dividends upon its stock, requires more money for extensions and additions, and were to issue more stock, that would be the same as borrowing money at the rate of 10 per cent. But having found that the needed money can be raised by the issue of bonds bearing 5 per cent. interest, it makes such an issue, with the expectation that the increased capital will return earnings as great as that already invested, or 10 per cent. Therefore, the difference between the amount of the sale of bonds bearing interest at 5 per cent., and the anticipated earnings of the new capital, or 5 per cent., would result in increasing the rate of dividends upon the stock already issued.

Government Bonds.—Only the interest-bearing obligations of the United States were formerly understood by this term, but now it includes the government issues of Great Britain, Germany, Japan, etc. Our government bonds sell at a lower interest return—equivalent to a higher price—than those of any other nation. Of those bearing only 2 per cent. interest, the lowest rate of any issue, there are outstanding over $600,000,000, this being accounted for by the fact that the government maintains the standard of gold payments and is believed to be able to meet its obligations; that the bonds cannot be taxed by the government, state, or other municipality of the Union; and that national banks may deposit them with the government to secure circulation (the issuing of national bank notes).

Coupon and registered bonds are issued by the government. Registered bonds cannot legally be transferred into coupon bonds, but coupon bonds may be changed into registered bonds of the same loan. If this is to be done, send them to the "Secretary of the Treasury, Division of Loans and Currency." The conversion is made without charge by the department. The "transfer books" close on the 15th day of the month preceding interest payment on the 4 per cent. loans of 1925. In all other cases the books are closed during the whole month immediately preceding dates of interest payments. If bonds are not received for transfer before or on the day named for the closing of the books, the interest for that quarter will be paid to the parties whose name appears in the old bonds, as they cannot be transferred until after the books are reopened.

Whether the interest is held in the form of money, draft, or check, and whether the bonds are owned by a corporation or an individual, the interest upon United States government bonds is taxable, according to a decision to that effect handed down by the United States supreme court in 1906. Transactions in government bonds are carried on more largely through bankers than upon the stock exchange, the quotations in such cases varying somewhat from those upon the latter place.

If the low interest is no objection, government securities of the United States, Great Britain, and many other nations are probably the safest investment that can be made, as they are in constant demand among insurance companies,

banking institutions, etc., and always afford a ready market. Furthermore, they are less affected than any other securities by industrial and political conditions.

By the financial bill which became law on March 14, 1900, the United States government for the first time in its history has issued bonds payable specifically in United States gold coin. Three classes of bonds, viz., those bearing interest (1) at 5 per cent. per annum payable on February 1, 1904; (2) at 4 per cent. per annum payable July 1, 1907, and (3) at 3 per cent. per annum payable August 1, 1908, were surrendered for exchange into 2 per cent. consols.

Of the bonds above mentioned the consols of 1930 and the Panama Canal bonds are payable, principal and interest, in United States gold coin of the present standard value. The 3 per cent. bonds of 1908–1918, the 4 per cent. bonds of 1925, and the 3 per cent. certificates of indebtedness are payable in "coin."

INSURANCE.

Insurance in some form or other is probably as old as maritime commerce. Certain it is that the first risks to be insured against were incidental to the dangers of the deep. From insuring vessels against loss by fire, shipwreck, or piracy, marine insurance was extended to cover the lives of the mariners, and more particularly of the merchants, who in those days used generally to accompany their merchandise shipped to Mediterranean ports. These merchants before embarking would pay a premium to some underwriter to guarantee payment of their ransom in the vent of capture by Moorish or other pirates. Gradually the field of insurance became widened, and a *policy* was issued to any person who paid the necessary *premium*.

One of the primary objects of insurance was to safeguard creditors, especially those who advanced money with which to purchase some lucrative post, (for until comparatively modern times appointments were usually bought and sold). The Chamber of Insurance was founded in 1574 by royal patent for the purpose of regulating and registering all such contracts. This Chamber was destroyed in the great fire of London, 1666, and was succeeded by the "Office of Assurances." Policies could there be registered verbatim, but presumably the bulk of the transactions related to marine insurance.

I. Life Insurance.—The object of life insurance as a provision for wife and children does not seem to have prevailed before the beginning of the seventeenth century; and the earliest record of insurance with such an object is dated 1622. Life insurance seems to have been invariably underwritten by private individuals up to 1699, that being the year in which the first association was established, viz., "The Society of Assurance for Widows and Orphans." In 1706 another English society was founded, called "The Amicable Society for a Perpetual Insurance." This was to consist of 2,000 members, each of whom paid an entrance fee of ten shillings and a yearly subscription of £6, 4s. The same amount of premium was paid by each member irrespective of age, but no person was admitted under 12 or over 55. It was not till 1807 that varying rates of premium were introduced. This society was amalgamated with the "Norwich Union" in 1864. It is interesting to note that the Amicable was the only insurance society to survive the South Sea Bubble.

Life Insurance (or Assurance, as it is frequently called in England) is primarily to cover the pecuniary loss that would otherwise be occasioned by the death of the individual insured. It includes a saving or investment element known as endowment insurance. Life insurance computations differ radically from those of fire and marine insurance, for the following reason: while in fire and marine the risks of loss do not greatly change from year to year, and there may never be a loss, in life insurance the risk of loss, i.e., the chance of death, increases steadily, and the death loss is certain to occur within some definite period. To obviate the serious disadvantages of a premium that increases from year to year, the "level" premium is computed, i.e., a premium without change, so adjusted that the overpayments of the earlier years and their interest earnings make up the deficiencies of the later years. The fund thus set aside constitutes the reserve held against the policy and provides for whatever return is made to a policyholder who does not keep up his policy to the end. Whole life policies provide for the payment of the sum insured whenever death occurs; the premiums may be continuous during the existence of the policy, or commuted to a limited number of payments (say 10 or 20) of larger amount. Endowment policies provide for payment of the sum insured at a definite time, or before that time in case of death. Term policies only provide for payment on death within a stated period.

State supervision of insurance began about the middle of the nineteenth century. In 1849 the first general insurance act was passed by New York state, and its insurance department inaugurated in 1859, or four years later than Massachusetts had established its insurance department and adopted the Actuaries' Table of Mortality, based on the combined experience of seventeen British companies. In 1868 the New York Insurance Department adopted the American Experience Table of Mortality now in general use. State supervision and insurance departments are now general. In England and Canada a mortality table known as "Hm" or Twenty Offices Table has been used. The latest British authority is the "Om" (1893) Table.

Statistics of the principal American companies, for January 1, 1923, taken from the 1923 Unique Manual-Digest:

Companies.	Insurance in force.	Admitted assets.
Aetna Life, Conn.	$1,334,028,508	$175,689,805
Bankers' Life, Iowa	662,093,785	56,634,293
Bankers' Life, Neb.	95,546,229	21,878,190
Berkshire Life, Mass.	137,763,496	32,105,870
Columbian Natl.	156,159,444	24,815,227
Connecticut General	471,544,940	44,218,694
Connecticut Mutual	447,300,037	103,261,903
Equitable Life, Iowa	313,132,592	44,995,738
Equitable Life, N. Y.	3,061,423,952	663,747,064
Fidelity Mutual	239,151,529	51,439,244
Guardian Life, N. Y.	206,282,989	42,738,562
Home Life, N. Y.	232,163,052	46,253,715
Illinois Life	141,088,375	21,441,658
Jefferson Standard	180,749,621	19,700,868

Companies.	Insurance in force.	Admitted assets.
John Hancock Mutual..	1,668,847,668	268,075,903
Kansas City Life.....	234,609,290	25,928,363
Manhattan Life.....	71,418,185	19,706,675
Mass. Mutual Life.....	912,335,286	163,175,807
Metropolitan Life.....	7,807,556,957	1,259,850,325
Missouri State Life.....	385,579,745	39,642,846
Mutual Benefit.....	1,528,749,251	334,794,282
Mutual Life.....	2,630,603,737	691,125,635
National Life, Vt.....	358,207,165	84,503,024
New England Mutual...	660,797,758	127,966,788
New York Life.....	4,042,169,658	988,552,211
Northwestern Mutual, Wis.....	2,499,629,811	546,296,308
Pacific Mutual.....	433,715,680	73,356,818
Penn. Mutual.....	1,161,920,279	253,715,327
Phoenix Mutual.....	343,508,344	68,497,370
Provident Mutual, Pa...	610,118,349	133,629,940
Prudential, N. J.....	6,314,247,665	906,397,225
Reliance Life, Pa.....	231,770,565	21,751,915
State Life, Ind.....	158,953,053	28,658,533
Travellers', Conn.....	2,056,423,733	250,287,552
Union Central.....	898,519,511	174,938,023
Union Mutual, Me.....	72,227,575	19,247,217
Western and Southern..	296,840,278	84,017,031

On January 1, 1923 the number of legal reserve life insurance companies was 258. New premiums during the year totalled $259,647,279; renewal premiums amounted to $1,480,621,938; total paid to policyholders was $1,043,809,668; new business paid for, including revivals and increases, $10,467,050,623; net gain in force, $4,442,993,960; total insurance in force was $49,690,314,440; combined admitted assets equaled $9,105,207,424; while surplus and contingency reserves amounted to $273,334,683.

II. Fire Insurance.—Those taking out fire insurance may benefit by the following suggestions:—

That you may understand your rights, become familiar with the laws of the state under which you are insuring. No matter how much the insurance is above the value of the property, you can, in most states, collect only the amount of the actual damage; but in New Hampshire and some other states, in accordance with the "valued policy" in effect there, you may, should the buildings be totally destroyed by fire, collect the amount of the loss, without regard to the amount of insurance placed thereon; and so the company will most probably not insure the property for more than it is worth.

Permission must be obtained from the agent to allow premises intended for occupancy to remain vacant longer than is provided for in the policy.

If the foundation of a building is impervious to fire, or if it would be of no value to the insured should the building be destroyed by fire, the item of foundation may be specifically omitted from the policy.

An accurate list of all the furniture or personal property insured, giving the probable value of each article, should be made, and kept in a place secure against fire. By some people the bills of all articles of furniture and property covered by such an insurance are filed away, that, should a dispute arise over the adjustment of a claim, they may be produced as evidence. If a change is made in the location of furniture or moveable goods covered by such an insurance, the agent must be notified.

The insurance policy should not be kept in the building insured therein.

Read the policy through, noting the date of expiration, as the agent may not at the time inform you that it has expired, and so your property may go unprotected. Make sure that it contains a clause permitting other insurance, and also a clause covering loss or damage from lightning.

Carefully fulfill the conditions of the policy.

Premiums should be paid promptly.

Notify the agent immediately in case of loss.

It is less expensive in the long run to take out a policy for some period like three years than one for a shorter time.

The policy should bear this or a similar indorsement if the property is mortgaged:—

"Payable in case of loss to :....., mortgagee, as his interest may appear."

The following table gives the assets and surplus of the chief companies:—

Company.	Total Assets.	Surplus over Capital and Liability.
Aetna, Conn.....	$41,931,880	$10,930,381
American, N. J.....	20,912,008	3,782,635
Atlanta Home Underw's....	24,152,968	4,553,160
Automobile, Conn.....	16,505,486	2,526,747
Colonial Fire Underw's, Conn.....	32,200,948	9,101,570
Connecticut Fire.....	13,794,539	4,019,867
Continental, N. Y.....	51,988,628	16,270,390
Del. Und. Dept. of the Westchester Fire, N. Y.....	12,733,963	3,144,685
Fidelity-Phenix Fire, N. Y.	38,784,757	13,126,105
Fire & Marine Undrw's, Conn.....	16,505,486	2,526,747
Fire Ass'n of Philadelphia..	16,569,962	5,072,419
Firemans Fund, San Francisco.....	24,152,968	4,553,160
Firemens, N. J.....	14,683,598	4,251,619
Glens Falls, N. Y.....	11,888,241	3,005,704
Globe & Rutgers Fire, N. Y.	52,893,275	15,692,715
Great-American, N. Y.....	46,282,041	12,465,361
Hartford Fire, Conn.....	74,493,584	14,186,400
Hawkeye and Des Moines...	24,152,968	4,553,160
Howe, N. Y.....	82,454,768	16,483,287
Insurance Co. of North America, Philadelphia....	50,019,377	15,616,568
Jersey Fire Underw's, N. J.	20,912,008	3,782,635
Keystone Underwriters, N. J.	28,140,069	7,001,545
Michigan Commercial Underwriters.....	18,304,105	4,195,623
National Fire, Conn.....	32,200,948	9,101,570
National Liberty, N. Y.....	12,518,517	3,002,893
National Union Fire, Pittsburgh.....	10,063,938	1,126,673
New Hampshire Fire.....	11,275,626	3,402,229
N. Y. Underwriters Agency, N. Y.....	74,493,584	14,186,400
Niagara Fire, N. Y.....	17,580,218	3,733,134
North River, N. Y.....	12,323,400	2,582,983
Northwestern National, Wis.	10,804,642	2,484,126
Pennsylvania Fire, Philadelphia.....	11,929,511	3,537,053
Phoenix, Conn.....	29,397,973	11,150,594
Pittsburgh Underw's, Pa...	14,829,269	2,855,542
Protector Underw's, Conn..	29,397,973	11,150,594
Providence Washington, R. I.	11,297,222	4,171,660
Queens Insurance Co. of America, N. Y.....	18,307,514	5,172,798
Rochester Dept, N. Y.....	46,282,041	12,465,361
Springfield F. & M., Mass..	22,473,096	4,951,092
St. Paul F. & M., Minn...	21,413,890	6,086,446
U. S. Fire, N. Y.....	18,624,578	4,802,742
U. S. Underw's Policy, N. Y.	30,947,918	7,385,725
Westchester Fire, N. Y.....	12,733,963	3,144,685
Commercial Union Assurance Co., London.....	15,832,085	5,507,644
Liverpool, London & Globe Limited, Liverpool.....	20,703,720	6,104,943
Royal Insurance Co. Limited, Liverpool.....	21,756,058	5,863,858

III. Assessment and Fraternal Insurance.—A very old form of insurance commonly main-

tained by Granges and secret orders. As each member is assessed for his proportion of the expense of the society and the death losses, the annual premium to be paid by the insured is not a fixed sum, but is subject to change. It is probably the cheapest kind of insurance, but also the most uncertain, many associations having failed, while the assessments are sometimes high. It is taken out principally in small amounts and by persons of limited means.

IV. Industrial Insurance.—Insurance for small amounts, payments on the premium being usually made each week, taken out by those who cannot or who do not wish to insure for so large a policy as, perhaps, $1,000. While it does not essentially differ from ordinary insurance, the cost is nearly double, and it is criticised by many as encouraging the insurance of children and infants, which is objectionable, especially among the very poor. In many cases a burial fund is provided by such insurance.

V. Accident Insurance.—By this form of insurance, taken out largely by travelers or by those whose work is perilous, the one taking a policy may, in case of accident to himself, recover from the company. The payment—according to the policy—is so much per week during the time of disablement, and is usually limited to a fixed number of weeks, or it is a given sum if death results from the accident, or smaller stated sums if the loss of sight or of a limb, or a lesser permanent injury, is suffered. The latter payments would be in addition to the weekly payments on account of disability.

Accident insurance in England owes its rise to the sudden development of railway traveling about the middle of the nineteenth century. In the United States it dates from the formation of the Travelers Insurance Company of Hartford, Connecticut, in 1863. Originally the premiums were uniform, regardless of age or occupation; but now all occupations are grouped into classes of varying degrees of risk. As a rule no person under 18 or over 65 is accepted for this form of insurance.

Accident insurance has been made an advertising feature by many periodicals, a fixed insurance covering the purchaser of the current issue until the appearance of the next number.

VI. Liability Insurance.—In regard to certain classes of securities, notably those of street railways, this subject should be considered by investors. Even though the corporation named is thought to be of good financial standing, accidents are quite likely to occur, especially where grades, curves, etc., are necessitated, and the company may be called upon to pay out for damages a sum equal to its earnings for some time to come, perhaps even suffering financial disaster. But unless there is special state legislation to the contrary, a mortgage has prior right over a claim for damages. In regard to a railroad the opposite is true. But most railroads are such large corporations that the loss resulting from accidents would scarcely be enough to cause them financial distress.

"Liability insurance" is quite generally carried by gas and electric light companies, and they do not, besides, offer much risk of accident to the public the responsibility for which would rest with the company.

A very desirable and not expensive class of insurance called "Employers' Liability Insurance" is carried by many corporations, insuring against loss to the company by accident to employees.

PUBLIC FINANCE.

Public finance is the science which deals with the receipts and expenditures of the state. It is intimately related to political science and political economy, drawing largely from both and yet contributing to both. The leading German authorities on the subject treat public finance as an integral part of political economy, although as a science the former is much older. Under medieval governments the methods were simple, for expenditures were met from the personal revenues of the ruler, or by gifts, fees, penalties, etc.; there being no separation of the income of the state from that of the sovereign. But as soon as a direct levy was made in order to secure a revenue for public needs beyond the upkeep of the royal household, public finance both as a science and an art began to be studied. The greatest impetus given to the subject previous to the nineteenth century was by the writings of the German Cameralists; but in England and France public finance was more or less neglected, the only section on the subject to receive any attention being taxation. Public finance falls naturally under four heads, viz.: Public Expenditure, Public Revenue, Public Indebtedness, and Financial Administration.

I. Public Expenditure.—Expenditures may be classified as follows: (*a*) those for the common benefit, including the general expenditures for the support of the administrative and legislative departments, including the diplomatic corps and everything necessary thereto, the expenses of money circulation, national defense and maintenance of order, education, construction of public buildings, building and maintenance of roads, waterways, harbors, canals, lighthouses, signal stations, weather bureau, life-saving stations, etc.: and (*b*) those for the benefit of individuals. The second category may be sub-divided into (1) expenditures conferring a special benefit on certain classes, because of their incapacity or dependence, and treated as common benefit, e.g., relief of poverty and sickness, pensions, care of the defective; (2) expenditures conferring a special benefit on some and a common benefit on all, e.g., the administration of justice, the postal service, and special rights such as copyrights and patent rights, the laying out of streets, building of sewers, etc.; (3) those conferring a special benefit only on individuals, e.g., all of the great industries carried on by the state or by cities, all government and municipal monopolies and the like. There is a certain process of evolution by which all these expenditures tend to belong to the first class.

Under a federal government like that of the United States expenditures must be apportioned between the central and the state governments, and further between the latter and the local governments. The following table shows the expenditures of the United States government by fiscal years from 1900 to 1924:—

Year.	Civil and miscellaneous items.	War department.	Navy department.	Indians.	Pensions.	Interest on public debt.	Total ordinary disbursements.
1900	$105,773,190.16	$134,774,767.78	$55,953,077.72	$10,175,106.76	$140,877,316.02	$40,100,333.27	$487,713,791.71
1901	122,282,003.10	144,615,697.20	60,506,978.47	10,896,073.35	139,323,621.99	32,342,979.04	509,967,353.15
1902	113,469,323.91	112,272,216.08	67,803,128.24	10,049,584.86	138,488,559.73	29,108,044.82	471,190,857.64
1903	124,934,304.74	118,619,520.15	82,618,034.18	12,935,168.08	138,425,646.07	28,556,348.82	506,089,022.04
1904	136,602,202.92	115,035,410.58	102,956,101.55	10,438,350.09	142,559,266.36	24,646,489.81	532,237,821.31
1905	143,033,728.82	122,175,074.24	117,550,308.18	14,236,073.71	141,773,964.57	24,590,944.10	563,360,093.62
1906	142,894,471.46	117,946,692.37	110,474,264.40	12,746,859.08	141,034,561.77	24,308,576.27	549,405,425.35
1907	153,045,913.13	122,576,465.49	97,128,469.36	15,163,608.41	139,309,514.31	24,841,158.34	551,705,129.04
1908	175,420,408.57	137,746,523.95	118,037,097.15	14,579,755.75	153,892,467.01	21,426,138.21	621,102,390.64
1909	186,502,149.47	161,067,462.39	115,546,011.09	15,694,618.11	161,710,367.25	21,803,836.46	662,324,444.77
1910	180,076,442.09	155,911,705.93	123,173,716.78	18,504,131.60	160,696,415.88	21,342,978.83	659,704,391.08
1911	173,838,599.04	160,135,975.89	119,937,644.39	20,933,869.44	157,980,575.01	24,311,334.12	654,137,997.89
1912	173,824,989.29	148,795,421.92	135,591,955.72	20,134,839.80	153,590,456.26	22,616,300.48	654,533,963.47
1913	170,829,673.42	160,387,452.85	133,262,861.97	20,306,158.90	175,085,450.29	22,899,108.08	682,770,705.51
1914	170,530,235.45	173,522,804.20	139,682,186.28	20,215,075.96	173,440,231.12	22,863,956.70	700,254,489.71
1915	207,189,824.05	172,973,091.73	141,835,653.98	22,130,350.70	164,387,941.61	22,902,897.04	731,399,592.11
1916	204,038,737.91	164,635,576.67	257,166,437.44	17,570,283.81	159,302,351.20	229,000,313.03	723,476,688.40
1917	234,649,248.82	440,276,880.37	155,029,425.78	30,598,093.55	160,318,405.66	24,742,129.42	1,147,751,195.26
1918	1,507,367,481.29	5,684,348,623.68	1,368,642,793.84	30,888,400.03	181,137,754.12	197,526,608.36	8,969,911,661.32
1919	3,230,890,247.95[1]	9,253,059,384.45	2,009,272,388.53	34,593,256.69	221,614,781.44	615,867,337.32	18,952,075,835.61[4]
1920	2,682,879,579.01[1]	1,094,834,202.23	629,893,115.87	40,516,831.94	213,344,204.11	1,024,024,440.02	6,139,748,221.24[4]
1921	1,868,398,844.32[1]	557,168,810.31	644,278,808.64	41,470,807.60	260,611,416.13	996,676,803.75	4,467,332,578.98
1922	1,054,206,796.71	402,058,449.62	458,794,812.62	38,500,413.08	252,576,848.00	989,485,409.93	3,195,622,729.96
1923	1,202,049,188.39	355,722,856.25	322,532,908.82	45,142,763.30	264,147,869.00	1,055,088,486.44[3]	3,244,684,072.20
1924	1,047,269,519.00	348,606,246.93	324,129,997.66	46,754,025.92	228,261,555.00[2]	940,602,912.92	2,935,624,257.43

[1] Exclusive of purchase of obligations of foreign governments and purchase of farm loan bonds, heretofore classed as "special."
[2] Includes only Army and Navy for service prior to the World War, and fees of examining surgeons.
[3] Includes $97,545,828.38 accrued discount and war-savings certificates of the series 1918.
[4] Including obligations of foreign governments and purchase of farm loan bonds, heretofore classed as "special."

II. **Public Revenue.**—The main sources of public revenues are threefold: (*a*) taxes, that is, revenue collected from all the citizens by compulsion on the ground that what is necessary for and beneficial to all should be contributed to by all; (*b*) fees, that is, revenue collected by compulsion and which confers some special benefit upon the persons from whom it is levied; and (*c*) "prices," that is, contractual revenue or, in other words, wealth created by the state for itself. Revenue is also derived from gifts, property by reversion, fines and penalties, and the like, but these minor sources play a comparatively insignificant part in public finance.

In the days of feudalism the needs of the state were provided for without the use of money; but with the growth of public functions came the need of public revenues. At first extraordinary payments, that is, those beyond the receipts from domains, were of a voluntary nature, as is clearly shown by their names—*beden, benevolences, dona, petitiones.* As the requirements became permanent the demands grew also permanent and eventually became compulsory. This change has invariably been coincident with the growth of constitutionalism and popular representation; and the revenues, which originally were at the absolute disposal of the monarch, gradually passed under the control of the representatives of the people. Compulsion is now a universal feature of taxation, while the uniformity of the revenue systems of various countries is accounted for by the fact that the same principle underlies them all, viz., that common necessity and benefit beget common obligations. Modifications in the forms of taxation are owing to the search for new measures, but the justification remains the same. "Prices," as Professor Seligman calls them, represent the value of commodities or services made or rendered by the government expressed in terms of money. These contractual revenues or "prices" merely represent a change in form of the wealth already owned, the state converting into money privileges, services, and material things which it has brought into being.

In addition to a revenue system being adequately productive and capable of yielding a steady income, it must likewise be elastic, permitting of expansion in case of sudden need.

Under a federal form of government it is necessary that the constituent states should have independent revenues, for lack of financial independence tends to beget a loss of political independence. In the United States this is provided for by leaving direct taxation to the state and local governments, while customs, duties, to a large extent excise duties, are left to the Federal government. Regarding the legal theory in the United States of what constitutes the just measure of taxation, Judge Cooley says: "What is aimed at is, not taxes strictly just but such taxes as will best subserve the general welfare of political society."

The following table shows the receipts of the United States government by fiscal years from 1900 to 1924.

III. **Public Indebtedness.**—Public indebtedness consists of both funded and unfunded debts. A funded debt is one which provides capital for permanent needs or for purposes of war, and covers a longer period. An unfunded or floating debt is generally for some temporary need, such for instance as the payment of the current dues of the treasury, and is of relatively shorter duration. No sharp line, however, can be drawn between these two classes.

A state may borrow in only two ways: (*a*) by compelling people to lend, (*b*) by offering terms to which people assent. The first may

Year.	Ordinary Receipts.			Total ordinary receipts.	Postal revenue.	Total ordinary receipts and postal revenue.	Surplus (+) or deficit (—) on ordinary receipts, including postal deficiencies.
	Customs.	Internal revenue.	Miscellaneous.				
1900	$233,164,871.16	$295,327,926.76	$38,748,053.97	$567,240,851.89	$102,354,579.29	$669,595,431.18	+ $79,527,060.18
1901	238,585,455.99	307,180,663.77	41,919,217.77	587,685,337.53	111,631,193.39	669,316,530.92	+ 77,717,984.38
1902	254,444,708.19	271,880,122.10	36,153,402.92	560,396,674.40	121,848,047.26	684,326,280.47	+ 91,287,375 57
1903	284,479,581.81	230,810,124.17	45,106,968.42	539,716,913.86	134,224,443.24	694,621,117.64	+ 54,307,652.36
1904	261,274,564.81	232,904,119.45	45,538,229.60	544,606,758.62	143,582,624.34	683,299,538.20	+ 7,479,092.55
1905	261,798,856.91	234,095,740.85	48,712 160.86	594,717,942.32	152,826,585.10	697,433,343.72	— 18,753,335.00
1906	300,251,877.77	249,150,212.91	45,315,851.64	663,125,659.92	167,932,782.95	762,650,725.27	+ 45,312,516.97
1907	332,233,362.70	269,666,772.85	61,225,524.37	601,060,723.27	183,585,005.57	846,710,665.49	+ 111,420,530.88
1908	286,113,130.29	251,711,126.70	63,236,466.28	603,589,489.84	191,478,663.41	792,539,386.68	— 20,041,667.37
1909	300,711,933.95	246,212,643.59	56,664,912.30	675,511,715.02	203,562,383.07	807,151,872.91	— 58,734,954.93
1910	333,683,445.03	289,933,519.45	51,894,750.54	701,372,374.99	224,128,657.62	899,640,372.64	+ 15,806,323.94
1911	314,497,071.24	322,529,200,79	64,346,102.96	691,778,465.37	237,879,823.60	939,252,198.59	+ 47,234,377.10
1912	311,321,672.22	321,612,199.66	58,844,593.49	724,111,229,84	246,744,015.88	938,522,481.25	+ 37,224,501.90
1913	318,891,395.86	344,416,965.65	60,802,868.33	734,673,166.71	266,619,525.65	990,730,755.49	+ 41,340,524.33
1914	292,320,014.51	380,041,007.30	62,312,144.90	697,910,827.58	287,934,565.67	1,022,607,732.38	+ 34,418,677.00
1915	209,786,672.21	415,669,646.00	72,454,509.37	779,664,552.49	287,248,165.27	985,158,992.85	— 33,488,931.53
1916	213,185,845.63	512,702,028.78	53,776,678.08	1,118,174,126.43	312,057,688.03	1,091,722,241.32	+ 56,187,864.09
1917	225,962,393.38	809,366,207.73	82,845,525.32	4,174,010,585.74	329,726,116.36	1,447,900,242.79	— 26,577,068.83
1918	182,758,988.71	3,696,043,484.81	295,208,112.22	4,654,380,899.01	344,475,962.24	4,518,486,547.98	— 4,795,901,075.58
1919	183,428,624.78	3,480,230,994.85	630,721,279.38	6,704,414,437.63	364,847,126.20	5,019,228,025.21	—14,297,694,936.60
1920	323,536,559.25	5,399,149,245.06	981,728,632.32	5,584,517,045.23	437,150,212.33	7,141,564,649.96	+ 564,666,216.39
1921	308,025,102.17	4,579,973,609.06	696,518,334.00	4,103,741,926.79[1]	463,491,274.70	6,048,008,319.93	+ 1,117,184,466.25
1922	357,544,712.40	3,208,158,308.30	538,038,906.09	3,847,019,620.10[1]	484,853,540.71	4,587,594,466.50	+ 908,119,196.83
1923	562,189,038.87	2,626,789,038.92	658,041,542.31	3,884,023,579.04	532,827,925.09	4,379,847,545.19	+ 602,335,547.90
1924	545,012,115.13	2,794,390,085.21	544,749,637.83		572,948,778.41	4,456,972,357.45	+ 848,399,321.61

[1] Not including items credited direct to expenditures and proceeds of railroad securities owned by the government.

be termed forced loans; these are mostly obsolete, but irredeemable paper money is commonly spoken of as a "forced loan." The second may be styled contractual debts, which may be divided into two groups, viz., contracts containing provisions intended to insure additional confidence, and those where confidence is so assured that no such provisions are taken. The first group may be subdivided into two classes: (1) where confidence rests upon the fact that the loans are not expended but are detained to meet the debt charges, such as voluntary deposits with and without interest, statutory deposits including guarantee funds of various kinds with and without interest, insurance, deposits of coin or bullion to secure circulating notes, and estates in hands of the courts pending litigation; (2) where confidence rests on the fact that definitely specified revenues are set aside for the payment of the debt, based either on the revenues of a particular period, or on prices, fees, or special taxes. The second group comprises contracts which call for (*a*) repayment of the principal only, e.g., redeemable notes not legal tender and not assured by any deposit; (*b*) payment of principal and interest, e.g., bonds and annuities, and (*c*) payment of interest only, e.g., perpetual bonds and permanent annuities. As a rule the leading nations are able to secure loans without resorting to any special method of gaining confidence, their credit alone being sufficient. The greater part of European debts consists of "perpetual bonds," which fix no date at which they mature, but are redeemable whenever the debtor state chooses.

The first debts of the United States were in the form of simple perpetual bonds with no limitations. After the war of 1812, a time limit was set within which it was promised not to redeem the bonds. The "limited option" debt was introduced by the United States government in 1862, the bonds being made "redeemable at the pleasure of the United States after five years, and payable twenty years from date of issue." These were termed "five-twenties." A like plan was followed in the so-called "ten-forties." Next in importance to perpetual bonds are the "terminable annuities"; but life and other terminable annuities are being replaced by perpetual bonds. The favorite European form of public debt is that of lottery loans, but as this partakes of the nature of gambling it is a form which finds no favor in Great Britain or the United States.

Local governments usually raise loans to provide means for some productive enterprise, such as water works, street railroads, gas or lighting plants, etc. These are called "productive loans," and the enterprises so financed are in themselves an additional security.

PUBLIC DEBT—JANUARY 31, 1925.

Total interest bearing debt outstanding	$20,789,120,124.15
Total outstanding matured debt on which interest has ceased	16,077,695.09
Total outstanding debt bearing no interest	251,644,665.93
Total gross debt	$21,056,862,485.17

CASH IN TREASURY JUNE 30, 1924.

In Treasury offices	$253,464,760.42
In Federal Reserve Banks	47,124,767.10
In special depositaries	162,091,572.40
In foreign depositaries	380,406.79
In Treasury of Philippine Islands	733,309.36
In National depositaries	29,544,401.18
In Federal Land Banks	1,000,000.00
	$494,339,217.25
Deduct current liabilities	256,309,702.51
Balance in Treasury June 30, 1924	$238,029,514.74

IV. Financial Administration.—Financial administration is concerned with the preparation of the budget, the control of the public funds and expenditures, and the collection of the revenues. The importance of correct methods of fiscal administration has been more

generally recognized in Europe than in the United States or Great Britain, where the subject has been largely left to publicists and jurists.

The Budget.—The establishment of this is the most conspicuous feature of modern fiscal systems, with the right of the people's representatives to vote taxes and appropriations. In America comparatively little advance has been made beyond the first fiscal methods that were established. But in European countries the budget has reached a higher development, due largely to conflicting interests of the legislature.

In England the fiscal year commences April 1, and ends March 31. Each administrative department prepares its "Estimates" for the coming year in the fullest detail, and upon these minute statements the Chancellor of the Exchequer bases his estimate for presentation to Parliament; he at the same time presents a brief showing how he expects to raise revenues to meet the proposed expenditures, and what new taxes, etc., if any, are needed. This statement forms the budget. Neither directly nor indirectly can Parliament increase the appropriations requested by the Ministry, nor can it add new appropriations.

In the United States the reports of the administrative officers, the president, and the secretary of the treasury, are made to Congress, but no formal budget is presented as in England. The finances are regularly dealt with by two separate committees, viz., the "Committee on Ways and Means" and the "Committee on Appropriations," dealing respectively with taxation and appropriations. There is no constitutional control of these committees, nor is there anything theoretically to prevent any member of the House from presenting an entirely new set of bills on his own account without reference to the committees.

Since the establishment of a protective policy the United States government has been in possession of large funds which are independent of the expenditures. The revenue laws are necessarily sundered from appropriations. The system has its advantages, but it entirely prevents any systematic supervision of the finances as a whole, and permits of no gauging of the relative proportions of the various appropriations. Unlike England, where credits expire at the end of the fiscal year, in the United States they usually remain in force until the whole sum is used up or till the object is attained. The chief advantage of the American system is that it permits greater scrutiny by the legislature of the specific items of each appropriation.

In England after the budget has been voted the funds are deposited with the Bank of England, subject only to the order of the comptroller and auditor general. No payment can be made without (1) an act of Parliament, (2) a requisition by the treasury issued to the comptroller general, (3) a credit-grant for the amount authorized by the act, (4) a treasury order, for the money to be transferred to the paymaster general of the service. When the expenditures have been made, the various accounts, with their vouchers, are examined by the Parliament Committee of Public Accounts.

In the United States the executive officers hold direct control of the funds, subject to the orders of Congress. The original system of control, audit, and record was very complicated and was changed by the Act of Congress of July 31, 1894. Six auditors are now appointed: (1) For the Treasury Department, (2) for the War, (3) for the Interior, (4) for the Navy, (5) for the State, etc., (6) for the Post Office. This division of accounts is a distinct gain both in speed and simplicity.

CUSTOMS DUTIES.

These duties are levied upon commodities when they cross the national frontier, or enter within a customs area. Duties on goods entering a city are called *octroi*, and are more of the nature of excises. Originally customs duties were levied both on imports and exports. With the exceptions of Turkey, European nations have almost altogether abolished duties on exports; Russia, Italy, Austria, and Switzerland still retain a few export duties on indigenous products. The German customs duties yield nearly 27 per cent. of the gross receipts, the English 25 per cent., the French and the Italian 15 per cent. The purposes of customs duties are both fiscal and political. The difference between a protective tariff and a revenue tariff may be described as follows: A *protective tariff* is primarily designed to prevent importation, entirely or partially, and to raise the prices of imported commodities so as to protect and encourage the native product. A *revenue tariff* is fixed so as not intentionally to leave any trace upon native industries, and it based on principles like those of the excise, the duties being laid upon commodities of great consumption and tax-bearing capacity. Strictly speaking, however, there is no such thing as a tariff for revenue only, for the effect of all customs duties on trade is very far-reaching. With the exception of England, Holland, Belgium, Switzerland, Norway, and Denmark, the protective principle is generally applied to every customs tariff.

In fixing the protective tariff there is always the danger that if the duties are so high as to afford absolute protection, loss of revenue will result from the foreign commodities which perforce are excluded. As soon as it is found that the importation of any article begins to fall off it is a sure indication that the tariff has exceeded the highest revenue-producing limit. The revenues will then be diminished, while the subsidy to the producer will be increased. In effect this subsidy is paid by the consumers within the country in the form of higher prices; while the duties themselves are generally paid by the consumer and not by the foreign shipper. The foreigner pays the entire tax only in cases where the home market is well supplied, and where the country from which the commodity is exported is overstocked. In certain other cases conditions are such that the foreigner pays the tax temporarily or pays it only in part.

The customs tariff was the only source of tax revenue which the new Federal government had after the War of Independence. The first tariff act was passed July 4, 1789. Until 1812 the tariffs were virtually revenue and not protective tariffs. New industries then began clamoring

for protection and from 1816 onward a protection sentiment was sedulously fostered. The only serious reaction against this policy was in the so-called free-trade period from 1846 to 1860. The duties on classified articles ranged from 5 per cent. to 100 per cent. *ad valorem*, but many of these duties were reduced in 1857. On March 2, 1861, Congress passed the Morrill tariff, which increased protective duties, particularly on woolen goods and iron. On the outbreak of the war a series of new tariffs was made, imposing duties upon commodities hitherto free, and raising the protective duties. The act of 1864 enumerated nearly 1,500 articles at an average rate of almost 50 per cent. This tariff was not appreciably changed until 1883. The only noteworthy changes down to 1894 were the acts of 1870, 1873, and 1883, and the McKinley Act of 1890, the latter removing duties on purely revenue articles but increasing the protective features. The Wilson bill, a Democratic measure, became a law in 1894, without the president's signature. It reduced many duties, removed the duty on wool, and provided for an income tax. The latter feature was declared unconstitutional by the Supreme Court, business depression caused a falling off of imports, and the measure was pronounced a failure. The Dingley Act of 1897 followed the leading provisions of the McKinley Act. The duties, especially on wool, woolen goods, pottery, and cutlery, were higher than in the Act of 1890. Lumber was again dutiable, and hides were taxed for the first time. The Payne Act of 1909 removed the duties on hides and reduced those on lumber and other articles. Many rates remained unchanged; others were increased,—the average being a slight reduction. The Underwood Act of 1913 removed all duty from food animals, unmanufactured lumber, wheat and its products, wool, and many other articles. The average ad valorem rate was about 26 per cent.—a decrease of about 28 per cent. from the Payne Act. The Fordney-McCumber Tariff of 1922 raised the rates appreciably above those fixed by any previous act.

UNITED STATES TREASURY.

The United States Treasury department was created by act of Congress in 1789. The Secretary at its head has control over the administration of the finances and currency, and in addition supervises the national banks, the construction and maintenance of public buildings, the public health and marine hospital service, the life-saving service, secret service, etc. He is assisted by three assistant secretaries. The business of the department is distributed among the following offices and bureaus: the comptroller and the assistant comptroller of the treasury, six auditors, the treasurer, the register, the comptroller of the currency, the commissioner of the internal revenue, the bureau of engraving and printing, the marine hospital service, and the mint. The director of the mint supervises the mints and assay offices throughout the country. The bureau of engraving has charge of the preparation of designs, bank notes, stamps, bonds, and other national securities.

A national treasury influences not only finance, but all branches of industry and commerce. The banking transactions of a country are largely affected by those of the treasury. National treasuries vary in different countries. The British exchequer is limited in its fiscal functions; those of France and Germany have a national bank associated with them; while in the United States the treasury combines within itself both fiscal and banking functions. Considered as a bank the United States Treasury, with its branches all over the Union, is the largest banking institution in the world.

Sub-Treasury.—The first was established in 1846, in Wall street, New York, where it is still located. There are now nine, established in Boston, New York, Philadelphia, Baltimore, New Orleans, St. Louis, Cincinnati, Chicago, and San Francisco.

The larger proportion of the Government's money transactions with the people are conducted through the New York sub-treasury, which is in direct charge of the Assistant Treasurer of the United States. Among its many duties are the redemption of mutilated paper money, refunding and redeeming Government bonds, payment of checks issued in settlement of government bond interest, pension expenditures.

Money from the custom-houses, post offices, and other departments of the Government are received by the sub-treasuries. By telegraphic transfers of money from one part of the country to another they are of great service. Gold deposited at one sub-treasury may be credited by telegraph to a person at another sub treasury point. For sudden needs, currency may be so transferred. For such accommodation the Government makes a charge.

Australian gold is often used by London in payment of its own debts in New York, since when received at San Francisco it may, through the sub-treasuries, be immediately credited to persons in New York.

Income Tax.—The United States has been far behind other countries in the development of the income tax. The federal government first imposed an individual income tax at the time of the Civil War, but it was a war measure and was therefore repealed soon after the war. In 1894, another income tax law was passed but was held unconstitutional before it ever went into effect. The United States first taxed corporate incomes in 1909.

The ratification of the constitutional amendment in 1913, giving Congress power to impose an income tax without regard to the constitutional rule of apportionment, was followed immediately by an income tax law which has been extended and revised many times. The present United States income tax law is contained in the revenue act of 1924. According to the 1924 act, a normal and surtax is imposed upon the individual net incomes of citizens and residents (sec. 216), except for certain credits and deductions allowed. For example, the normal tax does not apply to corporate dividends or to interest on United States obligations. A single person is allowed a personal exemption of $1000, while the head of a family or married person living with husband or wife is entitled to an exemption of $2500 with $400 additional for each person (other than husband or wife)

dependent upon or receiving support from the tax payer. The exemptions are different for non-resident aliens.

The normal tax on citizens and residents of the United States is two per cent. upon the first $4000 of net income, four per cent. upon the next $4000 and six per cent. upon the remainder of the net income. In order to determine the income to which the normal tax is applied, the net income is entitled to the credits and exemptions provided in section 216 of the act.

In addition to the normal tax there is imposed a surtax upon the net income of every individual resident or non-resident whose net income is not less than $10,000. The credits applicable in case of the normal tax do not apply to the surtax. The surtax does not apply to net incomes less than $10,000. The following table shows the surtax and rates upon specified amounts of net income:

Net income.	Per cent.	Surtax.	Total surtax.
$0 to $10,000	..	..	..
10,000 to 14,000	1	$40	$40
14,000 to 16,000	2	40	80
16,000 to 18,000	3	60	140
18,000 to 20,000	4	80	220
20,000 to 22,000	5	100	320
22,000 to 24,000	6	120	440
24,000 to 26,000	7	140	580
26,000 to 28,000	8	160	740
28,000 to 30,000	9	180	920
30,000 to 34,000	10	400	1,320
34,000 to 36,000	11	220	1,540
36,000 to 38,000	12	240	1,780
38,000 to 42,000	13	520	2,300
42,000 to 44,000	14	280	2,580
44,000 to 46,000	15	300	2,880
46,000 to 48,000	16	320	3,200
48,000 to 50,000	17	340	3,540
50,000 to 52,000	18	360	3,900
52,000 to 56,000	19	760	4,660
56,000 to 58,000	20	400	5,060
58,000 to 62,000	21	840	5,900
62,000 to 64,000	22	440	6,340
64,000 to 66,000	23	460	6,800
66,000 to 68,000	24	480	7,280
68,000 to 70,000	25	500	7,780
70,000 to 74,000	26	1,040	8,820
74,000 to 76,000	27	540	9,360
76,000 to 80,000	28	1,120	10,480
80,000 to 82,000	29	580	11,060
82,000 to 84,000	30	600	11,660
84,000 to 88,000	31	1,240	12,900
88,000 to 90,000	32	640	13,540
90,000 to 92,000	33	680	14,200
92,000 to 94,000	34	680	14,880
94,000 to 96,000	35	700	15,580
96,000 to 100,000	36	1,440	17,020
100,000 to 200,000	37	37,000	54,020
200,000 to 300,000	38	38,000	92,020
300,000 to 500,000	39	78,000	170,020
500,000 up	40	....	.....

SUMMARY OF THE LEADING FINANCIAL EVENTS.

1860 B. C. Money is mentioned as a medium of commerce in Genesis xxiii., when Abraham purchased a field as a sepulcher for Sarah.

1491 B. C. Jews were permitted to receive usury from strangers, but were forbidden to receive it from their brethren.

c. 700 B. C. Egibe's bank at Babylon mentioned.

690 B. C. The coinage of money is ascribed to Lydians, possibly about this date.

594 B. C. Taxes levied by Solon, the Athenian legislator.

480 B. C. Darius levied a land tax by assessment.

445 B. C. The law of 1491 B. C. enforced by Nehemiah.

330 B. C. Livy first mentions the *argentarii* or Roman dealer in money.

269 B. C. The Romans gave their silver the name of "moneta."

808 A. D. Bank in Italy said to have been established by the Lombardy Jews.

928. Athelstan enacts regulations for the government of the mint.

994. England. One pound equals three of modern money. Three principal taxes in Anglo-Saxon times were (1) the "ship-geld," a tax imposed on each shire for naval purposes; (2) the "danegeld" (see 1068); (3) the "fumage," or "hearth tax."

1067. England. Taxes in specie are introduced by William I.; he raises them arbitrarily.

1068. England. The danegeld tax is revived; land is taxed at one shilling; this tax disappeared after 1163.

1108–1137. France. Under Louis VI. the communes are freed from court interference on the payment of a tax.

1125. England. Henry I. takes severe measures against false coining.

1133–1322. Tax called "scutage," or "land tax," rose with Henry III., of England; fell into disuse, 1322.

1157. Founding of the Bank of Venice; this bank was destroyed by the French invasion in 1797.

1173. The public funding system originated in Venice.

1188. England. Taxes on movables began with the "Saladin tithe"; this tax was one tenth of rent and movables, paid by all except crusaders.

1189–1334. Tax on rents and movables continued in England.

1194. Insurance first used in Italy.

1194. Richard I. of England levied a tax on all plowed land, known as the "carucage," i.e., the amount of land that could be covered by one plow (caruca) in a season.

1224. England. Tax of 1194 merged in the tax on movables (see 1188).

1257. The English gold coin first appears.

1275. "Ancient customs" toll slightly raised; granted Edward I. of England by parliament.

1312–1327. England. Tallage was tax collected from tenants of the royal demesne, on occasions of unusual expense.

1334. England. Fifteenths and tenths tax.

1341. English parliament prohibits usury.

1345. Founding of the Bank of Geneva.

1345. Failure of the Florentine bankers for large sums, including 1,500,000 gold florins owed them by Edward III. of England.

1350. France. Philip VI. enforces the gabelle tax (salt tax).

1350–1354. France. John II. debases the coinage.

1377. The first poll-tax imposed in England.

1377. England. Tallage of groats, a tax of four pence, granted the king by parliament.

1382. France. The malleteers revolt against a bread tax.

1401. Founding of the Bank of Barcelona (the earliest existing bank).

1407. Founding of the Bank of Genoa.

1483. Charles VIII. of France made the "taille" (tallage) permanent; this tax was both real and personal.

1483. "Vingtiemes," or twentieths, a tax which was first used with the taille; the former disappeared with Charles VIII. of France.

1504. The true English shilling first coined by Henry VII.

1522. Loans for the public service were raised by Wolsey in England; and again in 1525.

1523. Insurance policies first used in Florence.

1545. England. The coin is debased; the rate of interest fixed at 10 per cent.

1548. France. Bordeaux revolts against the salt tax.

1556. England. Founding of the Royal Exchange, London; opened 1687.

1560. Insurance first used in England. First life insurance company, The Amicable; established 1706.

1560. A shilling is struck in Ireland worth nine pence; but it is to be current at twelve.

1574. In Holland money is made of pasteboard.

1587. The Banco di Rialto established in Venice. This marks the inauguration of modern banking.

1601. First law of insurance in Britain enacted.

1609. The Bank of Amsterdam founded. This was probably the first modern bank to undertake the custody of depositor's money on a larger scale.

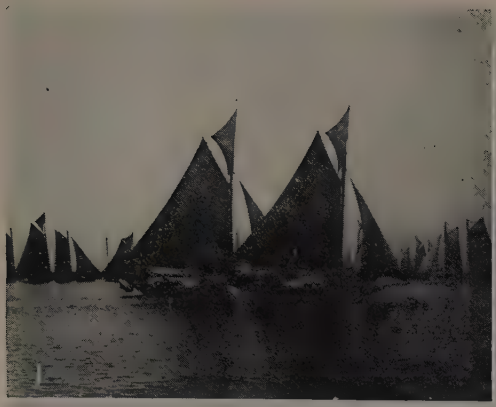
1619. The Banco di Rialto was absorbed by the Banco del Giro. The latter loaned 5,000,000 ducats to the government of Venice.

1619. Founding of the Bank of Hamburg, the oldest bank in Germany. Modeled on the Bank of Amsterdam.

1621–1664. In New York taxation under the West India Company first took the form of indirect taxes on goods imported and exported.

1623. Word *interest* first used in an act of parliament of James I. for a lawful increase as compensation for the use of money lent. Rate fixed by this act was

£8 for the use of £100 for a year in place of usury at £10 before taken.
1634. General Court of Massachusetts established following principle: towns shall have respect to levy every man according to his estate; poll taxes came into use later.
1635. Founding of the Bank of Rotterdam.
1640. The first louis d'or pieces are struck in France.
1651. Commonwealth lowers the yearly rate of interest in England to £6 on £100.
1656–1658. Cromwell, advised by Samuel Lamb, establishes a public bank.
1660. England. Interest rate of 1651 confirmed.
1661. The Bank of Sweden issued bank notes to avoid the transportation of copper coin. This is the first recorded instance of the use of bank notes in Europe.
1662. Milled shillings coined in England.
1663. England. Guineas first coined from gold brought from Guinea.
1663. A goldsmith, Francis Child, opens a bank in England.
1667. First run on London bankers.
1667. Insurance against fire in London, began the year after the great London fire.
1672. England. Charles II. closes the Exchequer, and seizes £1,200,000; a commercial panic follows.
1680. Hoare's Bank begun, England.
1688. Window tax established in England.
1689. England's public debt was £664,263.
1689. Ireland. James orders the issue of a coinage of brass money.
1690. Paper money first issued in the American colonies by Massachusetts.
1690. Rise of the English funding system.
1692. Establishment of a permanent land tax in England.
1694. Bank of England projected by William Patterson, a Scotch merchant, to meet the difficulty experienced by William III. in raising the supplies for the war against France; this date marks the establishment of the national debt of England.
1695. England. A recoinage act is passed; causes a commercial panic.
1695. Founding of the Bank of Scotland with an original capital of £100,000 sterling.
1695. France. A variable tax of the ancient monarchy was the "capitation," of system of poll taxes; was continued up to the Revolution.
1696. Office for insuring buildings opened in England.
1696. Run on Bank of England.
1696. First regular insurance office in London, the Hand-in-Hand.
1702. England's national debt £16,394,702.
1708. Bank monopoly established in England by forbidding a company exceeding six persons to act as bankers.
1710. Sun fire-office established in England.
1710. Louis XIV. of France revived the vingtieme, as a war tax; it remained up to the Revolution.
1710–1720. South Sea Bubble.
1713. Rate of interest in England reduced to £5 (yearly) on £100.
1716. The Sinking Fund Act is passed to redeem the debt of the Bank of England.
1716. Oldest county bank, Wood's at Gloucester, England, opened.
1716. The first bank of issue was established in France by John Law. This bank survived only until 1721.
1718. France's shares in Law's Mississippi scheme rise from £500 to £18,000.
1718. Law's Bank becomes the Royal Bank of France, with exclusive authority to coin money, and to receive all taxes and government imports.
1720. France. Failure of the Mississippi scheme; Royal Bank suspends payment; panic follows.
1720. First marine insurance companies are the Royal Exchange and the London Insurance.
1720. First fire-office in Scotland.
1721. Irish house of commons rejected a bill to establish a national bank.
1727. Establishment of the Royal Bank of Scotland at Edinburgh.
1728. First insurance in the colonies was at Boston by the Sun. (English Company.)
1733. England. Fifty tons of half pence and farthings are sent from the Tower to Ireland.
1736. Founding of the Bank of Copenhagen.
1738. Bank post bills issued in England.
1741. New Exchange at Bristol is erected.
1745. England. Run for gold upon rebellion in the North.
1746. British Linen Company incorporated as a bank by royal charter.
1749. France. Tax is levied of one twentieth of all incomes including those of the privileged orders.
1750. First fire-office in Germany.
1752. Insurance done in Philadelphia.
1765. Founding of the Bank of Berlin.
1775. Continental paper money issued during the American Revolution; first issued.
1775. Establishment of the London Clearing House.
1776. Founding of the Bank of Caisse d'Escompte, France.
1776. Louis XVI. suppressed the Corvees; taxes which were both real and personal; they were reestablished but disappeared in 1793.
1780. Founding of Bank of North America in Philadelphia.
1781. France. Necker's "Compte Rendu," the first public exposition of the revenue and expenses of the state, is published.
1783. Establishment of Bank of Ireland at St. Mary's Abbey.
1784. Founding of the Bank of Massachusetts.
1784. Founding of the Bank of New York.
1786. Establishment of the double standard in the United States with a ratio of 1 to 15.25.
1786. Founding of the Bank of St. Petersburg.
1787. Founding of the Bank of the East Indies.
1787. First savings bank instituted at Berne, Switzerland.
1789. United States. The first customs tariff act, July 4.
1790. First United States refunding act approved. Under it the state debts and the foreign and domestic debt of the nation were consolidated and refunded in three classes of bonds.
1790. The taille is suppressed in France.
1791. The First Bank of the United States is chartered by Congress with an authorized capital of $10,000,000, one fifth of which is subscribed by the government.
1792. Adoption of the ratio of 1 to 15 and establishment of a mint with free and gratuitous coinage in the United States; the silver dollar equal to 371¼ grains fine, the eagle to 274½ grains fine.
1792. Duties laid on spirits distilled within the United States, followed by an act further regulating these duties and imposing a tax on stills.
1792. Savings bank opened in Basel, Switzerland.
1793. £10 notes issued in England.
1794. First fire insurance policy issued in the United States at Hartford, Ct.
1794. France. The "maximum," fixing the prices of commodities, is repealed.
1794. The execution of the laws of 1792, imposing a tax on spirits and stills, leads to the Whiskey Rebellion.
1797. Cash payments suspended by the Bank of England.
1797. £1 and £2 notes issued in England.
1797. Bank Restriction Act in England.
1798. The first direct tax in the United States is levied upon the 16 states.
1798–1806. Income tax introduced in England; set aside in 1816; restored in 1842 as a substitute for the indirect taxes.
1799. A "Benevolent Institution" begun by Rev. Joseph Smith of Wendover.
1801. Stock Exchange in Capel court, London, established.
1803. The Bank of France founded; establishment of the double standard on the basis of the ratio of 1 to 15½, notwithstanding the fact that the market ratio is then about 1 to 15.
1803. Bi-metallic currency recommended for Germany.
1803–1804. A "Charitable" bank instituted at Tottenham.
1807. Prussia. Establishment of general industrial freedom; new industries were taxed; this tax was called the "industry tax."
1807–1812–1822–1824. United States. Efforts to refund.
1809. Bramah's machine for numbering notes adopted in England.
1810. Introduction of the silver standard in Russia on the basis of the ruble if 17.99 grams of fine silver, followed in 1871 by the coinage of imperials, or gold pieces of 5 rubles, of 5.998 grams; therefore, with a ratio of 1 to 15. This ratio was changed by the increase of the imperial to 5 rubles, 15 kopecks, and later to 1 to 15.45.
1811. Prussia. A poll tax of one half thaler from every person over 12 years of age was instituted for the meal tax in all places except the larger towns.
1814. Bank opened at Edinburgh, Scotland.
1815. Great depreciation of paper money in England, reaching 26½ per cent. in May. Course of gold, £5 6s. and of silver, 71½d. per ounce standard. In December the loss was only 6 per cent.; gold at this period was quoted at £4 3s., and silver at 64d.
1816. Abolition of the double standard in England, which had had as its basis the ratio of 1 to 15.21, and adoption of the gold standard on the basis of the pound sterling at 7.322 grams fine in weight. Coinage of divisional money at the rate of 66d. per ounce. Ex-



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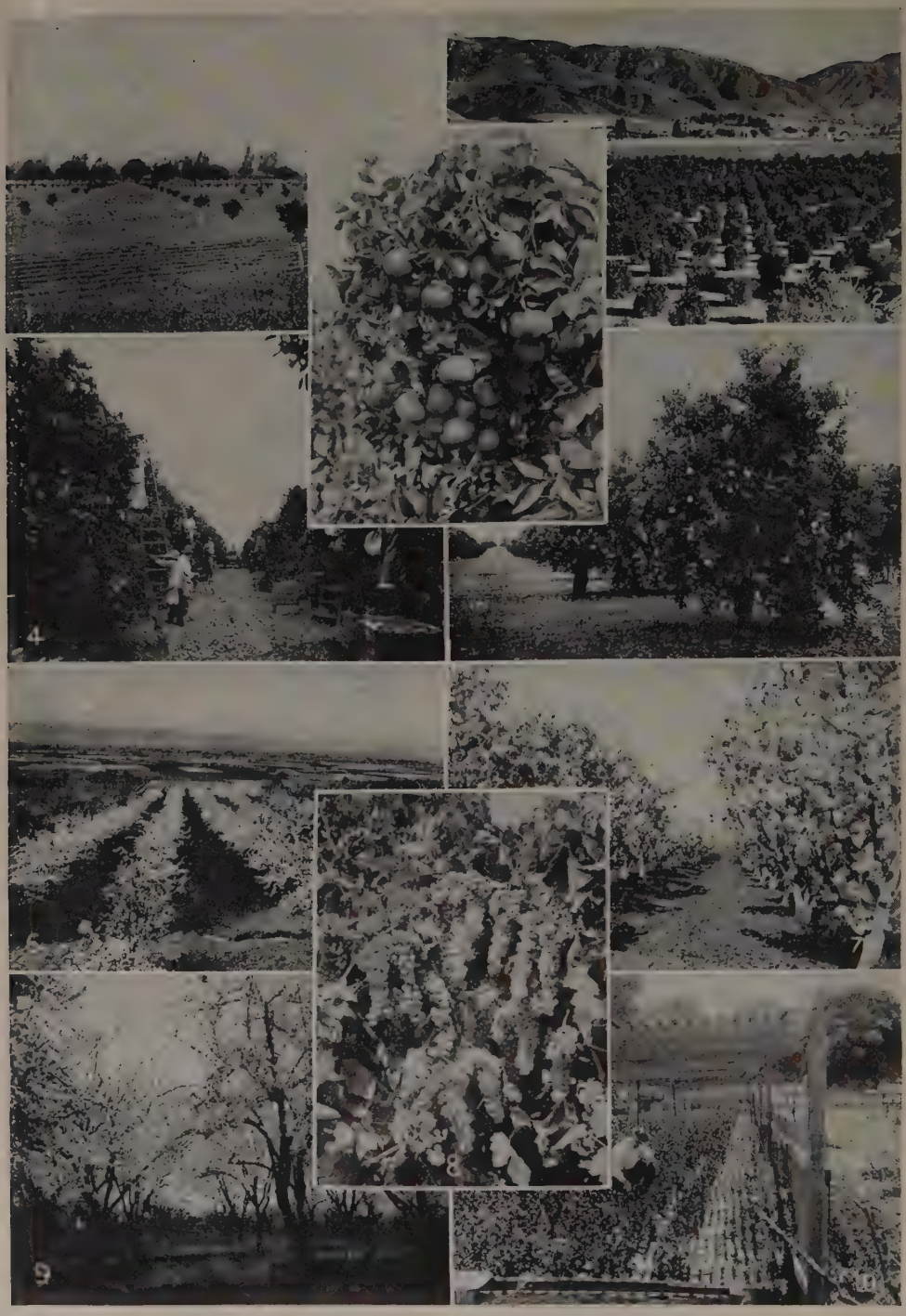
GREAT INDUSTRIES—FISHING AND FISH CANNING

1 Oyster Boats on Delaware River. 2 Drying Fish Nets, Freeport, L. I., N. Y. 3 Fish Cannery, Santa Ana, Alaska. 4 Oysters growing on trees—young oysters found attached to willow branch in Delaware. 5 Cutting fish for canning, Icy Straits, Alaska.



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GREAT INDUSTRIES—FRUITS AND NUTS

1 Grove of seedling orange trees. 2 Orange grove amid snow-capped peaks, California. 3 Orange clusters. 4 Picking oranges. 5 Orange grove in bearing, California. 6 Orange grove in bloom. 8 Luscious grapes ready for picking. 7 and 9 Prune orchards in bloom, California. 10 Cultivating orange seedlings.

treme prices, £4 2s. for gold and 64d. for silver; in January £3 18s. 6d., and 59¼d. in December. Substitution for the ratio of 1 to 15.5 in Holland, established by a rather confusing coinage of the ratio of 1 to 15⅞.

1816. First fire-office in France.

1819. Abolition of forced currency in England. Price of gold, £3 17s. 10½d., and of silver, 62d. per ounce in October, against £4 1s. 6d. and 67d. in February.

1820. Prussia. The tax of 1811 developed into a classified poll tax.

1825. Great commercial panic in England, following which a law was passed permitting country banks, outside of a radius of 65 miles from London, to organize joint stock companies, with the right to issue bank notes.

1827. First fire-office in Russia.

1832. Introduction of the monetary system of France in Belgium, with a decree providing for the coinage of pieces of 20 and 40 francs, which, however, were not stamped. Silver, 59¾d.

1834. Substitution of the ratio of 1 to 16 for that of 1 to 15 in the United States by reducing the weight of the eagle, ten-dollar gold piece, from 270 grains to 258 grains.

1834. Establishment of joint-stock banks in England.

1835. Introduction of the company rupee, a piece of silver weighing 165 grains fine, in India, in place of the sicca rupee. Creation of a trade coin—the mohur, or piece of 15 rupees—containing 165 grains of fine gold. Silver, 59-11/16d.

1837. The fineness of the United States gold coins was raised from .899,225 to .900 and the silver coins from .892 4 to .900, giving a ratio of 1 to 15.988, and fixing the standard weight of the silver dollar at 412½ grains. Silver, 59-15/16d.

1844. Peel's bank charter act in England.

1844. Introduction of the double standard in Turkey, with the ratio of 1 to 15.10. Silver 59½d.

1847. Discovery of the gold mines of California.

1847. Abolition of the double standard in Holland by the introduction of the silver standard on the basis of a one-florin piece 0.945 grams fine, the coinage of which had already been decreed in 1839. Silver, 59-11/16d.

1847. Commercial panic in England.

1848. Replacing the ratio of 1 to 16 in Spain, which had been in force since 1786, by that of 1 to 15.77.

1848. Coinage in Belgium of pieces of 10 and 25 francs in gold, a shade too light. These pieces were demonetized and withdrawn from circulation in 1884. Silver, 59½d.

1850. Introduction of the French monetary system in Switzerland without any actual coinage of gold pieces. Silver, 60-1/16d.

1851. Discovery of the gold mines of Australia.

1851. Prussia. Introduction of an income tax placed on all persons having an income of over 1,000 thalers.

1851. There were 574 savings banks in Great Britain.

1852. England. Gold bullion in the bank (resulting from the discovery of gold in Australia), £21,845,390.

1853. Lowering of the weight of silver pieces of less value than $1 to the extent of about 7 per cent. in the United States, and limitation of their legal tender power to $5. Silver, 61½d.

1853. Maximum of the production of gold reached in California when it amounted to $65,000,000.

1854. Modification of the ratio of 1 to 15.77 in Spain by raising it to 1 to 15.48, and by lowering the piaster from 23.49 grams to 23.36 grams fine.

1854. Introduction of the silver standard, as it existed in the mother country, in Java, in place of the ideal Javanese money, and coinage of colonial silver pieces.

1854. Introduction of the gold standard in Portugal. Before this period the country had the silver standard, with a rather large circulation of gold coins stamped, on the basis of 1 to 15½ in 1835 and 1 to 16½ in 1847. Silver, 61½d.

1854. Founding of the New York Clearing House.

1857. Conclusion of a monetary treaty between Austria and the German states, in accordance with which 1 pound of fine silver (one-half a kilogram) was stamped into 30 thalers, or 52½ florins of South Germany, or 45 Austrian florins, resulting in 1 thaler equaling 1¾ German florins or 1½ Austrian florins. Silver, 61¾d.

1861. Law decreeing the coinage of gold pieces of 10 and 20 francs exactly equal to French coins of the same denominations is passed in Belgium. Silver, 61¾d.

1861. Reform of the land tax in Prussia; building tax was separated from it, all old taxes of a similar sort were merged in the new one; in the cities this tax is assessed according to the rental of the buildings, and in the country according to the size of the lands connected with the houses.

1861. Post office savings bank established by the British parliament; interest at 2½ per cent.

1862. Adoption of the French monetary system by Italy. Silver, 61-7/16d.

1863. First accident insurance company established in United States was the Traveler's, of Hartford, Ct.

1863. United States enacted a law authorizing the formation of a system of National banks. This act was recast on June 3, 1864.

1865. Formation of the Latin Union including France, Belgium, Switzerland, and Italy on the basis of a ratio of 1 to 15½. Silver, 61-1/16d.

1865. First appearance of assessment system of life insurance in the United States.

1865. Founding of the Bank of Italy.

1866. Failure of the banking house of Overend, Durney & Co., London, for £19,000,000.

1867. An international monetary conference held at Paris; adoption of the gold standard.

1867. Failure of the Crédit Mobilier, and disappearance of the capital.

1868. Adoption of the French monetary system by Roumania, with the exclusion of the 5-franc silver piece, which was, however, stamped in 1881 and 1883. Silver, 60½d.

1868. Admission of Greece into the Latin Union. The definite and universal introduction of the French monetary system into the country was effected only in 1883.

1868. Adoption of the French monetary system, with the peseta or franc as the unit, by Spain. The coinage of gold alphonses d'or of 25 pesetas was made only in 1876.

1870. Alaskan gold mining successfully commenced.

1871. Establishment of the double standard in Japan with the ratio of 1 to 16.17 by the coinage of the gold yen of 1.667 grams and of the silver yen of 26.956 grams, both with a fineness of .900.

1871. Replacing of the silver standard in Germany by the gold standard. Coinage in 1873 of gold pieces of 5, 10, and 20 mark pieces, the latter weighing 7.168 grams fine. Silver, 60½d.

1873. Increase of the intrinsic value of the subsidiary coins of the United States. Replacing of the double standard by the gold standard. Reduction of the cost of coinage of gold to one fifth per cent., the total abolition of which charge was decreed in 1875. Creation of a trade dollar of 420 grains with a fineness of .900. Silver, 59¼d.

1873. Suspension of the coinage of 5 franc pieces in Belgium.

1873. Limitation of the coinage of 5 francs on individual account in France.

1873. Suspension of the coinage of silver in Holland.

1873. Formation of the Scandinavian Monetary Union. Replacing of the silver standard in Denmark, Sweden, and Norway by that of gold on the basis of the krone. Coinage of pieces of 10 and 20 kroner, the latter weighing 8.961 grams, with a fineness of .900.

1873. Check bank in aid of persons not having a banker, opened in Pall Mall, England.

1873. The unrestricted coinage of silver suspended in the countries termed the Latin Union.

1874. Introduction of the system of contingents for the coinage of 5-franc silver pieces in the Latin Union. Silver, 58-5/16d.

1875. Suspension of the coinage of silver on individual account in Italy. Silver, 56⅞d.

1875. Introduction of the double standard in Holland on the basis of the ratio of 1 to 15.62 by the creation of a gold piece of 10 florins, weighing 6.048 grams fine, with the maintenance of the suspension of the coinage of silver.

1875. The Imperial Bank (Reichsbank) of Germany was established with the right to issue notes not covered by bullion in the vaults, to the amount of $62,500,000.

1876. Great fluctuations in the price of silver, which declined to 46¾d., representing the ratio of 1 to 20.172 in July. Recovery, in December, to 58½d. Average price, 52¾d.

1877. Coinage of 5 franc silver pieces by Spain continued later, notwithstanding the decline of silver in the market. Silver, 54¾d.

1877. Replacing of the double standard in Finland by that of gold on the basis of the mark or franc.
1878. The first international monetary congress meets.
1878. Act of United States Congress providing for the purchase, from time to time, of silver bullion, at the market price thereof, of not less than $2,000,000 worth per month as a minimum, nor more than $4,000,000 worth per month as a maximum, and its coinage as fast as purchased into silver dollars of 412½ grains. The coinage of silver on private account prohibited. Silver, 52-9/16d.
1878. Meeting of the first international monetary conference in Paris. Prolongation of the Latin Union to January 1, 1886.
1879. Suspension of the sales of silver by Germany. Silver, 51¼ d.
1881. Second international monetary conference in Paris. Silver, 51-11/16d.
1882. International monetary conferences opened at Cologne.
1884. Stockbrokers' rents to the city of London abolished; took effect, 1886.
1885. Introduction of the double standard in Egypt. Silver, 48⅜d.
1885. Great commercial depression in France; attributed to government prodigality.
1885. Prolongation of the Latin Union to January 1, 1901.
1885. International monetary conference opens at Paris.
1886. Great decline in the price of silver, which falls in August to 42d., representing a ratio of 1 to 22.5, and recovery in December to 46d. Modification of the coinage of gold and silver pieces in Russia. Silver, 45⅜d.
1887. Retirement of the trade dollars by the government of the United States in February. Demonetization of the Spanish piasters, known as Ferdinand Carolus, whose reimbursement at the rate of 5 pesetas ended on March 11. New decline of silver in March to 44d., representing the ratio of 1 to 21.43. Silver, 44⅝d.
1888. The bimetallic league hold a conference at Manchester.
1888. France. Panama Canal shareholders resolve to issue bonds for 340,000,000 francs to complete the canal.
1889. France. The Banque Parisienne assumes the entire cost of the issue of the bonds and construction of the new Panama Canal shares.
1889. The Comptoir d'Escompte, supported by Messrs. Rothschild and other bankers, is organized.
1889. March 8. France. A financial panic occurs; the Bank of France advances 100,000,000 francs to the Comptoir d'Escompte to meet the withdrawal of deposits; 75,000,000 francs are taken out of the bank.
1889. France. The Société des Métaux stops payment; copper drops heavily in Paris, London, and New York.
1889. France. The Tribunal of Commerce decides the Panama Canal Company to be a commercial company.
1889. France. A fall occurs in the shares of the Comptoir d'Escompte through speculations in copper.
1889. A monetary congress held at Paris.
1890. United States. Repeal of the act of February 28, 1878, commonly known as Bland-Allison law, and substitution of authority for purchase of 4,500,000 fine ounces of silver each month, to be paid for by issue of treasury notes payable in coin (Act of July 14, 1890). Demonetization of 25,000,000 lei in pieces of 5 lei in Roumania in consequence of the introduction of the gold standard by the law of October 27. Silver, 47-11/16d.
1891. Introduction of the French monetary system in Tunis on the basis of the gold standard. Coinage of national gold coins and bullion. Silver 45-1/16d.
1891. Reform of the "Industry" and "Income" taxes in Prussia.
1891. The impending failure of Baring Brothers of London, and the consequent financial disaster, was averted by the timely help of the Bank of England.
1892. Replacing of the silver standard in Austria-Hungary by that of gold by the law of August 2. Coinage of pieces of 20 crowns, containing 6,098 grams fine. The crown equals one half florin. Meeting of the third international monetary conference at Brussels. Production of gold reaches its maximum, varying between 675,000,000 and 734,000,000 francs. Silver, 39-13/16d.
1892. Annual meeting of the bimetallic league.
1893. Silver panic in the United States; the government was ultimately forced to sell bonds to the value of nearly $300,000,000 in order to meet the demands for gold.
1893. Prussia. Surrender of land, building, and industry taxes as royal taxes, rendering possible the reform of local taxation.
1893. Suspension of the coinage of silver in British India and of French trade dollars on individual account. Panic in the silver market in July in London, when the price fell to 30½d., representing the ratio of 1 to 30.92. Repeal of the purchasing clause of the act of July 14, 1890, by the Congress of the United States.
1893. The Commons rejects bimetallism.
1893. France. The liquor tax voted to be separated from the budget.
1894. France. New Panama Canal shares are issued to the amounts of 30,000,000 francs.
1895. A bimetallic league formed in Paris.
1895. Adoption of the gold standard by Chile.
1895. Russia decides to coin 100,000,000 gold rubles in 1896.
1895. The Gold Standard Defense Association founded.
1895. Irish Banking Act.
1896. Costa Rica adopts the gold standard.
1896. Russia decides to resume specie payment.
1896. International monetary conference at Brussels, respecting bimetallism, proposed by the United States.
1896. England proposes a conference with foreign powers regarding bimetallism.
1897. Japan adopts the gold standard.
1897. Adoption of the gold standard by Russia and Japan.
1897. Peru suspends the coinage of silver and prohibits its importation.
1898. Ecuador limits the tender of silver coins to the amount of 10 sucres.
1899. India adopts the gold standard at the rate of 15 rupees to 1 pound sterling (British standard).
1900. United States adopts the gold standard.
1900. Ecuador adopts the gold standard.
1901. San Domingo adopts United States gold as standard.
1902. Siam adopts the gold standard.
1903. Colombia adopts gold standard.
1903. Philippines adopts the gold standard.
1904. Panama adopts gold standard.
1905. Mexico adopts the gold standard.
1907. Panic in New York (October 22); financial disturbances began in March; shortage of currency throughout the country results.
1908. Barcelona (Spain) depression; attributed to anarchist terrorism and extraordinary inducements offered by Americans for gold, April 26.
1908. German reform bill provided estimates annual revenue of $119,000,000, November 3.
1908. Chancellor of Great Britain estimates deficit of $100,000,000 by end of next fiscal year; various propositions for prevention.
1908. Investors of France hold bonds of other nations to amount of about $19,614,200,000.
1909. Tax increase in Buenos Aires causes strikes among all classes.
1909. France. Threatened deficit of $45,600,000 reported for 1910.
1909. Great Britain. Deficit of $60,000,000 impending.
1909. Michigan. Shortage impending.
1913. United States. Federal Reserve Act passed.
1914. United States. Emergency revenue tax of $100,000,000 on account of deficit in revenue receipts caused by European war.
1916. Passage of the federal income tax law.
1917. War profits tax and excess profits tax levied.
1917. First Liberty Loan.
1917. Second Liberty Loan.
1918. Act was passed providing for the consolidation of the war profits tax and the excess profits tax into the war excess profits tax.
1918. Third Liberty Loan.
1918. Fourth Liberty Loan.
1919. Victory Loan.
1920. Transportation Act of 1920.
1924. Report of the Committee on Reparations (the Dawes Plan) for financial reorganization and currency stabilization.
1924. The loan of $150,000,000 by the United States to Japan, $100,000,000 to France, and $110,000,000 to Germany.

DICTIONARY OF BUSINESS AND FINANCIAL TERMS.

Comprising Those Used in Stock and Trade Transactions.

ACCEPTANCE. When a person against whom a time draft is drawn is presented therewith before due it is given to him for "acceptance." This he does by writing across the face of the draft the word "Accepted," followed by his signature. The draft is then said to have been honored, and has become a proof of indebtedness against him, in much the same way as a promissory note. Similarly, the person drawing the draft has become the indorser. Therefore, if the "drawer" has been granted use of the money by his bank, which is to collect the draft, or if it is negotiated in the interim, and the "acceptor" fails to pay, the "drawer" must make it good. Usually, when a draft is "accepted," it is dated, and a place of payment named. If that is not done, the draft is payable at the "acceptor's" place of business.

ACCOMMODATION PAPER. Instruments which the maker, drawer, acceptor, or indorser signs as an accommodation to another, with no financial consideration, unless, as is sometimes the case, a commission is paid. That is, a person signs such an instrument for the purpose of loaning his credit to another, without expectation of return. Corporations cannot legally give "accommodation paper."

ACCOUNT SALES. A statement of an account given to a customer by a broker, agent, or commission merchant.

ACCOUNTS PAYABLE. Open accounts, showing the sums due to others, but not proved by notes or acceptance, or other written obligation.

ACCOUNTS RECEIVABLE. Open accounts against customers, which are on the books of a firm, corporation, etc., but which are not shown by written forms of indebtedness.

ACCRUED DIVIDEND. Sold only in case of "guaranteed stocks" or stocks where the dividend is certain and fixed. Bears the same relation to a stock as "accrued interest" does to a bond.

ACCRUED INTEREST. If a bond is sold by the person holding it before the date when interest is due, the buyer gives the value of the bond, together with the amount of interest then due. This is made up to him when the interest is paid by the issuant of the bond. Terms used in the same sense as "accrued interest" are "with interest," "and interest," or "interest added." The legal rate of interest in the state where the note is made payable is understood if no rate is mentioned in a note drawn payable "with interest."

ACKNOWLEDGMENT. A certificate given by the proper officer, showing that the maker of a written instrument has declared before him that such instrument is his willful act and deed.

ACTIVE ACCOUNT. Brokerage accounts which show many transactions; bank deposits against which checks are frequently drawn.

ACTIVE PARTNER. Distinguished from "silent partner" and "special partner" as one who is actively engaged in the business, and who incurs full liability.

ACTIVE STOCKS or BONDS. Securities which frequently change hands.

ACTUARY. One skilled in the theories and mathematical calculations on which life insurance is founded and conducted. His most important work is the study of death rates and the measuring of probabilities based on these calculations. He also computes mathematically the reserve upon policies, premiums, surplus, and dividends.

ADMINISTRATOR or ADMINISTRATRIX. One who takes charge of the goods and estate of a person dying without a will. Appointed by the Probate Court or other proper authority.

ADMITTED TO QUOTATION. When a security is admitted to quotation, it is allowed to be dealt in upon the Unlisted Department of the Stock Exchange. The term "listed" is used in place of "admitted to quotation" when a security is placed upon the regular list by the Governing Committee.

ADVANCE. A rise in prices is signified in the expressions, "the market has advanced," "rent has been advanced." The word is also used to indicate that a payment has been made or that money has been loaned.

ADVICE. If a check is sent to some bank, with a letter containing the words "for the credit and advice of Anthony Thompson," the bank is directed to credit the amount to Anthony Thompson and notify him (send him "advice") that it has done so.

AGENT. A person who represents, acts for, or in behalf of another, who is called his "principal." A "special agent" is one whose duties and authority are restricted to a single transaction. A "general agent" is "one appointed to do acts of a class" (definition given by United States Supreme Court); for instance, one employed to purchase writing paper at wholesale, without restriction as to where or of whom he should buy. To avoid personal liability on the part of the agent, he should sign any negotiable instrument or contract under seal with the name of his principal, by himself as agent. For instance, "Edward Willis, by Oscar Larned, Agent"; not "Oscar Larned, Agent, for Edward Willis."

AGIO (spelled in various ways). The rate of exchange between the moneys of two countries. In the same country, the percentage of difference in values between two different moneys. For example, in some countries a paper currency may not be accepted at its face value in exchange for metallic currency, and the percentage by which the latter exceeds the former in value is called "agio." "Disagio" is the percentage in value at which the paper currency is accepted below the metallic currency; the premium upon a better currency being represented by "agio," and a discount upon a depreciated currency, by "disagio." The latter term is used also for the wear and tear or "abrasion" of a metallic currency.

ALLONGE. A slip of paper attached to negotiable instruments, such as checks or promissory notes, to receive further indorsements when the back of the original paper is entirely covered with indorsements.

ALL OR NONE. A condition imposed by the bidder for an issue of securities, recognizing that, if his bid is accepted, he is to take the entire issue—no lesser amount. Or the seller may impose the same condition upon the successful bidder.

ANCILLARY RECEIVER. When property is situated in some other state than that in which the "receiver" (principal one) gets his authority, it may be managed by a second or assistant receiver, called "ancillary receiver."

ANNUAL INTEREST. Interest payable once a year. Interest payable semiannually or quarterly is considered more desirable.

ANTI-STOCK WATERING LAWS. That a dollar shall be invested for every dollar of stock issued is required by these laws.

APPRAISED VALUE. Value an appraiser sets upon a property.

APPRAISEMENT. The value set upon a property or the placing of a value upon it.

APPRAISER. A person appointed by law or named by an individual to estimate values.

ARBITRAGE. Purchasing a security in one market and selling for a better price in another. When advantage of the difference in current quotations of two markets is taken by purchasing a security in one and selling the same in the other, the difference, less certain expenses, is called the "arbitrageur's" profit. At times the sale is made in one market before the purchase in the other. "Arbitrage" business is carried on between London and New York, chiefly by "international banking houses"; between different American markets; and between New York Stock exchanges.

ARBITRARY. On the theory that a branch road delivering freight to a main line is entitled to more than its mileage proportion of the through rate, a fixed sum, or "arbitrary," is paid for by a main line of railway to a branch or connecting line, for freight originating on the latter, without regard to its proportion of the through rate on such freight.

ASKED PRICE. The price asked for a security or commodity—the price at which it may be purchased.

ASSAY OFFICE. A branch of the United States Mint next to the Sub-Treasury on Wall street, New York City. (Assay offices are found also in other parts of the country.) Here gold or silver, presented in any form, is assayed, parted, refined, and gold and silver bars are manufactured. The government stamp certifying to weight and fineness is given to all such

that pass through the "assay office." Work for others than the government must be paid for.

ASSAY OFFICE BAR. A bar of fine gold or silver manufactured at a government "assay office" for the United States government; so named to distinguish it from a "commercial bar," i. e., one made without government regulation.

ASSENTED STOCKS or BONDS. When a corporation is reorganized and the security holders are asked to give "assent" to a certain plan; if stock is "assessed"; or in like cases where the consent of each share or bondholder is desired, it is customary to choose some banking house or trust company to receive the securities and to stamp on each the fact that the holder has "assented" to the plan or paid the "assessment." Should more than one assessment be required, "first assessment paid," "second assessment paid," etc., will be stamped on the security. The above are briefly referred to in financial columns and stock exchange sheets as "ass't pd.," "1st ass't pd.," etc.

ASSESSED VALUATION. Value fixed for taxation upon the property of a municipality by authorized officials. Rules for fixing the assessment vary in different states. In Massachusetts, property is assessed for nearly its marketable or real value; but in many Western states the assessment is based upon about one third, or even less, of the real value.

ASSETS. Cash and debts receivable, property, real estate, patent rights, trade-marks, machinery, merchandise, material, and stock being manufactured—everything of any supposed value belonging to a person, business, or corporation—are called "assets."

ASSETS CURRENCY. A proposed issue of bank notes secured by the general assets of the issuing bank instead of by government bonds.

ASSIGN. To convey in writing any right or interest. Term commonly used when a merchant, unable to pay his debts, transfers his property to another for apportionment among his creditors.

ASSIGNAT. Paper currency issued in France during the Revolution of 1789, the security being confiscated church land, all the national domains, and other property. Over 45,000,000,000 francs were issued.

ASSIGNEE. Person to whom some right or interest is transferred by writing. When a merchant voluntarily conveys his property to another for changing into cash and apportionment among his creditors, that other is called an "assignee for the benefit of creditors." When a state court under the state insolvency law, appoints a person to take possession of the property of an insolvent debtor, sell it for cash, and distribute it among the creditors, that person is called an "assignee in insolvency."

ASSUMED BONDS. When a corporation passes into the control or ownership of another company the bonds that have been issued by the first are assumed by the second, which becomes responsible for the payment of the principal and interest of these bonds now called "assumed bonds." "Divisional issues" is the term used of such securities in railroad finance. When referred to as "guaranteed bonds," the guarantee appears upon the bonds themselves.

AT THE MARKET. An order to buy or sell at the best market price offered, without actual price limit.

AT THE OPENING. An order to buy or sell, without actual price limit, at the best market price offered immediately after the opening of the exchange.

ATTORNEY IN FACT. Person who acts under the authority conveyed by power of attorney.

ATTORNEY'S OPINION. Written statement or approval given by a lawyer in regard to bonds which have been examined by him before their issue. All bonds should be so attested, the attorney thoroughly describing the bonds and stating clearly that he has not only examined and approved all the papers necessary to establish the legality of the issue, but one of the executed bonds as well.

AU BESOIN. Frequently appears in bills of exchange where a person is named who may be referred to for payment if the original person (drawee) refuses. Literal meaning, "in case of need."

AUCTION SALES. Auction sales of securities, having no connection whatever with the stock exchange, are held in auction salesrooms of private banking firms, when any one may be present. There is no restriction as to securities which may be offered for sale in this way, and many securities not listed upon the stock exchanges are sold, in addition to those which the law provides must be sold at auction.

AUDITOR. A person whose profession is to audit or examine and report upon the accounts of a firm, corporation, etc., to compare charges with the vouchers, prepare a balance sheet, and certify whether the financial condition is, or is not, as represented.

AVAILABLE ASSETS. Property not previously given as security for an indebtedness, which is available for sale or use.

AVERAGING DOWN. To buy at a lower price than the previous purchases in order to lower the average cost to the stockholder.

AVERAGING UP. To buy or sell more of a certain stock as the market advances and so increase the average price of the whole.

AWARD. The acceptance of a proposition to buy. A term customarily used in reference to some issue of bonds for whose purchase bids have previously been submitted.

BAD DELIVERY. A security not complying with the regulations of the stock exchanges regarding "good delivery."

BALANCE. Difference between the debits and the credits of an account. The sum due from one party to another after settling accounts.

BALANCE OF TRADE. When we have sold to the merchants of Great Britain merchandise of more value than they have sold to us, the "balance of trade" is in favor of the United States. If the condition is a temporary one, the natural result is the selling in the United States of "exchange" on Great Britain at a discount, or the shipment of gold to adjust the balance. As other factors, such as interest and principal due on account of securities of one country held in the other, are to be considered, the "balance of trade" does not always determine the debtor country.

BALANCE SHEET. A statement showing the balances of the open accounts of a business. On one side of the account are the assets; on the other, the liabilities and capital invested. The two sides should foot up equally, in other words, should balance.

BANK ACCOUNT. Having chosen your bank, find out the smallest sum of money which it will receive on deposit. Obtain an introduction to one of the bank's officers. Tell him, or the person to whom he may assign you, the amount you will probably keep on deposit, whether you will wish to borrow from the bank at intervals, and the kinds of loans. As a rule, large banks do not wish small accounts. Next present your deposit to the receiving teller, together with a "deposit slip" or "ticket," which is furnished by the bank. Be sure the blanks are filled out, showing the character, amount, date, etc., of the deposit, and that your name is written at the top. The teller will give you a "pass book," showing on the debit side the sum deposited. Before you leave his window notice if this is correct. The pass book should be returned to the bank the first of every month. When given back to you with the canceled checks be very sure to check it up yourself to see if the amount of your deposit is equaled by the addition of the total amount of the checks paid, the balance reported by the banks to your credit, and the sum of the checks drawn and not yet presented to the bank for payment. Canceled checks should be saved. A check book is generally furnished at the bank's expense. That your checks may be identified, you will sign in a book or on a signature card, kept for the purpose. If acting as agent, trustee, or attorney for some other person or persons, do not open a bank account in your own name for their benefit unless you have formal proof of the relationship.

BANK BALANCE. The sum of one's credit in a banking institution; also a bank's debit or credit at "clearing."

BANK BOOK or PASS BOOK. This book is proof of the bank's indebtedness to a depositor. In it is made by the bank a written entry of each sum deposited by a customer. It should be returned to a savings bank once or twice a year; to a national bank, "bank of deposit," or trust company, once a month. All changes or additions must be made by the bank, none by the depositor. Formerly a list of all checks paid during the month was entered on the credit, or right-hand page of the book. Now it is customary to write the list on a separate sheet of paper, entering on the credit page only the total amount. The deposits are entered on the left-hand or debit page. These are added, the total amount of the checks paid deducted, and the remainder, or balance, entered upon the credit page. This gives the sum of money to the credit of the depositor at that time, and is carried

forward to the left-hand page, and added in with the next period's deposits. The total amount of deposits should be equaled by the sum of the checks paid and the amount still to the credit of the depositor, who, when the book is returned to him, should satisfy himself that no mistake has been made by the bank. To do this he checks off what has been paid during the period, a process facilitated by a comparison of check numbers with the stubs. In this way may be easily noted the checks drawn by the depositor but not yet presented to the bank; and their total amount added to the sum total of the checks paid as given by the bank. When these are added to the balance still to the depositor's credit, all together should equal the sum of the deposits for the period; due allowance being made for interest (if any) and for collection charges.

BANK COMMISSIONER. A person appointed by the state to examine into the affairs of chartered banks and to have certain supervision over them. The duty of the bank commissioner and his assistants, which is to see that the savings banks and trust companies within the state are complying with the laws that regulate them, is accomplished by examinations into the affairs of each institution, at stated intervals. Questions, such as whether a particular investment may be legally bought, may be submitted by banks and trust companies to this board of commissioners, whose broad powers include the authority to pass upon and decide such difficulties.

BANK DISCOUNT. Simple interest, reckoned upon the face value of a note or other obligation, paid to one who loans money, in advance.

BANK DRAFT or **BANKER'S DRAFT.** A "draft" which one bank or banker draws against another.

BANKER. A custodian of the funds of others. Term should not be used in regard to those whose exclusive business is note broking, stock broking, etc., nor in cases where custodianship of money is not involved.

BANKER'S BILLS or **BILLS OF EXCHANGE.** Drawn by a banker in one country against one in another, with whom he has credit. Distinguished from "commercial bills" or "bills of exchange," which are drawn by shippers of merchandise.

BANKER'S CHECK. A check which one banker draws upon another.

BANKER'S NOTE. A promissory note of a banking firm not incorporated, or of a private banker.

BANKER'S STERLING. "Exchange" on Great Britain bought at some bank or banking house. To be distinguished from regular "bills of exchange" held, with bills of lading, by sellers or exporters to show the sum due them.

BANK NOTE. A substitute for real money. A promissory note issued by a bank payable in lawful money to bearer on demand.

BANK OF DEPOSIT. By this term bankers understand an institution which receives deposits subject to check, but allows no interest on the account, in contrast to trust companies, savings banks, and similar institutions, which do allow interest on deposits. The former class is represented by state and national banks.

BANK OF DISCOUNT. A bank whose deposits and other funds are, to a great extent, used to discount bills of exchange, notes, etc. Of this kind are national banks, but not savings banks.

BANK OF ISSUE. Money of its own in the form of "bank notes"—paper money which circulates as currency—may be issued by those banks given authority under the law to do so. Such a bank is called a Bank of Issue. Of this kind are national banks. Until 1865 "State Bank Notes" were issued by state banks, but at that time an act taxing such notes 10 per cent. was passed by Congress, with the result that they were quickly retired.

BANKRUPT. One who according to the laws of bankruptcy has been judicially declared unable to meet his liabilities. When advantage is taken of the National Bankruptcy Law, the debtor gives up all his property to be divided among his creditors, thus compelling them to make a settlement. When this is done he is given a legal discharge, absolving him from further liability. If it is afterwards discovered that the "insolvent" person has concealed property, thus defrauding his creditors, the law as a rule allows the latter to take possession. The forcing of an insolvent person into bankruptcy by creditors is called "involuntary bankruptcy." But a "wage-earner" or a "person engaged chiefly in farming or the tillage of the soil" cannot be so forced. Also, the insolvent person cannot be declared a bankrupt in an involuntary proceeding unless he owes debts amounting to at least one thousand dollars, has committed an act of bankruptcy, and the fair valuation of all his property is less than the sum of his debts. The action of "voluntary bankruptcy" is brought about by the debtor or the "insolvent," who may, unless a corporation, take advantage of the present Federal law to be adjudged a bankrupt.

BANK STATEMENT. A tabulated statement of their condition made usually once a week by banks in the larger cities belonging to the Clearing House Association. The New York Bank Statement, awaited with great interest by financial men, is issued to the public each week. A statement is tabulated by each national and state bank in the city belonging to the Clearing House Association, showing the average of each item for the period covering all the preceding business days of that week and the last business day of the previous week. These averages are received by the Clearing House manager, who obtains in like manner the average of each item for the combined statement. The "bank statement" never gives the actual conditions at the date of issue, since only the averages for the time covered are given. "Non-member banks," that is, banks which, although not members of the Association, "clear" through those which are, issue a separate statement. Since trust companies and their resources are not directly included in the "bank statement," its value is greatly lessened, and the true condition of the banking institutions is not obtainable. At times sudden withdrawals, or deposits, by the trust companies—large moneyed firms and institutions carrying accounts with the Clearing House banks—are made on purpose to render the statement misleading, in order to influence the loaning rates of money, and to affect the prices of stocks through a change in loaning rates.

BARGAIN. In England a term signifying a transaction between two members of the London stock exchange.

BAR GOLD. Gold in the form of bars of the British standard is 11-12 fine. The mint value of gold per ounce is 77s. 10½d., and the Bank of England is compelled by law to pay 77s. 9d. per oz. for all gold offered. It obtained, on September 20, 1906, the record price of 78s. 1d. for £200,000 bar gold. Gold imports are favored by the difference when the market price of "bar gold" falls below 77s. 10½d. in London. To make gold imports permissible in America, the fall of "sterling exchange" here must be greater the more the price of gold advances in London.

BARING PANIC. When, after a period of riotous speculation on the London Stock Exchange during the fall of 1830, the banking house of Baring Bros. was on the verge of collapse, dismay spread throughout the entire financial world; for untold misery would be caused by the failure of this great firm, with the many other moneyed institutions which would be carried down therewith. Such a world panic was averted by the wise and prompt action of Mr. Lidderdale, then Governor of the Bank of England, who obtained a loan of gold from St. Petersburg and the Bank of France. Against this the Bank of England, to temporarily accommodate the public, made an issue of paper money. Many leading bankers of London were persuaded by the Governor to write and subscribe a large guarantee fund, taking over the total assets of Baring Bros. The Bank of England liquidated, and ultimately a large surplus was returned to Baring Bros.

BAROMETER STOCKS. Daily, except on Sundays and stock exchange holidays, the average price of certain stocks is taken, and the rise and fall is a good indication of the trend of the market.

BAR SILVER. Silver that has not been and may never be minted into coin, but which comes from the smelter in the form of bars. The commercial value of the 371¼ grains of fine silver in a silver dollar was 72½ cents in 1907. "Bar silver" is bought and sold in London as a hedge against business transactions. The lowest price of silver in the world's history was 21 11-16 pence (about 43 cents) per oz., when it dropped to that in London on November 27, 1902. In New York, on September 3, 1890, the price was $1.21.

BEAR. One who sells stocks or securities for future delivery in anticipation of a fall in the market. A person is a "bear" on the particular security whose price he believes is about to fall, but is not necessarily so on others. The "bear," while naturally a seller, may be so for the purpose of buying at a lower price later on.

BEAR CLIQUE. A combination formed to depress market prices in general or the price of one security in particular.

BEARING THE MARKET. A forcing down, or depressing, of prices by artificial means.

BEAR MARKET. A "bear market," or general fall of prices, is the result of a predominating influence of the "bears."

BEAR PANIC. "Bears" on a certain stock and those who have gone "short" of it, when its price suddenly and rapidly advances, try frantically to "cover" or buy in what is needed to fill their contracts.

BEAR RAID. If there is much "long" interest at the same time that those who are "short" of the market wish to "cover," advantage may be taken by the "bears" to "sell short," and so force prices down that those who are "long" will of necessity sell. This will permit the "shorts" to "cover," or buy in, at a profit.

BELOW PAR. Below the face value.

BELT LINES. Short, connecting lines of railroad between one railway terminal and another. To connect railroads approaching a city from different directions, it has usually been necessary to follow a circular or belt course around a certain section of the city, and so the name "belt line" originated. If one belt system encircles another, they are often distinguished by the terms "inner belt" and "outer belt."

BERLIN DISCOUNTS. The discounting rates of good "commercial paper" at Berlin.

BETTERMENT or IMPROVEMENT. The cost of additional rail or other improvements on a road is as a rule charged first to a "betterment account" or "improvement account." It depends much upon the financial condition of the company, how it is treated at the end of the fiscal year. By a prosperous one it would probably be charged directly to "operating expenses," while by a company of limited financial resources it might be charged to "capital account" or "construction account." That the capitalization of a "betterment" should be only in proportion to the increased earning ability which the "betterment" has conferred upon the property is the opinion of many experts.

BIDDING UP. Bidding each time a little more than the previous actual sale, so as to create an advance in prices.

BID PRICE. The price bid or offered for any security.

BIDS AND OFFERS. A modern name for "puts" and "calls." In the New York Stock Exchange all offers to buy or sell securities are, unless otherwise stated, for 100 shares of stock or for $10,000 par value of bonds. Rules for the making of bids and offers are as follows: for delivery upon the day of contract, "Cash"; for delivery upon the business day following the contract, "Regular way"; for delivery upon the third day following the contract, "At three days"; not less than four nor more than sixty days is the limit for "buyer's" or "seller's options." If made without stated conditions, bids and offers are considered to be in the "regular way." A smaller variation than one eighth of one per cent. is not permitted in making bids and offers. If the par value of the securities is ten dollars or less per share, the bid and offer shall be in dollars or fractions thereof; if higher, bids and offers shall be made on the basis of a percentage of the par value of the securities dealt in. That the purchase money be paid on delivery may be rightfully required by the party delivering. Payment may be required at the time and place of transfer, if the deliveries are made that way. Under the Illinois statutes, transactions of "bids and offers" are prohibited.

BIG FOUR. Cleveland, Cincinnati, Chicago, and St. Louis Railway Company.

BIG KATY or KITTY. Missouri, Kansas, and Texas Railway Company preferred stock.

BIG NPR. (NIPPER). Preferred stock of the Northern Pacific Railway Company.

BIG STEEL. United States Steel Corporation preferred stock.

BIG THREE. The New York Life Insurance Co., The Equitable Life Assurance Society, and The Mutual Life Insurance Co., of New York—the three largest life insurance companies of New York City.

BIG UNION. Preferred stock of the Union Pacific Railway Company.

BILL. "Bill of Exchange." Bank bills or government notes are referred to by "bill" in the language of the clearing house. The expression is used also of promissory notes, the ordinary statement of a creditor's claim, as a butcher's bill, etc., or of any paper requiring money settlement.

BILL AT SIGHT. Same as "Draft" or "Sight Draft."

BILL-BOOK. Record of drafts, notes, etc., by a bank.

BILL BROKER. Sometimes called "bill merchant." In England, one whose business is to handle "bills of (inland) exchange," promissory notes, etc.

BILL OF CREDIT. Paper money issued by authority of the Government, and designed to circulate as money. As provided by the Constitution of the United States only the United States legislature, and none of the constituent states shall have the power to borrow money and "limit" bills of credit.

BILL OF EXCHANGE. Said to have been invented by Jews or Lombards in the fourteenth century in order to withdraw their property from the countries from which they were expelled. A written order from one person to another, requiring the latter to pay on demand or at a stated time, a certain sum of money "to order" or "to bearer," and charge to the account of the drawer. The order generally expresses that it is drawn for value. A bill of exchange is commonly termed a "draft."

BILL OF LADING. A written receipt for goods accepted for shipment by land or water transportation companies.

BILL OF SALE. A paper conveying from one party to another interest or right in personal property.

BILLS PAYABLE. Unpaid evidences of a person's indebtedness such as acceptance, notes, etc., held by others against him. From his standpoint they are bills "payable"; from the standpoint of those to whom they are due, they are "bills receivable." When, instead of a cash payment for a sum due, a promissory note, or some such instrument is given, they become "notes payable," or "notes receivable."

BIT. Used upon the Pacific Coast to indicate 12½ cents, the common term for a "quarter" or 25c. being "two bits."

BLACK FRIDAY. On September 24, 1869, Wall Street had one of the greatest upheavals it has known. A "corner" in gold, manipulated by Jay Gould and his partner, James Fisk, till it reached 162½, was suddenly broken by the Government purchasing with gold $4,000,000 of its own bonds. May 11, 1866, is also known as "Black Friday," because of the failure of the large London banking house of Overend & Gurney, and the disaster which followed.

BLANKET MORTGAGE. A rather vague term usually meaning a mortgage covering several different properties or a collection of properties, given to secure a single debt. It may also be given to secure indebtedness previously created in different forms. An underlying lien (indebtedness having prior claim) is usually implied by such a mortgage. This term is sometimes improperly used as synonymous with "general mortgage."

BLIND POOL. A name sometimes given to a corporation whose operations are known only to its own officials, and withheld from the stockholders and the public. Also, a "blind pool" is formed when, for a definite time, a group of corporations, or individuals, place certain specific interests in the control of one person, usually one of the group, and it is agreed that their interests shall be conducted by that one with no instructions from the others except those set forth at the beginning.

BLOCK. A large number of shares in a stock company bought or sold in a lump is called a "block of shares" or a "block of stock."

BLOTTER. First or temporary transactions are recorded in the "blotter," or book of original entry, and later "posted"—transferred—into books of more permanent record.

BONDED DEBT. Bonds comprising the fixed indebtedness of a municipality or an incorporated company. What bonded indebtedness may be placed upon a property with fairness to both shareholders and bondholders is a question worthy of serious consideration. That the property of a corporation should only be mortgaged to the extent of the minimum value placed thereon in a time of public adversity—its "unchangeable value"—is the general opinion. With such exceptions as those of some communities in the

Far and Middle West, where the assessed valuation in proportion to the marketable value of the property is very much less than in the East, no municipality should ever have a net indebtedness of more than 5 per cent. of its assessed valuation.

BOND OF INDEMNITY. When a corporation has issued a new security in place of one lost, it is protected against the finding and presentation of the first security at some future date by a "bond of indemnity." It is the business of "guaranty and indemnity" companies to furnish such bonds, at a reasonable price, when the loss of the security has been satisfactorily proved. This bond is really a form of insurance. A bond of indemnity is used to protect an employer against loss from the handling of funds, securities, etc., by an employee—as the cashier or treasurer of a bank.

BOND RESERVE. As bonds are supposed to be quickly convertible into cash in case of necessity, banks have, of late years, invested some portion of their funds in such securities. "Bond reserve" is the term used for an investment of this kind.

BONUS. This term is most generally used of stock thrown in with the sale of bonds or other stock. It is also used of a premium given for a loan or a charter or other privilege granted to a corporation; or an extra dividend to the shareholders out of accumulated profits.

BOOM. A strong advance in the market price of any security or commodity, accompanied by much excitement.

BOTTOMRY. The mortgage of a vessel as security for the repayment of a loan negotiated for the use of the ship.

BOURSE. In continental Europe, a market or exchange for a specific kind of merchandise, such as cotton, grains, etc.; or for securities generally. The Paris Bourse, or Stock Exchange, was established in 1726.

BREAK. "Break in the market," a decline in prices both great and unexpected.

BREAK EVEN. To come out just even. A transaction completed without profit or loss.

BROKER. A middleman who negotiates purchases, sales and contracts for others and receives a fixed fee or "brokerage." He generally contracts in the name of his principals instead of his own. There are various kinds of brokers—stock, real estate, oil, etc.

BROKERAGE. The "commission" or "fees" paid to a broker.

BUCKET SHOP. An office or place where facilities are given for gambling small amounts in "margins" (q. v.) and run by unreliable brokers, not permitted to be members of a stock exchange. However, the stock itself is rarely purchased or sold for the customer. Should the order be actually executed upon a bona fide exchange, an order for the same amount is put in by the bucket shop. For instance, the bucket shop would buy an amount equivalent to the customer's sale, or would sell an amount equivalent to his purchase. In other words, the customer wagers his money upon a given stock going up or down, and the bucket shop accepting the wager gambles the other way; and, as is almost invariably true, the gambling establishment—in this case the bucket shop—wins in the long run. As it is natural for the average person to buy with the expectation that stocks will go up, the bucket shop thrives best on a declining market. The daily transactions of this unwholesome business, centering in New York, are sometimes almost as large as those of the New York Stock Exchange itself; it is surmised that a few unscrupulous financiers control a large percentage of this business, and that under their management orders are received at a common center from branch offices throughout the country.

BULL. A person operating in anticipation of a rise in prices, or with a view to bring about such a rise.

BULL CLIQUE. Persons who unite in mutual efforts to advance market prices in general or the price of one or more securities.

BULLION. In discussions relating to currency, this term signifies both coined and uncoined metal when reckoned by weight. For export purposes and in general use, uncoined gold or silver usually in bars or ingots is understood.

BULLION VALUE. Should a gold five-dollar piece be worn so that its weight has been reduced to $4.75 worth of fine gold, the latter is its bullion value, the term signifying the commercial value of the precious metals as distinguished from the face value of coined money.

BULL MARKET. A "bull market" exists when the influence of the "bulls" is predominant in the market.

BUSINESS PAPER. "Commercial paper" or "paper" are terms used of all classes of acceptances, notes, bills of exchange, etc., no matter for what purpose given. Several other terms used to designate particular kinds of "promises to pay" have come into general use. "Business paper" signifies the notes, acceptances, etc., taken in exchange for goods delivered, in distinction from notes given in exchange for money to use in business. "Business receivables" and "trade paper" are terms often used in reference to "business paper."

BUY AT THE OPENING. An order to purchase at the lowest possible price as soon as the stock exchange opens.

BUYER'S OPTION. Under such a contract the buyer of a security has, by giving the seller one day's notice, the right to demand delivery any time within the period covered by the contract, but need not receive delivery until the end of the specified time. "Buyer 5," "buyer 18," etc., briefly express the understanding, the number of days provided for in the agreement being indicated by the figures. The time must not be less than four nor more than sixty days, according to the rules of the New York Stock Exchange.

BUYING ORDER. An order to buy certain securities, with or without price limit, given to a broker and good only for the date for which it is given unless specified differently.

CALL. A notice that the amount of a bond will be paid; a demand for the payment of money, or for subscriptions to stocks or bonds. By this kind of contract, its possessor may at a fixed price and within a stated time, demand from the signer thereof a certain amount of stock (grain or other commodity). In New York, this privilege may be exercised any time within the life of the "call"; in London, only upon the last day of the time limit. Calls are dealt in much more extensively in London than in America. If the rights of the call are exercised, the stock is accompanied by all dividends paid upon the stock in the meantime.

CAPITAL ACCOUNT. If expenditures upon a property result in the increased earning capacity of the corporation, they may be paid for from increased capitalization; if not, they should be paid for from the earnings of the company, and charged to operating expense." For instance, should a stone building replace a wooden one, but the business of the corporation be not increased thereby, the expenditure should be charged against the earnings of the property, as it represents a "replacement." But if additional buildings are erected and the earning capacity of the corporation is increased by their use, the expenditure may be properly met by further capitalization, as it is an "improvement."

CASH DIVIDEND. Money or its representative given in payment of a dividend.

CASHIER'S CHECK. A check, signed usually by the cashier, which is drawn by a bank against itself and payable when presented at the bank drawing the same. One would use a cashier's check when for the case in hand the check of a known bank would be accepted more readily than his own. Or a person unable to draw a check because without a bank account of his own may obtain a cashier's check by paying the amount in cash, plus, perhaps, a small sum charged by the bank for the accommodation. By the bank itself this check is used in payment for supplies, expenses, in discounting notes, paying for securities, bills of exchange, etc., and also for dividends to stockholders, but a special form may be used for this purpose.

CERTIFICATE OF DEPOSIT. The written acknowledgment of a bank that the person named therein has placed with them a stated amount of money on deposit. It may be made payable either at a specified time or on demand, and usually draws interest. Declared by the courts of California to be a negotiable instrument in substance and effect the same as a promissory note. The money so deposited cannot be withdrawn by check, but the "certificate of deposit" must be presented by the holder thereof or by some one to whom it has been properly indorsed. Like a money order or cashier's check, this certificate may be used to transfer funds from one point to another.

CERTIFIED CHECK. That the person who draws a check has sufficient funds on deposit in the bank to pay it when presented is certified when an expression such as "Accepted," "Good when properly indorsed," or "Good through the Clearing House," followed by his official signature and the date, is written across the check by some competent bank officer. When a check is so certified, the amount of the check is deducted from the sum to the credit of the depositor. If not used, a certified check may be returned to the bank and canceled. The bank is under no obligation to certify checks, but does so merely to accommodate. Except in the case of a "raised check," a bank may be held for payment after certification. National banks are prohibited from "over-certifying" checks; that is, certifying, as an accommodation, that a depositor has to his credit more money than is the case, with the expectation that the depositor will make good the deficit sometime during the day.

CHATTEL MORTGAGE. A mortgage given and recorded in much the same way as a mortgage on real estate, but distinguished therefrom as being a mortgage on live stock, movable goods, or personal property.

CLEARING HOUSE BALANCES. The amount needed to settle the differences between all banks "clearing" through a certain association. The transaction between the clearing house and one bank is referred to as "balances."

COLLATERAL or COLLATERAL SECURITY. Something deposited with the evidence of debt to satisfy the claim of the lender should the borrower fail to meet the indebtedness when due. A security for the payment of money or for the performance of agreements. The collateral is usually about 20 per cent. more in value than the amount of the loan, such additional value being termed the margin. If the value of the collateral decreases to the amount of the loan, and the debtor is unable to pay off part of the loan or deposit additional security, or if the debtor is unable to make payment when the loan matures, the lender has the right to sell the collateral and deduct from the proceeds the amount due for principal and interest, the borrower receiving the balance, if any.

COLLATERAL LOAN. When a corporation or individual has deposited with the holder of a note certain securities which may be sold by the latter if the note is not paid when due, a "collateral loan" is made. If the securities are sold, the creditor retains sufficient to liquidate the debt, and the balance, if any, is handed to the debtor.

COLLATERAL NOTE. When mortgages, stocks, bonds, or other securities are given to secure a promissory note, it becomes a "collateral note." Such may be given by corporations, firms, or individuals, and among many railroad companies they are a common form of borrowing.

COMMERCIAL AGENCIES. Bradstreet's and Dun's, the two principal "commercial agencies" of this country, have their main offices in New York. Books giving the credit standing or rating of practically all the business men, firms, etc., who might possibly need credit throughout the United States and also in other parts of the world, are furnished to subscribers by these agencies. Special information in regard to any person in any part of the territory covered will be supplied to subscribers. In addition to all this, they give the public general information in regard to crop and business conditions, the number of failures during a certain period, etc. The first mercantile agency was established in New York in 1841.

COMMERCIAL PAPER. Many kinds of acceptances, notes, bills of exchange, etc., are covered by this very general term. Note brokers further distinguish the various kinds of "commercial paper" as "business paper," "mercantile paper," "corporation paper," etc.

COMMISSION. The brokerage or compensation given to an agent for his services as a middleman. The New York Stock Exchange has fixed rules for commission charges: (1) All commissions must be reckoned on a par value of securities; (2) transactions for parties or partners not members of the Exchange, or for firms of which the Exchange member or members are special partners only, not less than one eighth of one per cent. commission shall be charged; (3) on business for members of the Exchange, if a principal is given up, the commission must be not less than one fiftieth of one per cent., otherwise, not less than one thirty-second of one per cent. The committee on commissions, with the approval of the governing committee, fixes, from time to time, the rates on mining shares and subscription rights charged to both members and non-members. The foregoing rules do not apply to government or municipal securities.

COMMISSION HOUSE. A firm which does not speculate on its own account but transacts business wholly on a commission basis.

COMMON CARRIER. One who, for hire or reward, transports from place to place the goods of those who wish to employ him. The term includes all transportation companies engaged in the passenger, freight, or express business. Pipe lines for the transportation of oil or other commodity except water or gas also come under this heading in the "Rate Bill" passed by Congress.

COMMON STOCK. That portion of the capitalization of a corporation on which dividends may be paid after the requirements of the bonds, floating debt, and "preferred stock," if any, have been met. It is the equivalent of the English "ordinary stock." Common stock generally carries voting power.

COMPTROLLER OF THE CURRENCY. The chief officer of that bureau of the Treasury to which is intrusted the execution of all the laws passed by Congress relating to the issue and regulation of a national currency secured by United States bonds, and who really has control of all national banks.

CONSOL CERTIFICATES. Ownerships in the "Consols" of Great Britain and Ireland are represented by these certificates, issued by the National City Bank of New York, and traded in in America in place of the original "consols," thus greatly simplifying such transactions.

CONSOLIDATED EXCHANGE. A distinct association from the New York Stock Exchange, although situated in the same city. Its proper title is "The Consolidated Stock and Petroleum Exchange of New York" and the membership is about 1500. Two thousand dollars is approximately the price of a seat. The rate of commission is one half that of the New York Stock Exchange, that is, 1-16 per cent. instead of 1-8 per cent. and the transactions amount to probably not much more than 10 per cent. of those on the larger exchange.

CONSOLIDATED FIRST MORTGAGE. The same as "first and consolidated mortgage," in its common use in relation to bond issues.

CONSOLIDATED MORTGAGE BONDS. A corporation bond whose security is a mortgage on the entire property formed by the consolidation of several smaller properties. This mortgage may be a first mortgage upon the property so consolidated. If previous mortgages have been issued by one or more of the companies, it would be a general mortgage bond as well as a consolidated mortgage bond. In the case of a railway company, consolidated mortgage bonds are to be distinguished from divisional bonds—mortgages upon the separate properties consolidated. The term is commonly used for an issue which is to refund (take the place of) other issues not yet due, but having a prior lien, it being expected that the funded indebtedness of the company will be finally consolidated by the new debt. In such a case, the new issue is not only large enough, as a rule, to retire the prior indebtedness, but also to furnish money for necessary improvements.

CONSOLS. A contraction of *consol*idated annuities; the name given to the leading Government securities of Great Britain known as "Consolidated Threes" or "Three Per Cent. Consolidated Annuities." The right to pay the principal at its pleasure is reserved by the Government. The fund dates from 1757, and the account is kept at the Bank of England. The stocks are transferable and their market value constantly fluctuates, the price being regarded as a criterion of national prosperity and public confidence. "Two Per Cent. Consols" is the name given to the United States Government 2 per cent. bonds redeemable after 1930.

CONSTRUCTIVE MILEAGE. A relatively greater mileage allowance granted by a main line to a branch connecting line of railway in connection with freight originating on the latter and destined to some through point on the main railroad.

CONVERTIBLE BOND. A bond which is, under certain conditions, convertible at the will of the holder into other securities—usually stocks—and which is generally issued by the same corporation. The annual interest charge becomes contingent instead of fixed if the stock is "converted."

CONVERTIBLE PAPER MONEY. Paper money which the holder has the right at any time to present for redemption at its equivalent in metallic money.

CO-OPERATIVE BANKS. The one great difference between "building and loan associations" and "co-operative banks" is that from the latter a member has the right, by giving due notice—perhaps thirty days—and upon certain other conditions, of withdrawing the accumulations upon his unpledged shares.

COPPER or COPPERS. The product of the mine is called "copper." Shares of stock in the various copper companies are referred to as "coppers." These are also distinguished by the expressions "copper the metal" and "copper the stock." The copper industry of the world is dominated by the entire production, including what we have from adjoining countries. The average price is 15.70 cents per pound, and for 1906 our estimated production was about 413,834 tons. "Coppers" is a name often given to our pennies.

CORN. The commission for corn is the same as on other grains, but its margin is about three cents a bushel, and 5,000 bushel lots is its trading unit for future delivery.

CORNER. A buying up of the whole, or the available part of any stock or commodity, so as to control the selling price, as a "corner" in cotton.

CORPORATION. An association of persons for the purpose of carrying on some business or enterprise, who are exempt by law from personal liability beyond the amount already invested. The different ownerships are represented by shares of stock. Semi-public enterprises such as electric lighting, gas, street railways, etc., must be conducted lawfully by incorporated companies in order that the state may have some control. To form a corporation, a charter must be obtained from the legislature of a state, or from such officers as may be authorized to grant charters or even, under certain conditions, from Congress. With some exceptions companies may incorporate under the laws of a state other than the one in which the business is conducted. Many states have enacted laws conveying great privileges in the charters, and receive a large revenue from them, since corporations, as a rule, select that state which grants the most privileges. The three "charter bartering states" most liberal in the range of the charters granted, conveying upon corporations rights to do things in other states often prohibited by the laws of those states, are New Jersey, West Virginia, and Maine. It is necessary to name a resident "attorney in fact," given the usual powers of such attorneys, when companies organize under a different state than the one in which their business is conducted. That the principal office, containing the stock and transfer books, etc., of any company incorporated therein shall be located within its confines is required by some states. A "certificate of incorporation," following the form used by the state where the corporation is organized, and usually accompanied by a copy of the constitution and by-laws, must be filed with the secretary of state or some other properly designated person.

COTTON. Five hundred pounds is the average weight of a contract bale, the buying and selling unit being 100 bales, or 5,000 pounds. "Points" is the term used to record fluctuations, there being 100 "points" in a cent. If it declines fifty "points," it means one half cent per pound, or $2.50 on each bale, and $250 on the 100 bales. Members of the New York Cotton Exchange are charged a commission of $7.50 per 100 bales for the "round turn," i. e., buying and selling; non-members are charged $15. The usual margin charged by brokers is one half cent per pound, or $250 on each 100 bales. But this varies according to circumstances.

COUNTRY BANKS. Not located in a "reserve" or "central reserve" city, and not allowed to hold the "reserve" of any other national bank. Their reserve need be only 15 per cent. of their net deposits, two fifths of which must be kept in their own vaults. With the approval of the comptroller of the currency, the balance may be deposited with a bank in either a "reserve" or "central reserve" city.

COUPON. The small certificate attached to the part of the bond which represents the principal sum, the interest upon the bond for a certain period being represented by each coupon. Enough coupons are attached to represent the interest for the entire length of time before the bond matures. As the coupons, or certificates, severally become due, they are cut off and presented at the place named for payment.

COUPON BONDS. Those which have attached interest coupons or notes made payable to the bearer, to be presented for payment at stated intervals as the interest becomes due.

COUPONS, COLLECTION OF. Care should be taken in transmitting coupons from one point to another, for, like a five dollar bill, good in the hands of any one, they are usually made payable to "bearer." As banks have the safest and most thorough systems for coupon collecting, the best thing for an individual to do is take the coupon to his local bank about a week before it matures, and request them to collect it for him.

CREDIT. Transfer of property or goods in expectation of future payment; also the time allowed for such deferred payment, as a short credit, or a long credit. In bookkeeping, credit for money received or its equivalent is entered on the credit or right hand side of the account.

CREDIT CURRENCY. Called so when the general assets of a bank are the only security for the currency which it issues, as is true of the Bank of France. As against all additional notes above a certain fixed amount issued by the Bank of England there is a deposit of gold coin and bullion, such notes are substantially "gold certificates." The nearest approach to real money that is not actual money are the United States "gold" and "silver certificates," as each one is represented by an equal sum of gold or silver deposited to secure it.

CUMULATIVE. Generally used in reference to preferred shares of stock. Common or other stocks can receive nothing until the unpaid dividends on the preferred, which have accumulated from year to year, are paid. The chances of dividends upon common shares is naturally lessened by a "cumulative issue."

CURB. A market in the open (on the curb) where are handled new securities not yet listed upon the large exchange, or securities not traded in there; although any security may be dealt in upon the "curb." Many regular stock exchange houses in New York conduct a "curb" department. Marginal transactions in only the very best "curb" securities are permitted by most houses. There is no fixed rate for commissions on "curb transactions."

CURB BROKER or CURBSTONE BROKER. One who transacts business upon the "curb" or by going from office to office, and who is usually not a member of the stock exchange.

CURTAILING A NOTE. This is done by making a partial payment upon a note when due, or by giving a new note for the lesser amount after such a payment has been made. The same effect would be gained by making partial payments from time to time upon a "demand note."

DAILY BALANCES. Deposits of a certain amount are encouraged by this method. Depositors whose "daily balances" are over a certain amount—perhaps $300 or more—are allowed interest on them by most trust companies and occasionally by other banking institutions. That is, if it is found at the close of a business day that the total amount which a depositor has had to his credit unchanged for the preceding 24 hours equals $300, or whatever the amount agreed upon may be, interest for the day is allowed upon such an amount on sums evenly divisible by $100, but not for the fractional amounts above the even hundreds. No interest is allowed for the day if the deposit is less than the agreed amount.

DEBENTURE. Although the security ordinarily understood by this term is "debenture bond," it is used of municipal issues such as we call "bonds" throughout Great Britain and her colonial possessions in general. Where there is no "trust deed" securing the issues of railroads in Great Britain they are called "debenture issues." In Canada "debenture" is used of a municipal issue, "bond" of a corporation security.

DEBENTURE MORTGAGE. Comparatively few of these investments are dealt in at present. Formerly, if a "farm mortgage company" wished to issue "debentures," it would place with some trust company, perhaps $110,000 par value of mortgages upon real estate, and then issue "debentures" (or "debenture mortgages") worth $100,000, with a rate of interest smaller than that upon the original mortgages. In buying one of these, the investor was supposed to run less risk than in purchasing any specific mortgage.

DEED. In law, any instrument bearing a seal. In common usage, a sealed document (ordinarily a printed form filled out in writing) whereby the title of real estate is transferred from one to another. There are two kinds of deeds generally used in conveying real

estate. By a "quitclaim deed," the one giving it transfers only his own right and interest in the property, and in no way holds himself responsible for any defects in the title. By a "warranty deed" the property conveyed is guaranteed by the party giving the deed to be free from any defects of title, and if any such are found, the one accepting the deed is entitled to recover.

DEFERRED DIVIDEND. One not payable until the end of a certain time or until some definitely named event has occurred. Used by life insurance companies of the dividends kept by the company and paid to the policyholders at intervals of perhaps twenty years.

DELIVERIES. Upon the New York Stock Exchange, securities sold for "cash" must be delivered before 2.15 P. M. on the day sold, except on the half holidays observed by the Exchange, when the time limit is 11.30 A. M. They must be delivered before 2.15 P. M. on the following business day, if sold in the "regular way." Should the securities or any portion thereof not be delivered before the time specified, they may be brought "under the rule." If the buyer refuses until the following day a delivery offered after hours, interest for the extended time may not be demanded by the seller.

DEMAND LOAN or **CALL LOAN.** With this form of note or promise to pay, the lender has the right to demand payment at any time, and the borrower has equal right in making payment. In each case Sundays and legal holidays are excepted and payment will presumably not be made nor required on the same day the note is given. In New York notice that payment is to be made or demanded is usually given before 1 P. M. and payment made before 2.15 P. M. on the same day. Friday loans generally hold over until Monday. A "demand note" is payable without "grace," and bears legal interest after payment has been demanded, unless otherwise stated in the note.

DEMURRAGE. The per diem charge made when a car, vessel, or any such vehicle of transportation is delayed beyond the time allowed, for either loading or unloading.

DEPOSIT. Made when a person gives into the safekeeping of an individual, bank, or other corporation, securities, money, titles to money, or anything of value. "Pay to the order of the Third National Bank of Springfield, Mass.," followed by the signature of the depositor, is the simplest form of indorsing checks for deposit. Those who carry a deposit "subject to check" should beware of an "overdraft." Banks usually credit checks to the depositor at once, even though not able to collect them for several days, but sometimes they are unable to collect them at all, and then the checks are returned and charged against the depositor's account.

DEPOSITS ("BANK STATEMENT"). Money itself is not necessarily understood by "deposits" as referred to under "Bank Statement." The increase in deposits following an expansion of loans is explained by the fact that the amount a depositor wishes to borrow from his bank is accredited to his account, instead of being paid to him in cash. Credit is the base of such proceedings, and its importance in connection with financial and business affairs should be kept continually in mind. The amount to the credit of the government, itemized as "United States Deposits," is shown separately by the statement of the associated banks of New York, enabling the "reserve" required to be estimated. When not so divided, everything to the credit of others which may be withdrawn is included in "deposits."

DEPRECIATION. The falling off in the value of property, on account of wear and tear, or through machinery becoming antiquated, or in the case of a mine, etc., reduction in the life of a property. Some manufacturing concerns set aside from their profits each year 10 per cent. of the cost value of all the machinery and 6 per cent. of the cost value of the buildings to cover depreciation. The location, etc., of real estate regulates the amount written off for depreciation. Unless the depreciation of the property is counterbalanced by some way of setting aside each year a definite amount for that purpose, it will be found by the share and bond holders of the corporation that their dividends and interest have not been the actual profits of the corporation, but a payment, bit by bit, of their principal sum.

DISCOUNT. A deduction made for interest in purchasing a security not yet due; the difference between the price given and the par or face value. When it is necessary to give for one dollar in gold more than that sum in paper money, the latter is said to be "at a discount." The face value of a note less the "discount," is termed the "proceeds", or "net avails." The term "discount" is used in Great Britain and continental Europe in much the same way as our "time money."

DIVIDEND. A distinctive sum of money, share, or percentage. The term is used in many ways. The profits received by the owners of stock in a corporation, that is, the proportion of its earnings which they receive, are called dividends, and are distributed in proportion to the par value of the stock. The payments received by the creditors of a bankrupt are known as dividends, as are also payments made from time to time to the depositors or shareholders of a bank in liquidation. A certain amount of "undivided profits" is usually held as a reserve or "surplus fund," which is virtually equal to an increase in the capital stock. Corporations generally declare dividends at stated intervals, say the first of January and the first of July of each year. A company is said to have "passed its dividend" if none is declared at an appointed time.

DRAFT. A written order from one person to another to pay to the order of a third person, a stated sum of money; or bill of exchange. The writer of the order is called the "drawer"; the one who is to pay the money, the "drawee," and the bank or other party to whom the promise to pay is made, the "payee." Drafts are often made payable to the drawer, when the word "myself" is used. If that is done the drawer must indorse it in order to render it negotiable. By indorsement a draft may pass from hand to hand like a note. There are two kinds of drafts, "time" and "sight" (or demand). If the former, they are presented to the party against whom they are drawn for "acceptance." If "grace" is allowed for a "sight" draft, it must be presented for acceptance; but an ordinary "sight" draft is payable on presentation. The laws of the state where the draft is payable regulate its payment.

EARMARKED. A term used in England to denote gold deposited with the Bank of England for safe custody, but which the Bank may not employ for any purpose of its own. "Earmarked" gold is held on behalf of the government of India, as well as of the National Bank of Egypt, and notes are issued both in India and Egypt against this security.

EXCHANGE. A method of settling accounts or making payments between parties residing at a distance from each other. When the instrument is drawn in one country and payable in another, it is called "foreign exchange"; when drawn and payable in the same country it is termed "domestic exchange." In England the latter is known as "inland exchange." In the State of Michigan the term "foreign exchange" applies to all bills drawn or payable in any other state of the Union, as well as in any foreign country. A in New York owes B in London $1,000. B in London draws a "bill of exchange" on A in New York and deposits it with his London banker. Suppose on the other hand, C in London wishes to remit $1,000 to D in New York; by purchasing in effect the order drawn on A, the transaction is simplified, one debt being made to offset the other. In practice the London banker would forward the bill drawn by B to his New York agent for collection, the agent holding the sum at the London banker's disposal. C therefore would be given an order against the New York agent for $1,000, so there would be no necessity for any actual money being shipped at all. The price of "exchange" is determined by supply; if there is too much, "exchange" is at a discount; if too little it is at a premium. The final adjustment of "exchange" is made by gold; that is, when more money is to be remitted than is covered by available bills of exchange, bullion is shipped to make up the difference. London is the chief financial center for international business, and if, for instance, a merchant in New York wished to make a payment to a firm in China or Brazil, he would purchase a bill of exchange on London. "Exchange" quotations are recorded in the newspapers: e. g. "Sterling 4.87¾" signifying that $4.87¾ must be given in order to purchase "exchange" on London for one pound sterling. "Domestic" business is conducted in much the same manner, New York being the common financial center for "domestic exchange."

EXPRESS MONEY ORDERS. This method of remitting money by mail differs from "postal money orders" in several ways, no written application is

needed. They may pass from one person to another by continual indorsement, as they are unlimited in number, and if not presented within one year are still valid. Without the necessity of a duplicate being forwarded by the issuing office, they are payable upon presentation and at all offices of the company—not as by government method, at some special office. The rates are practically the same as those of the United States Post Office and sums up to $100 may be sent by one money order.

FACE VALUE. The principal. The value of a security as it appears in the security itself, without regard to any coupons.

FEE SIMPLE. Term used of a landed estate which belongs to the owner, his heirs, and assigns forever.

FIAT MONEY. Money issued by a government having the supposed power of forcing its acceptance in payment of debts within its own dominions, or which it declares shall be accepted as legal tender at its face value. "Fiat money" as commonly understood has no real value, or at the most is not worth its face value, in which case the "fiat money" is the difference between the real and the face value.

FIDUCIARY. Involving trust or confidence, especially of a financial nature. Banks, trust companies, etc., are "fiduciary institutions."

FINANCE. To furnish the funds required for an enterprise is to finance it.

FINANCIAL BILL. Called also the "Currency Act" and the "Gold Standard Act." This Act of Congress, approved March 14, 1900, included in its purposes the refunding of the public debt; maintaining the parity of all forms of money coined or issued by the United States; the defining and fixing of a standard of value, which last was declared to be the dollar, consisting of twenty-five and eight tenths grains of gold, nine tenths fine, all other forms of money coined or issued by the United States to be maintained at a parity of value with this standard under the jurisdiction of the secretary of the treasury.

FINE GOLD. That free from impurities. The United States Mint price of an ounce of fine gold is $20.672, which equals its value in England of 84s. 11.45d.

FIRST AND GENERAL MORTGAGE BONDS. An issue secured by a "first mortgage" on part of the property and a "general mortgage" on all of it.

FIRST MORTGAGE. A mortgage having prior claim or preference over others that may be placed upon the same property.

FIRST MORTGAGE BOND. A bond secured by a first mortgage and having first claim upon the earnings of a corporation.

FIRST MORTGAGE TRUST BOND. Under certain conditions this form of "collateral trust bond" may be indirectly a first mortgage; for it is one whose security is a deposit of other bonds, they, in turn, being secured by a first mortgage.

FIRST UNITED STATES BANK. In 1791, Congress granted a charter authorizing a United States Bank, its object being to take public money on deposit, regulate the currency, and act as official agent of the government. Its capital was $10,00,000, and at one time its circulation was about $4,500,000 and its deposits about $8,500,000. The government held one fifth of the capital, the public at home and abroad, the balance. The foreign holders were not allowed to vote by proxy, and so, although in the majority, could not obtain control. The right of inspection was held by the secretary of the treasury. So long as notes were kept repayable in coin, they could be received for public dues. The main office was in Philadelphia, branches being established in most of the important cities. The charter, obtained through the efforts of the first secretary of the treasury, Alexander Hamilton, was for only twenty years, and although the bank was a very successful institution, its constitutionality had been questioned, political opposition to its return was excited, and the renewal defeated. The bank, liquidating, returned to the shareholders $434 for each $400 share.

FIVE TWENTIES. Bonds subject, at the pleasure of the issuer, to redemption after five years from date of issue, but not due until twenty years therefrom.

FIXED CHARGES. As generally understood, the "fixed charges" of a corporation include rentals, taxes, insurance, interest upon its bonds and floating debt, and sinking fund, if any, although this last may be shown under a separate heading. Occasionally the first three items are given under a separate heading, but unless they are included in "operating expenses" this should not be done. Insurance is placed by railroad companies under "general expenses." By some prominent accountants only "bond interest, taxes, and rentals" are considered as "fixed charges"; but on permanent property at least, fire insurance and "sinking fund" should be included.

FLOOR. Where trading is done; used in connection with an exchange.

F. O. B. Stands for "free on board," meaning that no extra charge will be made for packing or for delivery on board a vessel or car.

FORCED LIQUIDATION. Used on the stock exchange when, to obtain necessary funds, owners of stock are compelled to convert the same into cash.

FORCED SALE. The compulsory sale of a debtor's property by a creditor, or mortgagee; the amount received being its "forced sale value."

FORECLOSURE. If the interest or principal of a debt secured by a mortgage is not paid by the "mortgagor," or if some other condition set out in the mortgage is not fulfilled by him, the property so secured may be taken and sold to cover the debt. After the foreclosure expenses, the indebtedness secured by the mortgage, and other liens have been satisfied, the "mortgagor" receives the balance if any. The power to sell is contained in the mortgage itself in most states, but in a few such a sale is prohibited, and an order from the court must be obtained.

FOR THE ACCOUNT. In England securities purchased for delivery on "account day," as the "fortnightly settling-days." "For money" is the term used of a security bought for immediate delivery.

FULLY PAID or **FULL PAID.** Further payment may not be legally demanded; there is no more due. When a stock has been issued in exchange for its face value in cash, property, or other equivalent, it is fully paid.

FUNDING. Providing a fund for the payment of the interest or principal of a debt—usually of the unbonded debt of some public body. For instance, if a city cannot pay its outstanding debts, which are in the form of notes due at different times, it must either renew or extend them, which is expensive, or else it may issue bonds, and pay off the notes by this method of "funding." A saving to the city will be made, as the money is usually obtained at a lower rate of interest.

GARNISHMENT (GARNISHEE). Called in Massachusetts "trusteeing." This term is used when property or credits of a debtor held for or owed him by some one else are attached for payment. If Smith has been unable to collect a sum owed him by Grant, by a legal process he attaches the latter's bank account for the amount due; in other words, he "garnishees" the account.

GOLD BANKS. None of these are in existence today, owing to the Act of February 14, 1880, which authorized the conversion of "gold banks" into "currency banks." But under the National Banking Act, associations called "Gold Banks" or "National Gold Banks," to issue bank notes payable in gold, may be and have been formed. Following the rule for taking out ordinary circulation, such banks must deposit with the treasurer of the United States interest-bearing bonds, *payable in gold*, but not more than 80 per cent. of the par value of the bonds deposited. These notes are redeemable in gold coin of the United States and are payable in the same upon presentation at the bank of issue.

GOLD BASIS. In a country that is on a "gold basis," the monetary standard is gold, and values are measured in the same way.

GOLD BONDS. This term is used in America of bonds that may be paid in United States gold coin of the fineness and weight of the present standard.

GOLD CERTIFICATES. The secretary of the treasury has been authorized by the United States government to receive deposits of gold coin or bullion of $20 or over, for which he issues certificates, or receipts, each equal to not less than $10, and which the treasurer and all assistant treasurers of the United States may redeem in gold. If the amount of gold coin and gold bullion in the treasury reserved for the redemption of United States notes falls below one hundred million dollars, the issue of gold certificates must be suspended by the secretary of the treasury, who may also suspend such issue when and for as long as the aggregate amount of United States

notes and silver certificates in the general fund of the treasury is greater than $60,000,000. To take care that at least one fourth of all outstanding certificates are in denominations of $50 or less is also the duty of the secretary of the treasury. The gold certificates in circulation amounted to $7,963,900 in 1880, $200,733,019 in 1900, and $802,754,199 in 1910. These may be used as a part of a national bank's reserve; are receivable for taxes, customs, and all public dues, but are not legal tender.

GOLD COIN OF THE UNITED STATES. Redeems Gold Certificates, Treasury Notes of 1890, and United States Notes. Issued by the treasurer of the United States and all assistant treasurers. If not below the standard weight and limit of tolerance prescribed by law, it is legal tender at its face or nominal value for all public and private debts. It is legal tender in proportion to its weight, if below the standard and limit of tolerance.

GOLD COINAGE. No charge is made for the coinage at any of the United States mints, for the benefit of the depositor, of gold bullion of standard equality. If it is not standard, a charge for refining, parting, copper alloy, etc., is made. Gold bullion of practically any amount is received for coinage by the mints, although legally they may refuse less than $100 worth.

GOLD EXCHANGE. Organized in 1864 as a result of speculation in gold during the Civil War. The memorable collapse known as "Black Friday," caused by a bull movement in gold, took place in the "Gold Room" as it was called.

GOLD PRODUCT OF THE UNITED STATES, from the year 1900, in troy ounces and value, is as follows: 1900, 3,829,897, $79,171,000; 1901, 3,805,500, $78,666,700; 1902, 3,870,000, $80,000,000; 1903, 3,560,000, $73,591,700; 1904, 3,892,480, $80,464,700; 1905, 4,265,742, $88,180,700; 1906, 4,565,333, $94,373,800; 1907, 4,374,827, $90,435,700; 1908, 4,574,340, $94,560,000; 1909, 4,821,701, $99,673,400; 1910, 4,657,018, $96,269,100; 1911, 4,687,053, $96,890,000; 1912, 4,520,719, $93,451,500; 1913, 4,299,784, $88,884,400; 1914, 4,572,976, $94,531,800.

GOLD PRODUCT OF THE WORLD since the discovery of America is estimated as follows:—

Years.	Gold.	Years.	Gold.
1492-1520	$107,931,000	1901	$260,992,900
1521-1560	204,697,000	1902	296,737,600
1561-1600	189,012,000	1903	327,702,200
1601-1640	223,572,000	1904	347,377,200
1641-1680	239,655,000	1905	380,288,700
1681-1720	313,491,000	1906	402,503,000
1721-1760	580,727,000	1907	412,966,600
1761-1800	511,675,000	1908	442,886,900
1801-1810	118,152,000	1909	454,059,400
1811-1820	76,063,000	1910	455,239,100
1821-1830	94,479,000	1911	461,939,700
1831-1840	134,841,000	1912	466,136,100
1841-1850	363,928,000	1913	459,941,100
1851-1860	1,332,981,000	1914	455,676,600
1861-1870	1,263,015,000		
1871-1880	1,150,814,000	Total,	$15,690,727,300
1881-1890	1,060,056,000		
1891-1900	2,101,241,400		

GOLD RESERVE. With a view to preserving the equality of all forms of governmental money, and being in a position to redeem all the government legal tender notes at par on presentation, a "gold reserve" of $150,000,000 is kept by the secretary of the treasury in accordance with an Act of Congress, 1900. United States Government Bonds would be issued to replenish the reserve should it fall below $100,000,000.

GOOD WILL. The prospective material value of a business as a profit-producing enterprise, the future turnover being gauged by the results to date and the likelihood of their continuance. Defined by some as the benefit or advantage, beyond the mere value of capital, funds, or property used, acquired by an establishment. The bonded debt of a plant less its valuation at forced sale is another definition.

HEAVY. The market is heavy when owing to a steady advance too many securities are offered and so cause a fall in price.

HEDGE. To lessen a risk by speculating or wagering on two opposite chances; to reduce anticipated loss by selling or buying.

HIGH FINANCE. Extensive jugglery with other people's money.

HOLDING COMPANY. A financial combination "holding" or owning the shares of another company or companies, in order that through the ownership of their stock it may control the "sub-companies," each of which keeps its individual existence, but with managing officials appointed by the "holding company." Maine, New Jersey, and West Virginia have enacted laws especially to attract such companies, and they are generally incorporated in one of these states. The object, as a rule, is to practically consolidate two or more companies where it would not be possible to bring about actual consolidation by acquiring all the outstanding stock, or where a direct consolidation would be illegal.

IMPROVEMENT MORTGAGE BONDS. Commonly understood to refer to a "junior mortgage." An issue of bonds to provide funds for additions, betterments, improvements, etc., is secured by an "improvement mortgage." The issue is usually large enough to replace earlier mortgage bonds and also to provide for future improvements. The term "improvement bonds" is often used of "street improvement" and "public improvement" bonds among municipal issues.

INACTIVE ACCOUNT. A bank account not often credited with deposits, and against which checks are drawn at long intervals. Also used of a broker's account showing that the customer's purchases and sales are infrequent.

INACTIVE STOCKS OR BONDS. Securities difficult for the public to find the market value of, as they are bought and sold very irregularly, and are hardly ever quoted.

INCOME. In finance, the term is usually restricted to the yearly monetary return from investment; and interest return from real estate, mortgages, stocks, bonds, or from any money invested outside of one's own business.

INDORSE. The "payee" is the person to whom a draft, note, or check is made payable. To make any one of these of value to some other person, the "payee" indorses it by writing his name on the back exactly as it is written on the face. If the check is made payable to "J. Stanley Bridge," the back must be signed that way, and not "James S. Bridge" nor "J. S. Bridge." Should the face of the note give the wrong initial or otherwise be in error, and a new check issued in the right form be not easily obtainable, the "payee" may sign his correct name in addition to the one as given on the face of check. A check drawn to "Mrs. Frank Allen" should be similarly indorsed by her and her own name "Bertha Allen" written underneath. Should the holder of a check that has passed through the hands of several people, having been indorsed by each in turn, find upon presentation at the bank for payment that there is no deposit to meet it, he may fall back upon any one of the previous indorsers, not necessarily upon the one immediately preceding. For it must be remembered that the indorser of a check, draft, etc., may be held liable for its amount, unless he has added the words "without recourse," which may sometimes, but not always, be done.

INDORSEMENT IN BLANK. Only the name of the indorser is written upon the back of such an instrument, making it good in the hands of any legitimate holder. By writing the name directly above the indorsement the holder may make it payable to himself or to any one he wishes.

INDORSEMENT IN FULL. On the back of this instrument is written the name of the party to whom it is indorsed for payment, followed by the name of the indorser.

INDORSER. A person who becomes liable for the payment of a note, check, etc., by writing his name across the back, thus indorsing it.

INHERITANCE TAX. A state tax upon property imposed on inheritance. Upon assuming the duties of their offices, executors and administrators should at once, in states where an inheritance tax has been established, examine the laws in regard thereto, or take competent legal advice concerning them. The two kinds of such taxes are "direct inheritance" and "collateral inheritance." Property descending directly to a child or other lineal descendant, or to very near relatives such as father, mother, brother, husband, or wife, is subject to "direct inheritance tax," while all other inheritances come under the "collateral inheritance tax." The latter is in force in most of our

states, while the former is in force in England and is being rapidly adopted here. As a rule, the tax increases with the distance in relationship and with the amount of property inherited. Legacies to educational, charitable, and religious institutions within the state which imposes the tax are usually exempted.

INSTALLMENT. The payment made upon a security at regular intervals until the full amount is satisfied.

INTEREST. Premium paid for the use of money is called the "interest," and is generally expressed in percentage, based upon a year. If the use of $100 for six months brings $2.50 interest, that is the same as $5 for one year, and is expressed as "5 per cent." or "5%." The New York method of computing interest is as follows: the actual number of days elapsed is taken in reckoning the time. An interest table based on 365 days in the year is used; that is, the rate for one day is found by dividing the yearly interest rate by 365. By the Boston method, as it is called in that city, an interest table based on there being 360 days in the year is used, the time elapsed being computed as so many months and so many days,—30 days reckoned to each month; the rate for one month is 1-12 the yearly rate. The employment of both methods of calculation often leads to confusion on the part of the two parties to a transaction. The legal day terminates at midnight, hence any loan of money through the midnight hour calls for one day's interest. A loan at 4 P. M. repaid early the next morning would be reckoned as one day. Because seven midnights have passed between September 22 and September 29, the time is reckoned as seven days. This explains why the day on which the loan is made is not included in computing the number of days for which interest runs. The taking of interest for the use of money was not made legal in England until 1546, the rate being fixed at 10 per cent. "Interest" is used for the speculative side of the market, e. g. "long" interest, meaning those long of stock. It is also used in connection with one's ownership in a property.

INTERIM CERTIFICATE. Until the properly printed, lithographed, or engraved certificate for a given security is ready for the purchaser, a temporary or "interim" certificate is issued to him, sometimes by the corporation itself, but more often by some trust company.

INVENTORY. An itemized list or schedule of goods or property owned with their estimated market value; the annual account of stock on hand, furniture, and fixtures, etc.

INVESTMENT. The purchase of some species of property for the purpose of obtaining interest return upon money. It differs from speculation in that the safety of the principal is the first consideration, and any increase in the value thereof only secondary. Investment may be strictly defined as giving the possession and control of one's assets to another.

IRREDEEMABLE DEBENTURES. Those which, differing from bond issues, have no fixed dates of maturity, but, more like a stock, are perpetual and "irredeemable." In Great Britain railroads suffer from the disadvantage of "irredeemable debentures," their high interest rate being a perpetual charge upon the companies, the irredeemable feature preventing the "refunding" of the issue into lower interest-bearing securities.

JOINT AND SEVERAL NOTE. A note reading "We jointly and severally promise to pay," and signed by each of the parties or by a firm, as "Richards & Co.," is a "joint and several note," as is also an ordinary promissory note beginning "I promise to pay," if signed as above. Each signer is liable not only for his own share of the payment, but for the entire amount in the event of the other signer or signers being unable to pay.

JOINT NOTE. In such a note the words "joint and several" must not be inserted in the wording, "We promise to pay." It is signed by two or more persons or by a firm, as Clark & Somer. The holder must get judgment against all the signers if the note is not paid at maturity, taking out a "joint" execution against them all. He can then satisfy the judgment from the property of any one of the signers.

JOINT STOCK COMPANY. A term used more often in Great Britain than in America. The ownership in such a company is usually represented by shares of stock. These companies are of two kinds. One includes all corporations where the stockholders own the shares into which the joint stock or capital is divided. The other kind is an exaggerated form of partnership. Shares of stock are not owned, but a certificate showing his joint interest in the establishment is given to each participant, all of whom are, as in a partnership, personally liable for the debts of the company—not having the limited liability of a shareholder in an ordinary corporation. But unlike a partnership, each certificate owner has not the right to transact business for the company and the death of a member does not end the partnership. Some of our large express companies—Adams, United States, etc.—organized with the right to issue transferable shares representing beneficial interests in the company, are good examples of this second class.

JUDGMENT DEBT. A debt legalized by decree of a court.

JUDGMENT NOTE. An ordinary promissory note containing a power of attorney to appear and confess judgment for a debtor, given by him when he wishes to avoid having a lawsuit brought against him.

KITING, KITE FLYING, or KITING CHECKS. Accommodation paper used to sustain an imaginative balance in a bank, the custom which banks have of at once giving a depositor credit for uncollected checks of other people, being responsible for this practice. Two persons exchange checks for the same amount, which are properly deposited in the respective banks. But each has immediate use for a part or all of the money, expecting that the checks will not be collected before the following day, and planning to make good the amount before that time. If a man has two bank accounts, he may follow the same method by depositing in one bank a check against the other, thinking to make it good at the latter bank the next day.

LATIN UNION. The franc is adopted as a common monetary unit by France, Italy, Switzerland, Belgium, and Greece, which form the Latin Union. The unit in Italy has the same value as the franc, but is called the "lira"; the "drachma" is the term used in Greece. The gold franc equals 19.3 cents United States money.

LAWFUL MONEY. Money declared by the government to be legal tender in payment of obligations, and which cannot be refused in payment of a debt unless expressly stipulated otherwise in the contract. "Every form of money which is endowed by law with the legal tender quality." Under the revised statutes of the United States, national bank notes, silver certificates, and gold certificates are not so endowed. "Lawful money" includes gold coin, silver dollars, United States notes and Treasury notes.

LEGAL RATE OF INTEREST. States have established a fixed rate of interest, and any higher charge may be penalized by the courts as "usury." By charging borrowers a commission in addition to the interest, the legal rate is often evaded. The legal rate in some states is designed merely that creditors be not allowed to exact unfair rates from debtors, and the borrower and lender may agree upon any rate of interest without interference. On a "collateral call loan" of $5,000 or more, in New York State any rate of interest is permitted by law. Interest greater than the legal rate of the state wherein it is located cannot be charged by any national bank, and it may not charge more than 7 per cent. if there is no state limitation. All interest above 10 per cent. was declared unlawful during the reign of Henry VIII., this being reduced to 8 per cent. during the reign of James I., and to 5 per cent. during the time of Queen Anne.

LEGAL TENDER. Money which the government declares lawful in payment of a debt, and which must be accepted by a creditor. The legal tender qualities of all forms of money in the United States are stated by law as follows: "Gold coins, standard silver dollars, subsidiary silver, minor coins, United States notes, and Treasury notes of 1890 have the legal tender quality as follows: Gold coin is legal tender for its nominal value when not below the limit of tolerance in weight; when below that limit it is legal tender in proportion to its weight; standard silver dollars and Treasury notes of 1890 are legal tender for all debts, public and private, except where otherwise expressly stipulated in the contract; subsidiary silver is legal tender to the extent of $10, minor coins to the extent of 25 cents, and United States notes for all debts, public and private, except duties on imports and interest on the public debt. Gold certificates, silver certificates, and national bank notes are non-legal tender money. Both kinds of certificates, however, are receivable for all public dues:

and national bank notes are receivable for all public dues except duties on imports, and may be paid out for all salaries, demands, etc., owing by the government within the United States, except interest on the public debt and in the redemption of the national currency.'' Only gold and silver coins were here recognized as legal tender before the Civil War. When money became scarce in Massachusetts during Colonial days, wampum was made legal tender. In Virginia, tobacco was so used, and in Maryland, tobacco and Indian corn.

LETTER OF CREDIT. It is unnecessary for persons traveling to carry with them large sums of money, for by a letter of credit (issued in favor of more than one person if so desired) they may obtain money at any of the important points throughout the world, and in the coin of the country where desired for use. Certain banks and banking houses make a practice of issuing such letters. Approved securities or money equal to the amount of credit desired are deposited, and a small sum paid for the accommodation. The customer is then given a written order which, when presented at certain banks or banking houses in the cities where the traveler expects to go, entitles him to receive sums of money whose total shall not exceed the face value of the letter of credit. The signature of the holder is the means of identification. ''Circular'' or ''foreign traveler's letter of credit'' are the terms for those issued for use outside of the country. ''Domestic traveler's letter of credit'' for those within. ''Commercial letters of credit'' ''foreign,'' or ''domestic,'' are also issued; for example: a merchant in New York purchases merchandise in Hongkong. Procuring a ''commercial letter of credit,'' he forwards it to the seller in Cairo, who, upon presentation in his city to the banking house named in the ''letter'' may, if properly identified and presenting documents showing the actual shipment of the goods, obtain the money.

LIEN. A mortgage or other claim against property held by the possessor until his demand or debt is discharged. The ''first lien'' is equal to a first mortgage; that is, no one has a prior claim. The ''second lien'' equals a second mortgage, etc.

LIMITED or **LIMITED COMPANY.** Limited liability, the shareholders being free from personal liability beyond the sum invested.

LIMITED PARTNERSHIP. The partner who manages the business of such a firm must be fully liable for all its debts. The others are ''special partners,'' liable for the indebtedness of the firm only so far as the amount contributed by them to the capital, taking no active part in the management of the business. The idea of such a partnership was borrowed from the French. In 1822, it was first introduced in this country by the legislature of New York.

LIQUIDATION. The converting of one's assets and accounts into cash to pay off one's indebtedness as far as possible; the winding up of a business. On the Stock Exchange it is used when stockholders sell out their stock for money. In either case, the liquidation may be either ''voluntary'' or ''forced.'' ''Liquidation on speculative accounts'' means the closing out of such accounts.

LONDON QUOTATIONS. Only the bid and asked prices are given in London, while with us the number of shares, etc., traded in and the prices realized are given. The following shows how the stock exchange quotations are given in fractions of one pound:

1-32	equals	0 shillings	7½	pence
1-16	equals	1	3	
3-32	equals	1	10½	
5-8	equals	12	6	etc.

LONG. If a person owns more of a security than he has contracts to deliver, he is ''long'' on that security. In reference to ownership, the word is used simply as the opposite of ''short.'' An advance in price was anticipated by those who are ''long.'' If plenty of stock was offered for sale and profits were taken by the holders, the expression ''Much long stock came out'' is used.

MAINTENANCE OF WAY AND STRUCTURE. This heading is included under the general classification of ''Operating Expenses'' as laid down by the Interstate Commerce Commission. It comprises: repairs and renewals of bridges, buildings and fixtures, cattle guards, culverts, docks, fences, railroad crossings, signs, telegraph and wharves; renewals of rails and ties, repairs of roadway; printing and stationery in connection with these; also minor expenses (''Other Expenses'') for keeping the line in good condition.

MARGIN. The difference between the cost and the selling price of a given security. ''Marginal'' transactions are prohibited on the London Stock Exchange, as the custom lends itself to much abuse. Instead of buying the stock outright, the investor deposits so much money, possibly at the rate of $10 a share, with a special broker, and the latter ''carries'' the stock on commission, crediting his customer with any advance and debiting him with any fall in the market price. It is understood that in the event of a decline in price, the client will supply more cash to prevent his margin from being ''wiped out.'' More shares of stock can be bought in this way than if purchased outright, affording a greater profit if stock advances, but, accordingly, a greater loss if it declines. Many stock exchange failures have been caused by ''marginal dealings.'' For to handle such quantities of stock as are required by this business, the broker is probably obliged to borrow large sums. In a panic, he may be called upon for more ''margin,'' and calling in turn upon his clients, who are unable to give it, the failure of the broker results. The average rate charged by brokers for carrying marginal accounts is perhaps 4½ per cent. to 5 per cent., but it varies largely according to circumstances.

MARKET. The demand as indicated by price offered or obtainable. The term is of constant occurrence in financial parlance. The price or rate of purchase is referred to by ''the market is high'' or ''low''; to ''sell at the market'' means to sell at the best price obtainable. The place of sale, without reference to price or rate, is indicated by ''sell in the market.'' The prevailing rates at which money can be borrowed is implied by the ''money market'' When prices are low and purchasers difficult to find, the ''market is bad.''

MATCHED ORDERS. Orders to buy and sell the same stock at the same price, with a view to ''manipulating'' the market, by giving an artificial activity.

MECHANIC'S LIEN. A lien on real property allowed by law to the suppliers of material and to workmen engaged in the construction or alteration of buildings. A claim by the contractor would take precedence over such a lien in some states, while in others the contrary is true.

MIDDLEMAN. An intermediary who negotiates between a buyer and a seller, receiving a remuneration for his services. Factors, agents, and brokers are three classes of ''middlemen.''

MONETARY SYSTEM OF THE UNITED STATES. The following tables will clearly illustrate the present monetary system of the United States:—

	Gold Coin.	Standard Silver Dollars.	Subsidiary Silver Coin.	Minor Coin.
Weight.	25.8 grains to the dollar.	412.5 grains.	385.8 grains to the dollar.	5 cent piece: 77.16 grains. 1 cent piece: 48 grains.
Limit of issue.	Unlimited.	Coinage ceased in 1905.	Needs of the nation.	Needs of the nation.
Denominations.	$20, $10, $5, $2½.	$1.	50 cents, 25 cents, 10 cents.	5 cents, 1 cent.
Legal tender.	Unlimited.	Unlimited, unless otherwise contracted.	Not to exceed $10.	Not to exceed 25 cents.
Receivable.	For all public dues.	For all public dues.	For all dues up to $10.	For all dues up to 25 cents.
Redeemable.	.....	.....	In "lawful money" at the Treasury in sums or multiples of $20.	In "lawful money" at the Treasury in sums or multiples of $20.

PAPER CURRENCY.

	Gold Certificates.	Silver Certificates.	United States Notes.	Treasury Notes of 1890.	National Bank Notes.
Limit of Issue.	Unlimited unless gold reserve falls below $100,000,000.	Quantity of silver dollars coined, $562,173,530.	$346,681,016.	No further issues; volume diminishing by redemption with silver dollars.	Not to exceed capital and surplus of banks.
Denominations.	$10,000, $5,000, $1,000, $500, $100, $50, $20, $10.	$100, $50, $20, $10, $5, $2, $1.	$1,000, $500, $100. $50, $20, $10, $5, $2, $1.	$1,000, $100, $50, $20, $10, $5, $2, $1.	$1,000, $500, $100, $50, $20, $10, $5.
Legal Tender.	Not a tender.	Not a tender.	For all debts, public and private, except customs and interest on public debt.	Unlimited, unless otherwise contracted.	Not a tender.
Receivable.	For all public dues.	For all public dues.	For all public dues.	For all public dues.	For all public dues, except customs.
Redeemable.	In gold coin at the Treasury.	In silver dollars at the Treasury.	In gold at the Treasury.	In gold at the Treasury.	In "lawful money" at the Treasury, or at bank of issue.

PAPER CURRENCY OF EACH DENOMINATION OUTSTANDING JUNE 30, 1915.

Denomination.	United States Notes.	Treasury Notes of 1890.	Federal Reserve Notes.	National Bank Notes.	Gold Certificates.	Silver Certificates.	Total.
1 dollar	$1,819,540	$354,076	.....	$342,317	.....	$174,838,421	$177,354,354
2 dollars	1,363,613	225,319	.....	163,568	.....	59,748,881	61,501,381
5 dollars	202,123,160	543,885	$31,379,000	137,881,535	.....	182,868,967	554,796,547
10 dollars	107,957,996	633,490	28,054,060	354,680,300	$214,940,420	24,707,751	730,974,017
20 dollars	8,092,632	291,330	14,837,440	249,959,860	214,285,894	19,159,400	506,626,556
50 dollars	2,030,375	11,900	4,990,000	32,964,600	46,567,355	31,755,660	118,319,890
100 dollars	2,983,700	116,000	5,000,000	45,305,700	79,354,100	343,420	133,102,920
500 dollars	2,749,000	.....	.....	88,500	19,801,500	18,500	22,657,500
1,000 dollars	18,551,000	78,000	.....	22,000	85,348,500	18,000	104,017,500
5,000 dollars	.....	.....	.....	.....	95,885,000	.....	95,885,000
10,000 dollars	10,000	.....	.....	.....	462,250,000	.....	462,260,000
Fractional parts	.....	.....	.....	54,143	.....	.....	54,143
Total	$347,681,016	$2,254,000	$84,260,500	$821,462,523	$1,218,432,769	$493,459,000	$2,967,549,808
Deduct	1,000,000	.....	.....	2,188,930	44,723,780	.....	47,912,710
Net	$346,681,016	$2,254,000	$84,260,500	$819,273,593	$1,173,708,989	$493,459,000	$2,919,637,089

COINAGE OF THE MINTS FROM THEIR ORGANIZATION TO JUNE 30, 1915.

Denomination.	First Authorized.	Act Discontinuing Coinage.	Pieces.	Amount.
GOLD COINS				
Fifty-dollar piece	Jan. 16, 1915	.....	600	$30,000.00
Double eagle ($20)	Mar. 3, 1849	.....	120,757,306	2,415,146,120.00
Eagle ($10)	Apr. 2, 1792	.....	51,122,910	511,229,100.00
Half eagle ($5)	Apr. 2, 1792	.....	77,421,794	387,108,970.00
Quarter eagle ($2.50)	Apr. 2, 1792	.....	17,250,490	43,126,225.00
Quarter eagle, Panama-Pacific Exposition	Jan. 16, 1915	.....	10,000	25,000.00
Three-dollar piece	Feb. 21, 1853	Sept. 26, 1890	539,792	1,619,376.00
One dollar	Mar. 3, 1849	Sept. 26, 1890	19,499,337	19,499,337.00
One dollar, Louisiana Purchase Exposition	June 28, 1902	.....	250,000	250,000.00
One dollar, Lewis and Clark Exposition	Apr. 13, 1904	.....	60,000	60,000.00
One dollar, Panama-Pacific Exposition	Jan. 16, 1915	.....	5,500	5,500.00
Total Gold	.....	.....	286,917,729	$3,378,099,628.00
SILVER COINS				
Dollar	Apr. 2, 1792 Feb. 28, 1878 (resumed)	Feb. 12, 1873	578,303,848	$578,303,848.00
Trade dollar	Feb. 12, 1873	Feb. 19, 1887	35,965,924	35,965,924.00
Lafayette dollar	Mar. 3, 1899	.....	50,000	50,000.00
Half dollar	Apr. 2, 1792	.....	378,405,472	189,202,736.00
Columbian half dollar	Aug. 5, 1892	.....	5,000,000	2,500,000.00
Panama-Pacific half dollar	Jan. 16, 1915	.....	60,000	30,000.00
Quarter dollar	Apr. 2, 1792	.....	410,951,308	102,737,827.00
Columbian quarter dollar	Mar. 3, 1893	.....	40,000	10,000.00
Twenty-cent piece	Mar. 3, 1875	May 2, 1878	1,355,000	271,000.00
Dime	Apr. 2, 1792	.....	733,837,547	73,383,754.70
Half dime	Apr. 2, 1792	.....	97,604,388	4,880,219.40
Three-cent piece	Mar. 3, 1851	Feb. 12, 1873	42,736,240	1,282,087.20
Total Silver	.....	.....	2,285,672,277	$989,298,671.30
MINOR COINS				
Five cent (nickel)	May 16, 1866	.....	855,008,587	$42,750,429.35
Three cent (nickel)	Mar. 3, 1865	Sept. 26, 1890	31,378,316	941,349.48
Two cent (bronze)	Apr. 22, 1864	Feb. 12, 1873	45,601,000	912,020.00
Cent (copper)	Apr. 2, 1792	Feb. 21, 1857	156,288,744	1,562,887.44
Cent (nickel)	Feb. 21, 1857	Apr. 22, 1864	200,772,000	2,007,720.00
Cent (bronze)	Apr. 22, 1864	.....	2,345,481,667	23,454,816.67
Half cent (copper)	Apr. 2, 1792	Feb. 21, 1857	7,985,222	39,926.11
Total Minor	.....	.....	3,642,515,536	$71,669,149.05
Total Coinage	.....	.....	6,215,105,542	$4,439,067,448.35

The fineness of United States gold coins is .900 to .916 2-3, silver coins .900; five-cent piece, 75 per cent. copper and 25 per cent. nickel; one-cent piece, 95 per cent. copper and 5 per cent. tin and zinc. Troy weights are used, and while metric weights are by law assigned to the half and quarter dollar and dime, troy weights still continue to be employed, 15.432 grains being considered the equivalent of a gram, agreeable to the act of July 28, 1866. The weight of $1,000 in United States gold coin is 53.75 troy ounces, equivalent to 3.68 pounds avoirdupois. The weight of $1,000 in standard silver dollars is 859,375 troy ounces, equivalent to 58.92 pounds avoirdupois, and the weight of $1,000 in subsidiary silver is 803.75 troy ounces, equivalent to 55.11 pounds avoirdupois. The space required for the storage of 1,000,000 standard silver dollars is 250 cubic feet. The standard silver dollars in the vaults of the treasury and the several subtreasuries, June 30, 1904, amounting to about $462,000,000, required 115,500 cubic feet of space. The commercial value of an ounce of fine silver June 30, 1910, was $0.54077, and the commercial value of the silver in the silver dollar on that date was 41.825 cents.

MORTGAGE. Used of both the instrument by which the mortgage is effected (called the "mortgage-deed"), and of the act of mortgaging. The mortgage duly signed and sealed is given by the "mortgagor"—more correctly spelled "mortgageor" (the borrower)—to the "mortgagee" (the lender) or to a third party who holds it as trustee for the lender. It confers to the latter the right, after following certain formalities, of possessing the property described therein should the borrower fail to meet his indebtedness, in case the mortgagor fails in his obligations.

NARROW MARKET. Used when there are very few transactions in stock or other commodities.

NATIONAL BANK EXAMINER. A person (or persons) appointed by the comptroller of the currency, with the approval of the secretary of the treasury, who is given power to thoroughly examine all the affairs of every national bank, and who must give to the comptroller a full and detailed report of the condition of each bank examined.

NEGOTIABLE. Negotiable paper, from the financial standpoint, should be in writing and signed, containing an unconditional order or promise to pay a certain sum of money at a determinable time to order or to bearer; the drawer should always be named or indicated in a bill of exchange (including check). A "negotiable" instrument, such as a check, draft, or note, payable to the order of a person, etc., can be transferred from one person to another by indorsement; a "non-negotiable" instrument or security is one which is good only in the hands of the one to whom it was originally issued, except where the corporation or person issuing the same agrees otherwise. If the words "or order" are omitted in a note made payable to Charles Willis, it is "non-negotiable," since only to Charles Willis was the note made payable, and he would not have the privilege of transferring his rights to any one else.

NEGOTIABLE SECURITIES. Any investment security possessing the essentials of negotiability, including all forms of commercial paper; drafts, bill of exchange, corporation, municipal, and government bonds.

NEW YORK COTTON EXCHANGE. Founded 1870. The largest exchange in the United States for trading and speculating in cotton.

NEW YORK EXCHANGE FUNDS or MONEY. Since New York is the great financial center of this country, payments are constantly being made through that center, causing incessant transmissions of funds between that point and all other points of the country. Therefore New York Exchange is rarely at a discount, and a check on New York is acceptable at all points.

NEW YORK PRODUCE EXCHANGE. Transactions here take place in pork, lard, grain, etc., and since April 15,1907, trading in certain industrial, mining, and miscellaneous securities. But in its "list" is not included any security listed upon the New York Stock Exchange. It is similar to the Chicago Board of Trade.

NON-ASSESSABLE. In case of the failure of the corporation, or for any other reason owners of "non-assessable" stock are not legally obliged to make additional payments upon the same. National bank notes being "assessable," their owners can be compelled to make further payments, should failure occur. If the stock is "non-assessable" that fact is generally stated on the certificate. Assessability or non-assessability is largely regulated by the laws of the state under which the corporation is chartered. "Double liability" is all that any stock may carry. If the laws demand the issuance of "fully paid" stock, and it can be proved that a stock was not "fully paid" when originally issued, showing that fraud exists, assessments may be made.

NO PROTEST. Written on a note or draft to signify "no protest" if the instrument be dishonored.

ON CALL. "Subject to call." Referring to money, etc., which may be demanded for immediate payment.

OPTION. A stipulated privilege in time contract of demanding its fulfillment within specified limit.

OUTSTANDING ISSUE. That which a company has already placed upon the market—stocks, bonds, or any other security.

OVER THE COUNTER. Used when sales of securities (particularly bonds) are made without the medium of the stock exchange, directly by bankers. Sales of all descriptions outside the stock exchange.

PAR. Of equal nominal and actual value; the actual face value of any security regardless of its denomination. Par often signifies a value of $100, but not necessarily so; mining stocks, for instance, are often issued in shares of low denomination, that the subsequent manipulations may pass unnoticed. Be sure therefore to find out the actual par value in dollars and cents before purchasing a security, and then, on the basis of a par value of $100 reckon its selling price. The difference in rules between different stock exchanges must also be considered. On the New York Stock Exchange stocks are usually quoted on the basis that either the par value is 100, or else shares sufficient to equal 100 have been put together. On the Boston Stock Exchange quotations are based upon the par value regardless of whether it is more or less than $100.

PARITY OF SILVER. $1.2929, since to be at a par with gold according to the present standard United States ratio of gold to silver (1 to 15.988) pure silver must be worth commercially $1.2929 per fine ounce.

PAR OF EXCHANGE. The coin or standard of value in the country expressed in the coin or standard of another. Gold bullion of an agreed fineness is taken as a basis of calculation. $4.866+ is taken as the "par of exchange" between this country and Great Britain, that is, the English "pound sterling" is equal to $4.866+ in United States gold coin.

PASS A DIVIDEND. Not to make payment of a dividend at the regular time.

PAYABLE IN GOLD. Bonds and securities on which the borrower undertakes to pay the interest or principal, or both, "in gold." The following wording is generally used in this matter: "Payable in gold coin of the United States of the present standard of weight and fineness"—thus affording protection should less conservative coining laws be passed during the life of the investment.

PAYABLE ONLY THROUGH THE CLEARING HOUSE. In times of financial distress, it is necessary for banks to retain some actual cash. Therefore, in place of cash, checks stamped "Through the clearing house," "Payable only through the clearing house," or with a similar expression, are sometimes accepted. While a person satisfies the law in regard to legal tender in accepting such a check, he does so as a matter of accommodation, since banks are legally required on demand to pay checks in money which is legal tender. To meet such demands banks must keep some money in their vaults. But by postponing the payment of a check until "clearing house hour" of the following business day, possibly no money would be needed, as through the machinery of the clearing house the differences between the banks in time adjust themselves.

PAYABLE TO BEARER. Checks or other negotiable instruments drawn in this way may be passed from hand to hand without indorsement, as they are good in the hands of any bona fide holder.

PAYABLE TO ORDER. "Pay to the order of Richard Booth," "Pay to Richard Booth or order," are the forms used in checks or other negotiable instruments of this kind. To make it good in the hands of any other than Richard Booth, it first must be indorsed by him. Unless the words "to order" or "to bearer" are specified, the instrument is payable only to the person mentioned therein and to no other; in other words it is not negotiable.

PERSONAL CHECK. One drawn by a depositor, not by a bank.

PERSONAL PROPERTY. Distinguished from "real property." Securities, household furniture, live stock, chattels, all movable property, and harvested crops are included.

PIT. The equivalent of the New York Stock Exchange's "Post." Four portions—called the "Pits"—of the building of the Chicago Board of Trade are set aside for exclusive dealing in grain, wheat, oats, and provisions, respectively.

POINT. The term for one per cent. If a security advances five per cent., it rises five points. One twentieth per cent. per pound equals one "point" in coffee trading, fluctuations being recorded on that basis. A decline of ¼ of a cent per pound of cotton is equal to 25 "points" or $1.25 on each bale, as a cent is divided into 100 "points" in cotton.

POOL. (1) A combination of persons agreeing to buy or sell, increase or depress the price of one or more securities, and to divide the loss or profit. By a decision in the suit of Franklin, Scott & Co., stock brokers, versus certain others, any member of a pool may be held liable for the full extent of its losses. (2) The term is used also of a movement to prevent competition and to insure mutual profit by division of business and territory, and the fixing of a monopolistic price. (3) An agreement as to a division of earnings between competing railways so that the temptations of the big shippers may be resisted, and a stable rate maintained. "Traffic pools" are arrangements for the division of business; "money pools" for the distribution of receipts.

POSTAL MONEY ORDER. A government order for the payment of money, issued at one post office and payable at another. In the United States, a money order for any amount up to $100 may be drawn. International money orders, payable in almost any part of the world, may also be procured. The person desiring to cash a money order must be able to prove his indentity. If wrong payment is made through no fault of the remitter, payee, or indorser, the department will see that the amount is made good to the sender. The law forbids more than one indorsement on a money order; but to identify a payee or guarantee the payee's or indorser's signature, one or more additional names may be written upon the back.

POWER OF ATTORNEY. Written or printed authority given by one person to another empowering him to sign a paper or document, etc., or to otherwise act in his name and stead, the same force and value to be attached as though made by the person delegating the authority. The instrument must be signed and witnessed or acknowledged before a justice of the peace, or commissioner for oaths. The power may be "general" which means that the attorney is empowered to act without restriction, or it may be a "special" power to do some particular act.

POWER OF SALE. If a debt secured by property is not paid, the lender has the right to sell the property, if such a clause has been stipulated. "Power of sale" is occasionally given by will to executors that cash may be realized from the sale of the testator's property.

PREFERRED CREDITOR. Such a creditor is legally entitled to receive payment in full before anything is paid to other creditors not preferred.

PREFERRED SHARES or STOCK. The equivalent of American "preferred stock" in England is "preference shares," and the equivalent of our "common stock" is "ordinary stock." But when this last is divided into two parts, "preferred" is applied to the first part, "deferred" to the second; also referred to as "B" and "A" stocks respectively. They share equally if the company is wound up, but in regard to dividends, the former ranks ahead. A dividend is usually declared upon the "ordinary stock," then the relative amounts for the two classes are stated. These stocks are rarely cumulative, such being referred to as "non-contingent preference stocks."

PREFERRED STOCK. Stock which takes a dividend and has a claim prior to other capital stock. Such comes after the bonds and floating debt, if any, but ranks ahead of "common stock" before which it is issued, and, as the name denotes, over which it has preference. Usually the preferred stockholders have the right to be paid out of the assets of a corporation which is winding up its affairs before the common shareholders receive anything, although in various corporations the form of preference differs, as do also the conditions governing the payment of dividends on "preferred stock." Common stocks generally sell at a lower price than the preferred, although sometimes the earnings of a corporation are so extensive that the former receives a higher rate of dividend and sells at a greater price. Sometimes "class A" and "class B" or "first preferred" and "second preferred" stocks are issued, both ranking ahead of the common shares, but differing from each other somewhat in the nature of their preference.

PREMIUM. The price or percentage of a security above its face or par value. A share of stock selling at 106 would be selling at 6 per cent. or $6.00 per share premium, if its face value were $100; but if the face value were more than $106, the stock would be selling at a discount. If it is necessary to give more than one dollar in some other money for a dollar in gold, the latter is at a premium in relation to that particular money. Currency was at a premium of 4 per cent. in 1893, when it was so scarce that certified checks were given at the rate of $104 for $100 in currency. "Premium" is also used of the price paid for an option; of the payments upon insurance policies; and is understood by "Agio" and "Bonus."

PRINCIPAL. (1) The face value of a bond or any other security on which the interest or premium is calculated. (2) One who commissions another to act for him, as distinguished from an agent.

PRODUCTION OF GOLD AND SILVER IN THE UNITED STATES. The following table shows the approximate distribution by producing states and territories of the product of gold and silver in the United States for the calendar year 1914, in fine ounces, the gold value being $20.67+ per fine ounce, and the average commercial price of silver 55.3 cents per fine ounce.

State or Territory.	Gold.		Silver.	
	Fine Ounces.	Value.	Fine Ounces.	Value.
Alabama	495	$12,300	300	$200
Alaska	800,471	16,547,200	865,900	478,800
Arizona	221,020	4,568,900	4,439,500	2,455,000
California	1,028,061	21,251,900	2,020,800	1,117,500
Colorado	962,779	19,902,400	8,804,400	4,868,800
Georgia	813	16,800	100	100
Idaho	57,431	1,187,200	12,573,800	6,953,300
Illinois	.....	.....	1,900	1,200
Maryland	10	200	100	100
Michigan	.....	.....	415,500	229,800
Missouri	.....	.....	60,000	33,200
Montana	200,446	4,143,600	12,536,700	6,932,800
Nevada	558,064	11,536,200	15,877,200	8,780,100
New Mexico	58,974	1,219,100	1,771,300	979,500
North Carolina	6,303	130,300	1,500	800
Oklahoma	.....	.....	6,200	3,400
Oregon	76,887	1,589,400	147,400	81,500
Philippine Is	53,179	1,099,300	10,300	5,700
Porto Rico	135	2,800	.....	.....
South Carolina	155	3,200	.....	.....
South Dakota	354,782	7,334,000	179,800	99,400
Tennessee	309	6,400	102,800	56,800
Texas	426	8,800	574,700	317,800
Utah	163,362	3,377,000	11,722,000	6,482,300
Virginia	15	300	1,500	800
Washington	28,435	587,800	341,300	188,700
Wyoming	324	6,700	100	100
Total	4,572,976	$94,531,800	72,455,100	$40,067,700

The production of gold and silver in the United States, 1792-1914, by periods, in fine ounces:—

Years.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Commercial Value.
1792-1847	1,187,170	$24,537,000	309,500	$404,500
1848-1872	58,279,778	1,204,750,000	118,568,200	157,749,900
1873-1914	116,392,479	2,406,044,200	2,039,553,500	1,591,430,900
Total	175,859,427	$3,635,331,200	2,158,431,200	$1,749,585,300

PROFIT AND LOSS. Sometimes abbreviated to "P. & L.". The profits and losses of a concern are given under this heading in bookkeeping, and entered on the credit and debit side of the account as required.

PROMISSORY NOTE. By this the payment by one person to another of a stated sum of money at some future time is promised in writing; frequently called a "note of hand."

PROMOTER. One who plans the organization of a corporation or industry; defined by the New York legislature as "every person by whatever name, who brings together the persons to become interested in the enterprise, aids in securing subscriptions, and sets in motion machinery which leads to the promotion of a corporation." Really the intermediary or middleman between the corporation which needs funds and those having money to invest in securities.

PROTEST. (1) A formal declaration in writing made by a notary public that a negotiable instrument has been dishonored, either by non-acceptance or non-payment. In case of legal action, protesting is good evidence. State laws differ in regard to the necessity for protesting, some holding that the mere fact of presenting is in itself sufficient evidence. To protest an instrument, a notary public again presents it to the one responsible for its payment, on the same day making a note on the paper itself to the effect that it has been dishonored. A certificate of protest is then made out by the notary, who attaching the dishonored paper, writes the fact that he has presented it, the time and place of presentation, and the reasons for protesting. If payment is refused upon presentation by the notary, "notice of protest" should be sent to the last indorser, and through him to any previous indorser. The indorser or maker of the instrument should pay the fee charges of the notary. If it is utterly impossible to make collection, the fees are charged to the holder of the note. If there are no indorsements, it may not be desirable to "protest," in which case the words "waive protest," or a similar expression, may be written on a separate slip of paper and presented with the instrument. A notice of protest mailed at the general post office at the proper time is usually considered by law sufficient notice to the makers or indorsers. (2) A solemn declaration in writing made by the master of a vessel before a consul, or other authorized official to the effect that any damage or loss sustained by a disaster was not the fault of her ship, or any of her officers and crew, but was solely owing to the perils of the sea or to other unavoidable causes. (3) A declaration made by a person that a certain tax or duty which he is called upon to pay is unjustly and illegally demanded, and that its payment, if made at all, was not voluntary.

PROXY. A person formally authorized and deputed to act or vote for another. At a meeting held by the various stockholders of a corporation, officers are elected to whom is delegated the business of the corporation. A stockholder is entitled to one vote for each share, and if he is unable to be present at the meeting, he may authorize a "proxy," to vote his stock for him.

PUT. A privilege which one person buys of another to "put" or deliver to him a certain amount of stock, grain, etc., at a specified price and date. The "put" may be exercised any time during its life in New York, but only on the last day of the time limit, in London. A "put" as executed in New York reads somewhat as follows: "For value received, the bearer may deliver me on one day's notice, except the last day when notice is not required, 500 shares of the capital stock of the ..... Mining Co., at $150 per share any time within 30 days from date." This is followed by the signature, time of expiration, and an agreement that if the rights of "put" are exercised, the stock shall be accompanied by all the dividends paid thereon in the meantime. A "put" and "call" may be combined in one contract, giving the holder the option of either buying or selling at the fixed price.

QUOTATIONS. The current prices of stocks, bonds, or commodities. The "bid" or "asked" prices of the securities, or the prices at which they are sold, is the meaning on the stock exchange. Unless otherwise designated quotations refer to "common stocks."

RATE OF EXCHANGE. The price of one country's money reckoned in that of another.

RATING. The financial credit or standing of a corporation, firm, or person.

REAL PROPERTY. This includes all crops not considered of annual planting,—trees, grass, etc.; land and buildings; air or space above the surface; and everything, such as minerals, etc., below. The term also signifies the right to use other land, as by a right of way.

REBATE. A deduction, for example, a "rebate" of interest for immediate payment.

REFUNDING. Issuing of new bonds to supersede the ones falling due, and which the company or municipality is unable to pay off in cash.

REGISTERED BOND. The name of the owner is filled out on the face of a registered bond, and to be transferred from one person to another the bond must be indorsed by the person in whose name it is registered, and sent for transfer to some specified office or municipality, when a new bond will be made out to the holder. The bond may be passed from hand to hand by the use of a "transfer in blank," and any holder may fill in his or her name, on the back of such a transfer, sending it when convenient to be transferred. There are two forms of registered bonds, the first having both principal and interest registered, the second only the principal. No interest coupons are attached to the first kind, but as it matures the interest in the form of a check is mailed directly to the holder; to collect the principal sum the instrument must be correctly indorsed and presented to the proper authority. To a bond of the second kind coupons payable to bearer are attached and collected as with the ordinary coupon bond; but the principal sum of the bond itself is registered, and must be indorsed and forwarded to the proper authority for collection.

RESERVE. Lawful money of the United States equal in amount to at least 25 per cent. of the sum of their deposits in all respects must be kept on hand at all times by national banks in the "central reserve cities"—New York, Chicago, and St. Louis. Thirty-nine other prominent cities are known as "reserve cities," and while the national banks therein must maintain this 25 per cent., one half of the amount may be deposited with national banks in the "central reserve cities." Fifteen per cent. of their deposits must be maintained by those known as "country banks"—national banks not located in the "central reserve" or "reserve" cities. But three fifths of this amount may be kept in national banks in the cities mentioned. According to a ruling made by the secretary of the treasury on September 29, 1902, a 25 per cent. "reserve" maintained against deposits of public money secured by government bonds is no longer necessary. Nevertheless the banks still maintain such a reserve. Because of this ruling the 25 per cent. is now figured both ways in the weekly statement of the New York Clearing House Association banks; the public money being considered as any other deposit, and secondly in accordance with the ruling of the department.

RESUMPTON OF SPECIE PAYMENT. The Resumption Act, approved January 14, 1875, authorized the secretary of the treasury to provide for the redemption in coin of United States notes, or "greenbacks," commencing January 1, 1879, and for that purpose to use surplus revenues and to sell bonds at not less than par in coin.

SCALPING. Making a quick and small profit. The expression "scalping points off the deal" refers to those who, taking advantage of the rise in prices, buy and sell accordingly, making small profits, although not understanding just what the deal is that occasions the rise.

SECOND MORTGAGE. That placed upon property on which there is already an existing mortgage. If the owner of the property cannot pay the interest on the second mortgage, the holder thereof may foreclose the property under his own mortgage, paying what is due to the holder of the first mortgage.

SECURITIES. Written or printed papers which are an evidence of debt or property; e. g., all kinds of mortgages, stocks, bonds; in fact, all forms of investment.

SEIGNIORAGE. The profit resulting from the difference between the commercial value of the metal contained in a coin and its face value. There is no seigniorage on the coinage of gold bullion, since that is not purchased by the government, which coins it for private account, the face value of the coins equaling the commercial value of the bullion. But on the coinage of silver dollars on a ratio of 16 to 1, the commercial value of silver being far below the coinage value, a profit, or seigniorage, results.

SELLER'S OPTION. Under such a contract the seller of a security may deliver the same to the buyer

on one day's notice any time within the period specified in the agreement, but need not deliver the same until the end of the time indicated. This must be not less than four nor more than sixty days on the New York Stock Exchange. "Seller 6," seller 15," etc., indicate such a transaction, the numbers referring to the number of days agreed upon in the contract.

SELLING ORDER. An order to a broker to sell a certain security—the price of which may or may not be limited,—good for the day it is given, unless otherwise stated.

SELLING SHORT. Selling for future delivery something not yet owned, in the belief that the market price of the security or commodity will decline so that it can be bought at a less price in time to fill the order.

SHAVING A NOTE. Said of a promissory note that is discounted at a greater rate than the "legal interest."

SHORT COVERING. One makes a "short covering" or "covers his sale" when, having "sold short" on a security, he buys it at what he considers the proper time, that he may deliver according to a former agreement.

SILVER CERTIFICATES. Any person possessing standard silver dollars may in accordance with the act of February 28, 1878, deposit the same in sums of $10 and upwards at the United States Treasury, and receive for them certificates which, though not legal tender, are receivable for all public dues. The issue of denominations smaller than $10, viz., $1, $2, and $5, was authorized by the act of August 4, 1886. The circulation of these silver certificates has almost superseded that of the standard silver dollars which they represent. The silver certificates in circulation were $5,789,569 in 1880, $408,465,574 in 1900, and $465,581,977 in 1908. At his discretion, the treasurer of the Philippine Islands may receive deposits of standard silver coins of one "peso" (two silver pesos equal to one United States gold dollar) not less in amount than twenty pesos, issuing in turn "silver certificates" in denominations not less than two nor more than 10 "pesos," these certificates being receivable for taxes, customs, and all public dues in the Philippine Islands, and when so received may be reissued. They may also be counted as part of its "lawful reserve" when held by any banking association in the islands. The coin deposited for certificates must be kept in the treasury and held only for the payment on demand of such certificates.

SILVER COIN AND BULLION. The silver coin and bullion imported into and exported from the United States were as follows for the years 1910 and 1915:—

Country.	1910.	1915.
Europe.		
France:		
Imports	$7,743	$17,810
Exports	2,980,578	1,721,186
Germany:		
Imports	46,589	23,586
Exports	498,653	none
United Kingdom:		
Imports	407,933	17,911
Exports	43,258,189	35,613,406
All other Europe:		
Imports	203,300	32,076
Exports	6,385	1,258,273
Total Europe:		
Imports	$665,515	$90,883
Exports	46,743,805	38,592,865
Total North America:		
Imports	40,694,873	24,925,451
Exports	1,010,888	519,184
Total South America:		
Imports	2,306,605	3,873,572
Exports	57,504	682,710
Total Asia:		
Imports	1,312,254	192,507
Exports	7,467,481	5,786,890
All other countries:		
Imports	237,947	27,810
Exports	7,193	100,000
Grand Total:		
Imports	$45,217,194	$29,110,323
Exports	55,286,861	45,977,181

SILVER PRODUCT OF THE WORLD. The production of silver since the discovery of America is estimated as follows:—

Years.	Silver-coining value.	Ratio to gold.
1492-1520	$54,703,000	10.75
1521-1560	297,226,000	11.30
1561-1600	597,244,000	11.80
1601-1640	678,800,000	14.00
1641-1680	584,691,000	15.00
1681-1720	579,869,000	15.21
1721-1760	801,712,000	14.75
1761-1800	1,273,468,000	15.09
1801-1810	371,677,000	15.61
1811-1820	224,786,000	15.51
1821-1830	191,444,000	15.80
1831-1840	247,930,000	15.75
1841-1850	324,400,000	15.83
1851-1860	372,261,000	15.29
1861-1870	507,174,000	15.56
1871-1880	918,578,000	18.05
1881-1890	1,298,820,000	19.76
1891-1900	2,089,856,000	30.23
1901-1905	1,086,030,900	36.30
1906	213,403,800	30.54
1907	238,166,600	31.24
1908	262,634,500	38.64
1909	274,293,700	39.74
1910	286,662,700	38.22
1911	292,451,500	38.38
1912	290,017,800	33.62
1913	289,497,000	34.19
1914	272,941,700	37.34
Total	$14,920,766,600	

SINGLE STANDARD. A monometallic standard (usually gold) by which values are measured, in contradistinction to a "bimetallic standard."

SINGLE TAX, THE. A tax levied upon a single object of taxation, instead of upon several objects, for the support of government, especially the entire rent of land. This theory was made prominent by the Physiocrats about 1750, and was popularized by Henry George, who advocated the abolition of all taxes upon industry and its products, and the assumption of the annual rental value of all the land irrespective of the improvements in or upon it.

SINKING FUND. A process of wiping out or sinking a debt by setting aside from time to time sums to be used in payment of the whole or part of the principal. The money may be used to buy in, or pay off, from time to time, according to agreement, some of the debt itself; or may be invested in other securities to increase in amount, and applied to the payment of the debt at its maturity.

SIXTEEN TO ONE. Sixteen ounces of silver and one ounce of gold shall, according to the ratio of "16 to 1," be each coinable into an equal number of standard dollars, the mint values of sixteen ounces of silver and one ounce of gold being considered equal. In reality, the standard ratio of the United States is 15.988 to 1.

SPECIE. "Metallic money" is the generally accepted dictionary meaning. Coin of any denomination and of any metal, as distinguished from notes and bills, is understood by the United States Mint. The word is also applied to gold and silver bullion in the term "specie payment." Gold and silver coin, gold and silver certificates, and gold clearing-house certificates, are included in the "specie" of the lawful money reserve of a national bank.

STERLING. The common term for any English coin of standard value. In such phrases as 2¼ million sterling, "pounds sterling" is understood.

STERLING EXCHANGE. Exchange on Great Britain, "Sterling at Paris 25.21" signifies that at the time of the quotation twenty-five francs and twenty-one centimes, French money, was equal in value to the "pound sterling," English money; and that twenty-five francs and twenty-one centimes per pound sterling would be paid by the purchaser in Paris of a "bill of exchange" on London.

STOCK. The parts or shares into which the property of a corporation is divided. In Great Britain "shares" are dealt in according to their specific denominations, but a "stock" can be dealt in and transferred in multiples of one pound, and sometimes less. Most British railway issues are in the form of "stocks" and not "shares."

STOCK CERTIFICATE. An engraved, lithographed, or printed form, correctly filled in, sealed and signed by the proper officers, and giving the owner's name, with the number of shares of stock it represents. Blank stock certificates are usually engraved, since a security must be engraved if dealt in on the principal stock exchanges of the world.

STOCK DIVIDEND. This term is used when the profits of a corporation are retained as additional capital, instead of being paid to stockholders as a cash dividend, new stock being issued pro rata to those already holding stock of the same company. Although the market quotations may apparently show that the receiver of a stock dividend is richer than before, this is not true, since his proportionate interest in the entire capital is the same as before the stock dividend was declared.

STOCK JOBBER. In the United States a speculator who forces the prices of securities up or down for his own gain. In England, a jobber is an intermediary between other members, and is distinguished from a broker who, although a member, deals directly with the public. The term "stock jobber" in England dates back to 1688.

STOP LOSS ORDERS. Or "stop orders," given to a broker in the possibility that there may be a sudden decline in the price of the security owned. If the price of the security drops to that named in the customer's stop order, the broker offers the same for sale, obtaining for them the best price possible.

STOP PAYMENT. If a check is lost, notify the bank against which it is drawn, giving the number it bears, the date, the sum for which drawn, and to whom payable, with the request that if the same is presented no payment be made.

SURPLUS. The amount of profits which may be carried forward into the next business period.

SUSPENSION OF SPECIE PAYMENT. From January 1, 1862, to January 1, 1879, when this occurred, practically all gold and silver disappeared from circulation except on the Pacific Coast, where about twenty-five million specie, it is estimated, was generally in circulation. There was so little small change that Congress authorized the use of postage stamps, then "postal currency"—a modified form of the first, and finally paper money in fractional amounts of a dollar.

TICKER. Reliable information concerning the prices of securities and commodities dealt in upon the principal exchanges of the world is furnished by this small printing machine, operated by telegraph. On a narrow strip of ribbon called the "tape," which unwinds automatically as needed, and passing between the type-bearing wheels, runs out into a basket set for the purpose, are printed the quotations, the name of each security being greatly abbreviated. The ticker was introduced in 1867.

TIME DEPOSIT. Money deposited in a banking institution with the understanding that it shall remain for a definite time. Such deposits usually carry a higher rate of interest than current accounts.

TIME DRAFT. In a time draft, a certain day is named for payment; or it may be payable at the end of a stated length of time after sight—that is, after its presentation for acceptance.

TIME PAPER. Such notes, drafts, etc., as are payable at certain future dates.

TRADE DISCOUNT. That allowed by the wholesaler or manufacturer on goods purchased by retailers or others in the trade.

TRANSFER OF STOCK. The transference from one person to another of ownership in a corporation. The holder of the certificate fills in a blank found upon the back thereof, giving the name and address of the next owner, then signing his or her name. The certificate is then sent to the transfer agent, and, the old certificate being canceled, a new one is issued in the name of the new owner, and delivered according to instructions sent with the old certificate. Husband and wife should always transfer to one another through the medium of a third person, unless authority for direct transfer is given by state law. A certificate in the name of a married woman, properly signed and witnessed by her, is acceptable for delivery on the New York Stock Exchange, unless the transfer books of the particular company are closed, when they require a joint execution of the assignment by both husband and wife before a notary. "Charles Smith, minor, under guardianship of Horace Warren," is an example of the wording of a certificate to a person under guardianship. "Incompetent" in place of "minor" is written if the person is insane.

TRUST. As popularly understood, this signifies a combination of competing businesses or industries, that monopolistic control can be obtained. "Legal trust" denotes that a number of concerns have united, the stocks of each individual company being exchanged for certificates of the newly formed trust, issued by the trustees. These also place a manager over each constituent company.

TRUSTEE. One who has the legal custody of money or property—"holding it in trust." Used most frequently of an individual, bank, banking-house, trust company, etc., who acts as "trustee" of a mortgage.

UNDERWRITING. Guaranteeing insurance (especially marine insurance), or an issue of securities, in consideration of receiving a certain premium per cent.

UNITED STATES DEPOSITORY. Any national bank may be authorized by the secretary of the treasury as a "depository" for the moneys of the United States government. This is done that a part at least of the large sums of money which the government often accumulates may get into use; for if such should go into its hands and so out of circulation, there would be a scarcity of money for actual use, and it is to prevent this that the plan has been adopted. National banks are employed as depositories by the government for other reasons than the above. In places where sales of public lands occur, "permanent depositories" are located to receive the proceeds of such collections or sales; and also where the principal offices of internal revenue collectors are stationed. Post office money orders and United States Court funds are kept in "special depositories." Any bank accepting the above appointment must deposit adequate security with the treasury department of the United States government.

UPSET PRICE. The bottom price at which a security, etc., will be sold.

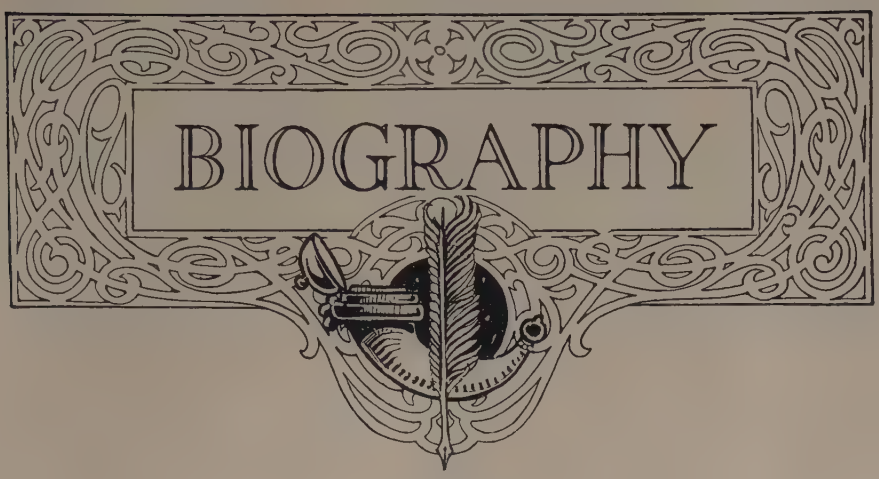
WAREHOUSE RECEIPT. When commodities are stored with a warehouse company, it issues a receipt in written evidence thereof. A merchant importing a quantity of dutiable goods may for a certain length of time keep the same in a "bonded warehouse" without paying duty; or for a limited time goods subject to internal revenue taxes may be stored therein awaiting payment of taxes.

WASH SALES. These are against the rules of the exchanges. One broker orders another to sell at a fixed price a certain quantity of stock, but buys it back when sold on the stock exchange. The sale is reported on the ticker, giving a false impression of the activity of the stock, since it did not actually change hands.

WATERED STOCK. The face value of such an issue of stock is greater than the value of the property represented thereby at the time of the issue. An increase of stock will not increase the property value of a corporation unless it is exchanged for real value.

WITHOUT RECOURSE. Without liability or responsibility. If the original signer of a check or note fails to pay the same, every indorser thereof is responsible for its payment except under certain conditions when responsibility may be avoided by the indorser's prefixing the words "without recourse" to his signature.

WOMAN'S SIGNATURE. Women are often careless in signing their names, not making it clear whether married or single. To business letters the best way for a married woman to sign her name is for example—Janet E. Clark (Mrs. Andrew B. Clark), or, Janet E. Clark, wife of Andrew B. Clark. An unmarried woman should prefix (Miss) before her signature. In checks, etc., and all legal documents, a woman must, of course, use her legal signature, which in the above instance would be Janet E. Clark. But when a married woman executes papers transferring title to something which she acquired under her maiden name, it is customary to put in the instrument she signs a clear statement of the fact.



RULERS
STATESMEN
CAPTAINS OF INDUSTRY
INVENTORS
FINANCIERS
SCIENTISTS
SCULPTORS
PAINTERS
ARCHITECTS
COMPOSERS
MUSICIANS
DRAMATISTS
ACTORS
AUTHORS
EDUCATORS
PREACHERS
ETHICAL WRITERS
REFORMERS
JURISTS
CONTEMPORARY BIOGRAPHY

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PROMINENT AMERICANS

Hon. A. B. Houghton
Hon. Frank B. Kellogg
Owen D. Young

George F. Baker
Senator W. E. Borah
Gen. John J. Pershing

James B. Duke
Col. George W. Goethals
George Eastman

BOOK XIV.

BIOGRAPHY.

RELIGION.
Mural Decoration in Congressional Library, Washington.
BY CHARLES SPRAGUE PEARCE.

BIOGRAPHICAL DICTIONARY OF RULERS AND STATESMEN OF THE WORLD. LEADING JURISTS. BUILDERS OF INDUSTRY. LEADING INVENTORS. EMINENT FINANCIERS. DICTIONARY OF SCIENTISTS. DICTIONARY OF AUTHORS. DICTIONARY OF EDUCATORS. RELIGIOUS AND ETHICAL WRITERS. BIOGRAPHICAL DICTIONARY OF PEOPLE OF PROMINENCE SINCE THE WORLD WAR.

RULERS AND STATESMEN.

ABBAS I. (*ab-bas'*), **THE GREAT** (1557-1628). Persian monarch; came to the throne (1586); victorious over the Uzbeks at Herat (1597); won many battles from the Turks (1601-1609); drove the Portuguese from Ormuz (1622). He is noted for his many important reforms.

ABBAS II., HILMI, K. G. C. (1874-1923). Khedive of Egypt since 1892; eldest son of Tewfik Pasha. He was educated in Europe and, although unfriendly toward the English government, has proved an able and enlightened ruler under English supervision. Deposed December, 1914.

ABBOTT, SIR JOHN JOSEPH CALDWELL (1821-1893). Canadian statesman; born at St. Andrew's, Quebec. Member Dominion Parliament (1867); member without portfolio in Sir John A. Macdonald's cabinet (1887); premier of the Dominion (1891-1892) after Macdonald's death; resigned through ill health, though he remained a member of the cabinet of his successor, Sir John Thompson; knighted (1892); an authority on commercial law.

ABD-ER-RAHMAN (? -732). A Saracen governor of Spain who with 80,000 men invaded Gaul and met the Franks under Charles Martel near Poitiers in the battle of Tours (October, 732). After six days of hand-to-hand fighting the Saracens were defeated.

ABD-UL-HAMID II. (1842-1918). Thirty-fourth sultan of the Ottoman Empire (1876-1909). In 1877 Russia declared war on account of the Bulgarian outrages. England alone saved Turkey. The Treaty of San Stefano was modified by the Berlin Congress, but Turkey lost Montenegro, Servia, Roumania, Bulgaria, and Herzegovina. The Armenian outrages (1895-1896) again roused Europe, but the sultan skillfully played off one European power against another and nothing was done. In 1897 Crete rebelled, and secured by the aid of foreign powers some degree of autonomy. In 1908 the sultan was forced by the "Young Turk" party, whom hitherto he had treated as rebels, to sign a constitution assuring representative government in place of autocratic rule. Deposed April 26, 1909.

ACHMET III. or **AHMED III.** (1673-1736). Sultan of Turkey (1703-1730). Sheltered Charles XII. after his defeat at Pultowa (1709); took Morea (Greece) from the Venetians (1715); invaded Hungary, was defeated at Peterwardein (1716) by Prince Eugene, and later at Belgrade; by the treaty of Passarowitz he gave up to Austria Belgrade and other territories. Deposed by his soldiers (1730) and died in prison (1736).

ADAMS, CHARLES FRANCIS (1807-1886). American diplomatist, son of John Quincy Adams; was graduated at Harvard (1825); editor the Boston *Whig* (1846-1848); Free Soil candidate for vice-president (1848); minister to England (1861-1868); member of Geneva Court of Arbitration to settle Alabama Claims.

ADAMS, SAMUEL (1722-1803). "The Father of the American Revolution." His speeches and writings brought

about not only the war, but independence of the colonies; from 1740 to 1797 was active in public affairs; signer of the Declaration; member of Congress eight years; governor of Massachusetts (1794-1797).

AGESILAUS (about 444-360 B. C.). King of Sparta (401-360). Commander-in-chief of Spartan forces in Asia Minor during the Persian War (397); led the forces against Athens, Thebes, and other states in Greece (394); led an expedition against Egypt (361), and died on his way home.

ALBERT or **ALBERT FRANCIS AUGUSTUS CHARLES EMMANUEL, PRINCE OF SAXE-COBURG-GOTHA** (1819-1861). Husband of Queen Victoria and known as the Prince Consort; married Victoria, February 10, 1840. He attained an important place as a statesman and accomplished much good. His last official act was the prevention of war between England and the United States over the Trent affair.

ALBERT I. (1250?-1308). Archduke of Austria and emperor of Germany; was the son of Rudolph I. On the death of Rudolph in 1291 Albert hoped to succeed to the throne, but on account of his reputation for tyranny was passed over and Adolph was chosen. In 1298 Adolph so disgusted the princes that he was dethroned and Albert was made king. They met in battle near Worms and Adolph was slain. Pope Boniface VIII. claimed that he alone was emperor, but Albert forced him to terms and conducted several foreign wars unsuccessfully. Albert was assassinated by his nephew, John, in 1308.

ALBERT I. (1875-). Third king of the Belgians; only son of Count Philippe of Flanders, a younger brother of Leopold II.; has traveled extensively; is a keen student of politics, economics, and social questions; married Princess Elizabeth of Bavaria, October 2, 1900; became king December 23, 1909.

ALBERT II. OF GERMANY AND V. OF AUSTRIA (1397-1439). In 1437 he was elected king of Bohemia and of Hungary to succeed his father-in-law, Emperor Sigismund. In March, 1438, he was elected ruler of Germany. Wars with the Turks and rebellions in Bohemia and Hungary marked his short reign.

ALEXANDER JANNAEUS (? -78 B. C.). King of the Jews; the son of John Hyrcanus; extended the frontiers of his kingdom west and south; was defeated by Ptolemy Lathyrus in Galilee; made an alliance with Cleopatra and drove Ptolemy out. His reign was marked by a great struggle between the Sadducees and the Pharisees, with the former of whom he sided. It is said that 50,000 perished during this civil strife. He quelled a revolt at Jerusalem by slaughtering 6,000. On his return from a short exile into which he had been driven by the Pharisees, he caused 800 rebels to be crucified before him and their wives and children slaughtered (86 B. C.). He died in 78 B. C.

ALEXANDER THE GREAT (356-323 B. C.). King of Macedon and conqueror of the Eastern world. He was the son of Philip II. of Macedon and succeeded him. He speedily cleared away all opposition and undertook the conquest of Persia. He entered Asia Minor in 334; loosed the famous Gordian knot with his sword; defeated the Persian host under Darius at Issus in 333; stormed and took Tyre in 332; then Gaza; conquered Egypt in 332; defeated Darius at Arbela, near Gaugamela (331); entered India, conquering as he went, in 327. He died in Babylon (323 B. C.). On his death his vast kingdom was divided among his generals and favorites.

ALEXANDER I., PAULOVITCH (1777-1825). Czar of Russia (1801-1825). Son and successor of Paul I., who was the son of Catherine II. At first friendly to Napoleon, he later opposed him; made peace with him in 1807; broke it and Napoleon invaded Russia in 1812. Alexander then joined England and Prussia and with them invaded Paris (March 31, 1814); joined Austria and Prussia in the "Holy Alliance" after Waterloo (1815). He was succeeded by Nicholas I.

ALEXANDER II., NIKOLAYEVITCH (1818-1881). Czar of Russia (1855-1881). Son and successor of Nicholas I. Ascended the throne during the Crimean War; compelled to sign the humiliating Treaty of Paris (1856); freed all the slaves or serfs in his kingdom (1858-1861), over 23,000,000 people; sold Alaska to the United States (1867); fought a successful war against Turkey (1877-1878); had great trouble with Nihilists and was assassinated by them in the streets of St. Petersburg (1881). Alexander III. succeeded him.

ALEXANDER III., ALEXANDROVITCH (1845-1894). Czar of Russia (1881-1894); not crowned until 1883 for fear of the Nihilists, against whom he made strict and severe laws; the persecutions of the Jews began in his reign; Russia and France were forced into friendship in opposition to the Triple Alliance of Germany, Austria, and Italy. He did much to strengthen the army and navy. Nicholas II. succeeded him.

ALEXANDER I. (1078?-1124). King of Scotland; fourth son of Malcolm Canmore; succeeded his brother, Edgar (1107), while the lowlands were ruled by his younger brother, David I. He founded an episcopacy in opposition to the English Church, establishing abbeys at Inchcolm and Scone, and a bishopric at St. Andrews. He died childless.

ALEXANDER II. (1198-1249). King of Scotland; son of William the Lion; came to the throne (1214); married Joan, the sister of Henry III. of England. He was a wise lawgiver, and brought prosperity to the land.

ALEXANDER III. (1241-1285). King of Scotland; succeeded in 1249; during his minority was beset by English and Scottish regents; defeated Haakon of Norway at Largs (1263) and added the Hebrides to Scotland. He was killed on March 12, 1285, by falling over a cliff.

ALEXANDER I. (1876-1903). King of Servia (1889-1903). Son of Milan, who abdicated in 1889; ruled under a regency until 1893, when he took personal control; formulated a new constitution (1895); in 1900 married Draga Mashin, a widow much older than himself; on June 11, 1903, he and his consort were assassinated with others by conspiracy of the army officers. Peter I. succeeded.

ALFONSO I. OF CASTILE AND VI. OF LEON (1030-1109). Came to the throne of Leon in 1065; in 1072 succeeded in Castile his brother Sancho, who was assassinated; imprisoned his brother, Garcia, for ten years; ruled over nearly all of Christian Spain until defeated by the Almoravides allied with the king of Seville (1108). Succeeded by his daughter, Urraca, who married Alfonso I. of Aragon.

ALFONSO III. (848-912). The first king of Leon, Asturias, and Galicia. Gained many victories over the Moors from 870 to 901. His son, Garcia, rebelled in 888 and was defeated and imprisoned. His wife incited another rebellion and caused his abdication in 910. He led Garcia's forces for two years against the Moors.

ALFONSO X. (1221-1284). "The Astronomer," "the Philosopher," or "the Wise"; king of Leon and Castile. Succeeded his father, Ferdinand III. (1252); elected king of the Germans (1257), but was excluded by Rudolph of Hapsburg (1273); defeated the Moors (1262); deprived of his throne by his son, Sancho (1282); noted in literature.

ALFONSO I. (? -1134). King of Navarre and Aragon; married Urraca, daughter and successor of Alfonso VI. of Leon and Castile; was divorced from her; took Saragossa after a four years' siege (1118); slew 20,000 Moors at Daroca (1120); invaded Valencia (1123); took Bordeaux and Bayonne (1130); was defeated by the Almoravides after a long struggle.

ALFONSO I. (1109-1185). First king of Portugal. Son of Henry of Burgundy, the conqueror and Count of Portugal, who died when Alfonso was only two years old. At twenty-one he took the power away from his mother, Theresa of Castile, who had abused it. Defeated the Moors on the plains of Ourique (1139), when legend says 200,000 perished. He then took the title of king. He took Lisbon (1147) with the aid of some English crusaders on their way to the Holy Land. He besieged and took Alcazar de Sal (1158); the fortress of Santarem from the Saracens (1171); defeated the Almohade ruler, Jusef-ben-Jakub (1184).

ALFONSO XII. (1857-1885). King of Spain (1874-1885). Son of the deposed Queen Isabella II. In 1883 he was publicly insulted in Paris as he was returning from Germany, and war was narrowly averted. He struggled vainly to cement the various factions in which his country was divided. His posthumous son, Alfonso XIII., succeeded him.

ALFONSO XIII. (1886-). King of Spain. His mother, Maria Christina, Archduchess of Austria, acted as regent until his majority. His reign has been marked by mutinies abroad and cabinet crises and anarchistic disturbances at home. In 1894 and 1895 rebellion broke out in Cuba and the Philippines. In 1898 the United

States declared war on Spain, and in the treaty of Paris, December 10, 1898, Spain lost Cuba, the Philippines, and Porto Rico. In 1906 the king married Princess Ena of Battenberg, niece of Edward VII. of England.

ALFRED THE GREAT (849-901). King of Wessex (871-901). He was the son of Ethelwulf, king of the West Saxons. The two great features of his reign are the incursions by the Danes and the great attention paid to education through the king's patronage. After several battles with the Danes, he quieted them, probably by giving them money. In 878 there was a great invasion. Alfred established himself at Athelney, and a few weeks later fought and won the battle of Ethandun. The Danish king, Guthrum, was baptized and the peace of Wedmore followed. For the next 15 years there was comparative peace. In 893 the Danes, who had been driven out of Germany by Arnulf, made another descent on England, which lasted four more years before the Danes were driven out.

ALGER, RUSSELL ALEXANDER (1836-1907). American soldier and politician; born in Lafayette, Ohio; served through the Civil War and rose to the rank of major general; governor of Michigan (1885-1886); commander-in-chief of the G. A. R. (1889) secretary of war in McKinley's cabinet (1897-1899) and as such he met vigorous criticism for conditions during the Spanish-American War; United States senator (1902-1907).

ALI IBN ABU TALIB (about 600-661). Fourth caliph, cousin and son-in-law of Mohammed, and one of his first converts. He succeeded to the caliphate on the murder of Othman (656). His reign was stormy and full of wars. He was opposed by Ayeshah, the widow of Mohammed, and Muawwiyah, both of whom he overcame. He was murdered at Kufa. His followers formed the sect of the Shiites, which now numbers over 15,000,000. They are strong in Persia.

AMES, FISHER (1758-1808). American orator and statesman; was graduated from Harvard at 16; at 31 (1789) elected to Congress, where he served for eight years.

AMPHICTYONIC COUNCIL. A religious congress formed by two representatives from each tribe of ancient Greece. It met in the spring and autumn at both Delphi and Thermopylae. Its power declined in the third century B. C. It had especial care of the temple of Apollo at Delphi, with its treasures, and directed other religious affairs and the Pythian games.

AMURATH or **MURAD I.** (1319-1389). Sultan of the Ottoman Turks (1359-1389). Son and successor of Orkhan. Invaded Europe, defeating Christians everywhere; took Adrianople (1361) and made it his capital; crushed Servia (1389) in the Battle of Kossovo. Amurath was killed by a wounded Servian noble when he was surveying the field of battle and victory. Succeeded by Bajazet I.

AMURATH or **MURAD II.** (1401-1451). Tenth sultan of the Turks (1421-1451). Son and successor of Mohammed I.; took Salonica from Venice (1430); defeated several times by Hunyadi, the Hungarian patriot; overwhelmed the Hungarians at Varna (1444), where Ladislas, king of Hungary and Poland, fell; defeated Hunyadi at Kossovo (1448). Succeeded by his son, Mohammed II., the conqueror of Constantinople.

AMURATH or **MURAD IV.** (1611-1640). Sultan of Turkey (1623-1640). "The Turkish Nero." Took Bagdad from Persia (1638) and slaughtered 30,000 of the people. Noted for cruelty and tyranny.

ANCUS MARTIUS (? -614 B. C.). Fourth king of Rome (638-614). Founded Ostia at the mouth of the Tiber; built the first prison in the city of Rome, still in existence near the Forum.

ANDRASSY (*on'drah-she*), **GYULA, COUNT** (1823-1890). Hungarian statesman. Advocated the popular cause in the revolution of 1848; exile in France and England (1849-1857); member of the Diet (1861); vice-president (1865-1866); prime minister of Hungary (1867); minister of foreign affairs of Austria-Hungary (1871); chief representative of Austria-Hungary at Berlin Congress (1878).

ANDROS, SIR EDMUND (1637-1714). In 1674 he was made British colonial governor of New York. In 1686 he was made governor of New England. He carried on an administration of tyranny which lasted for three years; declared all marriages unlawful unless celebrated by Episcopal clergymen; levied exorbitant taxes, etc., until imprisoned by the people of Boston in 1689, and sent to England; afterwards made governor of Virginia and then of Guernsey.

ANNAPOLIS CONVENTION. Held in Annapolis, Md., September 11, 1786, to consider intercolonial commerce and changes in the Articles of Federation. It was attended by commissioners from Virginia, Delaware, Pennsylvania, New Jersey, and New York; although the other states had chosen commissioners, they did not attend. Practically all that was done was a recommendation which led to the Constitutional Convention of 1787.

ANNE (1665-1714). Queen of Great Britain and Ireland, last of the Stuarts. Second daughter of James II. and Anne Hyde. Married Prince George of Denmark. Lady Churchill (Duchess of Marlborough) gained an ascendency over her, as did, later, Mrs. Masham. She was succeeded by George I.

ANNE OF AUSTRIA (1601-1666). Daughter of Philip III. of Spain and wife of Louis XIII. of France. Mother of Louis XIV. Though neglected and cruelly treated by her husband, she became regent on his death (1643). Cardinal Mazarin ruled well for her and prepared a great kingdom for Louis XIV.

ANTALCIDAS. Great Spartan statesman; son of Leon. Sent by his government to Tiribazus, the Persian satrap at Sardis (393 B. C.), to break up the understanding between Athens and Persia. He succeeded, but agreed that Sparta should recognize Persian supremacy over the Greek cities of Asia Minor. This displeased the Persian king, Artaxerxes, and Tiribazus was recalled; to be restored (388 B. C.). Encouraged by this fact Antalcidas was sent again as a Spartan admiral to treat again with the Persian court; received an interview and carried his point; thus breaking the blockade of the Athenians and shutting them out from the Aegean Sea. He compelled the resultant peace known as the "Peace of Antalcidas," its final ratification taking place at Sparta (386 B. C.). Persian support was held until after the battle of Leuctra, when he lost favor and is said to have starved himself to death in disappointment.

ANTIOCHUS I. King of Syria (about 280-261 B. C.). Son and successor of Seleucus I. He gained a decisive victory over the Gauls who invaded Asia Minor in 275 B. C. He had difficulty in maintaining the integrity of his vast empire and had frequent occasions for defense. He declared war against Ptolemy II., Philadelphus, but it was indecisive.

ANTIOCHUS III., THE GREAT. King of Syria (223-187 B. C.). Son and successor of Seleucus II. He made war on Ptolemy IV. of Egypt; quelled a rebellion at home; extended his empire to the east; made war with Philip of Macedon, as an ally, upon Ptolemy V. of Egypt; took some of his territory, but was forced by Rome to return it; made war upon Greece; was defeated at Thermopylae in 191 B. C., and again at Magnesia in 190 B. C.; after which he was forced to give up a part of his territory in Asia Minor and to pay a tribute of 15,000 talents. To get this vast sum he pillaged a temple, and was murdered in 187 B. C.

ANTIOCHUS IV., EPIPHANES. King of Syria (175-164 B. C.). Son of Antiochus III. Succeeded his brother, Seleucus IV. In 188 B. C. he was sent to Rome as a hostage; exchanged for the son of Seleucus (176 B. C.); became king next year. Recovered Palestine, sacked Jerusalem, plundered the Temple; conquered nearly all of Egypt until ordered by the Romans to desist (168 B. C.).

ANTONINUS, MARCUS AURELIUS (121-180). A Roman emperor renowned for wisdom and virtue (161-180). Son-in-law of Antoninus Pius, whom he succeeded. Several successful wars kept him away from Rome, during which he commanded the respect of his soldiers by his simple life. The only blot on his name was allowing the persecution of Christians.

ANTONINUS PIUS (86-161). A famous Roman emperor (138-161). Consul in 130; adopted by the

emperor Hadrian (138); emperor the same year; his reign was peaceful and happy; persecution of Christians was greatly lessened; conducted a campaign in Britain and built a wall from the Forth to the Clyde.

ANTONIUS, MARCUS (83-30 B. C.). Known as Mark Antony. A Roman triumvir. He fought under Gabinius in Palestine and Egypt, and with Caesar in Gaul. Thence he went to Rome in 50 B. C. to advance the interests of Caesar. He was elected a tribune in that year, but was expelled the next for his zeal in Caesar's interests. He fled to Caesar, who on the outbreak of the war with Pompey, made Antonius commander of the army in Italy. He commanded the left wing of Caesar's army at the battle of Pharsalia, and, during Caesar's absence in Africa, governed Italy. He was made consul in 44 B. C. After the assassination of Caesar in that year, he compelled the conspirators to leave Rome. Cicero denounced him, and Octavianus now appeared as a rival. Antony fled to the camp of Lepidus in Gaul, and with the army of Lepidus and his own scattered forces marched on Rome. Octavianus made an alliance with him and formed with Lepidus the second triumvirate. Then began the slaughter of Roman citizens, including Cicero. Appian says that 300 senators and 2,000 knights were assassinated. Antony and Octavianus then went to Macedonia and defeated the forces of Brutus and Cassius at Philippi in 42 B. C. Antony went to Athens, thence to Egypt to contend with Cleopatra, who captivated him by her beauty. A dispute over the division of the empire caused a new arrangement. Antony took the East, Octavianus the West, and Lepidus, Africa. Antony returned to Egypt and Octavianus incited the Romans against him. He was deprived of his power and war was declared on Cleopatra. A naval engagement took place at Actium in 31 B. C., where Antony and Cleopatra were completely defeated. Antony returned to Egypt and Octavianus followed him. Antony was told falsely that Cleopatra was dead, and he committed suicide in 30 B. C.

APRIES. An Egyptian king of the XXVI. dynasty (589-570 B. C.). He is the Pharaoh-hophra of the Bible. He helped the Jews in their resistance against Babylonia, but could not prevent the fall of Jerusalem. His throne was usurped by Amasis II., who took advantage of a revolt of the troops of Apries.

ARABI PASHA (1837-1911). Leader of the national party in Egypt in 1882. From a private he rose to be colonel in the Egyptian army; organized a rebellion under the rally of "Egypt for the Egyptians"; became minister of war in 1882; set aside the French-English control in finances of Egypt. England intervened; war was declared; Alexandria bombarded (July 11 and 12, 1882); Arabi was defeated at Tel-el-Kebir (September 13, 1882). He surrendered next day; sentenced to life exile in Ceylon; pardoned in 1900, and returned to Egypt.

ARCADIUS (about 377-408). First emperor of the East (395-408). He was the eldest son of the emperor Theodosius, after whose death the empire was divided into the West and East. He lived a life of luxury and indifference, the affairs being in the hands of Rufinus, the Gaul; Eutropius, the eunuch; and Eudoxia, the wife of Arcadius. The only really great man of the times was Chrysostom.

ARCHON. The highest magistrate in Athens and in other Greek cities. The office was erected after the death of the last king, Codrus, about 1069 B. C. There were nine archons at Athens with a division of duties. At first the office was held for life, later for 10 years beginning 725 B. C. In 683 B. C. it was limited to one year, and in 457 B. C. any citizen was considered eligible for election.

AREOPAGUS. The famous senate established at Athens in very early times. It met on a bare, rocky hill, 350 feet high, west of the Acropolis, in the open air. It had remarkable powers until the reforms of Ephialtes and Pericles, when its power was curtailed, though it was still the most venerated body in Athens.

ARGALL, SIR SAMUEL (about 1580-1626). Deputy governor of the Virginia Colony (1617); captain of a fleet which attacked the Algerine pirates in the Mediterranean (1620); admiral of an Anglo-Dutch fleet against the Spaniards, taking prizes of over half a million dollars (1625); commander of the flagship in Cecil's expedition against the Spanish.

ARISTIDES, called **THE JUST** (550-468 B. C.). Athenian patriot, noted for an unswerving integrity, a trait that led to his banishment in 483 B. C.; was next highest in command at the battle of Marathon, after which he was made archon of Athens; recalled from exile to oppose the Persians under Xerxes, he commanded at the battles of Salamis and Plataea. He exerted himself to save from banishment his rival, Themistocles, and died so poor that he was buried at public cost.

ARTAXERXES. The name of three ancient Persian kings. **ARTAXERXES I., LONGIMANUS.** Son of Xerxes and ruler of Persia (465-424 B. C.). Suppressed an Egyptian revolt (455 B. C.); defeated by the Greeks at Cyprus (449 B. C.). The Peloponnesian War of Greece broke out in his reign (431 B. C.). **ARTAXERXES II., MNEMON or GOOD MEMORY.** Grandson of Artaxerxes I. and king of Persia (405-362 B. C.). His brother, Cyrus the Younger, revolted against him and was defeated at the battle of Cunaxa (401 B. C.). **ARTAXERXES III., OCHUS.** Son and successor of Artaxerxes II. (362-338 B. C.). A contemporary of Philip II. of Macedon; subdued Egypt (350 B. C.). Poisoned by Bagoas, an influential favorite.

ARTEMISIA (about 350 B. C.). A queen of Caria; wife and successor of Mausolus. She is noted for her love for her husband, her extraordinary grief at his death, and the splendid monument she built to his memory; hence the word "mausoleum." Portions of some of the fine sculptures which adorned this tomb were discovered in 1857 and are now in the British Museum.

ASHBURTON, ALEXANDER BARING, BARON (1774-1848). For many years the head of the great Baring banking house. He began life as a Whig. In 1835 he was raised to the peerage; in 1842 he was appointed by Sir Robert Peel as special commissioner to negotiate the Ashburton Treaty between Great Britain and the United States, concerning the disputed Maine territory, which threatened to involve the two countries in a war; in 1798 he married the daughter of William Bingham of Philadelphia. He was a liberal patron of the fine arts.

ASQUITH, RT. HON. HERBERT HENRY (1852-1928). Prime Minister of England and First Lord of the Treasury since 1898. Member of Parliament for East Fife since 1886. Scholar and fellow of Balliol College, Oxford; Craven University scholar; barrister of Lincoln's Inn (1876); queen's counsel (1890); secretary of state for home department (1892-(1895); chancellor of Exchequer (1905-1908); hon. D.C.L. Oxford; hon. LL.D. Edinburgh and Glasgow.

ATHELSTAN (895-940). Grandson of Alfred the Great. The first ruler to take the title of King of England. He was crowned in 925. Athelstan seized Northumbria, and a league of Scots, Welsh, and English was formed against him. This was followed by a more formidable revolt, which was crushed at the battle of Brunanburh (937). He made good laws and improved the condition of his people.

ATTILA. King of the Huns; by Christians called "the Scourge of God." Became king (434), sharing the vast empire in Asia and Europe with his brother, whom he killed (444 or 445); devastated the coasts of the Black and Mediterranean seas. Defeated Theodosius thrice; took 70 cities from Rome; vast possessions south of the Danube paid him tribute; Aetius and Theodoric defeated him in Gaul; the Romans and allies defeated him at Chalons, he losing 300,000 men; he invaded Italy, and Rome was saved only by the intervention of Pope Leo I. When planning a second invasion he died of dysentery (453).

AUGUSTUS (63 B. C.-14 A. D.). At birth his name was Gaius Octavius; when adopted by Julius Caesar, he was called Gaius Julius Caesar Octavianus; by decree of the Senate in 27 B. C. he was named Augustus. The first Roman emperor and grandnephew of Caesar, who adopted him. When Caesar was assassinated in 44 B. C., Octavianus returned to Rome from his studies abroad and found Antony in control. War ensued, and Antony was beaten and fled across the Alps. Supported by Cicero and others Octavianus rose to such power that on the return of Antony he formed the second triumvirate with him and Lepidus. He took Italy, Africa, and Sicily; Antonius took Gaul; and Lepidus, Spain. After the battle of Philippi, a new division was made. Octavianus obtained Italy, and Lepidus, Africa. While Antony was in the power of Cleopatra, Octavianus was building himself up, and war was finally declared against Cleopatra. Octavianus was victorious at Actium, and became sole ruler of the Roman world. He declared universal peace in 29 B. C. In his eleventh consulship (23 B. C.) the Senate made him tribune for life. On the death of Lepidus (12 B. C.) he was made Pontifex Maximus and was supreme ruler of Rome. His reforms were beneficent

and he beautified the city of Rome. His was the Augustan age of literature.

AURELIAN (LUCIUS DOMITIUS AURELIANUS) (about 212-275). Roman emperor (270-275). Successor of Claudius. Captured Palmyra, the capital of Queen Zenobia. Aurelian was killed by his own soldiers, near Byzantium, while on his way to Persia. He was called by the Senate "The Restorer of the Roman Empire."

AURUNGZEBE (1618-1707). The last great emperor of the Mogul dynasty in India. Murdered two of his brothers, imprisoned his father, Shah Jehan (1657), and made himself ruler. His reign was brilliant, and his kingdom covered nearly all of Hindustan.

BABER (1483-1530). Descendant of Tamerlane, grandfather of the great Akbar; founded the Mogul Empire in Hindustan in 1527. His dynasty lasted for three centuries. He invaded India several times, finally in 1525 defeating the sultan of the Afghans and becoming master of the country. He was an able sovereign and soldier, made many improvements, and left a valuable autobiography.

BAEZ (*bah'eth*), **BUENAVENTURA** (1820-1884). President for four terms of the Republic of Santo Domingo (1849-1853); driven out by Santa Anna; president from 1856 to 1858; driven out again; president from 1865 to 1866; again exiled (1867). In 1869 the United States Senate refused to ratify the treaty which he and President Grant drew up for annexation of Santo Domingo. He was the son of a wealthy mulatto.

BAGOT, SIR CHARLES (1781-1843). Governor general of Canada (1842-1843); minister to the United States (1819); ambassador to Russia (1820); to Holland (1824); special ambassador to Austria (1834).

BAHADUR SHAH (about 1767-1862). The seventeenth and last Great Mogul of the dynasty of Tamerlane. At 90 years of age he undertook to restore the empire, took refuge in the tomb of his ancestors in Delhi, was captured by the English, and banished to Rangoon.

BAILLY, JEAN SYLVAIN (1736-1793). A French astronomer; mayor of Paris at the beginning of the French Revolution. Because he ordered a violent mob to disperse he became unpopular and later he resigned. On the triumph of the Jacobins, in 1793, he was arrested; was one of the witnesses at the trial of Marie Antoinette, and was soon after executed under circumstances of extreme cruelty. He was the author of many scientific works and a book of memoirs of the Revolution.

BAJAZET (*baj-a-zet'*) or **BAYAZID I.** (1347-1403). Sultan of the Ottomans; succeeded his father, Amurath I., in 1389. His vast energy and the swiftness of his movements gained for him the surname "Ilderim" or "lightning"; conquered Asia Minor, considerable of Turkey in Europe, and carried his campaign into Bulgaria, Hungary, Wallachia, and part of Greece; was first in his family to assume the title of sultan. He was desirous of taking Constantinople and defeated a league of the Christian powers commanded by Sigismund, King of Hungary, on the banks of the Danube at Nicopolis, in September, 1396. He is said to have made the boast that his horse would eat on the altar of St. Peter's at Rome. In 1402 he was defeated and made prisoner by Tamerlane just as he was preparing to attack Constantinople. Shut up in an iron cage, he was carried in the train of his conqueror, and about nine months later died in the Tatar camp in Pisidia.

BALDWIN I. (1058-1118). King of Jerusalem; succeeded his elder brother, Godfrey of Bouillon, in 1100; obtained many victories over the Turks, Persians, and Saracens; made himself master of all the important towns on the coast of Syria; distinguished himself in the First Crusade. He was buried on Mount Calvary.

BALDWIN I. (1171-1206). First Latin emperor of Constantinople. Son of Baldwin VIII., Count of Flanders and Hainault. In 1195 he became Count of Flanders. In 1201 he placed his brother in command and went to the Fourth Crusade. On the way he, with others, assisted the Venetians at Zara against the king of Hungary. While there young Alexius, son of Isaac II., Byzantine emperor, asked the aid of the Crusaders to punish his uncle, Alexius Angelus, who had deposed and blinded his father, Isaac II. The latter was restored but Alexius had difficulty in keeping the promises made to the Crusaders and the Venetians. They rose against him and slew him; then took Constantinople and seized the throne. Baldwin was declared emperor in 1204. In the division, Venice took most of the empire, leaving only Constantinople and Thrace to Baldwin. Being unable to cope with the situation he was defeated and taken prisoner in a rebellion of the Greeks and died mysteriously in 1205. He was succeeded by his brother Henry.

BALDWIN II. Seventh Latin emperor of Constantinople (1228-1261). The son of Pierre de Courtenay and nephew of Baldwin I. His reign was disastrous. He spent much of his time in the West seeking aid for his capital. He sold to St. Louis of France some of the most sacred relics of Constantinople. In 1261 his capital was taken by one of the generals of Michael Palaeologus, ruler of Nicaea, and Baldwin fled to Italy. He was the last of the Latin emperors, and was succeeded by the Nicaean emperors.

BALFOUR, ARTHUR JAMES (1848-). A British statesman. In 1874 he entered Parliament, first representing Hertford, and in 1886 the east division of Manchester; president of the local government board (1885); secretary for Scotland (1886); secretary for Ireland (1887-1891); lord rector of Glasgow University (1890); in 1891, chancellor of Edinburgh University, and first lord of the treasury, then leader of the House of Commons. In 1895 he again became first lord of the treasury and leader of the House. He passed the crimes and law acts, secured a free grant for railways, and created the Congested Districts Board; became prime minister July 12, 1902, upon the resignation of Lord Salisbury, but failed to secure a majority in the general election of 1905; resigned leadership (1911).

BALMACE'DA, JOSE MANUEL (1838-1891). A Chilian statesman. Early in life he distinguished himself as an orator. In Congress he was foremost advocate of the separation of church and state; in 1884, while premier, he introduced civil marriage; in 1886 he was elected president. He was accused of cruelty and dishonesty in office, and through the efforts of Señor Fuentes, who wished to supplant him and his supporters, he was overthrown (1891) and committed suicide September 18 of same year.

BANKS, NATHANIEL PRENTISS (1816-1894). An American soldier and legislator; born in Waltham, Mass. He began his career as a factory worker, and from that his nickname of the "bobbin boy" clung to him all his life. He studied law and became a member of the state and then the national legislature. In 1856 he was speaker of the House, and was made governor of Massachusetts in 1857. He was a commander in the army in the Civil War, first on the Potomac, then at New Orleans, then at Red River. In 1864 he re-entered Congress, where he remained until 1890. In 1891 he was granted by Congress a pension of $1,200 annually.

BARRETT, JOHN (1866-). Statesman; minister to Siam (1894-1898). Special diplomatic and commercial envoy to Japan, Siam, Korea, Siberia, and India; American plenipotentiary to International Confederation of American Republics at Mexico (1901-1902); minister to Argentina (1903-1904), Panama (1904-1905), Colombia (1905-1906); director International Bureau of American Republics.

BATTA, JOSE (1816-1872). Peruvian soldier and statesman. President of Peru (1868-1872). Led the insurrection which drove Prado into exile (1868). Shot by order of General Gutierrez, minister of war, in a military mutiny.

BATU KHAN (? -about 1255). Leader of the Mongols or Tatars in their invasion of Europe in the thirteenth century. Grandson of Genghis Khan; crossed the Volga (1235); took Riazan (1237); Moscow, Vladimir, and Kiev (1240); perpetrated horrible massacres and atrocities; invaded Hungary (1241); conquered the Siberian Duke and Teutonic Knights at Wahlstatt. His army was named the Golden Horde from the richly embroidered tent of the Khan. His khanate was Kipchak, from the Jaxartes in Turkestan to the limits of Russia.

BEACONSFIELD, BENJAMIN DISRAELI, EARL OF (1804-1881). An English statesman and author; born in London. The crown of his ambition was to become premier. He attained that honor in 1868 at the resignation of Lord Derby, but at the general election he was not returned to power; again elected prime minister in 1874 with a strong majority, he retained the office for six years. During this period

he was raised to the peerage. Parliament was abruptly dissolved in 1880, and the new Parliament had an overwhelming liberal majority; Beaconsfield remained leader of the conservative party. *Endymion*, published shortly after this time, is probably the best known of his literary works.

BEDFORD, JOHN PLANTAGENET, DUKE OF (1390-1435). Brother of King Henry V.; made constable of England in 1403; created Duke of Bedford in 1415. Henry V. wanted him made regent of France, but by act of Parliament he was made protector of the kingdom. His claim for Henry VI., as king of France upon the death of Charles VI., in 1422, involved the two countries in war for some years, but the tide turned against him at the siege of Orléans, which was raised by Joan of Arc. Disappointment hastened his death. Bedford was a patron of literature.

BELL, JOHN (1797-1869). Actively engaged in American politics until 1860, when he was nominated for the presidency by the Constitutional Union Party; member of Congress (1827-1841); speaker of the House in 1834; secretary of war under Harrison in 1841, and was a member of the United States Senate (1847-1859); joined the Confederacy and advised Tennessee to withdraw from the Union in 1861.

BENTON, THOMAS HART (1782-1858). An American statesman and soldier. He was born near Hillsboro, N. C.; made his home in Tennessee. There he studied law and was made a member of the Legislature. In the War of 1812 he raised a regiment of volunteers. He also served on General Jackson's staff. His St. Louis newspaper, which he started after the war, entangled him in several duels. After Missouri was admitted as a state he was chosen United States senator in 1820, and during 30 years of continuous service took a prominent part in public affairs.

BERKELEY, SIR WILLIAM (1610-1677). Colonial governor of Virginia (1641-1650). He was superseded by Cromwell's appointee, Richard Bennet, in 1651; remained in the colony; chosen governor by the General Assembly in 1660. Lost favor with the people and suffered by Bacon's rebellion; was forced to resign in 1660.

BERNADOTTE, JEAN BAPTISTE JULES (1764-1844). French general and afterwards king of Sweden; son of a lawyer; educated for the law, but abandoned his studies for the life of a soldier and politician. He was married in 1798 to Mademoiselle Clary, a sister-in-law to Joseph Bonaparte. A year later he became for a short time minister of war, and when the empire was established was exalted to the office of marshal of France, with the title of Prince of Ponte Corvo. At the death of Prince of Holstein-Augustenburg he was offered the heir apparency to the Swedish crown. Bernadotte accepted with Napoleon's sanction, went to Sweden, abjured Catholicism, and took the title of Prince Charles John. From that time he devoted all his energies to his adopted country, formed a secret alliance with Russia in 1812, and in 1813 took command of the combined armies of northern Germany against France; at the battle of Leipzig contributed largely to the victory of the allied powers. At the death of Charles XIII. he became king of Sweden under the title of Charles XIV. Never during a half century before his accession had Sweden enjoyed the peace and prosperity in which he left her in the hands of his son, Oscar. He fostered agriculture, encouraged commerce, and completed many important public works.

BISMARCK, KARL OTTO EDUARD LEOPOLD, PRINCE VON (1815-1898). Born at Schönhausen. He early entered political life, being always a strong imperialist. The idea of Germany's freedom from foreign control and union under the crown of Prussia originated with Bismarck, but his sincerity and judgment were doubted at first. In 1862 he was made minister of foreign affairs. In 1864 he won general approbation by the conquest and annexation of Schleswig. Next he brought Austria to terms in 1866, in consequence of which his long cherished plan was made possible, and the establishment of a German confederation with Prussia at its head made him the idol of his compatriots. Exasperated by his treatment, Napoleon III. declared war and advanced upon Berlin. To the surprise of all Europe, the French were ignominiously driven back. The threatening powers of France and Austria helpless, the German Empire restored under a Hohenzollern king, Bismarck was installed as chancellor. He reformed the coinage, increased the army, established protection, and repressed socialism. But no deed of his equaled the stupendous feat of reorganizing and building up the empire. After numerous quarrels with William II., he resigned (March 20, 1890). He was the greatest European statesman of the nineteenth century.

BLAINE, JAMES GILLESPIE (1830-1893). An American statesman; born in Brownsville, Penn.; one of the founders of the Republican Party. In 1862 he became a member of the House of Representatives. In 1869 he took the chair as speaker of the House, which office he retained for six years. From 1876 to 1881 he was a member of the Senate. He was secretary of state under Garfield (1880 to 1884). In 1884 he was the Republican candidate for the presidency, but was defeated by Grover Cleveland. He wrote *Twenty Years of Congress*, a work of lasting value to history. Besides this, his best known literary work, we have many others of his writings and speeches on the most important public questions of his day. He removed to Augusta, Maine (1854), and engaged in journalism.

BLAKE, EDWARD (1833-1912). A Canadian statesman; elected to the Dominion Parliament (1867) and became the leader of the Liberal opposition; premier of Ontario (1871); privy councillor (1874); minister of justice (1875); leader of the Liberal Party (1880); elected to the British Parliament from South Longford, Ireland (1892); member of judicial committee of the Privy Council (1896).

BLAND, RICHARD PARKS (1835-1899). American legislator; born near Hartford, Ky.; practised law in Missouri, California, and Utah, and was interested for some time in mining. From 1873 to 1895 he was a member of Congress, and again from 1897 till his death. In 1896 he was one of the foremost candidates for the presidential nomination in the Democratic National Convention; was noted as the leader of the free silver movement in national House of Representatives. He was the author of the Bland Silver Bill, which was introduced by him in 1878. This bill provided for the coinage of not more than $4,000,000 nor less than $2,000,000 worth of silver bullion a month. The bill was passed in spite of the veto of President Hayes and remained in force until 1890, when it was nullified by the passage of the Sherman act.

BOABDIL (*bo-ab-deel'*) (?- 1536). The last Moorish king of Granada. He dethroned his father, Abu-l-hassan, in 1481, and two years after that was overthrown and taken prisoner by the Castilians in the vicinity of Lucena. He bought his freedom and returned to Granada, where he struggled with his father and with his warrior uncle, El-Zaghal, for the throne. He was expelled from Granada for the last time in 1491 by Ferdinand of Castile and Aragon, and after that lived in Africa, where he was killed in battle in the service of the king of Fez.

BOADICEA, QUEEN OF THE ICENI. A British queen, who, in 60, rose in rebellion against the Romans. Prasutagus, her husband, died in 60 and left his wealth to the Roman emperor and to his own two daughters, thus hoping to protect his kingdom from the rapacity of the Roman emperor; but the plan failed, and the kingdom was plundered and the queen and her daughters were insulted. Boadicea was at first victorious, destroyed over 70,000 Romans, and captured several towns. In a battle the Romans, led by Suetonius Paulinus, were completely victorious, and over 80,000 Britons were slain in 62. Boadicea, in despair, committed suicide.

BONAPARTE, CHARLES LOUIS NAPOLEON, NAPOLEON III. (1808-1873). French emperor, son of Louis Bonaparte; born in Paris. Failed completely in an attempt to take Strassburg (1836); imprisoned in Ham for attempt to bring about an uprising in his favor; escaped (1846) and made his way to England, but returned (1848) and was elected president; re-elected for 10 years in 1851. He married Eugénie, Countess de Montijo, in 1853. During the Franco-German War the emperor took the field and, after his capture at Sedan, was deposed and spent the remainder of his life at Chiselhurst, England.

BONAPARTE, JOSEPH (1768-1844). Eldest brother of Napoleon; born at Corte, in Corsica; elected a member of the Council of Five Hundred (1797); was appointed commander-in-chief of the army of Naples (1804); ruler of the Two Sicilies (1805); king of Naples (1806); transferred to the throne of Spain (1808), but, being unable to suppress the insurgents there, returned to France after the defeat of the French at Vittoria (1813). Joseph

came to the United States after the battle of Waterloo, where for many years he engaged in agriculture at Bordentown, N. J. He returned to Europe (1832), and in 1841 went to Florence, where he died.

BONAPARTE, LOUIS (1778-1846). Third brother of Napoleon; was educated at Châlons; held various positions and afterward became king of Holland (1806), though he was really no more than a governor; returned to Paris (1814), Holland having been incorporated with the French Empire (1810). He had married Hortense Beauharnais (1802), but the union was an unhappy one. Having spent some years in Rome, he retired to Florence (1826).

BONAPARTE, NAPOLEON, NAPOLEON I. (1769-1821). The most consummate master of generalship of modern times; born at Ajaccio, Corsica; attended military school (1779-1784) and at the age of 16 began his military career as sub-lieutenant in the army. At 23 he had advanced to the rank of captain of artillery. The following year he was commandant of artillery, in which position he distinguished himself at the reduction of Toulon, held by the Spanish and English. This success won him a commission as brigadier general. The army was remodeled in the summer of 1794, and he was suspended and put on half pay, the authorities giving as a reason his youth, considering 25 too young for a commander of artillery. However, when an insurrection led by the National Guard broke out in the fall, Napoleon was recalled, and won a brilliant victory after a short but bloody engagement. This made him practically commander-in-chief of the army of the interior. In 1796 he held the command-in-chief of the army of Italy. That same year he married Josephine de Beauharnais. In his first campaign Napoleon displayed a genius for generalship, gaining four victories in a few weeks, conquering Lombardy and capturing Mantua, and almost annihilating three Austrian armies. He then turned his efforts against the pope and compelled him to pay 15,000,000 francs and give up many valuable works of art. After defeating another army from Austria, Napoleon finally concluded a treaty with that country making his success secure. In 1798 he took command of a powerful expedition sent into Egypt for the purpose of striking at the power of Great Britain. There he gained important victories over the Mamelukes and Turkish auxiliaries. Returning to France he overthrew the Directory and was elected first consul. He gained the great victory of Marengo in 1800. In 1801 he reorganized the government, reconstructed the educational system, established the Legion of Honor, and codified the laws. He became emperor in 1804 and opened war with England, Russia, Sweden, and Prussia. In 1809 he was divorced from Josephine and a year later married Maria Louisa, daughter of the emperor of Austria. The tide turned against him in 1812, when in the famous Russian campaign he is said to have lost 380,000 men. In 1813 he made a disastrous retreat at Leipzig. In 1814 the combined allies entered Paris, forced him to abdicate, and sent him to Elba, where although held as a prisoner he was granted the sovereignty of that island. However, he returned to France and succeeded in exciting such unbounded enthusiasm that he was able to raise an army of 125,000. But his insatiable ambition had finally overreached itself; and his overwhelming defeat at the hands of the duke of Wellington at Waterloo put an end to his career (1815); sentenced by the allies to banishment, he died a state prisoner on the island of St. Helena. The life of Napoleon presents probably the most noteworthy example in history of military genius guided by a great intellect, spurred by a powerful, indomitable will, and entirely unrestrained by any principles of honor. He was preeminently great in all matters pertaining to government and the art of war. His greatness lies not only in the inception of his colossal schemes, but in the Titanic force he threw into their accomplishment. The man who curbed the Revolution and refashioned the life of France, who rolled back the West toward the East in the greatest movement since the Crusades, and who, by the splendor of his daring, drew the admiration of all and won the hearts of millions, must stand for all time a majestic figure among the great immortals.

BONETON, CHARLES ATHOLL (1841-1899). A Canadian soldier and legislator. In the British army (1858-1868); captured and sentenced to death by the rebels in the Louis Riel rebellion (1870); in the second rebellion (1885) organized Boneton's scouts; appointed Dominion senator (1889); a Liberal.

BOUTWELL, GEORGE SEWALL (1818-1905). American politician and Cabinet officer; born in Brookline, Mass. Leader of the Democratic Party in his state; governor (1851) and re-elected; left the Democratic Party on the repeal of the Missouri Compromise and helped to form the Republican Party (1854); organized the new Department of Internal Revenue (1862); elected to Congress (1863), and twice re-elected; one of the managers for the impeachment of President Johnson; secretary of the treasury (1869-1873); United States senator (1873).

BOWDOIN, JAMES (1727-1790). Governor of Massachusetts (1785); president of the Colonial Council (1775); president of the Massachusetts Constitutional Convention (1778); suppressed Shays's Rebellion; member of the convention that ratified the Federal Constitution (1789). The college in Maine is named for him.

BOWELL, HON. SIR MACKENZIE, K.C.M.G. (1823-1917). Canadian statesman; Dominion Parliament (1867-1892); minister of customs (1878-1891); minister of militia and defense (1892); minister of trade and commerce (1892-1894); premier (1894-1896); president of the Privy Council (1894-1896); created a knight (1895); leader of the Conservative opposition in the Senate (1896-1897). In 1897 he declared himself perfectly independent of all party leadership. The National Policy was developed and carried into operation during his term in Parliament.

BRADFORD, WILLIAM (1590-1657). An American author; second governor of the Plymouth colony and one of the first settlers of New England; born in Yorkshire, England. The famous compact drawn up on the Mayflower bears his name as one of the signers. He was governor of Plymouth from 1621 until his death, except for five years when he declined the office. He was trusted and honored by all who knew him, and his administration was remarkable for efficiency. His tact in dealing with the Indians deserves special mention. He died in Plymouth, Mass.

BRECKINRIDGE, JOHN CABELL (1821-1875) Vice-president of the United States when James Buchanan was president (1856-1860); born near Lexington, Ky. From 1851 to 1855 he occupied a seat in Congress. In 1860 he ran for the presidency against Lincoln. In 1861 he was in the national Senate; served in the Confederate army through the war; second in command under Early at Shenandoah (1864); secretary of war in the cabinet of Jefferson Davis (January to April, 1865); escaped to Europe; returned in 1868 and practised law.

BRIAN, surnamed **BOROIMHE** (926-1014). King of Ireland; a beloved Irish hero. He ruled for many years with vigor and justice. His reign was one of the most prosperous Ireland had ever seen, but he became involved in war with the king of Leinster, who revolted and asked the Danes to aid him in his uprising. Brian gained a brilliant victory over the combined forces at the battle of Clontarf (April 23, 1014), but was slain in the engagement.

BRIGHT, JOHN (1811-1889). British statesman; the greatest English orator of modern times. His father was a Quaker cotton spinner. He was one of the foremost members of the Anti-Corn Law League in 1839, and, associated with Cobden, was a champion of free trade. His influence upon the conduct of public affairs both in England and abroad is said to have been greater than that of any other man of his time. This was largely due to his great moral power, for his life was exemplary, and his sense of justice keen. He was a vigorous advocate of the northern cause in the American Civil War. In 1885 he and Gladstone disagreed on the question of Home Rule, which led to an open rupture between them.

BROWN, GEORGE (1818-1880). A Canadian statesman; member of Parliament (1852); formed the Brown-Dorion ministry (1858); resigned in three days; member of the Senate (1873); negotiated a commercial treaty with the United States (1874); shot by a discharged employee. Founded the Toronto *Globe* newspaper (1844).

BROWN, JOHN (1800-1859). One of the foremost American opponents of slavery. He bore a conspicuous part in the murderous feuds of the Kansas struggle, having moved to Ossawattomie of that state in 1855 from Torrington, Conn., where he was born. In 1858 he planned to liberate the slaves by seizing the arsenal at Harper's Ferry, Virginia. Having only 18 men he was, of course, soon overcome and captured by the regular troops. He was tried and executed at Charlestown, W. Va. His grave is at North Elba, N. Y. The Harper's Ferry incident, which occurred October 16, 1858, made the name of John Brown famous.

BRUCE, ROBERT (1274-1329). King of Scotland. He submitted for a time to Edward I. In 1299 a regency was appointed, Bruce and his rival, Comyn, at the head. For several years Bruce pretended loyalty to Edward, but in 1306 he murdered Comyn, and after several battles with the English, in some of which he was defeated, he won his cause, the freedom of Scotland, at the battle of Bannockburn (June 24, 1314), against Edward II.

BRUTUS, LUCIUS JUNIUS (flourished 500 B. C.). Roman patriot who overthrew the Tarquins, destroyed the monarchial and substituted the republican form of government in Rome. His character was that of the stern old Roman hero. His sons, detected in a conspiracy, were sentenced to death by him. He fell in battle against the sons of Tarquin.

BRUTUS, MARCUS JUNIUS (85-42 B. C.). A prominent Roman; one of the conspirators against Caesar. His father was slain by Pompey's orders, yet he supported Pompey rather than Caesar. Caesar, after the victory at Pharsalia, pardoned Brutus and made him governor of a part of Gaul. He was made pretor by Caesar in 44 B. C. While holding this office he entered into a conspiracy against Caesar. After the murder of Caesar, Brutus fled to Athens and became powerful in Macedonia. Cassius raised an army in Asia Minor and together they made a stand against Octavianus and Antony at Philippi. The wing commanded by Brutus was victorious over that of Octavianus; while Cassius was beaten back by Antony. Cassius killed himself in despair. When this was reported to Brutus, he took his own life.

BRYAN, WILLIAM JENNINGS (1860-1925). A prominent American political leader. His birthplace is Salem, Ill. In 1881 he was graduated from Illinois College, after which he studied law at Union College, Chicago. In 1887 he made his home in Lincoln, Nebraska, where he still resides. From 1891 to 1895 he was a member of Congress. In 1896 he was the Democratic candidate for the presidential chair against McKinley. He was the advocate of free and unlimited coinage of silver by the United States in the proportion of 16 to 1 without regard to the action of any other nation. The silver question, in fact, was the dominating feature of this campaign, in which Bryan was defeated. In the Spanish War he was colonel of a regiment of volunteers with headquarters in Florida. In 1900 he again came forward as presidential candidate for the Democratic party. Their platform in this campaign was opposition to trusts, anti-imperialism, and free silver. McKinley again defeated him. When he once more ran for the presidency in 1908, he was defeated by William H. Taft, the Republican candidate. Thus he has the distinction of having led his party three times in a presidential campaign. Secretary of State (1913-1915).

BRYCE, JAMES (1838-1922). An eminent English statesman and writer; a barrister; professor of law at Oxford (1870-1893); member of Gladstone's Cabinet (1886); again in 1892; fellow of the Royal Society; Liberal in politics; visited the United States in 1870, 1881, 1883; British ambassador to the United States (1906-1913).

BUNSEN, CHRISTIAN KARL JOSIAS, CHEVALIER (1791-1860). A distinguished German diplomat, statesman, and writer; born in Korbach; was minister to Switzerland and England, and secretary of embassy at Rome for 12 years.

BURTON, THEODORE E. (1851-). One of few men to serve in the House after being in the Senate. Educated at Oberlin. Served in U. S. House, 1889-1891, 1895-1909, then in Senate, 1909-1915, again in House for term 1921-1929, when elected again to Senate in 1928. On important commissions, including the Foreign Debt and Interparliamentary Union, Chairman of Waterways Commissions, member National Monetary Commission. President of American Peace Society. Author of Financial Crises, The Constitution, Life of John Sherman, Corporations and the State. College lecturer.

BUTLER, BENJAMIN FRANKLIN (1818-1893). An American politician and general; born in New Hampshire; was educated for the bar. In 1862 he was military governor of New Orleans, his administration being singularly efficient, the success with which he combated the scourge of yellow fever being specially noteworthy. In 1866 he became a Republican member of Congress, which position he held for several terms. In 1862 he was elected Democratic governor of Massachusetts, but was defeated the following year for the same office. He was the Greenback-Labor and the Anti-Monopolist candidate for the presidential chair in 1884, but was defeated.

CABAL. An unpopular English ministry (1667-1673) in the reign of Charles II., composed of Clifford, Arlington, Buckingham, Ashley, and Lauderdale, the initials of whose names spelled Cabal.

CACERES, ANDRES AVELINO (1836-). President of Peru (1886-1890); Peruvian minister to France and Britain (1891-1894); president of Peru (1894-1895); resigned under pressure and was succeeded by Pierola.

CAESAR, GAIUS JULIUS (100-44 B. C.). A Roman general, statesman, and writer. One of the most remarkable men of all time. He left Rome in 81 B. C. through fear of Sulla, but returned on his death in 78 B. C. After some study he joined Pompey. He held several minor offices in succession and with growing popularity. In 60 B. C. he was elected consul and succeeded in bringing together Pompey and Crassus and formed with them the first triumvirate in that year. In 58 B. C. he went to the provinces of Gaul, which the Senate gave to him, and for nine years conducted those brilliant campaigns upon which so much of his fame rests. He conquered the Helvetii, the Germans under Ariovistus, in 58 B. C.; the Belgi in 57 B. C.; and the Veneti in 56 B. C. In 55 B. C. Crassus went to the East, where he was slain in 53 B. C.; Pompey went to Spain; and Caesar's control of his provinces was extended for five years. He defeated Vercingetorix at Alesia in 52 B. C., and in 51 B. C. reduced the whole of the Aquitani. Pompey had returned from Spain and grew jealous of Caesar's fame, and induced the Senate to order Caesar to lay down his command. Caesar refused unless Pompey did likewise. The Senate would make no conditions and Caesar marched his army across the Rubicon river into Italy, thus defying the Senate. Pompey fled to Brundusium and Caesar followed. Pompey escaped to Greece and in three months Caesar was master of Italy. In the battle of Pharsalia, in 48 B. C., Pompey was defeated and fled to Egypt, where he was murdered. Caesar was made dictator for one year, consul for five years, and tribune for life. He went to Egypt; assisted Cleopatra successfully in the Alexandrine War; overthrew Pharnaces, son of Mithridates; thence to Africa and defeated Scipio and Cato in the battle of Thapsus (46 B.C.). In 46 B.C. he revised the calendar. In 45 B. C. he defeated Gneius and Sextus, sons of Pompey, in the battle of Munda. He was made dictator and prefect for life and consul for 10 years. He entered upon vast designs for the improvement of Rome, but was assassinated on the Ides (15th) of March, 44 B. C., by conspirators led by Brutus, Cassius, and others who were fearful of his growing power and that he might be made king.

CALHOUN, JOHN CALDWELL (1782-1850). An American statesman; born in Abbeville District, S. C.; was graduated from Yale (1804); admitted to the bar (1807); elected to Congress (1811); secretary of war (1817); vice-president (1825-1832); secretary of state (1844); returned to Senate (1845). He was an upholder of slavery, and champion of the rights of individual states against the central government.

CALIGULA, GAIUS CAESAR GERMANICUS (12-41). Third emperor of Rome (37-41). He first adopted a policy of reckless extravagance. In one year he spent the enormous wealth left by Tiberius of 720,000,000 sesterces, or about $28,000,000. He banished or murdered his relatives, excepting his uncle, Claudius, and his sister, Drusilla. He filled Rome with executions and scenes of torture. He declared himself a god and had temples erected to himself. A conspiracy was formed among his guards and he was assassinated in 41.

CALONNE, CHARLES ALEXANDRE DE (1734-1802). French minister of finance for Louis XVI. He tried to finance the nation on unstable principles, for which he was dismissed and exiled.

CALVERT, LEONARD (about 1606-1647). First colonial governor of Maryland (1634-1647); appointed by his brother, Cecil Calvert, Lord Baltimore; they were sons of George Calvert, first Lord Baltimore.

CAMBYSES (? -522 B. C.). King of the united Medes and Persians. He was the son of Cyrus the Great. On the death of his father he made his brother, Smerdis, governor or viceroy of the eastern part of Persia or Iran. He defeated Psamethik III., king of Egypt, in 525 B. C., and made Egypt a Persian province. He conquered Nubia, but failed in his attack upon Ethiopia. An impostor in the meantime appeared as Smerdis, who had been secretly

murdered by order of Cambyses, and the latter hastened home to punish him, but Cambyses died at Ecbatana in 522 B. C. He subjected the Egyptians to outrages, rifling the tombs and slaying the sacred bull, Apis.

CAMERON, JAMES DONALD (1833-1918). An American politician, generally known as "Don" Cameron; born at Middletown, Penn.; was graduated from Princeton (1852); was president of the Northern Central Railway Company (1866-1874); secretary of war in Grant's Cabinet (1876-1877); member of Senate (1877-1897); in 1880 was chairman of the Republican National Committee.

CAMERON, SIMON (1799-1889). American political leader; born at Maytown (now Donegal), Penn. From 1845 to 1849 he was a Democratic member of the United States Senate, and as a Republican he was again a member of the Senate (1857-1861); in 1861 was appointed secretary of war in Lincoln's Cabinet; United States minister to Russia from January to November, 1862. In 1866 he was again elected to the Senate, but retired in 1877 in favor of his son, James Donald Cameron.

CANNING, GEORGE (1770-1827). British statesman and orator; born in London; entered Parliament (1794); under-secretary for foreign affairs (1796-1801); refused office in the ministry of "all the Talents" (1806), but became foreign secretary in the Tory administration succeeding it (1807). The retirement of Lord Liverpool placed him at the head of the government, but unsupported by Wellington, Peel, and the leading Tories, his premiership lasted only four months.

CANUTE or **KNUT** (about 995-1035). King of England, Denmark, and Norway; son of Sweyn of Denmark. On the death of Edmund Ironside, with whom he had divided the country, he was proclaimed king of England. On the death of his brother, Harold, he also became king of Denmark (1019). He secured his position by the creation of a standing army. In 1028 he invaded and annexed Norway. He died suddenly at Shaftesbury, England, and was buried in St. Peter's Abbey Church in Winchester.

CAPET (*ka-pay'*), **HUGH** (938?-996). Founder of the third Frankish dynasty, which ruled France in the direct line from 987 to 1328 and through collateral branches till the Revolution (1789). The son of a Neustrian noble, he was elected king (987) by the feudal barons in opposition to Karl of Lorraine, the last of the Carlovingians.

CAPETIAN DYNASTY. The French line of kings from 987 to 1328. Louis V., last of the Carlovingian kings, died in 987. Hugh Capet was elected king by the influence of the clergy. He and his descendants held the throne of France for 341 years. The Capetian kings put a stop to the custom of dividing the kingdom among all of the late king's sons and thus preserved the integrity of the empire. They also enforced the Salic law under their own interpretation and shut out all rights of females to the throne. The kings of the Capetian Dynasty were: Hugh Capet (987-996); Robert II. (996-1031); Henry I. (1031-1060); Philip I. (1060-1108); Louis VI. (1108-1137); Louis VII. (1137-1180); Philip II., Augustus (1180-1223); Louis VIII. (1223-1226); Louis IX. (1226-1270); Philip III. (1270-1285); Philip IV. (1285-1314); Louis X. (1314-1316); Philip V. (1316-1322); Charles IV. (1322-1328).

CAPRIVI, GEORGE LEO, COUNT VON (1831-1899). Second chancellor of the German Empire, successor to Bismarck (1890-1894); arranged with Lord Salisbury the Anglo-German partition of East Africa (1890).

CARLETON, SIR GUY, FIRST LORD DORCHESTER (1724-1808). A British soldier; served at Louisburg, Quebec, and Belle Isle; wounded in the siege of Havana (1762). Lieutenant governor (1766) and governor (1775) of Quebec; repelled the attacks of Montgomery and Arnold (1775-1776); defeated Arnold on Lake Champlain and captured Crown Point (1776); superseded by Burgoyne (1777); succeeded Sir Henry Clinton in America (1782); governor of Quebec again (1786-1796.) Under him Canada was divided into Upper and Lower Canada.

CARLOS, DON (1545-1568). Son of Philip II. of Spain; excluded from succession, tried by the Inquisition for conspiracy, and sentenced to death; imprisoned until his death.

CARON, HON. SIR JOSEPH PHILIPPE RENE ADOLPHE (1843-1908). Born in Quebec; B.C.L. McGill University (1865); called to bar (1865); queen's counsel (1879); member of Parliament for Quebec (1873-1891), after which he was returned for Rimouski; represented Three Rivers and St. Maurice (1896); minister of militia (1880-1892); postmaster general (1892-1896). Knight of St. Michael and St. George for services during Riel rebellion (1885).

CARNOT (*kar-no'*), **MARIE FRANCOIS SADI** (1837-1894). President of the French Republic; born at Limoges; minister of public works (1880) and finance (1885); elected president (1887); assassinated at Lyons by an Italian anarchist (1894).

CARROLL, CHARLES (1737-1832). American patriot; born at Annapolis, Md. He was the last survivor of the 56 signers of the Declaration of Independence. During the Revolution he was a member of the Continental Congress (1776-1779); Federalist member of the United States Senate (1789-1791).

CARTWRIGHT, SIR RICHARD JOHN (1835-1912). Canadian statesman, lawyer, and banker; born at Kingston, Ontario. Member of Parliament (1863) as a Conservative; Liberal in 1870; minister of finance in the Mackenzie Cabinet (1873-1878); minister of trade and commerce in the Laurier Cabinet (1896); member of the Anglo-American Joint High Commission (1898).

CARVER, JOHN (1575?-1621). Leader of the Pilgrim Fathers who took refuge in Holland (1607-1608. He came to Massachusetts on the Mayflower and was the first governor of the Plymouth Colony (1620-1621). He was re-elected (1621), but died of sunstroke one month afterwards.

CASIMIR-PERIER, JEAN PAUL PIERRE (1847-1907). Ex-president of the French Republic; born in Paris. He was premier in 1893, succeeding Carnot as president in June, 1894, but resigned in 1895.

CASS, LEWIS (1782-1866). American statesman; born in Exeter, N. H. Served under Hull in 1812; was chief witness against him; served under Harrison (1813); governor of the Territory of Michigan (1813); secretary of war in Jackson's Cabinet (1831); minister to France (1836); United States senator (1845); nominated for president (1848); re-elected to Senate (1849); secretary of state in Buchanan's Cabinet (1857-1860).

CASSIUS LONGINUS, GAIUS. One of the assassins of Cæsar. In 44 B. C. he sided with Pompey against Cæsar though holding the office of pretor from Cæsar. He was promised the governorship of Syria for the following year. Fretting under the beneficence of Cæsar, he planned his murder. He won over Brutus to his views and on the Ides (15th) of March, 44 B. C., murdered Cæsar in the Senate. He fled to Asia Minor, made himself master of Syria, joined forces with Brutus, and met the army of Octavianus and Antony in Philippi, Macedonia. In the battle the wing commanded by Cassius was beaten by that of Antony, and Cassius in despair committed suicide (42 B. C.). His example was followed by Brutus.

CASTLEREAGH, ROBERT STEWART, VISCOUNT (1769-1822). Second marquis of Londonderry; minister of war under Pitt (1805). Intensely unpopular, he committed suicide at his seat, North Cray Place, in Kent.

CASTRO, CYPRIANO (1863-1924). President of the Republic of Venezuela from 1899 until December, 1908. He was the founder of a political party called the "Castristas," and took part in the rebellion against President Palacio (1892); in 1898 Andrade was made president, and Castro then became a real power in the government. The policy of the new president becoming unbearable, Castro successfully took the field against him and assumed the office of chief executive himself (October 24, 1899). In 1902 the Venezuelan Congress elected Castro president to complete Andrade's unexpired term. The dissolution of the Castro government was prevented in 1902 only by the timely defeat of the revolutionists near Victoria (October 13), and immediately following this, the president was obliged to face the claims of Great Britain and Germany, the settlement of which was left to The Hague Arbitration Court. (See history chart.) The revolutionists forced him to abdicate (December, 1908), and Juan Vicente Gomez succeeded him.

CASWELL, RICHARD (1729-1789). First governor of the state of North Carolina (1776-1778) and (1785-1787); commanded the minutemen at the victory of Moore's Creek (February 27, 1776).

CATHERINE I. (1682-1727). Empress of Russia. Succeeded her husband, Peter the Great, in 1725.

CATHERINE II., THE GREAT (1729-1796). Empress of Russia; daughter of a Prussian field marshal; born at Stettin; became sole ruler on the death of her husband, Peter III. She was an energetic sovereign and her reign is only second in importance to that of Peter the Great. She founded the Academy and wrote several comedies. She waged war with Turkey (1772-1792) and with Sweden (1790), and as a result of these and the three partitions of Poland she extended her dominions.

CATHERINE OF ARAGON (1485-1536). Queen of Henry VIII. of England, and daughter of Ferdinand and Isabella of Spain; divorced (1533). She was an important factor in the Reformation in England.

CATHERINE DE' MEDICI (1519-1589). Queen of France; daughter of Lorenzo de' Medici; married Henry, Duc d'Orleans, afterwards Henry II. of France.

CATILINE (LUCIUS SERGIUS CATILINA) (about 108-62 B. C.). A Roman noble who conspired against the republic. Governor of Africa in 67 B. C., he aspired for the consulship but was disqualified for maladministration of affairs in his province. He formed a conspiracy of young Roman nobles. This was revealed to Cicero, then consul, by Fulvia. Cicero was to be assassinated as a first step. He was kept so well informed of every step that he was able to protect himself. On November 6, 63 B. C., a meeting of the conspirators was held and new plans evolved. Cicero frustrated them. On November 8, Catiline appeared in the Senate and Cicero launched forth the famous oration against Catiline, exposing the minutest details of the plot. Catiline tried to answer but was mocked. He fled, his fellow conspirators were arrested, and, in the following year, Catiline was defeated and slain by a Roman army.

CATO, MARCUS PORCIUS, THE ELDER (234-149 B. C.). A Roman statesman. Son of a plebeian farmer, he remained a farmer till induced to go to Rome, where he quickly distinguished himself as a lawyer and was finally elected consul (195 B. C.). In 184 B. C. he was chosen censor and given the surname Censor for his thorough work in instituting reforms. In 175 B. C. he was sent to Carthage as mediator but returned, declaring that city Rome's most formidable rival. Thereafter all his speeches in the Senate concluded with "Carthage must be destroyed."

CATO, MARCUS PORCIUS, THE YOUNGER (95-46 B. C.). Roman statesman; in youth a soldier; became questor (65 B. C.); elected tribune (63 B. C.); delivered a famous speech against Cæsar's influence in the conspiracy of Catiline; always an enemy of Cæsar.

CAVAIGNAC (*kah-van-yak'*), **LOUIS EUGENE** (1802-1857). French soldier and politician. In the revolution of 1848 he was made governor general of Algeria, and established a dictatorship till the risings were quelled. He was defeated by Louis Napoleon in the presidential election.

CAVOUR (*kah-voor'*), **CAMILLO, COUNT DI** (1810-1861). The regenerator of Italy; born at Turin; became premier in 1852, and strove hard to unify his country. The first Italian Parliament met at Turin in 1861, three months before Cavour's death.

CHAMBERLAIN, JOSEPH (1836-1914). English statesman; born in London; thrice mayor of Birmingham before he was returned for Parliament in 1876. Since then he has been a conspicuous figure in English public life. After the split in the Liberal ranks over Gladstone's Home Rule Bill, he coöperated with the Conservative government. In 1887 he was one of the commissioners sent to Washington in connection with the Canadian fisheries dispute. In 1895 he was appointed colonial secretary, and saw the passing of the Australian Commonwealth Act (1900). His visit to South Africa after the Boer War produced good results. His chief legislative successes are the Bankruptcy Act (1883) and the Workmen's Compensation Act (1897). He retired from the Cabinet in 1903. He was instrumental in founding the Birmingham University (1900), and became its first chancellor.

CHAPLEAU, SIR JOSEPH ADOLPHE (1840-1898). A Canadian politician of French birth; filled several Cabinet offices in the Parliament of Quebec; secretary of state in the Dominion Parliament under Sir John Macdonald (1882-1892); minister of customs (1892); lieutenant governor of Quebec (1893-1897). Perhaps the most brilliant French-Canadian orator.

CHARLEMAGNE or CHARLES THE GREAT (742-814). King of the Franks after 768 and emperor of Rome from 800 to 814. He was the son of Pipin the Short. He took the eastern or Germanic parts of his father's empire in 768 and his brother took the western part. The brother, Karlman, died in 771 and Charlemagne took the whole empire. He thus shut out the young sons of his brother. Their mother fled to Desiderius, king of the Lombards. This brought on war and after a 10 months' siege of Pavia Desiderius was compelled to retire to a monastery. In 777 Charlemagne proclaimed himself king of the Lombards; confirmed the donation of lands by Pipin to the pope. He had crossed the Alps twice into Italy to reach his enemies. He invaded Spain in 778 and while returning to put down a rebellion of the Saxons his rear guard was attacked and almost annihilated in the pass of Roncesvalles, where Roland, the hero of a voluminous literary legend, fell. He completed the conquest of Spain and in 800 was crowned emperor of the West by the pope at Rome. In 787 he completed the conquest of Lombardy. In 804 he conquered the Saxons, with whom he had waged a long war. His attainments in the promotion of art, literature, religion, and civilization mark him as one of the most illustrious men of the Middle Ages and of all time. He was buried at Aix-la-Chapelle and was succeeded by his son, Louis the Pious.

CHARLES I., CHARLES STUART (1600-1649). King of Great Britain and Ireland; married the French princess, Henrietta Maria; succeeded to the throne (1625). For 11 years he governed without Parliament, levying "tonnage and poundage" (1629), granting monopolies, and exacting fines. His two chief advisers were Laud (archbishop of Canterbury) and Strafford. The latter was impeached by the Long Parliament (1640). The long struggle between the king and Parliament ended in civil war, and the final trial and execution of the king.

CHARLES II., CHARLES STUART (1630-1685). King of Great Britain and Ireland; crowned at Scone, January 1, 1651; invaded England in August, but was routed by Cromwell at Worcester. He was recalled to the throne of his father (1660). In 1662 he married Catherine of Braganza. The Test Act of 1673 was aimed at the king's favoritism of Catholics. The trumped-up plot of Titus Oates (1678-1680) and the Rye House Plot (1683) brought many to the block.

CHARLES IV. (1316-1378). Holy Roman emperor (1346-1378). Son and successor of John of Luxemburg, king of Bohemia, who fell in the battle of Crécy (1346). In 1346 he was declared emperor by five princes to supplant the excommunicated emperor, Louis IV. The latter died in 1347. In 1356 he issued the Golden Bull prescribing a new form of election of the king of the Romans. In 1376 he had his son, Wenceslaus, elected emperor. He founded, with the help of the archbishop of Prague, the University of Prague, on the model of that of Paris, in 1348.

CHARLES V. (1500-1558). Emperor of Germany; king of Spain as Charles I. He summoned the Diet of Worms (1521) to check the advance of Luther's teachings. He soon was at war with his great rival, Francis I. of France and Pope Clement VII., and in 1527 sacked Rome and took the pope prisoner. The Diet of Augsburg (1530) led to the formation of the Smalkaldic league of Protestant princes. A threatened invasion by the Turks compelled him to conciliate the Protestants. He defeated Barbarossa and captured Tunis (1535), setting free thousands of Christian slaves. Defeated by the Protestants under Maurice of Saxony, he agreed to the treaty of Passau (1552) and to the peace of Augsburg in 1555. In the following year he abdicated in favor of his son Philip.

CHARLES V., THE WISE (1337-1380). King of France (1364-1380). Son of John II., the Good. On his father's capture at Poitiers by the Black Prince, Charles took the regency of France. The peasants made a desperate effort to deliver themselves from the power of the nobles. This insurrection is known as the Jacquerie (1358). The peasants laid hundreds of castles in ruins, murdered the nobles, and practised every atrocity. The nobles combined and the peasants were defeated with terrible slaughter by Charles the Bad of Navarre. In two weeks 20,000 were slain. This retaliation went on for two years. Charles became king in 1364. He did much to consolidate his empire and to drive out the English. He founded the Bibliothèque Royale and built the Bastille to keep the turbulent citizens of Paris in order.

CHARLES VI. (1368-1422). King of France (1380-1422). Son and successor of Charles V. During his minority he was in the care of his four uncles, of whom the duke of Anjou was regent. In 1388 Charles took the government into his own hands and ruled well until he became insane. A regent was appointed and civil war broke out again. The nation was divided into the parties of Orléans and Burgundy. They each at times called in the aid of the English. Henry V. took advantage of the conflict and won the victory of Agincourt that left France almost helpless in 1415. Massacres and civil war waged until 1420, when, by the treaty of Troyes, Charles disinherited his son and accepted Henry V. as his successor. On his death in 1422 most of France was in the hands of the English.

CHARLES VII. (1403-1461). King of France (1422-1461). Son and successor of Charles VI. All France north of Paris was in the hands of the English, who proclaimed as king Henry VI. of England, then only 18 months old, with the duke of Bedford as regent. In 1427 the French obtained their first successes. In October, 1428, the English besieged Orléans, the most important city held by Charles. In 1429 the French were defeated at Harengs. Then Joan of Arc appeared and raised the siege of Orléans in 1429; Charles was consecrated king at Rheims in the same year; the English gradually lost their possessions; and the duke of Burgundy, their ally, went over to Charles. In 1436 Charles entered Paris and the English gradually lost all of the French possessions except Calais. Charles, during the rest of his reign, vastly improved the condition of his empire.

CHARLES VIII. (1470-1498). King of France (1483-1498). Son and successor of Louis XI. In 1494 the duke of Milan solicited aid from Charles against Alfonso of Naples. In 1495 he conquered the country. The League of Venice was formed against him by the pope, Maximilian I., Ferdinand of Aragon, Venice, and Milan. The army tried to prevent his return to France, but Charles broke through in safety. This interference of the French in Italy, which began in Charles's reign, lasted 400 years, until Victor Emmanuel drove the last foreigner out in 1870.

CHARLES XII. (1682-1718). King of Sweden from 1697. Russia, Denmark, and Poland combining against him, he besieged Copenhagen, compelled Denmark to sue for peace, and defeated the Russians. Invading Poland, he forced King Augustus to abdicate. He then marched into Russia, but was routed at Pultowa, and fled for a time to Turkey. He next attacked Norway, but was slain at the siege of Frederikshald.

CHARLES THE BALD (823-877). King of France (843-877). As Roman emperor he was Charles II. He was the son of Louis the Pious and grandson of Charlemagne. The wars between the sons of Louis the Pious were settled by the treaty of Verdun in 843, and Charles received the western part of the kingdom, which may be called from that time the Kingdom of France. His government was weak, the power being in the hands of the nobles; the Northmen ravaged the coasts with impunity; yet on the death of Emperor Louis II. Charles received the crown as emperor of Rome.

CHARLES MARTEL or **CHARLES THE HAMMER** (689-741). Son of Pipin of Heristal and mayor of the palace under the last of the Merovingian kings of the Franks. He was made mayor of the palace on the death of his father in 714. He conquered the west Franks and became ruler of all the Franks. He is most famous for his wars against the Saracens, who settled in Spain and attempted to cross the Pyrenees and conquer the rest of Europe. He overthrew them in 732 in a great battle near Poitiers in which their chief, Abd-er-Rahman, fell. He defeated them again in 738 and took Languedoc from them. He left his kingdom to his two sons, Karlmann and Pipin the Short.

CHRISTIAN IX. (1818-1906). King of Denmark (1863-1906); succeeded Frederick VII. Granted Iceland a new constitution (1874). His daughter, Alexandra, was the queen of Edward VII. of England. He was succeeded by his son, Frederick VIII.

CHRISTIAN X. (1870-). King of Denmark (1912-); succeeded Frederick VIII. Known as the tallest prince in Europe. His knowledge of statecraft and his popularity equal those of his father.

CICERO, MARCUS TULLIUS (106-43 B. C.). The greatest orator of Rome and one of the most famous statesmen. Studied law and oratory and traveled abroad; elected questor in 76 B. C.; delivered his six orations against Verres, and was elected consul in 63 B. C. He frustrated the conspiracy of Catiline (see CATILINE); was charged by his enemies with putting citizens to death without trial and was obliged to leave Rome and live in Thessalonica in 58 B. C. He was recalled in 16 months, and, while opposed by his own party, was courted by Pompey and Caesar. After the battle of Pharsalia he joined Caesar. In the civil war he supported Octavianus, and denounced Antony in his Philippics. When the triumvirate of Octavianus, Lepidus, and Antonius was formed, Cicero was proscribed and his life was sought. While trying to escape in a covered litter, old and infirm, he was overtaken by soldiers and, without resistance, offered his neck to the executioners.

CINCINNATUS, LUCIUS QUINCTIUS. A famous Roman patrician. When the consul, Lucius Minucius, was surrounded by the Aequi, Cincinnatus was called from his simple farm life to act as dictator. He saved the consul, and, after a dictatorship of 16 days, retired again and took up his simple life. He was again, at the age of 80, called as dictator in an emergency and suppressed a threatened uprising of the plebeians (439 B. C.).

CLARK, WILLIAM (1770-1838), with Lewis and others explored the northwest territory, 1804-06. Afterward was a general, governor of Missouri Territory, surveyor of three states, and United States Superintendent of Indian Affairs, 1822-23.

CLAUDIUS I., TIBERIUS CLAUDIUS DRUSUS (10 B. C.-54 A. D.). Roman emperor (41-54). He was proclaimed emperor by the officers of the guard who assassinated Caligula. He began the pernicious policy of paying the troops, which ultimately gave the empire into the soldiers' control. His reign was at first mild, but on the discovery in 42 of a conspiracy against him, he gave himself over to the advice and control of his wife, Messalina, and some favorites, who practised extortion and cruelty. Claudius made several buildings, including the Claudian Aqueduct, which occupied 30,000 laborers 11 years. The conquest of Britain began under his personal command. He caused his wife, Messalina, to be executed and married his niece, Agrippina. Under her influence he deprived his son of his inheritance and adopted Nero. On a suspicion that he was going to treat Nero in the same way, his wife poisoned him with mushrooms. He was deified after death.

CLAY, HENRY (1777-1852). American orator and statesman; born in Hanover County, Va.; admitted to the bar (1797); elected to Kentucky legislature (1803); filled out the unexpired term of John Adair in the United States Senate (1806-1807); elected to the House of Representatives (1811) and was re-elected speaker four times. In 1824 he was a candidate for the presidency, and in 1832 was again defeated as the candidate of the Anti-Jackson Party; was again in the Senate (1831-1842); presidential candidate (1844); re-elected senator (1848). He was known as "The Great Pacificator," and was one of the greatest orators America ever produced.

CLEOMENES III. (? -220 B. C.). The last great statesman of Greece. He became king of Sparta about 235 B. C. His efforts toward reform were directed to abolish the office of ephors, restore the kingship, and by reforms to make Sparta the leading power in Greece. He fought the Achaean League with varying success; carried out part of his scheme, but after his great defeat at Sellasia in 221 B. C. by the combined forces of the League and the Macedonians, he fled to Egypt. Here he tried to bring about a rebellion of his own people, but failing in this he took his life.

CLEOPATRA VI. (68-30 B. C.). Queen of Egypt and the most fascinating woman of all time. She was the daughter of Ptolemy XIII., Auletes. She succeeded to the throne in 51 B. C. and shared the government with her younger brother, whom she afterward poisoned. She captivated Caesar and, later, Antony. Rome declared war on her and she and Antony were defeated in the sea fight of Actium in 31 B. C. She fled to Egypt and Antony followed. Octavianus, afterwards Augustus, went to Egypt. Cleopatra failed to captivate him and after the death of Antony, fearing that Octavianus would take her to Rome in triumph, she poisoned herself.

CLINTON, DE WITT (1769-1828). American political leader; born at Little Britain, N. Y.; admitted to the bar in 1789; member of the United States Senate (1802-1803); thrice mayor of New

York, and again state senator (1806-1811); lieutenant governor of New York (1811-1813). He was the chief promoter of the Erie Canal, which for long was derisively known as "Clinton's Ditch."

CLIVE, ROBERT, LORD (1725-1774). The creator of the Indian Empire; born at Styche, near Market Drayton. At 18 he went to India and entered the service of the East India Company. He rose from ensign to general by his marvelous energy and skill; won several victories over the French; and in 1757, at the head of only 3,000 British troops, he routed Siraj-ud-Daula and his army of 65,000. He was appointed governor general of India (1765). Two years later he returned to England in broken health.

CLOVIS or **CHLODWIG** (about 481-511). Founder of the kingdom of the Franks. He overthrew the Romans and the Gauls in 486, near Soissons, and extended his conquests to the Loire. In 493 he married Clotilda of Burgundy, a Christian princess. In 496, in battle with the Alemanni, being hard pushed, he vowed to accept Christianity if successful. On his victory he kept his vow, and on Christmas Day he and 3,000 followers were baptized. He defeated and slew Alaric II., king of the Visigoths, at Vouillé and added much to his dominions (507-510). He made Paris his capital and died there in 511. His kingdom was divided among his four sons.

CLOVIS III. (657-695). King of the Franks. Until he came of age he reigned under the tutelage of Pipin of Heristal, mayor of the palace.

COBB, HOWELL (1815-1868). American statesman; born in Georgia; represented Georgia in Congress, and was elected speaker in 1849; was governor of his native state, and secretary of the treasury under Buchanan; resigned on secession of Georgia; was president of the Confederate Congress, and a major general of the Southern army.

COBDEN, RICHARD (1804-1865). An English statesman and economist, known as the apostle of free trade. First brought into public notice by his efforts to abolish the Corn Laws in which, after seven years' hard work, he was successful; elected member of Parliament (1841). His uprightness of character gained for him the respect of continental nations, as well as of his own country, but he declined all civic honors.

CODDINGTON, WILLIAM (1601-1678). American colonist; born in Boston, Lincolnshire, England. Came to Plymouth in 1630, and was one of the 19 settlers on Aquidneck Island, afterward Rhode Island. He governed this settlement from 1651 to 1655, and again from 1674 until his death.

CODRUS. The last king of Athens. He is supposed to have lived about 1060 B. C. The Dorians invaded Attica; the oracle declared that the city of Athens would be saved if its ruler perished by the hand of the enemy. Codrus, in the disguise of a peasant, entered the Dorian camp and was slain in a quarrel of his own seeking. His son, Medon, was the first archon chosen for life.

COLBERT (*kol-bair*), **JEAN BAPTISTE** (1619-1683). Son of a French wool merchant; rose to be comptroller general of finance. He virtually laid the foundation of the French navy. **COLBERT, JEAN BAPTISTE, MARQUIS DE SEIGNELAY,** his son (1651-1690), succeeded him, as minister of marine and raised the efficiency of the navy considerably.

COLFAX, SCHUYLER (1823-1885). American statesman; born in New York City; represented Indiana in Congress and became speaker (1863-1869); was vice-president of the United States from 1869 to 1873. His reputation was impaired by the Crédit Mobilier scandal, and he failed to obtain a renomination.

COMMUNE OF PARIS (1792). A rebellious civic government in Paris (August, 1792). Through the personal pressure of its leaders it gained immediate ascendency in the Assembly, and finally became the instrument of the violent element of the Revolution and dictated the policy of France.

COMMUNE OF PARIS (1871). The organized mob which had control of Paris from March 18 to May 27. It occurred immediately after the German army left Paris on March 3. The Communists were called Reds. With the help of the National Guard they took possession of the city. The authority of the National Assembly sitting at Versailles was declared null; 150,000 men under Marshal MacMahon besieged Paris and wrested the control from the Communists backed by 100,000 well-trained troops. Towards the last, the Reds resorted to violence. The house of M. Thiers was destroyed, the Vendôme Column torn down, buildings, including the Palace of the Tuileries, were burned, hostages were massacred, and the fight ended in the cemetery known as Père-la-Chaise on May 27.

CONKLING, ROSCOE (1829-1888). American political leader, orator, and lawyer; born at Albany, N. Y.; was a representative in Congress (1859-1863 and 1865-1867), and was a member of the Senate (1867-1881). He and his colleague, Thomas C. Platt, resigned in 1881 because President Garfield appointed William H. Robertson, an anti-Conkling man, collector of the port of New York, without consulting them.

CONRAD I. (? -918). King of the Germans (911-918). A son of the Duke of Franconia, he was elected king after the extinction of the Carlovingian line. Though supported by the Church, he was not able to re-establish complete authority over the German princes, with whom he waged continuous warfare; he was unsuccessful in war with France, and lost his life in battle with the Hungarians.

CONRAD II. (about 990-1039). He was elected king of the Germans in 1024, and in 1026 was crowned and anointed Roman emperor by the pope. Four revolts recalled him to Germany, where he was successful and Burgundy was added to the empire. In 1036 a rebellion in Italy compelled him to give up much of his authority there. He repressed the power of the feudal nobles and kept the great duchies in his own family, which strengthened the Crown.

CONRAD III. (1093-1152). First German emperor of the house of Hohenstaufen; elected by the anti-papal faction of the German princes (1138); son of Frederick of Swabia. The duchy of Franconia was given to him by Henry V. in return for his help during the civil war. Internecine troubles between the Ghibellines, of which he was the head, and the Guelfs under Henry the Proud of Bavaria and Saxony, never gave him leisure to be crowned in Rome. In 1147, as a result of St. Bernard's preaching, a vast crusade with Conrad at its head set out for the Holy Land, but it ended disastrously.

CONSTANTINE I. (1868-1923). King of Greece (1913-). He succeeded his father, King George I., who was assassinated. Blamed for the failure of the Greek army in the Turkish War (1897) he became unpopular, and in 1909 was forced to resign from the army during the revolution of the military league. His successes in the Balkan War (1912) at Janina and in Macedonia carried him to the height of popularity when he ascended the throne.

CONSTANTINE I., THE GREAT (FLAVIUS VALERIUS AURELIUS CONSTANTINUS) (272-337). A Roman emperor (306-337) who served under Diocletian in Egypt, and Galerius in Persia; the latter was jealous of Constantine's father, Chlorus, who had succeeded Diocletian in 305, and attempted to get rid of Constantine, who joined his father in the West and succeeded him (306). This caused a quarrel in which six emperors participated at once. Constantine conquered the West and after Galerius's death (311) defeated Licinius in the East and became sole ruler of the Roman world of which he made Constantinople the capital. He became a Christian and was baptized just before his death. He presided at the first sitting of the Council of Nice (Nicæa) in 325.

CONSTANTINE XI., PALAEOLOGUS. Last of the Byzantine emperors and last of the Palaeologi (1404-1453). The son of Manuel II. Though an intelligent and capable ruler his position was hopeless. Mohammed II. was preparing for the final assault on Constantinople and Constantine's appeal to Christendom was unavailing. After a long siege the city was captured on May 29, 1453. Constantine was slain. Mohammed gave his body fitting burial.

CONSUL. An office in the government of Rome. The office was created in 509 B. C. on the expulsion of the Tarquins. They were two in number. They held the entire power of the state both at home and abroad. Each was responsible for the acts of both. Gradually their power was limited and other offices created to relieve them. The tenure of office was for one year and the year was named after the consul. They led the army, presided at the meetings of the Senate, at elections, and at public festivals. They wore a white toga with a purple band as a badge of office. The consul sat in a curule chair and was attended by a band of 12 men, called lictors, armed with the fasces, or ax bound with a bundle of rods. At first the office was limited to the patrician order.

but the Licinian Rogations provided, among other things, that one of the consuls should be a pleb. In 342 B. C. both consulships were thrown open to the plebs, but it was not until 215 that both consuls were plebs, and one of these was quickly put out of office. In 162 B. C. both consuls were plebs and retained office. With the establishment of the empire under Augustus the office was abolished.

CONVENTION, for forming the constitution of the United States, met at Philadelphia, May 14, 1787, under the presidency of George Washington, and submitted the result to the various states on September 17. Rhode Island was the only colony not represented. This is the only national constitutional convention that has ever been held in the United States, and its members, among whom were Benjamin Franklin, James Madison, Alexander Hamilton, Roger Sherman, and Rufus King, are revered as the "Fathers of the Constitution."

CORIOLANUS GAIUS or GNAEUS MARCIUS. A famous Roman patrician who for his opposition to the plebeians and their tribunes was impeached and banished. He went to live with the Volsci, a neighboring tribe. He led them against Rome (491 B. C.), and at the moment of victory yielded to the prayers of the Roman matrons, headed by his mother and his wife, Volumnia, and her two children. He withdrew his forces and retired to private life.

CORTELYOU, GEORGE B. (1862-). Secretary of the United States treasury under Roosevelt; born in New York; was graduated at the Hempstead (L. I.) Institution (1879) and at the State Normal School, Westfield, Mass. (1882); was principal of a preparatory school of New York (1885-1889), and subsequently private secretary to various officials. He first was assistant secretary and afterwards secretary to President McKinley, being reappointed by President Roosevelt (1901); served as first secretary of the Department of Commerce and Labor (1903-1904); postmaster general of the United States (1905-1907); secretary of the treasury (1907-1909).

CORWIN, THOMAS (1794-1865). American political leader and orator; born in Bourbon County, Ky.; successively a member of Congress (1830-1840), governor of Ohio, United States senator (1844-1850), secretary of the treasury (1850-1853), and United States minister to Mexico (1861-1864). "The most famous stump-speaker of his time."

COSTIGAN, HON. JOHN (1835-1916). Born at St. Nicholas, P. Q. Educated at Ste. Anne's College. Registrar of deeds for county of Victoria and judge of Superior Court of Common Pleas; elected to represent Victoria in the Legislature (1861-1866). After the Confederation (1867) elected to House of Commons, where he retained his seat to 1898. Was an earnest advocate of the Catholics of New Brunswick in the school question in that province, eventually having anti-Catholic provision expunged. Identified with Home Rule for Ireland. Minister of inland revenue (1882-1892); secretary of state (1892-1894); minister of marine and fisheries and member of government to the retirement of Conservative party (1896). Chief promoter and president of Tobique Valley Gypsum Mining and Manufacturing Company (1893); president of Kootenay Cariboo Mining and Investment Company.

COX, SAMUEL SULLIVAN (1824-1889). American statesman and author; born at Zanesville, Ohio; representative of Ohio in Congress (1857-1865) and of New York (1869-1873, 1875-1885, and 1886-1889); United States minister to Turkey (1885-1886). In appreciation of his efforts to secure the passage of a bill through Congress the letter carriers erected a statue of him in New York City. From a gorgeous article he wrote in the *Ohio Statesman*, he received the sobriquet of "Sunset Cox."

CRASSUS, MARCUS LICINIUS (? -53 B. C.). A Roman triumvir. He helped Sulla at the battle of the Colline Gate in 82 B. C., when the fate of the Marian party was sealed. He crushed Spartacus and the gladiators in 71 B. C., and in 70 B. C. was made consul with Pompey, whom he hated. Crassus was the most wealthy of the Roman citizens and Cæsar courted him. While consul, Crassus gave a dinner to the people, which was spread on 10,000 tables, and distributed to each person a supply of corn for three months. Plutarch says Crassus had 7,000 talents (about $8,260,000); Pliny says his lands were worth 8,000 talents ($9,440,000). In 60 B. C. he formed with Pompey and Cæsar the first triumvirate. In 55 B. C. as consul with Pompey he obtained the province of Syria, and prepared a campaign there. He was defeated by the Parthians and betrayed into a conference with the general, Surenas, by whom he was slain.

CROCKETT, DAVID (1786-1836). American pioneer, politician, and humorist; born at Limestone, Tenn.; member of Congress (1827-1829 and 1831); took part in the Texan War and was killed in the Alamo (March 6, 1836). His oft-quoted motto was, "Be sure you are right, then go ahead."

CROESUS (*kre'sus*) (590-546 B. C.). Last king of Lydia; son of Alyattes; renowned for his vast wealth; declared war on Cyrus, king of Persia, the oracle of Delphi assuring him that he would destroy a great empire, but his own empire paid the penalty. He was defeated and captured.

CROKER, RICHARD (1843-1922). New York politician and leader of Tammany (1886-1902); succeeded John Kelly; conducted mayoralty campaigns of Hugh Grant (1889), Thomas F. Gilroy (1893), and Robert Van Wyck (1897); supported Bryan for president (1900); retired after Seth Low's election (1902); freeman of Dublin (1908).

CROMWELL, OLIVER (1599-1658). The great protector; born at Huntingdon, England. At the outbreak of the Civil War he joined the Parliamentary forces as a cavalry captain (1642) and rose to be the greatest English military leader of the time, as was demonstrated at Marston Moor (1644), Newbury (1644), Naseby (1645), Preston (1648), Dunbar (1650), and Worcester (1651). He was equally distinguished as a statesman, and safeguarded English liberties. He signed the death warrant of Charles I. (1649), and was elected protector. Summoned to Scotland, when Charles II. had been proclaimed king, he defeated the Scots at Dunbar (1650) and at Worcester (1651). He dissolved Parliament in 1653 and relied upon the support of the army.

CYRUS THE GREAT. The founder of the Persian Empire and the conqueror of Babylon (600-529 B. C.). He was the son of Cambyses and grandson of Astyages, whose kingdom he overthrew, and gained the mastery of Media before 550 B. C. He vanquished Crœsus, king of Lydia, in 546 B. C.; conquered Babylon, sending Nabonidus into exile and putting his son, Belshazzar, to death in 539 B. C. He set the captive Jews at liberty in 537 B. C. He fell, fighting, in 529 B. C. in a war against either the Scythians or an Indian tribe. The details of his reign are recorded upon the famous cuneiform cylinder found a few years ago. Xenophon made him the hero of his Cyropædia, a famous historical romance.

DALE, SIR THOMAS (? -1619). A colonial governor of Virginia (1611,1614-1616), whose administration was noted for pitiless severity. His laws were known as "Dale's Code," and the colonists referred to the years 1611-1616 as their "five years of slavery."

DALLAS, ALEXANDER JAMES (1759-1817). An American politician; born in the island of Jamaica; educated in Great Britain, and removed to Philadelphia (1783). Secretary of the treasury in Madison's cabinet (1814-1816); secured the passage of an act to incorporate a new United States bank (1816); was secretary of war as well as of the treasury (1815-1816).

DALLAS, GEORGE MIFFLIN (1792-1864). American statesman and diplomat; United States senator from Pennsylvania (1831-1833); attorney general of Pennsylvania (1833-1835); American minister to St. Petersburg (1837-1839); vice-president of the United States (1845-1849); cast the deciding vote for the tariff bill (1846); minister to England (1856-1861).

DANA, FRANCIS (1743-1811). An American jurist and statesman; born in Charlestown, Mass. Elected to the Continental Congress (1776); chairman of the committee to submit plans for the reorganization of the army (1778); member of the committee to consider the conciliatory proposals from Lord North (1778); official secretary abroad to John Adams (1779-1781); minister to Russia, but not recognized by Catherine (1781-1783); elected to the Continental Congress (1784); justice of the Supreme Court of Massachusetts (1785); delegate to the Annapolis Convention (1786); delegate to the Constitutional Convention at Philadelphia (1787); chief justice of Massachusetts Supreme Court (1791-1806).

DAN'DOLO, ENRICO (1108-1205). Doge of Venice (1192); member of one of the 12 great families of Venice. He helped the Fourth Crusade with money

and ships, and was present at the siege of Constantinople. He is the "blind old Dandolo, the octogenarian chief, Byzantium's conquering foe" of Byron's *Childe Harold*.

DANE, NATHAN (1752-1835). American jurist and legislator; born in Ipswich, Mass. Member of the Massachusetts House of Representatives, Continental Congress, and the Massachusetts Senate; member of the Hartford Convention (1814); contributed $15,000 toward the founding of Harvard Law School and the Dane professorship was named in his honor. Whether he or Manasseh Cutler deserves the credit of drawing up the ordinance for the government of the Northwest Territory is much debated.

DARIUS I. or DARIUS HYSTASPES. Darius is the title of several Persian kings and is used much the same as Pharaoh or Caesar by the Egyptians and the Romans respectively. Darius Hystaspes, the first of the line, reigned from 522 to 486 B. C. He led a plot to murder Smerdis and gained the throne. Under him the kingdom was divided into 20 satrapies or provinces ruled over by satraps. Inscriptions record nine or ten rebellions against Darius. He besieged Babylon unsuccessfully for two years, after which his general, Zopyrus, took it in 516 B. C. by stratagem. He began the great rock inscription at Behistun in 514 B. C. and thus recorded the chief events of his reign. In 513 B. C. he crossed the Bosporus with 700,000 men on a bridge of boats and reached the Danube in an unsuccessful campaign against the Scythians. He sent 80,000 men to conquer Thrace. In 501 B. C. the Ionian cities in Asia Minor revolted; the Athenian forces helped them; Sardis was burned and Darius resolved to invade Greece to punish them. In 492 B. C. he sent Mardonius with a fleet to attack Thrace and Macedonia and at the same time directed a fleet against Greece. The fleet was shipwrecked and dispersed. In 490 B. C. he tried again, but his army was defeated by the Athenian force under Miltiades at Marathon and the fleet was also beaten. While preparing for a third attempt, Darius died in 486 B. C., and was succeeded by his son, Xerxes.

DARIUS II., OCHUS or NOTHUS. The son of Artaxerxes I., Longimanus. He removed from the throne of Persia Sogdianus, another son of Artaxerxes, who had gained the throne by murdering Xerxes II., in 424 B. C., and reigned until 404 B. C. The events of his ignoble reign are not creditable, as he was controlled by court favorites and by his wife, Parysatis. Tissaphernes, the satrap of Asia Minor, and Cyrus the Younger, son of the king, exercised great power in the affairs of Greece during the Peloponnesian War.

DARIUS III., CODOMANNUS. The great-grandson of Darius II. He came to the throne in 336 B. C. Early in his reign Alexander the Great of Macedon defeated him at Issus (333 B. C.), capturing his mother, wife, and three children. He was again beaten by Alexander at the battle of Gaugamela near Arbela in 331 B. C., after which Darius fled to Ecbatana; thence he went to the northern provinces, where he was seized by Bessus, the satrap of Bactria. Alexander in a fit of generosity went to attack Bessus and to relieve Darius. Bessus fled, and, on the refusal of Darius to accompany him, stabbed him. The scouts of Alexander found Darius dying. Alexander had him buried in the royal tomb. With his death the Persian Empire came to an end.

DAUNOU, PIERRE CLAUDE FRANCOIS (1761-1840). French statesman; born at Boulogne-sur-mer; entered the Congregation of the Oratory (1777); member of National Convention (1792); opposed execution of Louis XVI.; refused to support proscribing of Girondists. Imprisoned and narrowly escaped death. First president of the Council of Five Hundred.

DAVIES, LOUIS HENRY (1845–1924). Canadian statesman; born in Charlottetown, P. E. I. Premier and attorney general of Prince Edward Island (1876); member of the Dominion Parliament since 1882; one of the British counsel before the International Fisheries Commission at Halifax (1877).

DAVIS, JEFFERSON (1808-1889). An American statesman and president of the Confederate States; born in Kentucky; was graduated at West Point (1828); took part in the Black Hawk and Mexican wars; Mississippi member of the United States Senate (1847-1851). In 1851 he ran unsuccessfully for the governorship of Mississippi; was secretary of war in Pierce's Cabinet (1853-1857); re-elected to Senate (1857). He was preëminently the spokesman of the Southern States, of which he was elected provisional president (1861) and definitely elected for six years (1862). He held office throughout the Civil War; was captured near Irwinville, Ga., on May 10, 1865, and for two years imprisoned at Fortress Monroe, where he awaited trial for treason. He was released on bail, and though indicted for treason proceedings against him were abandoned. After 1879 he retired to an estate in Mississippi, where he passed the remainder of his life. He published the *Rise and Fall of the Confederate States* (1881).

DAY, WILLIAM RUFUS (1849-1923). American statesman; born at Ravenna, Ohio. Judge of the Court of Common Pleas (1886); secretary of state to succeed John Sherman (1898); chairman of the United States Peace Commission at Paris to arrange terms of peace with Spain (1898); judge of the United States Circuit Court (1899); associate justice of the United States Supreme Court (1906).

DECEMVIRS. The name was given to various bodies of magistrates in ancient Rome. The most famed decemvirs drew up "the laws of the Twelve Tables" (about 450 B. C.), which were engraven on 12 tables of metal, and these form the basis of all later Roman law. Their authority was absolute for three years, until the insurrection caused by Claudius's treatment of Virginia compelled them to resign.

DELAWARE or DE LA WARR, THOMAS WEST, THIRD BARON (1577-1618). Colonial governor of Virginia; born in Hampshire, England; succeeded to the peerage in 1602; in 1610 was appointed the first governor of Virginia and captain general for life. The state, bay, and river of Delaware perpetuate his memory.

DEMETRIUS I., POLIORCETES (about 337-283 B. C.). A Macedonian king (294-287 B. C.). Was defeated by Ptolemy at Gaza; won a victory over Cilles in Syria; freed Athens from the rule of Cassander in 307 B. C.; defeated Ptolemy in a naval battle at Cyprus; laid unsuccessful siege to Rhodes in 305 B. C.; was defeated at Ipsus by Seleucus and Lysimachus in 301 B. C. In 295 B. C. he recovered Aegina, Salamis, and Athens, which had been taken from him. In 294 B. C. he murdered Alexander, brother of Antipater, and took the throne of Macedonia, but was later driven out by Pyrrhus. He finally surrendered to Seleucus, with whom he remained a prisoner until his death in 283 B. C. He was noted for the completeness of his preparation in war and sieges.

DENNISON, WILLIAM (1815-1882). An American politician, "War Governor" of Ohio; born in Cincinnati. Governor of Ohio (1860-1864). At one time when 11,000 troops were called for, Governor Dennison raised over 30,000. From 1864 until 1866 he was postmaster general in the cabinets of Lincoln and Johnson. One of the earliest of the prominent politicians to join the Republican Party and was chairman of the Republican National Convention in 1864.

DEPEW, CHAUNCEY MITCHELL (1834-1928). American lawyer, railroad president, politician, and orator; born in Peekskill, N. Y. In the State Assembly (1861-1862); secretary of state for New York (1863-1865); president of the New York Central (1885-1898); United States senator (1899-1911).

DERBY, EDWARD GEOFFREY SMITH STANLEY, FOURTEENTH EARL OF (1799-1869). A celebrated English orator and statesman, "The Rupert of debate"; was Irish secretary in Earl Grey's ministry. When Peel proposed to amend the Corn Laws he became leader of the Protectionists and the Conservative Party; was premier in 1852, 1858, and again in 1866; resigned in favor of Disraeli (1868).

DESSALINES (*day-sa-leen'*), **JEAN JACQUES** (1758-1806). The first emperor of Haiti; an African negro; assassinated by Christophe and Pétion; was the favorite officer of Toussaint l'Ouverture, and succeeded him in command in 1804; appointed governor general for life; afterwards had himself crowned emperor and became a cruel despot.

DEWDNEY, EDGAR (1835-1916). Canadian statesman; born in England; went to British Columbia (1859); member of local Parliament (1868); member of Dominion Parliament (1872-1879); Indian commissioner until 1881; lieutenant governor of the Northwest Territory (1881-1888); minister of the interior and superintendent of Indian affairs (1888-1892); lieutenant governor of British Columbia in 1892.

DE WITT, JAN (1625-1672). Dutch statesman; born at Dort; became grand pensionary of the United Provinces of the Netherlands (1653). During the war with England his influence waned, and the Orange

party he had so strenuously opposed elected Prince William of Orange as Stadtholder. With his brother, Cornelius, he was murdered during a popular tumult.

DIAZ (*dee'az*), **PORFIRIO** (1830-1915). Mexican soldier and statesman; born at Oaxaca; enlisted in the army during the war with the United States, but saw no active service; studied law in the Institute of Arts and Sciences, Oaxaca, where he afterwards became professor of Roman law. He commanded a battalion in the revolt against Santa Anna (1854); became chief of a brigade in the War of the Reform (1859); was promoted to general during the War of the Intervention, and was taken prisoner on the capture of Puebla by the French (May, 1863). He escaped and was made commander in chief; defeated Marquez and secured the surrender of Mexico City (June 21, 1867), which marked the end of Maximilian's Empire. In 1872 and 1876 he led the revolutionary forces or "Porfiristas" against the government. In November, 1876, he was made provisional president, and in April, 1877, was elected for a term ending 1880. Ineligible for immediate re-election, he gave place to his secretary, General Gonzalez, but was again made president (1884), and the constitution having been amended he was continuously re-elected without opposition until 1910; a revolution followed and he resigned May 26, 1911. He gave Mexico a new international standing, and his presidency marked an epoch of progress and pacification.

DIDO. A queen of Carthage in the north of Africa. She was the daughter of Agenor or Belus, a king of Tyre. His successor, Pygmalion, brother of Dido, murdered her husband, Sichaeus. She fled from Tyre with her husband's treasure, accompanied by many Tyrians, and founded the city of Carthage. Vergil makes Aeneas stop at Carthage and relate to Dido his misfortunes at Troy. She is there represented as killing herself on a funeral pyre through grief at her unrequited love for Aeneas. It is now believed that Carthage was built more than 150 years before the founding of Rome.

DIEMEN, ANTON VAN (1593-1645). A Dutch administrator; rendered conspicuous service in the Dutch Indies and was made governor general. The name Van Diemen's Land (Tasmania) was given by Abel Tasman to the island discovered by him in 1642, while voyaging on behalf of Van Diemen.

DILLON, JOHN (1851-1927). An Irish politician and agitator; born in Dublin. He was the son of John Blake Dillon (1816-1866), who was a prominent member of the Young Ireland Party. Young Dillon joined the Parnellite movement and in 1880 was elected to Parliament from Tipperary. He was imprisoned in 1881-1882 and again in 1891 for violent language inciting the Irish tenants to lawlessness. In 1885 and again in 1892, 1895, 1897, and 1900 he was elected from East Mayo. He succeeded Justin McCarthy as chairman of the Irish Nationalist Party (1896-1899).

DINGLEY, NELSON, JR. (1832-1899). American congressman; born in Durham, Maine. Editor of the Lewiston *Journal* (1856-1886); in the state Legislature (1862-1873); speaker (1863-1864); governor (1874-1875); in Congress from 1881 until his death. He was the framer of the tariff bill of 1897, which bears his name.

DIOCLETIAN (GAIUS AURELIUS VALERIUS DIOCLETIANUS) (245-313). A Roman emperor (284-305). He was proclaimed emperor by his soldiers on the murder of Numerianus. To repel the incursions of the barbarians he associated with him colleagues in the government so that there were in all four emperors at one time: Maximian, controlling Italy and Africa from Milan; Diocletian taking the East with Nicomedia as his seat; Constantius, Britain, Gaul, and Spain, from Treves; and Galerius, Illyricum and the valley of the Danube, from Sirmium. After much harassing rule, Diocletian abdicated and compelled Maximian to do likewise in 305. During the last two years of his rule he yielded to the advice of Galerius and permitted the horrible persecution of the Christians for which his reign is noted.

DIONYSIUS THE ELDER (431-367 B. C.). Tyrant of Syracuse; made himself tyrant of the city in 406 B. C.; captured Rhegium (387 B. C.) and ruled the southern corner of Italy. Under his rule Syracuse became one of the most brilliant of the Grecian cities.

DIONYSIUS THE YOUNGER (396-330 B. C.). Successor of his father, Dionysius the Elder; was forced out of Syracuse by Dion and ruled in Locri; regained Syracuse in 346 B. C., but his subjects sought aid of Corinth against his despotic rule. Died a prisoner in Corinth.

DIX, JOHN ADAMS (1798-1879). American statesman and soldier; born at Boscawen, N. H. Served through the War of 1812; was a prominent member of the Albany Regency; member of the Assembly of New York (1842); United States senator (1845-1849); secretary of the treasury under Buchanan (January to March, 1861); major general of volunteers (1861); minister to France (1866-1869); governor of New York (1873-1875).

DOGE. A title corrupted from the Latin word for duke, borne by the head of the government in Venice and Genoa. Paola Lucia Anafesto, the first doge of Venice, was elected in 697. The office disappeared in Venice with its fall in 1797. Simone Boccanera, elected in 1339, was the first doge of Genoa. The office was abolished in 1797, when Genoa fell into the hands of the French.

DOLE, SANFORD BALLARD (1844-1926). A Hawaiian statesman; born of American parents in Honolulu; admitted to the bar in Boston, Mass.; judge of the Supreme Court of Hawaii (1887-1893); when the kingdom was overthrown (1893) he became president of the provisional government; president of the Hawaiian Republic (1894). President Cleveland's intention of restoring Queen Liliuokalani was defeated by Dole. In 1898 he was a member of the commission for suggesting legislation for Hawaii; and in 1900, after annexation, was governor.

DOMITIAN (TITUS FLAVIUS DOMITIANUS) (51-96). Roman emperor (81-96); was the son of Vespasian and younger brother of Titus. The earlier years of his rule were marked by beneficence and wisdom; but through the failure of campaigns, especially against the Dacians, he grew embittered and ruled cruelly and tyrannically. He drove nearly all good men from Rome; paid the soldiers enormously; and pacified the people with expensive games and gladiatorial combats. His cruelties caused a rebellion against him in which he was assassinated.

DONGAN, THOMAS, EARL OF LIMERICK (1634-1715). A colonial governor of New York; born in County Kildare, Ireland. Appointed governor of New York (1682); granted a charter to the city of New York and another to Albany, which remains the basis of municipal rights.

DORION, SIR ANTOINE AIME (1818-1891). A Canadian politician; born in Sainte Anne de la Perade. Member of the Canadian Assembly for Montreal (1854-1861) and for Hochelaga (1862-1867); member of the Dominion Parliament (1867-1874); leader of the Rouge or French-Canadian Liberals; held several cabinet offices; after 1874 was chief justice of Quebec; knighted in 1877.

DOST MOHAMMED KHAN (1793-1863). Ameer of Afghanistan (1826-1863), founding the present dynasty. Although not well treated by the British government he finally allied himself with it, supporting it in all frontier politics involving Russia and Persia.

DOUGLAS, STEPHEN ARNOLD (1813-1861). American statesman; born in Brandon, Vt. He represented Illinois in both houses of Congress, and was a member of the Senate from 1847 to his death. His re-election in 1858 was unsuccessfully contested by Lincoln. In 1860 the democratic Convention being divided on the slavery question, he was nominated by the moderates while John C. Breckinridge represented the extremists, he obtaining the largest popular vote next to Lincoln. When the South seceded he came to the support of Lincoln's government. "There can be no neutrals in this war," he said. His small stature and indomitable pluck gained him the title of "The Little Giant."

DRACO. An Athenian legislator who put into form, about 621 B. C., the common law of Athens. As the penalties seemed severe to later ages it has been said that his laws were written not in ink but in blood. Draco is said to have died in a theater in Aegina from suffocation by the garments of the people thrown upon him as a mark of respect.

DUDLEY, JOSEPH (1647-1720). A colonial governor of Massachusetts (1702-1715); son of Governor Thomas Dudley; born at Roxbury, Mass, and was graduated from Harvard in 1665.

DUDLEY, THOMAS (1576-1653). Second colonial governor of Massachusetts; born in Northampton, England. Came to the Massachusetts Bay Colony (1630) as deputy governor under Winthrop (1630-

1643); governor of the colony four times (1634, 1640, 1645, and 1650); was the chief founder of Newtown (now Cambridge, Mass.), and took an active part in founding Harvard (1636). His daughter was Anne Bradstreet, the poetess.

DUFFERIN AND AVA, FREDERICK TEMPLE HAMILTON BLACKWOOD, MARQUIS OF (1826-1902). British statesman and diplomat. Governor general of Canada (1872-1878); ambassador to Russia (1878-1881); to Turkey (1881-1884); governor general of India (1884-1888); ambassador to Italy (1888-1891); to France (1891-1896).

DUNSMUIR, HON. JAMES (1851-1920). Was owner of Esquimalt & Nanaimo Railway and sold it to the Canadian Pacific Railway with 1,500,000 acres of land; still owns 40,000 acres in British Columbia. Late premier and president of Executive Council of British Columbia; lieutenant governor of British Columbia (1906-1909).

DUPLEIX (*du-plaiks*), **JOSEPH FRANCOIS** (1697-1764). Governor of the French Indies. He was the chief antagonist of the British in India, where he tried to secure the ascendency of the French, but Clive vanquished him completely and he was recalled by Louis XV. (1754) and ended his days in poverty.

DURHAM, JOHN GEORGE LAMBTON, FIRST EARL OF (1792-1840). British statesman and governor general of Canada (1838). Exceeded his powers in rebellion; censured by House of Lords; left office without being recalled or receiving royal consent. Important changes advocated by him later indorsed.

EDMUND IRONSIDE (about 981-1016). English king; son of Ethelred II.; great opponent of Canute and the Danes. At his father's death the Danes proclaimed Canute king, but the people favored Edmund; defeated by Canute at Assandun or Ethandun. The kingdom was divided, but, Edmund dying, Canute became sole king.

EDMUNDS, GEORGE FRANKLIN (1828-1919). American legislator, and author of the "Edmunds Act," or Anti-Polygamy Act of 1882, and another similar act of 1887. Member of the Electoral Commission (Hayes-Tilden) of 1877; United States senator from Vermont (1866-1891); president pro tem during Arthur's administration.

EDWARD THE CONFESSOR (about 1004-1066). King of England. He was the elder son of Ethelred the Unready. His mother, Emma, was married to Canute and thus Edward was the half-brother of Hardecanute, the last of the Danish kings of England. Edward lived in Normandy during the Danish possession of England. On the death of Hardecanute in 1042, Edward was chosen king. Earl Godwin was the real power during the reign. Edward passed his time in study and in religious works. He caused Westminster Abbey to be built. As his life had been spent in Normandy, his reign really prepared England for the Norman Conquest which immediately followed.

EDWARD, or EADWARD, THE MARTYR (about 963-979). King of England (975-979). Son and successor of King Edgar. The principal character during his reign was St. Dunstan, archbishop and statesman (925-988). Edward was assassinated in 979, probably at the instigation of his stepmother, Elfrida, who desired her son, Ethelred, to be king.

EDWARD I. (1239-1307). King of England (1272-1307). The eldest son and successor of Henry III. He was taken prisoner with his father at the battle of Lewes (1264), but escaped and defeated his enemies at the battle of Evesham (1265). He went to the Crusades (1270), and reached home in 1274, two years after his father's death. He waged war for 10 years with the Welsh, during which the famous Prince Llewellyn was slain. It ended in the annexation of Wales (1282). He next undertook the conquest of Scotland, in which he was opposed by Robert Bruce and Sir William Wallace. He carried off from the castle of Scone the famous stone upon which kings were crowned and which now stands in Westminster Abbey. While the king was on his way to chastise Bruce, he was taken ill and died. Edward was a great ruler and introduced sound financial, legal, and legislative reforms.

EDWARD II. (1284-1327). King of England (1307-1327). Son and successor of Edward I. On his father's death he gave up the conquest of Scotland. His early reign was contemptible and he became involved in a quarrel with his nobles over unworthy favorites. In 1314 Edward invaded Scotland with a large army and was met and defeated by Bruce with a small army at Bannockburn. In 1319 he concluded a peace with the Scotch for two years. He then became involved in another quarrel with his nobles and was taken prisoner. After a period of imprisonment he was murdered in Berkeley Castle in 1327. Edward II. was the first Prince of Wales, created in 1301.

EDWARD III. (1312-1377). King of England (1327-1377). Son and successor of Edward II. His mother and Mortimer ruled the kingdom until 1330, when Edward seized Mortimer and put him to death and imprisoned his mother, Queen Isabella. The Scots were defeated at Halidon Hill (1333). The Hundred Years' War began in 1337. Edward claimed the throne of France through descent from his mother, Isabella, daughter of Philip the Fair, whose sons were all dead. The French pleaded the Salic law and war began. The French were defeated at Cressy or Crécy (1346), where Edward the Black Prince showed remarkable bravery. Calais was reduced by the English and a nine months' truce concluded. In England the Scots were defeated at Neville's Cross (1346) and David II. taken prisoner. In 1356, at Poitiers, the English under the Black Prince defeated the French, and King John of France was taken prisoner.

EDWARD IV. (about 1442-1483). King of England (1461-1483). Son of Richard, Duke of York, who was the grandson of Edward III. His father was killed in the battle of Wakefield Green (1460). After routing the Lancastrian forces at the battle of Mortimer's Cross (1461), he marched to London and was crowned king. He defeated the Lancastrians at Towton (1461). He gave offense to the nobles by his marriage and Warwick raised an army which drove him out of England and Henry VI. was restored (1469). Edward returned in 1471 and met Warwick's forces at Barnet, where Warwick was defeated and slain. There was a steady growth of the constitution in this reign. Printing and silk making were introduced. Direct pleading in courts was adopted.

EDWARD V. (1470-1483). King of England (though never crowned). He was the son of Edward IV. and was 13 when his father died. He was taken care of by his uncle, Richard, Duke of Gloucester, who made himself protector of the kingdom. He confined Edward and his younger brother, the duke of York, in the Tower, where they were smothered by the uncle's commands. In the reign of Charles II., skeletons were found at the foot of the White Staircase in the Tower which were recognized as those of the young princes.

EDWARD VI. (1537-1553). King of England (1547-1553). Son of Henry VIII. and Jane Seymour. The First Prayer Book of the Church of England was compiled during his reign; the Scots were defeated at Pinkie (1547); Edward left the crown to Lady Jane Grey.

EDWARD VII. (1841-1910). King of Great Britain, Ireland, and British Dominions beyond the Seas (1901-1910); emperor of India; eldest son of Queen Victoria and the Prince Consort; born at Buckingham Palace, November 9, 1841. In 1860 he visited Canada and the United States, his visit to Washington's tomb creating a deep impression. Two years later he visited the Holy Land, and on March 10, 1863, married Princess Alexandra of Denmark. During his mother's long reign the Prince's career was one of great public activity and usefulness, while he frequently acted for the Queen in ceremonial and other public duties. In 1869 he visited Egypt and Ireland. In November, 1871, he was stricken with typhoid fever, and his life was for a time despaired of. He visited India in 1875 and Ireland in 1885. On the death of Queen Victoria (January 22, 1901) he became king. His numerous visits to the Continent did much to foster international good will. The Anglo-French *entente cordiale* is mainly due to his personal efforts, while his visit to Germany in the beginning of 1909 did much to bring about a better understanding between the two nations. The king's unfailing tactfulness and diplomacy obtained for him the title of "Edward the Peacemaker."

EDWIN or EADWINE (585?-633). King of Northumbria; son of Aella, king of Deira. Through his wife Ethelburga's influence he was baptized in 627, and Christianity rapidly spread. He was the founder of Edinburgh. He was slain at Heathfield, Yorkshire, while opposing the combined armies of Penda, king of the Mercians, and Cadwallan, king of Gwynedd.

EGBERT (? -839). A king of the English. In 802 he became king of the West Saxons (Wessex). Between 825 and 829 he conquered the other kingdoms of England and compelled them to acknowledge him as their overlord. He thus became the first king of all England. Toward the latter part of his reign he was involved in war with the Danes. He was defeated by them in 835, but in 837 was victorious over them.

EGMONT, LAMORAL, COUNT OF (1522-1568). Flemish soldier and patriot; born in Hainault, Flanders; distinguished himself at the court of Charles V., and was made captain general of Flanders. For refusing to take part in the suppression of the Huguenots, he was seized by the duke of Alva and beheaded at Brussels. Goethe has made him the hero of one of his tragedies.

ELECTORAL COMMISSION. A body consisting of Justices Clifford, Strong, Miller, Field, and Bradley; Senators Edmunds, Morton, Frelinghuysen, Thurman, and Bayard; and Representatives Payne, Hunton, Abbott, Garfield, and Hoar, by act of Congress (January 29, 1877), to settle the disputed votes of Florida, Louisiana, Oregon, and South Carolina in the presidential election of 1876 between Hayes and Tilden. By a vote of 8 to 7 the election was given to Hayes.

ELGIN, JAMES BRUCE, EIGHTH EARL OF (1811-1863). An English statesman; governor general of Canada (1847-1854); settled the free trade and fishery questions with the United States; consummated the Tientsin Treaty with China (1858); postmaster general of England; viceroy of India (1862 until his death).

ELIZABETH (1533-1603). Queen of England; daughter of Henry VIII. and Anne Boleyn; ascended the throne on the death of Mary (November 17, 1558). Her reign was one of the greatest in history. She placed the Protestant religion on a sure footing, repulsed the Armada, promoted exploration and colonization, and was a great patron of letters. Mary, Queen of Scots, was executed, having been proved privy to a plot against Elizabeth. The reign is celebrated for the mighty outburst of intellectual energy, represented by the immortal names of Shakespeare, Spenser, Marlowe, Raleigh, Sidney, and Bacon.

ELIZABETH PETROVNA (1709-1762). Empress of Russia; daughter of Peter the Great and Catherine I.; succeeded to the throne (1741). She aided Maria Theresa in the War of the Spanish Succession, and in the Seven Years' War frequently defeated Frederick the Great. She was able, and on occasion energetic, literature and art owing much to her patronage.

ELLENBOROUGH, EDWARD LAW, FIRST EARL OF (1790-1871). An English statesman; entered Parliament (1813); appointed governor general of India (1841), but recalled in 1844. Subsequently he was made first lord of the Admiralty and Indian minister by Lord Derby. He was one of the most distinguished orators of his day.

ENDICOTT, JOHN (1588-1665). One of the founders, and for many years a governor, of the colony of Massachusetts; born at Dorchester, England. In 1628 he led a band of settlers to Naumkeag (Salem), Mass. He gave way in 1630 to John Winthrop, and led an expedition to Block Island against the Pequots (1636); was deputy governor in 1641-1643, 1650, and 1654; governor in 1644, 1649, 1651-1654, and 1655-1665; elected president of the United Colonies of New England in 1658. He was a Puritan of the extreme type, but an able administrator.

EPAMINONDAS (about 418-362 B. C.). A Greek statesman and general; born in Thebes. He was commander in chief of the Theban army in the Theban war with Sparta. With 6,000 men he defeated a much larger force of Spartans at the battle of Leuctra (371 B. C.), and overthrew the supremacy of Sparta. In 370 B. C. Epaminondas and Pelopidas unsuccessfully invaded Sparta. This expedition was followed by another in 368 B. C. and by a third in 366 B. C. Again in 362 B. C. he led a fourth against Sparta supported by strong allies, yet in the face of great odds Sparta was defeated in the battle of Mantinea, though Epaminondas fell in this battle. He was one of the best and noblest of all Greek characters.

ERIC I. OF SWEDEN (died about 854). He was especially noted for the protection which he extended to the Christians during his rule at the suggestion of Saint Ansgarius.

ERIC EDWARDSON or **SAINT ERIC.** King of Sweden (1150-1160). Christianized upper Sweden and built a number of churches and monasteries. He undertook a crusade against the Finns, which was the beginning of the long feuds between the countries. He compiled laws known as Saint Eric's Lag in which the rights of women were set forth.

ERIC XI. King of Sweden and Denmark (1222-1250). The most important events of his reign were the successes against the Finns; the imposition of celibacy upon the clergy by the synod of Skenninge (1248); and the invasion of Russia, which was checked by Alexander Newski in 1241. Birger Jarl rose to be the chief power in the state, and on the death of Eric, Waldemar, son of Birger Jarl, was crowned king.

ERIC OF POMERANIA (1382-1459). King of Norway, Sweden, and Denmark. (See MARGARET.) On the death of Margaret Eric's utter disregard for treaties, oaths, and promises led to dissensions among his subjects. In 1438 the Danes renounced their allegiance and chose Christopher of Bavaria as their king. In 1439 Sweden withdrew and Scandinavia was a scene of rebellion and bloodshed for many years. Eric fled to Gothland and for 10 years was a pirate. He had married Philippa, daughter of Henry IV. of England, and treated her cruelly.

ESARHADDON. A king of Assyria; son and successor of Sennacherib (680-668 B. C.). He avenged his father's death upon his two brothers and after a struggle of one year gained the throne. He marched successfully against the Chaldeans; captured and razed the city of Sidon; failed in his siege of Tyre; and, after two campaigns, took Egypt and erected it into an Assyrian province. He died while on his way to chastise the Egyptians for rebelling. He was succeeded by Asurbanipal.

ESPARTE'RO, JOAQUIN BALDOMERO, DUKE OF VITTORIA (1792-1879). A Spanish statesman and general who operated most successfully against the Carlist forces, and for his expulsion of Don Carlos from Spain (1839) became Duke of Vittoria and Morella and grandee of Spain; became military dictator (1841). His government was marked by great ability and energy, but was overthrown (1843), and Espartero driven into exile. Upon the abdication of Queen Isabella, he refused to become a candidate for the throne of Spain (1870).

ESTERHA'ZY DE GALAN'THA. An ancient Hungarian family, two branches, Zerházy and Illyeshazy, appearing as early as 1238. The first to become noted was **NICHOLAS** (1582-1645), palatine of Hungary, a strong supporter of the Counter-Reformation. Later **PAUL IV., PRINCE ESTERHAZY** (1635-1713), won distinction as field marshal of Austria at Saint Gotthard (1664), Vienna (1683), Buda (1686), and in the wars against the Turks. He died a prince of the empire. **NICHOLAS JOSEPH** (1714-1790), grandson of Paul IV., was privy councilor, field marshal, and several times ambassador; fought bravely during the Seven Years' War in Silesia. He was an ardent supporter of the arts and sciences. **NICHOLAS IV., PRINCE ESTERHAZY** (1765-1833), grandson of Nicholas Joseph, became prominent in diplomatic affairs; refused Napoleon's offer of the crown of Hungary (1809). **PAUL ANTHONY** (1786-1866); Austrian ambassador at Dresden (1800), Rome (1814), and London (1815-1842). **MORITZ, COUNT ESTERHAZY** (1807-1890), diplomat and statesman, was also prominent.

ETHELBERT (552?-616). King of Kent; converted to Christianity by Augustine (597); drew up the first written Saxon code of laws, and so brought about a successful rebellion against himself under Raedwald.

ETHELRED II., THE UNREADY (about 968-1016). King of England (979-1016). His reign was marked by almost continuous warfare with the Danes, who began to plunder the coasts in 980. In 991 he bought them off; in 994 with the aid of Olaf, king of Norway, they besieged London. From 997 to 1000 they ravaged the coasts of Kent, Sussex, and Wessex. In 1000 Ethelred made war upon Normandy and was defeated by Duke Richard II., with whom he made peace. He also made peace with the Danes in the same year, but on the pretext that they were plotting against him, he ordered all of the Danes in England to be massacred on November 13, 1002. Sweyn, king of Denmark, sought swift revenge, and kept up a war for four years. In 1007 Ethelred bought them off. In 1009 his fleet was wrecked in a storm. Another peace was bought in 1012. In 1013 Sweyn, with a

large fleet, attacked London, but turned off to Bath, where he was accepted as king by the people. London also acknowledged him and Ethelred fled to Normandy. Sweyn died in 1014 and Ethelred was recalled on promise of ruling better. He defeated Canute in the same year. In 1015 Canute returned with a larger army and Ethelred died as Canute was about to attack London.

EUGENIE *(eu-zhay'nee)* **(EUGENIE MARIA DE MONTIJO)** (1826-1920). Ex-empress of the French and wife of Napoleon III.; born in Granada, Spain; filled the office of regent at three different times in absence of Napoleon in the army (1859, 1865, 1870). In the eyes of many historians she was the sole cause of the downfall of the Second Empire. During the Franco-German War she was forced to flee to England (1870). Her only son, the Prince Imperial, was slain in the Zulu War.

EVERETT, EDWARD (1794-1865). American statesman and educator; born at Dorchester, Mass.; was appointed Eliot professor of Greek in Harvard (1815); was editor of the *North American Review* (1820-1824). He became successively a representative in Congress, governor of Massachusetts, and United States minister to Great Britain. In 1846 he became president of Harvard, and in 1852 secretary of state. He resigned in June, 1854. He was a celebrated orator of the old school, his best-known orations being the one on Washington and the Gettysburg Oration (delivered November 15, 1863).

EWING, THOMAS (1789-1871). American jurist and political leader; born near West Liberty, Virginia; was a whig member of the United States Senate from 1831 to 1837; secretary of the treasury (1841); first secretary of the interior (1849-1850); again elected to the Senate in 1850-1851. He was a supporter of Lincoln's war policy in 1861-1865.

FA'BIUS MAXIMUS, QUINTUS CUNCTATOR or **"THE DELAYER"** (? -203 B. C.). Roman consul five times and censor twice; was appointed dictator after the defeat of the Romans by Hannibal at Lake Trasimenus (217 B. C.). His tactics of harassing the enemy during the Second Punic War while avoiding a general engagement and so allowing Rome to strengthen her forces gave rise to the term "Fabian policy."

FAIRBANKS, CHARLES WARREN (1852-1918). American lawyer and politician; vice-president of the United States (1905-1909); born in Union County, Ohio; was graduated from Ohio Wesleyan University (1872); removed to Indianapolis, Ind. (1874); United States senator (1897-1905); member of United States and British Joint High Commission which met at Quebec (1898) to adjust Canadian questions.

FALIERI, MARINO (about 1275-1355). A Venetian doge, elected to office at 80 years of age. Incited a rebellion to overthrow the state and massacre the aristocracy because of, as he thought, an insufficiently punished insult to his young wife by a member of the nobility. Convicted of high treason and beheaded.

FALLIERES, CLEMENT ARMAND (1841-). Eighth president of France (1906-1913). Of peasant parentage; became a lawyer; elected to Chamber of Deputies (1876); minister of the interior (1882, 1883, and 1887); minister of public instruction (1883-1885 and 1889-1890); minister of justice (1887-1888 and 1890-1892); senator (1890) and re-elected (1897); president of the Senate (1899); re-elected for eight successive terms.

FARINI, LUIGI CARLO (1812-1866). Italian statesman and historian. Exiled to France (1843); general secretary in Liberal Cabinet (1847); director general of sanitary department; minister of public instruction (1851); proclaimed dictator at Modena (1859); influenced strongly a united Italy (1860), ranking with Garibaldi and Cavour in the long struggle; minister of the interior; asked to form a new ministry (1862). His history of the *Roman State* (1853) established his reputation as a historian.

FAURE, FRANCOIS FELIX (1841-1899). President of France (1895-1899); succeeded M. Casimir-Périer. The Fashoda affair and the beginning of the Dreyfus retrial agitation occurred during his otherwise quiet administration.

FERDINAND I. (1503-1564). Holy Roman emperor (1556-1564). Second son of Philip of Austria and the younger brother of Charles V. of Germany, who was Charles I. of Spain. On the abdication of Charles V., Ferdinand succeeded. He was an enlightened ruler; succeeded by his son, Maximilian II.

FERDINAND II. (1578-1637). Holy Roman emperor (1619-1637). Grandson of Emperor Ferdinand I. and son of Charles, Duke of Styria. He formed with Maximilian the Catholic League; king of Bohemia (1617); king of Hungary (1618). The Thirty Years' War began in this year. The chief blot on Ferdinand's name is the assassination of Wallenstein, of which he was, at least, privy. He left a heritage of war to his son, Ferdinand III.

FERDINAND III. (1608-1657). Holy Roman emperor (1637-1657). Son and successor of Ferdinand II. King of Hungary (1625); king of Bohemia (1627). Succeeded Wallenstein in command of the forces (1634); defeated the Swedes and their allies at Nördlingen (1634). He was succeeded by his son, Leopold I.

FERDINAND V. (1452-1516). Founded the Spanish monarchy. Joint sovereign with his wife, Isabella. The year 1492 was the most brilliant of his reign, marking not only the discovery of America by Columbus, but also the entry of Ferdinand and Isabella into Granada and the end of the Moorish occupation.

FERDINAND I. (1861-). Tsar of Bulgaria since October 5, 1908; born at Vienna; youngest son of Prince Augustus of Saxe-Coburg. Parliament chose him to succeed (1887) Alexander of Battenberg as prince, but the great Powers and Turkey did not recognize his sovereignty until March, 1896. Taking advantage of the Turkish Revolution (1908), Bulgaria renounced its allegiance to Turkey and became independent. Ferdinand assumed the title of "tsar."

FERRY *(fay-ree')*, **JULES FRANCOIS CAMILLE** (1832-1893). A French statesman; born at Saint Dié (Vosges); member of National Defense government (1870) and mayor of Paris; minister to Athens (1872-1873); minister of public instruction (1879). He brought in a bill against Jesuitic instruction, and so took the first step toward the final expulsion of the order. He became premier in 1880, and again as minister of education (1882) passed an act making primary education compulsory and gratuitous; became again premier in 1883, when his schemes of colonial expansion involved the nation in a war in Madagascar and Tongking, and brought about the defeat of his ministry in 1885. From 1893 to his death he was president of the Senate.

FESSENDEN, WILLIAM PITT (1806-1869). American statesman; born in Boscawen, N. H.; elected United States senator (1854); opposed the Kansas-Nebraska Bill; secretary of the treasury (1864) during the blackest financial period in the history of the country. Gold was at 280, a paper dollar was worth 34 cents, and the government had just withdrawn a loan from the market which it could not float. Fessenden issued the "seven-thirty" bonds. Gold fell to 199 and Fessenden went back to the Senate. He voted in favor of Johnson's acquittal on his impeachment. He was one of the leaders in the Senate during the early Reconstruction period.

FIELDING, HON. WILLIAM STEVENS (1848-). Born in Halifax, Nova Scotia. Liberal member for Halifax county (1882); provincial secretary and treasurer (1882); resigned to attend to editorial duties (1884); formed new cabinet and became provincial secretary. Minister of finance and member of House of Commons (1896); introduced new tariff policy, advocating preferential trade with Great Britain (1897), and later the measures imposing a surtax on German products in consequence of German action adverse to Canada. Vice chairman Ottawa Reform Convention (1893); Vice president Maritime Provinces Liberal Association (1895); president St. George's Society.

FISH, HAMILTON (1808-1893). American statesman; son of Nicholas Fish (1758-1833), a revolutionary soldier; born in New York City; entered Congress (1842); became governor (1848); member of Senate (1851-1857), first as a whig and then as a republican. He opposed the Kansas-Nebraska Bill of 1854; was secretary of state in Grant's Cabinet (1869-1877), and was one of the Joint High Commission that negotiated the Treaty of Washington (1871), and assisted in the arbitration of the Alabama Claims.

FISHER, CHARLES (1808-1880). A Canadian statesman. Member of the New Brunswick Cabinet (1837); of the Executive Council (1848-1857); consolidated and codified the statutes (1852); attorney general (1854-1861 and 1866); one of the representatives of British North America in London when articles of confederation of the provinces into the

Dominion of Canada were arranged (1867); judge of the Supreme Court of New Brunswick until his death.

FLAMININUS, TITUS QUINCTIUS (228?-174? B. C.). Roman consul and general; defeated Philip V. of Macedon in the decisive battle of Cynoscephalæ (197 B. C.) and earned the title of "The Liberator" of the Greeks. In 192 B. C. he proceeded against Antiochus, king of Syria, but returning the following year, he was made censor.

FLAMINIUS, GAIUS (? -217 B. C.). Roman general and consul, famous in the Gallic and Hannibalic wars. He also built the Via Flaminia and the Circus Flaminius at Rome. He was defeated and slain by Hannibal's forces at the battle of Lake Trasimenus, in which 15,000 of his troops perished.

FLAVIAN EMPERORS. Vespasian and his two sons, Titus and Domitian.

FLOYD, JOHN BUCHANAN (1807-1863). Confederate leader; born at Blacksburg, Va. State legislator (1847-1849); governor of Virginia (1850); secretary of war (1857-1860). Confederate brigadier general; in command at Fort Donelson, fled, leaving General Buckner to surrender.

FORGET, HON. AMEDEE EMMANUEL (1847-1923). Born in province of Quebec; called to bar (1871); secretary Manitoba Half-breed Commission (1875); member Public Board of Education for Territories; Indian commissioner (1895); lieutenant governor of Northwest Territories (1898-1905); first lieutenant governor province of Saskatchewan, in office since 1905.

FORSYTH, JOHN (1780-1841). An American politician; born in Fredericksburg, Va. Attorney general of Georgia (1808); elected to Congress (1812, 1814, and 1816); United States senator (1818-1819); United States minister to Spain (1819), where he negotiated the sale of Florida; re-elected to Congress (1822 and 1824); governor of Georgia (1827-1829); United States senator (1829-1834); secretary of state under Jackson and Van Buren (1834-1841).

FOSTER, CHARLES (1828-1904). An American politician and Cabinet officer; born near Tiffin, Ohio. Elected to Congress (1870-1879); governor of Ohio (1879-1884); secretary of the treasury in Harrison's Cabinet to succeed William Windom.

FOSTER, GEORGE EULAS (1847-). A Canadian politician; born in Carleton, New Brunswick. Professor of history and classics in the University of New Brunswick (1871-1879); public lecturer on temperance and sociology; elected to the House of Commons (1882) from Kings County; minister of marine and fisheries in the Macdonald government (1885) and prepared Canada's brief to present to the commission at Washington on the deep-sea fisheries dispute; minister of finance (1888-1896).

FOSTER, JOHN WATSON (1836-1917). American diplomatist; born in Pike County, Indiana; was graduated at Indiana State University (1855); admitted to the bar; fought in Civil War and became colonel; edited the Evansville *Daily Journal* and was postmaster of that city (1869-1873); minister to Mexico until 1880, to Russia until 1881, and to Spain from 1883-1885; secretary of state in 1892-1893; member of the Anglo-Canadian Commission (1898). He is the author of *A Century of American Diplomacy, American Diplomacy in the Orient,* and *Arbitration and The Hague Court.*

FOUQUIER-TINVILLE (*foo-ke-ay' tan-veel'*), **ANTOINE QUENTIN** (1747-1795). Public accuser of the Revolutionary Tribunal during the Reign of Terror, performing his duties with pitiless severity; as free from personal bias as proof against corruption. Bravely met his own death by guillotine (May, 1795).

FOX, CHARLES JAMES (1749-1806). English statesman; born in London. Entered Parliament in 1768 as a tory, but from 1774 to 1782 was the leader of the whigs, and strongly opposed to Lord North's American policy. In 1783 he formed a short-lived coalition ministry with Lord North, and from 1784 he was in opposition. Burke describes him as "the most brilliant and accomplished debater that the world ever saw."

FRANCIA, JOSE GASPAR RODRIGUEZ (1757-1840). Dictator of Paraguay; born at Asuncion; practised as a barrister; in 1811 became secretary to the newly established government of Paraguay. In 1813 he became one of the consuls, and on the death of Yegros, his colleague, sole ruler. From 1817 until his death he was dictator of the republic. He was opposed to all foreign intercourse and to all religion.

FRANCIS I. (1494-1547). King of France; son of Charles of Angoulême; born at Cognac, France; succeeded Louis XII., who died without male issue (1515). He became involved in a series of wars with Germany; was defeated and captured at the battle of Pavia (1525); signed the Treaty of Madrid (1526); and of Crespy (1544). He sided with the Protestants abroad, while persecuting them in his own kingdom. His son, Henry II., succeeded him.

FRANCIS II. (1544-1560). King of France; succeeded his father, Henry II., in 1559 and reigned one year. In 1558 he married Mary, Queen of Scots.

FRANCIS JOSEPH I. (1830-1916). Emperor of Austria since 1848; son of the Archduke Francis. A revolution was in progress at the time of his accession, and war with Hungary soon broke out. But the emperor subdued the enemy, at the same time defeating the Italian insurgents. Austria lost Lombardy to the Italians (1859), and after Sadowa (1866) was forced to give Venetia to Italy. The differences between Austria and Hungary were settled by forming the Austro-Hungarian state (1867). The emperor's son having died (1889), the heir to the throne is Francis Ferdinand, son of the emperor's brother. Through his personality he has held the Austria-Hungary Empire together under most discouraging political conditions. The country has enjoyed most marked industrial success.

FRANKLIN, BENJAMIN (1706-1790). An American statesman, diplomatist, and author. He was born at Boston; son of a tallow-chandler; the 15th of 17 children; apprenticed to his brother, James, as a printer (1719); eventually settled in Philadelphia and founded the *Pennsylvania Gazette* (1728), and began to publish *Poor Richard's Almanac* (1732), which for 25 years made "Poor Richard" a household word. In 1730 he married Deborah Read of Philadelphia, who died in 1774. In 1736 he was appointed clerk of the General Assembly of Pennsylvania, and in 1750 was elected a member of the Assembly. He was postmaster of Philadelphia (1737), and from 1753-1774 was one of the two deputy postmaster generals for North America. He held many posts of public trust, while his scientific discoveries gained him an international reputation. Honors were showered upon him, both at home and abroad, and he was the most conspicuous figure in the America of his day. His last public act was the signing of an anti-slavery petition to Congress. He died April 17, 1790, mourned by the entire nation. Franklin's literary reputation rests mainly on his unfinished *Autobiography.* His chief contributions to science are his various electrical discoveries and his invention of the lightning conductor. He rendered the greatest service to his country by his skill in diplomacy, especially while acting as plenipotentiary abroad.

FREDERICK I., BARBAROSSA or **REDBEARD** (1121-1190). Holy Roman emperor (1152-1190). Nephew and successor of Conrad III. as king of the Germans. After securing order in Germany he sought to re-establish the imperial power in Italy. On receiving the Lombard crown he went to Rome and set Adrian IV. in the papal chair and was crowned emperor. In 1158 he besieged and took Milan; in 1159 began the long contest between Frederick and the pope, Alexander III., the successor of Adrian IV. In 1160 he took Crema; in 1161 and 1162 he took and razed to the ground Milan. He set up Victor IV. as an antipope. After many triumphs he was defeated at Legnano by the Lombards, and in 1183, by the Peace of Constance, he gave many privileges to the Lombard cities. In 1177 he made peace with Pope Alexander III. and resumed the contests with the Guelphs. In 1189, with a prospect of peace, he resigned his empire to his son, Henry, and set out with 100,000 men for the Holy Land. After some victories he was drowned in a small stream in Cilicia.

FREDERICK II. (1194-1250). King of Sicily (1197-1250) and Holy Roman emperor (1215-1250). Grandson of Frederick I., Barbarossa, and son of Henry VI. He caused the deposition of Otho IV. in 1214 after the battle of Bouvines and was crowned king in 1215, and emperor in 1220. He organized his Italian possessions, founded the University of Naples, and patronized literature and the arts. He set out in 1227 on a crusade, but returning in three days under pretense of illness was excommunicated by the pope. In 1228 he set out again, made a 10 years' truce with Saladin, took Jerusalem and the land about Jaffa and Nazareth, and crowned himself king of Jerusalem. The rest of his reign was spent in a struggle with the Lombards and the papacy.

FREDERICK III. (1415-1493). Holy Roman emperor (1440-1493). As king of Germany he had the title of Frederick IV. He was elected to succeed Albert II. in 1440. His long reign of 53 years was uneventful. From his time the imperial dignity remained permanently in the House of Austria. He was succeeded by his son, Maximilian I.

FREDERICK I. (1657-1713). First king of Prussia; succeeded his father, the "Great Elector," in 1688. He founded the University of Halle (1694) and extended the dominions of Prussia.

FREDERICK II., THE GREAT (1712-1786). King of Prussia; born in Berlin; succeeded in 1740; invaded Silesia, almost the whole of which was ceded to him by Maria Theresa (1742). In 1756 he invaded Saxony and so began the Seven Years' War against the allied armies of Austria, France, and Russia. His forces were decimated, and on the death of Elizabeth of Russia, France grew tired of the struggle, and Austria, not caring to continue single-handed, signed the treaty of Hubertsburg in 1763, by which Frederick was allowed to retain his kingdom intact. During the ensuing period of peace he devoted himself to the development of the country. In the first partition of Poland (1772) he managed to acquire West Prussia. He cultivated the French language and authors in preference to German, and was a friend and admirer of Voltaire. He was a voluminous writer himself, but wrote chiefly in French.

FREDERICK WILLIAM (1620-1688). Elector of Brandenburg; known as the "Great Elector"; born at Berlin; succeeded his father (1640). He ranks next to Frederick the Great as the chief founder of the Prussian monarchy; he established the University of Duisburg and the Royal Library at Berlin. On ascending the throne he found an empty exchequer and a country devastated by Swede and Imperial troops during the Thirty Years' War. He brought order out of chaos, and prosperity from ruin; suffered several wars and hard reverses, but by 1680 was at peace and prospering. After the revocation of the Edict of Nantes 20,000 French Protestants were received; he encouraged immigration from Holland; increased population; introduced many industries; opened canals; established a system of posts; beautified Berlin.

FRELINGHUYSEN, FREDERICK THEODORE (1817-1885). American politician; born in Millstone, N. J.; admitted to the bar (1839); United States senator (1866-1869 and 1871-1877). He was a member of the Electoral Commission and secretary of state under President Arthur (1881-1885).

FREMONT, JOHN CHARLES (1813-1890). American explorer; born at Savannah, Ga.; explored Des Moines River (1841) and the Rocky Mountains (1842). In 1846 he arrived in California and soon afterwards a number of American residents captured the town of Sonoma from the Mexicans. This is known as the "bear-flag revolt." During the war with Mexico he was court-martialed for disobedience and had to leave the service. In 1848 he made his fourth expedition to discover a direct route to California. He was governor of Arizona (1878-1881), and in April, 1890, was made major general and put on the retired list.

FRONTENAC, LOUIS DE BUADE, COMTE DE (about 1621-1698). The greatest French governor of New France (now Canada). Succeeded De Courcelles as governor (1672); convened the clergy, nobles, and commons, and established formal government at Quebec. Quarrels ensued with the Jesuits, Intendant Falon, and the governor of Montreal. Frontenac was recalled by the king (1682), but was restored in 1689 and held office till his death. He dealt tactfully with the Indians, restrained the Iroquois, and defeated Sir William Phips at Quebec (1690).

FRYE, WILLIAM PIERCE (1831-1911). American legislator; born at Lewiston, Maine. Elected to Congress (1871) and re-elected five times; entered the Senate (1881) as Blaine's successor; re-elected in 1883, 1889, 1895, and 1901; president pro tempore (1896); permanent presiding officer after Hobart's death (1899) and again on McKinley's death (1901); member of the Peace Commission at Paris at the close of the Spanish-American War (1898).

GABINIUS, AULUS (? -about 47 B. C.). A Roman politician. Tribune of the plebs (66 B. C.); passed the famous Gabinian law which gave Pompey command of the war against the pirates; pretor (61 B. C.); consul (58 B. C.); supported the banishment of Cicero; proconsul in Syria (57 B. C.); invaded Egypt and set Ptolemy Auletes on that throne against the command of the Senate (55 B. C.); on his return to Rome, though defended by Cicero, he was banished; recalled by Caesar (49 B. C.); died in Illyricum.

GADSDEN, CHRISTOPHER (1724-1805). American patriot; born in Charleston, S. C.; was educated in England; delegate to the international convention held in New York City (1765) to protest against the Stamp Act; member of first Continental Congress, Philadelphia (1774); commissioned colonel at outbreak of the Revolution; made brigadier general (1776); prisoner at Fort Augustine for two months; exchanged (1781); elected governor of South Carolina (1782), but refused to serve because of age and infirmities.

GADSDEN, JAMES (1788-1858). American diplomatist; born in Charleston, S. C.; served with distinction in the War of 1812 and in the Seminole War (1818), in which he was aide-de-camp to General Jackson; United States minister to Mexico (1853); negotiated the Gadsden Purchase, which determined the boundary between Mexico and the United States.

GAGE, LYMAN JUDSON (1836-1927). American financier and statesman; born in Deruyter, N. Y.; removed to Chicago (1860); president of directors of the World's Fair (1892); secretary of the treasury under McKinley (1897); resigned (1902) and was succeeded by Leslie M. Shaw.

GAGE, THOMAS (1721-1787). English general and colonial governor of Massachusetts (1774-1775); in 1763 was made commander in chief of the British forces in America. He returned to England (1772), but in 1774 was ordered to Boston, where he enforced the Boston Port Bill and other obnoxious regulations, thus provoking the rebellion. On news of the battles of Lexington and of Breed's Hill reaching England, he was recalled, and sailed from Boston (October 10, 1775). In April, 1782, he was promoted general.

GAGERN (*gah'gern*), **HEINRICH WILHELM AUGUST, BARON VON** (1799-1880). German statesman; born at Bayreuth; was elected president of the National Assembly which met at Frankfort (May 18, 1848) and did much to promote the unification of Germany. He served as major in the Schleswig-Holstein War (1850). He died at Darmstadt.

GALBA, SERVIUS SULPICIUS (3 B. C.-69 A. D.). Roman emperor from June, 68, to January, 69. He was a prominent military officer under Caligula, Claudius, and Nero, conducting German campaigns. He was made emperor by the soldiers on the death of Nero. He offended them by not giving the customary donations and in other ways. A rebellion arose against him and as he crossed the Forum to quell it he was cut down by the soldiers.

GALLATIN, ALBERT (1761-1849). An American statesman and financier; born at Geneva, Switzerland. In 1789-1790 he was a member of the Pennsylvania Constitutional Convention. In 1793 his election to the United States Senate was declared void; served in the House of Representatives (1795-1801); secretary of the treasury (1801-1813). He was one of the foremost financiers of America. From 1816 to 1823 he was United States minister to France, and in 1826-1827 minister to Great Britain; was president of the National Bank of New York (1829-1839).

GALLISSONNIERE, ROLAND MICHEL BARRIN MARQUIS DE LA (1693-1756). Governor general of Canada under the French (1747-1749); successor of Beauharnais. He planned a chain of forts in the Mississippi valley to connect Louisiana and Canada, of which a few were built. He also advanced a colonization scheme in the Ohio valley to check the progress of the English colonies. This he was unable to carry out for lack of colonists. In 1756 he defeated the English fleet off Minorca, which caused the court-martial and execution of Admiral Byng.

GALT, SIR ALEXANDER TILLOCH (1817-1893). Canadian statesman and financier; inspector general of finances in the Cartier-Macdonald Cabinet until 1862; finance minister in the Tache-Macdonald Cabinet (1864-1866); the first finance minister of the Dominion of Canada (1867-1868); high commissioner of Canada to England (1880-1883).

GAMBETTA, LEON (1838-1882). French statesman; born at Cahors. An extreme republican, he was minister of the interior in the first provincial government. Escaping from besieged Paris (1870) in

a balloon, he conducted the war from Tours, having full dictatorial powers. He was the most influential man in France, and became premier in 1881, but resigned after 66 days (1882).

GARFIELD, JAMES RUDOLPH (1865-). United States Cabinet officer; born at Hiram, Ohio; son of James A. Garfield, twentieth president of the United States; was graduated at Williams College (1885); admitted to the bar (1888); was a member of the Ohio Senate (1896-1899); and became secretary of the interior (1907), serving until the expiration of President Roosevelt's term.

GATES, SIR THOMAS (? -about 1621). The first regular colonial governor of Virginia under the Virginia Company; one of the incorporators of the first Virginia charter (1606); as first deputy governor he sailed for Virginia in 1609.

GENET (*zha-na'*), **EDMOND CHARLES EDOUARD** (1765-1834). A French diplomat. After service in several French embassies to European courts he was transferred in 1793 as "minister plenipotentiary to the Congress of the United States." He came with the avowed purpose of stirring up war with Great Britain. Encouraged by a warm reception he began to solicit privateers against English commerce and to fit out an expedition to take Louisiana from Spain. Washington and Jefferson refused to be drawn into the affair and warned him to desist. After setting them at defiance they took a firm hand with him and the French government recalled him. He was afraid to return home, and settled in New York.

GENGHIS KHAN (1162-1227). A Mongol chief and conqueror. He succeeded his father when only 13. Some chiefs refused to acknowledge him and a long war resulted, and Genghis was obliged to seek shelter with Ungh Khan, who gave him command of his army and his daughter in marriage. Through his success in arms his master's jealousy was aroused, and Genghis fled back to his own people, where he arrived safely with 5,000 cavalry. He raised an army and defeated Ungh Khan, who in turn fled. After the defeat of some jealous Tatars he became master of all Mongolia. He conquered the northern part of China, scaled the Great Wall in 1211, and entered Peking in 1215. In 1219 he continued his conquest of Asia, and in the following years overran Persia, Russia, and the whole of southern Asia.

GENSERIC (? -477). King of the Vandals. In 429 he invaded Africa, and all Africa west of Carthage fell into his hands in the quarrel between Aetius and Boniface. In 439 he made Carthage the capital of his dominions. He also took Sicily, Sardinia, and Corsica. He encouraged Attila to attack Rome. In 455, at the invitation of Eudoxia, widow of Valentinian, he marched against Rome to avenge her on Maximus. He took the city, gave it up to a 14 days' pillage by his men, and took the empress and her two daughters prisoners. Genseric died in 477 at the height of his power, which gave him the title to the greatest of all of the kings of the Vandals.

GEORGE I. (1660-1727). King of Great Britain and Ireland (1714-1727); son of Ernest Augustus, elector of Hanover, and Sophia, daughter of Frederick, elector of Palatine, who married Elizabeth, daughter of James I. His preference for Hanover made him unpopular in England. The failure of the Jacobite rebellion (1715) and the strong foreign policy of Stanhope, Walpole, and Townshend, strengthened the new dynasty. The development of cabinet government was a feature of his reign.

GEORGE II. (1683-1760). King of Great Britain and Ireland; succeeded his father (1727); during the Austrian Succession War (1740-1748) he fought in the battle of Dettingen (1743). This was the last battle at which an English king was present. He defeated the Young Pretender at Culloden (1746) and secured victories over the French in Canada and India.

GEORGE III. (1738-1820). King of Great Britain and Ireland; son of Frederick Louis, eldest son of George II.; born in London; ascended the throne in 1760. The imposition of the American Stamp Act, and the obstinacy of George and his ministers, drove the American colonies to rebellion. Pitt, the prime minister, formed the triple alliance between England, Holland, and Prussia (1788). In 1793 France declared war with England, which ended in the defeat of Napoleon at Waterloo (1815). The Irish rebellion of 1798 brought about the union of England and Ireland in 1801. The king became insane in 1811 and his son, George IV., acted as regent.

GEORGE IV. (1762-1830). King of Great Britain and Ireland (1820-1830); eldest son of George III. His secret marriage with Mrs. Fitzherbert was declared illegal, and in 1795 he married Caroline of Brunswick (died 1821). He became regent in 1811, and the following year England was at war with America. In 1828 the test and corporations acts were repealed, and in 1829 the Catholic emancipation bill was passed.

GEORGE V. (1865-). "The Sailor King." King of Great Britain, Ireland, and the British possessions beyond the seas; emperor of India; second son of King Edward VII. and Queen Alexandra; born June 3, 1865. Educated at the royal naval academy, he was rapidly promoted, becoming captain in 1893, when his brother's death made him Duke of York; Prince of Wales (1901). He married Princess Mary Victoria of Teck, June 6, 1893; became king May 6, 1910.

GEORGE I. (1845-1913). King of Greece (1863-1913). Prince William of Denmark, second son of King Christian IX., was chosen king of the Hellenes, as George I., by the National Parliament of Greece with the consent of the powers in 1863. He was assassinated in Salonica while visiting the Greek army during the Balkan War. The prosperity of Greece was greatly advanced during his reign of fifty years.

GERMAIN, GEORGE SACKVILLE, VISCOUNT SACKVILLE (1716-1785). English soldier and politician. Fought in command under Marlborough until his refusal to obey Ferdinand's orders at the victorious battle of Minden (1759), for which he was dismissed from the army by George II. George III. restored him to the Privy Council and he began to ardently support Lord North. As secretary of state for the colonies (1775-1782), he had charge of the conduct of the war in America and did much to imbitter the colonists by his harsh measures, by employing mercenaries and Indians, and by his determined opposition to all peaceful measures.

GIBSON, HON. JOHN MORISON (1842-). Educated at Central School, Hamilton, and at Toronto University, gaining Prince of Wales prize, medals in classics and modern languages; LL.B. with gold medal (1869); LL.D. (1903); called to bar of Upper Canada (1867); provincial secretary of Ontario (1889); commissioner of crown lands (1896); attorney general (1899-1905); made queen's counsel (1890); bencher of Law Society of Upper Canada (1899); honorary lieutenant colonel of 13th regiment (1895); colonel commanding 13th brigade Canadian militia (1903); president Dominion Rifle Association 14 years; won Prince of Wales prize at Wimbledon (1879); commander Canadian rifle team to Wimbledon (1881), and to Bisley (1907). President of Canadian branch Red Cross Society; honorary aide-de-camp to Earl of Aberdeen and Earl Minto when governors general of Canada, and very prominent in many other national matters. Lieutenant governor of Ontario since 1908.

GIRONDISTS. Named after department of Gironde in France. The moderate republican party of the French Revolution; condemning the Reign of Terror, many being arrested for alleged conspiracy against the republic. Among those guillotined were Brissot, Verniaud, Gensonné, Sillery, Madame Roland.

GLADSTONE, WILLIAM EWART (1809-1898). British statesman; born in Liverpool; was educated at Eton and Christ Church; entered Parliament (1833) as member for Newark. His talents and oratorical powers marked him out for leadership and responsibility. He held many ministerial appointments, but none with greater distinction than that of chancellor of the exchequer. From 1867 to his death he was leader of the Liberal party, and his name was always identified with free trade, equitable taxation, manhood suffrage, and popular education. He first became prime minister in 1861, the leader of the opposition being his powerful rival, Disraeli. In 1886, during his third premiership, he introduced and almost carried the Home Rule Bill for Ireland. This caused a split in the Liberal party. In 1892, during his fourth and last ministry, he carried the amended bill through the Commons, but it was thrown out by the lords. He retired from office, March 3, 1894. His works include *Studies on Homer*; *Gleanings from Past Years*, being eight volumes of literary and political essays contributed to the *Quarterly Review* and other periodicals; and *Speeches* and *Letters*. The best life of Gladstone is written by John Morley (1902). Gladstone was the greatest of the Victorian statesmen, and his political life was inspired by the loftiest sense of public duty. His foreign policy was weak,

and his domestic measures were not always well advised, but no one ever doubted the sincerity of his aim or his devotion to his countrymen. The British working classes in particular owe him a lasting debt of gratitude.

GODWIN or **GODWINE** (? –1053). An earl of the West Saxons. He was Canute's most powerful official (1020); practically made Edward the Confessor king and thereafter was the leader of the English against the Norman nobles. In 1051 the Normans complained that the citizens of Dover had ill-treated some of their friends; Edward ordered Godwin to punish them; on Godwin's refusal the king outlawed him and he fled to Flanders. In 1052 he sailed with a force against the king and compelled him to yield.

GOETHALS, GEORGE WASHINGTON (1858-1928). United States army officer and engineer; born in Brooklyn, N. Y.; graduate of West Point Military Academy (1880), where he was instructor in civil and military engineering until 1888; in charge of construction of Muscle Shoals Canal in the Tennessee River; chief of engineers during Spanish–American War; on the board for coast and harbor defenses; chief engineer of Panama Canal (1907–1914); appointed governor of the Canal Zone February, 1914.

GONZALEZ, MANUEL (1833–1893). Mexican soldier and president; fought against the European invaders in 1861, and became brigadier general in 1867. He was secretary of war under Diaz (1878), and became president (1880). In 1884 he resigned in favor of Diaz, and afterwards became governor of Guanajuato.

GORDON, JOHN BROWN (1832–1904). American soldier and politician; born in Upson County, Ga. In the Confederate army he rose to the grade of lieutenant general and was in command of one wing of Lee's army at the surrender at Appomattox. United States senator (1873–1880 and 1891–1897); one of the Democratic leaders and an eloquent speaker; governor of Georgia (1887–1890).

GORMAN, ARTHUR PUE (1839–1906). United States senator; born in Maryland. A conspicuous leader of the Democratic party for over 30 years. Senator (1881–1899 and 1903–1906). Led the opposition to the Force Bill (1889) and was one of the remodelers of the Wilson Tariff Bill (1894). He made a study of the canal projects across the isthmus and favored the Nicaraguan route.

GORTSCHAKOFF (*gort-cha-kof*), **PRINCE ALEXANDER MICHAILOVITCH** (1798–1883). Russian statesman; born at St. Petersburg; Russian ambassador at Stuttgart and Vienna (1854–1856); appointed chancellor in 1863 and was for many years the most influential minister in Europe. He promoted the Franco-Russian agreement, which Bismarck met by the triple alliance.

GOULBURN, HENRY (1784–1856). An English statesman. He held several cabinet positions and was one of the peace commissioners at the close of the War of 1812. He was highly respected by all parties during his honorable career.

GRACCHUS, GAIUS SEMPRONIUS (159–121 B. C.). Roman statesman. After his brother's murder, he returned from Spain to Italy; made questor (126 B. C.) and began to avenge his brother's death; tribune in 123 B. C. and again in 122 B. C., he sought to enforce his brother's laws and to extend the franchise to the Italian allies. The aristocracy plotted secretly against him and he was pursued. All hope of escape being cut off, he caused his faithful slave to kill him.

GRACCHUS, TIBERIUS SEMPRONIUS (163–133 B. C.). Brother of the preceding. Roman statesman. Took part in the destruction of Carthage (146 B. C.); tribune of the people (133 B. C.), and introduced a land bill to relieve their sufferings and concerning a fairer distribution of wealth. In a riot at the ensuing elections Gracchus was slain.

GRANGER, GIDEON (1767–1822). An American politician; born in Suffield, Conn. Appointed postmaster general of the United States by Jefferson, which post he held for 13 years. He was the first to suspect Burr, in 1804, of a conspiracy with the Federalists.

GRATIAN (GRATIANUS AUGUSTUS) (359–383). Roman emperor (367–383). Eldest son and successor of Valentinian I. During his father's life he shared the government of the West with him. When he became sole ruler on the death of his father he took his brother, Valentinian II., as his colleague. Gratian took Gaul, Spain, and Britain; Valentinian, though only four years old, took the rest of the West; and Valens held the East. When Valens was killed by the Goths, Gratian took the East and recalled Theodosius from Spain and appointed him colleague in 379. Persecutions of pagans and heretic Christians marked his reign and made him unpopular. Maximus was proclaimed emperor by the legions in Britain. Gratian was defeated by him near Paris, and was killed at Lyons, whither he had fled.

GREVY (*gray-ve'*), **FRANCOIS PAUL JULES** (1807–1891). French statesman and third president of France. He was elected a deputy in 1868, and became president of the National Assembly (1873). In 1876 he was made president of the Chamber of Deputies, and succeeded MacMahon as president of the republic in 1879, being re-elected in 1885. He resigned in 1887 on account of the scandal connected with his son-in-law, Wilson, who was charged with trafficking in decorations.

GREY, ALBERT HENRY GEORGE, EARL (1851–1917). British statesman; educated at Harrow and at Trinity College, Cambridge; in Parliament from South Northumberland (1880–1885), from Tyneside 1885–1886); succeeded to the peerage (1894); administrator of Rhodesia (1896–1897); director of British South Africa Company (1898–1904); governor general of Canada (1904–1911).

GREY, SIR EDWARD. (1862–). English statesman; educated at Balliol and Winchester, Oxford; member of Parliament for Berwick-on-Tweed (1885); under secretary for Foreign Affairs (1892–1895); secretary for Foreign Affairs (1905–1916).

GREY, LADY JANE (1537–1554). "The nine days' queen" of England; born at Broadgate, Leicestershire; great-granddaughter of Henry VII.; married Lord Guilford Dudley, son of the duke of Northumberland. The latter proclaimed her queen on the death of Edward VI. (1553), but the usurpation was short-lived and Mary was proclaimed on July 19, 1553. The ill-fated Lady Jane and her husband were beheaded in the Tower (February 12, 1554).

GROW, GALUSHA AARON (1823–1907). American politician; born at Ashford, Conn. Member of Congress from Pennsylvania (1851–1863); speaker (1861–1863); congressman (1894–1904).

GUATEMOTZIN (*gwah-tay-mot-seen'*) (?1497–1525). The last Aztec emperor of Mexico (1520–1525); nephew of Montezuma II. At the fall of the city of Mexico he was taken prisoner by the Spaniards, and tortured and executed by order of Cortez.

GUSTAF V. (1858–). King of Sweden since December 8, 1907; born in the Castle of Drottningholm; first son of King Oscar II. Studied law at the University of Upsala (1877–1878), traveled extensively, and resumed study in the university (1889); entered the army (1875) and gradually rose in rank until he became lieutenant general (1892) and general (1898). From 1884 to 1891 he was vice-king of Norway; married Princess Victoria (1881), daughter of Frederick William Louis, grand duke of Baden. He succeeded Oscar II. as king.

GUSTAVUS I. (VASA) (1496–1560). King of Sweden; ascended the throne (1523); introduced the Reformation into Sweden; freed the country from the monopolies long enjoyed by the Hanseatic League, and established a navy.

GUSTAVUS II. (ADOLPHUS) (1594–1632). King of Sweden (1611–1632); son of Charles IX.; defeated the Polish and Russian invaders; went to the aid of the Protestant league in Germany and defeated Tilly at Breitenfeld, near Leipzig (September 17, 1631). He was killed in the hour of victory at the battle of Lützen (November 16, 1632), in which he was opposed to the famous Wallenstein.

GUSTAVUS III. (1746–1792). King of Sweden (1771–1792). He regenerated his country, though his extravagances alienated many of his subjects. He declared war against Russia without consulting Parliament, and in 1790 almost annihilated the Russian fleet at the battle of Svensksund. He was assassinated in 1792.

GUSTAVUS IV. (1778–1837). King of Sweden; came to the throne in 1792, the duke of Sudermania being regent during the king's minority. He lost Finland to the Russians, and his subjects finally deposed him (May, 1809). He died at St. Gall in Switzerland.

HAAKON VII. (1872–). King of Norway (1905–). The second son of Frederick, king of

Denmark. Elected king by the Storthing of Norway on the separation from Sweden; married Maud, third daughter of King Edward VII. of England.

HADRIAN (PUBLIUS AELIUS HADRIANUS) (76-138). Roman emperor (117-138). Governor of Syria (117); proclaimed emperor (117); made peace and governed justly. Built Hadrian's Wall in Britain; the Temple of Venus in Rome; the Mausoleum (i. e., Castle of St. Angelo); the Aelian Bridge; founded Adrianople.

HAGGART, HON. JOHN GRAHAM (1836-1913). Born in Perth, Ont.; mayor of Perth (1867-1869-1871); elected for South Lanark to House of Commons since 1872. Postmaster general (1888-1902); department of railways and canals (1892-1896). Leader of Ontario Conservatives in Parliament (1892); completed construction of Sault Ste. Marie Canal, the final link in the mighty chain of Canadian canals connecting the Great Lakes with the St. Lawrence.

HALE, JOHN PARKER (1806-1873). Statesman; born in Rochester, N. H.; admitted to bar (1830); elected to state legislature (1832); United States district attorney for New Hampshire (1834-1841); congressman (1843-1845); United States senator (1847-1865), excepting an interval of two years; minister to Spain (1865-1869).

HAMILTON, ALEXANDER (1757-1804). One of the greatest of American statesmen; born on the island of Nevis, West Indies; entered Columbia University (1773) and early attracted attention by several pamphlets of a political nature. He was a lieutenant colonel under General Washington (1777-1781); was a member of the Continental Congress (1782-1783), of the Annapolis Convention (1786), of the Constitutional Convention in Philadelphia (1787), and of Congress (1787-1788). As United States secretary of the treasury he helped to mold the country's policies. After the definite formation of parties, he became leader of the Federalists. His support of Jefferson in 1800 increased the hatred existing between him and his rival, Aaron Burr. A trivial occasion led to a duel between the two men in which Hamilton was mortally wounded.

HAMLIN, HANNIBAL (1809-1891). An American statesman; born in Paris Hill, Me. Practised law and was a member of the Maine legislature (1836-1840 and 1847), of the lower house of Congress (1843-1847), of the United States Senate (1848-1857); became governor of Maine (1857); was vice-president of the United States (1861-1865); sat in the Senate (1869-1881); and from 1881 to 1883 was minister to Spain.

HANCOCK, JOHN (1737-1793). American statesman; born in Quincy, Mass.; was graduated from Harvard (1754) and inherited a considerable fortune from his uncle (1764); was a member of the Massachusetts general court (1766-1772), of the Continental Congress (1775-1780 and 1785-1786), where he served as president (1775-1777). His name appears in a bold hand on the Declaration of Independence. He was the first governor of Massachusetts under the new constitution (1780-1785 and 1787-1793), and president of the convention (1788) which met to consider the new Federal constitution.

HANNA, MARCUS ALONZO (1837-1904). American politician; born in Lisbon, Ohio. In 1896 he secured the nomination of William McKinley for president and he himself became the chairman of the Republican National Committee. Appointed senator (1897) to succeed the late John Sherman; elected in 1898. One of the most influential advisers of the administration.

HARCOURT, SIR WILLIAM VERNON (1827-1904). English statesman; born at Nuneham Park, Oxford. From 1869 to 1887 he was professor of international law at Cambridge. Was home secretary and cabinet minister (1880-1885), chancellor of the exchequer (1886 and 1892-1895), and leader of the House of Commons (1894) on Gladstone's retirement. His death-duties budget (1894) is his greatest achievement. He was knighted in 1873.

HARDECANUTE, HARDACNUT, or HARTHACNUT (about 1019-1042). King of England and Denmark; the son and successor of Canute. At the death of his father (1035) he was under-king of Denmark. The English Witan decided that Harold, half-brother of Hardecanute, should have the south and that Hardecanute should have only Wessex. As Hardecanute was slow in taking his kingdom, it all went to Harold in 1037. On the latter's death, in 1040, it all passed to Hardecanute.

HARDINGE, RT. HON. SIR CHARLES (1858-). Viceroy of India (1910). Entered diplomatic service (1880); served successively as secretary of embassy at Constantinople, Berlin, Washington, Sofia, Bucharest, Paris, Teheran, and St. Petersburg till 1903; assistant under-secretary for foreign affairs (1903-1904); ambassador at St. Petersburg (1904-1906); and permanent under-secretary for foreign affairs (1906-1910).

HAROLD. Name of two kings of England. **HAROLD I.** (? -1040), surnamed **HAREFOOT.** Became joint ruler with Hardecanute (1035); but the prolonged absence of Hardecanute in Denmark led the people to give over his share of the kingdom to Harold, who became sole king (1037). **HAROLD II.** (?1021-1066). Became king in 1066; was the second son of Earl Godwin. In 1066 he defeated the Norsemen at Stamford Bridge, but a few days later was defeated and slain by William, duke of Normandy, at Senlac.

HARUN-AL-RASHID (? -809). Caliph of Arabia and the fifth of the line of the Abbassides. He succeeded his elder brother, Al-Hadi, in 786. Under him the capital, Bagdad, became the most flourishing city of the times. He is best known as the caliph around whom center the tales of the Arabian Nights. His success was due to the ability of the grand vizier, Yahya, of the family of the Barmecides. The caliph grew envious and distrustful of them, and put the vizier and his four sons to death. After this rebellions spread throughout the caliphate, and while on his way to check a formidable one at Khorassan in 809, he was attacked by apoplexy and died.

HASTINGS, WARREN (1732-1818). An English statesman; governor general of India; born at Churchill, in Oxfordshire. In 1769 he went to India for a second time, and in 1772 became president of the supreme council of Bengal. The administration of Hastings was vigorous and successful, and on his return to England (1785) he was received with acclaim. But the whigs questioned his methods, and his impeachment, which began in 1788, extended over seven years, and finally ended in his acquittal. He devoted the remainder of his life to literature.

HAY, JOHN (1838-1905). American statesman and diplomat; born in Salem, Ind. Law student with and private secretary of President Lincoln; editorial writer on the New York *Tribune* (1870-1875) and later editor-in-chief; first assistant secretary of state under Hayes (1879-1881); ambassador to Great Britain (1897); secretary of state (1898), which office he held until his death. Though a prominent public man he never once held an elective office.

HAYNE, ROBERT YOUNG (1791-1839). American statesman; born in St. Paul's Parish, Colleton District, S. C. He was admitted to the bar (1812); was attorney general of his state (1818-1822); served also in other important positions. He is best remembered for his brilliant debate with Webster on the "States' Rights" question. In 1832 he was elected governor of South Carolina and, though he firmly supported his state, was strongly opposed to the violent methods of the extreme nullificationists.

HEAD, SIR EDMUND WALKER (1805-1868). English governor general of Canada; born near Maidstone, Kent; was educated at Winchester and Oxford, was a fellow of Merton College (1830-1837), and in 1847 was made lieutenant governor of New Brunswick. During his term (1854-1861) as governor general of Canada, the clergy reserves and seigneurial tenures were done away with, the Victoria bridge at Montreal built, and Ottawa made the capital.

HEAD, SIR FRANCIS BOND (1793-1875). An English colonial governor. Lieutenant governor of Upper Canada (now Ontario) (1835-1837). Opposed the union of the Canadas, which he interpreted as a desire for annexation with the United States, and by his lack of tact and ignorance of the conditions was largely responsible for the rebellion of 1837.

HEARST, WILLIAM RANDOLPH (1863-). An American journalist and politician; born in San Francisco, Cal. In 1886 he became editor of the San Francisco *Examiner*; bought the New York *Journal* (1895); and in 1900 began to publish the Chicago *American*. Elected to the United States House of Representatives (1902 and 1904). In 1905 he was nominated for mayor of New York City, but was defeated by George B. McClellan. In 1906 Hearst was nominated for governor of New York, but was defeated by Charles E. Hughes.

HEINSIUS, ANTOON (1641-1720). Dutch statesman; born at Delft; was the actual governor of Holland under William of Orange. He is remembered for his obstinacy in dealing with Louis XIV. of France, of whom he made humiliating demands in behalf of the alliance of Holland on the one hand, and Great Britain, Denmark, Hanover, Austria, Prussia, and Savoy on the other. He was the last to sign the Peace of Utrecht.

HENDRICKS, THOMAS ANDREWS (1819-1885). American statesmen; born near Zanesville, Ohio. Member of Congress from Indiana (1851-1855); United States senator (1863-1869); governor of Indiana (1873-1877); candidate for vice-president with Tilden (1876), and elected vice-president with Grover Cleveland (1884), but died on November 25, 1885.

HENGIST (? -488). Traditional Jutish chief. It is said that, at the invitation of Vortigern, he landed on the Isle of Thanet (449) to aid in the expulsion of the Picts and Scots. He later turned against the Britons, and in 457 became king of Kent.

HENRY I. (1068-1135). King of England (1100-1135). The fourth son of William the Conqueror. In 1091 William Rufus and Robert took his possessions away from him and drove him into exile. When William Rufus was found dead, Henry went at once to England, seized the royal treasure, was crowned king and issued a charter of rights, which was the basis of Magna Charta. He recalled Anselm, archbishop of Canterbury, and married Matilda, daughter of Malcolm Canmore of Scotland, thus greatly pleasing the Saxon people. Robert of Normandy made war upon his brother and Henry was obliged to surrender all of his possessions in Normandy and pay a bounty to Robert in 1101. War broke out between them again in 1104 and they met at Tenchebrai, in France, and Robert was defeated and held as a prisoner in Cardiff Castle until his death. The holding of Robert's possessions in France brought about frequent wars, but these had much to do with the amalgamation of the races in England, and great strides were taken in this reign towards a union of the Saxons and Normans. Henry lost his favorite son, William, in 1120.

HENRY II. (1133-1189). King of England (1154-1189). Son of Matilda and grandson of Henry I. His father was Geoffrey Plantagenet. Henry was the first of the line of Plantagenet kings. He succeeded Stephen by the Treaty of Wallingford. He gained large possessions in France by inheritance and by marriage; in fact, his French territory was greater than that of the French king. Henry sought to repair the damage done by the civil war in Stephen's reign. He soon became involved in quarrels with the clergy. A direct consequence of this was the murder of Thomas à Becket, the archbishop of Canterbury, in 1162. Henry did penance publicly for this crime. Ireland was conquered by him in 1157. The latter part of his life was troubled by the rebellions of his sons. In the course of one of these the king died and was succeeded by his son, Richard Coeur de Lion.

HENRY III. (1207-1272). King of England (1216-1272). The eldest son of John, whom he succeeded when only nine years old. The affairs were administered by the earl of Pembroke until 1219, then by Stephen Langton and Hubert de Burgh. In 1258 the barons, led by Simon de Montfort, rose against him and forced from him concessions known as the Provisions of Oxford. The king got back his power and annulled the provisions in 1264. "The Mise of Lewes" followed the battle of Lewes in 1264, when the king was defeated and captured. By this the king's power was greatly limited and Simon de Montfort tried to secure a new constitution for England. A parliament was summoned, which was attended by knights and representatives of the shires, and is known as the first Parliament of England. Statute laws date from Henry's time, the Provisions of Merton being the first enactment on the English statute book.

HENRY IV. (1367-1413). King of England (1399-1413). The eldest son of John of Gaunt, the fourth son of Edward III. He was banished by Richard II. in consequence of a quarrel with the duke of Norfolk in 1398. In 1399 John of Gaunt died and King Richard II., breaking his promise, confiscated all of his estates. The son landed in England and, as Richard was returning from Ireland, took him prisoner, caused his abdication in 1399, and took the throne in his place. He put down a rebellion of the Welsh under Owen Glendower (1400); defeated the Scotch at Homildon Hill in 1402; overthrew the Percy rebellion at Shrewsbury in 1403, when the famous Percy, Harry Hotspur, was slain.

HENRY V. (1387-1422). King of England (1413-1422). Son and successor of Henry IV. Conducted a war with France in which he took the town of Harfleur and gained the battle of Agincourt against enormous odds in 1415; took Normandy in 1417, and Rouen in 1419. While undertaking a third campaign against France he was taken ill and died at Vincennes in 1422. His son, Henry VI., succeeded him.

HENRY VI. (1421-1471). King of England (1422-1461). Son and successor of Henry V. He was declared king of England when only a few months old, and king of France a few weeks later. The duke of Bedford was regent. In 1421 Joan of Arc caused the defeat of the English in France, and the country gradually passed out of English control. By 1451 Calais was the only English possession in France. The king lost his mind at times and affairs were in a bad way. In 1450 the men of Kent, under the leadership of Jack Cade, rose in rebellion and demanded that the duke of York be placed at the head of the government. In 1455 the first battle of St. Albans was fought between the king's forces and those of the duke of York. This was the first battle of the Wars of the Roses, or the long struggle between the House of Lancaster, to which Henry VI. belonged, and that of York, led by Richard, duke of York. Henry was taken prisoner in this battle. He was again captured at the battle of Northampton (1460). It was then agreed that Henry should keep the crown but that York should be his successor. Margaret, the wife of Henry, was angered that her son should be shut out, so she raised forces and the battle of Wakefield Green was fought in 1460 and the duke of York slain. Edward, earl of March, York's son, raised a force and fought the battle of Towton in 1461 and was crowned king as Edward IV. Other engagements followed, and Margaret caused Edward to be driven out of England and Henry restored. Edward returned the same year (1471) and Henry was recaptured and murdered.

HENRY VII. (1457-1509). King of England (1485-1509). He was the son of Edmund Tudor, earl of Richmond, and Margaret, granddaughter of John of Gaunt, from whom he derived his claim to the throne. He defeated Richard III., of the house of York, at Bosworth Field in 1485 and Richard was slain in battle. Several uprisings by Yorkists in his reign accomplished nothing. The royal power increased rapidly in this reign. The Star Chamber was instituted for the detection and punishment secretly of powerful nobles. Henry kept out of foreign wars and devoted himself largely to increasing his power and in amassing a fortune. North America was discovered by John Cabot in this reign.

HENRY VIII. (1491-1547). King of England (1509-1547); second son of Henry VII.; married Catherine of Aragon; defeated the French at Guinegate, and the Scotch at Flodden (1513). Until 1529 Wolsey was a power almost as supreme as the king himself. In actual warfare Henry sided with Francis I. of France, though in diplomatic transactions he often favored Emperor Charles V.; there were many interviews, one of the most noted of which was the "Field of the Cloth of Gold." Failing to receive the pope's consent to a divorce from Catherine, Henry deposed Wolsey, made himself head of the Church of England, and in 1533 married Anne Boleyn. Cranmer was made archbishop of Canterbury, monasteries were abolished, and all subjects made to take oath of allegiance to the king. Henry, actuated only by personal motives, did not realize that he had forever broken papal power in England. Anne Boleyn was executed (1536) and Henry married Jane Seymour, who died (1537); married Anne of Cleves (1540); divorced shortly after, and married Catherine Howard, who was executed (1542); married Catherine Parr (1543), his sixth wife. During his last years Henry endeavored to establish his authority in Ireland, and was at war with Scotland and France (1542-1546). The succession was granted by Parliament to his children, Edward, Mary, and Elizabeth.

HENRY I. (about 1008-1060). King of France (1031-1060). Son of Robert II. and grandson of Hugh Capet. Henry assisted William of Normandy (William the Conqueror) in bringing the Norman nobles to terms, though he afterwards became jealous of him. His great work was in holding the kingly authority against that of the powerful nobles.

HENRY II. (about 973-1024). Holy Roman emperor (1002-1024). Grandson of Henry I. and successor of Otho III. During his absence in Italy, Bolesiav Chrobry (the Brave) of Poland invaded his kingdom and annexed some territory. Though defeated, he continued war on Henry until terms of peace were made. He and his wife, Kunigunde, were canonized in 1146.

HENRY III. (1017-1056). Holy Roman emperor (1039-1056). Son of Conrad II.; was crowned, 1039. He was obliged to face rebellions and to settle disputes in many parts of his empire. Under him there was great progress and he did much to strengthen and to improve affairs in the church.

HENRY IV. (1050-1106). Holy Roman emperor (1056-1106). The son and successor of Henry III. He became king when only six years old and the nobles and clergy who had been held in check by Henry III. sought to gain privileges by force. Revolts took place and Germany was in a state of anarchy. In 1073 Hildebrand was elected pope under the title of Gregory VII. A decree was passed by the church claiming sole right of investiture or appointment of bishops and other church dignitaries. Henry contested this right, and after a struggle he went to Canossa and waited as a penitent for three days barefooted in the courtyard for absolution from the pope. This action, while humiliating to Henry, really averted a union of the church and the nobles, and was diplomatic. Henry was afterward taken prisoner in a rebellion and forced to abdicate. He died shortly after.

HENRY V. (1081-1125). Holy Roman emperor (1106-1125). Son and successor of Henry IV. Appointed after Conrad had forfeited his right to the throne by rebellion. Pope Paschal II. demanded that he give up the right of investiture, which Henry refused to do. In 1110 he invaded Italy with 300,000 men. The pope agreed that the church should give up its lands and property in Germany if the emperor would give up the right of investiture. This was agreed to. The Romans opposed the crowning of Henry as emperor and the pope and the cardinals were taken prisoners. Then the pope recognized the right of investiture and Henry was crowned. As soon as he had crossed the Alps on his way home, the pope renounced the treaty and Henry was excommunicated. Germany was then plunged in civil war. In 1116 Henry went back to Italy, drove Paschal from Rome, and after his death had Gregory VIII. elected pope. The papal party then set up Gelasius as pope and Henry allayed the opposition to him in Germany. Pope Calixtus II., who succeeded Gelasius in 1119, compromised the situation and the struggle was closed for a time by the Treaty of Worms (1122). Henry was succeeded by Conrad III.

HENRY, PATRICK (1736-1799). American patriot and orator; member of the Continental Congress; twice governor of Virginia. From very humble beginnings, and after failure in business he became a lawyer; won fame for his speech in the "Parsons' Cause"; opposed the Stamp Act, and by his eloquence stirred up Virginia to action in the War of Independence. He was the first speaker of the General Congress at Philadelphia.

HENRY OF FLANDERS. Second Latin emperor of Constantinople, brother of Baldwin I. He reigned (1205-1216), and was succeeded by Pierre de Courtenay.

HENRY THE FOWLER (876-936). King of the Germans (919-936). The son of Otho, duke of Saxony. He succeeded his father in 912, and on the death of Conrad I., the German king in 919, he was chosen king by the Franconian and Saxon nobles. In 925 Lotharingia, or Lorraine, came over to Henry's side. The Hungarians had long made inroads upon Germany, and in 924 Henry was obliged to buy a truce with them for nine years of peace. He took part of this time to prepare and train his army. When he thought it was ready he tried it against some Danes and Slavs. He then refused payment of the annual tribute to the Hungarians. They made war upon him and he defeated them in Thuringia so badly that they did not venture into Germany for several years thereafter. Henry gathered around him the powerful nobles and made himself secure through their influence.

HEPTARCHY, THE SAXON. Name given to the kingdoms in England established by the Angles and Saxons. The union, which began in the sixth century and continued till Egbert ruled alone (829), is said to have consisted of Kent, Sussex, Wessex, Essex, Northumbria, East Anglia, and Mercia. The tribe which was strongest put forward a leader, who was recognized as king until his supporters were overthrown by a more powerful tribe. Thus the person who was most powerful became monarch.

HERRICK, MYRON T. (1854-1929), born in Ohio; educated in Oberlin and Ohio Wesleyan. Dir. in various corp. mem. of Repub. Nat. Com. Gov. of Ohio, 1903-1906. Ambassador to France, 1912-1914 and 1921 till death. Del. Natl. Repub. Conv. Chairman Amer. Com. for Devastated France. Organized relief agencies. Received Grand Cross, French Legion of Honor.

HILL, DAVID BENNETT (1843-1910). A Democratic politician, prominent in New York state; born at Havana, N. Y. Lieutenant governor of New York with Cleveland, whom he succeeded (1885) until 1891; United States senator to succeed Evarts (1891); defeated for governor by Levi P. Morton (1894).

HITCHCOCK, ETHAN ALLEN (1835-1909). A United States Cabinet officer; born in Mobile, Ala.; completed his education at a military academy in New Haven, Conn. (1855); settled in St. Louis and engaged in mercantile business until 1860, when he went to China to enter the commission house of Olyphant & Co.; retired from business (1872), having been a partner in the above company since 1866; returned to the United States (1874); held many positions of importance; was United States minister (1897-1898), and first ambassador (1898-1899) to Russia; was appointed secretary of the interior by President McKinley, holding the position until 1907.

HOAR, GEORGE FRISBIE (1826-1904). American legislator; born in Concord, Mass. Member of the Free-Soil party and of the Republican party. Congressman (1869-1877); United States senator (1877 till his death); member of the Electoral Commission (1877); presided over the Republican National Convention which nominated Garfield (1880); always opposed "imperialism."

HONORIUS, FLAVIUS (384-423). Emperor of the West (395-423). Second son of Theodosius. On the death of Theodosius the empire was divided between Honorius, who took the West with Rome as his capital, and Arcadius, who took the East with Constantinople as his seat. Honorius, being only 11 years old, was put under the guardianship of Stilicho, who was all his life the real ruler of the West. In 401 Alaric, king of the Visigoths, invaded Italy, and after two battles with Stilicho was obliged to withdraw; attacked (405) with like result. Stilicho, losing favor, was murdered at Ravenna (408), and Alaric again invaded Italy, Rome escaping by ransom, to be taken next year. Attilus being made emperor for a brief period. Rome was ravaged by Alaric's army (410) but freed by his death (410). Honorius now associated with Constantius. Spain, Gaul, and other fine provinces were lost to Rome during this reign.

HOUSTON, SAM (1793-1863). American soldier and statesman; born near Lexington, Virginia. In 1813-1814 he served under General Jackson against the Creek Indians; later studied and practised law in Tennessee, and was a representative in Congress (1823-1827); was governor of Tennessee (1827-1829); removed to Texas and became commander-in-chief of the revolutionary forces there (1835); was president of Texas (1836-1838, 1841-1844). After the annexation of Texas he was United States senator (1846-1859), and governor of Texas (1859-1861), of which position he was deprived because he would not support the Confederacy.

HOWE, JOSEPH (1804-1873). Canadian statesman; born at Halifax, N. S. From his election to the Provincial Legislature in 1836 he became the most conspicuous figure in Nova Scotia. He was the successful champion of responsible government. He was a member of the Executive Council; speaker of the Assembly (1840); secretary of state for the Dominion (1870); and governor of Nova Scotia (1873).

HUGHES, CHARLES EVANS (1862-). Governor of New York (1907-1910). Practising lawyer (1884-1891 and 1893-1906); lecturer of law (1891-1893) at Columbia, Cornell, and New York law schools; appointed associate justice in United States Supreme Court (1910). Sec. of State (1921-1925).

HUTCHINSON, THOMAS (1711-1780). The last royal governor of the Province of Massachusetts Bay (1771-1774). He was acting governor during the "Boston Massacre" (March 5, 1770). He was succeeded by General Gage, who was military governor.

IBRAHIM (*ib-rah-heem'*) **PASHA** (1789-1848). Viceroy and general of Egypt; born at Cavalla, Roumelia. In 1810 he crushed a rebellion of the Arabs in upper Egypt, and in Arabia suppressed the Wahabis.

In the Greek war of independence he supported the Turks; took Navarino, Tripolitza, and, after a memorable defense, Missolonghi (1326). In 1831 he invaded Syria, soon making himself master of the whole of that country; but he was eventually compelled by the powers to relinquish his claim on the conquered territory. In 1848 he was made viceroy of Egypt.

II KAMON NO KAMI (1815-1861). A Japanese statesman who was largely instrumental in throwing Japan open to foreign trade and intercourse. He assisted Commodore Perry in 1853 in his diplomatic errand and forced the signing of the treaty with the United States. He was assassinated and his memory was execrated for some years among his own people.

INGALLS, JOHN JAMES (1833-1900). An American statesman; born in Middleton, Mass. Removed to Kansas (1858); member of the state senate (1862); United States senator (1873-1891); president pro tempore of the Senate (1887-1891); defeated by the Democratic-Populist forces. A fluent speaker, brilliant at repartee, and an excellent parliamentarian.

IRON CROWN OF LOMBARDY. The golden (not iron) crown of the Lombards still kept in the Church of St. John the Baptist at Monza. It is composed of six pieces, and ornamented with 22 jewels, 26 golden roses, and 24 enamels. The small circle inside is of iron, said to be made from a nail used at the Crucifixion, and given to the Lombard Princess Theodelinda by Pope Gregory I. The motto on the crown is "God has given it to me; beware who touches it." It has been used in crowning all Lombard kings, also German emperors as kings of Italy. Napoleon crowned himself with it at Milan, in 1805. Later it was carried to Venice, but in 1886 was restored to Monza.

ISAAC I., COMNENUS (? -1061). Byzantine emperor (1057-1059). First of the Comneni emperors.

ISABELLA I., THE CATHOLIC (1451-1504). Queen of Castile and León; born at Madrigal; succeeded to the throne on the death of Henry IV., in 1474. The war with Portugal ended in her favor (1479); the conquest of Granada was successfully completed; and the Inquisition carried on with fanatical earnestness. The queen is best remembered for her acquiescence in the plans of Columbus.

ISABELLA II. (1830-1904). Queen of Spain (1833-1868). Daughter of Ferdinand VII. The Salic Law was set aside to permit her to succeed her father. Her mother, Maria Christina, was regent. Don Carlos, her uncle, should have succeeded Ferdinand, and a rebellion in his favor raged with violence in 1840. In consequence of a rebellion in 1868, Isabella fled to France and, in 1870, she abdicated in favor of her son, Alfonso XII. He came to the throne in 1875, after the brief reign of Amadeus of Savoy and the failure of the republic under Castelar.

ISABELLE OF FRANCE (1292-1358). Queen of England, wife of Edward II., whom her adherents deposed, and with whose assassination she is charged. Her son, Edward III., ordered her arrest, and she died after 20 years' incarceration.

ISMAIL PASHA (1830-1895). Viceroy (1863) and khedive (1867) of Egypt. During the American Civil War he amassed great wealth in cotton. He encouraged the building of the Suez Canal. While his schemes for the aggrandizement of Egypt were ambitious, his extravagance plunged the country into such financial distress that France and England interfered (1879) and the sultan deposed Ismail Pasha and Prince Mohammed Tewfik was proclaimed khedive. Ismail received an annual pension of £50,000 and left the country.

ISRAEL. The first king of the Hebrews was Saul. He ruled successfully, but soon became jealous of David, who, introduced into the king's court as a minstrel, fascinated every one. When Saul died by his own hand, David defeated the king's son, Ishbosheth, and was anointed king of Israel (about 1030 B. C.). He captured Jerusalem, conquered the neighboring peoples, and when he died (993 B. C.) was succeeded by his son, Solomon. The new king's rule was so lax and his expenditures so extravagant that, on his death (about 953 B. C.), rebellion broke out which resulted in the formation of two Hebrew kingdoms, Israel and Judah, Jeroboam becoming king of the former. Israel later fell under the hand of Tiglath-pileser II., often termed the founder of the Second Assyrian Empire; but on the death of this powerful monarch, Israel revolted against Assyrian rule. Sargon the Later proceeded against Jerusalem, completely destroying the city (722 B. C.), and exiled the people, thus forever scattering the tribes of Israel.

ITAGAKI (1838-). Japanese statesman known as the "Rousseau of Japan." An ardent advocate of government for his country based upon those of the United States and England; held many Cabinet offices. He opposed the government of Ito based upon that of Germany. A Christian and a church officer.

ITO, HIROBUMI (1840-1909). A Japanese statesman. Studied the coinage of the United States and obtained the adoption of the decimal system in Japan and the establishment of a mint at Osaka (1871). As minister of public works, he had the first railroad of Japan built from Yokohama to Tokyo (1872). He secured the adoption of foreign dress. In 1889 the constitution prepared by him was adopted. As premier (1892-1895) he carried the nation through the Chino-Japanese War; recalled to the premiership in 1898 he directed the Japanese against the Boxer uprising in China. He was active during the Russo-Japanese War. Called the "Bismarck of Japan" and the "Father of the Constitution." Assassinated.

ITURBIDE (*e-toor-be'day*), **AUGUSTIN DE** (1783-1824). A revolutionary leader and emperor of Mexico. Unsuccessful in his efforts for an independent monarchy under the rule of a Spanish Bourbon, he was himself emperor from 1822-1823, and crowned with the title of Augustin I. (July 21, 1822). Exiled, he went to Europe. Returning to Mexico (1824), in the false belief that a hearty welcome awaited him, Iturbide was arrested, condemned as a traitor, and shot at Padilla.

IVAN III., THE GREAT (1440-1505). King of Russia and the founder of the present monarchy. He was the son and successor of Vasili the Blind, and came to the throne in 1462. His achievements were: the consolidation of the Russian Empire; the expulsion of the Tatars; the union with the Byzantine Empire by his marriage with Sophia Palaeologus, niece of the last emperor. In 1481 he defeated the Tatars and began the release from the chain which had bound Russia for two centuries and a half. He opened diplomatic relations with other European countries by the exchange of envoys. He was succeeded by his son, Vasili or Basil.

IVAN IV., THE TERRIBLE (1531-1584). Czar of Russia; was king after 1533, but did not really begin to rule until 1543. He began his reign with many notable improvements, and in the course of about 10 years completely destroyed the Tatar power. The imprisonment of the councilors, Silvester and Adatcheff, led to an uprising in favor of these men. It was 1572 before the country was restored to order, and during this time the punishments inflicted by Ivan justly won him the sobriquet, "The Terrible." In 1582 Ivan was defeated by the Poles, lost Polotsk and his conquests on the Baltic, and completed the conquest of Siberia. His acts of cruelty are unsurpassed in history, though they were often committed during fits of passion, which he afterwards regretted.

JACOBINS. Name given to the members of a political party which appeared in France during the Revolution. The policy of the Jacobins was at first moderate, but during the Revolution it became decidedly extreme, and the party became one of the most important influences in the country. Among its members were Marat, Danton, and Pétion. The club ended (1794) with the fall of Robespierre, its most influential supporter.

JACOBITES (from the Latin *Jacobus*, "James"). The name given after 1688 to the supporters of the exiled Stuarts. James II. was forced from the English throne in 1688, and his death occurred (1701), before any serious steps were taken to restore him. His son, James III., the "Old Pretender," then assumed his father's claims and, after the rebellion in Scotland and in the north of England (1715), went to England, but was sent back to France. In the rebellion of 1745, Charles, the "Young Pretender," son of James III., was at first successful. But with his overthrow at Culloden (1746), the cause of the Stuarts was gradually given up.

JAMES I. OF ENGLAND AND VI. OF SCOTLAND (1566-1625). Son of Mary, Queen of Scots, and Darnley; born in Edinburgh Castle. During his minority Moray and Morton were the chief regents. He ruled alone after 1581. In 1603 James succeeded to the crown of England and Ireland. His wish to rule absolutely, and to tolerate the Roman Catholics, soon brought him in opposition to the House of Commons. In 1619 James's son-in-law was made king of Bohemia as Frederick V. In the Thirty Years' War which followed, James refused to aid Frederick and the Protestants on the continent. Hoping now to restore

Frederick to the palatinate by diplomatic means, he made every effort to bring about a marriage between the Infanta of Spain and Prince Charles. In this he failed, the outcome of his efforts being war with Spain. James was one of the most learned men of his time.

JAMES II. (1633-1701). King of England (1685-1688). Son of Charles I. He was duke of York and Albany, and succeeded his brother, Charles II. Suppressed the rebellion raised by the duke of Monmouth, James's son, and caused his execution. The Bloody Assizes, presided over by the infamous judge, Jeffreys, followed, in which 320 persons were hanged. The Declaration of Indulgence, allowing freedom of worship, was issued in 1687, and was followed by a second in 1688. The clergy disobeyed the command to read the second in churches, and seven bishops entered a protest. James committed them to the Tower, but the court acquitted them. William, prince of Orange, was sent for by leading men to come and take the throne, which he did. James fled after the Battle of the Boyne (1690) and lived in France.

JIMMU TENNO. The first ruler of Japan; said to have held the throne from 660 to 581 B. C. He is the reputed founder of the present line of rulers. The Japanese reckon from the era of Jimmu, who is said to have lived 137 years.

JOHN, surnamed LACKLAND (1167-1216). English king (1199-1216). Hated by the nobles, they and France supported Arthur, his nephew, as rightful heir to the throne. War ensued, England losing Normandy, Touraine, Maine, Anjou, and Poitou. Deposed by the pope (1212); submitted to the pope (1213); defeated at Bouvines (1214); forced by barons to sign the Magna Charta (1215).

JOHN I., ZIMISCES (925-976). Byzantine emperor (969-976); appointed by his uncle, Nicephorus Phocas, as military governor; waged successful war against Saracens; murdered his uncle and mounted the throne. Defeated the Russians, Saracens, and Bulgarians. Supposed to have been poisoned.

JOHN II., THE GOOD (1319-1364). King of France (1350-1364); defeated at Poitiers, captured and taken to London; released under Treaty of Bretigny (1360). When his son, the duke of Anjou, broke his parole, and left England, John voluntarily surrendered; died in London (1364).

JOHN III. or JOHN SOBIESKI (1624?-1696). King of Poland; was youngest son of James Sobieski, governor of Cracow. In 1665 he was made grand marshal and general of the Polish armies. He retook several cities from the rebellious Cossacks. In 1673 he gained the memorable battle of Khotin, near the Dniester, in which the Turks lost 28,000 men. On the death of Michael in the same year he was elected king of Poland, and shortly afterward compelled the Turks to sue for peace. He died in Warsaw.

JOHN VI., PALAEOLOGUS (1332-1391). Emperor of Constantinople (1341-1391). Son and successor of Andronicus III. During his reign the Turks made great advances, took Adrianople, and tribute was paid to them in 1370.

JOHN VII., PALAEOLOGUS (1390-1448). Son and successor of Manuel II. Byzantine emperor (1425-1448). Being hard pressed by the Turks, he induced the popes to assist him against them on promise of a union of the Greek and Western churches. He attended the Council of Florence in 1439, where the union was brought about. The Greeks refused to sanction the union, yet the West sent assistance against the Turks, which was not effective. John was succeeded by his brother, Constantine XI.

JOLY DE LOTBINIERE, HON. SIR HENRI GUSTAVE (1829-1908). Born in France; studied law in Canada; called to Quebec bar (1855); queen's counsel (1878); returned to House of Commons and Provincial Assembly (1867-1874); remained in the local assembly leading the opposition; premier (1878); resigned (1879), and until 1883 again led opposition. Retired on disapproval of Liberal course on Riel question; returned to Parliament (1896). Controller of inland revenue (1896); lieutenant governor of British Columbia (1900-1906). Is Honorary D.C.L., LL.D., and Knight of St. Michael and St. George. Twice declined seat in Senate. Much interested in agriculture, horticulture, and forestry. In 1888 was authorized to add De Lotbinière (his mother's name) to that of Joly.

JONES, ANSON (1798-1858). A president of the republic of Texas; born at Great Barrington, Mass. He settled as a physician in Texas in 1833; member of the second Texan Congress (1834); minister to the United States (1835); secretary of state by Houston (1841); elected president (1844); turned over the government to J. Pinckney Henderson, the first governor under the Constitution of the United States (1846).

JOSEPH I. (1678-1711). Holy Roman emperor (1705-1711); born at Vienna; became king of Hungary (1687) and king of the Romans (1690). With the aid of Holland, Savoy, and England, a successful war was carried on against Louis XIV. The duke of Marlborough and Prince Eugène led the allied forces.

JOSEPH II. (1741-1790). Holy Roman emperor (1765-1790). In 1772 he signed, together with the sovereigns of Prussia and Russia, a treaty by which Poland was divided among them, and in 1780, at his mother's death, inherited the Austrian throne. Established religious toleration; abolished feudal serfdom.

JOSEPHINE (1763-1814). French empress; married the Vicomte de Beauharnais, who was executed during the Reign of Terror (1794). Two years later she married Napoleon I., but the union was dissolved (1809) that Napoleon might marry Maria Louisa of Austria, a step taken to further the emperor's political ambitions.

JUAREZ (*hoo-ah'reth*), **BENITO PABLO** (1806-1872). President of Mexico; born in Oajaca; was governor of the state of Oajaca (1847-1852); secretary of the interior and chief justice (1857); president (1858). A civil war, which completely exhausted the treasury, at once broke out. In 1861 the president's suspension of payment of public debts led to an expedition against Mexico in which England, France, and Spain took part. The result was that Maximilian, of Austria, became emperor of Mexico. Maximilian was shot (1867); Juarez then regained and held the presidency until his death.

JUGURTHA (? -104 B. C.). King of Numidia in Africa. He tried to enlarge his kingdom by attacking his cousin, Adherbal, against the advice of Rome, which was then friendly to him. He attacked Adherbal in Cirta (112 B. C.) and put to death a number of his Roman followers. Rome declared war, but by bribery he baffled the Romans for some years. The consul, Caecilius Aemilius, whom he could not bribe, defeated him in 109 and 108 B. C. Marius followed up the wars and Jugurtha was given up to the Romans (106 B. C.). He was imprisoned for two years in Africa; exhibited a captive in Rome at the triumph of Marius (104 B. C.); thrown into a dungeon and starved to death.

JULIAN THE APOSTATE or CLAUDIUS JULIANUS (331-363). Roman emperor (361-363). Renounced Christianity.

JUSTINIAN I. (FLAVIUS ANICIUS JUSTINIANUS (483-565). Emperor of the Byzantine or Eastern Roman empire (527-565). Justin I., his uncle, took him to Constantinople and educated him and rapidly advanced him until in 527 he made him colleague as emperor. A few months after, Justin I. died and Justinian occupied the throne alone. His reign was the most brilliant in the history of the Byzantine Empire. Belisarius and Narses, as the generals, did much to make it so. He conquered the Vandals in Africa; drove the Goths out of Italy; withstood the Persians; and survived the attacks of the Huns on the north. He built extensively, especially the church of St. Sophia, and made a great name through the compilation of laws known as the Code of Justinian and which were published under the name of the Pandects in 534. These were followed by the Institutes of Justinian.

KELLOGG, FRANK B. (1856), eminent lawyer and diplomatist, acted as special counsel in suits against various trusts, winning notable decisions. Senator from Minnesota, 1917-1923; minister to England, and Secretary of State under Coolidge from March 4, 1925.

KING, RUFUS (1755-1827). American politician; born at Scarborough, Me.; was graduated at Harvard (1777); was member of the Confederation Congress (1784-1787), of the Constitutional Convention (1787), and of the United States Senate from New York (1789-1796, 1813-1825) as a Federalist; served as minister to Great Britain (1796-1803, 1825-1826); was a candidate for the vice-presidency (1804 and 1808), and for the presidency (1816).

KING, WILLIAM RUFUS (1786-1853). American statesman; born in Sampson County, N. C.; was a member of the North Carolina House of Commons (1808-1809) and Democratic representative in Congress (1811-1816); removed to Alabama (1818); was United

States senator from that state (1819-1844); minister to France (1844-1846); again senator (1846-1853); elected vice-president on the ticket with Pierce (1852).

KIRKWOOD, SAMUEL JORDAN (1813-1894). An American political leader and Cabinet officer; born in Harford County, Md., and settled in Iowa in 1855. State senator (1856); governor of Iowa (1859 and 1861); an efficient "war governor"; United States senator to succeed James Harlan (1866); third time governor of Iowa (1875); United States senator (1877-1881); secretary of the interior under Garfield (1881-1882).

KITCHEN CABINET. A name given to a small group of men who, without offices, were thought to have undue influence over President Jackson in affairs of administration. The most prominent were: Major William B. Lewis, Isaac Hill, Amos Kendall, Duff Green, and Francis P. Blair, Sr.

KOSSUTH (*kosh'oot*), **LOUIS** (1802-1894). Hungarian patriot and statesman; born in Monok, County Zemplin; entered the Diet (1874); became minister of finance (1848) and virtual dictator during the insurrection of 1848-1849; took refuge in Turkey, but visited the United States (1851-1852), where, although enthusiastically received, he failed to accomplish his purpose—to induce the American republic to aid his countrymen.

KRUGER (*kroo'ger*), **STEPHANUS JOHANNES PAULUS** (1825-1904). A Boer statesman familiarly known as "Oom Paul"; born near Colesberg, Cape Colony. Took part in several military excursions, and in 1883 was made president of the Transvaal. He was re-elected in 1888, 1893, and 1898. In the Jameson raid (1895), the leader and his associates were captured and eventually given over to Great Britain for trial. This angered the radical Boer element, and the embittered relationship between the Boers and the British soon afterward led to the Boer War (1899). The Transvaal, which had been put into splendid defensive shape in anticipation of such a struggle, stood out longer than it otherwise could have done. With the fall of Pretoria, Kruger left for Europe, finally taking up his residence in Holland.

KUBLAI KHAN (*koo-bli kahn*) (1216-1294). Emperor of China; founder of the twenty-third Chinese dynasty; became grand khan of the Mongols (1259) and in 1260 he was invited by Si Tsong to aid in the expulsion of the Kin Tatar dynasty. In response Kublai invaded China, subdued the northern portion of the country, and established his capital at Kambalu. Completed the conquest of southern China (1279), thus becoming master of the whole kingdom. He was a patron of literature and encouraged industry, agriculture, and commerce. He invited the pope to send Christian missionaries to China, but this was not done. Marco Polo spent 17 years at Kublai's court.

KU-KLUX KLAN. A secret political organization in the southern United States from 1866 to 1872. It became a band for whipping, banishing, and murdering negroes and "Northern men." In President Grant's message of March 23, 1871, he called attention to the lawlessness, and Congress passed the Enforcement Act or Ku-Klux Act or Force Bill, April 20, 1871. This gave great power to the authorities to prosecute such cases and the organization died out.

KWANGSU (1872-1908). Emperor of China (1875-1908). Son of Prince Chun. Kwangsu was placed upon the throne by his aunt (1875), who forced his marriage with her niece to strengthen her power; he had little active part in actual government, virtually made prisoner in his palace (1898).

LA BARRE, ANTOINE JOSEPH LEFEVRE DE (about 1625-1688). French colonial governor of Canada (1682-1685), successor of Frontenac. Failed in an attack on the Senecas and through incompetency concluded an unsatisfactory treaty with the Iroquois. Louis XIV. recalled him.

LABOUCHERE (*lah-boo-share'*), **HENRY DUPRE** (1831-1912). English politician and journalist; born in London. Was in diplomatic service (1854-1864), part of which time he served in the United States at Washington. In Parliament for Windsor (1865-1866), and for Middlesex (1867-1868). Labouchere was an advocate of the Irish Home Rule policy, and sympathized with the Boers during the war in the Transvaal. He established the London *Truth* (1876).

LA FOLLETTE, ROBERT MARION (1855–1925). American politician; born in Primrose, Wis. Member of Congress (1887-1891); took a prominent part in framing the McKinley Tariff Bill; leader of the young Republican element known as "Half-Breeds"; defeated the "Stalwarts" or machine politicians, being elected governor of Wisconsin (1900); re-elected in 1902; United States senator (1905).

LAIRD, DAVID (1833-1914). Canadian statesman; born in New Glasgow, P. E. I. Delegate to Ottawa to negotiate the admission of Prince Edward Island into the Dominion of Canada (1872); member of Dominion Parliament (1872-1876); minister of the interior (1873-1876); lieutenant governor of the Northwest Territories (1876).

LAMONT, DANIEL SCOTT (1851-1905). American politician; born in Cortlandville, N. Y. Private secretary to Grover Cleveland when governor of New York and when president; secretary of war in Cleveland's second Cabinet (1893-1897); vice-president of the Northern Pacific railway (1897).

LANGEVIN, SIR HECTOR LOUIS (1826-1906). French-Canadian politician; born in Quebec. Solicitor general in the Taché-Macdonald administration (1864); postmaster general (1866); prominent in bringing about confederation; first secretary of state for the Dominion (1867); postmaster general and, later, minister of public works.

LANSDOWNE, HENRY CHARLES KEITH PETTY-FITZMAURICE, MARQUIS OF (1845-). An English statesman and governor general of Canada (1883-1888). During his rule the Canadian Pacific railway was completed, fisheries dispute settled, and Riel's rebellion suppressed. From Canada he went to India as viceroy and governor general (1888-1893); secretary of war in Salisbury's Cabinet (1895); secretary of state for foreign affairs (1900).

LAURENS, HENRY (1724-1792). American statesman; born in South Carolina. Was sent on a mission to The Hague (1779), and while en route was captured by the English and kept a prisoner in the Tower of London for 15 months. Concluded with Adams, Jay, and Franklin the preliminary treaty at Paris (1782).

LAURIER, THE RIGHT HON. SIR WILFRID (1841-1919). Canadian statesman; born at St. Lin, Quebec. He studied law at McGill University, taking B.C.L. in 1864, and was that year called to the bar; made queen's counsel (1880); member of Royal Commission revising code of civil procedure of province of Quebec; entered the Quebec Legislature (1871), and the Dominion House of Commons (1874); was a member of the Mackenzie ministry in 1877, and in 1891, on the retirement of Blake, he became leader of the Liberal party. Laurier became prime minister (1896), and his government was sustained in 1900, in 1904, and again in 1908; defeated in 1912. He is the first man of French blood to be prime minister.

LAW, ANDREW BONAR (1858-1923). English statesman; born in New Brunswick; an iron merchant of Glasgow, Scotland; parliamentary secretary of board of trade (1902-1906); Unionist member of Parliament from Blackfriars division of Glasgow (1900-1906); member from Dulwich (1906-1910); leader of the Unionists in the Commons (1912-1923), succeeding Balfour. Prime minister 1922. Resigned same 1922.

LAWRENCE, ABBOTT (1792-1855). American diplomat; born at Groton, Mass.; member of Congress (1839-1840, 1843-1847); commissioner in Webster-Ashburton treaty; minister to England (1849-1852); endowed the Lawrence Scientific School at Harvard (1847), giving in all $100,000.

LEDRU-ROLLIN, ALEXANDRE AUGUSTE (1807-1874). French statesman; born at Fontenay. Deputy (1841); revolutionary leader (1848); minister of interior (1848); fled to England, protesting against Louis Napoleon (1849); returned (1870); member of Versailles Assembly (1874).

LEONIDAS. A king of Sparta. Son of Anaxandrides. He came to the throne in 491 B. C. When, in 480 B. C., the Persians under Xerxes marched towards Athens with an enormous force, Leonidas was sent with a small force of 300 Spartans and a small auxiliary force to hold the Persians in check until the national games then in progress were completed. The Spartans were successful until a Malian, named Ephialtes, showed the Persians a secret path that the Spartans had neglected to fortify. The Persians marched around and in the battle that ensued the Spartans died to a man.

LEOPOLD II. (1835-1909). King of the Belgians (1865-1909). He brought about the organization of the African International Association (1876), and paid out of his own resources a large portion of the expenses for Stanley's exploration of the Congo. In 1885 the Berlin Conference gave him the sovereignty of the Congo

Free State. Leopold was very wealthy, and one of Europe's most energetic business men.

LEWIS, CAPT. MERIWEATHER (1774-1809), secretary to Pres. Jefferson, was appointed to lead the Northwest expedition from May, 1804, to Nov., 1806. Later granted 1500 acres of land and was governor of Louisiana. Journals of the Lewis and Clark Expedition were published in 1903-05.

LI HUNG CHANG (1823-1901). Chinese statesman; born in Lu-chow, Ngan-hwei. He was a friend to Western civilization and culture. With the help of Gordon he put down the Taiping rebellion (1864). He became governor of the Kiang provinces (1864), and from 1870 to 1895 was viceroy of the province of Chi-li. The foreign policy of China during this period was under Li's control. He reorganized the army, was obliged to bear the burden of defeat in the war with Japan, and afterward negotiated the treaty of peace. In 1896 he began a tour of the world, was everywhere enthusiastically received, and on his return was soon reinstated in his former government position.

LILIUOKALANI (1838-1917). Queen of the Hawaiian Islands. She succeeded to the throne in 1891. Her husband, John O. Dominis, who was an American, influenced her in favor of American interests. But he died soon after she became queen, and Liliuokalani attempted to substitute a reactionary constitution for the liberal one of 1887. At this the white population revolted under Sanford B. Dole, established a provisional government, and applied for annexation to the United States. This was not brought about until 1898, and in the meantime Liliuokalani, who had been unsuccessful in pleading her cause in the United States, retired to Honolulu.

LIVINGSTON, EDWARD (1764-1836). An eminent American statesman and jurist; born at Clermont, N. Y. Member of Congress (1795-1801); mayor of New York (1801-1803); member of Congress for Louisiana (1823-1829); secretary of state under Jackson (1831); minister to France (1833).

LIVINGSTON, ROBERT R. (1746-1813). American statesman; born in New York; was graduated at Columbia College (1765); became a member of the Continental Congress, and was member of the committee appointed to draw up the Declaration of Independence; was chancellor of New York from the time of the adoption of the Constitution until 1801, and was made secretary of foreign affairs in 1781. He used his influence to secure the ratification of the Federal Constitution in New York, and in 1801 was appointed minister to France.

LODGE, HENRY CABOT (1850-1924). American statesman, orator, and writer; born in Boston, Mass. Member of Massachusetts Legislature (1880-1881); delegate to Republican National Conventions (1884, 1888, 1892, 1896, 1900); placed Thomas B. Reed in nomination for the presidency (1896); permanent chairman (1900); chairman of committee on resolutions (1904); member of Alaskan Boundary Commission; member of Congress for Sixth Massachusetts district (1887-1893); United States senator since 1893, his term was to expire in 1927. U. S. Immigration commissioner (1907); at one time editor of *North American Review*, and of *International Review*; lecturer on American History at Harvard and at Lowell Institute; author of many historical works. Noted for his insistence upon laws to safeguard the franchise, and upon the necessity for the restriction of immigration.

LONG, JOHN DAVIS (1838-1915). American politician; born in Buckfield, Maine. Governor of Massachusetts (1880-1882); member of Congress (1883-1889); secretary of the navy under McKinley in 1897 and during the Spanish-American War. His administration was exceedingly able during this difficult period.

LOUBET (*loo-bay'*), **EMILE** (1838-). French statesman; seventh president of the French Republic; born at Marsanne. In 1876 he was elected to the Chamber of Deputies; re-elected to the Lower House (1877 and 1881), and was chosen senator (1885). In 1887 he became minister of public works in the Cabinet of M. Tirard, and in 1892 President Carnot appointed him premier to succeed M. de Freycinet. Though short, his administration was marked by the successful solution of several important problems. He resigned in the latter part of the same year; was elected president of the Senate (1896 and again in 1898), and on the death of President Felix Faure (1899) was chosen president.

LOUIS I., LE DEBONNAIRE (778-840). Roman emperor and king of the Franks (814-840); youngest son of Charlemagne. In 817 he divided his empire among his three sons, but, when in 829 he proposed a redivision in favor of his fourth son born in 823, the elder sons revolted and deposed him. On the death of Pipin (838), Louis redivided the empire between Lothair and Charles.

LOUIS VI., LE GROS (THE FAT) (about 1080-1137). King of France (1108-1137). The son and successor of Philip I. He did much in defense of the church; enriched and enlarged his empire by the acquisition of all possible territory. He was engaged in war with Henry I. of England.

LOUIS VII., LE JEUNE (THE YOUNG) (about 1120-1180). King of France (1137-1180). The son and successor of Louis VI. In 1147 he went on the Second Crusade with his wife, Eleanor of Aquitaine. Her conduct there caused him to get a divorce from her. She soon after married Henry II. of England, bringing him the dowry of Aquitaine and making him more powerful than Louis himself in France. In consequence a war broke out in 1152 between these monarchs and lasted until 1160.

LOUIS IX. or SAINT LOUIS (1215-1270). King of France (1226-1270). The son and successor of Louis VIII. His mother, Blanche of Castile, was regent during his minority. In 1242 he became involved in a war with Henry III. of England and defeated him in two battles. During an illness he vowed to go on a crusade if he recovered. Accordingly in 1248 he sailed with 40,000 men on the Seventh Crusade. He was defeated and captured by the Mohammedans and ransomed with 6,000 followers. He returned in 1252 on account of the death of his mother. He embarked on another crusade in 1270, and while in the East a pestilence attacked the camp and carried off the greater part of the army and the king himself. His son, Philip III., made peace and returned to France. Louis was the most distinguished monarch of his time.

LOUIS X., LE HUTIN (THE QUARRELER) (1289-1316). King of France (1314-1316). Son and successor of Philip IV. During his short reign the government was in the hands of ministers. On his death there was no male heir of the Capetian line, so the throne went to Louis' brother, Philip V.

LOUIS XI. (1423-1483). King of France (1461-1483). Son and successor of Charles VII. He made several unsuccessful attempts to procure the throne from his father and was obliged to flee to Philip the Good of Burgundy until his father's death in 1461, when he became king. He directed all of his efforts towards cutting down the power of the feudal lords and enlarging his empire. He worked by the most unscrupulous strategy rather than by force of arms. He did much to encourage literature, commerce, and manufacturing.

LOUIS XII. (1462-1515). King of France (1498-1515). Son of Charles, duke of Orleans, and successor of Charles VIII. His reign was marked by mildness and wisdom so that the king was called the "Father of the People." In 1499 he laid claim to the kingdom of Milan, and overthrew Ludovico Sforza and took the city. In 1500 he formed the Treaty of Granada with Ferdinand by which the conquest and division of Naples were agreed upon. These monarchs quarreled over the division, and in 1503 the French were driven out of southern Italy. In 1508 Louis joined the pope, Ferdinand, and the emperor Maximilian, in the League of Cambrai against Venice. In 1509 Louis gained the battle of Agnadello and crushed Venice. In 1511 the pope, Venice, Ferdinand, and Henry VIII. of England formed the Holy League against France, which was driven out of Italy in 1512. In 1513 England gained the battle of the Spurs. Louis was succeeded by his son-in-law, Francis I. of Angoulême.

LOUIS XIV., THE GREAT (1638-1715). King of France (1643-1715); born at Saint-Germain-en-Laye; son of Louis XIII. and Anne of Austria. The queen was nominally regent, but affairs were really controlled by Mazarin, the prime minister. In 1660 Louis was married to Maria Theresa of Spain and, on the death of Mazarin (1661), decided to be his own prime minister. He at once brought about him a group of advisers of exceptional ability, restored the finances, and encouraged industries. For 54 years he ruled France with great decision and energy. The wars engaged in brought France much glory, but also completely exhausted her exchequer. At home Louis ruled absolutely. He revoked the Edict of Nantes, and decreed that all children should be educated in the Roman Catholic faith. The later years of Louis's life were occupied with the War of the Spanish Succession.

His reign was identified with the zenith of French power, producing Retz and Saint-Simon in history; Pascal in philosophy; Rochefoucauld and Bruyere in morals; Bossuet in oratory, and La Fontaine and Boileau in poetry.

LOUIS XV. (1710-1774). King of France (1715-1774); supported father-in-law in claim on Polish crown (1733); aided in War of Austrian Succession (1745); squandered money on Madame de Pompadour; abolished parliament; banished its members; formed a new ministry. His dissolute life paved the way for the Revolution.

LOUIS XVI. (1754-1793). Born at Versailles; king of France (1774-1792); incompetent ruler; finances in chaos; reforms irritated nobles and people; conditions became intolerable and October, 1789, a Parisian mob marched upon Versailles and conducted the royal family to Paris. The queen (Marie Antoinette) advised the unwise flight to Varennes, confirming rumors of negotiations with foreign powers. The Tuileries stormed (Aug. 10, 1792); the royal family sent prisoners to the Temple; Louis XVI. condemned to death, and died under the guillotine (January 21).

LOUISA (1776-1810). Queen of Prussia; born in Hanover. In 1793 she was married to the crown prince of Prussia (later Frederick William III.). As a queen she was very popular, her dignified conduct and beauty winning those with whom she came in contact. The Order of Luise in Prussia was founded in honor of her memory. She was the mother of Frederick William IV. and William I., afterwards emperor of Germany.

LOUIS PHILIPPE (1773-1850). King of France (1830-1848); eldest son of Philippe, duke of Orléans; born in Paris; entered the National Guard on the outbreak of the Revolution; distinguished himself at Jemappes (November, 1792); but after the battle of Neerwinden was obliged to seek refuge in Switzerland. Traveled in the United States (1796-1800), and in 1809 married Marie Amélie, daughter of Ferdinand I. of the two Sicilies. When the revolution of July, 1830, overthrew Charles X., he accepted the offer of the crown. The corruption of the electoral system, the foreign policy of Louis, together with his attempts to suppress freedom of the press, aroused great dissatisfaction among all classes of people. On February 22, 1848, disturbances occurred in the streets of Paris, and the king, seeing that he would not receive the support of the National Guard, abdicated in favor of his grandson (February 24). The remainder of his life was spent in England.

LYCURGUS. A Spartan lawgiver who lived in the ninth century B. C. and was the son of Eunomus. He introduced a constitution and established a new social order in Sparta inuring the people to hardships and developing a nation of warriors (884 B. C.). He exacted a promise from the people not to change any of his laws until his return from a pretended visit, then went away from Sparta forever. His institutions were abandoned by the Spartans in 188 B. C.

MACBETH (? -1057). King of Scotland. He revolted against Duncan, king of Scotland, in 1040, and murdered him near Elgin. He then ruled until 1057, when he was defeated by Malcolm, Duncan's son, and slain at Lumphanan.

McCULLOCH, HUGH (1808-1895). An American financier; born at Kennebunkport, Me.; removed to Fort Wayne, Ind., and became manager of a branch of the State Bank (1845); president of the State Bank (1862); comptroller of the currency (1863); succeeded Fessenden as secretary of the treasury (1865), serving until 1869, and showing exceptional ability in righting the finances of the nation after the war. On the expiration of his term, he engaged in banking in London, but accepted (1884) reappointment as secretary of the treasury, holding the office until 1885.

MACDONALD, SIR JOHN ALEXANDER (1815-1891). Canadian statesman; born in Glasgow, Scotland. The father of Canadian confederation; formed the first Canadian government (1867), becoming minister of justice and attorney general; one of the commissioners on the Alabama Claims (1871); a signer of the Washington Treaty (1871); his government was defeated in 1873; formed another government in 1878 and filled several Cabinet positions and was continuously in power until his death.

McGEE, THOMAS D'ARCY (1825-1868). Irish-Canadian politician; born in Ireland. Member of Parliament (1858-1868); twice a member of the Cabinet, and president of the Council for one term; was assassinated at Ottawa for his opposition to the Fenian movement.

MACHIAVELLI *(mak-ke-ah-vel'le)*, **NICCOLO** (1469-1527). Italian statesman and writer; born at Florence. From 1498 to 1512 he was secretary of the Florentine Republic, but was dismissed on the victory of the Medici party and imprisoned for a short time (1513). In 1519 the Medici, whose favor he had won, assigned him some minor posts. The remainder of his life, however, was devoted principally to literary work. His most noted production is *The Prince.*

MACPHERSON, SIR DAVID LEWIS (1818-1896). Canadian statesman; born in Inverness, Scotland. Member of the Legislative Council (1864-1867); Dominion senator (1867-1883); speaker (1880); minister of the interior (1883-1885); knighted in 1884.

MACKENZIE, ALEXANDER (1822-1892). Canadian statesman; born near Dunkeld, Scotland. Member of first Canadian Parliament (1867) and reform leader; forced the resignation of the Macdonald government (1873) and became the first Liberal premier. He pushed the construction of the Canadian Pacific railway and formed the first Supreme Court of the Dominion. Defeated by the Macdonald party (1878) he led the opposition for two years and retired, though a member of Parliament until his death. He declined the honor of knighthood offered by the queen.

MACKENZIE, WILLIAM LYON (1795-1861). Leader of the Upper Canada Rebellion of 1837-1838; born in Dundee, Scotland. Elected to the legislature (1828); re-elected in 1830 but his seat was refused him for alleged libel; re-elected three times and each time expelled; first mayor of Toronto (1834); elected to legislature and seated (1834). November 25, 1837, he set up a provisional government of Upper Canada and with 800 followers tried to seize the government. Sir Francis Bond Head with a force defeated them at Montgomery's Farm; Mackenzie fled to the United States, was arrested for violating the neutrality act, and imprisoned until 1840 at Rochester, N. Y. Under the amnesty he returned to Canada in 1849 and was elected to Parliament (1850-1858).

MACKINNON, HON. DONALD ALEXANDER (1863-). Educated at Prince of Wales College of Charlottetown, and at Dalhousie University of Halifax; made LL.B. Called to bar of Prince Edward Island (1887); made queen's counsel (1900); president of Law Society of P. E. I. (1901); member of House of Assembly, P. E. I. (1893); re-elected for Murray Harbor (1897); attorney general in Provincial Cabinet; member of Parliament for East Queen's, P. E. I., to House of Commons, Canada (1900-1904). Made king's counsel, and has been lieutenant governor of Prince Edward Island since 1904.

McMILLAN, HIS HONOR SIR DANIEL HUNTER (1846-). Born at Whitby, Ontario. Served with Canadian volunteers (1864); during Fenian raid (1866); Red River expedition (1870); Northwest rebellion, gaining medal (1885); returned member for Winnipeg in Manitoba legislature (1880); member of Manitoba government (1889). Created Knight Commander of St. Michael and St. George, and since 1900 lieutenant governor of Manitoba and Keewatin.

McNAB, SIR ALAN NAPIER (1798-1862). Canadian politician and soldier; born at Niagara, Ontario. At Sackett's Harbor (1813); elected to Parliament and prime minister in the governments of the earl of Elgin and Sir Edmund Head. In insurrection of 1837, ordered the *Caroline* set on fire and sent over the falls. In Legislative Council (1860).

MAHMUD *(mah-mood')* (979?-1030). Sultan of Ghazni; born in Ghazni, Afghanistan; founder of the Mohammedan Empire in India; took the reins of government (999); took possession of Khorassan (1000); and began a series of inroads into Hindustan (1001). In 1006, 1007, and 1009, Mahmud made other expeditions into Hindustan and, in the years that followed, conquered Ghur, Jurjistan, and Khwarezm. His last expedition against the Hindus took place in 1025. He was a patron of literature and the arts.

MAISONNEUVE, PAUL DE CHOMEDEY, SIEUR DE (? -1676). French governor of Canada (1641-1665). Montreal was founded in 1642; founded a religious colony in Canada; removed by De Tracy and died in obscurity.

MAITLAND, WILLIAM (1528-1573). A Scotch statesman; "Secretary Lethington"; made an extraordinary lord of session (1561); objected to the extreme measures of Knox; and participated in the plot against Rizzio. He fought against Mary's forces at Langside, and is said to have proposed a union between Mary and the duke of Norfolk. In 1569 Maitland was arrested for complicity in the Darnley murder, but later became

one of the leaders of the queen's party. This caused him to be regarded as a rebel, and he was besieged in Edinburgh Castle, finally forced to surrender, and imprisoned in Leith Castle, where he died.

MALCOLM. The name of four kings of Scotland. **MALCOLM III.**, surnamed **CANMORE** (Great Head) (1024?-1093). On the death of his father, Duncan, at the hands of Macbeth, he was aided in the fight for the throne by Siward of Northumbria. Having defeated and killed Macbeth, he was crowned at Scone (1057). In 1070 he married Margaret, sister of Edgar Atheling, a Saxon nobleman, who had found refuge at the Scottish court. He ravaged Yorkshire and Northumberland the same year, but was obliged to retreat. The greater part of his reign was spent in warfare with England.

MALESHERBES (*mahl'zairb*), **CHRETIEN GUILLAUME DE LAMOIGNON DE** (1721-1794). Distinguished French statesman; born at Paris; became counselor to the parliament of Paris (1745); president of the Court of Aids (1750); was appointed minister of the interior (1775); and served as a minister of state (1787-1788); defended Louis XVI., was arrested, found guilty of treason, and executed.

MANFRED (1232-1266). King of the two Sicilies (1258-1266); born in Sicily; excommunicated by Pope Alexander IV. (1259); overran Tuscany and was victorious in the battle of Monte Aperto (1260); excommunication renewed by Pope Urban IV., who bestowed his dominions on Charles of Anjou. A war with Charles followed, and Manfred was slain in the battle of Benevento (1266).

MANNING, DANIEL (1831-1887). American politician; born in Albany, N. Y. Prominent in Democratic circles and a large factor in Cleveland's election to governorship of New York and to the presidency; secretary of the treasury (1885-1887).

MANUEL I., COMNENUS (1120-1180). Byzantine emperor (1143-1180). The youngest son of the emperor Calo-Joannes. His reign was marked by continuous wars with Asia and Europe. In 1144 he reduced Raymond, prince of Antioch, to a state of vassalage. In 1147 the troops of Louis VII. of France and of Conrad III. of Germany marched through Manuel's dominions and came to blows with the Greeks. The German crusaders were falsely led by a guide, and, confronted by starvation, were obliged to retreat, losing nine tenths of their number. Manuel was severely defeated by the Seljuks in 1176 at Myriocephalon. He failed in his efforts to drive Frederick Barbarossa out of Italy. He was unsuccessful in his wars against the Venetians.

MANUEL II., PALAEOLOGUS (1348-1425). Byzantine emperor (1391-1425). Son and successor of John VI., with whom he had been associate ruler since 1373. He applied for aid from the Western princes against the Turks. The combined army was defeated by Bajazet at Nicopolis in 1396. In 1398 his nephew, assisted by the Turks, rebelled and Manuel was forced to make him co-emperor under the title of John VII. In 1402 Bajazet was defeated and taken prisoner by Timur in Angora and died (1403). Manuel reigned in peace then for 18 years. In 1421 Mohammed I. died and the war was renewed with his successor, Amurath II. In 1422 Constantinople was besieged and was saved by a humiliating treaty. Manuel retired in 1423 to a monastery, where he died in 1425.

MANUEL I., THE GREAT (1469-1521). King of Portugal (1495-1521) during the most splendid period of its history. He sent Vasco da Gama around the Cape; Cabral on the voyage which led to the discovery of South America; Cortereal to North America; and Almeida and Albuquerque to the East Indies.

MARCY, WILLIAM LEARNED (1786-1857). An American statesman; born at Southbridge, Mass.; was graduated at Brown University (1808), and began the practice of law at Troy, N. Y.; served in the War of 1812; was made associate of the Supreme Court of New York (1829); elected United States senator (Democrat) (1831); was governor of New York (1832-1838); made secretary of war in President Polk's Cabinet (1845); and was secretary of state (1853-1857) during the administration of President Pierce. The remark, "We can see nothing wrong in the maxim that to the victors belong the spoils," was made by him in the Senate.

MARGARET (1353-1412). Queen of Denmark, Norway, and Sweden. The daughter of Waldemar IV., king of Denmark, and wife of Haakon VI. of Norway. On the death of Waldemar without direct male heirs, the nobles, after an interregnum, offered the crown, in 1376, to Margaret and her husband in trust for their young son, Olaf. Haakon died in 1380, and Margaret was sole trustee of her son, Olaf, who died in 1387. She was then elected sovereign of both kingdoms. She nominated her grand-nephew, Eric of Pomerania, her successor. The Swedish king, Albert of Mecklenburg, had so alienated his subjects that they declared the throne vacant and offered it to Margaret. She defeated the king's German troops at Falköping in 1395. In 1397 she brought about, by the Union of Kalmar, the union of the crowns of the three Scandinavian kingdoms. In that year Eric, who was only 16, was declared king. Margaret continued to exert her great influence for good until her death in 1412.

MARGARET OF ANGOULEME (1492-1549). Queen of Navarre and authoress; daughter of Charles, duke of Orléans, and sister of Francis I. of France; widow of the duke of Alençon and wife of Henry of Navarre, whose kingdoms she ruled after his death in 1544.

MARGARET OF ANJOU (1430-1482). Wife of Henry VI. of England, daughter of René the Good of Anjou, king of Naples. She gained complete control of her weak husband, and the birth of a son to her so disappointed Richard, duke of York, in his hopes for the throne, that he precipitated the Wars of the Roses. Margaret led the Lancastrians in these wars and won the battle of Wakefield Green (1460), where the duke of York was slain. She was defeated at Towton (1461), Hexham (1464), and taken prisoner at Tewkesbury (1471). After five years of imprisonment Louis XI. paid 50,000 crowns for her release. She died in France.

MARGARET OF AUSTRIA (1480-1530). Regent of the Netherlands (1507-1530). Daughter of Maximilian I. of Austria and Mary of Burgundy. She negotiated the Peace of Cambrai (Ladies' Peace) with Louise of Savoy (1529).

MARGARET OF VALOIS (1553-1615). Queen of France, daughter of Henry II. of France and Catherine de' Medici, and wife of Henry IV.

MARIA DE' MEDICI (1573-1642). Queen of France. Second wife of Henry IV. and daughter of Francis, duke of Tuscany. As the mother of Louis XIII., she ruled as regent after Henry's assassination (1610), but was an incapable ruler. Through her influence Richelieu was made cardinal and minister of state, but when she found she could not control him she opposed him. She was imprisoned, escaped to England and Charles I., her son-in-law, was compelled to leave London (1641) and died in destitution.

MARIA LOUISA (1791-1847). Empress of the French; second wife of Napoleon I. and daughter of Emperor Francis I. of Austria.

MARIA THERESA (1717-1780). Queen of Hungary and Bohemia; archduchess of Austria; born at Vienna; married Francis Stephen (1736), duke of Lorraine (later grand duke of Tuscany). In 1740, on the death of her father, she became queen, nominating her husband joint ruler with herself, as Francis I. Her right of succession was at once disputed. (See AUSTRIAN SUCCESSION, WAR OF.) She brought about many reforms in education, abolished legal torture, and confiscated much church property. Maria Theresa was the mother of Leopold II., Joseph II., and Marie Antoinette.

MARIE ANTOINETTE (*mah-re' on-twah-net'*) (1755-1793). Wife of Louis XVI. of France; youngest daughter of Emperor Francis I. of Germany and Maria Theresa; born at Vienna; married the French dauphin (1770), who became king of France as Louis XVI. in 1774. Her girlish love of pleasure, and indifference to public opinion and public needs, made her very unpopular, and with the Diamond Necklace affair (1785) the nation lost all faith in her. In the management of both foreign and internal affairs her influence was unwisely exerted and, when the Notables met in 1787, she was accused of squandering the finances. From the outbreak of the Revolution until her death, she was the object of the mob's bitter hatred. In October, 1789, the royal family removed from Versailles to the Tuileries. Marie planned the flight of June 20, 1791, to Varennes, a move which only served to confirm the charges brought against her. At last (August 10, 1792) occurred the final storming of the Tuileries, Marie doing all in her power to induce the king to resort to arms. This he refused to do, thinking resistance useless, and both king and queen were taken to the prison of the Temple. In January, 1793, the queen had a parting interview with Louis, who had been condemned to death. Her trial occurred the following October before the revolutionary tribunal. She was sentenced to death and guillotined the same day.

MARSHALL, THOMAS RILEY (1854-1925). Governor of Indiana (1909-1913). He was born at North Manchester, Ind., and attended the common schools there; was graduated from Wabash College in 1873; admitted to the bar (1875) and practiced law in Columbia City until 1909; vice-president of the United States 1913-1921.

MARY I. (1516-1558). Queen of England; daughter of Henry VIII. and Catherine of Aragon; married Philip II. of Spain. In her efforts to restore the Catholic religion she acted always in a legal manner, first securing the consent of Parliament to all of her acts. The mass was restored in 1553, and the power of the pope reluctantly acknowledged in 1554. During her reign many persons were burned for their religious faith. Calais was lost (1558) in an effort to please her husband by engaging in war with France.

MARY II. OF ENGLAND (1662-1694). Daughter of James II. and wife of William, prince of Orange, with whom she was proclaimed joint sovereign (1689).

MARY STUART (1542-1587). Queen of Scots; born in Linlithgow Palace; only daughter of James V. and Mary of Guise. The greater part of her early life was spent in France, and in 1558 she was married to the Dauphin, who died in 1560; returned to Scotland (1561) as queen and in 1565 married Darnley, who offended her by aiding the conspiracy for Rizzio's death (1566). The growing intimacy between Bothwell and Mary resulted, after the murder of Darnley, in his marriage with the queen. The Protestants, constantly aware that Bothwell was responsible for Darnley's death, now took up arms to deliver Mary from him; taken as a prisoner to Edinburgh, she refused to be divorced from Bothwell, and (1568) escaped; at Langside her forces were defeated, and she fled to England; for more than 13 years, held a prisoner until her execution (February 8, 1587).

MAXIMILIAN I. (1459-1519). Holy Roman emperor (1493-1519); son and successor of Frederick III.; at war with Louis XI. of France over Burgundy, which Maximilian had obtained with his wife; was victorious at Guinegate (1479), but was obliged to surrender his possessions to Louis by the treaty of Arras (1482); Maximilian was elected king of the Romans (1486); the Flemings rose in rebellion and he was taken prisoner for a time (1488); joined the League of Cambrai against Venice (1508) and the Holy League against France (1513); after the great victory of Francis I. at Melegnano (1515) was forced to give up Milan. The marriage of Philip, son of Maximilian, to the Infanta Joan, daughter of Ferdinand and Isabella, placed the House of Hapsburg on the throne of Spain in the person of Charles I., afterwards Charles V. The marriage of the two grandchildren of Maximilian to the son and daughter of the king of Bohemia and Hungary brought these two countries into the hands of the House of Hapsburg.

MAXIMIL'IAN (FERDINAND MAXIMILIAN JOSEPH) (1832-1867). Archduke of Austria and emperor of Mexico; executed by the Mexicans. He was brother of Emperor Francis Joseph of Austria. While the French troops were in possession of the greater part of Mexico the throne was offered to him. On their withdrawal (1866), at the request of the United States, his support was gone and he alienated the loyalty of the people, who rebelled against him.

MAZARIN (*maz-a-ran'*), **JULES** (1602-1661). A prime minister of France; born at Piscina, in the Abruzzi, Italy. His diplomatic talents having been demonstrated, he was sent to France on a papal mission, where he made an agreement with Richelieu to further French interests in Italy. This he did, and openly entered the service of France (1639). Received a cardinal's hat (1641); succeeded Richelieu as prime minister (1642); and ruled almost as absolutely as his predecessor had done. Mazarin was avaricious, and at his country's expense acquired a fortune of $6,000,000.

MEDICI (*med'e-che*). Celebrated Florentine family which rose to prominence in the fourteenth century. The male line of the family became extinct (1737). Some of the noted members were Silvestro, Giovanni, Cosimo, Lorenzo the Magnificent, and Pietro.

MEDICI, ALESSANDRO DE' (1510-1537). First duke of Florence; natural son of Lorenzo II.; raised to the ducal dignity in 1532; a worthless ruler.

MEDICI, COSIMO DE', THE GREAT (1519-1574). First grand duke of Tuscany; raised to the ducal chair (1537), on the death of Alessandro de' Medici; was a patron of literature, science, and the arts; founded academies, made collections of paintings, statuary, etc. The title of grand duke of Tuscany was conferred upon him (1569) by Pius V.

MEDICI, LORENZO DE', THE MAGNIFICENT (1448-1492). The virtual head of the Florentine state; succeeded in winning the favor of the lower classes and thus making his own power absolute; was himself a poet of great ability; encouraged the arts and literature. Envious of the growing power of the house of De' Medici, some of the malcontents formed a conspiracy (of the Pazzi) to overthrow them (1478); the brother of Lorenzo fell, but the latter escaped. The policy of advancing only the members of his own family left Florence a prey to her enemies.

MEHEMET ALI (1769-1849). Viceroy of Egypt (1805-1849). He amassed wealth in trade and obtained a command in Egypt to oppose the French in support of the British. Though a remorseless tyrant he developed the manufacturing, agricultural, and commercial interests of Egypt.

MEN'ELEK or MENELIK II. (1843?-1913). King or negus of Abyssinia; born in Ankobar; son of Ailu Malaketh, king of Shoa; defeated the son of John, king of Tigre (1889), and was crowned (1890); brought the army to a high standard of efficiency and completely defeated the Italians at Adowa (1896), thus putting an end to Italian claims upon Abyssinian territory. Menelek is of negro blood, and is said to be a descendant of Solomon and the queen of Sheba.

MEROVINGIANS. First dynasty of Frankish kings in Gaul. The name is taken from Merovaeus, grandfather of King Clovis, who, in 486, put an end to the Roman control of Gaul. The dynasty ended with Childeric III., who was deposed (752) by Pipin the Short, the founder of the Carolingian or Carlovingian line.

METTERNICH, CLEMENS WENZEL NEPOMUK LOTHAR VON (1773-1859). Austrian statesman; ambassador at Dresden (1801); at Prussia (1803); at Paris (1806); minister foreign affairs (1809); conducted war against Napoleon; brought about Quadruple Alliance; Austrian chancellor (1821).

MEYER, GEORGE VON LENGERKE (1858-1918). Born in Boston, Mass.; in Massachusetts legislature (1892); speaker of House (1894-1906); ambassador to Italy (1900-1905); to Russia (1905-1907); postmaster general (1907); secretary of navy (1909-1913).

MICHAEL PALAEOLOGUS or MICHAEL VIII. (1234-1282). The first of the Palaeologi. He was the ruler of Nicaea and when, in 1261, his general took Constantinople from Baldwin II., Michael ruled with him as joint emperor. He caused his colleague to be dethroned and blinded. His efforts to unite the Eastern and Western churches met with no success.

MIFFLIN, THOMAS (1744-1800). An American statesman; born of Quaker parentage in Philadelphia, Penn.; was graduated at the University of Pennsylvania (1760); member of the Pennsylvania legislature (1772-1773), and served as quartermaster general of the Continental army (1775-1777); was a member of the Continental Congress (1774-1776 and 1782-1784), being president from November, 1783, to November, 1784; was involved in the "Conway Cabal"; was speaker of the Pennsylvania legislature (1785); president of the supreme executive council of Pennsylvania (1788-1790), and first governor of his native state (1790-1799).

MINTO, THE RT. HON. GILBERT JOHN, EARL OF (1845-1914). Born in England; educated at Eton College and Cambridge University. Received his B.A. degree, and entered the Scots Guards (1867); appointed captain of Roxburgh Rifles, captain in army Reserve, and colonel, with rank of brigadier general, commanding South of Scotland volunteer brigade. Was war correspondent in Carlist War (1874); assistant military secretary with Turkish army on Danube (1877); staff volunteer in Afghan campaign (1879); private secretary to Lord Roberts in South Africa (1881); wounded in Egyptian campaign (1882); military secretary of Lord Lansdowne in Canada (1883-1886), and chief of staff in Northwest rebellion, Canada (1885). Awarded Afghan and Egyptian medals; Medjidie; Khedive star; Northwest medal and clasp; defeated at Hexham, England, for member of Parliament (1886). Assumed title (1892) at death of his father, the second Earl of Minto. Governor general of Canada (1898-1904). Viceroy of India (1905-1910).

MIRABEAU (*mee-rah-bo'*), **HONORE GABRIEL DE RIQUETTI, COMTE DE** (1749-1791). A French statesman, orator, and writer; born at Bignon, near Nemours. He was imprisoned for debt, and was afterwards sentenced to death. This sentence was subsequently revoked, and Mirabeau in 1784 withdrew to London. Returning to Paris nine months later, he was

twice sent on government missions to Prussia (1785 and 1787), and vigorously attacked Necker's financial methods. In 1789 he was elected to the States-General and, from this time until his death, was one of the most important figures in the public affairs of France. He was chosen president of the Jacobin Club (1791) and shortly after elected president of the National Assembly. He was one of the greatest French statesmen.

MITHRIDATES THE GREAT (135?-63 B. C.). King of Pontus; born at Sinope; succeeded his father as king about 120 B. C. He waged three wars against the Romans—the First, Second, and Third Mithridatic wars. Mithridates made favorable progress against the Romans until, in 66 B. C., Pompey completely defeated him. He committed suicide. He failed because it was impossible for him to raise and train an army capable of conquering the Romans.

MONTEZU'MA II. (1466-1520). Emperor of Mexico; was successful in extending his dominions southward, but when the Spaniards landed under Cortez he refused to attack them until too late to oppose their advance upon the city of Mexico. The Mexicans called upon Cuitlahuatzin to lead them against the invaders, and Montezuma was probably murdered by the Spanish, though it was said he was killed by a stone thrown by one of his own men.

MORRIS, GOUVERNEUR (1752-1816). Born at Morrisania, N. Y.; admitted to bar (1771); member Continental Congress (1777-1780); superintendent finance (1781-1785); outlined present system of coinage; minister to France (1792-1794); United States senator (1800-1803).

MORTON, JAMES DOUGLAS, EARL OF (1530-1581). Regent of Scotland; privy councilor (1561); lord high chancellor (1563); conspired against Rizzio; opposed Queen Mary's forces at Langside; regent (1572); beheaded for implication in murder of Darnley.

MOWAT, HIS HONOR THE HON. SIR OLIVER (1820-1903). Held the high office of premier of Ontario province for 24 years (1872-1896), the longest continuous term. Born in Kingston, Ont. Educated at private school; called to bar (1841), practising in Toronto as Burns, Mowat, & Vankoughnet. Created queen's counsel (1855) and bencher of Law Society. Served on commission consolidating the public general statutes of Canada and Upper Canada (1856-1859). Elected to Parliament, representing South Ontario (1856-1864). Was provincial secretary (1858); postmaster general (1863); appointed representative of Liberal party of Upper Canada; active in framing constitution of "Fathers of Confederation," and a vice chancellor of Ontario (1864); premier of Ontario (1872-1896); attorney general (1896), then retired. He may be said to have lived down all opposition. The story of his achievements is a romance of statesmanship. He was eminently a man to be trusted; 24 years of power with stainless integrity. Appointed lieutenant governor of Ontario (1897); created Knight Commander of the Most Distinguished Order of St. Michael and St. George, and Knight Grand Cross of same order.

MURAT, JOACHIM (1771-1815). Famous French cavalry leader and king of Naples (1808-1815). Served in Italy and Egypt with Napoleon (1795-1796); commanded at Marengo; governor of Paris (1804); marshal of the empire (1804); prince and grand admiral (1805); served at Austerlitz (1805), Jena (1806), Eylau and Friedland (1807). After the downfall of Napoleon he foolishly returned to Naples and with a few followers declared himself king and liberator; was taken prisoner, court-martialed, and shot.

MURRAY, JAMES STUART, EARL OF (1531?-1570). Scotch statesman; son of James V. of Scotland. When Mary was invited to become queen of Scotland, Lord James Stuart was for a few years her chief minister. Seeing that the marriage of Mary with Darnley meant Catholic supremacy, he took up arms to oppose the union, was defeated, and forced to take refuge in England (1565). In 1568 he defeated Mary's forces at Langside, near Glasgow. He met his death by assassination.

MUTSUHITO (1852-1912). Emperor of Japan (1867-1912). The first ruler of the enlightened era in Japan, he has greatly influenced the progress of the empire. In 1868, he took the oath to establish representative government, abandon worthless traditions, select officials of ability, and seek universal assistance in transforming Japan. Diplomatic relations were established with foreign nations. In 1889, he voluntarily presented the constitution.

MUZAFFAR-ED-DIN (1853-1906). Shah of Persia (1896-1906). He succeeded Nasr-ed-Din, who was assassinated. He made several reforms in the government of Persia which relieved the distress of his people. He visited Europe (1900), and again (1902).

NADIR SHAH (1688-1747). King of Persia; born near Kelat; aided Tahmasp II. in driving out the Afghans (1725-1727); deposed Tahmasp, and was proclaimed Shah (1736) on the death of Abbas III. He was beaten by the Turks (1733), but recovered (1734-1735) Georgia, Armenia, Kars, and Erivan. In 1738-1739 he captured Delhi, and carried off the Koh-i-nur diamond; subdued Bokhara and Khiva (1741).

NARSES (? -568). A general and statesman of the Byzantine emperor, Justinian. In 538 he was sent to Italy to act in concert with Belisarius against the Goths, but was recalled in 539. He was appointed to take the place of Belisarius on his recall. He defeated the Goths at Tagina in 552 and slew their king, Totila. In 553 he took possession of Rome and extinguished the Gothic power in Italy. In that year he was appointed exarch of Italy with his capital at Ravenna. His rule was marked by great avarice. He died at Rome on the eve of the Lombard invasion of Italy.

NASR-ED-DIN (1831-1896). Shah of Persia (1848-1896). Introduced many reforms and ruled well, except for his persecution of the Babis; assassinated and succeeded by his son, Muzaffar-ed-Din. Nasr made three tours of Europe (1873, 1878, and 1889).

NATALIE (1859-). Queen of Servia; daughter of a Russian officer, Kechko; married Prince Milan (afterward king of Servia) in 1875; lived unhappily and was divorced in 1888. On King Milan's abdication (1889) she lived in Belgrade with her son, Alexander. At the request of the National Assembly she withdrew in 1891, became reconciled to her husband in 1893, and on her return to Belgrade was warmly welcomed. After the assassination of her son, Alexander (1903), she was forbidden to return to Servia.

NECKER, JACQUES (1732-1804). French statesman and financier; born at Geneva; became well known for his publications on political economy and finance, and was made director general of finances (1777). His publication on the finances of France caused his dismissal (1781); recalled in 1788; dismissed in 1789; shortly recalled, but again dismissed (1790).

NERO (37-68). Roman emperor (54-68). He was the son of Agrippina, the wife of Claudius, who adopted him and made him his heir. On the murder of Claudius by Agrippina, the soldiers proclaimed Nero emperor in 54. He caused Britannicus, son of Claudius, to be poisoned, as he feared him as a rival; poisoned his own mother to please Poppaea Sabina. To marry the latter he divorced and put to death his wife, Octavia, in 62. In 61 a rebellion broke out in Britain under Boadicea, which was suppressed by Suetonius Paulinus. Rome itself was on the verge of a rebellion. In 64 two thirds of the city of Rome was consumed in a great fire which it is believed was caused by Nero. He blamed the Christians and began a persecution of them. He rebuilt the city in great magnificence, including the palace known as the Golden House. All Italy was plundered to supply the money for his extravagance. A conspiracy against him failed in 65 and Seneca and Lucian fell victims to his vengeance. He killed his wife, Poppaea Sabina, in a rage. His soldiers rose against him and he fled from Rome and ended his life by suicide in 68.

NEW, HARRY STEWART (1858-), for twenty-five years was with the *Indianapolis Journal* as reporter, editor, and publisher in turn. State Senate, 1896-1900; for twelve years member of the Republican National Committee, and chairman 1907-08. Senator from Indiana, 1917-23; then postmaster general in Cabinet of President Coolidge. Served ably in the Spanish-American War, 1898.

NICHOLAS I., PAVLOVITCH (1796-1855). Emperor of Russia; born at St. Petersburg; third son of Paul I. He married in 1817 Charlotte, the eldest daughter of Frederick William III. of Prussia, and in 1825, on the death of Alexander I., Nicholas became emperor. He revived capital punishment; codified Russian law (1827-1846); converted Poland into a Russian province, and completely Russianized the foreign element in the country. In 1828 a successful war with Turkey gave Russia more territory. Intent upon forcing his hereditary designs upon Constantinople, Nicholas involved the country in the Crimean War, during which struggle he died at St. Petersburg.

NICHOLAS II. (1868-1918). Emperor of Russia; born at St. Petersburg; eldest son of Emperor Alexander III. and Maria Feodorovna. In 1891, during the

famine, he was president of the committee of succor; held several military commands in his own country, and in 1893 the Order of the Garter was conferred upon him in England. He traveled extensively in the Russian Empire in order to become better acquainted with its problems and, on the death of his father (1894), succeeded to the throne. Although he had previously seemed to lack the qualities essential to a ruler, Nicholas now began a reign which exhibited both energy and decision. Perhaps the most noted act of the czar was the peace edict of 1895, which resulted in the peace conference at The Hague. Killed by Bolshevists, July 1918.

NORTH, FREDERICK, EIGHTH LORD NORTH AND SECOND EARL OF GUILFORD (1732-1792). English statesman; was educated at Eton and at Trinity College, Oxford. He was sent to the House of Commons for Banbury (1754); was a junior lord of the treasury (1759-1765), and chancellor of the exchequer (1767). North succeeded to the duke of Grafton as prime minister (1770) and, although he was aware that his policy in regard to the American colonies must in the end fail, he nevertheless set aside his own convictions to please the king's obstinacy. Being unable longer to continue his policies, Lord North resigned (1782); succeeded as earl of Guilford (1790).

NORTHCOTE, SIR STAFFORD HENRY, EARL OF IDDESLEIGH (1818-1887). An English statesman. Chairman of Hudson Bay Company (1869-1874) and caused the transfer to Canada of Prince Rupert's Land; member of the Joint High Commission which signed the Treaty of Washington (1871); chancellor of the exchequer in Disraeli's Cabinet (1874); first lord of the treasury in Salisbury's Cabinet (1885-1886); foreign secretary (1886).

O'CONNOR, THOMAS POWER (1848-). Irish politician, known as "Tay Pay." Member for Galway (1880); strong Parnellite; president of Irish National League of Great Britain (1883); since 1885 member for Liverpool four times. Collected great sums for Home Rule. Brilliant journalist.

ODELL, BENJAMIN B., JR. (1854-1926). An American politician; born at Newburgh, N. Y. Member of Congress (1895-1899); governor of New York (1901-1905).

ODOACER (? -493). Ruler of Italy (476-493). Served under Orestes, the father of Romulus Augustulus, the last Roman emperor. He claimed from Orestes one third of the land of Italy for his soldiers. On his refusal, Odoacer marched against Pavia, stormed the city, and put Orestes to death (476). Romulus abdicated and Odoacer ruled in his place. He took the title of king only, and gave up to Zeno, emperor of the East, the title of emperor of East and West. This is regarded as the date of the fall of the Roman Empire (476). His capital was Ravenna. He gave up one third of Italy to the soldiers. Zeno became jealous of him and sent Theodoric against him. Odoacer was beaten at the battle of Isontius (489), again at Verona. Though he gained a slight advantage at Pavia (490), he was completely defeated at Ravenna and capitulated (493). A few weeks later he was invited to a banquet and slain by the hand of Theodoric.

O'HIGGINS, BERNARDO (1776-1842). Chilean statesman and general; born in Chillan; son of Ambrosio O'Higgins; was educated at Lima and in England. In 1810 he joined the Chilean patriots and three years later succeeded Carrera as commander of the army. Carrera's jealousy led him to desert O'Higgins in the battle at Rancagua (1814), and the patriots were totally defeated by the Spanish. O'Higgins was forced to leave the country. In 1817 he returned and, after the victory at Chasabuco (February 12), was made dictator of Chile. The aristocratic party, however, disapproved of his attempts to introduce a liberal constitution, and in 823, under the followers of Carrera, they rebelled and deposed him. He spent the remainder of his life at Lima.

OLAF I., TRYGVASSON (956?-1000). First Christian king of Norway. In his early days he was one of the Vikings who were the terror of the North Sea, descending upon the coasts of England, Ireland, and France. In 995 he seized the throne of Norway. He then exerted himself in the Christianizing of his subjects. He was slain in a great naval battle with Denmark and Sweden in 1000.

OLEG (? -912). Regent for Igor, the son of Rurik, the founder of the Russian Empire (879); usurped the power; made Kiev his capital; subdued the neighboring tribes and made a successful attack upon Constantinople.

ORANGE, WILLIAM THE SILENT, PRINCE OF (1533-1584). Founder of the Dutch Republic; born at Dillenburg. He was the leader of the insurrection which resulted from the attempt of Philip II. of Spain to stamp out Protestantism and establish Catholicism in the Netherlands. He succeeded in bringing about, in 1579, the Union of Utrecht (*q. v.*). This marked the birth of the Dutch Republic, but in 1580 Philip put a price on William's head, and he was assassinated at Delft.

OSCAR I., JOSEPH FRANCOIS BERNADOTTE (1799-1859). King of Sweden and Norway; born in Paris; son of Marshal Bernadotte; married Josephine Beauharnais (1823), by whom he had five children. He became king in 1844, and began a reign noted for its justice and beneficent measures. When Oscar's health failed in 1857, his eldest son (later Charles XV.) was appointed regent.

OSCAR II. (1829-1907). King of Sweden and until 1905 king of Norway; born in Stockholm; third son of Oscar I.; succeeded his brother, Charles XV., on the throne in 1872, and proved a most successful ruler. In 1857 he married the Princess Sophie of Nassau, by whom he had four sons. Oscar attained some note as a writer, and patronized industry, science, and the arts.

OSMAN or **OTHMAN I.,** surnamed **AL-GHAZI, THE CONQUEROR** (1259-1326). The founder of the Ottoman power. His father, Ertogrul, was the chief of the Turks of Phrygia in Asia Minor. On his death in 1288, Othman was chosen to succeed him. He conquered all of the western part of Asia Minor, including Nicaea (1304), Marmora (1307), and Brusa (1326).

OTHO, MARCUS SALVIUS (32-69). Emperor of ancient Rome for three months in 69; was a companion of Nero, but in 68 he joined Galba against Nero. Being chosen emperor by the soldiers at Rome, he turned against Galba. His forces, however, were completely defeated at Bedriacum, near Cremona, and he stabbed himself.

OTHO I., THE GREAT (912-973). Founder of the Holy Roman Empire of the German nation. The eldest son of Henry the Fowler, king of Germany, and succeeded him in 936 as king of Germany. He overcame the revolutions in his kingdom and the incursions of the Huns. The latter were defeated at Lechfeld in 955 and never after renewed their raids. He took northern Italy and in 962 he was crowned by Pope John XII., and thus founded the Holy Roman Empire.

OTHO III. (980-1002). Holy Roman emperor (996-1002) The son of Otho II., who died in 983. The son was immediately crowned king of the Germans at Aix-la-Chapelle. He received the imperial crown as emperor in 996. During the minority several rebellions and intrigues against him were put down. After settling the dispute over the papacy by the election of Pope Sylvester II., Otho lived at Rome and made it the capital of the Western Empire. He tried to restore the old Roman Empire but was prevented by the opposition of the Romans. Otho withdrew to Ravenna, where he died at the age of 22.

OTHO IV. (about 1175-1218). Holy Roman emperor (1198-1214). His father, Henry the Lion, was outlawed by Frederick Barbarossa in 1180 and most of his dominions taken away. In 1197 Emperor Henry VI. died, leaving an infant son. The German princes set up Philip, duke of Swabia, while the Guelphs supported Otho as king. In 1206 Otho was apparently defeated, but Philip was assassinated in 1208 and Otho was recognized by Pope Innocent III., who crowned him emperor in 1209. In 1210 he was excommunicated for seizing some church lands. In 1211 some German princes chose Frederick II., king of Sicily and Naples, in place of Otho. After the defeat at Bouvines by Philip Augustus of France in 1214, Otho retired to his estates until his death.

OTIS, JAMES (1725-1783). American statesman; born at West Barnstable, Mass. He was brought into notice by his speech against the writs of assistance, and by the publication of several pamphlets against Parliamentary taxation; was instrumental in bringing about the Stamp Act Congress (1765) and in effecting other measures for the defense of American liberties.

OTTOMAN or **TURKISH EMPIRE.** Founded by Othman I., in 1299, in Asia Minor, and soon extended into Europe. With the capture of Constantinople, in 1453, it succeeded to the Byzantine Empire.

OXENSTIERNA, AXEL, COUNT (1583-1654). A Swedish statesman; born at Fanö, in Upland; made imperial chancellor (1611). During the Polish War (1621-1625) he was regent in everything but name and, on the death of Gustavus Adolphus (1632), be-

came director of the Swedish policy in Germany; concluded the advantageous peace of Brömsebro with Denmark (1645).

PALMA, THOMAS ESTRADA (1836-1908). Cuban statesman; born near Bayamo; in the Ten Years' War (1868-1878); conducted school at Central Valley, New York; president of new Cuban republic (1902); resigned on provisional government by the United States necessitated by insurrection.

PALMER, JOHN McCAULEY (1817-1900). Born at Eagle Creek, Ky.; elected to Illinois senate (1852); served in Union forces (1862-1866), retiring with rank of major general; governor of Illinois (1868); United States senator (1891-1897).

PALMERSTON, HENRY JOHN TEMPLE, VISCOUNT (1784-1865). Born at Broadlands; succeeded to title (1802); member House of Commons (1807); secretary of war (1809-1828); secretary of state for foreign affairs (1830-1841 and 1846-1851); home secretary (1852); prime minister (1855-1857, 1859-1865).

PAPINEAU, LOUIS JOSEPH (1789-1871). Born at Montreal. Elected to Legislative Assembly of Lower Canada (1809). As leader of French Canadian party was chosen speaker (1817-1837). Quarreled with royal governors repeatedly; Lord Dalhousie declined to accept him as speaker, but the Assembly insisted and Lord Dalhousie resigned. The Assembly under his lead transmitted to England the famous "Ninety-two Resolutions." Affairs became more critical (1835); Papineau arranged with William Lyon Mackenzie, the leader of the revolutionary party in Upper Canada, to coöperate in forcing England to make the Provincial Council elective, instead of appointive. His violent speeches produced ultimate rebellion (1837); he fled to the United States and (1839) to France, returning under general amnesty to Canada (1847). Elected to Lower House of the now united Canadian Parliament, but his influence was gone.

PARNELL, CHARLES STEWART (1846-1891). Born at Avondale, Wicklow; member of Parliament (1875); organized the Land League (1879) and fought for Home Rule. Proved charges ruined his reputation and career, causing a split in the Irish party. Deposed from the leadership of his party, but refused to submit, and led a minority until his death.

PAUNCEFOTE, LORD JULIAN (1828-1902). Minister to United States (1889); first "ambassador" (1893); arbitrated Venezuelan, Bering Sea, and other difficulties between England and United States; abrogated Clayton-Bulwer Treaty; party to Hay-Pauncefote Treaty; delegate to Hague Conference (1899).

PEDRO I. (DOM ANTONIO PEDRO DE ALCANTARA BOURBON) (1798-1834). Regent of Brazil (1821); supported Independents; recognized by Portugal; emperor (1825-1831). Abdicated in favor of his son, Pedro II.; proclaimed king of Portugal (1826), but transferred throne to daughter, Donna Maria.

PEDRO II. (DOM PEDRO DE ALCANTARA) (1825-1891). Emperor of Brazil (1831-1889). Crowned (1841), his reign marked by rebellions and insurrections. Opened the Amazon to international trade (1867); abolished slavery (1888); forced to abdicate by a revolution (1889).

PEEL, SIR ROBERT (1788-1850). English statesman; Irish secretary (1812-1818); home secretary (1822-1827) and again under Wellington (1828-1830); introduced the Catholic Emancipation Bill (1829); prime minister (1834-1835) and again (1841-1846); repealed the corn laws (1846). Gladstone and Disraeli began their careers under his direction.

PELLETIER, SIR CHARLES ALPHONSE PANTALEON (1837-1911). Educated at Ste. Anne de la Pocatière College and Laval University. B.C.L. degree (1858); called to bar (1860); queen's counsel (1879); batonnier of Quebec Bar (1892); twice president of Society of St. Jean Baptiste; represented Kamouraska in House of Commons (1869-1877); Quebec East in Quebec Assembly (1873-1874); privy councilor of Canada (1877); senator (1877-1905); speaker of the Canadian Senate (1896-1901); judge Superior Court province of Quebec (1905-1908); decorated Companion of St. Michael and St. George (1878); Knight (1898). Resigned as judge; lieutenant governor of the province of Quebec (1908-1911). He was for many years an officer in the Canadian militia and served in the Northwest rebellion.

PEPIN. See PIPIN.

PERICLES. The greatest statesman of ancient Greece (? -429 B. C.). His father, Xanthippus, conquered the Persians at Mycale in 479 B. C. Pericles championed the democratic party of Athens and made it supreme during what is known as the "Age of Pericles" (465-429 B.C.), the most brilliant epoch in Athenian history, not only in its political power, its trade and commerce, but in art and literature. He was the foremost orator, statesman, and general of his time. He introduced many reforms, carried Athens safely through several wars, formed the Confederacy of Delos, restored the buildings of Athens destroyed by the Persians, made Athens the most beautiful city in the world, and erected the Parthenon. After the defeat of the Peloponnesian War and the outbreak of a plague, the fame of Pericles waned. He was deposed from office, fined, and imprisoned. Though restored, he died soon after from a lingering disease.

PETER I., THE GREAT (1672-1725). Czar of Russia; founder of the modern Russian monarchy; born at Moscow; crowned joint emperor with Ivan (1682), under the regency of Princess Sophia; became sole ruler (1689); went to war with Turkey (1695); and in 1696 conquered Azov; in 1697 traveled in western Europe to acquire the knowledge necessary for developing his empire; founded St. Petersburg (1703), renamed Petrograd (1914). Russia, Denmark, and Poland united in war against Charles XII. of Sweden (1699), in which the latter was victorious till 1709, when Peter defeated him at Pultowa; the Russians conquered Finland (1713); Peter assumed title of Emperor of all the Russias (1721), when peace was concluded with Sweden; was the first to introduce into his country the reforms of other European nations.

PHILIP I. (about 1052-1108). King of France (1060-1108). Eldest son of Henry I. His mother and Baldwin V. of Flanders were regents during his minority. He increased his empire, but aroused the anger of the pope by putting aside his wife. He was excommunicated at the Council of Clermont in 1095. He was released from the ban in 1105.

PHILIP II. or PHILIP AUGUSTUS (1165-1223). King of France (1180-1223). The son and successor of Louis VII. and one of the greatest monarchs of the Capetian dynasty. In 1181 he despoiled the count of Flanders of two rich districts. In 1182 he drove the Jews out of his territories and confiscated their wealth. In 1187 he helped the English in their attack on Languedoc. In 1190 he went to the Third Crusade with Richard Coeur de Lion of England, but quarreled and returned home. He promised Richard to respect his lands; but at once on his return entered into a conspiracy with John of England to divide up Richard's possessions in France. Richard's return caused a war which was carried on against John after the death of Richard in 1199 and much of his land was lost to France. In 1214 Philip defeated the allied Germans, English, and Flemish at Bouvines. He improved and built in the large cities, and gave the first charter to the University of Paris. France obtained a commanding position in Europe in this reign.

PHILIP III., LE HARDI or THE BOLD (1245-1285). King of France (1270-1285). Son and successor of Louis IX. He had his father's piety but not his ability. His reign is unimportant except for the rise of the lawyers as a class of royal advisers.

PHILIP IV., THE FAIR (1268-1314). King of France (1285-1314). Son and successor of Philip III. The most prominent event of the reign was the struggle with the papacy. The French undertook to tax the clergy, whereupon Boniface VIII., the pope, issued the bull *"Clericis laicos"* in 1296, instructing the clergy to resist the attempt. The government issued a decree forbidding the exportation of metals from France. Then the pope gave way at once, as this would have prevented the sending of money to Rome. In 1302 Boniface again attempted to carry his point and issued the famous bull *"Unam Sanctam,"* which set forth the claims of the papacy and was a challenge to all of the monarchs of Europe. To strengthen his position Philip summoned for the first time in the history of France the States-General. In 1303 Boniface died. After a short rule of Benedict XI., Philip obtained, in 1305, the election of Clement V. as pope. In 1309 the pope took up his residence in Avignon and until 1378 the papacy was under the control of France. He became involved in war with England under Edward I. and with Guy of Flanders. He was defeated at Courtrai in 1302 and made peace (1305).

PHILIP VI. (1293-1350). King of France (1328-1350). First king of the House of Valois. The son of Charles of Valois, younger brother of Philip IV. His right to the throne was disputed by Edward III. of England, who claimed it through his mother. This involved France in the Hundred Years' War. He wiped out the disgrace of Courtrai by defeating the Flemish at Cassels (1328). The Hundred Years' War

began in 1337. The French fleet was destroyed off Sluis in 1340. Philip was extravagant and the States-General declared in 1338 that their consent was necessary before the imposition of taxes. In 1346 Edward won Crécy, and by the intervention of the pope a peace was made in 1347. The black death broke out in the same year. Philip's extravagance knew no bounds and the country was greatly oppressed.

PHILIP II. (382-336 B. C.). King of Macedonia and father of Alexander the Great. He came to the throne in 359 B. C. and gradually made himself master of all of Greece. His great stand was at Chaeronea, where, in 338, he defeated the allied Thebans and Athenians. In the midst of his preparations to invade Persia, he was assassinated. He was succeeded by his son, Alexander the Great. It was against his efforts to become master of Greece that Demosthenes uttered the famous speeches known as Philippics.

PHILIP V. (237-179 B. C.). King of Macedonia. The first part of his reign was devoted to war with the Aetolian and Achaean leagues. It is known as the Social War and was ended by the Peace of Naupactus in 217 B. C. He joined Hannibal of Carthage in the war against Rome and brought on the First Macedonian War (214-205 B. C.). He gave Hannibal no aid and the war dragged along without results to either side. In 205 B. C. he joined Antigonus in a war against Ptolemy Epiphanes of Egypt. This incurred the anger of Rome and the Second Macedonian War followed in 200 B. C. It ended with the battle of Cynoscephalae (197 B. C.), in which the Roman general, Flamininus, was victorious, Philip losing many of his possessions and much of his independence.

PHILIP II. (1527-1598). King of Spain; born at Valladolid; son of Emperor Charles V. He received the government of the Netherlands (1555); became king of Spain (1556); stamped out Protestantism in Spain, but his attempt to do so in the Netherlands resulted in a disastrous revolt; in 1580 Portugal came under his power, but the "Invincible Armada" equipped for the conquest of England was completely defeated by the English (1588).

PHIPS or **PHIPPS, SIR WILLIAM** (1651-1695). First royal governor of Massachusetts; born at Woolwich, Me. When about 18 years of age he removed to Boston, and in 1687, when he recovered $1,500,000 in treasure from a wrecked Spanish galleon, was knighted and appointed sheriff of New England. Phips captured Port Royal (1690), made an unsuccessful attack on Quebec (1691), and was appointed governor of Massachusetts (1692). As a governor he displayed a rough and arbitrary spirit, and was called to England to answer charges (1694).

PHOCION (*fo'she-on*) (402-317 B. C.). Athenian general and statesman; studied under Plato and Xenocrates; quelled disturbances in Euboea (349 B.C.), and later led a body of Athenians to Megara, where he crushed Philip's faction. In politics he opposed Demosthenes's impracticable ambition of coping with Philip of Macedon and his son, Alexander, and restrained Athens from undertaking any rash enterprise. Accused of implication in intrigues against Polysperchon, he was condemned to drink hemlock.

PICKERING, TIMOTHY (1745-1829). American statesman; born in Salem, Mass.; was graduated at Harvard (1763), and began the practice of law (1768). He took part in the battle of Lexington (1775); marched with the Essex regiment to join Washington in New Jersey (1776); was made adjutant general by Washington; participated in the campaign against Howe (1777); became quartermaster general (1780), and aided in the campaign resulting in the surrender of Cornwallis. He was a member of the Pennsylvania Constitutional Convention (1789); postmaster general (1791-1795); secretary of state from 1795 to 1800, when trouble with President Adams caused his dismissal. Pickering served as United States senator (1803-1811), and was elected to the House of Representatives (1812 and 1814).

PINCKNEY, CHARLES COTESWORTH (1746-1825). American statesman and soldier; born at Charleston, S. C. He was educated in England, and returned to America (1769); served in the first Provincial Congress of South Carolina (1775); was one of Washington's aids-de-camp; prominent member of the United States Constitutional Convention (1787); of the convention which framed a constitution for South Carolina (1790); United States minister to France (1796), where, in answer to the French minister's demand for money, he is said to have given the famous reply, "War be it, then; millions for defense, sir, but not one cent for tribute." Unsuccessful Federalist candidate for vice-president (1800); for president (1804 and 1808).

PIPIN or **PEPIN.** The name of several mayors of the palace in the kingdom of the Franks and the ancestors of the Carolingian kings. **PIPIN THE ELDER** (died 639) controlled the policy of the state with Arnwulf, bishop of Metz, under Dagobert I. **PIPIN OF HERISTAL** (died 714). Son of Pipin the Elder. He had charge as majordomus of the eastern part of the Frankish kingdom known as Austrasia, about 679. He defeated Ebroin, majordomus of the western part. He thus became ruler of all of the Franks in 687. His son was Charles Martel. **PIPIN THE SHORT** (714-768). King of the Franks (751-768). The second son of Charles Martel. In 741 he and his brother, Karlmann, received the office of mayors of the palace. In 742 they placed Childeric III. upon the throne. In 747 Karlmann abdicated and became a monk. In 751 Pipin was crowned king and Childeric was compelled to enter a monastery. Pipin was the first king of the Carolingian line. In 754 he was made patrician of Rome. A few years later he conquered the Lombards. In the following year he again defeated the Lombards, and the portion of the Exarchate of Ravenna which he took away from them, he gave to the pope. This gift is known as the Donation of Pipin. He was succeeded by his sons, Karlmann and Charles the Great or Charlemagne.

PISIS'TRATUS (? -about 527 B. C.). A tyrant of Athens, son of Hippocrates and friend of Solon. He became a leader of the poorer classes of Athens after the capture of Salamis in the war with Megara. In championing the poor people and in the attempt to redress their wrongs he was protected by a bodyguard of 500 armed men (560 B. C.); seized the Acropolis at Athens, made himself tyrant or ruler of Athens, but was driven out; returned but was again banished in 550 B. C.; went to Euboea for 10 years; gathered a force at Marathon, defeated his foes, and was re-established in 540 B. C., holding power until his death. He inaugurated reforms and improved the condition of the people. His family was known as the Pisistratidae.

PITT, WILLIAM (1759-1806). Famous English statesman; born at Hayes. Entering Parliament (1781), he made his first motion for reform in representation in 1782, which, although it failed, made so favorable an impression that Shelburne made him chancellor of the exchequer (1782). In 1783 he became prime minister; was active in the negotiations of peace with the United States; reorganized the finances; attempted to establish free trade between England and Ireland (1785); supported the proposal for the abolition of slave trade; and endeavored to effect a union between England and Ireland, which should also relieve the Catholics of their disabilities. The union act passed, but the Catholic emancipation measures failed because of the king's opposition to them; he resigned in 1801, but was recalled (1804).

PLANTAGENET. A line of English sovereigns (1154-1399) comprising Henry II. (1154-1189); Richard I. (1189-1199); John (1199-1216); Henry III. (1216-1272); Edward I. (1272-1307); Edward II. (1307-1327); Edward III. (1327-1377); Richard II. (1377-1399).

PLATT, THOMAS COLLIER (1833-1910). American politician; United States senator (1881). After a few months he and Senator Roscoe Conkling resigned because Garfield did not defer to them in New York appointments. Both were defeated in an appeal to the legislature. Platt was again elected in 1897 and in 1903, retiring in 1909. President of the United States Express Co. (1880-1910).

POINCARE, RAYMOND (1860-). The ninth president of France, and member of the French Academy since 1909; minister of public instruction (1893-1895); of finance in 1894 and 1906; premier (1911-1913); president (1913-); author of *Contemporary Ideas, Political Studies and Figures,* and *Literary and Artistic Causes.*

POMBAL, SEBASTIAO JOSE DE CARVALHO, MARQUIS DE (1699-1782). Portuguese diplomat and statesman; "The Great Marquis;" born at the Castle of Soure, near Coimbra. He was appointed envoy extraordinary to the court of London (1739); made minister of foreign affairs (1750); prime minister (1757), when he crushed the Jesuits and banished them from the kingdom (1759), checked the Inquisition, encouraged agriculture, founded schools, etc.; created marquis (1770); banished from court (1777).

POMPEY, GNAEUS MAGNUS POMPEIUS or **POMPEY THE GREAT** (106-48 B. C.). A famous Roman general and statesman. He joined Sulla against Ma-

rius, and on the death of Marius he was intrusted with the conduct of the war in Africa against the remnants of the Marian party. He drove the followers of Lepidus out of Italy and defeated the Marian party in Spain under Sertorius. He was elected consul in 70 B. C., though under the legal age. In 67 and 66 B. C. he drove the Cilician pirates from the seas; conquered Mithridates and Tigranes in Asia Minor; and formed an alliance with Caesar. Later Crassus was added and the first triumvirate was formed in 60 B. C. Pompey grew jealous of Caesar's successes in Gaul and he induced the Senate to order him to lay down his command. Caesar refused and crossed the Rubicon river into Italy, thus defying the Senate. (See CAESAR.) After the battle of Pharsalia in 48 B. C. Pompey escaped to Egypt, where he was murdered. His head was presented to Caesar on his arrival there, but Caesar ordered the murderer to be put to death.

PSAMETHIK I. (663-610 B. C.) The vassal of Asshur-bani-pal of Assyria on the throne of Egypt. In about 660 B. C. he renounced his allegiance to Assyria and became master of Egypt. He encouraged foreign settlement of Egypt, especially by the Greeks. A remarkable renaissance of art took place during his reign.

PSAMETHIK II. Son of Necho and grandson of Psamethik I. (595-589 B. C.). Noted for the extensive building operations conducted during his reign.

PSAMETHIK III. The last king of the XXVI. dynasty. He was on the throne 525 B. C., when Egypt was conquered by Cambyses and the country became a Persian province.

PTOLEMY. The name of 16 kings of Egypt, classed as the thirty-first or Macedonian dynasty, lasting from 323 to 30 B. C.

PTOLEMY I., called **"SOTER"** or **PRESERVER** (about 367-283 B. C.) was a native of Macedonia. On the death of Alexander the Great (323 B. C.) the great kingdom was divided and Ptolemy took Egypt as his share. In 306 B. C. he took the name of king and made Egypt a power of the first rank. His capital, Alexandria, became the foremost city of the world in commerce and in culture. He founded a library and a museum there and gathered around him from Greece and elsewhere the greatest men of letters; abdicated in favor of his son, Ptolemy II. (285 B. C.).

PTOLEMY II., PHILADELPHUS (308-247 B. C.). The son and successor of Ptolemy I.; reigned from 285 to 247 B. C. He engaged in no wars, but developed the greatness of his kingdom, built a great fleet, opened up commerce, built a canal from the head of the Red Sea to the Nile, erected the famous lighthouse, the Pharos, one of the wonders of the world. Manetho wrote the history of Egypt at his suggestion and a translation of the Bible was made.

PTOLEMY III., EUERGETES (THE BENEFACTOR) (reigned 247-221 B. C.). The son and successor of Ptolemy II. He made a three years' war on Syria, Babylon, and Susa, bringing back rich booty and the Egyptian gods taken away by Cambyses, from which act he gained his surname. Egypt reached the highest point of prosperity, wealth, and military glory. He enlarged the library at Alexandria and added buildings at Karnak and elsewhere.

PTOLEMY IV., PHILOPATER (reigned 221-205 B. C.). Though a dissolute sovereign and under the control of unworthy favorites, he defeated King Antiochus in an attempt to take his Syrian provinces. He patronized letters, wrote a tragedy, called *Adonis*, built the beautiful temples of Deir-el-Medineh and Edfu and other places.

PTOLEMY V., EPIPHANES (reigned 205-181 B. C.). Son and successor of Ptolemy IV. At the age of five years he came to the throne. Antiochus the Great of Syria and Philip V. of Macedon tried to take advantage of his youth and to take away his provinces and his kingdom. He lost Syria and Palestine, and there was danger of Egypt being captured, but Rome interfered and prevented it. The decree recorded on the famous Rosetta Stone was made on his coronation in 196 B. C.

PTOLEMY VI. (about 191-181 B. C.). Reigned only a few months.

PTOLEMY VII., PHILOMETOR (about 188-146 B. C.). Son of Epiphanes; reigned from 181 to 146 B. C. Antiochus IV. of Syria invaded Egypt and was victorious at Pelusium and proclaimed king at Memphis. Ptolemy was taken prisoner. His brother, afterwards Ptolemy IX., gathered a force and defended Alexandria, proclaiming himself king. Antiochus retired, but on a second invasion would have been victorious had not Rome interfered and ordered him back to his kingdom. The two Ptolemies ruled together until 163, when they quarreled and Philometor fled to Rome. He regained the throne and his brother was made king of Cyrene. In 146 Philometor was slain in battle against the Syrian usurper, Alexander Balas.

PTOLEMY VIII. (about 148-146 B. C.). The son of Ptolemy VII.; reigned only a few months.

PTOLEMY IX., EUERGETES II. or **PHYSCON (FAT PAUNCH).** Brother of Ptolemy VII.; reigned from 146 to 117 B. C. He was expelled from Egypt by a revolution headed by his wife, but resumed the crown again in two years. He restored many temples; supported the library at Alexandria.

PTOLEMY X., SOTER II. or **LATHYRUS,** was the son of Ptolemy IX. He reigned from 117 to 106 B. C. jointly with his mother. In 106 B. C. he was driven from the throne by a revolution and took up his abode in Cyprus, where he ruled as king until his recall to Egypt in 88 B. C. Then followed a rebellion at Thebes that lasted for three years and was put down with difficulty. He died in 81 B. C.

PTOLEMY XI. Brother of Ptolemy X.; was surnamed Alexander I. On his brother's expulsion in 106 B. C. he was put on the throne by his mother. In 101 B. C., fearing that she was planning his death, he caused her to be murdered. In 88 B. C. he was driven from Egypt by a revolution and was killed in an unsuccessful attack on Cyprus.

PTOLEMY XII. or **ALEXANDER II.** Son of Ptolemy XI.; after a reign of 19 days murdered the queen. This so enraged the army that it rose against Alexander II. and put him to death. He was the last of the legitimate line of the Ptolemies.

PTOLEMY XIII., NEOS DIONYSUS or **AULETES (THE PIPER),** as he was a skillful player on the flute. Took the throne on the expulsion of Alexander II. On his death he left his throne to his daughter, Cleopatra VI., and named the Roman people his executors. He reigned from 80 to 51 B. C.

PTOLEMY XIV., DIONYSUS. Reigned conjointly with his sister, the famous Cleopatra, from 51 to 48 B. C., when a quarrel arose and the queen left Egypt. In 47 B. C. Caesar sent troops to support her cause and the king was drowned while trying to escape.

PTOLEMY XV. Younger son of Auletes and brother of the last king; reigned with Cleopatra from 47 to 45 B. C., when the queen caused him to be murdered to make room for her son, Caesarion.

PTOLEMY XVI., called **CAESARION.** Was the son of Cleopatra and Julius Caesar. He reigned with his mother until her death. After the battle of Actium she sent him out of the country for safety, but he was betrayed to Octavius, who caused him to be put to death in 30 B. C.

PYM, JOHN (1584-1643). English statesman; born at Brymore, Somersetshire; entered Parliament for Calne (1614); supported the Petition of Right (1628); assumed the leadership of the Short Parliament (1640); took a prominent part in drawing up the Grand Remonstrance (1641); and, after the unsatisfactory results of the campaigns (1642), carried out the union with the Scots. Pym was strongly anti-Catholic.

PYRRHUS (about 318-272 B. C.). A king of Epirus in ancient Greece and a relative of Alexander the Great. He served in the battle of Ipsus with Demetrius and was sent as one of his hostages to Egypt. He returned to Epirus and took possession of the throne. Then he took the western part of Macedonia, and when Demetrius became king he joined a league to deprive him of his throne. Macedonia was then divided between Pyrrhus and Lysimachus (287 B. C.). Pyrrhus reigned only a few months, being in turn expelled by Lysimachus. The Tarentines in lower Italy sought his aid against the Romans, and in 280 B. C. he defeated the Romans at Tarentum by the aid of 20 elephants, which terrified the Romans. He won a costly victory at Asculum in 279 B. C.; made a truce with Rome; helped the Sicilians against Carthage in 278 B. C. In 275 B. C. he was completely defeated at Beneventum by the Romans under Dentatus. In 273 B. C. he again invaded Macedonia and took the throne; made an unsuccessful attack on Sparta and was killed by a tile thrown by a woman from a house top while besieging a town in Argos.

QUADRUPLE ALLIANCE. (1) A league between Great Britain, France, Austria, and the Netherlands against Spain (1718). (2) A league between Great Britain, Austria, Prussia, and Russia against Mehemet Ali (1840), who threatened to overthrow the Turks.

QUAY, MATTHEW STANLEY (1833-1904). American politician; born in Dillsburg, Pa.; graduated at Jefferson College (1850); in 1861 he entered the Union army, and served with distinction; was a member of the legislature (1865-1867); secretary of the state of Pennsylvania (1872-1878, 1879-1882); state treasurer (1885-1887); in 1887 he was elected United States senator, and was re-elected in 1893 and 1901.

RALEIGH, SIR WALTER (1552-1618). English statesman, navigator, and author; born at Hayes Barton, in Devonshire; a great favorite of Queen Elizabeth; served in various positions, and in 1585 planted a settlement on Roanoke Island, which proved a failure. It was through his efforts that the potato and tobacco plants were introduced into England. His complicity in a plot against the king being detected, he was sent to the Tower (1603) and, though condemned to death, was reprieved. He made his last voyage in 1616, and on his return was executed by James I.

RAM'ESES. The name of twelve kings of Egypt in the XIX. and XX. dynasties. **RAMESES I.**, first king of the XIX. dynasty, ruled for a short time about 1355 B. C. He waged war in Nubia, left an inscription there, built a part of Karnak. His mummy was found in 1881 at Deir-el-Bahari. **RAMESES II.**, son of Seti I. and grandson of Rameses I., reigned in Egypt (1388-1322 B. C.) and is regarded as the Pharaoh of the Hebrew oppression. He conducted foreign wars, built splendid temples at Abou Simbel, Karnak, Luxor, Abydos, Memphis, Thebes, and elsewhere. His mummy was also discovered in 1881. **RAMESES III.** (about 1269-1244 B. C.) was the second Pharaoh of the XX. dynasty. His reign was marked by a general decline of Egyptian greatness.

RANDOLPH, JOHN, OF ROANOKE (1773-1833). American statesman; born at Cawsons, Va.; elected to Congress (1799); and in 1801 was made chairman of the ways and means committee; lost his seat (1813); but was returned (1815); elected to the senate (1825); minister to Russia (1830).

REED, THOMAS BRACKETT (1839-1902). American politician; born at Portland, Me.; graduated at Bowdoin College (1860); was a member of the legislature (1868-1869); state senator (1870); attorney-general of Maine (1870-1872); member of Congress (1877-1899). He was speaker of the fifty-first, fifty-fourth, and fifty-fifth Congresses, where he earned the name of "Czar" Reed for his method of counting a quorum; he was an efficient speaker, and was a prominent candidate for the Republican presidential nomination (1896).

REID, WHITELAW (1837-1912). American diplomatist and journalist; born at Xenia, Ohio. Became editor and proprietor of the New York *Tribune* (1872) on the death of Horace Greeley. Candidate for vice-president (1892); minister to France (1889-1892); special ambassador to Queen Victoria's jubilee (1897); member of the Peace Commission which terminated the Spanish-American War (1898); special ambassador to King Edward VII.'s coronation (1902); ambassador to England to succeed Joseph Choate (1905-1912).

REIGN OF TERROR. That part of the French Revolution beginning with the fall of the Girondists (June, 1793) and ending with the overthrow of Robespierre (July 27, 1794).

REMUSAT (*ray-mu-zah'*), **CHARLES, COMTE DE** (1797-1875). French politician; born in Paris; began his career (1818) as a journalist and supporter of Guizot; was deputy (1830-1848); under-secretary of state (1836); minister of the interior (1840); drew up a protest against the ordinances of Polignac, which precipitated the revolution of July; elected to the constituent and legislative assemblies (1848); exiled the same year; amnestied (1859), and devoted himself to literature and science.

RHODES, CECIL JOHN (1853-1902). African statesman; born in Bishop Stortford, Hertfordshire; the one aim of his life was the extension of British rule in South Africa. In 1888 Rhodes obtained from the king of the Matabele a grant of the territory now known as Rhodesia. He was premier of Cape Colony from 1890 to 1896, resigning after the Jameson raid; on the revolt of the Matabele (1896), he went unarmed and alone into the midst of the rebels and concluded permanent peace. One of Rhodes's projects, the building of a Cape-to-Cairo railway, was partly carried out before his death. In his will he bequeathed practically his whole fortune ($30,000,000) to the public service; to his college, Oriel, at Oxford, he left $500,000, while about $10,000,000 was left to found a number of three-year scholarships tenable at Oxford. Two of these were offered to each state and territory in the American Union. The annual income for each scholarship is about $1,500. Rhodes is buried in the Matoppo Hills in the territory which bears his name.

RICHARD I., COEUR DE LION (1157-1199). King of England (1189-1199). On the death of his father, Henry II., he was crowned king, but with Philip Augustus of France went on the Third Crusade in 1190. Affairs were handled by William Longchamp, but John obtained more and more power each year. The Crusade was a failure. Richard made enemies, and when he was returning home was taken prisoner by Leopold, duke of Austria, through whose kingdom he was passing, and by him handed over to the emperor, Henry VI., who imprisoned him. He was ransomed and returned to England in 1194. He forgave John, but began a war with the king of France. He was killed while storming a town in France in 1199. Sismondi says of him, "A bad son, a bad brother, a bad husband, and a bad king."

RICHARD II. (1366-1400). Son of Edward, the Black Prince, and the grandson and successor of Edward III. (1377-1399). Affairs were well administered for a time by John of Gaunt, the king's uncle. In 1381 Wat Tyler led an insurrection over a heavy poll tax, which was settled with much skill by the king. Richard had much trouble with the nobles; while he was in Ireland subduing the country, Bolingbroke landed in England with followers, Richard was taken prisoner, having been deserted by his friends, and taken to London, where he formally abdicated in 1399. Bolingbroke took the throne with the title of Henry IV. Richard was imprisoned in Pontefract Castle, where he was murdered in 1400.

RICHARD III. (1452-1485). King of England (1483-1485). Youngest son of Richard, duke of York, and brother of King Edward IV., whom he greatly assisted in the wars of the Roses. On the death of Edward IV. Richard was the foremost man in the kingdom. He caused his two nephews to be smothered in the Tower and took the throne in 1483. Buckingham planned an uprising against Richard in favor of the earl of Richmond of the House of Lancaster. His plans were frustrated and he was executed. The earl of Richmond landed in England with a force and met the king's army on Bosworth Field in 1485, where Richard was defeated and slain. Richmond became king as Henry VII. of the House of Tudor.

RICHELIEU (*reesh'e-loo*), **ARMAND JEAN DU-PLESSIS, CARDINAL DE** (1585-1642). French statesman; born in Paris of noble family; consecrated bishop of Luçon (1607); in 1622 he received the cardinal's hat from Gregory XV. Louis XIII. called him to the office of prime minister in 1624, and from this time until his death he was the ruler of France in everything but name. His objects were (1) to ruin the Protestants as a political party, (2) to humble the pride of the nobles, (3) to reduce all subjects to their duty, (4) to raise France to its proper position among foreign nations. Richelieu was a patron of letters, the founder of the French Academy, and the author of many important reforms in finance and in the army. He ranks among the greatest statesmen of France.

ROBERT II. (1316-1390). King of Scotland, son of Walter Stuart and Marjory; succeeded David II. (1371). It was during his reign (1388) that the battle of Otterburn ("Chevy Chase") occurred, in which the English were totally defeated. Robert was the founder of the Stuart dynasty.

ROBERT OF COURTENAY. Fifth Latin emperor of Constantinople (1221-1228).

ROBESPIERRE (*robes-pe-air'*), **MAXIMILIEN MARIE ISIDORE** (1758-1794). French revolutionist of Irish origin; born at Arras. On the death of Mirabeau (1791), he was recognized as revolutionary leader. Was a member of the "Great Committee of Public Safety" (1793), and in this position he put to death many innocent men and women, finally perishing on the guillotine himself. Robespierre was precise, austere, and earnest; his aim was to establish a reign of virtue.

ROMANOFF, ROMANOV, *or* **ROMANOW.** Russian dynasty. Mikhail Feodorovich (? -1645) was the founder of the line, and became czar (1613); he was the son of the Metropolitan of Rostov. In 1762, when the empress Elizabeth was succeeded by Peter III., her nephew and founder of the Romanoff-Oldenburg or Romanoff-Holstein-Gottorp dynasty, the direct line became extinct.

ROOT, ELIHU (1845-). American Cabinet officer; born in Clinton, N. Y.; counsel for William M. Tweed in the "Tweed Ring" trial; also in the Stewart will case and the Fayerweather will case; secretary of war to succeed General Russell A. Alger (1899-1904); member Alaskan Boundary Tribunal (1903); secretary of state to succeed John Hay (1905); president American Society of International Law (1906). U. S. senator (1909-1915). Received Nobel peace prize (1912).

ROSEBERY, ARCHIBALD PHILIP PRIMROSE, EARL OF (1847-). English statesman; held several offices in Gladstone's Cabinet; foreign secretary (1892); prime minister (1894-1896).

RUDOLPH I. (1218-1291). King of Germany and Holy Roman emperor (1273-1291), and founder of the present House of Austria or the House of Hapsburg. The Great Interregnum began in 1256 and for many years Germany was without an acknowledged head. In 1272 the pope tried to force the election of an emperor. Rudolph of Hapsburg was chosen as the most fitting, and was crowned at Aix-la-Chapelle in 1273. In 1276 he made war on the king of Bohemia, who refused to acknowledge him, and took valuable territory from him. He defeated and slew Ottokar in 1278 at Marchfeld and placed his own sons, Albert and Rudolph, in charge of the forfeited lands. He suppressed the "robber barons" and destroyed their strongholds.

RURIK. A Scandinavian leader or Norseman who, in 862, on invitation of the people at Novgorod, established there the first regular government. This is regarded as the beginning of the Russian Empire and many noble Russian families trace their origin back to Rurik. Rurik later established himself around Lake Ladoga, while his brothers made themselves rulers of adjacent territory around Lake Peipus. On their death Rurik joined their possessions to his. He died in 879 and was succeeded by his son, Igor, whose descendants ruled Russia until the House ended in 1598 and was succeeded by the House of Romanoff.

RUSSELL, LORD JOHN (1792-1878). English statesman; an ardent champion of parliamentary reform; carried the Test and Corporation acts (1828); supported the Catholic Emancipation Bill (1829), Reform Bill (1832); premier (1846-1852 and 1865); secretary of foreign affairs in coalition ministry (1852); foreign secretary under Palmerston (1859).

SAGASTA, PRAXEDES MATEO (1827-1903). Spanish statesman; born at Torrecilla de Cameros; was elected to the Cortes (1854) from Zamora; became minister of the interior (1868); president of the Cortes (1871); formed a new cabinet (1881), and remained in power until 1883. Sagasta was premier (1885-1890, 1892-1895, 1897-1899, and 1901-1902); he was thus in charge of affairs during the Spanish-American war.

SALADIN (*sal'ah-deen*), **SALAH-ED-DIN YUSUF** (1137-1193). Sultan of Egypt and Syria; born at Tekrit; became ruler of Egypt (1174); conquered Syria and the greater part of Mesopotamia (1174-1183); crushed the kingdom of Jerusalem (1187); Tiberias, Acre, Beirut, and many other places were also taken. Acre was retaken, after a memorable siege (1191), by the armies of the Third Crusade under Philip II. and Richard the Lion-hearted, and a three years' truce between Richard and Saladin (1192) left to the Christians the coast from Jaffa to Tyre.

SALISBURY (*sawls'bury*), **ROBERT ARTHUR TALBOT GASCOYNE CECIL, THIRD MARQUIS OF** (1830-1903). English statesman; born at Hatfield, Hertfordshire; in 1865, on the death of his elder brother, he became heir to the marquisate and assumed the title of Lord Cranborne; he was a member of the House of Lords as Marquis of Salisbury (1868); chancellor of the University of Oxford (1869). When the Disraeli ministry came into power (1874), Salisbury again became secretary of state for India; and his entire sympathy with the new premier's imperialist policy led to his appointment in 1876 as British representative to the Conference of Constantinople. He was appointed secretary of state for foreign affairs (1878), chosen leader of the Conservative party (1881), and on the retirement of the Gladstone ministry (1885) became head of the government. In 1892 he went out of office, but returned (1895). In 1900 the Unionists were again returned with a large majority under the leadership of Lord Salisbury; in July, 1902, he resigned office, having been premier for a longer period than any other minister since the Reform Act of 1832. He was succeeded by Arthur Balfour, his nephew. His foreign policy was sound and on the whole successful, and no statesman was more alive to the necessity of maintaining the peace of Europe.

SANCHO GARCIA (905-925). Was the first to bear the title of the king of Navarre, having wrested that region from the Saracens.

SANTA ANNA or **SANTA ANA, ANTONIO LOPEZ DE** (1795-1876). Mexican politician and general; born at Jalapa, Mexico; in 1828 he took the field as a supporter of Guerrero for the presidency. On becoming commander in chief (1829), he defeated the last attempt of Spain to re-establish authority in Mexico, and was chosen president (1833). His tendencies toward monarchism led to a rebellion (1835), in the suppression of which he was taken prisoner. He defended Vera Cruz against a French fleet (1838), and was president (1841-1845). Was Mexican general in the war with the United States (1846-1848); president of Mexico (1853-1855). He died in poverty.

SARDANAPALUS (corrupted from Assyrian *Asshurbani-pal*) (668-626 B. C.). Last great Assyrian monarch; son of Esarhaddon. The weakness of Assyrian forces resulted in the loss of Egypt about 653 B. C.; and a siege of Tyre ended, finally, in capitulation. Sardanapalus is noted, not for his conquests, but for his magnificent building plans carried out in the cities of Babylonia and in Nineveh. It is from his great library at Nineveh that much of the modern knowledge of Babylonian literature and religion is obtained. He died on a great funeral pyre, if the classical story is to be relied upon.

SCHURZ, CARL (1829-1906). American statesman; born in Liblar, Prussia; he came to the United States in 1852, and practised law in Milwaukee (1859). President Lincoln appointed him minister to Spain (1861), but he shortly resigned to join the Union army; served as United States senator from Missouri (1869-1875), and was secretary of the interior in Hayes's Cabinet. He subsequently engaged in literary work, writing several books, among which may be mentioned biographies of Clay and Lincoln.

SELEUCUS I. The first of the line of the Seleucidae or kings of Syria, and that portion of Asia Minor which was parceled out on the death of Alexander the Great in 323 B. C. (312- about 280 B. C.). With the assistance of Antigonus he added to his territory, which he held for a time as a satrapy. A quarrel arose between these allies and Seleucus took refuge in Egypt until 316 B. C. His return to Babylon is the beginning of the era of the Seleucidae, which was used by the Syrians and Asiatic Greeks as a reckoning point until the fifteenth century. In 306 B. C. he took the title of king. In 302 B. C. he joined the league of Ptolemy, Lysimachus, and Cassander against his former ally, Antigonus, and with his cavalry and elephants decided the battle of Ipsus, in which Antigonus was defeated and slain (301 or 300 B. C.). He was the most powerful of the generals of Alexander and had the largest share of the empire. He gave the provinces east of the Euphrates to his son, Antiochus, who succeeded him. He also conducted successful wars against Demetrius of Macedonia and Lysimachus of Thrace. Assassinated about 280 B. C.

SELEUCUS II. King of Syria (246-226 B. C.). He gained the throne by assassinating Antiochus II. He was driven from his kingdom by Ptolemy Euergetes. On the withdrawal of the latter he regained his throne, and succeeded in holding Syria and most of Asia Minor. He conducted an expedition against the revolted provinces of Parthia and Bactria. He was routed by Arsaces the Great, the deliverer of Parthia. He was succeeded by his sons, Seleucus III. and Antiochus III., the Great.

SEMIRAMIS. Mythical queen of Assyria, supposed to have been of divine parentage. She married Ninus, king of Assyria and founder of Nineveh. After his death she ruled as regent for her son. She invaded India and made many foreign conquests. She built the city of Babylon in all of its magnificent grandeur, and all great works were attributed to her. In her sixty-second year she mysteriously disappeared,—some say she was transformed into a dove. Much fable is mingled in the stories and it is doubted by many that she ever lived, although according to Herodotus there was a Semiramis in Assyria in the first half of the eighth century B. C.

SERVIUS TULLIUS. The sixth king of Rome. He succeeded Tarquinius the Elder, who was slain by the sons of Ancus Martius. The wife of Tullius was Tarquin's daughter. She concealed the murder of her father until her husband was secure upon the throne. Tullius introduced important reforms and a

new constitution. He also made a truce with the Latins. Lucius, a son of Tarquinius and brother of Tullius's wife, led a conspiracy against the king and murdered him. It is said that Tullia, the daughter of the king and wife of Lucius, in recognition of her husband's deed and right to the throne, drove her chariot over the dead body of her father as it lay in the market place.

SEVIER, JOHN (1745-1815), pioneer, was born in Virginia. He organized companies which fought the Indians, during the Revolution and later, especially against the Creeks in 1793. In 1794 he became governor temporarily of the state of "Franklin," a district subsequently granted to Tennessee, and the inhabitants set up their own government. Brigadier general in 1789, entered Congress 1790, first governor of Tennessee, 1796-1801, 1803-1809, and served also in twelfth and thirteenth Congresses.

SEVERUS, LUCIUS SEPTIMIUS (146-211). Roman emperor (193-211). He was commander of a legion and governor of provinces when, on the murder of Pertinax, he was proclaimed emeperor in 193. Julianus had taken the throne when Severus arrived at Rome, but he was promptly murdered. Severus distributed large donations to the soldiers and assured himself of the power. He captured Byzantium after a three years' siege in 197; plundered the capital of the Parthians, Ctesiphon, in 198. On his return to Rome in 202 he pleased the people with magnificent shows and the distribution of money. He quelled a rebellion in Britain, marching with a large army to the extreme north of the island. He built the Wall of Severus in Britain; died at Eboracom (York).

SEWARD, WILLIAM HENRY (1801-1872). Famous American statesman; born in Florida, New York; graduated from Union College (1820); a member of the New York state senate (1830); and was governor of his state (1838-1842); he was a member of the United States senate (1849-1861), where his ability made him the undisputed leader of the whigs. The election of Lincoln to the presidency in 1860 was a great disappointment to Seward, whose hope for the presidential chair had been high. But he nevertheless, on becoming secretary of state in 1861, gave splendid support to the administration. His most important diplomatic achievement was the purchase of Alaska from Russia (1867). An attempt was made on his life simultaneously with the assassination of Lincoln.

SEYMOUR, HORATIO (1810-1886), American politician; born at Pompey Hill, N. Y.; was military secretary to Governor Marcy (1833-1839); mayor of Utica (1842); governor of New York (1853-1855 and 1863-1865); unsuccessful Democratic candidate for the presidency (1868). During the war he gave his support to the Lincoln administration.

SHALMANESER I. (about 1300 B. C.). An Assyrian monarch who first sought to enlarge the western boundaries of his kingdom. He made Calah, south of Nineveh, the capital of his country.

SHALMANESER II. (858-823 B. C.). The son of Asshur-natzir-pal; continued the extension of the empire. He led twenty-six campaigns, crossing the Euphrates twenty-five times, and entering Syria five times. He defeated Benhadad II. of Damascus in the battle of Karkar in 854 B. C. In 842 B. C. he defeated Hazael of Damascus at Mount Hermon, received the homage of Jehu of Israel, his ally, and subjugated Babylonia.

SHALMANESER IV. (727-722 B. C.). This king made a campaign against Damascus, also against Israel, and captured Samaria after a three years' siege.

SHAW, LESLIE MORTIMER (1848-). American banker and Cabinet officer; born in Morristown, Vt.; received his education at Cornell College and at the University of Iowa, subsequently taking up the practice of law at Denison, Ia. In the Republican campaign of 1896 he became prominent as a speaker, and was elected governor of Iowa (1897 and 1899). Secretary of the treasury (1902-1907).

SHERMAN, JAMES SCHOOLCRAFT (1855-1912). American lawyer and Congressman, born in Utica, N. Y. He was mayor of Utica in 1884; chairman of the Republican State Convention (1895 and 1900); a member of Congress (1887-1891) and (1893-1909); vice-president of the United States (1909-1912).

SHERMAN, JOHN (1823-1900). American statesman and lawyer; born in Lancaster, Ohio; member of Congress (1855-1861) and Senator (1861-1877); member of committee of inquiry sent to Kansas, and participated in the movement for the formation of the Republican party; author of the refunding act (1870); secretary of the treasury (1877-1881) when his able management of the treasury made it possible for the government to resume specie payments (1879); again served as Senator (1881-1897); secretary of state (1897-1898).

SHERMAN, ROGER (1721-1793). Eminent statesman; born in Newton, Mass. He removed to New Milford, Conn. (1743), and in 1754 was admitted to the bar; served as judge of the Connecticut supreme court (1766-1789); was a member of the Connecticut senate (1766-1785); mayor of New Haven (1784-1793. In the Constitutional convention at Philadelphia (1787) he took an active part, and was influential in securing the ratification of the Federal constitution in Connecticut. Sherman is best remembered as being one of the Committee of Five appointed to prepare a draft of the Declaration of Independence.

SIDNEY or SYDNEY, ALGERNON (1622-1683). Famous English statesman; he rendered his first military service against the rebels of Ireland (1642); entered the Long Parliament for Cardiff (1645), and although appointed commissioner (1648) for the trial of Charles I. did not present himself at any of the court sessions. Not approving of concentration of power in Cromwell, he withdrew from politics in the Protectorate, and in 1659 was sent on a political mission to Denmark. Returned to England (1677); plotted with Louis XIV. against Charles II.; for alleged complicity in the Rye House plot (1683), he was summarily sentenced to death.

SIGISMUND (about 1368-1437). Holy Roman emperor (1411-1437). Second son of Charles IV. In 1396 he undertook a crusade against the Turks, but was overwhelmed by Bajazet I. at Nicopolis. In 1387 he came to the throne of Hungary, but was deposed in 1401. By the aid of hired troops he regained it. In 1411 he was elected Holy Roman emperor. He was the author and protector of the Council of Constance, and brought about the deposition of Pope John XXIII. His greatest disgrace was the desertion of John Huss, to whom he granted safe conduct to the Council, where he was afterwards burned at the stake. In 1419 he succeeded to the throne of Bohemia. The Hussites were in arms and bloody defeats were sustained by the army of Sigismund and the allied Germans. He was the last of the House of Luxemburg.

SIMON (*se-mon'*), **JULES FRANCOIS** (1814-1896). French statesman and philosopher; born in Lorient, Morbihan, Brittany. He became professor of the history of philosophy at the Sorbonne in 1839, and was elected to the Constituent Assembly (1848). Losing his seat in the Sorbonne (1851), he remained in private life until 1863, when he was appointed to the Legislative Assembly for Paris. He strongly opposed the war with Germany, becoming, after the fall of the empire, a member of the committee of national defense. Assuming the office of minister of public instruction in Thier's cabinet (1871), he served in this capacity until 1873. He then resumed his position in the National Assembly, and in 1875 was elected life senator; became premier (1876), but resigned (1877).

SLIDELL, JOHN (1793-1871). American statesman; born in New York City; in 1810 he graduated from Columbia College and, removing to New Orleans (1819), served (1829-1833) as United States district attorney for Louisiana; he was elected to Congress (1843); appointed minister to Mexico (1845); was United States senator (1853-1861); made Confederate commissioner to France, and was taken prisoner by Wilkes. (See TRENT AFFAIR.) Slidell spent the remainder of his life in England.

SMOOT, REED (1862-), senator from Utah, since 1903, born in Salt Lake City. Pres. of various Utah corporations, including Provo Commercial Bank, Smoot Investment Co., and director of enterprises in Salt Lake City, including Deseret National Bank.

SOLON. An Athenian lawgiver and patriot. He was the first Athenian to gain renown by his poetry. He was elected archon in 594 or 593 B. C. at a critical time in the government of the people. His laws relieved the poor debtors from the oppression of the rich, prevented them from being sold into slavery, forbade the export of grain in order to get a supply at a low price for home consumption, and limited the amount of land that might be held by one person. He withdrew from public life after these and other reforms had been accomplished (about 639-559 B. C.).

SOULOUQUE (*soo-look'*) **FAUSTIN** (1785-1867). Emperor of Haiti; born in Haiti, a negro slave. He took part in the negro insurrection (1803), and was later raised to the rank of captain by President Boyer. After the dissolution of the republic (1844) he became a contestant for the presidency, was elected (1847), and declared himself emperor (1847). He

was a cruel ruler and, following a revolution (1858), was forced to abdicate.

SOLYMAN (SULEIMAN). The name of three Turkish sultans, the most renowned being Solyman II. the Magnificent (about 1495-1566). He began to rule in 1520, and made military preparations for carrying out an extensive scheme of conquest. His armies overran a great part of central Europe, Persia, and Arabia; in 1542 the Turks were supreme in the Mediterranean. At Malta (1565), however, he was repulsed. Under him the Ottoman empire reached the height of its power.

SPOONER, JOHN COIT (1843-1919). American legislator; born in Lawrenceburg, Ind.; settled in Wisconsin; served during the Civil War and was brevetted major at its close; elected to the United States Senate in 1885; defeated for governor by George W. Peck in 1892; again elected to Senate in 1897 and in 1903; a prominent debater and was regarded as the spokesman of the McKinley and Roosevelt administrations; resigned from the Senate (1907) to practise law.

STANLEY, FREDERICK ARTHUR, EARL OF DERBY (1841-1908). English statesman; sat in Parliament (1865-1886); secretary of state for the Colonies (1885-1886); governor general of Canada (1888-1893).

STEIN, HEINRICH FRIEDRICH KARL, BARON VON (1757-1831). Prussian statesman; born at Nassau; president of the Westphalian Chambers (1796); superintendent of the department of trade and manufacture (1804); he retired to private life about 1815.

STEN STURE, THE ELDER (died 1503). The regent of Sweden from 1470. Nephew of Charles VIII., whom he succeeded as regent. The Swedish nobility opposed him and favored Christian I. of Denmark. Sture defeated him at Brunkeburg, now Stockholm, in 1471. He introduced printing and founded the University of Upsala (1477). In 1497 he was forced to resign to King John of Denmark, but regained power in 1501 and ruled until his death.

STEPHEN (about 1105-1154). King of England (1135-1154). Nephew of Henry I. and his successor. Although Henry tried to have his daughter, Matilda, succeed him, Stephen, Earl of Blois, by promises to the nobles of permission to build castles on their own estates and the granting of other privileges, obtained their support. David I. of Scotland invaded England to enforce his niece's claims, but was badly defeated at Northallerton, or "the battle of the Standard." For fourteen years the country was in a state of civil war and completely devastated. In 1141 Stephen was taken prisoner at the battle of Lincoln. Matilda was crowned but proved unsatisfactory as a ruler. Stephen was released and crowned again. After much strife a compromise was made whereby Matilda's son, Henry, should succeed Stephen.

STEPHENS, ALEXANDER HAMILTON (1812-1883). American statesman; born near Crawfordville, Ga., was admitted to the bar (1835); state House of Representatives (1836); Congress (1843). He was made vice-president of the Confederacy (1861) and, with Messrs. Campbell and Hunter, met Lincoln and Seward in an effort to end the war by negotiation; member of the House of Representatives (1873-1882); governor of Georgia (1883). Called the "Nestor of the Confederacy."

STEVENS, THADDEUS (1793-1868). American statesman; born at Danville, Vt. In 1816 he was admitted to the bar, and served in Congress from Pennsylvania (1849-1853, 1858-1868). Stevens was probably as bitter an enemy as the South ever had.

STEVENSON, ADLAI EWING (1835-1914). American politician and vice-president (1893-1897); born in Christian County, Ky., and removed to Bloomington, Ill.; member of Congress (1875-1877 and 1879-1881); an unsuccessful candidate for vice-president in 1900.

STOUGHTON, WILLIAM (about 1632-1701). An early governor of Massachusetts from 1692 until his death. In 1692, as chief justice of the special session of the court, he presided at the trial of the "Salem witches" and treated them with great severity. Stoughton Hall at Harvard is named for him.

STUYVESANT, PETER (1592-1672). Dutch governor of New Netherland, a picturesque and strong character. He kept the Indians friendly and helped fix the boundary of New England. Being forced by the English to withdraw in 1664, he went to Holland, but returned and lived for years on his farm, the Bowerij, from which the Bowery, N. Y., is named.

SULLY, MAXIMILIEN DE BETHUNE, DUKE DE (1560-1641). The great minister of Henry IV. of France. He reformed the state affairs and from 1597 to 1609 he trebled the income of the state.

SUMNER, CHARLES (1811-1874). An American statesman; born in Boston; was a successful lawyer, but his Fourth of July oration on the "True Grandeur of Nations" (1845) first made him well-known. In the formation of the Free Soil party he played an important part; was senator (1854-1874). Sumner's unflinching courage, sincerity, and devotion to duty give him high rank among American statesmen.

TAFT, WILLIAM HOWARD (1857-), son of Judge Alphonso Taft, was born in Cincinnati, graduated from Yale in 1878 and Univ. of Cincinnati Law School in 1880. Second in class of 121 at Yale and won half first prize in law in his law class. Served in Cincinnati successively until 1900 as a law reporter, asst, pros. attorney, as private councilor, asst. county solicitor, judge of Superior Ct., solicitor general of U. S., Judge of Circuit Court, and Dean of the Cincinnati Law School. Pres. U. S. Philippine Com. and first civil governor of the Islands. Sent by Pres. Roosevelt on several missions, including those to arrange with the Pope for purchase of church lands, to Panama, to Cuba, where he acted as provisional governor, and to the Far East. Sec. of War, 1904-08. Elected president over Bryan in 1908 by 321 to 162 electoral votes. In three-cornered fight was defeated by Wilson and Roosevelt in 1912. Kent Prof. of Law, Yale, 1913-1921, when chosen Chief Justice of Supreme Court. Member of Nat. War Labor Conf. Board, 1918-19; Pres. Amer. Red Cross, 1906-13, Amer. Bar. Assoc., 1913, Amer. Acad. of Jurisprudence, 1914, and of League to Enforce Peace; Chancellor Smithsonian Institution, 1923. Some of his writings are Four Aspects of Civic Duty, United States and Peace, Our Chief Magistrate and His Powers, Awarded many honorary degrees by universities in America and abroad. Has lectured extensively.

TALLEYRAND (*tah-le-ron'*) **DE PERIGORD, CHARLES MAURICE, PRINCE OF BENEVENTO** (1754-1838). French diplomatist and statesman; born in Paris. Having been educated for the church, he was made bishop of Austin (1789). On being excommunicated by the pope some time later, he severed connections with the church and in 1797 was appointed minister of foreign affairs. When Bonaparte became emperor, Talleyrand, who had upheld his ambitious projects, became grand chamberlain and Duke of Benevento. After the peace of Tilsit (1807) he broke off relations with the emperor and became, by degrees, leader of the opposition. He favored Napoleon's deposition, and, on the return of Louis XVIII., became his minister, and was made ambassador to the Congress of Vienna. Talleyrand committed his greatest crime in bringing about the death of the Duc d'Enghien.

TARQUINIUS or TARQUIN THE ELDER. King of Rome (616 B. C.). Successor of King Ancus Martius. His reign was glorious. He added the twelve Etrurian cities to the empire; built sewers; laid out the Circus Maximus; built shops in the Forum; instituted national games; and laid out the temple on Capitoline hill. He was assassinated by the jealous sons of Ancus Martin.

TEMPLE, SIR WILLIAM (1628-1699). English diplomatist; born in London; best known for the negotiation (1668) of the "Triple Alliance" in which England, Holland, and Sweden united to check the ambitions of France. Abandoning politics he retired to Sheen and, in 1686, to Moor Park, in Surrey, where he lived in the enjoyment of his garden, and in the pursuit of letters.

TEWFIK PASHA (1852-1892). Khedive of Egypt (1879-1892). At the time of his accession Egypt was financially embarrassed and in 1880 the dual control of Egypt by England and France was instituted on account of the large interests of these countries in the Suez Canal. The Nationalists under Arabi Pasha rebelled and England put down the rebellion. In the latter part of Tewfik's reign the Sudan was taken by the Mahdi, and it was not until after his death that England began to recover it.

TITUS FLAVIUS SABINUS VESPASIANUS. Roman emperor (79-81); captured Jerusalem (70); on death of his father surprised all by his wisdom and justice. He gave money lavishly to all sufferers in the great fire at Rome (80), which destroyed the Temple of Jupiter Capitolinus, and other handsome buildings. At the height of his popularity he suddenly died. He was succeeded by his younger brother, Domitian.

TOMPKINS, DANIEL D. (1774-1825). American politician; born in Fox Meadows, Westchester County, N. Y. He was elected to Congress (1804), but resigned to become judge of the New York Supreme Court. Was governor of New York (1807-1816); in 1816 he was elected vice-president of the United States; re-elected (1820).

TOOMBS, ROBERT (1810-1885). Born in Wilkes County, Ga.; admitted to bar (1830); Georgia legislator (1837-1840, 1842-1843); United States senator (1853-1861); expelled from Senate; secretary of Confederacy and brigadier general later.

TOUSSAINT (*too-san'*), **FRANCOIS DOMINIQUE,** called **L'OUVERTURE** (*loo-ver-tur'*) (1743-1803). Haitian statesman; full-blooded negro, born in Haiti. He joined the French republicans (1794), and became commander in chief of the island. Supported by the whole body of negroes, he afterwards became president. He was treacherously seized by the French (1802), and died in captivity in France; he is a splendid type, intellectually and morally, of the possibilities of the negro.

TRAJAN, MARCUS ULPIUS (52-117). Roman emperor (98); born in Spain. Although a great part of his reign was spent in gratifying his warlike ambitions, he by no means neglected internal affairs. He maintained impartial justice, managed the finances successfully, built military roads, bridges, canals, and suppressed the Christians as political enemies. Trajan's column, built in 114, may still be seen in Rome.

TRIBUNE. Roman office; military tribunes and plebs tribunes; in early days each of the three tribes furnished so many soldiers commanded by military tribunes; later increased to six. When the plebs seceded (494 B. C.) they obtained the right to six tribunes of the plebs to protect their interests. These obtained many important innovations in Roman law.

TUPPER, SIR CHARLES (1821-1915). Canadian statesman; born in Amherst, Nova Scotia; elected to Provincial Legislature (1855); premier of Nova Scotia (1864-1867); strongly supported confederation; president of Council (1870-1872); minister of inland revenue (1872); of customs (1873); of public works (1878); of railways and canals (1879); high commissioner for Canada in London (1884 and 1888); British plenipotentiary on Fisheries Commission at Washington (1887-1888); premier of Canada (1896).

TUPPER, HON. SIR CHARLES HIBBERT (1855-1927). Born at Amherst, Nova Scotia. Educated at Windsor Academy and McGill University, winning Governor General's scholarship. LL.B. Harvard (1876); called to bar of Nova Scotia (1878); queen's counsel (1890); called to bar of Ontario (1895); member executive council Canadian Bar Association (1896); returned to House of Commons for Pictou (1882-1904); minister of marine and fisheries (1888-1895); minister of justice and attorney general (1895); solicitor general (1896); assisted in fur seal discussion (1891); representative of Her Majesty as agent for Great Britain at Paris, in Bering Sea Arbitration (1893); Knight Commander of St. Michael and St. George. He carried through Parliament many measures of importance to mercantile and shipping classes, especially acts for improvement in shipping cattle from Canadian ports across the Atlantic.

TWEED, WILLIAM MARCY (1823-1878). American politician and leader of the "Tweed Ring"; born in New York City. The "Ring" conducted the most flagrant system of spoliation of the city ever heard of. The system was exposed by the New York *Times* (1871); a committee of seventy citizens led by Samuel J. Tilden investigated and Tweed was indicted for forgery and grand larceny. He was sentenced to 12 years' imprisonment and a fine of $12,300.18. After two years' imprisonment he was released on a technicality. He was at once rearrested on a civil warrant for over $6,000,000. While out for a drive with an attendant from Ludlow Street jail he escaped and fled to Spain. He was returned (1876) and again imprisoned in Ludlow Street jail, where he died.

TWEEDIE, HON. LEMUEL J. (1849-1917). Born at Chatham, New Brunswick. Called to bar of New Brunswick (1871); represented Northumberland in House of Assembly for New Brunswick (1874; has represented that county ever since, except in 1878-1882). Surveyor general (1890); provincial secretary (1896); premier (1900-1907); represented New Brunswick at King Edward's coronation (1901-1902), and has been lieutenant governor of New Brunswick since 1907. King's counsel and Doctor of Laws.

VALENS (about 328-378). Roman emperor of the East (364-378). The brother of Valentinian I., with whom he shared the empire. Valens reduced taxes by 25 per cent.; defeated the Ostrogoths in a war lasting from 367 to 369; defeated the Persians in 372; and permitted the Goths, who were hard pressed by the advancing hordes of the Huns, to settle in Thrace. This brought about war with the Goths themselves, in which the army of Valens was completely routed and he was slain at Adrianople (August 9, 378).

VALENTINIAN I. A Roman emperor (364-375) of humble origin; was the successor of Jovian in 364; chose his brother Valens as his colleague and gave the East to him. The foreign possessions suffered from the incursions of the barbarians, but the administration of affairs at home was excellent. He won victories over the Alemanni and Saxons. Valentinian was a strong and able ruler as well as an orthodox and tolerant Christian.

VALENTINIAN II. (372-392). Roman emperor (375-392). The son of Valentinian I. During his long minority affairs were administered by his mother, the empress Justina, who died in 389. As he was showing great promise of good government he was murdered by instigation of the Frank, Arbogastes, commander in chief of his army.

VALENTINIAN III. (419-455). Roman emperor (425-455). Grandnephew of Valentinian II. He was weak and contemptible. Affairs were managed by his mother, Placidia, until her death in 450. Africa was lost to the empire through Genseric and the Vandals; other barbarian tribes encroached on the empire, though their advances were stopped at Châlons by Aetius, the bulwark of the Western Empire, who was murdered in 454 by the sword of his master. Valentinian was assassinated in the following year.

VALLANDIGHAM, CLEMENT LAIRD (1820-1871). American politician; born in New Lisbon, Ohio; elected to Congress as a representative (1857 and 1863). During the Civil War he was a strong slavery man, and a zealous supporter of the State Rights principle. His extreme views led him to denounce in no light terms the government's policy of coercion. For these disloyal utterances he was arrested (May, 1863), tried, and sentenced to imprisonment till the end of the war. Lincoln reduced the sentence to deportation beyond the military lines.

VANE, SIR HENRY (1613-1662). English statesman; born at Hadlow, in Kent. Came to America (1635); became governor of Massachusetts (1636); returned to England (1637), where he was joint treasurer of the navy (1639-1641). Vane was knighted in 1640; succeeded Pym as leader in the House (1643); member of the council of state (1649); took part in the negotiations for the union of England and Scotland (1652). He was executed in 1662.

VAN RENSSELAER, STEPHEN, THE PATROON (1764-1839). American statesman and landholder; born in New York; early engaged in state politics and held several offices, including lieutenant governor (1795-1801). In 1812 he led the unsuccessful attack on Queenstown. One of the strongest promoters of the Erie Canal, and president of the Canal Commission (1824-1839); member of Congress (1823-1829).

VAUDREUIL, PHILIPPE DE RIGAUD, MARQUIS DE (about 1641-1725). A French governor general of Canada (1703-1725). Served under Frontenac and won a notable victory over the Iroquis (1693); governor of Montreal (1701).

VAUDREUIL-CAVAGNAL, PIERRE FRANCOIS, MARQUIS DE (1698-1765). Last French governor of Canada (1755-1760); governor of Three Rivers (1733); of Louisiana (1742); succeeded Dupresne in 1755. He surrendered Montreal to the English (1760); and though blamed for mismanagement was vindicated at his trial.

VESPASIAN or **TITUS FLAVIUS VESPASIANUS** (9-79). A Roman emperor of humble origin. He passed through minor military offices until in the reign of Claudius he was made commander of a legion and was sent to Britain in 43, where he conquered the Isle of Wight. In 66 he was chosen to conduct the war against the Jews. When Galba died in 69 he was proclaimed emperor by his soldiers in Alexandria. The Senate meantime proclaimed Otho. Civil war resulted, for the army in Germany had proclaimed their general, Vitellius, emperor. Vespasian, being in Egypt, cut off the grain supply from Rome, gave the Jewish war over to his son, Titus, and remained in the East. Otho died a violent death and the army of Vitellius was routed. The murder of Vitellius in 69 left Vespasian in control of the Roman world. He reigned for ten years. Jerusalem was captured by Titus (70); Vespasian and Titus shared the grand triumph; the Colosseum was built; Britain was conquered by Agric-

ola in 78 and 79. Vespasian died in 79 and was succeeded by his son, Titus.

VICTOR EMMANUEL I. (1759-1824). King of Sardinia; born at Turin. On the abdication of his brother, Charles Emmanuel IV. (1802), he became king. He organized a fleet and an army, but his policy led to a rebellion in Turin and Alessandria (1821), and he abdicated in favor of his brother, Charles Felix.

VICTOR EMMANUEL II. (1820-1878). Was king of Sardinia (1849-1861); king of Italy from 1861; assisted by Garibaldi, he created a new Italian kingdom. Venice welcomed him in 1866, and with the occupation of Rome in 1871 the unity of Italy was completed.

VICTOR EMMANUEL III. (1869-). King of Italy since August 11, 1900, succeeding his father, King Humbert I. Educated principally under the direction of his mother; entering the army in 1887 as a second lieutenant, rose gradually in rank until in 1897 he was commanding general at Naples. Having represented his father in several affairs of a diplomatic nature, he was well prepared, both as a statesman and as a soldier, to assume the crown on the assassination of his father. The king went into office with the full confidence of his subjects, and has shown himself to be an efficient ruler. In 1896 he married Princess Helena (1873), daughter of Prince Nicholas of Montenegro.

VICTORIA, ALEXANDRINA (1819-1901). Queen of Great Britain, daughter of Edward, Duke of Kent, fourth son of George III.; born at Kensington Palace; she ascended the throne (1837) and, in 1840, married Albert of Saxe-Coburg-Gotha. He died in 1861. Victoria received the title of empress of India by act of Parliament (1876). Her impartiality, unselfishness, and high sense of duty made her beloved by her subjects. She ruled longer than any previous English sovereign, while her reign was one of the most illustrious in the annals of any nation.

VIVIANI, RENE (1863-1925), French orator and statesman, held many offices, including that of Minister of Labor, under Clemenceau in 1906, also continuing under Briand in 1910, Minister of Public Instruction, and after the Great War, Minister of Justice. He became Premier in 1914, being succeeded by Briand the next year. Best known for his efforts to prevent the Great War, and for his notable speeches, particularly one in 1914. Known for wealth and imagery and metaphor.

WADE, BENJAMIN FRANKLIN (1800-1878). American politician; born at Feeding Hills, Mass.; removed to Ohio (1821), and admitted to the bar (1827). He was elected United States senator from Ohio (1051) and served for eighteen years.

WALDECK-ROUSSEAU, PIERRE MARIE ERNEST (1846-1904). French statesman; minister of the interior in Gambetta's ministry (1881), and in that of Jules Ferry (1883-1885); formed a ministry (1899). He resigned in 1902, having held office longer than any other premier of the Third Republic.

WALDEMAR I., THE GREAT (1131-1182). King of Denmark (1157); he raised his country to a high degree of prosperity, conquered Wendish Germany, and southern Norway.

WALDEMAR II., THE CONQUEROR (1170-1241). King of Denmark (1202); succeeded his brother, Canute VI. Was the son of Waldemar the Great.

WALDEMAR III. (-1375). King of Denmark (1340); conquered Gothland (1361); engaged in two wars with the Hanseatic League.

WALPOLE, SIR ROBERT, FIRST EARL OF ORFORD (1676-1745). English statesman; born at Houghton in Norfolk; in 1708 he was made secretary of war; in 1710 treasurer of the navy; was paymaster of the forces (1714 and 1720); in 1715, chancellor of the exchequer, and first commissioner of the treasury. He was prime minister from 1715 to 1717, and from 1721 to 1742. Walpole hesitated at no method to advance his own policies and those of the Whigs.

WASHBURNE, ELIHU BENJAMIN (1816-1887). American politician; born at Livermore, Me.; studied law at Harvard, and was admitted to the bar (1840); removed to Galena, Ill., and sat in Congress (1853-1869), being chairman of the committee on commerce (1855-1865). His economical methods in government service won him the name of "Watch Dog of the Treasury." When Grant became president he was made secretary of state, shortly resigned to become minister to France, and returned to the United States (1877).

WEBSTER, DANIEL (1782-1852). American statesman, lawyer, and orator; born in Salisbury, N. H.; graduated from Dartmouth (1801); admitted to the bar (1805); in House of Representatives (1813-1816, 1823-1828); in Senate (1828-1841, and 1845-1850); made his famous reply to Hayne (1830); received nomination for the presidency (1836), but was defeated; defeated for the presidency by Tayler (1848); secretary of state (1850). In his reply to Hayne, probably the greatest speech made in Congress, Webster showed clearly the nature of the Union.

WENCESLAUS (1361-1419). Holy Roman emperor (1378-1400) and king of Bohemia as Wenceslaus IV. (1378-1419). The son and successor of Charles IV. In 1393 he caused John of Nepomuk to be tortured to death for refusing to give up the secrets of the confessional. In 1394 he was arrested and imprisoned by a conspiracy of the nobles, but the German princes secured his release. In 1395 he sold the title of the duke of Milan to Visconti for 100,000 florins. The powerful archbishop of Mainz secured his deposition from the throne in 1400, Rupert of the Palatinate being chosen to succeed him. He still retained the throne of Bohemia. In 1402 his brother, Sigismund, imprisoned Wenceslaus in Vienna for fifteen months. Wenceslaus resigned in favor of his brother, Sigismund.

WHITE, ANDREW DICKSON (1832-1918). American diplomat; born at Homer, N. Y.; attaché of the United States legation at St. Petersburg during the Crimean War; professor of history and English literature, University of Michigan (1857-1863); lecturer on history (1863-1867); New York state senator (1863-1867); president of Cornell (1867-1885), to which he contributed $300,000 and his historical library of 40,000 volumes, founding a school of history and political science; Santo Domingo commissioner (1871); minister to the German Empire (1879-1881); minister to Russia (1892-1894); commissioner on Venezuela-Guiana boundary (1896); ambassador to Germany (1897-1903); chairman of American delegation to The Hague Peace Conference (1899); Head of Hoover Law Enforcement Committee.

WICKERSHAM, GEO. W. (1858-), former U. S. attorney general in Taft cabinet, member of many boards and commissions, including Com. on Codification of International Law, Com. on reorganization of N. Y. State govt., Com. of International Justice and Good Will of Council of Churches in America, and pres. Amer. Law Inst.

WILBUR, CURTIS DWIGHT (1867-), judge, and secretary of the navy in Cabinet of President Coolidge, graduated from the Naval Academy in 1888, but devoted himself largely to the law after 1890. He served successively as chief deputy district attorney and judge in Los Angeles County, California, until he became associate justice of the Supreme Court, of California, and later Chief Justice. Organized juvenile court of Los Angeles. Became secretary of the navy in 1924. Drafted several juvenile court laws in California.

WILHELMINA (1880-). Queen of the Netherlands since 1890; only daughter of William III., king of the Netherlands (1849-1890), and Queen Emma, who was regent from the death of King William till the coronation of her daughter in 1898. Wilhelmina married Duke Henry of Mecklenburg-Schwerin, February 7, 1901; a daughter, Princess Juliana, was born April 29, 1909. Queen Wilhelmina's reign has been one of uninterrupted peace and prosperity.

WILLIAM I., THE CONQUEROR (about 1027-1087). King of England (1066-1087). He was the son of Robert II., Duke of Normandy. When his father set out on his pilgrimage to the Holy Land he caused William to be chosen to rule in his absence. On Robert's death in 1035 William became Duke of Normandy. His entire rule in Normandy was a succession of rebellions against him. In 1051 he visited Edward the Confessor in England and was probably promised the throne on the death of Edward. When Edward died in 1066 and Harold, Earl of Wessex, claimed the throne, William landed in Hastings with an army and gave battle to Harold at Senlac Hill. Harold was slain and the Normans were victorious. William then took the throne under the title of William I., the Conqueror. By 1070 the subjugation of England was well-nigh complete. In 1072 William invaded and conquered Scotland. He created the New Forest in 1076. He introduced the Curfew Bell, caused a survey of the whole country to be written out in the Domesday Book in 1085; parceled out the lands of the English to his followers; introduced the Feudal System, whereby the Duke had complete control over all of his subjects.

WILLIAM II., RUFUS (about 1056–1100). King of England (1087–1100). He was the third son of William the Conqueror, who named him as his successor in 1087. Lanfranc, Archbishop of Canterbury, was his guide, and as long as he lived, William's conduct and reign were satisfactory. On Lanfranc's death he began a rule which caused the English chronicle to record on his death that "he was loathsome to well-nigh all his people and abominable to God." He made war upon Scotland and its king did him homage. With his brother, Robert of Normandy, he made war upon his younger brother, Henry (afterward Henry I.), and drove him into exile. He gave Robert 10,000 marks for his kingdom in Normandy to enable him to join the Crusades. He was shot by an arrow from the bow of Sir Walter Tyrrel while hunting in the New Forest, and was buried at Winchester without ceremony.

WILLIAM III. or **WILLIAM HENRY OF NASSAU, PRINCE OF ORANGE** (1650–1702). King of England; born in The Hague, Holland; son of William II. of Orange. He was crowned king in February, 1689. The resistance of the adherents of James II. was broken in Ireland by the battle of the Boyne (1690). In 1691 William led the army in the Netherlands in person; took Namur (1692); signed the treaty of Ryswick (1697), and was acknowledged king of England; he was sole ruler after 1694, on which date Mary, who reigned jointly with him, died.

WILLIAM IV. (1765–1837). King of England (1830–1837). Third son of George III. and uncle of Queen Victoria, who succeeded him. The great event of his reign was the passage of the Reform Bill, which was passed by the House of Lords unwillingly by reason of the king's threat to create a sufficient number of new lords to secure its passage.

WILLIAM I. (1797–1888). King of Prussia and emperor of Germany; born at Berlin; son of Frederick William III. of Prussia. Took part in the campaign against Napoleon I. (1814–1815), and, on the accession of his brother, Frederick William IV., to the Prussian throne (1840), he became governor of Pomerania. His Absolutist attitude at the time of the revolution in Berlin (1848) made it necessary for him to seek refuge in England; but he soon returned, suppressed the revolutionary Badeners (1849), and in 1858 was appointed regent. This position he held until his brother's death in 1861, when he was crowned king of Prussia. In the war of 1866, which proved so humiliating to Austria, William took the field as commander in chief of the Prussian army; he also led the German forces in the war with the French (1870–1871), and received the capitulation of Paris January 28, 1871. His success led the German states to offer him the crown, which he accepted; he was proclaimed emperor at Versailles, January 18, 1871.

WILLIAM II. (1859-). German emperor and king of Prussia; son of emperor Frederick III. He succeeded his father (1888), and some of the points of his reign that deserve special emphasis: (1) the fall of the great chancellor, Bismarck (1890), brought about by the king's resolve to be an absolute ruler; (2) the ambition of the emperor to develop colonial expansion principally for purposes of trade; and (3) the building of a powerful navy, superior in strength and efficiency to that of any other first class power except England. At the close of the World War William fled to Holland, where he now resides, and Germany became a Republic.

WILMOT, DAVID (1814–1868). American politician; born in Bethany, Pa. Remembered chiefly for the famous "Wilmot Proviso" (1846) declaring slavery unlawful in any territory acquired from Mexico. Although passed by the House, the Senate rejected the bill. Wilmot was admitted to the bar (1834); he was a Democrat and served his state, Pennsylvania, in the House (1844–1851) and in the Senate (1861–1863); supported the Republicans on the slavery issue.

WILSON, HENRY (1812–1875). American statesman; born in Farmington, N. H.; member of the Massachusetts house of representatives (1840); of the state senate (1844–1845); succeeded Everett as United States senator from Massachusetts (1855), and in 1872 was chosen vice-president with Grant.

WILSON, JAMES (1835–1920). American Cabinet officer; born in Scotland; lived with his parents in Norwich, Conn. (1852–1855); removed to Tama County, Iowa; member of the state assembly for three terms, during the last of which he was speaker; member of Congress (1873–1877 and 1883–1885); secretary of agriculture (1897–1913).

WILSON, WILLIAM LYNE (1843–1900). Born in Jefferson County, Va.; president University of West Virginia; member of Congress (1883–1895); carried repeal of Sherman Silver Purchase Bill; framed Wilson Tariff Bill (1894); postmaster general (1895–1897); president Washington and Lee University (1897–1900).

WINTHROP, JOHN (1588–1649). First colonial governor of Massachusetts; born at Edwardston, Suffolk, England. In 1630 he left England for America, being among the first Salem colonists; was made governor of the colony and held that position almost continuously till his death. He kept an elaborate journal covering the whole period of his life in Massachusetts, which is of inestimable value.

WITTE, SERGEI YULIEVITCH (1849–1915). Russian stateman; minister of communications (1892) and, soon after, minister of finance until 1903. As such he promoted manufactures, favored protection, introduced the gold standard, and government monopoly of alcohol. He increased the revenues and negotiated large loans; was appointed president of the Committee of Ministers (1903) and a member of the Council of the Empire; negotiated the Treaty of Portsmouth, N. H., with Japan; took an active part in the Duma; regarded as one of Russia's greatest statesmen.

WOLSEY, THOMAS (1475–1530). "The Great Cardinal." Graduate of Magdalen College, Oxford (1490); ordained priest (1498); royal chaplain to Henry VII. and special ambassador in important missions; royal almoner to Henry VIII.; member of Privy Council (1511), the practical ruler of England; bishop of Lincoln (1514); archbishop of York (1514); cardinal (1515) and lord warden. Arrogant and imperious he opposed the king; was charged with high treason but died before his trial.

WORK, HUBERT (1860-), before entering public life served as a physician in Colorado. Founded Woodcrest Hospital. Postmaster general, 1922-23, after being assistant for a year; and then became secretary of the Interior.

WU TING FANG (1842–1922). Born in the Hsinhin district of Kwangtung, China; studied English law (1874–1877); returned to China (1877); constructed first Chinese railway; negotiated the Treaty of Shimonoseki with China; vice-president board of war; minister to United States; L.L.D. University of Pennsylvania (1900); and again minister in 1907. Held many Chinese offices.

XERXES I. A king of Persia (reigned 485–465 B. C.). Son of Darius I. and supposed to be the Ahasuerus of the Bible. After subduing the revolted Egyptians he spent three years in preparing an attack upon the Greeks. With an army estimated at one million he marched from Sardis for the Hellespont in the spring of 480 B. C. He had also a fleet of 1,200 ships. Successful at Thermopylae, he was overwhelmed first at Salamis and then at Plataea. He fled from Greece and attacked Babylon on the way home, razing the temples of the city. Murdered with his eldest son, Darius, by Artabanus, captain of the guard.

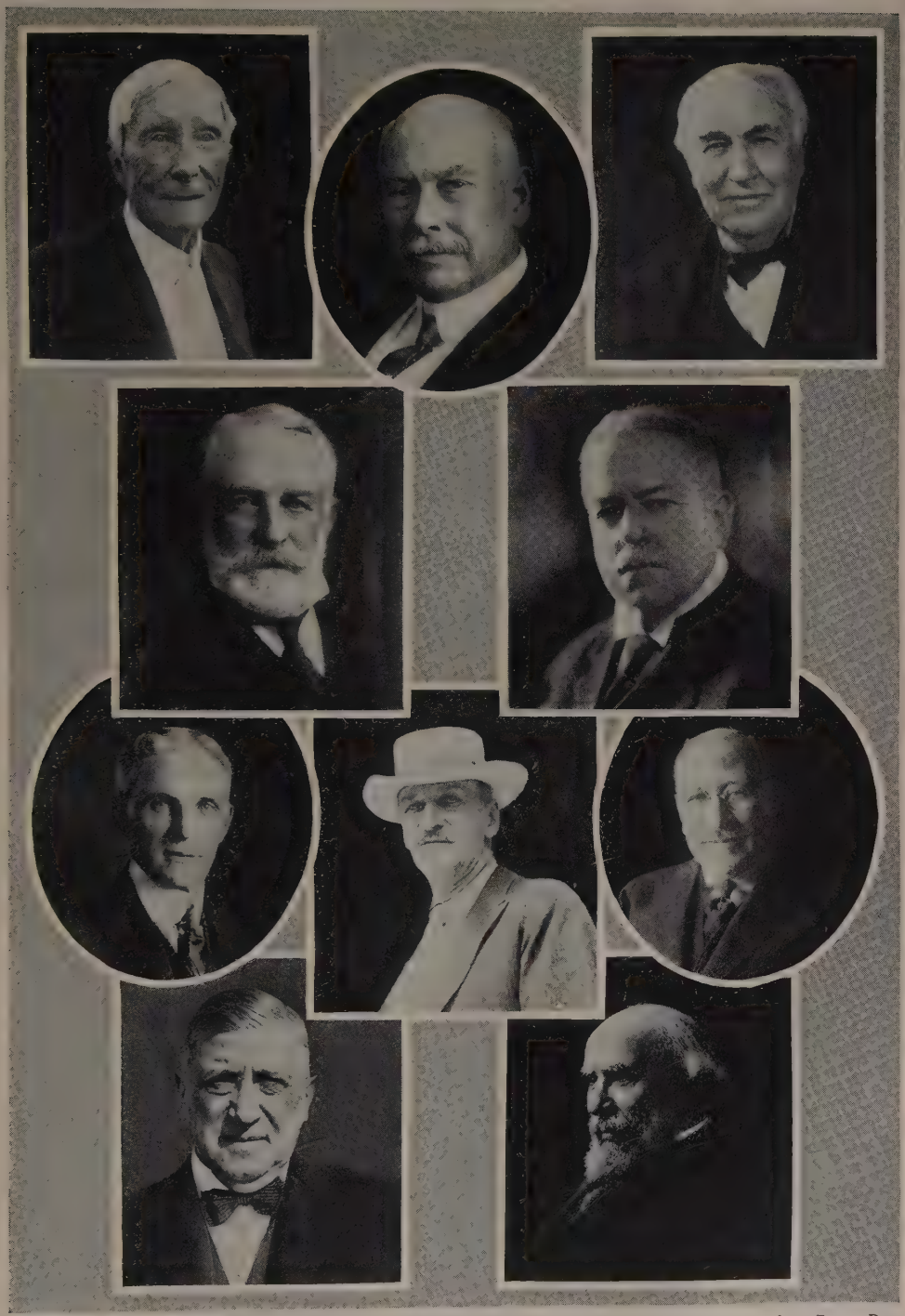
XERXES II. (about 450–425 B. C.). A king of Persia, the son of Artaxerxes I. and the grandson of Xerxes I. He came to the throne when his parents were murdered in 425 B. C., and was himself assassinated after reigning 45 days.

YOSHIHITO (1879-1926), 122d emperor of Japan and third son of Emperor Meiji. Educated in school of princes. Married Sakada, the fourth daughter of Prince Michitaka, in 1900. Their eldest son, Hirohito, now emperor of Japan, was born in 1901. Ruled actively from 1912 to 1921, being succeeded virtually by his son as regent because of Hirohito's ill health, which ended in his death in Dec., 1926. Reign known as "Era of Great Righteousness."

YOUNG, OWEN D. (1874-), capitalist and public servant, has been prominent in the General Electric, Radio Corporation, Federal Reserve Bank, General Motors and other companies. Served on numerous commissions, including the Industrial Conference Board, Expert on Reparations from the Central Powers, Conference on Unemployment, and General Education Board.

YUAN SHIH-KAI (1859-1916). First president of the Chinese republic. When twenty-three years old went to Korea as a minor secretary; imperial resident of the Korean court (1885-1894), when he took part in the Chino-Japanese war; judicial commissioner of Chili (1897); governor of Shantung during the Boxer rebellion, and afforded protection to foreigners; viceroy of Chili (1901), and during his tenure of office laid the foundation of China's modern army; grand councilor (1897), and prominent in government at the death of the emperor and the dowager; dismissed by the regent (1909) and soon after took the field as military dictator; after breaking out of rebellion recalled and made premier, Nov. 8, 1911; Feb. 12, 1912, asked to organize a provisional republican government; two days later made provisional president for 10 months; elected president for five years (1913); the newly elected parliament being impractical and stubborn, Yuan finally dissolved it, and was virtually dictator. When the elections (Nov., 1915) seemed to favor a return to monarchy and the crown was offered to Yuan, he finally accepted it. Later, finding the people averse to monarchy so numerous, he withdrew his acceptance. A remarkably able statesman.

ZENOBIA. Queen of Palmyra; began to rule about 267 A. D. Conquered Egypt; overwhelmed by Aurelian (272).



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BUILDERS OF AMERICAN INDUSTRY

John D. Rockefeller
Henry Ford
Henry C. Frick
Charles M. Schwab
Judge E. H. Gary
T. Coleman DuPont
Julius Kruttschnitt
James J. Hill
Thomas A. Edison
Julius Rosenwald

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EMINENT INDUSTRIAL LEADERS

Morris Hillquit
Samuel Gompers
Mrs. Mary ("Mother") Jones
Warren S. Stone
John L. Lewis
Frank Morrison

CAPTAINS OF INDUSTRY.

ARBUCKLE, JOHN (1838-1912). Educated in Allegheny, Pa. In 1871, with his brother, he established the New York coffee firm of Arbuckle Bros., and an independent sugar company, among the largest in the country. He built up a seagoing fleet, a lighterage business in New York harbor, a towing company between New York and Albany, and a wrecking concern which was his pet hobby.

ARCHBOLD, JOHN DUSTIN (1848-1916). Oil merchant and capitalist. Born at Leesburg, O.; went to Pennsylvania in 1864, where he became interested in the oil industry. President Acme Oil Company; officer or director in several enterprises; vice-president Standard Oil Company. He also acts as president and director in two educational and charitable organizations.

ARMOUR, JONATHAN OGDEN (1863-1927). Capitalist, packer; born at Milwaukee, Wis. Before completing the course at Yale he was called to Chicago to assist his father; president of Armour & Company, packers, and Fort Worth Stock Yards Company; director several packing houses, banks, insurance companies, and car lines; American trustee of Insurance Company of Stettin.

ARMOUR, PHILIP DANFORTH (1832-1901). Merchant and philanthropist; born in Stockbridge, N. Y.; began a grain and warehouse business in Milwaukee in 1856. Seven years later he became head of Armour, Plankinton & Company, pork packers. In 1870 the main office was transferred to Chicago, and the firm name became Armour & Company. The business increased rapidly and at the time of Armour's death the company owned more grain elevators than any other firm in the world, employed 50,000 men, and sent goods to every civilized country.

BLISS, CORNELIUS NEWTON (1833-1911). Merchant; born at Fall River, Mass.; after completing his education entered his stepfather's countingroom in New Orleans; member J. S. & E. Wright & Company, Boston (1866); established in 1881 the firm of Bliss, Fabyan & Company, dry goods commission merchants, New York; trustee and director of other financial enterprises; secretary of interior (1897-1899); vice-president chamber of commerce; member executive committee National Civic Federation.

CARNEGIE, ANDREW (1837-1919). Capitalist, manufacturer, philanthropist; born at Dunfermline, Scotland. He came to Pittsburg in 1848, and began his remarkable career as a weaver's assistant in a factory. He studied telegraphy, and secured a position in an office of the Pennsylvania Railroad, advancing step by step until he became superintendent of the Pittsburg division. The beginning of his fortune was made as partner in the Woodruff Sleeping Car Company, and careful investments in oil lands increased his wealth. After the Civil War he turned his attention to the iron industry; introduced Bessemer process in 1868; and in a few years was chief owner of Homestead and Edgar Thomson Steel Works, and of other large plants. In 1899 all these were merged into the Carnegie Steel Company, and two years later consolidated in the United States Steel Corporation. In 1901 he retired from business. His donations have exceeded those of any other American philanthropist.

CHALMERS, WILLIAM JAMES (1852-). Manufacturer; born in Chicago; was vice-president and treasurer of Fraser & Chalmers (1889-1891), president (1891); vice-president of Allis-Chalmers Company since 1900; bank and trust company director; director Fraser & Chalmers, Ltd., London; has been member Chicago board of education; director World's Columbian Exposition, Chicago Athenaeum, and Commercial National Bank.

CLARK, WILLIAM ANDREWS (1839-1906). United States senator; born near Connellsville, Pa.; studied law, but never practised; taught school in Missouri, and in 1863 went to Montana, where he became successively merchant, banker, mine owner, and manufacturer; president United Verde Copper Company of Arizona; elected senator (1901-1907).

COREY, WILLIAM ELLIS (1866-). Capitalist; born in Pennsylvania; entered chemical laboratory of Edgar Thomson Steel Works at 16; became superintendent of a plate mill at 21; invented Carnegie reforged armor; succeeded Charles M. Schwab, and has been president of the Carnegie Steel Company, and others; president of the United States Steel Corporation (1903-1911); director of many other corporations.

CRAMP, CHARLES HENRY (1828-1913). American shipbuilder; president of the famous Cramp Shipbuilding Company; assisted in reconstructing the United States navy, and in the reëstablishment of the United States merchant marine; built the ill-fated battle ship Maine; the ship yards include 31 acres of land employing 6,000 operatives.

CRANE, RICHARD T. (1832-1912). Manufacturer; born in New Jersey. He worked as a machinist in Paterson, Brooklyn, and New York, but in 1855 went to Chicago. His uncle, Martin Ryerson, gave him a piece of land on which he built a brass foundry. Later he and his brother, Charles S., joined forces as R. T. Crane & Brother, and in 1858 began making steam heaters. Reorganized as Crane Company they manufactured pipes and fittings, and later, as the Crane Elevator Company, passenger and freight elevators. The latter especially grew into a big business. Mr. Crane in 1907 practically retired from active work.

CRANE, WINTHROP MURRAY (1853-1915). Paper manufacturer and statesman. Born at Dalton, Mass.; received degree of A. M. from Williams (1897). Entering political life, he became lieutenant governor of Massachusetts (1897-1899); governor (1900-1902); United States senator to fill the unexpired term of Senator Hoar (1904-1907), re-elected (1907), continued till 1913.

CUDAHY, MICHAEL (1841-1910). Born in Callan, Ireland; came to the United States (1849); partner in Armour & Co. (1873-1890); head of Cudahy Packing Company of Omaha, Sioux City, and Los Angeles (1890-1910).

CUDAHY, PATRICK (1849-1919). Packer; born in Callan, Ireland; came to the United States (1849); at 12 became a delivery boy for a Milwaukee grocer; at 14 employed by Roddis Packing Company; became a partner with Plankinton & Armour (1876); with brother, John, bought Mr. Plankinton's interest (1888), firm becoming Cudahy Brothers; moved plant to Cudahy (1893), organizing Cudahy Brothers Company, now one of the largest packing houses in the United States, of which he acts as president and general manager; director Wisconsin National Bank.

DAVIS, HENRY GASSAWAY (1823-1916). Capitalist; born in Baltimore; was successively brakeman, conductor, and agent of the B. & O. Railroad at Piedmont, W. Va.; assisted in establishing the West Virginia Central & Pittsburg Railway; built the Coal and Coke Railway of West Virginia, of 200 miles, of which he became president; is president of Davis National Bank of Piedmont, Davis Trust Company of Elkins, and other corporations. Member House of Delegates, W. Va. (1865); state senator (1868-1871); United States senator (1871-1883); has been delegate to several conventions; member United States Intercontinental Railway Commission; was Democratic candidate for vice-president (1904).

DAVIS, JAMES J. (1873-), Secretary of Labor, in cabinets of Harding and Coolidge, was born in Wales, but came with parents to America and entered the steel industry at eleven. Prominent in the Order of Moose, being founder of Mooseheart, and other enterprises of the society, as general since 1906. Held minor political offices before director, 1921, and was President of Bond and Mortgage Company of Pittsburgh.

DOUGLAS, WILLIAM LEWIS (1845-1924). Manufacturer and statesman; born at Plymouth, Mass. Owing to the death of his father in 1850, William was obliged to find employment, and for eight years worked for his uncle, pegging shoes. Learned boot making, and after spending a few years in Colorado, he returned to Massachusetts. In 1876 he was able to establish a small shop, from which his business has grown until to-day he controls two factories with an output of 15,000 pairs daily; and the well-known Douglas shoe is sold in 75 of his own stores. Member Massachusetts House of Representatives (1883-1884); State Senate (1886-1887); mayor of Brockton (1891); governor (1904).

DU PONT, T. COLEMAN (1863-), Senator and Capitalist, from 1893 became interested in coal mining in Kentucky and electric power there and elsewhere. President Du Pont Powder Company, 1902-1915. Senator from Maryland by appointment, 1921-22; elected for full term beginning in 1925. Known for benefactions, including a cement highway costing four millions given to Delaware.

FIELD, CYRUS WEST (1819-1892). American financier; born at Stockbridge, Mass. At 15 he went

to New York and worked for A. T. Stewart & Company, but before he was of age he was in business for himself, manufacturing paper; and at the end of a dozen years he was at the head of a prosperous business. In 1854 he became interested in a scheme to lay a transatlantic cable and formed a company of five men, with Peter Cooper as president. Three fourths of the necessary capital was raised in England, there the cable was made, and the first great attempt came in 1857. It was a failure; and the next, in 1858, was successful for a short time only. The third attempt was made in 1865, with the help of the biggest ship then afloat, but it was a failure. The next year saw him afloat with yet another cable, and this time it was a success. During the succeeding years he did much toward promoting railroad development, until his resignation as president of two roads in 1880.

FIELD, MARSHALL (1835-1906). Merchant; born in Conway, Mass. He began by clerking in Pittsfield, Mass., and in Chicago from 1856 to 1860. In the latter year he was made junior partner, and in 1865 became one of the firm of Field, Palmer & Leiter, which was changed to Marshall Field & Company in 1881. Under his management the firm conducted the largest retail and wholesale dry goods business in the world, with immense headquarters in Chicago, and branches in France, Germany, and England. He founded the Field Columbian Museum with $1,000,000, as a permanent repository for valuable exhibits, especially from the Columbian Exposition of 1893.

FISH, STUYVESANT (1851-1923). Banker, railway official; born in New York; after leaving Columbia University he entered the office of the Illinois Central Railway as clerk (1871), secretary to president (1872); clerk Morton, Bliss & Company, New York, and Morton, Rose & Company, London, (1872-1877); has acted as director and officer of many railroads; president Illinois Central Railroad (1887-1906); has been director and trustee in various insurance and trust companies; was president of American Railway Association for 1904-1906, and chairman of the seventh International Railway Congress, Washington, 1905.

FLAGLER, HENRY M. (1830-1913). Capitalist; born at Canandaigua, N. Y.; began as clerk in a country store. After manufacturing salt at Saginaw, Mich., he went to Cleveland and became partner in Rockefeller, Andrews & Flagler, oil refiners, later the Standard Oil Company, of which he became vice-president and director (1870-1908); a director till 1911. He became interested in the development of Florida in 1885; bought Jacksonville and St. Augustine Railroad (1888); constructed 10 hotels in the state connected by 600 miles of railroad, and two in the Bahamas. His crowning achievement was the Florida Keys Railroad, 156 miles from Miami to Key West. Director in many railroad companies and other corporations.

FLEMING, SIR SANFORD (1827-1915). Born in Scotland; did important Canadian engineering work on Northern Railway, Intercolonial, Pacific Railway, etc. (1845-1871); surveyed road for St. John's to St. George's Bay Railway in Newfoundland. Retired to devote himself to politics, and special branches of science and literature (1880); did great work on "cosmic or universal time," making Greenwich the standard of the world; advocated Pacific Ocean cable, giving plans forming a Pan-Britannic service encircling the world (1879).

FLINT, CHARLES RANLETT (1850-). Merchant. Born at Thomaston, Me. Partner in important exporting firms; Chilean consul, New York (1877); consul general Nicaragua and Costa Rica to United States; established Flint & Company, shipowners (1885); formulated important reforms in customs, etc.; fitted out war fleet for Brazil (1895); bought cruiser for Japan (1894); sold submarine and torpedo boats to Russia during war with Japan, visiting Turkey and other countries in its interest.

FRICK, HENRY CLAY (1849-1919). Manufacturer; born at West Overton, Pa. He began as a clerk, then became a small dealer in coke, and later president of the H. C. Frick Coke Company, now largest in the world, producing 25,000 tons daily. Was shot and stabbed in famous Homestead strike (1892). Chairman board of managers of Carnegie Steel Company since 1892; and official in many large concerns.

GARY, ELBERT HENRY (1846-1927) Financier; born at Wheaton, Ill. Graduate of University of Chicago; admitted to the bar in 1867. Was for five terms mayor of the village and (afterward) city of Wheaton; county judge, two terms; practised law for 25 years in Chicago; general counsel for important corporations connected with the Federal Steel Company, of which he has been president since 1898. Was prominent in organizing the United States Steel Corporation and is chairman of its board of directors; director in several banks and corporations in Chicago and New York; president Gary-Wheaton Bank; trustee of Northwestern University.

GATES, JOHN WARNE (1855-1911). Capitalist; born on farm near Turner Junction (now West Chicago), Illinois; began business life by conducting a small hardware store at his birthplace; built up a large business in barbed wire while acting as salesman for I. L. Ellwood in Texas, and later established for himself in St. Louis; organized Southern Wire Company (1880), which became the Braddock Wire Company; absorbed other companies in Consolidated Steel and Wire Company, which was sold to Federal Steel Company in 1898; organized American Steel and Wire Company (now part of the United States Steel Corporation) (1897); director of numerous financial enterprises.

GLOVER, CHARLES CARROLL (1846-). Financier, banker; born on farm in Macon County, North Carolina; entered Riggs & Company, bankers, as clerk; became partner in firm (1873); president of the Riggs National Bank since its organization (1896); instrumental in procuring for District of Columbia site for Fort Reno reservoir; aided in securing the establishment of Rock Creek and Potomac parks; director, trustee, and officer of various organizations; ex-president Washington Stock Exchange; member Washington National Monument Society; vice-president and treasurer Corcoran Gallery of Art.

GOULD, FRANK JAY (1877-). Capitalist; born in New York; entered the railroad service (1897); has been first vice-president of several railroads; president of Big Creek Lumber Company, Pacific Railway in Nebraska, Richmond & Chesapeake Bay Railway Company, and Old Dominion Iron & Nail Works Company; director in numerous companies.

GOULD, GEORGE JAY (1864-1923). Capitalist; born in New York; president (1893-1911) and director of Missouri Pacific Railway; St. Louis, Iron Mountain & Southern Railway Company; Texas & Pacific Railway Company; International and Great Northern Railway Company since 1893. Is also president of many other railroads, and director of railroads and corporations throughout the country.

HAMMOND, JOHN HAYS (1855-). Mining engineer; born at San Francisco; graduated from Yale (1876); took mining course at Freiburg, Saxony. He has examined mining properties in all parts of the world; consulting engineer for Barnato Brothers, 1893, and later for Cecil Rhodes; for the Consolidated Gold Fields of South Africa; for the British South Africa Company; and for the Randfontein Estates Gold Mining Company. After Jameson's raid he was arrested and given death sentence, later commuted to prison for 15 years, finally released on payment of $125,000. Went to London; returned to United States; traveled extensively as a mine specialist for Venture Corporation of London and Guggenheim Exploration Company of New York. He has lectured at Columbia, Yale, Harvard, and Johns Hopkins; contributed largely to scientific magazines, and received many honorary titles; president American Institute Mining Engineers (1907-1908).

HARAHAN, JAMES THEODORE (1843-1912). Railway president; born at Lowell, Mass. Employed by Orange & Alexandria Railroad, Alexandria, Va. (1854-1865); held several responsible positions with other railroads; general manager Louisville & Nashville Railroad (1885-1888), Chesapeake & Ohio Railway, Louisville, New Orleans & Texas Railway; second vice-president Illinois Central Railroad (1890-1906); president same road (1906-1912).

HAVEMEYER, JOHN CRAIG (1833-1922). Merchant and sugar refiner; born in New York. Began by clerking in 1851-1852. After traveling in Europe, Syria, and Egypt, he clerked in a sugar refinery (1854-1856) in Brooklyn; partner in Havemeyer Brothers & Company (1871-1880). He is director in several railroads and corporations. Writer and speaker on political, moral, and religious subjects.

HERRESHOFF, NATHANIEL GREENE (1848-). Superintendent Herreshoff Manufacturing Company; born in Bristol, R. I.; educated at Massachusetts Institute of Technology (1866-1869),

and holds the Sc.M. of Brown University. Designer of yachts and torpedo boats. Member of the Institute of Naval Architects and Marine Engineers, New York; and of Institute of Naval Architects, England.

HILL, JAMES J. (1838-1916). Railway official; born near Guelph, Ont. Worked in a steamboat office in St. Paul (1856-1865); agent of the Northwestern Packet Company (1865); and later engaged in fuel and transportation on his own account. In 1869-1875 he was at the head of Hill, Griggs & Company; established Red River Transportation Company (1870); organized Northwestern Fuel Company (1875), but later sold his interest to organize a syndicate to secure control of the St. Paul & Pacific Railroad. This was the nucleus of the Great Northern system which he projected from Lake Superior to Puget Sound, with northern and southern feeders, and direct steamship connection with China and Japan (1883-1893); president Great Northern system (1893). In 1907 he retired, retaining chairmanship board of directors. Now president Northern Securities Company, and director in Manhattan Trust Company, Chase National Bank, First National Bank of New York, First National Bank of Chicago, and many other corporations.

HOYT, COLGATE (1849-1922). Banker, railway official; born at Cleveland, Ohio; became a banker; government director (1882-1884), company director (1884) of the Union Pacific Railroad; vice-president Oregon & Transcontinental and Oregon Railroad & Navigation Company (1889); vice-president North American Company until 1889; now first vice-president Missouri, Kansas & Texas Railway of Texas.

HUNTINGTON, COLLIS POTTER (1821-1900). Railway official. At 16 he secured $3,000 worth of clocks on credit in New York, and sold them in the South and West; started his fortune in the hardware business in California (1849); with Leland Stanford, Charles Crocker, and Mark Hopkins he organized the Central Pacific (1860-1869). At his death he was president of the managing board of the Southern Pacific system, comprising 26 corporations, besides owning 9,000 miles of steamship lines. He gave liberally to worthy objects.

INSULL, SAMUEL (1859-). Corporation official; born in London; came to the United States in 1881, and was private secretary of Thomas A. Edison, having full charge of his business affairs for many years. He represented him in the organization and management of Electric Tube Company, Edison Machine Works, and Edison Lamp Company. In 1889 the different Edison concerns were consolidated into the Edison General Electric Company, with Mr. Insull as second vice-president. In 1892 there was further consolidation with the Thomson-Houston Company, into the General Electric Company, of which he became second vice-president. Since 1907 he has been president of the Commonwealth Edison Company, controlling all electric lighting in Chicago. He is president also of numerous other corporations—electric, gas, heat, power, and traction.

KRUTTSCHNITT, JULIUS (1854-1925), railway officer, was born in New Orleans and educated at William and Mary College, Virginia. After teaching a while, he entered the railway service and gradually rose through various positions to those of great responsibility in the Southern Pacific system. He was general manager of the S. P. in 1895-1904, one of the vice presidents, 1898-1904, assistant to the president, 1904-1911, and eventually became chairman of the Board, besides being interested in other companies and banks.

LEWIS, JOHN L. (1880-), labor leader, recently has lived in Illinois. Has been connected with the United Mine Workers of America since 1917, as president since 1919, after serving as legislative agent and vice president, and for a time as legislative agent of the American Federation of Labor. Member of the Unemployment Conference in 1921 and of the advisory committee to the Arms Limitation Conference in 1921-22. Author of *Miners' Fight for American Standards.*

LOEB, JAMES (1867-). Banker (retired); born at New York; graduated from Harvard (1888); in banking business (1888-1901); member English Society for Promotion of Hellenic Studies.

McCLURE, SAMUEL SIDNEY (1857-). Editor; born County Antrim, Ireland; came to Indiana at the age of nine; was graduated at Knox College in 1882. In 1884 he started the first newspaper syndicate in the United States and made it a success; and in 1893 he united with others to publish *McClure's Magazine*, which he also made a success. Founded McClure, Phillips & Company, publishing house (1899); trustee Knox College since 1894; president S. S. McClure Company.

McCURDY, RICHARD ALDRICH (1835-1907). Capitalist; born in New York; practised law with Lucius Robinson, who became governor of New York; was attorney (1860), vice-president (1865), and president (1885-1906), of Mutual Life Insurance Company; resigned; president International Bell Telephone Company, Ltd.; director in several corporations.

MacKAY, CLARENCE HUNGERFORD (1874-). Capitalist; president Commercial Cable Company, Postal Telegraph-Cable Company, Pacific Postal Telegraph-Cable Company, Commercial Pacific Cable Company, Commercial Cable Building Company, etc.; trustee New York Life Insurance Company; director Canadian Pacific Railway Company, American Exchange National Bank, United States Mortgage and Trust Company, Federal Sugar Refining Company, etc.

MacVEAGH, FRANKLIN (37-). Merchant; born on farm, Chester County, Pa. A graduate of Yale (1862), and Columbia Law School (1864). Went to Chicago and established wholesale grocery business, of which he is head; president Citizens' Association (1874); president of Bureau of Charities and Municipal Art League; vice-president American Civic Association (1905); secretary of the treasury in cabinet of President Taft (1909-1913).

MELLEN, CHARLES SANGER (1851-1927). Railway official; born in Lowell, Mass. Began as clerk in office of Northern New Hampshire Railroad; clerk Central Vermont Railroad (1872-1873); employed by Northern New Hampshire Railroad (1873-1880); Boston & Lowell Railroad (1880-1881); Boston & Lowell and Concord railroads (1881-1888); Union Pacific system (1888-1892); second vice-president New York, New Haven & Hartford Railroad (1892-1896); president (1903-1913); president Northern Pacific Railway Company (1896-1903).

MORRISON, FRANK (1859-), labor leader, born in Canada, received his law degree at Lake Forest Law School in 1894. Previously he followed the trade of a printer. In 1896 he became Secretary of the American Federation of Labor. Recently he served on the executive committee of the Council of Churches. and the Board for Near East Relief.

MUNSEY, FRANK ANDREW (1854-1925). Publisher; born at Mercer, Me. Began in a country store; manager Western Union Telegraph office, Augusta, Me.; established the *Golden Argosy* (now *The Argosy*) in New York (1882); in 1889 he started *Munsey's Weekly*, converted into *Munsey's Magazine* two years later. Now he owns also the *All-Story Magazine, Scrap Book, Ocean, Railroad Man's Magazine*, Washington *Times*, and New York *Mail and Express.*

MUNSON, FRANK C. (1876-). Born in Cuba and educated in Brooklyn, N. Y. Began business as office boy of Munson Line of steamships, rising to be manager of Cuban dept., treasurer, vice-president, and since 1916 president. Director in shipping corporations, Munson Building, Gold Dust, N. Y. Canal and Great Lakes Co., P. R. Mallory, and other companies. Member War Trade Board, Shipping Com. of Natl. Council of Defense, N. Y. Parks and Playgrounds Assoc., and President Brooklyn Y. M. C. A.

NEWMAN, WILLIAM H. (1847-1918). Railway official; born in Prince William County, Va. Began as station agent for the Texas & Pacific (1869-1872); from 1872 to 1883 he was general freight agent; traffic manager for the Southwestern system (1883-1885); traffic manager for the Missouri Pacific (1885-1887); vice-president (1887-1889). Since 1898 he has been president of the Lake Shore, since 1901 of the New York Central, since 1905 of the Michigan Central and of the Big Four.

OLIVER, JAMES (1823-1908). Inventor; born at Whitehaugh, Scotland. He came to the United States in 1835; lived upon a farm near Geneva, N. Y. (1835-1836); Mishawaka, Ind. (1836-1855); began making plows (1855); invented the "chilled plow."

OXNARD, BENJAMIN A. (1855-1924). Manufacturer; born in New Orleans, La.; graduate of Massachusetts Institute of Technology (1875) and influential in promoting beet sugar manufacture. Until 1889 he was engaged in sugar refining in Brooklyn; since that time he has been producing both cane and beet sugar. Now president of the Adeline Sugar Factory Company, Ltd.

OXNARD, HENRY THOMAS (1860-1922). Manufacturer; born in Marseilles, France; graduated at Harvard in 1882; has promoted the beet sugar industry of the United States. He is president of the American Beet (Sugar Association, including all the factories in this country.

PABST, FREDERICK (1836-1904). Brewer; born in Saxony, and emigrated to the United States in 1848; educated himself, and married the daughter of Philip Best. For a time he acted as captain of the steamer *Comet* on the Great Lakes. In 1862 he took up brewing and advanced until he became president of the Pabst Brewing Company, owning one of the finest plants in the world.

PHIPPS, HENRY (1839-). Manufacturer; born at Philadelphia, Pa. At 13 he was working in a store in Pittsburg, and about 1856 he was promoted to be bookkeeper for Dilworth & Bidwell, spike manufacturers; partner in Bidwell & Phipps, powder agents, and also in Kloman & Phipps, running a small iron mill. Still later he was associated with the Carnegie Brothers in iron and steel manufacture. In the United States Steel Corporation he held the largest interest next to Andrew Carnegie; director United States Steel Corporation, Mallon National Bank, and Philadelphia Rapid Transit Company.

PILLSBURY, CHARLES ALFRED (1842-1899). Flour miller; graduated from Dartmouth in 1863, and went into a Montreal house as a clerk, where he stayed until 1869; removed to Minneapolis, where he was employed as a clerk; later his uncle, John S. Pillsbury, who had come to the Falls of St. Anthony in 1855, took him into partnership in his flour mill; introduced the roller process, and extended the business until in 1872 the firm of Charles A. Pillsbury & Company began building the largest mills in the world. In 1889 the firm sold out to an English syndicate which combined all their purchases into the Pillsbury-Washburn Flour Mills Company, of which he was president; was president also of the Minneapolis and Northern Elevator Company, and was state senator (1877-1887).

PLANT, MORTON P. (1852-1922). Capitalist; railway official. He was educated at Russell College, Connecticut, and began his business career at the age of 16 with the Southern Express Company in Memphis. From 1884 to 1902 he was with the Plant system of railroads, of which he was vice-president until 1902, when the system was absorbed by the Atlantic Coast Line Railroad, in which he is director; vice-president and director in the Peninsular and Occidental Steamship Company; chairman of board of directors of Southern Express Company; director in Casualty Company of America, Interborough Rapid Transit, Lincoln Trust Company, Union Gas and Electric, etc.; trustee American Surety Company.

POPE, ALBERT AUGUSTUS (1843-1909). Manufacturer; born in Boston, Mass. Began his business career as a shoe clerk. He served so well in the Union army for three years that he was brevetted lieutenant-colonel for gallantry in several battles. After the war he went into shoe findings business (1865-1876); in 1877 started the Pope Manufacturing Company for making and selling small patented articles; and at the same time he began to sell imported bicycles; introduced the bicycle manufacturing industry in the United States (1878); founded *The Wheelman* (now absorbed in *Outing*) in the interests of cycling; leader in good roads movement; had large interests in numerous corporations.

PULLMAN, GEORGE MORTIMER (1831-1897). Inventor; born in Chautauqua County, N. Y. Employed for a time as cabinet maker in Albion, N. Y.; took contract for moving the buildings which obstructed the widening of Erie Canal; building contractor in Chicago; built first new sleeping car (1863); organized the Pullman Palace Car Company (1867), of which he was president the rest of his life. In 1880 he founded the model town of Pullman for the employees, which excited great interest at the time by the novel features, and became the prototype of many similar business philanthropies. His idea of vestibule trains took material form in 1887. Mr. Pullman was connected with many other enterprises, and was president of the company which started the Manhattan Elevated Railroad in New York.

RIPLEY, EDWARD PAYSON (1845-1920). Railway official; born in Dorchester, Mass. After receiving a high school education he went into railroad work in 1869 as clerk in the Boston office of the Pennsylvania Railroad. By 1872 he had risen to be agent for New England, and six years later he was Eastern agent, employed by the Chicago, Burlington & Quincy Railroad (1886-1890); third vice-president Chicago, Milwaukee & St. Paul Railway (1890-1895); president Atchison, Topeka & Santa Fe Railway Company since 1896.

ROCKEFELLER, JOHN DAVISON (1839-). An American oil magnate, born at Richford, N. Y. At 16 he left school in Cleveland, Ohio, and was a clerk and bookkeeper at $12.50 a month. Started in the oil business on borrowed capital with Samuel Andrews and by combinations had, in 1872, control of one fifth of the oil-refining business in the United States. Formed the Standard Oil Company in 1870 with a capital of a million dollars: the Standard Oil Trust in 1882: dissolved in 1892. His fortune is estimated at $700,000,000 and he is believed to be the richest man in the world. Among his many benefactions are millions to the church, $85,000,000 to education, science, and charity, including $35,000,000 to the New York Educational Board. Within the corporation he controls there are over 1,500,000 employees. In private life he is moral and blameless. His success is attributed to hard work and economy. Though his income exceeds that of any European monarch, his life is one of marked frugality—even approaching penuriousness.

ROCKEFELLER, JOHN DAVISON, JR. (1877-). Capitalist; born at Richford, N. Y.; associated with his father in financial enterprises; member board of managers Delaware, Lackawanna & Western Railroad Company; director Standard Oil Company, United States Steel Corporation, American Linseed Company, trustee University of Chicago.

ROCKEFELLER, WILLIAM (1841-1922). Capitalist; born at Richford, N. Y.; was in produce commission trade, first as bookkeeper, then partner; associated with his brother, John D. Rockefeller, in the oil business; president of the Standard Oil Company of New York; vice-president and director Standard Oil Company of New Jersey; trustee Anaconda Copper Mining Company, Consolidated Gas Company, United States Trust Company, director in several railroads, banks, etc.

ROEBLING, JOHN AUGUSTUS (1806-1869). A famous civil engineer, born in Prussia and educated in the Royal Polytechnic School in Berlin. Came to America and lived on a farm near Pittsburg (1831); became engaged in many minor engineering works; appointed to survey the route across the Alleghanies adopted by the Pennsylvania Railroad; began manufacture of wire rope, and built a suspension aqueduct across Allegheny river (1844-1845); constructed suspension bridge at Pittsburg, and four aqueducts on the Delaware & Hudson Canal (1848-1850); established works at Trenton, N. J., and began suspension bridge over the Niagara river in 1851; began Cincinnati suspension bridge (1867); his last task was the bridge over East river, connecting Brooklyn and New York.

ROSENWALD, JULIUS (1862-), since 1910 president and in 1925 chairman of the board of Sears, Roebuck and Company of Chicago. He has led in many philanthropies, including houses for negroes and the poor, for which he has given large sums.

SCHWAB, CHARLES M. (1862-). Capitalist; born at Williamsburg, Pa.; removed to Loretto, Pa.; drove stage from Loretto to Cresson; entered engineering corps of Edgar Thomson Steel Works; became superintendent Homestead Works; president Carnegie Steel Company, Ltd.; president United States Steel Corporation (1901-1903); president and chairman board Bethlehem Steel Corporation; is also director in important financial enterprises.

SCOTT, THOMAS ALEXANDER (1824-1881). Railway official; born at London, Pa. Employed in 1851 by the Pennsylvania Railroad, he advanced steadily until in 1859 he became vice-president. During the Civil War he was temporarily in the service of the government as assistant secretary of war, rendering invaluable assistance to the Union cause by reorganizing the whole system of transportation. Later returned to the railroad business; was president of various roads; president of Pennsylvania Railroad (1874-1880).

SCRIBNER, CHARLES (1821-1871). Publisher; born in New York City; graduated from Princeton in 1840. After a European trip he started in the publishing business in New York City as partner in Baker & Scribner. The works of many famous au-

thors were published—N. P. Willis, J. T. Headley, Donald G. Mitchell, J. G. Holland, Noah Porter, Horace Bushnell, James McCosh, etc. In 1857 he started the importing house of Scribner & Welford, which published also many educational books. In 1870 *Scribner's Monthly* was established with Dr. J. G. Holland as editor.

SHAUGHNESSY, SIR THOMAS G. (1853-1923). Born in Milwaukee. Went to railroading (1869); taken to Montreal by Sir W. C. Van Horne, when assuming management of Canadian Pacific; became purchasing manager, general assistant manager and vice-president; director in important companies; great worker, phenomenal memory; knighted (1901).

SHAW, HENRY (1800-1889). An English lad opening a store in St. Louis (1820); became wealthy and did great work in botanical gardening on a 276 acre park, having 20,000 trees, library, and museum buildings, etc. He duplicated the famous gardens of Chatsworth House, England, leaving as his monument Lower Grove Park, where he is buried.

SHONTS, THEODORE PERRY (1856-1919). Capitalist; born in Crawford County, Pa. At 20 he graduated from Monmouth College, Illinois, and went immediately into banking at Centerville, Iowa. Later he took up law, and was a member of Drake, Baker & Shonts, practising four years. In 1882 he engaged in railroad construction, built two short lines, and later finished the Indiana, Illinois & Iowa, of which he was chief owner. In 1905-1907 he was chairman Isthmian Canal Commission, resigning to become president of the Interborough-Metropolitan Company of New York. He is president of the Toledo & Western Railroad, director in the Iowa Central Railroad, American Trust and Savings Bank, and Western Cold Storage Company.

SIEGEL, HENRY (1852-1915). Merchant; born at Eubigheim, Germany; came to the United States (1867); moved to Chicago (1876); established cloak manufacturing firm of Siegel, Hartsfeld & Company, later Siegel Brothers; established department store of Siegel, Cooper & Co.; established Siegel, Cooper Company, in New York (1896); purchased store of Simpson-Crawford Company (1902); manager of six large department stores.

SPRECKELS, CLAUS (1828-1909). Sugar refiner; born at Lamstedt, Hanover; came to the United States (1846); went to San Francisco (1856), where he conducted a store and later a brewery; established Bay Sugar Refinery (1863); bought sugar properties in Hawaii; invented new refining processes; established a factory at Watsonville, California, and had a beet-sugar farm of 1500 acres there; was owner in Oceanic Steamship Company.

SPRECKELS, JOHN DIEDRICH (1853-1921). Merchant; born at Charleston, S. C.; in 1880 founded J. D. Spreckels & Brothers Company, $2,000,000 capital, shipping and commission merchants, owning large fleet of tugs and vessels trading with Hawaii; president of Western Sugar Refining Company, Oceanic Steamship Company, Beaver Hill Coal Company, and other financial enterprises.

STEWART, ALEXANDER TURNEY (1803-1876). Merchant; born at Lisburn, Ireland; came to America in 1823. He had taught school here for two years when a small legacy received enabled him to start in dry goods business. In 1848 he built a store at Broadway and Chambers streets, New York City; 14 years later he built the store at Broadway, Ninth, and Tenth streets for his retail business, keeping the old store for wholesale trade. The new store cost him $2,750,000. At the time of his death the business had branches and agencies in the chief cities of Europe and several mills and factories in the United States.

STRAUS, ISIDOR (1845-1912). Merchant; born in Rhenish Bavaria; in 1854 came to United States; sent abroad (1863), by Georgia Export and Import Company, to assist agent who was to purchase steamers and supplies for shipment to the Confederate States; in 1866 he and his father formed the firm of L. Straus & Sons, importers of pottery and glassware; in 1888 became partner with brother, Nathan, in R. H. Macy & Company; member of firm of Abraham & Straus, Brooklyn (1892); first president New York Crockery Board of Trade; represented New York City on New York and New Jersey Bridge Commission; president Educational Alliance; vice-president J. Hood Wright Memorial Hospital; member Chamber of Commerce; director of numerous financial enterprises; connected with various tariff reforms; as member 53d Congress advised the formation of the Wilson tariff; on board of trustees of many charitable and philanthropic institutions; with his wife perished in "Titanic" disaster.

TUTTLE, LUCIUS (1846-1914). Railway official; born at Hartford, Ct. At the age of 19 he became interested in the railroad business; after holding various minor positions became commissioner of Trunk Line Association (1889-1890); general manager of the New York, New Haven & Hartford (1890-1892); vice-president (1892-1893); was president of the Boston & Maine (1893-1910), and since 1896 of the Maine Central.

VANDERBILT, WILLIAM HENRY (1821-1885). Capitalist and financier; born at New Brunswick, N. J., son of Cornelius Vanderbilt and father of Cornelius II. Began as bank clerk in New York. As receiver for the Staten Island Railroad he cleared it from debt in two years and became its president. After that his father made him partner and manager in all his railroad and financial transactions, vice-president of the New York & Harlem, and of the New York & Hudson River Railroad. At his father's death in 1877 he became president, extended the system, and acquired the "Nickel Plate" and the West Shore Railroad.

VANDERBILT, WILLIAM KISSAM (1849-1920). Capitalist; born on Staten Island, son of William H. Began in the office of the treasurer of the Hudson River Railroad; second vice-president New York Central & Hudson River Railroad (1877-1883); chairman board directors Lake Shore & Michigan Southern Railway from 1883; president New York & Harlem Railroad, and president or director in numerous other corporations.

VAN HORNE, SIR WILLIAM CORNELIUS (1843-1915). Born near Joliet, Mich., of old Patroon family. Began life as telegraph operator; rose to division superintendent of Chicago & Alton Railway (1867); general superintendent St. Louis, Kansas City & Northern Railway (1872); general manager Southern Minnesota Railway (1874); general manager Canadian Pacific Railway (1880) then projected. He established the 9,000 miles of road and outlined the steamship extension to China and Japan, becoming president (1888-1889). Created K.C.M.G. (honorary) (1894). Example of American and Canadian product.

WANAMAKER, JOHN (1838-1922). Merchant; born at Philadelphia, Pa. At 14 he was errand boy in a bookstore; a retail clothing salesman (1856-1861). In the latter year he united with Nathan Brown to start a clothing store in Philadelphia, which was enlarged to a department store in 1876. Twenty years later he succeeded to the business of A. T. Stewart with a New York department store, and his two stores were the largest in the United States. He declined nomination for 48th Congress, also candidacy for mayor of Philadelphia (1886); was presidential elector (1888); member National Republican Executive Committee (1889-1893); United States postmaster general (1889-1893). He is interested in religious work, and has done much to promote it.

WESTINGHOUSE, GEORGE (1846-1914). Inventor and manufacturer; born at Central Bridge, N. Y.; removed to Schenectady (1856). His inventiveness showed itself early, when he was a boy in his father's machine shop and invented a rotary engine. He served through the Civil War in the Union cavalry and as assistant engineer in the navy, and then went to college for a year. A very long list of valuable inventions stands to his credit, mostly railway, steam engine, and electrical improvements; but his greatest service to the public has been the invention of the Westinghouse air-brake and automatic railway signals. He has been at the head of many great engineering feats, especially the building of the huge electrical generators at Niagara Falls, and has received recognition by several foreign decorations. Thirty corporations of which he was president are capitalized at $120,000,000 and employ 50,000 persons. Elected trustee Equitable Life Assurance Society of United States (1905).

WHITNEY, HARRY PAYNE (1872-). Capitalist; born in New York; graduated Yale (1894); married Gertrude, daughter of the late Cornelius Vanderbilt; director Guaranty Trust Company, Guggenheim Exploration Company, National Bank of Commerce, Newport Trust Company, Plaza Bank, Raquette Lake Railway Company, member New York Zoölogical Society.

LEADING INVENTORS OF THE WORLD.

ALBERT, JOSEPH (1825-1886). German photographer, born at Munich; established a studio at Augsburg (1840); removed to Munich (1858); his invention of the "Albertype" process of photomechanical printing was of the utmost importance, and was generally adopted.

ARKWRIGHT, SIR RICHARD (1732-1792). Noted English inventor of cotton-spinning machinery; in 1767 his whole attention was given to the improvement of the spinning frame; his first mill driven by horses was set up in 1768, and he took out a patent for his invention; one of the first to introduce the steam engine into mills.

BELL, ALEXANDER GRAHAM (1847-1922). Distinguished for his invention of the telephone; born in Edinburgh, Scotland; obtained his education in Edinburgh and at London University; removed to Canada (1870); obtained a professorship in Boston University, and began experiments which resulted in the invention of the telephone, which he patented (1876); many improvements have since been made on this instrument; Professor Bell has always been active in scientific investigation; his work in the instruction of deaf-mutes has been of especial value; among his other inventions are the graphophone and the photophone; has given much time to the study of aërial navigation.

BESSEMER, SIR HENRY (1813-1898). English inventor, born at Charlton; known as the originator of the "Bessemer process" of steel making; when a mere boy he turned his attention to mechanical inventions; in 1856 he announced his discovery that pig iron in the molten form, through which a draught of air was drawn, could be converted into malleable iron; this process was at once put into practical use, and has since undergone no radical improvements; Bessemer was awarded the Telford Medal in 1859; was made president of the Iron and Steel Institute of Great Britain in 1871; his own country was slower than others to recognize the value of his work, but he was knighted in 1879.

BOGARDUS, JAMES (1800-1874). American inventor, born in New York; his inventions include the dry gas meter (1833), a medal-engraving machine (1836), and an eight-day clock; his machine for the manufacture of postage stamps won the prize offered by the British government (1839); he built in New York the first factory constructed of cast iron.

BOTTGER or **BOTTIGER, JOHANN FRIEDRICH** (1682-1719). German inventor, known as the originator of Saxon or Meissen porcelain; a laboratory was erected for him in Saxony, and about 1708 he brought out his celebrated porcelain; attempted to make gold, but without success.

CARTWRIGHT, EDMUND (1743-1823). English inventor; invented the power-loom (1784), and took out several patents for a wool-combing machine (1789-1793), for which the government granted him £10,000 (1809).

COLT, SAMUEL (1814-1862). American manufacturer; born in Hartford, Ct.; inventor of the revolver; secured patents for a revolving pistol (1835), and in 1847 contracted to make 1,000 weapons for General Taylor. Laid one of the first submarine cables in New York harbor (1843), and erected his weapon factory in Hartford (1852).

CORLISS, GEORGE HENRY (1817-1888). American inventor; made the famous "Corliss" engine, the result of many patented improvements.

CROMPTON, SAMUEL (1753-1827). English inventor of the spinning mule, a machine which completely revolutionized the cotton-weaving industry.

DAGUERRE (*da-gair'*), **LOUIS JACQUES MANDE** (1789-1851). French physicist, born at Cormeilles; invented the art of photography on metal, called the "daguerreotype" process; was awarded a pension of 6,000 francs and made a member of the Legion of Honor.

DREYSE (*dri'zeh*), **JOHANN NIKOLAUS VON** (1787-1867). Born at Sömmerda, near Erfurt, Prussia; invented the needle-gun (1827), and made it breech-loading (1836); this firearm was adopted by Prussia in 1841, and used in the war between Prussia and Austria (1866). He was ennobled in 1864.

EADS, JAMES BUCHANAN (1820-1887). Eminent American engineer and inventor, born at Lawrenceburg, Ind.; moved to St. Louis (1833); in 1839 he became clerk on a Mississippi steamboat, and studied engineering by himself; he built, within 100 days, seven iron-clad gunboats of his own design, for the use of the government on the Mississippi; he also constructed the bridge across the Mississippi at St. Louis (1867-1874), one of the finest structures of its kind in the world; Eads undertook at his own risk the task of deepening the channel at the mouth of the Mississippi and, by the construction of jetties, successfully carried the enterprise to completion (1875-1879); the last years of his life were devoted to extensive engineering operations; he spent much time in the planning of a ship-railway across the Isthmus of Tehuantepec; in 1884 the British Society for the Encouragement of Arts, Manufactures, and Commerce awarded him the Albert medal; Eads was the first American to receive that honor.

EDISON, THOMAS ALVA (1847-). Noted American electrician and inventor, born at Milan, Ohio; at an early age he learned telegraphy, and showed a marked fondness for experimenting with electricity; first invention was a "repeater" for use in telegraphy; removed to Boston, and shortly afterward became superintendent of the New York Gold and Stock Telegraph Company; his inventions having placed him in a better financial position he established a laboratory at Menlo Park, N. J., and developed his quadruplex system of telegraphy; among his other inventions are the microphone, the carbon transmitter, the phonograph (1876), the incandescent lamp (1880), improvements in dynamo-electric machinery, storage cells, etc.; over 300 patents have been granted him; the value of his work has been recognized in Europe as well as in America; in 1878 he was made a member of the Legion of Honor, in 1889 a commander; the Albert medal of the British Society of Arts was awarded him in 1892; no one in the nineteenth century has been so successful in applying scientific truths to practical purposes; laboratory is at present located at West Orange, N. J.

EIFFEL (*i'fel*), **GUSTAVE** (1832-1923). French engineer, born at Dijon; constructed an iron bridge over the Garonne at Bordeaux (1858), the bridge over the Douro at Oporto (1876), and the remarkable Garabit viaduct (1882); the Eiffel Tower (985 feet), the highest structure in the world, was erected by him (1887-1889) at a cost of about $1,200,000; on the completion of the tower, he was made a member of the Legion of Honor; in 1893 he was arrested for complicity in the Panama Canal scandals and was sentenced to fine and imprisonment, but the sentence was revoked.

ENGERTH, WILLIAM, BARON (1814-1884). Austrian engineer born in Pless, Prussian Silesia. He invented the "Engerth system" for freight locomotives, which since its introduction on the Semmering Railroad has found wide adoption on the Continent. He also invented, devised, and built the river gate near Nussdorf which prevents the entrance of ice into the Danube Canal at Vienna, thus preventing the resultant annual inundations.

EVANS, OLIVER (1755-1819). American inventor, born in Newport, Del.; his first inventions include the automatic flour mill, the first high-pressure steam engine, machine for making card teeth (1777), first steam dredge, the "Cornish" boiler, and an engine for the propulsion of river boats. The dredge weighed about 4,000 pounds, and propelled itself to the river.

FITCH, JOHN (1743-1798). American inventor, born at East Windsor, Ct. He brought out in 1787 a steamboat which accomplished three miles an hour. A company for the promotion of navigation on the Delaware proved unsuccessful. Having failed to arouse interest in his invention in France (1793) he became disheartened and committed suicide. It is said that Fulton obtained his ideas from some of Fitch's plans.

FRESNEL (*fray-nail'*), **AUGUSTIN JEAN** (1788-1827). French physicist, born in Broglie; ignorant of the work of Young, he established by experiment the undulatory theory of light; invented the Fresnel lenses for lighthouses, which occasioned a great improvement and complete change in the mode of lighthouse illumination.

FULTON, ROBERT (1765-1815). Noted American engineer, born at Little Britain, Pa.; in 1787 he went to London, where he studied painting, but soon decided to devote his time wholly to mechanics, and became interested in steam navigation; while in Paris (1796-1803) he constructed a submarine vessel; a small steamboat made by him in 1803 was

entirely successful; returning to New York he launched the *Clermont* (1807), which made regular trips between Albany and New York at the average speed of five miles an hour; Fulton was not the first to apply steam to navigation, but was the first who was successful.

GATLING, RICHARD JORDAN (1818-1903). American inventor, born in Hertford County, N. C.; his principal invention was the revolving gun (1861), which he later improved; the gun was adopted for use by the United States (1866), and by several European governments; among his other inventions may be noted a steam plow, a hemp-breaking machine, and a new gun metal of steel and aluminium; invented the Gatling firearm.

GOODYEAR, CHARLES (1800-1860). American inventor, born at New Haven, Ct.; went into business with his father, but failed in 1834; at this time he began experiments with a view to manufacturing india rubber; after discouraging failures, Goodyear finally succeeded in vulcanizing rubber, and patented his process (1844).

GUTENBERG, JOHANNES (*c.*1400-*c.*1468). Inventor of printing from movable types; with Johannes Fust, set up a press in Mainz, Germany, using wooden types; later printed a Latin Bible with copper or tin types.

HARGREAVES, JAMES (-1778). English inventor. While carrying on weaving and spinning at home in 1760, he invented the carding machine, a substitute for hand cards. In attempting to spin several threads at once, an accident revealed the necessary position of the spindles, and the spinning-jenny was the result in 1764. Infringement suits prevented the success he deserved.

HENRY, JOSEPH (1799-1878). Noted American physicist, born at Albany, N. Y.; became professor of mathematics at Albany Academy (1826), and experimented with the electro-magnet, which he greatly improved; built the first electro-magnetic telegraph (1831), the first electric motor (1831 or 1832); was secretary of the Smithsonian Institution at Washington (1846-1878); became president of the American Association for the Advancement of Science (1849), and of the National Academy of Sciences (1858); no American since the time of Franklin has done so much to advance the science of electricity.

HOE, RICHARD MARCH (1812-1886). American inventor, born in New York City; began to study printing press manufacture (1827); his rotary newspaper press known as "Hoe's lightning press" appeared in 1846; afterwards he invented the web-perfecting press which, besides printing on both sides of the sheet, cuts and folds the papers. His presses revolutionized the art of newspaper printing.

HOLDEN, SIR ISAAC (1807-1897). English inventor, who produced the lucifer match (1829); in 1848 he established a large factory at St. Denis, near Paris; there he made many improvements in wool-combing machinery, and became wealthy; established his business at Bradford (1864), entered parliament, and was made a baronet.

HOLLEY, ALEXANDER LYMAN (1832-1882). American metallurgist, born at Lakeville, Ct.; in 1854, in partnership with one Colburn, he became editor of the *Railroad Advocate*, and later edited other publications; went to England (1863), purchased the Bessemer patents, started the Bessemer plant at Troy, N. Y. (1865), and erected steel works at Harrisburg, Pa. (1867); became president of the Institute of Mining Engineers (1875), and lectured on iron and steel manufacture at Columbia University (1879-1882).

HOWE, ELIAS (1819-1867). American inventor, born in Spencer, Mass.; known as the inventor of the sewing machine (1845); his machine attracted no notice at first, but its value was soon appreciated and he amassed a fortune of $2,000,000; received a gold medal at the Paris Exposition (1867), and the cross of the Legion of Honor.

JACQUARD (*zhah-kahr'*), **JOSEPH MARIE** (1752-1834). French mechanician, born at Lyons; known for the Jacquard loom, publicly exhibited in 1801; which invention revolutionized the art of weaving.

JOUFFROY D'ABBANS (*zhoo-frwah' dá-bän'*), **CLAUDE FRANCOIS, MARQUIS DE** (1751-1832). A French inventor and engineer; born at Roche-sur-Rognon, France; in 1776 launched a boat propelled by steam, on the Doubs; this experiment failed, as did likewise another attempt in 1783; Fulton admitted the merit of these experiments; it was not until 1816, 13 years after Fulton's success with the steamboat, that the government granted him permission to float his invention; this final attempt was also unsuccessful. In 1840 his claim was acknowledged by the French Academy.

KRUPP, ALFRED (1812-1887). German inventor, metallurgist, and manufacturer, born at Essen, Prussia; in 1852 he invented a method for manufacturing weldless railway tires; his steel siege gun, first made in 1847, was adopted by the Prussian army (1861). It was used with such success in the war of 1870-1871 as to bring Krupp world-wide fame. The Krupp works at Essen, Annen, Kiel, and Gruson in Magdeburg, employ about 43,100 persons.

LESSEPS (*les'eps*), **FERDINAND, VICOMTE DE** (1805-1894). French diplomat and engineer, born in Versailles; evolved the scheme for the Suez Canal (1854), which was begun in 1860, and opened August 15, 1869; commenced the Panama Canal in 1881, but funds for the maintenance of the work were not forthcoming; the management was charged with fraud, and De Lesseps was sentenced to imprisonment and fine; the sentence, however, was never enforced; he received an English knighthood and the Grand Cross of the Legion of Honor for his work on the Suez Canal.

MacADAM, JOHN LOUDON (1756-1836). Scotch engineer, born in Ayr, Scotland; known for the process of "macadamizing"; came to America in 1770, where he made a considerable fortune, and returned to England in 1783; about the year 1810 he became interested in roadmaking, and evolved the process associated with his name; put his theory to practical use at Bristol (1815), and his roads attracted such attention that his method was considered by a committee of the House of Commons as early as 1819. He was voted the sum of $50,000, and, in 1827, was made surveyor general of metropolitan roads. He declined knighthood.

McCORMICK, CYRUS HALL (1809-1884). American inventor, born at Walnut Grove, Va.; common school education; patented his first reaping machine (1834); in 1847 he established the McCormick Harvesting Machine Company at Chicago. His inventions have played an important part in the agricultural development of the United States.

MARCO'NI, WILLIAM (1874-). Italian electrical engineer, born at Griffone, near Bologna; experimented privately with wireless telegraphy (1895), and put his ideas into practical use in England (1896); established communication across the English channel (1899); between Cornwall, England, and Newfoundland (1901); visited the United States, hoping to induce the government to buy the right to use his system; failed in this, but in 1904 the British post office entered into an agreement with him for the transmission of wireless messages; his system is in use in various European navies, notably those of Great Britain and Italy.

MAXIM, SIR HIRAM S. (1840-1916). English inventor, born at Sangerville, Me.; obtained a patent for an incandescent lamp (1877); secured patents for the gun named after him (1881-1882); removed to London, and began the manufacture of his firearm (1888); in recent years he has given much thought to the problem of aërial navigation; knighted in 1901.

MERGENTHALER, OTTMAR (1854-1899). American inventor, born in Württemberg, Germany; in 1872 he came to the United States and took a government position at Washington, where the signal service apparatus, bells, clocks, etc., were assigned to his care; became associated in 1876 with a mechanical engineering firm in Baltimore, Md., and later, while in the employ of that firm, he began experiments which resulted in the typesetting machine connected with his name.

MONTGOLFIER (*mon-golf-e-ay'*), **JOSEPH MICHEL** (1740-1810), and **JACQUES ETIENNE** (1745-1799). French inventors, born at Vidalon-lez-Annonay, in Ardèche, France; made the first balloon (1783), and ascended from Annonay, heated air being used to inflate the balloon. Joseph is the inventor also of the parachute and the water ram. The brothers received many honors.

MORSE, SAMUEL FINLEY BREESE (1791-1872). American inventor, born at Charlestown, Mass.; was graduated at Yale (1810); studied painting in England; returned to America and became professor of the history of art, at New York University; successfully operated his recording magnetic telegraph (1835); improved his instrument and endeavored to interest the government in his invention, but it was not until 1843 that he received an appropriation of $30,000 for the construction of a line between Washington and Balti-

more; this was successfully completed in 1844; the first submarine telegraph line was laid by Morse in New York harbor (1842).

NIEPCE, JOSEPH (1765-1833). French inventor; his several inventions include making pictures on metal plates (1813), and the process of fixing images of the camera obscura (1824); Daguerre (1826) perfected Niepce's invention, gaining the title "inventor of photography," which seems to belong to Niepce.

NOBEL, ALFRED BERNARD (1833-1896). A Swedish inventor and philanthropist; born at Stockholm; aided his father in the manufacture of explosives in Russia (1842); studied mechanical engineering under John Ericsson in the United States (1850-1854); invented a gasometer (1857), and an instrument for measuring liquids (1859); in 1867 invented dynamite or giant powder; of his 129 inventions the more important are dynamite, ballistite, the earliest of modern smokeless powders, and artificial india rubber; owned 15 dynamite factories in different parts of the world; left his fortune of $9,000,000 for the foundation of the Nobel Prizes, the interest on which sum is to be divided equally and distributed annually between those five persons making the most important discoveries in physics, chemistry, physiology, or medicine, and for the production of idealistic literature, and the promotion of universal peace.

PALISSY (*pah-le-se'*), **BERNARD** (about 1509-1589). Famous French potter, born in Agen; settled at Saintes (1539) and, after 16 years of the hardest labor, discovered a process for the production of fine enamel; received royal patronage, but was imprisoned in the Bastille (1585), where he died.

READ, NATHAN (1759-1849). American inventor; born in Warren, Mass.; was graduated at Harvard (1781); built a small boat propelled by steam (1789) and a carriage driven by the same motive power (1790); established an iron works at Salem (1796), and made machinery for the manufacture of nails, for pumping, and for threshing; was a member of Congress (1800-1803), and removed to Belfast, Me. (1807); Read's multitubular boiler, invented in 1789, also deserves mention; he was one of the earliest inventors to apply steam to the propulsion of carriages and boats.

REICH'ENBACH, KARL, BARON VON (1788-1869). A German physicist and manufacturer; born at Stuttgart; established foundries in Moravia; was the discoverer of paraffin (1830) and creosote (1833); discovered, as he thought, a new force intermediate between electricity, magnetism, heat, and light, and which he called Od; wrote *Geological Researches in Moravia*, and *Researches on Magnetism*.

REYNOLDS, EDWIN (1831-1909). Inventor of the Reynolds-Corliss engine; introduced the first triple expansion pumping engine; cross-compound hoisting engine for mining work, and several others.

ROBINSON, STILLMAN WILLIAMS (1838-1911). Inventor and engineering expert; invented the thermometer graduating machine, and various machines for shoe manufacture, having secured about forty patents; author of several books on mechanics.

SANTOS-DUMONT, ALBERTO (1873-). Brazilian aëronaut, born in Sao Paulo; his first balloon ascension was made in 1897 at Paris; he applied the gasolene engine and propeller to an elongated balloon in 1898; attempted to make a dirigible airship, and in 1901 won the Deutsch prize of $20,000; in the same year he was awarded the Encouragement Prize of the Paris Aëro Club, and received a medal from the Brazilian government; he made several successful flights near Monte Carlo in 1902.

SHOLES, C. LATHAM (1819-1890), a printer by trade, moved from Pennsylvania to Milwaukee, where he made a practical but crude typewriter, patented in June, 1868. Rights to make and sell this were acquired by the Remingtons in 1873.

SIEMENS (*see'menz*), **SIR CHARLES WILLIAM** (1823-1883). German-English electrician, born at Lenthe, Hanover; removed to England (1844); constructed a regenerative furnace, which was applied to iron and steel working; in 1866 established steel works at Landore, Wales, and, in 1869, a factory at Charlton, West Woolwich, for the manufacture of submarine electric telegraph apparatus; took an active part in the laying of the Atlantic cable (1874); the universities Oxford, Dublin, Glasgow, and Würzburg awarded him honorary degrees; was president of several scientific organizations; knighted in 1883.

SMEATON, JOHN (1724-1792). English civil engineer, born in Austhorpe, near Leeds; designed a machine for measuring a ship's way at sea (1751); became a fellow of the Royal Society (1753); designed and rebuilt the Eddystone lighthouse (1756-1759); afterwards built several bridges, and was the engineer of the Forth and Clyde canal. Smeaton also made important improvements on Newcomen's engine.

STEPHENSON, GEORGE (1781-1848). English engineer; born at Wylam, near Newcastle; inventor of the locomotive; invented a colliery safety lamp (1815); was appointed engineer of the Stockton and Darlington Railway (1821); completed the Liverpool and Manchester Railway (1829). His locomotive "Rocket" (1830) ran 30 miles an hour, outstripping all rivals.

STEPHENSON, ROBERT (1803-1859). English engineer, son of George Stephenson; was in South America (1824-1827); became engineer of the London and Birmingham line completed in 1838; built bridges at Montreal (1859), and over the Menai Strait (1854). Known as the inventor of the tubular bridge.

TREVITHICK, RICHARD (1771-1833). English inventor, born in Illogan, Cornwall; experimented with the high-pressure steam engine and, in 1796, exhibited a model of a steam locomotive. His road engine carried passengers in 1801; in 1804 he successfully operated a locomotive in Wales; applied steam to agriculture. Trevithick recognized the value of iron in ship construction, but owing to lack of financial backing his experiments in steam locomotion fell to Stephenson to complete.

TRIPLER, CHARLES E. (1849-1907). American physicist and inventor; experimented much in electricity and gases; greatest achievement was the manufacture of "liquid air," which he applied with remarkable results to the operation of an engine.

TROUVE, GUSTAVE (1839-1902). French electrician; invented electric polyscope, by which every cavity in the human body may be explored; lamps for use in dangerous places; wound explorer; portable telegraph for use in war; electric motors for small boats.

WATT, JAMES (1736-1819). Scotch engineer and inventor, born at Greenock; famous for his improvements on the steam engine; Watt's engine quickly replaced Newcomen's. He is said to have also discovered the composition of water.

WEDGWOOD, JOSIAH (1730-1795). English potter, born at Burslem in Staffordshire, where he set up his business (1759); invented a cream-colored porcelain, which was so well liked by Queen Charlotte that it was named "Queen's ware"; engaged Flaxman as designer, and produced the well-known "Wedgwood ware," famous for its symmetrical beauty and artistic excellence. Wedgwood accumulated a large fortune, and contributed liberally to charity.

WHEATSTONE, SIR CHARLES (1802-1875). An English electrician; born near Gloucester; published five papers as a result of his researches on sound (1833); patented an instrument for giving signals by electricity, which proved to be the forerunner of the telegraph; invented the stereoscope (1838), and in 1843 produced instruments for measuring the constants of a voltaic series; brought into public notice an electrical device known as Wheatstone's Bridge.

WHITNEY, ELI (1765-1825). American inventor, born in Westborough, Mass.; was graduated at Yale (1792), and went to work in Georgia; is best known as the inventor of the cotton-gin (patented 1794), but was also very successful in the manufacture of firearms; factory was located at Whitneyville, Ct.

WORCESTER, EDWARD SOMERSET, MARQUIS DE (about 1601-1667). English inventor of the steam engine; served King Charles during the Civil War; imprisoned in the Tower (1654) because of his failure to raise troops in Ireland for the king; published a *Century of Inventions* (1663), which gives an account of the invention of ciphers, signals, mechanical appliances, and of the working of the steam engine invented by him.

WRIGHT, ORVILLE (1871-). An American aëronaut, born in Dayton, Ohio; invented and demonstrated flying machine, with aid of his brother Wilbur; first tested the machine at Kitty Hawk, N. C., in 1903; a successful long distance test was made near his birthplace.

WRIGHT, WILBUR (1867-1912). An American aëronaut, brother to Orville; born near Millville, Ind.; with his brother he patented the heavier-than-air flying machine in all the leading countries of the world.

DICTIONARY OF EMINENT FINANCIERS.

ADDINGTON, HENRY, FIRST VISCOUNT SIDMOUTH (1757-1844). English chancellor of the exchequer; born at Reading; graduated at Brasenose, Oxford, and was admitted to the bar (1784). Speaker of the House of Commons (1789-1801); premier and chancellor of the exchequer (1801-1804); was raised to the peerage and served as president of the council (1805, 1806, 1807). He subsequently filled the office of home secretary, and was a member of the cabinet from 1822 to 1824.

ASTOR, WILLIAM WALDORF (1848-1919). Capitalist; born in New York; great grandson of John Jacob, who laid the foundation of the Astor fortune. At his father's death (1890) William inherited his personal fortune estimated at about $100-000,000; United States minister to Italy (1882-1885); settled in England (1890), became sole owner of the *Pall Mall Gazette* (1893), and *Pall Mall Magazine;* built the Waldorf hotel in New York, which with the Astoria built by his cousin, John Jacob Astor, forms one of the most costly hotels in the world.

BALFOUR, ARTHUR JAMES. See page 1195.

BELMONT, AUGUST (1853-1924). Banker; born in New York; head of August Belmont & Company, the American representatives of the European banking firm of Rothschilds; chairman board of directors of several construction companies; president Cape Cod Construction Company; trustee of savings banks and insurance companies; director of a number of railroads, steamship lines, real estate companies, and other corporations.

BELMONT, OLIVER HAZARD PERRY (1858-1908). Capitalist; born in New York; educated at United States Naval Academy, and served two years in the navy. Was member August Belmont & Company; published *The Verdict;* delegate Democratic National Convention (1900); member Congress (1901-1903), 13th New York district.

BISMARCK, KARL OTTO EDUARD LEOPOLD, PRINCE VON. See page 1196.

BLAND, RICHARD PARKS. See page 1196.

BOUTWELL, GEORGE SEWALL. See page 1197.

BRISTOW, BENJAMIN HELM (1832-1896). A United States secretary of the treasury; born in Elkton, Ky.; practised law until the outbreak of the Civil War, when he entered the service of the Union army; was made United States solicitor general (1870), and was secretary of the treasury (1874-1876); was defeated for the Republican presidential nomination (1876), and spent the remainder of his life in the practice of law; as secretary of the treasury his part in the prosecution of the "Whisky Ring" made him well known as a reformer.

CAMPHAUSEN, OTTO VON (1812-1896). Great German financier; born at Hünshoven; was educated at the universities of Munich, Berlin, Heidelberg, and Bonn, giving special attention to law and political economy; from 1834 to 1845 he held several government positions of minor importance, but in the latter year he was made privy councilor of finance; from 1849 to 1852 was a member of the second Prussian Chamber, and now began to use his large fortune for the encouragement of literature and art, and for the support of charitable institutions; the resignation of Baron von der Heydt (1869) led Bismarck to name him as chancellor of the exchequer; the position was accepted, and Camphausen's administration (1869-1878) brought the finances of the country to a prosperous condition, an act which showed ability of the highest order; but the opposition of the Liberals and the continued conflict with Bismarck, caused by his free trade principles, finally resulted in Camphausen's resignation.

CHILDERS, HUGH CULLING EARDLEY (1827-1896). English chancellor of the exchequer; born in London; was graduated at Cambridge (1850), and was commissioner of trade and customs in Victoria, Australia, until 1857; returning to England he was first lord of the Admiralty under Gladstone (1868-1871), secretary of war (1880-1882), and chancellor of the exchequer (1882-1885); was home secretary in the Gladstone ministry of 1886.

CLARENDON, EDWARD HYDE, EARL OF (1609-1674). An English chancellor of the exchequer; born at Dinton, Wiltshire; prepared for the church at Magdalen College, Oxford, graduating in 1626; leaning toward letters rather than his chosen profession, he became acquainted with the literary men of the period; sat in both the Long and Short Parliaments, and in 1643 he was made privy councilor, chancellor of the exchequer, and knighted; was active in opposing the execution of Charles I., and became lord chancellor (1658), the appointment being confirmed at the time of the Restoration; was made chancellor of Oxford University (1660), and the following year received the titles of viscount Cornbury and earl of Clarendon; his administration witnessed the settlement of many important questions, but the ill success of some of his projects, together with court intrigue, led to his complete downfall (1667); the remainder of his life was spent in exile.

CLEWS, HENRY (1830-1923). Banker; born at Staffordshire, England; entered mercantile life in New York at 15; member firm Stout, Clews & Mason (1858); later Livermore, Clews & Company; organized firm Henry Clews & Company (1877); has been connected with many city institutions and financial corporations.

COBB, HOWELL. See page 1202.

COLBERT, JEAN BAPTISTE. See page 1202.

CORTELYOU, GEORGE B. See page 1203.

CORWIN, THOMAS. See page 1203.

CRANFIELD, LIONEL, EARL OF MIDDLESEX (1575-1645). Sometimes called the first of English financiers; early became a merchant, and attracted the attention of the nobles when representing his company before the privy council; was appointed receiver of customs for Dorset and Somerset (1605); became master of the great wardrobe (1618); chief commissioner of the navy (1619), and master of the court of wards in the same year; in each of these offices he wrought great reforms, and prevented much financial waste; was created baron and earl of Middlesex (1622), but, on being charged with corruption in regard to the court of wards, was deprived of all his offices, fined, and sentenced to the Tower during the king's pleasure; Cranfield was released (1625) and pardoned the following year.

DALLAS, ALEXANDER JAMES. See page 1203.

ECKELS, JAMES HERRON (1858-1907). American financier; born at Princeton, Ill.; graduated at Albany Law School (1880); practised law at Ottawa, Ill. (1881-1893); was comptroller of the currency (United States) from 1893 to 1898; figured as a gold standard Democrat in the presidential campaign of 1896; president of the Commercial National Bank, Chicago (1898).

EWING, THOMAS. See page 1208.

FESSENDEN, WILLIAM PITT. See page 1208.

FOSTER, CHARLES. See page 1209.

GALT, SIR ALEXANDER TILLOCH. See page 1210.

GLADSTONE, WILLIAM EWART. See 1211.

GOSCHEN, GEORGE JOACHIM (1831-1907). English financier and statesman; educated at Rugby and at Oriel College; early entered upon a financial career, and became director of the Bank of England (1856); was elected to Parliament for London (1863); took an active part in bringing about the abolition of religious tests; was made vice-president of the Board of Trade and privy council (1865), and chancellor of the duchy of Lancaster (1866); became president of the Poor Law Board (1868); first lord of the Admiralty (1871), retiring with his party in 1874; Goschen served as special ambassador to the Porte (1880-1881), and in the Salisbury government (1886-1892) was chancellor of the exchequer; in this office he won much praise for his scheme for reducing the national debt; resumed his old position as first lord of the Admiralty (1895), continuing in that office until 1900; on the question of tariff reform brought up in the ranks of the Unionist party (1903-1905), Goshen became well known as an obstinate supporter of free trade.

GOULD, HOWARD (1871-). Capitalist; born in New York; director Missouri Pacific Railway Company, Western Union Telegraph Company, International & Great Northern Railway Company, New York Mail & Newspaper Transportation Company, and numerous other corporations; member of the New York Stock Exchange.

HAMILTON, ALEXANDER. See page 1213.

HARCOURT, SIR WILLIAM VERNON. See page 1213.

HARDWICKE, PHILIP YORKE, FIRST EARL OF (1690-1764). English lord chancellor; born at Dover; was admitted to the bar (1715); elected a member of Parliament for Lewes (1719); appointed solicitor general (1720); lord chief justice of the King's Bench (1733); lord chancellor (1737); was created earl of Hardwicke in 1754.

HARRIMAN, EDWARD HENRY (1848-1909). Capitalist; born at Hempstead, Long Island; at 14 entered a broker's office in Wall Street, as clerk; became stockbroker for himself; member New York Stock Exchange since 1870; president and director of Portland and Asiatic Steamship Company, Oregon Railroad & Navigation Company, and of many other railroads; director Erie Railroad Company, Western Union Telegraph Company, and numerous other corporations; trustee Equitable Trust Company.

HEYDT, AUGUST, FREIHERR VON DER (1801-1874). Great German financier; born at Elberfeld: early showed great aptitude for business, and, after completing his education in Germany, worked as clerk in several financial houses of France and England; in company with his two brothers he now carried on a banking business in Elberfeld; from this time on his reputation steadily increased; accepted the office of president of the Board of Trade and Public Works in the Brandenburg-Manteuffel cabinet (1848); became chairman of the bank of Prussia (1851), and minister of finance in the Hohenlohe-Itzenplitz cabinet (1862); resigned the same year, but, in 1866, when it was found that money was lacking to defray the expenses of the war with Austria, Bismarck prevailed with the king to reappoint Heydt; this was done, and the finances were skillfully managed until 1869, when Heydt, failing in health and discouraged with the condition of the country, tendered his resignation.

HICKS-BEACH, SIR MICHAEL EDWARD (1837-1916). English chancellor of the exchequer; born in London; educated at Eton and at Christ Church, and entered Parliament (1864); was chief secretary for Ireland (1874-1878); secretary of state for the colonies (1878-1880; chancellor of the exchequer and leader of the House of Commons (1885); served as president of the Board of Trade (1888-1892); again chancellor of the exchequer from 1895 to 1902; greatly disconcerted the Balfour government by his acute attack on the methods of the war office.

HUSKISSON, WILLIAM (1770-1830). English statesman and financier; born in Worcestershire; went to Paris to study medicine; became a member of the Club of 1789; delivered before its members a speech on currency; on his return to England (1792) he received a minor government appointment; became intimate with such men as Canning and Pitt; was under secretary of war (1795-1801); from 1796 until the time of his death was almost continuously a member of Parliament; was appointed secretary of the treasury (1804); lost his position (1806), but regained it in 1807; became chief commissioner of woods and forests (1814); president of the Board of Trade (1823); secretary of state for the colonies (1827); his term of service in this last position witnessed the removal of the restrictions on the foreign trade of the colonies, and a reduction of many import duties.

ISELIN, ADRIAN, JR. Banker; director of Southern Railway Company, Lackawanna Steel Company, National Bank of Commerce, City & Suburban Homes Company, New British & Mercantile Insurance Company of London and Edinburgh; vice-president and director Buffalo, Rochester & Pittsburg Railway Company, and many other corporations.

JESUP, MORRIS KETCHUM (1830-1908). Banker (retired); born at Westport, Ct.; began business career as a clerk for a New York manufacturing firm; became an active banker (1852-1854); gave his aid in a financial way to many educational and religious institutions; president New York City Mission and Tract Society (1881-1903); one of founders (president, 1872) Y. M. C. A. of New York; president Chamber of Commerce of New York since 1899; Audubon Society, state of New York, since 1896; American Sunday School Union since 1896; Peary Arctic Club and Sailors' Snug Harbor since 1899; director and trustee of Atlantic Mutual Insurance Company, Western Union Telegraph Company, and of other corporations.

KNOX, JOHN JAY (1828-1892). American financier; born in Knoxboro, N. Y.; graduated from Hamilton College (1849); entered the banking business; his sympathy with the National Banking plan of Secretary Chase led to his appointment to a position in the treasury department (1866); was deputy comptroller of the treasury (1867-1872); comptroller (1872-1884); president of the National Bank of the Republic in the city of New York (1884-1892); prepared the original draft of the Coinage Act of 1873, which stopped the coinage of the silver dollar; was an authority on all matters relating to currency.

LAW, JOHN (1671-1729). A Scotch financier; founder of the first banking institution in France, the Banque Générale, established in Paris in May, 1716; in conformity with his views he issued paper currency which was accepted in payment of taxes, soon being at a premium; was given control of Louisiana by the French government in 1717; trade and colonization were the objects in view, to promote which was formed the "Compagnie d' Occident," usually called the Mississippi Company," but later known as the "Mississippi Scheme" or "Bubble"; the company became of great importance in foreign as well as home commercial and financial affairs by absorbing the Africa, China, and East India companies and taking over the powers of receivers general and the control of the mint; in 1718 the Banque Générale was changed to Banque Royale; two years later the bank and the company became one, when Law became controller general of finance; but there was an overissue of paper money, the government opposed Law's scheme, and he left the country in May, 1720, after there had been a tremendous speculative craze, followed by a complete collapse.

MILLS, DARIUS OGDEN (1825-1910). Banker, financier; born at North Salem, Westchester County, New York; was a clerk in New York; went to California (1849) and became merchant and dealer in exchange in Sacramento; founded bank in that city; regent and treasurer University of California (1868-1880); one of first trustees of Lick estate and Observatory, California; returned to New York (1880); built Mills Building, a system of hotels, and Nurses' Training School in New York; president New York Botanical Garden; director and trustee of several railroads and other corporations.

MORGAN, JOHN PIERPONT (1837-1913). Banker, financier; born at Hartford, Ct.; entered bank of Duncan, Sherman & Company (1857); in 1860 became agent and attorney in United States, for George Peabody & Company, bankers of London; became member firm of Drexel, Morgan & Company (1871), which is now J. P. Morgan & Company, leading private banking house in the country, with important branch house in London; floated United States bond issue of $62,000,000 during Cleveland's administration; secured American subscriptions of $50,000,000 to British war loan of April (1901); controlled over 50,000 miles of railways in the United States and England; president Metropolitan Museum of Art (1905-1913); donated largely to educational and religious institutions, as well as to art.

MORRIS, GOUVERNEUR. See page 1223.

NECKER, JACQUES. See page 1223.

NORTH, FREDERICK, EIGHTH LORD NORTH AND SECOND EARL OF GUILFORD. See page 1224.

NORTHCOTE, SIR STAFFORD HENRY, EARL OF IDDESLEIGH. See page 1224.

OSGOOD, JOHN CLEVELAND (1851-1926). Capitalist; born in Brooklyn. Began his business career as office boy in Providence, and later went to New York as clerk for a commission firm; from 1874-1877 he was cashier for the First National Bank of Burlington, and during the next five years engaged in coal mining. In 1892 he organized the Colorado Fuel and Iron Company, of which he was either president or chairman of board of directors until his resignation in 1903. Now he is president of Crystal River Railroad, and Colorado & Wyoming Railroad, built in the interest of the Fuel and Iron Company.

OVERSTONE, SAMUEL JONES LLOYD, BARON (1796-1883). Welsh banker and authority on finance; educated at Eton and Cambridge, entering the banking and mercantile business after graduation; from 1816 to 1823 sat in Parliament for Hythe; became a great student of banking questions, subsequently publishing two or three works on the subject; his influence over the chancellors of the exchequer was great, and in the bank charter act (1844) his ideas in the main were carried out; raised to the peerage (1860).

PATERSON, WILLIAM (1658-1719). British financier; born in Dumfriesshire, Scotland; removed to England when a young man, and, engaging in trade in London, acquired quite a fortune; first proposed to the government his plan for the establishment of the bank in 1691, but it was not until 1694 that Parliament passed an act adopting his ideas; although an original stockholder in the bank, he soon resigned and removed to Scotland, where he prevailed on the Scottish Parliament to pass the act founding the "Company of Scotland trading in Africa and India," under which name the Darien colonization scheme was carried out; in this Paterson was not wholly successful, and in 1715, in recognition of his public services, the government voted him about $90,000 to compensate his losses in the Darien scheme; Paterson was active in securing the union of England and Scotland.

PAYNE, OLIVER HAZARD (1841-). Capitalist; born at Cleveland, Ohio; graduated at Yale in 1863, and was a Union officer in the Civil War. Director in Standard Oil Company, American Tobacco Company, Chase National Bank, Manhattan Trust Company, Havana Tobacco Company, International Railway Company, Virginia & Southeastern Railway Company, New York Loan and Improvement Company, etc. Gave $500,000 to aid in establishing and maintaining medical department of Cornell University in New York.

PITT, WILLIAM. See page 1226.

QUESNAY, FRANCOIS (1694-1774). French economist; born at Méré; early practised as a surgeon and physician; devoted much time to the study of economics; was the author of several works and had several stanch disciples, who did much to popularize his views, and who afterwards formed the sect known as the Physiocrats.

RICARDO, DAVID (1772-1823). English political economist; born in London; at the age of 14 entered his father's stock exchange business, and about five years later established himself as a broker; soon became wealthy; report of the bullion committee (1811) was drafted under Ricardo's influence, and, from the time he entered Parliament (1819), his influence in financial matters was very great; noted also for his writings, which probably exerted more influence upon economic thought than those of any other writer, Adam Smith excepted.

RICHELIEU, ARMAND JEAN DUPLESSIS, CARDINAL DE. See page 1228.

ROGERS, HENRY H. (1840-1909). Capitalist; born at Fairhaven, Mass.; vice-president and director Standard Oil Company, Brooklyn Union Gas Company, United Metals Selling Company; president and director Amalgamated Copper Company, National Transit Company, National Fuel Gas Company, New York Transit Company, Richmond Light and Railroad Company; and as trustee or director was also connected with many other corporations; has given liberally to his native town.

ROTHSCHILD. A family of European financiers, of which the following two may be mentioned: **MAYER ANSELM** (1743-1812). Founder of the family; born at Frankfort-on-the-Main; entered the counting house at Hanover, opened a money exchange business at Frankfort, and was intrusted with the private fortune of the elector of Hesse-Cassel (1806) when the latter fled; the money was ably handled, and in 1815 was returned to the elector with interest; his five sons became known throughout Europe as eminent financiers, and few international transactions were undertaken without their aid. **LIONEL** (1808-1879). Eldest son of Nathan, son of Mayer Anselm Rothschild; born in London; received his education at Göttingen; continued his father's business in London; was elected to Parliament for London (1847, 1849, 1852, 1857); noted for his success in obtaining Jewish emancipation in Great Britain; taking his seat in the Commons (1858) he served until 1868, and again from 1869 to 1874.

RYAN, THOMAS FORTUNE (1851-1928). Financier; born in Nelson County, Virginia; in 1868 entered a Baltimore dry goods house; entered Wall Street (1870); member New York Stock Exchange (1874); vice-president Morton Trust Company; member Chamber of Commerce; reorganized various railroads; director of many financial enterprises; in 1905 purchased controlling interest of the stock of Equitable Life Assurance Society of the United States.

SHERMAN, JOHN. See page 1230.

SULLY, MAXIMILIEN DE BETHUNE, DUKE DE. See under Government.

TILLEY, SIR SAMUEL LEONARD. See page 1231.

TUPPER, SIR CHARLES. See page 1232.

TURGOT, ANNE ROBERT JACQUES, BARON DE L'AULNE (1727-1781). French economist and statesman; born in Paris; was educated for the church, but turned his attention to the study of political economy, allying himself with the liberal views of the time; was intendant of Limoges (1761-1774), where he inaugurated many beneficial reforms, and after the death of Louis XV. was called to the ministry; the disordered condition of the finances gave him a chance to show his ability as a financier; was first minister of marine and later comptroller general; greatly reduced expenditures, required of the nobles the same tax asked of others, and aimed to establish free trade throughout France; among his important measures were the abolition of the *corvée* (January 6, 1776), and the *jurandes* (March 12, 1776); the first of these related to the forced labor of the peasants upon the making of high roads; the second to the government of privileged corporations; his reforms, especially those directed against the nobility, soon won him the hostility of that class, and he retired in May, 1776, after 20 months of service; spent the greater part of the remainder of his life in writing.

VANDERBILT, ALFRED GWYNNE (1877-1915). Capitalist; born in New York; was graduated from Yale (1899); director Hanover National Bank, Plaza Bank, Conried Metropolitan Opera Company, American Horse Exchange, and various other banks and railways. railways. Died in the sinking of the Lusitania.

VANDERBILT, CORNELIUS (1794-1877). Capitalist; born near Stapleton, Staten Island, N. Y. Without education or capital, he started a ferry between New York and Staten Island at the age of 16. In two years he owned and controlled three boats, and at 30 years of age he held controlling interest in a company owning a large number of river and harbor vessels. Later he controlled fleets of steamboats on the Hudson, the Sound, and the Delaware; ran lines to Boston and other coast cities, to California via Lake Nicaragua, and to Havre, France. He gradually transferred his capital from steamers to railroads, and by 1864 he had control of the Hudson River Railroad. He secured the New York Central three years later, and soon united the two roads into one system, which he finally extended into a through route from New York to Chicago. Fortune estimated at $100,000,000.

VANDERBILT, CORNELIUS II. (1843-1899). Financier and capitalist, born at New Dorp, Staten Island, N. Y., son of William H. and grandson of Cornelius. After acting as banking clerk in New York, he entered the brokerage house of Kissam Brothers. Since 1867, he has been an official in railroad management, chairman of governing boards of New York Central & Hudson River Railroad, and Michigan Central, and director in 34 different railways. He was head of Vanderbilt railroads interests until ill health compelled him to retire.

VANDERBILT, CORNELIUS III. Capitalist; born in New York; graduated at Yale (1895); director of New York Life Insurance and Trust Company, Mutual Life Insurance Company, Allis-Chalmers Company, Lackawanna Steel Company, Marine National Bank of Buffalo, Illinois Central Railway Company, Hudson companies, Mexican Telegraph Company, Philippine Railway Company, and of numerous other financial enterprises.

VANDERBILT, FREDERICK WILLIAM (1856-). Capitalist; graduated from Yale Sheffield Scientific School (1876); received a business training in office of his father's railroad system; director New York Central Railroad, Chicago & St. Louis Railroad, Canadian Southern Railway Company, The Pullman Company, and numerous other financial and railway corporations.

VANDERBILT, GEORGE WASHINGTON (1862-1914). Capitalist; born at New Dorp, Staten Island, New York; gave largely to educational institutions; presented American Fine Arts Society of New York the room in their building known as the Vanderbilt Gallery; purchased 100,000 acres of mountain land near Asheville, N. C., which he developed and on which he erected a mansion.

WHITTINGTON, RICHARD (about 1359-1423). English merchant; nothing definite is known of his early life; in 1397, 1398, 1406, and 1419 he was mayor of London; is said to have loaned large sums of money to the king, and at his death left the greater part of his fortune for charitable purposes.

DICTIONARY OF SCIENTISTS.

Including modern explorers; for other biographies, see Index.

ABBE, CLEVELAND (1838–1916). American meteorologist; inaugurated system of daily weather forecasts; initiated the movement toward the present system of standard time.

ABRUZZI, DUKE OF THE (PRINCE LUIGI AMADEO GIUSEPPE) (1873–). Italian explorer; made first ascent Mt. St. Elias (1897); in 1900 his Arctic expedition attained the northernmost latitude then reached, 86 degrees 33 minutes, 239 miles from the pole.

ACHARD (*ahk'art*), **FRANZ KARL** (1753–1821). A German chemist; founder of the beet sugar industry.

AGASSIZ (*ag'a-see*), **ALEXANDER** (1835–1910). American naturalist and capitalist, only son of Louis. With his knowledge of geology and engineering he developed the Calumet and Hecla copper mines, south of Lake Superior, bringing him great wealth, which he has devoted to zoological research, donating over one million dollars to endowment of the Harvard Museum of Comparative Zoology; author of several zoological works, mostly on deep sea animals.

AGASSIZ, LOUIS (1807–1873). Distinguished Swiss-American naturalist; born in Switzerland; studied under Cuvier at Paris; professor of natural history at Harvard (1848–1873); preeminently a teacher of great force, clearness, and enthusiasm, whose lectures, everywhere in demand, were the inspiration of a new era in American biological research; founded the Harvard Museum of Comparative Zoology (1858); author of important zoological works.

AMPERE (*ong-payr'*), **ANDRE MARIE** (1775-1836). A distinguished French physicist and mathematician, famous for his investigations in electro-dynamics. His name is now given to a unit of electrical measurement.

AMUNDSEN, ROALD (1872-1928), only man so far to behold the regions of both the North and South Poles, was born in Norway and educated at Oslo. From his youth determined to explore the frozen zones, at 25 joined the *Belgica* antarctic expedition; went north in 1901 and 1903, and in 1906 located the north magnetic pole and the northwest passage; in 1910 led the Norwegian expedition which reached and crossed the South Pole in 1911; 1918-21, sought northeast passage; in 1925 with Lincoln Ellsworth got by airplane to 87° 44′ North; and with Ellsworth and Umberto Nobile floated in the dirigible *Norge* across the Pole to Teller, Alaska, in 71 hours in May, 1926; on June 18, 1928, set out with Rene Guilbaud and four companions in attempt to rescue the Nobile party after the wreck of the *Italia* north of Spitzbergen. After wireless communication ceased at 7 that evening, Amundsen was never heard from. Probably his Latham plane broke from weight of ice on the wings. Thus perished in a last heroism Roald Amundsen, "the greatest polar explorer of all time."

ARCHIMEDES (*ar-ki-mee'dees*) (287–212 B. C.) Greek geometrician; the greatest mathematician of antiquity; born in Sicily, studied at Alexandria, was killed at the fall of Syracuse. Among his works still extant are important treatises on plane and solid geometry, arithmetic, and mechanics; invented the spiral pump called "Archimedes' Screw."

ARCHY'TAS (first half of the fourth century B. C.). A famous Greek philosopher, mathematician, general, and statesman; regarded as the founder of scientific mechanics; distinguished harmonical progression, doubled the cube, invented the pulley, and taught that the earth is a sphere rotating on its axis in 24 hours.

ARTEDI (*ar-tay'de*), **PETER** (1705–1735). Swedish naturalist; friend of Linnaeus; author of an important work on fishes, which Cuvier says is the first attempt at a truly scientific classification.

ATWATER, WILBUR OLIN (1844–1907). An American chemist; a leader in the investigation of problems of nutrition; originated methods of experimentation now widely adopted; constructed a respiration calorimeter, and other physiological apparatus.

AU'DUBON, JOHN JAMES (1780–1851). American ornithologist; spent many years in studying and illustrating from life the birds of America. His great work is *Birds of America*, containing 435 plates and giving 1,065 figures. There are 175 complete good sets in existence, of which 80 sets are in America. A set is now worth over $2,000.

AVOGADRO (*a-vo-gah'dro*), **AMADEO** (1776–1856). An Italian physicist; celebrated for first formulating the fundamental principle of chemistry known as Avogadro's Law of the Atomic Theory, in 1811.

BABBAGE, CHARLES (1792–1871). An English mathematician and inventor of a calculating machine, which he failed to perfect; noted for his table of logarithms and over 80 other writings.

BAILEY, LIBERTY HYDE (1858–). Professor of horticulture, Cornell (1888-1903); director of College of Agriculture, Cornell, since 1903; has given particular attention to botanical and horticultural subjects and to the economics of agriculture and agricultural education; author of many standard books, including the *Cyclopedia of American Horticulture*; editor of *Cyclopedia of American Agriculture*.

BAIRD, SPENCER FULLERTON (1823–1887). A distinguished American naturalist; born at Reading, Pa. His writings embrace almost every branch of American natural history. For many years he edited the Smithsonian Reports, adding many valuable papers; wrote a *Catalogue of North American Reptiles*, *The Birds of North America*, *Mammals of North America*, and *History of American Birds*.

BALFOUR, FRANCIS MAITLAND (1851–1882). A British naturalist and author. He took a leading part in upbuilding the study of natural science at Cambridge, England, where in 1876 he was appointed lecturer of animal morphology. He received a gold medal from the Royal Society for his discoveries, which are embodied in his *Comparative Embryology*, remarkable for profound learning and clear statement. He was a brother of the Rt. Hon. A. J. Balfour.

BALL, SIR ROBERT STAWELL (1840–1909). English astronomer. He embodied his observations in many popular works on astronomy; in recognition of his ability was appointed to many posts of honor, chief among them being astronomer royal of Ireland.

BARNARD, EDWARD EMERSON (1857–1923). An American astronomer; was astronomer in Lick Observatory, California, in 1887–1895; became professor of astronomy in Chicago University and director of the Yerkes Observatory. His principal discoveries are the fifth satellite of Jupiter in 1892, and 16 comets.

BECQUEREL (*bay-ke-rel'*), **ANTOINE CESAR** (1788–1878). A French physicist, noted for his discoveries in electricity and in electro-chemistry. He invented a method of electrotyping. His son, **ALEXANDRE EDMOND** (1820–1891), made important researches on the nature of light and its chemical effects, on phosphorescence, and on the conductivity and magnetic properties of many substances.

BERTHELOT (*bert-lo'*), **PIERRE EUGENE MARCELLIN** (1827–1907). A French chemist. In 1878 he became president of the committee on explosives which introduced smokeless powder. His labors also led to the discovery of dyes extracted from coal tar.

BERTHOLLET (*ber-to-lay'*), **COUNT CLAUDE LOUIS** (1748–1822). A famous French chemist, native of Savoy, to whom we owe the discovery of the bleaching properties of chlorin, the remarkable salt called chlorate of potash, and many improvements in the manufactures. He demonstrated that ammonia is a compound of hydrogen and nitrogen.

BERZE'LIUS, JOHAN JAKOB, BARON (1779–1848). A celebrated Swedish chemist, one of the creators of modern chemistry; instituted the chemical notation by symbols based on the notion of equivalents; discovered selenium, thorium, and cerium; and shared with Davy the honor of propounding the electro-chemical theory.

BLAKE, FRANCIS G. (1887–), professor of medicine, served on the staffs of various hospitals, after receiving an arts degree at Dartmouth and a medical degree at Harvard. Active war service, 1918-1919. Professor at Yale since 1921. Author of *Studies on Experimental Pneumonia*, *Studies on Measles*, *Treatment of Scarlet Fever with Anti-toxin*.

BLAKE, JOSEPH A. (1864–), surgeon, attained distinction as a teacher in New York and in various capacities in the World War in France, for which he received the Distinguished Service Medal.

BLUMENBACH, JOHANN FRIEDRICH (1752–1840). A German naturalist and founder of the science of anthropology. He advocated the theory of the unity

of the human species, which he divided into the five types—Caucasian, Mongolian, Negro, American, and Malay.

BOYLE, ROBERT (1627-1691). A British natural philosopher; devoted his life and contributed greatly to science, especially chemistry and physics, formulating a law of physics known as Boyle's Law.

BRAHE (*brah*), **TYCHO** (1546-1601). A Danish astronomer; discovered a new star in Cassiopeia and the variations of the moon.

BREWSTER, SIR DAVID (1781-1868). An eminent Scottish natural philosopher; specially distinguished for his discoveries in light, his studies in optics, and for his optical inventions, such as the kaleidoscope and the stereoscope.

BRITTON, NATHANIEL LORD (1859-). American botanist; professor botany, Columbia, since 1891. Director N. Y. Botanical Gardens; author of *Flora of the Northern United States and Canada*, and numerous botanical papers.

BROOKS, WILLIAM KEITH (1848-1908). American zoölogist; born at Cleveland, Ohio; professor of zoölogy, Johns Hopkins University (1876-1908).

BROWN, ROBERT (1773-1858). A Scotch botanist, in 1801 appointed naturalist to Flinders's surveying expedition to Australia; returned with nearly 4,000 species of plants.

BROWN-SEQUARD, EDOUARD (1817-1894). A Franco-American physiologist and neurologist; contributed notable results from his experiments on the blood, muscular irritability, animal heat, the spinal cord, and the nervous system.

BUCKLAND, FRANCIS TREVELYAN (1826-1880). An English naturalist; an authority on fish culture and an uncompromising opponent of Darwinism.

BUFFON, GEORGE LOUIS LECLERC, COMTE DE (1707-1788). A French naturalist and philosopher. His great work is his *Natural History*, which was the first attempt to gather known facts in that department of knowledge and to present them in a readable, interesting, and intelligible form.

BUNSEN, ROBERT WILHELM (1811-1899). A German chemist. Among his many discoveries and inventions are the commercial production of magnesium, magnesium light, spectrum analysis, the electric pile, and the burner which bears his name.

BURBANK, LUTHER (1849-1926). An American horticulturist; born at Lancaster, Mass. Established an experimental farm at Santa Rosa, Cal. (1875); originated many varieties of fruits, vegetables, and flowers. In the long list are the Burbank potato, several varieties of plums, prunes, roses, callas, and an edible thornless cactus.

CAGLIOSTRO (*kal-yos'tro*), **ALESSANDRO, COUNT OF**, or **GIUSEPPE BALSAMO** (1743-1795). A celebrated scientific pretender, born in Italy. The discovery of the philosopher's stone and the preparation of an elixir of life were the pretenses by means of which he extracted money from credulous people.

CANDOLLE, AUGUSTIN PYRAME DE (1778-1841). An eminent Swiss botanist; assisted Cuvier and Lamarck; classification of plants was his contribution to botanical science.

CAVENDISH, HENRY (1731-1810). An English natural philosopher and chemist; the first to analyze the air of the atmosphere, determine the mean density of the earth, discover the composition of water, and ascertain the properties of hydrogen; the founder of pneumatic chemistry.

CHAMBERLIN, THOMAS CHROWDER (1843-1928). American geologist; president of the University of Wisconsin (1887-1892); since 1892 head of department of geology, University of Chicago; has developed theories of glaciers and glacial formations, and the planetesimal hypothesis.

CHAMPOLLION (*shon-pol-yon'*), **JEAN FRANCOIS** (1790-1832). A celebrated French Egyptologist; was the first to decipher the hieroglyphics of ancient Egypt; conducted a scientific expedition to Egypt in 1828. A chair of Egyptology was in consequence instituted in the College of France, and he was installed as the first professor.

COPE, EDWARD DRINKER (1840-1897). American naturalist; born in Philadelphia. His investigations of the ichthyology and herpetology of North America and his contributions to the history of extinct vertebrates laid the foundation for the modern classification of North American fishes, amphibians, and reptiles.

COPERNICUS (KOPPERNIGK), NICHOLAS (1473-1543). German astronomer; father of modern astronomy; disproved the Ptolemaic theory. In his great work, *The Revolution of the Celestial Orbs*, the first copy of which was handed to him on the day of his death, he demonstrated that the sun is the center of the system.

COUES, ELLIOTT (1842-1899). An American ornithologist. He was connected with the Smithsonian Institution; author of the well-known *Key to North American Birds*.

COULTER, JOHN MERLE (1851-). American botanist and educator; born at Ningpo, China; head of the department of botany, University of Chicago; author of numerous botanical works.

CROOKES, SIR WILLIAM (1832-1919). An English physicist and chemist. He invented the radiometer and the otheoscope, and announced his discovery of a method of separating gold and silver from their ores; recognized as an expert on sanitary matters. He discovered thallium in 1861 and the radiometer in 1874. His improvements on vacuum tubes had an important bearing on X-rays.

CURIE, PIERRE (1859-1906). French chemist and physicist; famous as the discoverer of radium. His wife, *nee* Slodovska, was associated with him in all his works.

CUVIER, LEOPOLD CHRETIEN FREDERIC DAGOBERT BARON (1769-1832). A French naturalist; the creator of comparative anatomy and paleontology. Towards the end of his life he combated the views of Geoffroy Saint-Hilaire regarding the unity of organic structure. His great work is the *Animal Kingdom*. He adopted the literary title of George Cuvier.

D'ALEMBERT (*da-lahn-bar'*) (1717-1783). The assumed name of **JEAN LE ROND**, a French philosopher, mathematician, and encyclopedist. He wrote a *Mémoire sur le calcul intégral*, *Sur la réfraction des corps solides*, and *Traité de dynamique*.

DALTON, JOHN (1766-1844). An English chemist and natural philosopher; wrote *New System of Chemical Philosophy* (1808-1810). He distinguished himself in the development of the atomic theory, which revolutionized chemistry and contributed more valuable results than any other idea introduced into the study of physics.

DANA, JAMES DWIGHT (1813-1895). An American scientist; born in Utica, N. Y. His researches in geology made him famous; wrote *The System of Mineralogy*, which gained an international reputation; *Manual of Mineralogy*, *Manual of Geology*, *Corals and Coral Islands*, *Text-Book of Geology*, and *The Geological Story Briefly Told*.

DARWIN, CHARLES ROBERT (1809-1882). English naturalist; developed the theory of evolution in his *Origin of Species by Means of Natural Selection* (1859), and extended it to the human race in his *Descent of Man* (1871); proposed the now generally accepted theory of the origin of coral reefs, and made many other contributions to natural science.

DARWIN, ERASMUS (1731-1802). English physician and naturalist; grandfather of Charles Darwin. His *Zoönomia*, a prose medical work, received wide notice. It contained many novel and startling ideas, and Samuel Butler says that Paley's *Natural Theology* was written to refute these ideas. Erasmus Darwin was a strong believer in evolution and anticipated much that was afterwards advocated by Lamarck and Charles Darwin.

DAVY, SIR HUMPHRY (1778-1829). English chemist and natural philosopher; born at Penzance, in Cornwall. The publication of his experiments in science brought him fame. He discovered the effect of nitrous oxid (laughing gas), and the metals sodium, barium, calcium, and magnesium. His work, *On Some Chemical Agencies of Electricity*, was sufficient to establish his reputation as a chemist. He is also remembered as the inventor of the safety-lamp known by his name.

DAWSON, GEORGE MERCER (1840-1901). A Canadian geologist; born at Truro, N. S.; the son of Sir John William Dawson; member of the Bering Sea Commission (1891); director of the Geological Survey of Canada (1895-1901); author of *Physical Geography and Geology of Canada* and *The Physical and Geological Features of a Part of the Rocky Mountains*.

DAWSON, SIR JOHN WILLIAM (1820-1899). A Canadian geologist; born in Pictou, N. S.; assisted Sir Charles Lyell in geological explorations of Nova Scotia (1841); superintendent of education in Nova Scotia

(1850-1855); professor of natural history at McGill University (1850). He was an eminent authority on Canadian geology; prominent in the controversy over the supposed fossil "Eozoön" found among the earlier rocks; and one of the foremost opponents of the Darwinian theory of the origin of life forms; wrote *Acadian Geology, Acadia, The Story of the Earth and Man, The Dawn of Life, The Origin of the World*, etc.

DE MORGAN, AUGUSTUS (1806-1871). An eminent English mathematician; wrote treatises on arithmetic, algebra, trigonometry, and differential and integral calculus.

DE VRIES, HUGO (1848-). Dutch botanist; has made notable researches in variation of species, and developed the theory of mutations in species forming.

DEWAR, SIR JAMES (1842-1923). English chemist and physicist. With Sir Frederick Abel he invented cordite. In 1898 he succeeded in liquefying hydrogen and helium; in 1911, solidified oxygen.

DIOPHANTUS (flourished 260). A celebrated Greek mathematician of Alexandria. He is called the "*Father of Algebra.*" His works were on *Arithmetic, Polygonal Numbers*, and the *Porisms.* He was the originator of Diophantine Analysis.

DIOSCORIDES (about 100). A Greek physician, whose great work on materia medica remained in use for 1,500 years.

DOUGLASS, EARL (1862-). Geologist and paleontologist; has been engaged in research work at Carnegie Museum, Pittsburg, since 1902; conducted expeditions in the West, discovering new forms of fossil plants and animals, especially mammals; published valuable monographs on the results.

DRAPER, JOHN WILLIAM (1811-1882). A chemist, physiologist, and man of letters; born at Liverpool; settled in the United States; wrote on chemistry, physiology, and physics generally. His *History of the Conflict between Science and Religion* is an able book.

DUMAS, JEAN BAPTISTE (1800-1884). Distinguished French chemist. His writings, setting forth the result of his researches on atomic weights, sulphuric ether, and the phenomena of organic substitution, are famous.

EASTMAN, JOHN ROBIE (1836-1913). American astronomer; born at Andover, N. H.; professor of mathematics in the U. S. Naval Observatory. (1865-1898).

ELLIOT, DANIEL GIRAUD (1835-1915). An American ornithologist. He became curator of zoölogy for the Field Columbian Museum at Chicago. His extensive scientific writings include *Birds of North America, Wild Fowls of the United States and British Possessions, North American Shore Birds*, and *Synopsis of the Mammals of North America and the Adjacent Seas.*

ENCKE (*en'ke*), **JOHANN FRANZ** (1791-1865). A German astronomer; calculated the orbit of the comet observed by Mechain, Miss Herschel, and Pons, predicted its return, and detected a gradual acceleration of movement ascribed by him to the presence of a resisting medium. The comet is now known as Encke's comet.

ENDLICHER, STEPHAN LADISLAUS (1804-1849). An Austrian botanist. His works form a valuable contribution to systematic botany, including an elaboration of the natural system of classification of plants.

ERASISTRATUS (about 300-about 260 B. C.). One of the most celebrated physicians and anatomists of ancient times; born in Ceos. He was the first to distinguish the sensory from the motor nerves and to trace both sets of nerves to the brain.

ESPY, JAMES POLLARD (1785-1860). A meteorologist; born in Pennsylvania; did notable work in investigating the causes of storms, and in 1841 published *The Philosophy of Storms*; was appointed to the Washington Observatory, where he carried on experiments in the cooling of gases and atmospheric expansion. It was through Espy that the present United States Weather Bureau became a possibility.

EUCLID (flourished 300 B. C.). The most famous of the Greek geometricians. He lived at Alexandria in the time of Ptolemy I. (306-283 B. C.). The Greeks called him the "Author of the Elements." His name is even now synonymous with elementary geometry. His *Elements* was known to the Arabs, having been translated in the time of Harun-al-Raschid. It was translated from the Arabic into Latin by Adelard of Bath about 1120, and this translation was printed in Venice in 1482. This was translated into English by Billingsley in 1570. Euclid's other works are *Data, Phenomena, Optics, Reflections*, and *Division of the Scale.*

EUSTACHIO (*ay-oos-tah'ke-o*), **BARTOLOMMEO** (about 1500-about 1574). An Italian physician and anatomist. He devoted himself to medical science and in particular to anatomy, which he much enriched by his researches. Among his discoveries were the Eustachian tube of the ear and the Eustachian valve of the heart.

FAHRENHEIT (*far'en-hite*), **GABRIEL DANIEL** (1686-1736). A distinguished German physicist and instrument-maker; improved the accuracy of thermometers by substituting mercury for alcohol; devised the graduated scale for thermometers; discovered the fixed boiling point of other liquids than water, and that the boiling point varied with change in atmospheric pressure.

FALLOPIUS or **FALLOPIO, GABRIELLO** (1523-1562). An Italian anatomist. The Fallopian tubes which connect the ovaries with the uterus, first accurately described by him, are called after his name, as also the duct which transmits the facial nerve after it leaves the auditory nerve.

FARADAY, MICHAEL (1791-1867). English chemist and natural philosopher; founder of the science of magneto-electricity; one of the most brilliant experimentalists known to science; wrote *Experimental Researches in Electricity* and *Researches in Chemistry and Physics.*

FRANKLAND, SIR EDWARD (1825-1899). English chemist. He contributed to science the theory of valency, i. e., the conclusion that each atom of an elementary substance possesses a clearly limited power of saturation, so that only a correspondingly limited number of atoms of other elements can be attached to it. With Sir William Lockyer he discovered helium in the sun.

FRANKLIN, SIR JOHN (1786-1847). English Arctic explorer; made extensive explorations of Arctic America; with all the other members of his party perished in an expedition which left England in 1845.

FRAUNHOFER (*frown'ho-fer,*) **JOSEPH VON** (1787-1826). A German optician; born in Bavaria; associated with many discoveries in optics as well as in inventions of and improvements in optical instruments; celebrated for his discovery of the dark lines in the solar spectrum called "Fraunhofer lines."

FREMY, EDMOND (1814-1894). French chemist. In 1888 he and Verneuil produced rubies similar in color and chemical composition to the natural stones.

GALEN (130-about 201). Greek physician, medical writer, and philosopher. His works covered anatomy, physiology, dietetics, hygiene, pathology, diagnosis, pharmacy, materia medica, therapeutics, surgery, and philosophy. These were written originally in Greek; some were translated into Latin and Arabic.

GALILEI (*gah-le-lai'e*), **GALILEO (GALILEO)** (1564-1642). Italian astronomer; discovered about 1582 the isochronism of the vibrations of a pendulum, and in 1590 the law by which the velocity of falling bodies is accelerated; adopted in astronomy the system of Copernicus; constructed his wonderful telescope (1609). Through it he discovered the satellites of Jupiter, and was enabled to explore the surface of the moon and view the phases of Venus. He also ascertained that the "Milky Way" is composed of myriads of stars.

GALLE (*gawl'eh*), **JOHANN GOTTFRIED** (1812-1910). A German astronomer; wrote extensively on the natural sciences and mathematics. He was the first to observe the planet Neptune (September 23, 1846); discovered three comets (1839-1840).

GALTON, SIR FRANCIS (1822-1911). An English scientist. Having traveled in North Africa, he explored in 1850 lands hitherto unknown in South Africa, publishing his experiences in his *Narrative of an Explorer in Tropical South Africa.* Later he specially devoted himself to the problem of heredity.

GALVA'NI, LUIGI (1737-1798). An Italian anatomist. He studied theology and, later, medicine at the University of Bologna, and was elected professor of anatomy. Galvani owes the wide celebrity attached to his name to his discoveries in animal electricity.

GAUSS (*gowss*), **KARL FRIEDRICH** (1777-1855). A distinguished German mathematician; wrote *Disquisitiones Arithmeticae* and many other important works on the theory of surfaces, least squares, astronomy, and physics.

GAY-LUSSAC (*gay-lu-sak'*), **JOSEPH LOUIS** (1778-1850). French chemist and physicist; employed himself in chemical and physical research, in connection with which he made two balloon ascents. His name

is associated with many notable discoveries in chemistry and physics, e. g., the law of volumes, isolation of cyanogen, etc.

GEGENBAUR (*gay'gen-bower*), **KARL** (1826-1903). A leading comparative anatomist in Germany; the first to place the study of anatomy on an evolutionary basis.

GEIKIE (*gee'ke*), **SIR ARCHIBALD** (1835-1924). A British geologist. His researches in all branches of geology have made him an authority on these subjects. While serving on the Geological Survey (1855) he wrote *Scenery of Scotland*, which first brought him to public notice.

GEOFFROY SAINT-HILAIRE, ETIENNE (1772-1844). French naturalist; professor of vertebrate zoölogy at Paris; accompanied Bonaparte to Egypt and founded the Institute of Cairo; made teratology, or the study of monstrosities, a science; created the science of embryology. His son, Isidore (1805-1861), continued the works and teachings of his father.

GERHARDT, KARL FRIEDRICH (1816-1856). An eminent French chemist; in collaboration with Cahours, published a memoir on essential oils, embodying new theories; his treatises upon his views of series, theories of types, and researches upon acids and oxids mark an epoch in the history of chemistry.

GESNER, KONRAD VON (1516-1565). A Swiss naturalist; performed the useful work of bringing together all the known information about animals and plants then discovered.

GRAY, ASA (1810-1888). An American botanist; born in Paris, Oneida County, N. Y. In 1874 he succeeded Agassiz as a regent of the Smithsonian Institution. He ranked among the leading botanists of his age, and became an influential supporter of the Darwinian theories of evolution. He wrote a *Manual of Botany of the Northern United States, Synoptical Flora of North America*, and other works.

GREELY, ADOLPHUS WASHINGTON (1844-). American Arctic explorer and meteorologist; chief U. S. Signal Service since 1887; given command Arctic expedition in 1881, reaching latitude 83 degrees 24 minutes, the farthest north attained to that date.

HAECKEL (*hay'kel*), **ERNST HEINRICH** (1834-1919). A distinguished German naturalist. He became professor of zoölogy at the University of Jena in 1865. His purely scientific works have been translated into many languages and include *History of Creation, Riddle of the Universe, A Visit to Ceylon*, and many others inspired by Darwin's *Origin of Species*.

HAHNEMANN, SAMUEL CHRISTIAN FRIEDRICH (1755-1843). A distinguished German physician and chemist, originator of the homeopathic system of medical practice.

HALL, MARSHALL (1790-1857). An English physician and physiologist; specialist in nervous diseases. His name is also associated with a well-known method of restoring suspended respiration.

HALLER, ALBRECHT VON (1708-1777). A celebrated anatomist, physiologist, botanist, physician, and poet; born at Bern; was a voluminous author.

HAMILTON, SIR WILLIAM ROWAN (1805-1865). Scotch-Irish mathematician and astronomer; born in Dublin, Ireland. His fame is chiefly founded on his discovery of quaternions, a new method in the higher mathematics.

HARTLEY, DAVID (1705-1757). An English philosopher and physician; wrote *Observations on Man, his Frame, his Duty, and his Expectations*; ascribed sensation to vibration in the nerves, and applied the doctrine of the association of ideas to mental phenomena.

HARVEY, WILLIAM (1578-1657). English physician and anatomist, and the greatest of physiologists; discovered the circulation of the blood, which he announced to his pupils in 1619.

HEDIN, SVEN (1865-). Swedish explorer; has made extensive explorations and discoveries in Asia, particularly in Turkestan, Bokhara, Pamir, and Tibet.

HELM'HOLTZ, HERMANN LUDWIG FERDINAND VON (1821-1894). A German physicist. His work has been chiefly in acoustics and optics; wrote *Conservation of Force, Sensation of Tone*; proposed the generally accepted theory of color; invented the ophthalmoscope and other useful physical apparatus.

HEL'MONT, JAN BAPTISTA VAN (1577-1644). A celebrated Belgian chemist who made a special study of gases. He applied the term gas to water vapor and other elastic fluids to distinguish them from air; first used the melting-point of ice and the boiling-point of water as limits of a thermometric scale.

HERSCHEL, CAROLINE LUCRETIA (1750-1848). A German-English astronomer; sister of Sir William Herschel; made important observations of her own, which were published, including a *Catalogue of Stars* containing 561 omitted in the British list.

HERSCHEL, SIR JOHN FREDERICK WILLIAM (1792-1871). English astronomer and chemist; only son of the eminent Sir William Herschel. He conducted his astronomical observations as had his father, discovering 525 nebulae and double stars, thereby making in all between three and four thousand.

HERSCHEL, SIR WILLIAM (1738-1822). A distinguished astronomer; born at Hanover, Germany; went to England in 1757, and held several appointments as an organist; gave his leisure time to the study of astronomy; discovered the planet Uranus in 1781 (which he called *Georgium sidus* in honor of George III.); discovered also the six satellites of Uranus, and drew up a catalogue of 5,000 heavenly bodies or clusters of them.

HERTZ, HEINRICH RUDOLF (1857-1894). German physicist; professor of physics at Karlsruhe, where he made his remarkable experiments with electromagnetic waves, showing their reflection, refraction, diffraction, and polarization, which facts have since been developed into wireless telegraphy.

HIPPARCHUS (flourished 161-126 B. C.). A Greek astronomer and mathematician. He was the founder of scientific astronomy and trigonometry; computed a table of chords; discovered the precession of the equinoxes; invented the astrolabe; and made a catalogue of 1,000 stars, which Ptolemy incorporated in the *Almagest*.

HIPPOC'RATES (460?-377? B. C.). The greatest physician of ancient times, usually designated the "Father of Medicine"; born in the island of Cos. Among his authentic writings are *Prognosis*; *On Epidemics*; *On Diet in Acute Diseases*; *On Air, Water, and Place*; *On Wounds of the Head*. He was distinguished for his remarkable skill in diagnosis, and his accurate and vivid description of morbid symptoms. His works were early translated into Arabic.

HITCHCOCK, EDWARD (1793-1864). An American geologist. Was instrumental in popularizing the science of geology in the United States. While acting as state geologist of Massachusetts he conducted the first geological survey of importance, the results being published by the state.

HOOKER, SIR JOSEPH DALTON (1817-1911). Noted British botanist and traveler. He made trips to the Antarctic regions, the Himalayas, Great Atlas Mountains in Morocco, Palestine, Syria, and California, returning each time with thousands of plants which he later classified. *Genera Plantarum* is his greatest work.

HOWARD, LELAND OSSIAN (1857-). An American entomologist; born at Rockford, Ill.; chief of the entomology service in the Department of Agriculture (1894); wrote *Mosquitoes* and *The Insect Book*.

HUMBOLDT, ALEXANDER, BARON VON (1769-1859). German naturalist and traveler; contributed to almost every branch of science. His *Kosmos* (1845-1859), a work explaining the physical universe, is his greatest achievement, while his *Voyage aux Regions équinoxiales du Nouveau Continent* embodies his researches in the New World.

HUXLEY, THOMAS HENRY (1825-1895). English scientist and comparative anatomist. As a result of four years of research in natural science he published a work *On the Anatomy and the Affinity of the Medusae*. When Darwin's *Origin of Species* was published (1859), Huxley became a zealous advocate of evolution. His masterly work, *Man's Place in Nature*, was based upon the new doctrine.

HUYGENS, CHRISTIAN (1629-1695). A famous Dutch physicist, astronomer, and mathematician; the author of notable researches on the polarization, reflection, and refraction of light. He invented an apparatus for the application of the pendulum to clocks and by its use to determine the acceleration of gravity. He made powerful telescopes which enabled him to discover the ring of Saturn and its fourth satellite.

HYATT, ALPHEUS (1838-1902). An American naturalist; born at Washington, D. C.; professor of zoölogy and paleontology at the Massachusetts Institute of Technology and at Boston University (1881). In the field of invertebrate paleontology his work was masterly and his writings voluminous.

JENNER, EDWARD (1749-1823). English physician. After much experimental study of vaccine lymph as a preventive of smallpox, he succeeded in convincing medical men of the value of the lymph for that purpose so that vaccination has become universal.

JORDAN, DAVID STARR (1851-). An American educator and naturalist; studied fishes under Agassiz and became one of the foremost ichthyologists; wrote *A Manual of Vertebrate Animals of the Northern United States, North and Middle America, Food and Game Fishes of North America.* President Leland Stanford Jr. University (1891-1913); chancellor (1913-).

KELLY, HOWARD A. (1858-), distinguished surgeon, professor at Johns Hopkins University, and author of many works in medicine and surgery, was graduated from the University of Pennsylvania where he taught surgery for a time. Honored by election of numerous foreign medical associations, and decorated several times. Dr. Kelly became an international figure. Some of his best works are *Vermiform Appendix, Operative Gynecology, Walter Reed and Yellow Fever, Cyclopedia of American Medical Biography, a Scientific Man and the Bible.*

KELVIN, WILLIAM THOMSON, LORD (1824-1907). English scientist and inventor, professor of natural philosophy in the University of Glasgow (1846-1899); electrical engineer for the Atlantic cables of 1857-1858, 1865-1866, making many improvements in signaling apparatus, and also exceedingly valuable theoretical observations. In addition, his many inventions include the mirror galvanometer, siphon recorder, many pieces of electical apparatus and methods for measurement, an improved form of mariners' compass, a deep-sea sounding apparatus, and a method of arriving at an absolute scale of temperature. Lord Kelvin also made notable discoveries in the mathematical theories of electricity, heat, elasticity, vortex-motion, magnetism; wrote much on scientific subjects.

KEPLER, JOHN (1571-1630). Illustrious German astronomer; by his long study of the motions of Mars he was led to the discovery of the planetary laws known as Kepler's laws, and by their means we are enabled to tell the place of any planet in its orbit at any time, past or present.

LACEPEDE (*lah-say-pad'*) **BERNARD DE LA VILLE, COUNT DE** (1756-1825). A French naturalist. Besides continuing Buffon's *Natural History* at Buffon's own request, he wrote *Natural History of Reptiles*, for many years a standard work.

LAENNEC, RENE THEOPHILE HYACINTHE (1781-1826). French physician, inventor of the stethoscope. His important *Traité de l'auscultation médiate* has greatly influenced the art of diagnosis.

LAGRANGE, JOSEPH LOUIS (1736-1812). A great French mathematician. By his completion of the calculus of variations he established for himself a firm European reputation. His investigations in astronomy are also of value. Of his works the *Mécanique Analytique* (1788) is his masterpiece.

LAMARCK, JEAN BAPTISTE PIERRE ANTOINE DE MONET DE (1744-1829). A French zoölogist who ranked as the greatest between Linnaeus and Cuvier. He was the founder of organic evolution and of invertebrate paleontology.

LAPLACE (*lah-plahs'*), **PIERRE SIMON, MARQUIS DE** (1749-1827). A celebrated French mathematician who attained a position among mathematicians and astronomers almost equal to Newton's. His *Three Laws* demonstrated the stability of the solar system. He published many treatises on lunar and planetary problems, and a nebular hypothesis.

LAVOISIER (*lah-vwaw-zeay'*), **ANTOINE LAURENT** (1743-1794). French chemist; founder of modern chemistry; guillotined by French revolutionary tribunal. Lavoisier established the law of the conservation of mass; made important discoveries in chemical union; and devised a system of rational nomenclature.

LEIBNITZ (*libe'nits*), **GOTTFRIED WILHELM FREIHERR VON** (1646-1716). One of the most celebrated scholars and philosophers that Germany has ever produced. Authorities seem generally agreed that he discovered the differential calculus independent of any knowledge of Newton's method of fluxions. He was eminent in history, divinity, philosophy, political science, experimental science, mathematics, mining, engineering, and literature.

LEIDY, JOSEPH (1823-1891). American naturalist; born at Philadelphia. Contributed much to natural science, particularly in paleontology. In 1864 he discovered that the parasite *Trichina spiralis* is introduced into the human system in raw or imperfectly cooked pork.

LEVERRIER (*lay-vair-re-ai'*), **URBAIN JEAN JOSEPH** (1811-1877). A French astronomer; distinguished in chemistry before he devoted himself to astronomy; rose to eminence in the latter science by a paper on the variations in the orbits of the planets and *Tables de Mercure*; discovered Neptune.

LIEBIG (*lee'big*), **JUSTUS, BARON VON** (1803-1873). A German chemist; one of the first to apply chemical analysis to the phenomena of organic life. His *Chemistry in its Application to Agriculture and Physiology* and *Researches on the Chemistry of Food* show how he has applied the teachings of science to practical utilities.

LINNE (*lin'neh*), **KARL VON,** or **LINNAEUS** (1707-1778). The greatest botanist of his time; born in Rashult, Sweden. He was the originator of the modern system of naming plants and animals; wrote *Flora Lapponica, Systema Naturae, Fundamenta Botanica, Bibliotheca Botanica, Critica Botanica, Genera Plantarum, Classes Plantarum, Philosophia Botanica,* and *Species Plantarum.*

LISTER, SIR JOSEPH, BARON (1827-1912). An English surgeon. In addition to important observations on the coagulation of the blood, the early stages of inflammation, and other matters, his great work is known as the antiseptic system of surgery. He was made baronet in 1883 and a peer, as Lord Kinnear, in 1897; wrote largely on antiseptic treatment and the germ theory of putrefaction.

LIVINGSTONE, DAVID (1813-1873). An African explorer; discovered Lake Ngami in 1849; explored Zambesi river and discovered Victoria Falls in 1856; wrote *Missionary Travels and Researches in South Africa,* and *The Zambesi and its Tributaries.*

LODGE, SIR OLIVER JOSEPH (1851-). English physicist. Made valuable investigations and experiments in the field of electricity, and substantially advanced wireless telegraphy. His *Lightning Conductors and Lightning Guards* is an important work on those subjects.

LORENZ, ADOLPH (1854-1927), famous Austrian surgeon, advocated certain adjustments of the hip and other joints by force, without ordinary cutting. His most famous work is entitled "Dislocation of the Hip." Visited the U. S. in 1902 and 1922.

LUBBOCK, SIR JOHN, LORD AVEBURY (1834-1913). An English naturalist, anthropologist, and publicist; active in public life, but best remembered by his work in science, in anthropology and entomology.

LYELL, SIR CHARLES (1797-1875). A British geologist. In his *Antiquity of Man* he summarized the evidence in favor of the theory that the race of man was much older than was currently believed. Lyell has been called the founder of modern geology. His *Principles of Geology* taught the continuity of the earth, and ranks with the *Origin of Species* as an epoch-making work.

MALPIGHI (*mal-pe'gee*), **MARCELLO** (1628-1694). An Italian anatomist; noted for his important discoveries of the structure of the kidneys, lungs, skin, and spleen, giving his name to various parts of such.

MARGGRAF, ANDRE (1709-1782). German chemist. He added alumina and magnesia to the then known earths—lime and silica—and was the first to extract sugar from beet root.

MARSH, OTHNIEL CHARLES (1831-1899), American zoölogist and paleontologist; born at Lockport, N. Y. Made many important discoveries of fossil vertebrates, and traced the phylogeny of the horse. Left to Yale University his valuable collection of fossil vertebrates.

MAXWELL, JAMES CLERK (1831-1879). Scottish physicist. His chief researches were into the kinetic theory of gases, the composition and vision of color, and electricity. In the last "he connected the theory of electricity and magnetism, and proved the oneness of the disturbances of the ether caused electrically and by light." Invented the Maxwell discs and color-box.

MENDELEEF, DIMITRI IVANOVITCH (1834-1907). A great Russian chemist. He promulgated the theory of the Periodic Law of the elements, known as Mendeleef's Law, by which he was able to foretell the existence, atomic weights, and other properties of elements not then known, but which have since been discovered.

MESMER, FRIEDRICH ANTON (1733-1815). A German physician; the founder of animal magnetism, called mesmerism after him.

MICHELSON, ALBERT ABRAHAM (1852-). American physicist. His measurements of the velocity of light are considered the most accurate. By the invention of an interferential refractometer, he was able to determine linear distances in terms of the wave length of light. At Sèvres, France (1892-1893), with Professor Benoit, he determined the length of the international prototype meter in terms of the wave length of cadmium light. One of his recent inventions is the échelon spectroscope. Awarded Nobel Prize (1907).

MILLER, HUGH (1802-1856). A Scotch journalist and geologist; self-taught; began life as a stone mason; editor of the *Witness* newspaper from 1840, with the exception of one year, till his death; wrote *The Old Red Sandstone, Footprints of the Creator,* and the *Testimony of the Rocks,* besides being the author of an account of his life, *My Schools and Schoolmasters.*

MITCHELL, MARIA (1818-1899). American astronomer; studied particularly comets and nebulae; discovered a new comet (1847); professor of astronomy at Vassar (1865-1888).

MITSCHERLICH, EILHARD (1794-1863). German chemist. He discovered the laws of isomorphism and diomorphism in accordance with which the crystalline forms of certain substances are governed.

MIVART, ST. GEORGE JACKSON (1827-1900). An English naturalist and zoölogist; a Roman Catholic professor at Louvain, Belgium; noteworthy for his opposition to Darwinism.

MOISSAN, HENRI (1852-1907). French chemist. By means of the electric furnace he was enabled in 1897 to isolate fluorine, which had hitherto resisted isolation; he also manufactured microscopic diamond crystals.

NANSEN, FRIDTJOF (1861-). Norwegian naturalist and Arctic explorer, the first to cross the ice cap of Greenland (1888); by going north of Asia, he reached latitude 86 degrees and 4 minutes north (1895); wrote: *The First Crossing of Greenland, Eskimo Life,* and *Farthest North.*

NAPIER, JOHN (1550-1617). A Scotch mathematician, the inventor of logarithms.

NEWCOMB, SIMON (1835-1909). A Canadian astronomer and mathematician; professor mathematics U. S. Naval Observatory, 1861; observed transit of Venus at Cape of Good Hope (1882); director of Nautical Almanac (1877-1897); professor mathematics Johns Hopkins (1894-1901); editor *American Journal of Mathematics;* officer of the Legion of Honor in France.

NEWTON, SIR ISAAC (1642-1727). English mathematician and natural philosopher; invented the direct "method of fluxions," and a reflecting telescope; rendered immortal by his discovery of the laws of universal gravitation and the decomposition of light.

OERSTED, HANS CHRISTIAN (1777-1851). A Danish natural philosopher; founder of the science of electro-magnetism. He announced his important discovery in *Experimenta circa Effectum Conflictus Electrici in Acum Magneticam.*

OHM, GEORG SIMON (1787-1854). German physicist; discovered the law in electricity bearing his name while studying the relative conductivity of metals. The name "ohm" was established for the unit of electrical resistance in 1881, by the Paris Congress of Physicists.

OSBORN, HENRY FAIRFIELD (1857-). American paleontologist and geologist, professor zoölogy at Columbia since 1890; president American Museum Natural History, New York, to which he has made valuable contributions; author *Evolution and Heredity, From the Greeks to Darwin,* and many scientific papers.

OWEN, SIR RICHARD (1804-1892). English zoölogist; the first to make clear the distinction between homology and analogy, from the first of which he deducted a doctrine of "archetypes."

PACKARD, ALPHEUS SPRING (1839-1905). An American naturalist; best known as an entomologist. His classification of insects has been widely accepted. He studied under Agassiz at the Lawrence Scientific School; curator and, later, director of the Peabody Academy of Sciences, Salem (1867-1878); entomologist of Massachusetts (1871-1873); professor of zoölogy and geology at Brown University (1878), wrote *Guide to the Study of Insects, etc.*

PALLAS, PETER SIMON (1741-1811). German-Russian naturalist. Specimens gathered by him during six years of travel in Siberia formed the nucleus of the museum of the Academy of St. Petersburg. His important works include *Elenchus zoophytorum* and *Flora Russica.*

PASTEUR, LOUIS (1822-1895). A celebrated French scientist. He contributed results of investigations of the highest importance to nearly every branch of science; but it is with processes of fermentation and putrefaction that his name is inseparably connected. In the germ theory and the treatment of hydrophobia his results are best known.

PEARY, ROBERT EDWIN (1856-1920). American Arctic explorer and naval engineer; has made many trips to the Arctic regions; established the insularity of Greenland; discovered the noted Eskimo meteorites; reached latitude 87 degrees 6 minutes, only 200 miles from the pole (1906); a new expedition in 1908; reached the pole April 6, 1909; rear admiral (1911).

PINCHOT, GIFFORD (1865-). American forester, member National Forestry Commission, and chief of U. S. Forestry Service (1898-1910); has made valuable contributions on the preservation of forests.

PRIESTLEY, JOSEPH (1733-1804). English clergyman and scientist; born in Yorkshire. Chemistry was unborn but he became interested in the production of carbonic acid, and succeeded in forcing it into water; discovered oxygen (1774) and other gases which gave him his scientific reputation.

PRZEVALSKI, NIKOLAI MIKHAILOVITCH (1839-1888). Russian explorer and naturalist; made extensive explorations in eastern Siberia and Mongolia, where he discovered a true species of wild horse.

PTOLEMY (*tol'e-mee*) **(CLAUDIUS PTOLEMAEUS)** (flourished about 150). Ancient astronomer and geographer; born in Egypt; was the author of the system of astronomy called after him. His works on astronomy (*Almagest*) and geography were the text-books of the world on these subjects until the time of Copernicus and the maritime discoveries of the fifteenth century.

PUPIN, MICHAEL IDVORSKY (1858-). Hungarian physicist; professor of electro-mechanics at Columbia since 1889; has made numerous researches and discoveries in electricity.

PURKYNIE (or **PURKYNE**), **JOHANNES** (1787-1869). Bohemian physiologist. He was the first to make use of the term "protoplasm."

RAMSAY, SIR WILLIAM (1852-1916). English chemist; the leading exponent of physical chemistry in Great Britain. In 1894, jointly with Rayleigh, he discovered the element argon. He has since isolated xenon, krypton, and neon—three more gaseous elements—and more recently discovered that radium in its apparent disintegration evolves helium.

RAY or **WRAY, JOHN** (1627-1705). An English naturalist; zoölogical works and attempts at classification of animals and plants are considered by Cuvier as the foundation of modern zoölogy.

RAYLEIGH, JOHN WILLIAM STRUTT, THIRD BARON (1842-1919). English physicist. His most important contributions to science have been his evaluation of the fundamental electrical units; and more especially his determination of the densities of gases that led to the discovery of argon (see RAMSAY above). In 1904 he was awarded the Nobel Prize for physics.

REAUMUR (*ray-ow'mur*), **RENE ANTOINE FERCHAULT DE** (1683-1757). A French scientist; is best known as the inventor of the thermometer that bears his name.

REDWAY, JACQUES WARDLAW (1849-). Noted geographer; instructor in chemistry, University of California, and professor of physical geography and chemistry, California State Normal School; author of valuable works in geography, including text-books.

RETZIUS, ANDERS (1796-1860). Swedish anatomist; invented the cephalic index for comparing crania.

RITTENHOUSE, DAVID (1732-1796). An American astronomer, clock and mathematical instrument maker; the first to use spider lines in the focus of a transit instrument.

ROBINSON, BENJAMIN LINCOLN (1864-). American botanist; born at Bloomington, Ill.; Asa Gray professor of systematic botany and curator of Gray herbarium, Harvard; editor *Gray's New Manual of Botany,* 7th Edition.

ROENTGEN, WILLIAM CONRAD (1845-1923). German physicist; discovered the "X" or Roentgen rays by means of which photographs may be taken through opaque substances.

ROSCOE, SIR HENRY ENFIELD (1833-1915). English chemist; professor of chemistry in Owens College, Manchester (1858-1887); with Schorlemmer wrote the exhaustive *Treatise of Chemistry* in 8 volumes. He was among the first to make exact measurements of the chemical action of light.

RUMFORD, BENJAMIN THOMPSON, COUNT (1753-1814). An American scientist; discovered the principle upon which chimneys and fireplaces are now constructed; established the fact that heat is a form of motion; wrote largely on economics, physics, meteorology, and chemistry.

SCHEELE, CARL WILHELM (1742-1786). A Swedish chemist; made numerous important discoveries and published many chemical papers; discovered tartaric acid (1770), chlorin (1774), baryta (1774), oxygen (1774), and glycerin (1784); formed the arsenite of copper known as Scheele's green; and separated hydrocyanic acid (1782).

SCHLEIDEN, MATTHIAS JAKOB (1804-1881). German botanist. Made valuable contributions to the cell theory in botany.

SCHWANN, THEODOR (1810-1882). German histologist; born at Neuss; discovered pepsin; founded the modern cellular theory (1839).

SHACKLETON, ERNEST H. (1873-1922). English naval officer and explorer; leader of British-Antarctic expedition (1908-9) which located the south magnetic pole, lat. 72 degrees 25 minutes S., long. 154 degrees E.; ascended Mt. Erebus 13,100 feet; on January 9, 1909, by sledges over ice at an elevation of above 10,000 feet, reached lat. 88 degrees 23 minutes, only 97 geographical miles or 111 common miles from the South Pole.

SHALER, NATHANIEL SOUTHGATE (1841-1906). An American geologist; author of *Nature and Man in America*, *The Interpretation of Nature*, and many other notable works.

SILLIMAN, BENJAMIN (1816-1885). An American chemist. He was graduated at Yale in 1837, and became professor of chemistry in the School of Applied Chemistry (now Sheffield Scientific School); delivered the first series of lectures on agricultural chemistry given in the United States.

SMITH, WILLIAM (1769-1839). English geologist. His reputation rests upon his theory of the stratification of rocks. The first published geological maps of England were prepared by him.

SMITHSON, JAMES (1765-1829). An English philanthropist; was graduated at Oxford. In 1835 his property, amounting to $515,169, came into the possession of the United States government, having been bequeathed by him "for the purpose of founding an institution at Washington, D. C., to be called the Smithsonian Institution, for the increase and diffusion of knowledge among men."

SPEKE, JOHN HANNING (1827-1864). An English explorer of Africa; discovered Lake Nyanza in 1858, and in 1862 discovered that it is the source of the Nile.

STANLEY, SIR HENRY MORTON (1841-1904). African explorer; sent out in 1869 by the New York *Herald* to search for David Livingstone, whom he found at Lake Tanganyika in 1871; continued the exploration of Africa; crossed the continent from east to west, followed the Congo river to its mouth; founded the Congo Free State; wrote *How I Found Livingstone*, and *In Darkest Africa*.

TESLA, NIKOLA (1857-). An electrician. Born and educated in Hungary, son of a Greek clergyman and Georgina Mandic, an inventor; resident of New York since 1884; has made many electrical discoveries and inventions, among which is the Tesla induction coil.

THENARD, LOUIS JACQUES, BARON (1777-1857). French chemist; made the discovery of the peroxid and the persulphid of hydrogen, of boron, hydrofluoric acid, and fluorid of boron.

THOMSON, JOSEPH JOHN (1856-). English physicist, to whom is largely due the development of the modern ionic theory of electricity, the electrical theory of inertia of matter, and the theoretical and experimental discussion of radio-activity.

TORRICELLI (*tor-ri-chel'li*), **EVANGELISTA** (1608-1647). An Italian physicist, pupil of Galileo; invented the barometer; improved the telescope; and was the first to construct a simple microscope.

TYNDALL, JOHN (1820-1893). English physicist, who by his lectures did much to popularize science. His treatises on light and sound, and on radiant heat and its action on gases, are the result of his original researches; his work on the motion of glaciers was published in conjunction with Huxley.

VOLTA, ALESSANDRO, COMTE (1745-1827). An eminent Italian physicist; inventor of the voltaic pile, the first electric cell or battery, the electrophorus, the condensing electroscope, the electrometer, the hydrogen lamp, and the electric pistol.

WALLACE, ALFRED RUSSEL (1822-1913). An English naturalist; his observations of animal life led him to publish *Speculations on the Origin of Species* in 1855; influenced like Darwin by reading Malthus's *Essay on Population*, he wrote, in 1859, *On the Tendencies of Varieties to Depart Indefinitely from the Original Type*, which was published simultaneously with Darwin's *Origin of Species*.

WEBER, WILHELM (1804-1891). German physicist; introduced the absolute system of electrical units; proposed and defined the terms, volt, ampère, coulomb, and farad.

WEISMANN (*vyse'mahn*), **AUGUST** (1834-1914). A German biologist; leader of the Neo-Darwinian school of evolutionists. The "all sufficiency of natural selection" is the keynote of his teaching in regard to the problems of heredity; he expanded the idea of the continuity of the germ-plasm, and propounded a theory of germinal selection.

WELLMAN, WALTER (1858-). Journalist and explorer; located Columbus's first landing place; led two polar expeditions, to 81 and 82 degrees north; (1906, 1908) attempted polar expeditions by airship.

WELSBACH, CARL AUER VON (1859-). Viennese chemist. In 1885 he discovered neodymium and praseodymium, and invented the mantle of metallic oxids for use with the ordinary Bunsen gas-burner.

WHITE, GILBERT (1720-1793). An English clergyman and naturalist. His principal work, *The Natural History of Selborne*, a model of its kind, is of enduring interest. It deals with a great variety of phenomena that came under the author's notice, and is in the form of letters.

WHITMAN, CHARLES OTIS (1842-1910). American zoölogist; professor of zoölogy in University of Chicago (1902-1910); editor of the *Journal of Morphology*; director of the Marine Biological Laboratory at Woods Hole, Mass.; made important researches in embryology and morphology.

WILEY, HARVEY WASHINGTON (1847-). American chemist; chief of bureau of chemistry, U. S. Department of Agriculture (1883-1912); professor agricultural chemistry, Columbia, since 1895; author of works on agricultural chemistry.

WILLISTON, SAMUEL WENDELL (1852-1919). American paleontologist and zoölogist; professor anatomy Yale (1886-1890); professor geology and anatomy University of Kansas (1890-1902); professor of paleontology at University of Chicago since 1902; author of *North American Diptera*, and many scientific papers, particularly upon mesozoic reptiles.

WILSON, ALEXANDER (1766-1813). A Scottish-American ornithologist. By association with William Bartram he became interested in ornithology; published his *American Ornithology*, himself drawing the faithful pictures. In 1814 it was completed in nine volumes. It was issued in two volumes after his death and, with a continuation by C. L. Bonaparte, in four volumes in 1833.

WINCHELL, ALEXANDER (1824-1891). An American geologist. After 1879 he was professor of geology and paleontology at Michigan University. Besides scientific papers and official reports, he wrote *Sketches of Creation*, *Geology of the Stars*, *Doctrine of Evolution*, *Reconciliation of Science and Religion*, *Preadamites*, etc.

WOHLER, FRIEDRICH (1800-1882). German chemist. His far-reaching researches include those on cyanic acid, glucosids, and enzymes.

WOLLASTON, WILLIAM HYDE (1766-1828). An English chemist and physicist; invented the "camera lucida," the reflecting goniometer, an apparatus for measuring refractive power of solids; discovered palladium, rhodium, and a method of making platinum malleable.

YOUNG, CHARLES AUGUSTUS (1834-1908). American astronomer; professor of astronomy Dartmouth (1866); Princeton (1877); discovered the reversing layer in the solar atmosphere and made valuable studies in solar phenomena.

A BIOGRAPHICAL DICTIONARY OF FINE ARTS

Including the names of the most noted sculptors, painters, architects, musical composers, musicians, dramatists, and actors of all time.

ABBATE or **ABATI** (*ab-bah'te*), **NICCOLO DELL'** (1512-1571). An Italian painter and fresco artist, follower of Raphael and Correggio. His "Adoration of the Shepherds" at Bologna is considered his finest; best known by his frescoes in the palace of Fontainebleau. His "Martyrdom of St. Peter and St. Paul" is in Dresden.

ABBEY, EDWIN AUSTIN (1852-1911). An American figure painter and illustrator, among the strongest colorists and most intellectual painters. His most important works are "Search for the Holy Grail," Boston Public Library (1891-1901); "Coronation of King Edward" (1901); three mural paintings, Capitol at Harrisburg, Pa. (1902-1911); "A May-Day Morning," "Fiammetta's Song," "Crusaders Sighting Jerusalem," and "Columbus in the New World." He was a member of the Legion of Honor, the Royal Academy, the National Academy, the Royal Bavarian Academy, and many art societies.

ACHEN or **ACKEN, JOHANN** or **HANS VON** (1552-1615). A German painter; born at Cologne. Among his works are a "Crucifixion" in a church at Cologne, "Entombment" in the cathedral at Bonn, "St. Mary and Carthusian Monk," "Burgomaster Broelman," "Christ Raising the Widow's Son," and "Truth Victorious under Protection of Justice."

ACHENBACH, ANDREAS (1815-1910). A German marine and landscape painter; born at Cassel; one of the most famous of the Düsseldorf School. His works are chiefly scenes on the Rhine, in Holland, and Norway. Many of his works are owned by private collectors in the United States.

ACHENBACH, OSWALD (1827-1905). A German landscape painter; born in Düsseldorf; brother and pupil of Andreas Achenbach. His works are scenes in the Bavarian Alps, Switzerland, and Italy. Many of his works are owned in the United States.

THE ROUND TABLE OF KING ARTHUR. BY E. A. ABBEY.
Mural decoration in Boston Public Library.

ABBOTT, EMMA (EMMA ABBOTT WETHERELL) (1849-1891). An American soprano; born in Chicago, Ill.; studied in Milan and Paris; made her début in Covent Garden, London, as Maria in *La fille du régiment*; sang in America in *Martha*, *Faust*, *Les Huguenots*, and *Chimes of Normandy*; most widely known American singer of her time, except, perhaps, Clara Louise Kellogg.

ABEL DE PUJOL, ALEXANDRE DENIS (1785-1861). A French historical painter; won the Grand Prix de Rome (1811) with "Jacob Blesses the Children of Joseph"; member of Academy of Fine Arts (1835); painted "Death of Britannicus," "Caesar on the Day of His Assassination," "Baptism of Clovis," and "Peter Raises the Dead."

ABILDGAARD, NIKOLAI ABRAHAM (1744-1809). A Danish historical painter; born in Copenhagen. His most important work, 10 pictures in the castle of Christiansborg, was burned (1794); painted scenes from Shakespeare and Ossian; one of Thorwaldsen's early instructors.

ABINGTON, FRANCES (1737-1815). A famous English actress who was a flower-girl at the theaters but made her first appearance as Miranda in the *Busybody* at the Haymarket, in London (1765). After an absence of 10 years she returned to England at the invitation of Garrick and played for 18 years in Drury Lane, and, later, at Covent Garden. She was the original Lady Teazle (1777), and played many Shakespearean rôles. She became the leading actress of her time; her last appearance was April 12, 1799.

ABT (*abpt*), **FRANZ** (1819-1885). A German song writer and musical conductor; kappelmeister at the court theater in Bernberg in 1841, at Zurich (1842-1852); a prolific composer; published about 600 books of music. Some of these contain from 20 to 30 numbers. His songs are remarkable for simplicity and clearness of melody; visited the United States in 1872. Among his best known songs are "Wenn die Schwalben heimwärts zieh'n" (When the Swallows Homeward Fly); "Gute Nacht, du mein herziges Kind;" "Schlaf wohl, du süsser Engel;" and "Leuchtendes Augen."

ACHTERMANN, THEODORE WILHELM (1799-1884). A German sculptor of religious subjects. His works include a statue of Christ, "Ecce Homo"; "Pietà" and a "Descent from the Cross" in the cathedral at Münster; and a marble altar in the cathedral at Prague.

ACHURCH, JANET, or MRS. CHARLES CHARRINGTON (?). An English actress; born in Lancashire; appeared in London at the Olympic Theatre (January 1, 1883); with Beerbohm Tree (1887); created the part of Nora Helmer in *A Doll's House* at the Novelty Theatre (June 7, 1889) on the occasion of the first presentation in England of an Ibsen play; appeared in the United States with Richard Mansfield (1895); acted Cleopatra to Louis Calvert's Antony at the Olympic (1897).

ACKERMANN, KONRAD ERNST (1712-1771). A German actor and one of the founders of dramatic art in Germany; with the famous Schönemann company at Lünenburg (1740). His theater at Hamburg (1765) set the standard of dramatic art for his country.

ADAM, ADOLPHE CHARLES (1803-1856). A French composer of operas; born in Paris; studied under Boieldieu; wrote 53 operas, of which the most famous are *Pierre et Catherine*, *Le châlet*, *Le postillon de Longjumeau*, *Cantique de Noël*, and the ballets *Faust* and *Le Corsaire*; professor of composition at the conservatory of Paris (1849).

ADAM, LAMBERT SIGISBERT (1700-1759). A French sculptor; born at Nancy; studied in Paris; received the Prix de Rome (1723). Among his best known works are "La Seine et la Marne" in the Palace of St. Cloud, "Neptune et Amphitrite" at Versailles, "Vénus au bain" for the Château de Choisy, "La chasse et la pêche" at Potsdam, and "Neptune calmant les flots" in the Musée du Louvre.

ADAMS, CHARLES R. (1848-1900). An American dramatic tenor; born in Charlestown, Mass.; studied at Vienna; sang for three years at the Royal Opera, Berlin, and for nine years at the Imperial Opera, Vienna. He was a noted Wagnerian singer; taught in Boston after 1879.

ADAMS, EDWIN (1834-1877). An American actor; born in Massachusetts; first appearance at the Boston National Theatre (August 29, 1853) as Stephen in *The Hunchback*; played Hamlet with Kate Bateman and J. W. Wallack in New York at the Winter Garden (1861); Robert Landry in *The Dead Heart* (1866); at the opening of Booth's Theatre (February 3, 1867), and played there Mercutio, Iago, and Enoch Arden.

ADAMS, MAUDE KISKADDEN (1872-). An American actress; born in Salt Lake City; appeared in children's parts in the West; joined E. H. Sothern's company in New York, playing in *The Midnight Bell* (1888); member of Charles Frohman's stock company; played with John Drew in *The Masked Ball* (1892); Lady Babbie in *The Little Minister* (1898); Juliet to William Faversham's Romeo (1899); the Duc de Reichstadt in *L'Aiglon* (1900); Miss Phoebe in Barrie's *Quality Street* (1902), and in *Peter Pan* (1906).

ADAMS, SUZANNE (1873-). An American soprano; born in Cambridge, Mass.; studied with Marchesi in Paris; made her début (1894) at the Paris Opéra as Juliette in Gounod's *Roméo et Juliette*; appeared at Covent Garden, London (1898); at the Metropolitan Opera House in New York (1898 and 1899); married Leo Stern, the violoncellist (1898); has sung Juliette, Marguerite, Gilda, Queen in *Les Huguenots*, Queen of the Night in *The Magic Flute*, Mimi, and Micaëla.

ADAM-SALOMON, ANTONY SAMUEL (1818-1881). A French sculptor of Jewish descent; born at La-Ferté-sous-Jouarre. Among his best works are busts of Béranger, Lamartine, Rossini, Halévy, Littré, George Sand, Marie Antoinette, Delphine Gay; medallions of Copernicus, Amyot, and Marchand Ennery; and the tomb of the duke of Padua.

ADLER, FRIEDRICH (1827-1908). A German architect and art historian; born in Berlin; designed St. Thomas's at Berlin, St. Paul's at Bromberg, and other churches; an authority on ancient and medieval architecture and a patron of the excavations at Olympia.

AELST, EVERT VAN (1602-1658). A Dutch painter; noted for close and accurate paintings in still life.

AELST, WILLIAM VAN (1620-1679). A Dutch painter; nephew of Evert Van Aelst; noted for his skill in reproducing the texture and luster of gold, silver, glass, and mother-of-pearl.

AETION (*a-e'shi-on*) (latter half of fourth or first half of third century B. C.). A Greek painter about whom little is known except that his work is highly praised by Greek writers. His most famous work is the painting of the "Marriage of Alexander and Roxana."

AFINGER, BERNHARD (1813-1883). A German sculptor; born in Nuremberg. His works include portrait medallions and religious subjects.

AGASIAS, SON OF DOSITHEUS (first century B. C.). A Greek sculptor; born in Ephesus; made the statue "Borghese Gladiator" found at Antium and now in the Louvre.

AGASIAS, SON OF MENOPHILUS (first century B. C.). A Greek sculptor; born in Ephesus; made several statues of Romans on the island of Delos.

AGATHARCHUS (about 480 B. C.). A Greek painter; noted as the first scene painter; employed perspective in opposition to the school of Polygnotus.

AGELADAS (520-about 460 B. C.). A Greek sculptor; born at Argos; the teacher of Myron, Phidias, and Polyclitus; modeled the statues of Zeus, Hercules, and many victors in the Olympian games. None of his works have survived.

AGESANDER (about beginning of first century B. C.). A Greek sculptor of the school of Rhodes. Pliny says he was one of the executors, with Athenodorus and Polydorus, of the celebrated group of "Laocoön" discovered near the baths of Titus in the sixteenth century.

AGLA'OPHON (500 B. C.). A Greek painter whose work is praised by Quintilian for its coloring. He was the father of the painters Polygnotus and Aristophon.

AGORAC'RITUS (fifth century B. C.). A Greek sculptor; born at Paros; favorite pupil of Phidias, whose perfect work he rivaled; executed the colossal figure of "Nemesis" at Rhamnus, where fragments of his work have been lately discovered.

AGOSTINO and AGNOLO (early in the fourteenth century). Italian sculptors and architects; born at Siena. Their greatest sculptural work is the monument of Bishop Tarlati at Arezzo. In architecture they erected the great tower of the Palazzo Comunale at Siena. Agnolo built the fortress of Massa.

AGOSTINO DI DUCCIO (1418-1498). An Italian sculptor and architectural decorator; born at Florence; one of the greatest of the middle early Renaissance. His work includes a series of reliefs in the cathedral at Modena; the tomb of Sigismundo Malatesta and other decorations in the interior of San Francesco at Rimini; the façade of San Bernardino at Perugia, one of the finest examples of Renaissance sculpture decoration; and the "Madonna" in the Opera del Duomo.

AGRICOLA, CHRISTOPH LUDWIG (1667-1719). A Bavarian landscape painter; born at Ratisbon. His works are to be seen in Dresden, Vienna, Florence, and Naples. He excelled in producing effects of climate and color and light.

AIGNER, JOSEPH MATTHAUS (1818-1886). An Austrian painter; born at Vienna; famous for his portraits of Grillparzer, Feuchtersleben, Lenau, Rubinstein, and others.

AIKMAN, WILLIAM (1682-1731). A Scottish portrait painter; noted for portraits of Allan Ramsay, Gay, Thomson, and John, duke of Argyll.

AINMULLER, MAX EMANUEL (1807-1870). A German painter; born in Munich; director of the royal manufactory of stained glass at Munich (1844), where he directed the making of much stained glass for the cathedrals of Cologne, Ratisbon, Speier, St. Paul's at London, and St. Peter's College at Cambridge. Views of the interior of Westminster Abbey and others by him are in the Munich Gallery, the National Gallery at Berlin, and elsewhere.

AIVAZOVSKI, IVAN KONSTANTINOVITCH (1817-1900). A Russian painter; born in the Crimea; one of the greatest marine painters of Russia. Among his best are "Sunrise on the Black Sea," "Creation," and "Deluge" in the Hermitage at St. Petersburg; sea fights at Revel, Viborg, and Tchesme, and "Wreck of the Frigate Ingermannland" and "Peter the Great at Krasnaya Gorka" in the Winter Palace; "View of Constantinople," "Calm Sea," and "Naples by Moonlight" in the Academy at St. Petersburg; "Solar Eclipse" in the Geographical Society at St. Petersburg; "Calm Sea by Moonlight" and "Monastery of St. George" in the Moscow Museum.

AIZELIN, EUGENE ANTOINE (1821-1902). A French sculptor; born in Paris; a pupil of Ramey and Dumont. A few of his works are "Nyssia au bain" in the Palais Pompéian at Paris; "Psyché" in the Musée du Luxembourg; "L'adolescence," "L'idylle," "Amazone vaincue," "Mignon," "Agar et Ismaël," and "La danse" on the façades of Le Cirque; and numerous statues for public buildings.

AKERS, BENJAMIN PAUL (1825-1861). An American sculptor; born in Westbrook, Me. It is said that the character of Kenyon in Hawthorne's *Marble Faun* is drawn after Akers. Among his noted works are "Una and the Lion," "Milton," "The Dead Pearl Diver," "Isaiah," and busts and medallions of Longfellow, Edward Everett, and Sam Houston.

ALARD, JEAN DELPHIN (1815-1888). A French violinist; born in Bayonne. He was a pupil of Habeneck and Fétis; succeeded Baillot as first violinist to the king (1840); professor of the violin at the Paris Conservatory (1843-1875); Sarasate was one of his pupils; represented the modern French school of violin playing; wrote several compositions and an *Ecole du violon* used in the Conservatory.

ALARZ, JULES (1814-1891). A French composer; born in Mantua, Italy; was educated at the Milan Conservatory; musical director at the Théâtre des Italiens, Paris; wrote *Rosamondo*, an opera; *La rédemption*, an oratorio; *Sardanapale*, an opera; *La voix humaine*; and *Locanda Gratis*, an opéra-bouffe.

ALAUX, JEAN, or LE ROMAIN (1786-1864). A French historical painter; born at Bordeaux; a pupil of Vincent and Guérin; won the Grand Prix de Rome (1815); director of the French Academy at Rome (1847-1850); a member of the Institute (1851). His chief works include "Pandora brought from Heaven by Mercury" in the Palace of St. Cloud until destroyed in 1870, "Burial of Our Lord" at Notre Dame de Loretto at Paris, and 29 paintings in the museum of Versailles.

ALBANI, EMMA, or MARIE LOUISE CECILIA EMMA LAJEUNESSE (1852-). A Canadian dramatic soprano; born at Chambly, near Montreal; studied under Duprez at Paris and Lamperti at Milan; made her début as Amina in *La sonnambula* at Messina (1870); has sung in opera in the principal cities of Europe and America as Senta in the *Flying Dutchman*, Elisabeth in *Tannhäuser*, Elsa in *Lohengrin*, Marguerite, Lucia, Mignon, Ophelia, and Isolde; also in oratorio; married Ernest Gye of London (1878).

ALBANI (*al-bah'nee*), **FRANCESCO** (1578-1660). An Italian painter of the Carracci school; born at Bologna; follower of Guido Reni, sometimes styled "the Anacreon of painting" on account of his leaning to the classical; opened an academy in Rome, where much of his best work is to be seen. This includes frescoes of scenes from Ovid in the Torlonia Palace; "Four Seasons" in the Borghese Gallery at Rome; "Cupids Dancing" and 10 others in Dresden; "Cupid Disarmed," "The Toilet of Venus," and 13 others in the Louvre.

ALBANI, MATTHIAS, the elder and the younger (flourished about 1660). Famous Swiss violin makers; lived in Tyrol. Those instruments made by the younger between the years 1702 and 1709 are considered by many to be the equals of those by Amati.

ALBAUGH, JOHN W. (1837-1909). An American actor and manager; born at Baltimore; first appeared as Brutus in *Brutus or the Fall of Tarquin*, at Baltimore, managed by Joseph Jefferson (1855); best known impersonation was Louis XI.; manager (1868-1909) of theaters in St. Louis, New Orleans, Albany, Washington, and Baltimore; retired from the stage (1899) and devoted his attention to a noted stock farm near Washington.

ALBERT (*Fr. pron. al-bair'*), **EUGENE FRANCIS CHARLES D'** (1864-). A British pianist and composer; born at Glasgow; pupil of Liszt; ranks among the most eminent pianists of the world; especially noted for his interpretations of Bach and Beethoven; composed a suite, symphony, two quartets for strings, songs, pianoforte compositions, and the operas *Der Rubin*, *Ghismonda*, *Gernot*, *Die Abreise*, and *Kain*.

ALBERT, HEINRICH (1604-1651). A German composer; born in Saxony; instrumental in developing the present form of the German *Lied*; organist in the cathedral at Königsberg (1629); published eight books of arias; a collection of chorals, arias, and *Lieder* for one or two voices. His hymn tunes are still popular and much used.

ALBERTI, LEONE BATTISTA DEGLI (1404-1472). An Italian architect and writer; born in Venice; leader of the second phase of early Italian Renaissance architecture both in theory and practice; engaged in rebuilding St. Peter's and the Vatican. Among his works is the façade of St. Francis at Rimini. He wrote *De Re Aedificatoria*, the first great work on architecture.

ALBERTINELLI, MARIOTTO (1474-1515). An Italian painter; born in Florence; friend and colleague of Fra Bartolommeo, with whom he studied under Cosimo Roselli. His works are a splendid "Visitation" at Uffizi, a "Holy Family" at Pitti, and an "Annunciation" at the Academy in Florence; with Fra Bartolommeo he produced an "Assumption" at Berlin and a "Last Judgment" in Florence.

ALBO'NI, MARIETTA (1823-1894). An Italian contralto; born at Cesena; next to Malibran the greatest contralto of the nineteenth century; sang in all of the principal cities of Europe (1846-1847); in rivalry with Jenny Lind at Covent Garden, in London. Her voice had a compass of two and one half octaves, ranging as high as mezzo-soprano, possessing power, sweetness, fullness, and flexibility. Her last appearance in opera was at Munich (1872).

ALBRECHTSBERGER, JOHANN GEORG (1736-1809). An Austrian musician; one of the most learned contrapuntists of his age; court organist (1772); kapellmeister at St. Stephen's Cathedral (1792); taught Beethoven, Hummel, Moscheles, Seyfried, and Weigl.

ALCAMENES (about 440 B. C.). An Athenian sculptor; a reputed pupil of Phidias. His great work was the "Aphrodite in the Garden" at Athens.

ALCOTT, MAY (1840-1879). An American artist; daughter of Amos Bronson Alcott; born at Concord, Mass.; studied at the Boston School of Design and under Krug, Dr. Rimmer, Hunt, Vautier, Johnston, and Müller. Her copies of Turner were much praised by Ruskin.

ALDEGREVER, HEINRICH (1502-about 1562). A German painter and engraver; called "the Albrecht Dürer of Westphalia." His fine engravings include portraits of Luther, Melanchthon, and John of Leyden. His best paintings are the "Portrait of a Young Man" at Vienna and a "Resurrection" at Prague.

ALDRIDGE, IRA FREDERICK (about 1810-1867). "The African Roscius"; a colored tragedian, said to have been born a slave at Belair, Md. Others said he was the son of a native of Senegal; made his début at the Royalty Theatre, London, as Othello; also played Aaron in *Titus Andronicus*, Zanga, Orozembo, Rolla, and others; played Othello to Edmund Kean's Iago in Belfast; won great success and many decorations from royalty in Europe.

ALEXANDER, JOHN WHITE (1856-1915). An American portrait and figure painter; born in Allegheny City, Pa.; studied at the Royal Academy at Munich and under Frank Duveneck; has attained the highest rank in America. His works include numerous portraits in private European and American collections; portrait of Walt Whitman in the Metropolitan Museum at New York; "The Pot of Basil" in the Boston Museum; "In the Café" in the Philadelphia Academy; "La femme rose" in the Carnegie Gallery at Pittsburg; "The Green Bow" in the Luxembourg at Paris; and six mural decorations in the Congressional Library at Washington.

ALGARDI, ALESSANDRO (1598-1654). An Italian sculptor and architect; born at Bologna; studied painting under Carracci and sculpture with Conventui. Next to Bernini he was the most prominent representative of the Baroque school. His chief works are Saint Philip Neri at Bologna; the tomb of Leo XI. at Saint Peter's; the largest alto-rilievo in the world in Saint Peter's, representing Attila's retreat from Rome.

ALLAN, DAVID (1744-1796). A Scottish painter; born at Alloa; went to Rome (1764-1777); gained the gold medal at the Academy of St. Luke for the best historical composition (1773), "Origin of Painting"; returned to London and painted portraits (1777); removed to Edinburgh (1780); succeeded Runciman as head of the Trustees' Academy (1786); illustrated Allan Ramsay's *Gentle Shepherd*. He excelled in humorous domestic subjects.

ALLAN, SIR WILLIAM (1782-1850). A Scotch painter; born in Edinburgh; studied there and in London; went to St. Petersburg (1805) and traveled in Russia and Turkey; returned to Scotland (1814) and took up historical subjects, such as "John Knox Admonishing Queen Mary," "Queen Mary Signing Her Abdication," "Death of Regent Murray," which gained him an A. R. A., "Polish Exiles on Their Way to Siberia," "The Moorish Love-Letter," which gained him a seat in the Royal Academy, "A Slave-Market in Constantinople," "The Battle of Prestonpans," "Waterloo," bought by the duke of Wellington, and many others.

ALLAR, ANDRE JOSEPH (1845-). A French sculptor; born at Toulon; a pupil of Dantan, Guillaume, and Cavelier at Paris; obtained the Grand Prix de Rome (1889). Among his best known works are "Hécube et Polydore," "Sainte Cécile," "La tentation," "L'éloquence," "Jeanne d'Arc à Domrémy," and the statues of Jean Bullant and Jean Goujon on the façade of the Hôtel de Ville at Paris.

ALLEGRI, GREGORIO (about 1586-1652). An Italian composer; born in Rome; studied under Nanini and was a friend of Palestrina; in the choir of the Sistine Chapel at Rome; one of the earliest composers for stringed instruments; wrote the *Miserere* for two choirs. It is rendered annually on Good Friday at the Sistine Chapel. This is the work which Mozart at 14 wrote from memory after hearing it twice. Allegri is a link between the Roman and Neapolitan periods of Italian music.

ALLEN, FRED HOVEY (1845-1926). An American Congregational clergyman and author; born at Lyme, N. H.; took post graduate courses at Berlin, Vienna, and Paris; held pastorates in Boston, Wollaston, Abington, and Rockland; founded and edited the Lawrence (Mass.) *Eagle*; invented the first photogravure plates for art reproduction made in America; wrote *Masterpieces of Modern German Art*, *Recent German Art*, and *Grand Modern Paintings*.

ALLEN, THOMAS (1849-1924). An American animal and landscape painter; born in St. Louis, Mo.; studied at Düsseldorf; studio for many years in Boston, Mass.; member of the Society of American Artists (1880); associate of the National Academy of Design (1884); one of the board of judges at the World's Fair (1893); chief works are "O'er all the Hilltops is Rest," "Maplehurst at Noon," and "Toilers of the Plain."

ALLEN, VIOLA (1867-). An American actress; daughter of the actor C. Leslie Allen. When 15, she appeared in *Esmeralda* at the Madison Square Garden, New York (1882); played later with John McCullough, Tommaso Salvini, Lawrence Barrett, Joseph Jefferson, and W. J. Florence; was at the Empire Theatre, New York (1893-1897) in *The Masqueraders* and *Under the Red Robe*. In 1898 she made a great success as Glory Quayle in Hall Caine's *The Christian*, and in 1900 with *In the Palace of the King* by F. Marion Crawford and Lorimer Stoddard.

ALLEYN, EDWARD (1566-1626). An English actor, manager, and founder of Dulwich College; born in St. Botolph, just out of London; went on the stage shortly before Shakespeare came from Stratford. His greatest successes were as the Jew in Marlowe's *Jew of Malta*, Tamburlane, and Faustus. He owned several playhouses; was an associate of Philip Henslowe, a friend of Shakespeare and Ben Jonson, and a patron of Dekker.

ALLONGÉ, AUGUSTE (1833-1898). A French landscape artist; born in Paris; studied under Léon Cogniet; strong in charcoal landscapes and in oil. His best charcoal is "Moulin de Givry" and his oils are views on the Somme.

ALLORI, ALESSANDRO (1535-1607). An Italian painter of the later Florentine school; a nephew and pupil of Bronzino; employed on public buildings of Tuscany; wrote for artists a treatise on anatomy.

ALLORI, CRISTOFANO (1577-1621). An Italian painter; son and pupil of Alessandro Allori. His most celebrated work is "Judith with the Head of Holofernes" in the Pitti Palace in Florence. Replicas of it are in Vienna and the Uffizi. Other works are "Saint Julian" in the Pitti Palace and "Isabella of Aragon Pleading with Charles VIII." in the Louvre.

ALLSTON, WASHINGTON (1779-1843). An American painter; born in Waccamaw, S. C.; was graduated from Harvard (1800); earliest art influences from Pine, the portrait artist, and Malbone, the miniature painter; studied at the Royal Academy, London, where Benjamin West was president; then at the Louvre and in Italy; was associated with Vanderlyn, Thorwaldsen, and Coleridge; spent four years in Rome and returned to America (1809); soon went to London, where he painted and exhibited with success. Among his important works are "The Dead Man Revived" in the Pennsylvania Academy of Fine Arts; "St. Peter Liberated by the Angels," "Uriel in the Sun," and "The Prophet Jeremiah" in Yale College; his unfinished "Belshazzar's Feast" in Boston; and many smaller works.

ALMA-TADEMA (*ahl'ma tah'de-ma*), **SIR LAWRENCE** (1836-1912). An eminent painter; Dutch by birth, Belgian by training, and English by adoption; born in West Friesland; studied under Wappers and Leys at Antwerp. His work depicts life and manners of the ancient Greeks and Romans. "Roman Amateur," "Pyrrhic Dance," "The Roses of Heliogabalus," "Spring," "The Conversion of Paula," and "Thermae Antoninianae" are among his most important; member of the Royal Academy (1879) and knighted in 1899.

ALTDORFER (*ahlt'dor-fer*), **ALBRECHT** (1488-1538). A Bavarian painter and engraver; celebrated pictures are "The Victory of Alexander at Arbela," "Adoration of the Shepherds," and "Susanna at the Bath," besides over 100 works on copper. He was also a practical architect.

ALUNNO, NICCOLO, or NICCOLO DA FOLIGNO, or NICCOLO DI LIBERATORE (about 1430-1502). An Italian painter of the early Renaissance and founder of the Umbrian school; born in Foligno; a pupil of Benozzo Gozzoli; chief works are "Enthroned Madonna" and seven others in the Brera, "Coronation of the Virgin" in the Vatican, the "Annunciation" at Perugia, and numerous altarpieces.

ALVAREZ, ALBERT RAYMOND (1860-). A French operatic tenor; born at Bordeaux; musical conductor in the army; studied at the conservatory in Paris; sang at the Paris Opéra (1892) and became leading tenor there; at Covent Garden, London (1893); visited the United States (1898, 1899, and 1900). His repertoire includes over 45 operas.

ALVAREZ, JOSE (1768-1827). A Spanish sculptor; born at Priego, Cordova; was a stone mason with his father; studied at the Academy of Granada; gained the highest prize at the Academy of San Fernando (1799); studied in Paris; removed to Rome, where he gained the friendship of Canova and Thorwaldsen. His chief works are a "Ganymede," bas-reliefs on the Quirinal in Rome, and his colossal group "The Defense of Saragossa" in the Museum of Madrid.

ALVARY, MAX, or ACHENBACH (1858-1898). A famous dramatic tenor; born at Düsseldorf; son of Andreas Achenbach, the great painter; studied with Lamperti and Julius Stockhausen of Frankfort; made his début at Weimar (1882) in *Stradella*; appeared as José in *Carmen* at the Metropolitan Opera House in New York (1884) and remained for five years. His finest rôles were Loge in *Das Rheingold* and Siegfried; sang *Siegfried* for the hundredth time in 1895.

AMADEO, GIOVANNI ANTONIO (about 1447-1552). An Italian sculptor and architect; born at Pavia. His chief work is the Colleoni Chapel at Bergamo, with its bas-reliefs and statuary. He was the chief of the Lombard sculptors and his work combines the styles of the Middle Ages with the early Renaissance.

AMATI (1520-about 1700). An eminent Italian family of violin makers who lived at Cremona. It consisted of **ANDREA**, the founder of the Cremona school of violin makers; **NICOLA**, his younger brother, made basses; **ANTONIO** and **GERONIMO** were sons of Andrea; **NICOLA** (1596-1684), Geronimo's son, was the most eminent of the family and taught Antonio Stradivari and Guarneri. The family ended with Geronimo, the son of Nicola.

AMERLING, FRIEDRICH (1803-1887). An Austrian painter; born at Vienna; studied at Vienna, London, Paris, and Munich; went to Rome in 1831; most important Austrian portrait painter, his portraits numbering more than 1000.

AMES, JOSEPH (1816-1872). An American portrait painter; born in Roxbury, N. H.; studied at Rome, where he painted a portrait of Pope Pius IX.; worked at Boston, Baltimore, and New York; elected a member of the National Academy of Design (1870). Among his best portraits are those of Emerson, Rachel, Ristori, Clarence H. Seward, Webster, Choate, and President Felton of Harvard. His "Death of Webster" is one of his best ideal subjects.

AMMANATI, BARTOLOMMEO (1511-1592). An Italian sculptor and architect; born at Settignano. His chief work is the Santa Trinità Bridge at Florence; architect in Florence to Cosmo de' Medici.

AMSLER, SAMUEL (1791-1849). A German engraver; born at Schinznach, Switzerland. His great works are "Alexander's Triumphal Procession" after Thorwaldsen, "Triumph of Religion in the Arts," "Burial of Christ," and several "Madonnas" of Raphael.

ANDERSON, ALEXANDER (1775-1870). The earliest American wood engraver; born in New York City. His best known work is 40 illustrations of Shakespeare's works and cuts for Webster's *Spelling Book*.

ANDERSON, MARY ANTOINETTE, or MRS. NAVARRO (1859-). An American actress; born at Sacramento, Cal.; first appearance at Louisville, Ky., as Juliet (1875); played with success in Great Britain and America until 1889, when she retired; played Rosalind, Juliet, Bianca, Julia in *The Hunchback*, Evadne, Meg Merrilies, Pauline, Galatea, Clarice in *Comedy and Tragedy*, Parthenia, and Perdita in *A Winter's Tale*.

ANDREA DI UGOLINO or ANDREA PISANO (1270-about 1349). An Italian architect and sculptor; born at Pisa; the third great artist of the Pisan school, then the leading school of Italy. His great work is the sculptured brass doors of the baptistery of Florence, never surpassed as an example of Gothic sculpture; the chief designer of the cathedral at Orvieto.

ANDREINI, FRANCESCO (lived about 1616). An Italian comedian and author. He led a troupe of actors of great reputation in Italy and France; wrote *Le bravure del capitano Spavento*.

ANDREINI, GIOVANNI BATTISTA (1578-about 1650). An Italian comedian and author; son of Francesco and Isabella Andreini; born at Florence; went to Paris during the reign of Louis XIII., where he gained great distinction in acting lovers' rôles. His most noted work is a religious drama, *L'Adamo*, from which, it is said, Milton obtained several scenes in *Paradise Lost*.

ANDREINI, ISABELLA (1562-1604). A popular Italian actress and author; born in Padua; wife of Francesco and mother of Giovanni. Her acting won greater fame than her husband's, with whom she played. At her death a medal with the inscription "Aeterna Fama" was struck in honor of her brilliant acting and beautiful character. Her writings include a number of lyrical poems and the pastoral drama, *Mirtilla*.

ANERIO, FELICE (about 1560-1630). An Italian composer of sacred music succeeding Palestrina as composer for the papal chapel, 1594-1602. His works include six books of madrigals, two of hymns, "Responsoria" for Holy Week, and litanies. His unpublished compositions are preserved in various museums.

ANERIO, GIOVANNI FRANCESCO (1567-about 1620). A brother of the preceding. He was appointed *maestro* to Sigismund III., king of Poland (1606); to the cathedral of Verona (1611); at Church of the Madonna (1613-1620). His works form a very long list, consisting of all the usual forms of sacred music. He used very fantastic titles.

ANGELICO, FRA (1387-1455). A gifted Italian painter who passed his life in a convent. His paintings of religious subjects are of a high order, and show great beauty and skill. Among the best of these is his "Last Judgment" in the Florentine Academy; the "Coronation of the Virgin"; frescoes at the Convent of San Marco, where there is also a large "Crucifixion"; the celebrated "Madonna," surrounded by saints and angels, in the Uffizi; and several decorations in the Vatican. He is the last and greatest of the painters in the transition from the Middle Ages to the Renaissance.

ANGLIN, MARGARET (1876-). A Canadian actress; born at Ottawa, Canada; daughter of the Hon. T. W. Anglin, then speaker of the House of Commons; studied at the Empire Dramatic School of Acting in New York City; made her début in *Shenandoah* in New York in 1894; played Roxane with Richard Mansfield in *Cyrano de Bergerac*, Mimi in *The Only Way*, Mrs. Dane in *Mrs. Dane's Defence*, Mabel Vaughn in *The Wilderness*, and in 1907 in *The Great Divide;* in 1908 she went to Australia, meeting with signal success; in 1909 and 1910 playing the title rôle in *The Awakening of Helena Ritchie*, in which she was highly praised.

ANIMUCCIA, GIOVANNI (about 1490-1571). An Italian composer of sacred music; born in Florence. He was *maestro di capella* at the Vatican in 1555, where he composed the *Laudi* which were sung at the closing of the regular service for the young people of the congregation of the Oratory. From this the "oratorio" is said to have developed, and he is called "The Father of Oratorio." Several of his masses and other compositions are now used. His brother **Paolo** (-1563), was one of the most skillful contrapuntists of his time. He was *maestro di capella* at the Church of San Giovanni. His compositions are used at the present time.

ANSDELL, RICHARD (1815-1885). An English painter of genre and animal pictures; born at Liverpool

ANTHEMIUS (-534). A Greek mathematician and architect; born at Tralles, in Lydia, Asia Minor. With Isidore of Miletus he built for the emperor Justinian the Church of Saint Sophia in Constantinople (532-537); one of the greatest buildings in architectural history. He may on this account be regarded as the founder of the developed Byzantine style of architecture. He wrote many treatises uniting architecture and theoretical mathematics like the Greeks, but differing from the Romans. Some fragments of his writings remain.

ANTIPHILUS (about 330 B. C.). A Greek painter of Egyptian birth; lived at the court of the first Ptolemy; painted portraits of Philip and Alexander before the arrival of Apelles, who became his rival.

ANTOKOLSKI, MARK MATVEYEVITCH (1842-1902). A Russian sculptor; born at Vilna of poor Jewish parents; studied at the Academy of Fine Arts at St. Petersburg, where he won prizes. His famous statue, "Ivan the Terrible," won for him fame, a seat in the Academy, and the favor of the czar Alexander II.; settled in Paris and became a chevalier of the Legion of Honor.

ANGELS. BY FRA ANGELICO.
From mural decorations in the Convent of San Marco.

ANTONELLO DA MESSINA (about 1447-1493). An Italian painter of the Renaissance; born at Messina. He is said to have been the introducer of oil painting into Italy, the secret of which he learned in Flanders. His chief works are a "Salvator Mundi" in the National Gallery in London, a "Crucifixion" in the Antwerp Gallery, and numerous portraits.

APELLES (*a-pel'lees*) (fourth century B. C.). The most celebrated painter of ancient times; probably a native of Asia Minor; studied at Ephesus; went to Macedonia, where he painted the portraits of Philip, and of Alexander the Great, whom he frequently painted, as Alexander would sit to no other artist. His most famous portrait represented Alexander wielding the thunderbolt. His other noted works were either mythological or allegorical, including "Anadyomene," "Artemis Surrounded by Maidens," and "Slander"; of the latter Lucian gives a description said to have inspired Botticelli, Dürer, and others. He returned to Asia, where most of his celebrated works were found. His accurate drawing and fine coloring are described as remarkable. His daily practice in drawing was so intense it gave rise to the Latin proverb, "Nulla dies sine linea."

APOLLODORUS (1) (fifth century B. C.). An Athenian painter; said to have introduced the effects of light and shade in place of flat color used by his predecessors

(2) A celebrated architect of the second century A. D., who built the Forum of Trajan and other works in Rome. Severe criticism of the emperor Trajan's plans caused his banishment and death.

ARCHER, BELLE, or ARABELLA S. MINGLE (1860-1900). An American actress; born at Easton, Pa.; made her début in Washington, D. C., with William Florence in *The Mighty Dollar*; played in *Pinafore*, *Hazel Kirke*, and with Sothern as Rose in *Lord Chumley*; supported Salvini; was Maid Marian in Tennyson's *Foresters*; after a period of retirement was leading woman for Sol Smith Russell.

ARCHER, FREDERIC (1838-1901). An Anglo-American organist; born at Oxford, England; studied at London and Leipzig; organist at Plymouth Church, Brooklyn, N. Y. (1880); conductor of the Boston Oratorio Society; director of Carnegie Music Hall at Pittsburg, Pa.; organist of the Church of the Ascension there (1899); founded and, for a time, edited the *Keynote* (1855); wrote many compositions for the organ and *The Organ* and *The College Organist*.

ARDEN, EDWIN HUNTER PENDLETON (1864-1918). An American actor and manager; born in St. Louis, Mo.; joined J. W. Keene's Company in Chicago (1882); traveled with his own company and wrote his own plays, such as *Eagle's Nest*, *Barred Out*, *Raglan's Way*, and *Zorah*.

ARDITI (*ar-dee'tee*), **LUIGI** (1822-1903). An Italian composer and musical conductor; conducted opera many seasons in New York and London; was Patti's favorite conductor; wrote famous waltz songs sung by Patti and other prima donnas, and composed the operas *The Spy*, *The Brigands*, and *The Corsair*.

ARI'ON (about 700 B. C.). A famous Greek lute player. Legend says that on returning to Greece from a visit to Sicily and lower Italy, sailors plotted to rob and murder him. On being permitted to try his skill once more before death, he charmed the dolphins so that they swam near the ship. Arion threw himself upon the back of one of them and was safely carried ashore.

ARISTIDES OF THEBES (fourth century B. C.). A Greek painter; son and pupil of Nicomachus and contemporary of Apelles; the most famous ancient painter of the expressions of the mind and of the passions of men.

ARISTOXENUS (fourth century B. C.). The greatest student in Greek antiquity of the science of music and rhythm; born at Tarentum; wrote 453 treatises, several of which were on music. Part of his *Elements of Harmony* have been preserved.

ARMITAGE, EDWARD (1817-1896). An English painter; born in London; studied in Germany and France; a pupil of Delaroche, whom he assisted on the famous "Hémicycle"; chief works are "Caesar's First Invasion of Britain," a prize painting, and some frescoes in St. John's (Roman Catholic) Church in London and in the Houses of Parliament; professor of painting at (1875) and member of (1878) the Royal Academy.

ARMSTEAD, HENRY HUGH (1828-1905). An English sculptor; famous for his groups on the Albert Memorial at London; history of King Arthur and Sir Galahad in carved panels in the New Palace at Westminster; and effigies of Bishop Wilberforce at Winchester, Lord Thynne at Westminster Abbey, and others.

ARMSTRONG, DAVID MAITLAND (1837-1918). An American genre painter and decorative artist; born at Newburg, N. Y.; studied at Paris and Rome, at which latter place he was United States consul general for Italy for four years; director of the American art department at the Paris Exposition (1878); lives in New York.

ARNE, THOMAS AUGUSTINE (1710-1778). An eminent English composer; born in London; studied the violin; wrote an opera, *Rosamond*; a comic operetta, *Tom Thumb or the Opera of Operas*; *Comus*; *Rule Britannia*, the national air, first given in the masque of *Alfred*; two oratorios, *Judith* and *Abel*; a number of operas, including *Artaxerxes*; and many glees, songs, catches, and canons, as well as the music for Garrick's *Ode to Shakespeare*.

ARNOLFO DI CAMBIO (about 1232-1302). An Italian architect; born at Colle, Tuscany; the most eminent Florentine architect of the Gothic style; a pupil of Niccola Pisano. His masterpiece is the Church of Santa Croce at Florence.

ARNOULD, SOPHIE (1744-1803). A famous French actress and singer; born in Paris in the room in which Admiral Coligny was murdered. For 21 years (1757-1778) she was the most popular singer in Paris, especially in Gluck's *Iphigenia in Aulis*.

ARNOULD-PLESSY, JEANNE (1819-1897). A French actress; born at Metz. She is said to have created 53 rôles during her long career. Her greatest successes were at the Comédie Française in the later dramas of Emile Augier.

ARTOIS, JACOB VAN (1613-about 1683). A Flemish landscape painter of scenes around Brussels. The best specimens of his work are in the galleries at Madrid, Brussels, and Vienna.

ARTHUR, JULIA, or IDA LEWIS, or MRS. B. P. CHENEY (1869-). An American actress; born at Hamilton, Ontario, Canada; studied music and drama in England; appeared in New York in *The Black Masque*; in London with Irving at the Lyceum as Rosamund in *Becket*; with Irving and Terry to America (1896); brought out *A Lady of Quality* in New York (1897); Rosalind in *As You Like It* at Wallack's Theater (1898); *More Than Queen* at the Broadway (1899); retired through illness in 1900.

ARUNDEL (*ar'un-del*), **THOMAS HOWARD, EARL OF** (1592-1646). Born in Essex; held several court offices. First English art collector; his valuable books, works of fine arts, including busts, statues, gems, and inscribed marbles were unrivaled. The most widely known were the **ARUNDEL MARBLES**, these being a collection of ancient sculptures consisting of 37 statues, 128 busts, and 250 inscribed stones, which were found on the island of Paros about 1610. They were collected by Mr. W. Petty, purchased by Lord Arundel, and given (1664-1667) by his grandson, Henry Howard—afterward Duke of Norfolk—to the University of Oxford. These sculptures contain inscriptions in the Greek tongue. In their perfect state they evidently contained the Parian Chronicle, a chronological table of the principal events of Grecian history from the time of Cecrops (1582 B. C.) to the archonship of Diognetus (264 B. C.). The chronicle of the last 90 years of this period is lost and the portion still extant is much corroded and defaced.

ATHENODORUS (first century B. C.). A Greek sculptor of Rhodes; one of the famous three who produced the statue of "Laocoön."

ATTAVANTE (about 1455-about 1520). A Florentine artist and probably the greatest miniature painter of the Italian Renaissance. His best work was done under the patronage of Matthias Corvinus, king of Hungary.

AUBER (*o-bair'*), **DANIEL FRANCOIS ESPRIT** (1782-1871). A famous French composer; born at Caen; founder of French grand opera; best known work, the opera *Fra Diavolo*; member of the Academy (1829).

AUGUR, HEZEKIAH (1791-1858). An American sculptor; born at New Haven, Conn. His best work is the statue "Jephtha and His Daughter" in the Trumbull Gallery of Yale University.

BACH, HEINRICH (1615-1691). A German musician; born at Arnstadt; father of Johann Christoph and Johann Michael.

BACH, JOHANN CHRISTIAN (1735-1782). A German organist and composer; born at Leipzig; son of Johann Sebastian Bach.

BACH, JOHANN CHRISTOPH (1613-1661). A German musician; grandfather of Johann Sebastian Bach.

BACH JOHANN CHRISTOPH (1645-1693). A German musician; born at Erfurt; died at Arnstadt; an uncle of Johann Sebastian Bach.

BACH, JOHANN CHRISTOPH (1643-1703). A noted German musician; son of Heinrich Bach; court organist at Eisenach.

BACH, JOHANN CHRISTOPH (1671-1721). A German musician; organist at Ohrdruff; a brother of Johann Sebastian Bach.

BACH, JOHANN SEBASTIAN (1685-1750). A celebrated German musician; born at Eisenach. At the age of 15 he entered the Michaelis School at Lüneburg

filled successively the following positions: violinist in the court band at Weimar; organist at Arnstadt; organist at Mühlhausen; court organist at Weimar; kapellmeister at Köthen; cantor at the Thomas-Schule; organist and musical director in two churches at Leipzig; honorary court composer to the elector of Saxony; honorary kapellmeister to the duke of Weissenfels; the author of much magnificent church music, but best known by his *Preludes* and *Fugues*.

BACH, KARL PHILIPP EMANUEL (1714-1788). A distinguished German composer; son of Johann Sebastian Bach; born at Weimar; died at Hamburg; court musician to Frederick the Great (1740-1767); composer of piano music and oratorios.

BACHE, FRANCIS EDWARD (1833-1858). An English composer; born at Birmingham.

BACKHUY'SEN, LUDOLPH (1631-1709). A Dutch marine painter and etcher; born at Emden, in East Friesland.

BADDELEY, ROBERT (about 1733-1794). An English actor; the original Moses in the *School for Scandal*. He established an asylum for disabled actors.

BAILLOT, PIERRE MARIE FRANCOIS DE SALES (1771-1842). A French violinist; professor of the violin in the Conservatory of Music at Paris (1795); author of *Methode du violon*.

BAILLY, ANTOINE NICOLAS (1810-1892). A French architect; appointed architect to the French government in 1844. Among his works is the new Tribunal de Commerce at Paris.

BAILY, EDWARD HODGES (1788-1867). A noted English sculptor; born at Bristol.

BAKER, GEORGE AUGUSTUS (1821-1880). An American portrait painter; born in New York.

BALECHOU, JEAN JOSEPH NICOLAS (1715-1765). A noted French engraver; born at Arles.

BALFE, MICHAEL WILLIAM (1808-1870). A British musician; born in Dublin; died at Rowney Abbey, in Hertfordshire; a singer of some note; violinist and composer. He produced several operas, the most successful being *The Bohemian Girl* (1843). His works include *The Maid of Artois, Joan of Arc, L'étoile de Séville, Sicilian Bride*, and *Il talismano*.

BALL, THOMAS (1819-1911). An American sculptor; born at Charlestown, Mass. Among his works are the statue of Webster (New York) and "Emancipation" (Washington).

BALTARD, VICTOR (1805-1874). A French architect; born in Paris; governmental architect of Paris; author of *Monographie de la Villa Médicis*.

BALTAZARINI or **BALTAGERINI** (about the middle of the sixteenth century). An Italian musician; first violinist of his time and founder of the modern ballet.

BANCO, NANI D'ANTONIO (about 1374-about 1420). A Florentine sculptor; pupil of Donatello. The Porta della Mandola, on the south side of the Duomo, commenced by Niccola d'Arezzo, was completed by Banco (1408). Many of his works are about Or San Michele.

BANDINELLI, BARTOLOMMEO or **BACCIO** (1488-1560). An Italian painter and sculptor. Among his works are the copy of the "Laocoön" in the Uffizi and the "Hercules" of the Palazzo Vecchio. He sought to rival Michelangelo.

BARNAY, LUDWIG (1842-). A German actor; born at Budapest, Hungary. He has played chiefly in German cities. His principal rôles are Egmont, Essex, Tell, and Acosta.

BARNBY, SIR JOSEPH (1838-1896). An English organist, composer, and conductor; appointed instructor of music at Eton College (1875) and conductor at the Royal Academy of Music (1886). He composed the oratorio *Rebekah* and many songs and anthems.

BARNETT, JOHN (1802-1890). An English musician; born at Bedford. He composed numerous songs and operettas; devoted his later years to vocal training.

BARRETT, LAWRENCE (1838-1891). An American actor; born in Paterson, N. J. He supported Mr. Burton, Charlotte Cushman, Edwin Booth, and other eminent actors. He served as a captain in the 28th Massachusetts Infantry in the early part of the Civil War. Later he was engaged by Mr. Booth to play Othello to his Iago. After this he became an associate manager of the Varieties Theater, in New Orleans, where for the first time he played the parts of Richelieu, Hamlet, and Shylock. He gained steadily in distinction both as manager and actor.

BARRETT, WILSON (1846-1904). An English actor, manager, and playwright; born in Essex; manager of the Amphitheatre in Leeds; of the Court Theatre at London, securing Madame Modjeska for her first English appearance; of the Princess's Theatre, where he presented the *Lights o' London* for 286 nights; the *Silver King*, in which he played Wilfred Denver; played Hamlet (1884) and Othello (1897); wrote *Clito*, a tragedy; *Nowadays*, a drama; *The Sign of the Cross*; *Daughters of Babylon*; *Ben My Chree*, an adaptation of Hall Caine's *Deemster*; also adapted Hall Caine's *Bondman* and *Manxman*, and *Quo Vadis* of Sienkiewicz.

BARRIAS, FELIX JOSEPH (1822-1907). A French artist; born in Paris; studied under Cogniet. Among his works are "Cincinnatus Receiving the Deputies of the Senate," which won the Prix de Rome (1844); "Exiles under Tiberias" at the Luxembourg; and frescoes in several churches.

BARRIAS, LOUIS ERNEST (1841-1905). A French sculptor; born in Paris; pupil of Cavelier and Cogniet; won the Prix de Rome (1865). Noted works are "Spartacus" in the Tuileries Gardens, the Carnot Memorial at Bordeaux, and the bronze statue of Lavoisier in Paris.

BARRY, SIR CHARLES (1795-1860). An English architect; born at Westminster; died at Clapham; designer of the Houses of Parliament, London.

BARRY, EDWARD MIDDLETON (1830-1880). An English architect; son of Sir Charles Barry; designer of the Covent Garden Theatre, etc.

BARRY, ELIZABETH (1658-1713). An English actress; was said to be the daughter of Colonel Barry, a prominent royalist in the civil war. She was known as "the great Mrs. Barry," and is said to have created over 100 rôles.

BARRY, JAMES (1741-1806). An Irish painter; born at Cork. Under the patronage of Burke he studied at London, Paris, and Rome. His masterpiece is a series of six panels representing "Human Culture" painted on the walls of the Great Room in Adelphi; elected to the Royal Academy (1773).

BARRYMORE, MAURICE, or **HERBERT BLYTHE** (1847-1906). An actor and playwright; born in India; educated in England and lived in America since 1875; first appearance here was in *The Shaughraun* at the Boston Theatre; leading man for Madame Modjeska (1882); for Mrs. Langtry (1887); for Mrs. Bernard Beere (1893); and for Olga Nethersole (1894).

BARTHOL'DI, FREDERIC AUGUSTE (1834-1904). A French sculptor; born in Colmar, Alsace; principal works: the "Lion of Belfort"; statue of Lafayette in Union Square, New York; bronze group of Lafayette and Washington in Paris; and the colossal figure in New York harbor, "Liberty Enlightening the World."

BARTHOLOMEW, EDWARD SHEFFIELD (1822-1858). An American sculptor; born in Connecticut; studied in New York and later resided in Italy; chief works are "Youth and Age," "The Shepherd Boy," "Ganymede and the Eagle," and "Eve after the Fall." Many of his works are in the Wadsworth Gallery at Hartford, Conn.

BARTLETT, HOMER NEWTON (1845-1905). An American organist, teacher, and composer; born at Olive, N. Y. His compositions numbered over 200.

BARTLETT, PAUL WAYLAND (1865-1925). An American sculptor; born at New Haven, Conn.; studied with Frémiet in Boston; with Cavelier in Paris; member of the Legion of Honor (1895). Among his works are an equestrian statue of General McClellan in Philadelphia; statue of General Joseph Warren in Boston; of Lafayette, presented by the school children of the United States to France, now in the Louvre, Paris; Columbus and Michelangelo in the Congressional Library at Washington; and others in the Luxembourg Museum at Paris and elsewhere.

BARTOLOMME'O, FRA (1469-1517). A celebrated Florentine painter of sacred subjects; born at Florence.

"St. Mark" and "St. Paul" are among his best productions. He was one of the principal painters of the Florentine Renaissance. He is said to have invented the use of the lay figure.

AN ANGEL. BY FRA BARTOLOMMEO.
Cathedral at Lucca.

BARYE (*ba-ree'*), **ANTOINE LOUIS** (1795-1875). A French sculptor; born in Paris; studied under Bosio and Gros. Among his works are "Tiger Tearing a Crocodile." Some of his bronzes may be seen in Mount Vernon Place, Baltimore.

BASTIEN-LEPAGE, JULES (1848-1884). A French painter; born at Damvilliers. He died at the height of his fame; studied in Paris with Cabanel under severe privations. Among his works are "The Song of Spring," "Portrait of My Grandfather," "The Haymakers," "The Potato Gatherers," and "Joan of Arc Listening to the Voices" in the Metropolitan Museum at New York, "The Beggar," "Love in a Village," and "The Forge"; also portraits of Sarah Bernhardt, Albert Wolff, Edward VII., and Gambetta on his deathbed.

BATEMAN, KATE JOSEPHINE (1842-1917). An American actress; born in Baltimore, Md.; appeared as Julia, Pauline, Juliet, Lady Macbeth, Leah, and parts in *Medea*, with Irving in *Macbeth*, and the title rôle in Tennyson's *Queen Mary*; married George Crowe, formerly the editor of the London *News* (1866).

BATES, BLANCHE (1873-). An American actress; born in Portland, Ore.; made her début in San Francisco in Brander Matthews' *This Picture and That*; played Mrs. Hillary in *The Senator*, Phyllis in *The Charity Ball*, Nora in *A Doll's House*, Mirtza in *The Great Ruby*, Miladi with James O'Neill in *The Three Musketeers*, Cigarette in *Under Two Flags*, and the leading rôle in *The Garden of the Gods*.

BAZZINI, ANTONIO (1818-1897). An Italian violinist and composer; born in Brescia; displayed a precocious genius; influenced by Paganini; professor at the Milan Conservatory and director, later; composed five string quartets, a string quintet, an opera, some church music, and *Francesca da Rimini*, a symphonic poem.

BEACH, AMY MARCY CHENEY (1867-). An American pianist and composer; born at Henniker, N. H.; chief works are the *Gaelic Symphony* for full orchestra; the *Jubilate*, composed for the opening of the Woman's Building at the Columbian Exposition; *Mass in E flat*; several compositions for voice and piano; and some successful cantatas.

BEARD, JAMES HENRY (1814-1893). An American artist; born in Buffalo, N. Y.; became a successful portrait painter in Cincinnati; removed to New York in 1870; chief works are "The North Carolina Immigrants," "The Land Speculator," "The Long Bill," "Out All Night," "Don Quixote and Sancho Panza," and portraits of Clay, John Quincy Adams, W. H. Harrison, Taylor, and others.

BEARD, THOMAS FRANCIS or **FRANK** (1842-1905). An American artist; born in Cincinnati; served in the Civil War; took up illustrating for the best magazines, lecturing, and "chalk talks"; professor of æsthetics at Syracuse University (1881).

BEARD, WILLIAM HOLBROOK (1825-1900). An American artist; born in Ohio; brother of James Henry Beard; traveled and studied in Europe; after living some time in Buffalo, removed to New York (1860); member of the National Academy (1862); noted animal painter; chief works are "Bears on a Bender," "Dance of Silenus," "Flaw in the Title," "Darwin Expounding His Theories," and "Bulls and Bears in Wall Street"; published *Humor in Animals* and *Action in Art*.

BEARDSLEY, AUBREY (1872-1898). An English artist; born at Brighton; widely known as an illustrator, designer of posters, and of book covers.

BEAUX (*bow*), **CECILIA** (1863-). An American artist; born in Philadelphia; studied under Sartain, and after 1899 with Bouguereau, Constant, Courtois, and Dagnan-Bouveret in Paris; member of several societies and winner of important prizes; chief works are "Last Days of Infancy," "Sita and Sarita," "Cynthia," "The Dreamer," "Mother and Daughter," "A New England Woman," "Dorothea and Francesca."

BECCAFUMI, DOMENICO (1486-1551). An Italian painter and sculptor; born in Siena; worked 27 years on the famous pavement of the Cathedral of Siena, done in white marble with figures and border in color; painted frescoes on the ceiling of the city hall of Siena.

BECK, JOHANN NEPOMUK (1828-1904). An Austrian barytone; born in Budapest; made his début there in *I Puritani* as Ricardo; sang at the Imperial Opera at Vienna (1853-1885); chief rôles were William Tell, Don Giovanni, Hans Sachs, and Alberich.

BECKER, AUGUST (1821-1887). A German landscape painter; born at Darmstadt; traveled extensively; taught the English royal princesses at Balmoral; chief works are "Evening in the Bernese Oberland," "Norwegian Tableland," and "The Kaisergebirge in the Tyrol."

BECKER, JAKOB (1810-1872). A German painter; born at Dittelsheim; professor of genre and landscape painting at the Städel Institute at Frankfort-on-the-Main; best known work is the "Praying Peasant Family."

BECKER, JEAN (1833-1884). A German violinist; born at Mannheim; conductor at Mannheim; made a series of famous concert tours (1858); settled in Florence and organized the Florentine Quartet.

BECKER, KARL LUDWIG FRIEDRICH (1820-1900). A German historical painter; born in Berlin. His works include "Belisarius as a Beggar," "Doge in Council," "Charles V. and Fugger," and "Emperor Maximilian Receiving the Venetian Embassy."

BECKWITH, JAMES CARROLL (1852-1917). An American portrait painter; born at Hannibal, Mo.; studied with Carolus-Duran at Paris; elected to the Society of American Artists and the National Academy of Design (1894). His best known portraits are those of General Schofield, Judge Palmer, Colonel Appleton, Mark Twain, and of the Ogden and Parish families; exhibited "The Nautilus" at the St. Louis Exposition.

BEECHEY, SIR WILLIAM (1753-1839). An English portrait painter; born at Burford, Oxfordshire; portrait painter to Queen Charlotte; knighted and elected R. A. for his picture of George III. reviewing troops, now at Hampton Court; exhibited 362 portraits in 64 years at the Royal Academy; two of his portraits are in the Metropolitan Art Museum at New York.

BEERE, MRS. BERNARD (1856-1915). An English actress; born at Norwich; played in *Fedora* and as the Countess Zicka in *Diplomacy*; visited America in 1892; appeared in 1897 in *Charlotte Corday* and *A Sheep in Wolf's Clothing*; married H. C. S. Olivier in 1900.

BEETHOVEN (*bay'to-ven*), **LUDWIG VAN** (1770-1827). One of the greatest musical composers; born in Bonn, of Dutch extraction; the author of symphonies and sonatas that are known over all the world; showed early a most precocious genius for music; commenced his education as a musician at four; trained at length under the tuition of his illustrious predecessor, Haydn; revealed the most wonderful musical talent; quitted Bonn and settled in Vienna; attracted the attention of Mozart; about the age of 30 was attacked with deafness that became total and lasted for life; continued to compose all the same, to the admiration of thousands; during his last days was a prey to

melancholy. His chief works are the three trios, the first set of pianoforte sonatas, the *Sonata Pathétique*, the *First Symphony*, the ballet music to *Prometheus*, the pianoforte sonata with the favorite funeral march, the *Moonlight Sonata*, the *Kreutzer Sonata*, the *Third* or *Eroica Symphony*, the *Waldstein* and *Apassionata Sonatas*, the opera *Fidelio*, the *Fourth Symphony*, the violin concerto, the *Coriolanus Overture*, the *Mass in C*, the *Fifth* and *Sixth* or *Pastoral Symphonies*, the *Seventh* and *Eighth Symphonies*, the *Battle Symphony*, the *Glorious Moment*, the *Ninth Symphony*, the *B flat Sonata, Opus* 106, the *Mass in D*, the *Last Quartets*, and the *Last Sonatas*.

BELASCO, DAVID (1862-). An American playwright; born in San Francisco; in 1874 became an actor in the Metropolitan Theatre; adapted plays for the stage, such as *Hearts of Oak*; stage manager in the Madison Square Theatre, New York, and, later, in the Lyceum; wrote, with Henry C. DeMille, *The Wife* and *The Charity Ball*, also for E. H. Sothern, *Lord Chumley*, and, with Franklin Fyles, *The Girl I Left Behind Me*. Among his others are *The Heart of Maryland, Zaza, May Blossom, Men and Women, La Belle Russe, Valérie, Du Barry, Naughty Anthony*, and *Madame Butterfly*.

BELLEW, HAROLD KYRLE (1857-1911). An English actor and playwright; cadet in the British navy; actor, newspaper man, and lecturer in Australia; actor in London; appeared in America in *In His Power* at Wallack's (1885); played throughout English-speaking countries with Mrs. James Brown Potter (1887); was Leander to Mrs. Potter's Hero in his own play, *Hero and Leander*; Marat in *Charlotte Corday*; Romeo to Mrs. Potter's Juliet; wrote *Yvonne* and *Iolande*.

BELLI'NI, GENTILE (1428-1507). The son of Jacopo Bellini; was distinguished as a Venetian portrait painter; decorated, with his brother, the council chamber of the ducal palace; one of his finest pictures was the "Preaching of St. Mark."

VIRGIN AND CHILD. GIOVANNI BELLINI.
National Gallery, London.

BELLI'NI, GIOVANNI (1430-1516). Brother of Gentile Bellini; produced a great many works; the subjects religious, all notably treated; had Giorgione and Titian for pupils. Among his best works are "The Transfiguration," "Feast of the Gods," "Blood of the Redeemer," "Pietà," a "Virgin and Child" in the Academy at Venice and another in the National Gallery at London, and "The Virgin and Child with Saints" in the Benson Collection, London.

BELLINI, JACOPO (about 1400-about 1464). The founder of a celebrated Venetian family of painters of the Renaissance; father of Gentile and Giovanni Bellini.

BELLINI, VINCENZO (1802-1835). An Italian operatic composer; born at Catania, in Sicily; wrote *Bianca e Fernando, Il pirata, La straniera, Capuleti e Montecchi, Sonnambula, Norma, Beatrice di Tenda*, and *I Puritani*. All famous operatic singers have kept Bellini's works in their repertoires.

BELTRAFFIO, GIOVANNI ANTONIO (1467-1516). An Italian painter; born at Milan; pupil of Leonardo da Vinci; chief works are "Madonna of the Casio Family" in the Louvre, one portrait in the Ambrosian Gallery at Milan, and two at Isola Bella.

BENARD, HENRI JEAN EMILE (1844-). A French architect; born at Goderville; studied at the Ecole des Beaux-Arts in Paris; won the Prix de Rome (1867); designed the Palace de Compiègne at Paris; won the first prize for the design and plans for the University of California over 100 competitors. These called for a $10,000,000 building.

BERGMANN, KARL (1821-1876). An American musician; born at Ebersbach, Saxony; studied at Zittau and Breslau. As a member of the Germania Orchestra he came to the United States (1850); leader of the orchestra later; conductor of the Philharmonic Orchestra in New York (1862-1876) and as such did much to advance a love of good music in America.

BERIOT, CHARLES AUGUSTE DE (1802-1870). A Belgian violinist and composer; born at Louvain; married Malibran, the famous singer, in 1836; professor at the Conservatory of Music at Paris (1842) and later at Brussels; author of a complete manual for violin, of seven concertos, and numerous other compositions; head of the Belgian school of violinists and teacher of Vieuxtemps and Léonard.

BERLIOZ (*ber-le-oze'*), **HECTOR** (1803-1869). A French composer; born in La Côte St. André. He forsook medicine to study music at the Paris Conservatoire, where he gained the first prize in 1830 with his cantata, *Sardanapale*. His *Damnation de Faust*, with its famous "Rakoczy March"; *Benvenuto Cellini*; *Roméo et Juliette*, with its "Queen Mab Scherzo"; and the *Danse des sylphes* stamp him as the father of orchestration.

BERNE-BELLECOUR, ETIENNE PROSPER (1838-1910). A French painter; born in Boulogne; pupil of Picot and Barrias; noted for his pictures of episodes in the Franco-Prussian War. Among his best are "Cannon Shot," "In the Trenches," "Attack on the Château of Montbéliard," and "To Arms." Many of his pictures are owned by private collectors in the United States.

BERNHARDT, ROSINE SARAH (1844-1923). A French actress; born in Paris. At an early age her Jewish parents placed her in a convent at Versailles. When 14 years old she left the convent and entered the Paris Conservatoire, and there studied tragedy and comedy. Her first great success was as Marie de Neuberg, in Victor Hugo's *Ruy Blas*. Becoming very popular by her representations, notably in *Andromaque* and *Le sphinx*, she was soon recognized as the foremost actress in French tragedy; made successful appearances in the United States, and visited Switzerland, Holland, South America, Italy, Algeria, Australia, etc. In 1899 she appeared in a new rendering of *Hamlet* in Paris, and scored a most flattering triumph, and since then has appeared successfully in *L'Aiglon*, and a number of other dramas specially adapted to her genius.

BERNINI (*ber-nee'nee*), **GIOVANNI LORENZO** (1598-1680). An Italian painter, sculptor, and architect; born at Naples; produced his "Apollo and Daphne" at 18, his masterpiece; designed the colonnade of St. Peter's; the most celebrated Italian sculptor of the Baroque period. He was considered the dominant power in European sculpture for over 100 years.

BERTEAUX, HELENA HEBERT, MADAME LEON (1828-1909). A French sculptor; born in Paris; daughter and pupil of Pierre Hébert and pupil of Dumont; founder and president of the Société de l'Union des Femmes Peintres et Sculpteurs"; has received several medals. Her most important works are "Jeune fille au bain"; statues for the façades of the new Tuileries; fountain at Amiens; "Le baptisme du Christ" at Notre Dame de Vincennes; "Saint Matthieu et Saint Laurent" in Paris; and portrait busts of François Boucher and others.

BERVIC, CHARLES CLEMENT BALVAY (1756-1822). A French engraver; born in Paris; achieved early fame by an engraving of Louis XVI. after Collet; one of the finest works of its kind. Among others are

"Laocoön," "Education of Achilles" after Regnault, and "Rape of Deianira" after Guido. His works are regarded as among the choicest of the French school.

BEST, THOMAS WILLIAM (1826-1897). An English organist; born at Carlisle. Though his own instructor he carried his art to a point not yet attained by other men. He had over 5000 pieces in his repertory and his musical compositions were very numerous.

BETTERTON, THOMAS (1635-1710). An English actor; born in Westminster; famous for his Hamlet; was buried in the cloister of Westminster Abbey.

BETTY, WILLIAM HENRY WEST (1791-1874). An English actor of remarkable precocity; born near Shrewsbury, but removed in childhood to Ireland; appeared in Belfast as Oswyn in *Zara* before he was 12; as Young Norval at Dublin; committed the rôle of Hamlet to memory in three hours; appeared at a salary of £100 a night at Covent Garden and Drury Lane, London. Parliament once was adjourned to hear his Hamlet, and Betty was presented to the king and queen. His vogue soon subsided and though he persisted in his art for a time his later success was only mediocre.

BETZ, FRANZ (1835-1900). A German barytone singer of Wagnerian rôles; born at Mainz; chosen by Wagner to sing at Baireuth (1876); sang Don Carlos in Verdi's *Ernani* over 850 times.

BEVERIDGE, KUHNE (1877-). An American sculptor; born in Springfield, Ill. She studied with O'Donovan in New York and with Rodin in Paris; has exhibited in the United States and at the Royal Academy in London; gained honorable mention at the Paris Exposition (1900).

BEWICK (*bu'ik*), **THOMAS** (1753-1828). An English engraver; born near Newcastle-upon-Tyne. He was the founder of modern wood engraving. His greatest work is the *History of British Birds*. He cut in the end of the block instead of in the side, which was the prevailing method, and invented the use of the white line.

BIANCHI or **BIANCA, BERTHA SCHWARZ** (1858-). A German soprano opera singer; born in Heidelberg; studied there and in Paris with Mme. Viardot; sang in the leading European capitals; married Bernhard Pollini in 1897, a few months before his death.

BIANCHI, FRANCESCO or **IL FRARI** (1447-1510). An Italian painter of the Ferrara school; born in Modena; seems to have been a teacher of Correggio. His "Madonna with Saints" in the Louvre is a beautiful example.

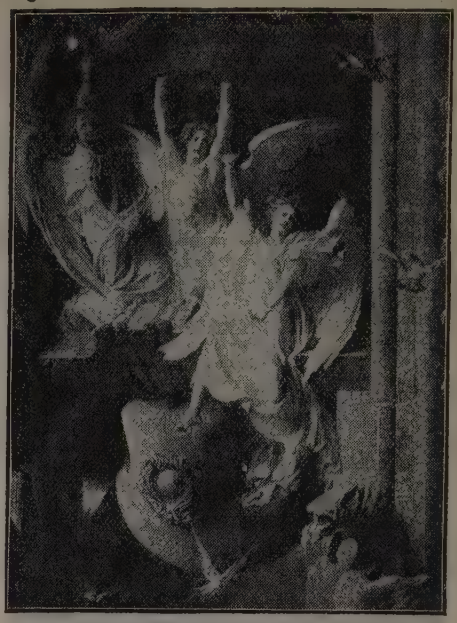
BIARD, AUGUSTE FRANCOIS (1798-1882). A French painter; born in Lyons; traveled extensively, even to Greenland and Spitzbergen. From the recollections of this trip he painted his remarkable battle of the polar bears. Among his works are "Babes in the Wood," "Beggar's Family," "Strolling Comedians" in the Luxembourg, and others which are highly valued.

BIERSTADT, ALBERT (1830-1902). An American painter; born near Düsseldorf, Germany; removed with his parents to New Bedford, Mass., in 1831; began to paint in oils in 1851, and in 1853 returned to Düsseldorf to study his art, spending a winter in Rome, traveling in Italy and Switzerland, and returning to the United States in 1857. In 1861 he finished his painting, "Laramie Peak," and in 1863 "View of the Rocky Mountains—Lander's Peak." These at once gave him a high reputation. His "Discovery of the Hudson River" and "Settlement of California" are in the National Capitol at Washington.

BISHOP, SIR HENRY ROWLEY (1786-1855). An English composer; born in London; composer and director of music in Covent Garden Theatre for 14 years; produced 60 pieces, of which *Guy Mannering* and *The Miller and His Men* were most popular; was for a brief space professor of music in Edinburgh University, and eventually held a similar chair in Oxford; composed the familiar music for John Howard Payne's "Home, Sweet Home."

BIZET (*be-zay'*), **GEORGES** (1838-1875). A French operatic composer; born at Paris; his greatest work, *Carmen*, is one of the half-dozen most popular lyric operas of the present day.

BLASHFIELD, EDWIN HOWLAND (1848-). An American artist; born in New York City; studied in Paris under Léon Bonnat, and began exhibiting in the Paris Salon in 1874. He returned to the United States in 1881, and has since distinguished himself by the execution of large decorative works, such as "Christmas Bells," "The Angel with the Flaming Sword," the central dome of the Congressional Library at Washington, and the Waldorf-Astoria ball-room ceiling.



CHRISTMAS BELLS. BY BLASHFIELD.
Owned Privately.

BLOOMFIELD-ZEISLER, FANNY (1866-). An American pianist; born at Bielitz, Austrian Silesia. Her parents brought her to America in 1868 and settled in Chicago; studied with Leschetizky until 1883; has played with the principal orchestras and is one of the foremost living pianists.

BLUMENTHAL, JACOB VON (1829-1908). A German pianist and composer; born in Hamburg; went to London (1849); appointed pianist to Queen Victoria; taught music; composed brilliant pieces for the pianoforte and popular songs, such as "My Queen," "The Bend in the River," "The Broken Flower," and "The Venetian Boat-Song."

BOCCHERINI, LUIGI (1743-1805). An Italian composer and violoncellist; born at Lucca. His place in Italian music is very like those of Haydn and Mozart in German. His adagios, minuets, quintets for two violins, viola, and two violoncellos are famous.

BOCKLIN, ARNOLD (1827-1901). A Swiss painter of landscapes; born in Basel. He was a colorist whose work was tainted with affectation, and, though an artist of the highest rank, his work was not understood and frequently ridiculed. Among his best are "The Nereids" in the Museum at Basel; "Venus Reposing" and "Pan in the Rushes" in the Munich Gallery; and his "Sea Idyl" in the Schack Gallery at Munich, a masterpiece of coloring.

BOEHM, SIR JOSEPH EDGAR (1834-1890). An English sculptor; born in Vienna; lived in England from 1862; member of the Royal Academy (1882); chief works are a colossal statue of Queen Victoria at Windsor and statues of Bunyan, Lord John Russell, Duke of Wellington, and Carlyle.

BOGERT, GEORGE H. (1864-). An American landscape artist; born in New York City; studied in Paris under Puvis de Chavannes, Aimé Morot, and E. Boudin; won the Webb prize for landscape (1898), the first Hallgarten prize (1899), and a bronze medal at the Paris Exposition (1900).

BOGGS, FRANK M. (1855-1926). An American artist; born at Springfield, Ohio; studied at the Ecole des Beaux-Arts, Paris, and under Gérôme; won a

$2,500 cash prize in New York with his "Rough Day at Honfleur" (1885), bought by the Boston Museum; won a silver medal at the Paris Exposition (1900); has a fine "La Place de la Bastille" in the Luxembourg Museum, bought by the French government (1882).

BOIELDIEU, FRANCOIS ADRIEN (1775-1834). A French composer of *opéra comique*; born in Rouen. *La dame blanche*, *Jean de Paris*, and *Le calife de Bagdad* are still produced and are among the finest examples of early French *opéra comique*. His friends Méhul, Cherubini, and Cárat sang his songs and made him famous.

BOLDINI, GIOVANNI (1845-). An Italian painter; born in Ferrara; noted for accuracy, finish, and skill in genre pictures, portraits, and landscapes. Many of his works are in American collections and include "The Connoisseur," "Gossips," "Delivering the Dispatch," "The Kitchen Garden," and "Portrait of Menzel."

BOLOGNA, GIOVANNI DI, or **JEAN DE BOULOGNE** (1524 or 1530-1608). A Flemish sculptor of the Italian Renaissance; born at Douai; went to Rome; influenced by Michelangelo; settled in Florence. His chief works are "Rape of the Sabines," "Hercules and Nessus," "Flying Mercury," and the statue of the duke Ferdinand in Florence, which inspired Browning's *The Statue and the Bust*.

BOOTH, JUNIUS BRUTUS (1796-1852). An Anglo-American tragedian; born in the parish of St. Pancras, London. He received a classical education, but early manifested a predilection for the stage, and when 17 years of age appeared in some unimportant parts. Subsequently he played Richard III. at Covent Garden, a part in which he suddenly became famous. In 1821 he came to the United States, where for the ensuing 30 years he followed his profession with much success.

BORDONE, PARIS (about 1495-1571). A Venetian Renaissance painter; born at Treviso; studied at Venice under Titian; painted King Francis I. and court by invitation in 1538. His portraits are most famous. His historical work "A Fisherman Presenting the Ring of St. Mark to the Doge" in the Venice Academy is one of the greatest of Venetian masterpieces.

RETURN FROM THE FAIR. BY ROSA BONHEUR.

BONHEUR (*bo-nur'*), **ROSA** or **MARIE ROSALIE** (1822-1899). A French painter of animals; born at Bordeaux; brought up in poverty from ill fortune; taught by her father; exhibited when she was 19. Her best known works are the "Horse Fair," which was bought by Cornelius Vanderbilt for $55,500 for the Metropolitan Museum of Art in New York City, "Hay Harvest in Auvergne," "On the Alert," "Weaning the Calves," and "Deer Drinking."

BONINGTON, RICHARD PARKES (1801-1828). An English landscape painter; born near Nottingham. In conjunction with Constable he painted the *plein-air*, or atmospheric transparency, which inspired the Barbizon school in France.

BONNAT, LEON JOSEPH FLORENTIN (1833-1922). A French portrait painter; born in Bayonne; studied in Madrid. His work is greatly influenced by Velasquez and Ribera. His reputation rests on his portraits, chief of which are of Thiers, Victor Hugo, Don Carlos, Léon Cogniet, Jules Grévy, and Ernest Renan.

BOOTH, AGNES (1843-1909). An American actress; born in Sydney, Australia; came to California in 1858; played Hermione in *A Winter's Tale*. In New York (1865) she played important rôles, such as Julie, Desdemona, and Ophelia to Edwin Forrest; married Junius Brutus Booth, Jr. (1867).

BOOTH, EDWIN THOMAS (1833-1893). An American actor; born near Belair, Md.; the fourth son of Junius Brutus Booth. When 16 years of age he made his first appearance on the stage, in the part of Tressel, his father acting as Richard III. He visited England (1861-1862), and in 1864 produced *Hamlet* at New York for 100 nights consecutively. In 1869 he opened a splendid theater in New York, whose building cost over $1,000,000, but which involved him in pecuniary ruin. He revisited California in 1876, and in the spring of 1877 was able to settle with his creditors, having earned during the season over $600,000. Booth visited Great Britain and Germany in 1880 and 1882, and was everywhere received with enthusiasm.

BORGLUM, JOHN GUTZON DE LA MOTHE (1867-). American sculptor and painter. His work includes figure, animal, portrait, and mural painting; and in sculpture, figures, horses, and groups in bronze. His brother, **SOLON HANNIBAL** (1868-1922), faithfully portrays western life.

BORGOGNONE, AMBROGIO (about 1445-about 1553). An Italian painter of the Milanese local school. His best work is in the Certosa in Pavia.

BOTTICELLI (*bot-te-chel'lee*), **SANDRO** or **ALESSANDRO FILIPEPI** (1447-1510). A celebrated painter of the Florentine school of the early Renaissance; began as a goldsmith's apprentice; a pupil of Fra Lippo Lippi. The best known examples of his art are on religious subjects, though he was no less fascinated with classical-mythological conceptions; is distinguished for his attention to details and for delicacy, particularly in the drawing of flowers. Among his best works are "Spring" at Florence; "Madonna and Angels" at Milan; "Birth of Venus" in the Uffizi; "Pallas Taming a Centaur" in the Pitti; "Mars and Venus" in London; "The Adoration of the Magi," where the faces are those of the Medici and other Florentine nobles, in the Uffizi; two circular Madonnas in the Uffizi; and the "Assumption of the Virgin" in London.

BOUCHER, FRANCOIS (1703-1770). A French painter; born in Paris; a pupil of Lemoine; member of the Academy (1734); its director (1765) and first painter to the king. He painted everything; was

known as "The Painter of the Graces" and the "Anacreon of Painting." His most famous portrait is that of Madame Pompadour. His best works are in the Louvre and in the Stockholm Museum.

BOUCICAULT, MRS. DION, or AGNES ROBERTSON. An English actress; married to Dion Boucicault in 1853; played leading parts in her husband's dramas, principally Eily O'Connor in *The Colleen Bawn*, Zoe in *The Octoroon*, and Jane Learoyd in *The Long Strike*.

VIRGIN AND CHILD. BY BOUGUEREAU.
Musée du Luxembourg, Paris.

BOUGUEREAU (*boog-ro'*), **ADOLPHE** (1825-1905). A distinguished French painter; born at Rochelle. His subjects are both classical and religious, as well as portraits; studied under Picot; took the Prix de Rome (1850) and medals of honor (1878 and 1885); member of the Institute (1876); grand officer of the Legion of Honor (1905). Of his many paintings which are in the museums of Europe and the United States the most important are "The Body of Saint Cecilia Borne to the Catacombs," "The Birth of Venus," and "La vierge consolatrice."

BOULLE, BOULE, or (incorrectly) **BUHL, ANDRE CHARLES** (1642-1732). A French cabinetmaker; born in Paris. He won lasting fame with cabinets incrusted with copper, brass, or tortoise shell. These lack grace, but are perfect in technique. Louis XIV. was his patron.

BOUTS, DIRK or **DIERICK** (about 1410-1475). A Dutch painter; born at Haarlem; one of the leading members of the Flemish school. His leading works are "Martyrdom of Saint Erasmus," "The Last Supper," "Martyrdom of Saint Hippolytus," and "Torture of Saint Sebastian."

BOWMAN, EDWARD MORRIS (1848-1913). An American organist and pianist; born in Barnard, Vt.; studied in Berlin, Paris, and London; published the *Bowman-Weitzman Manual of Musical Theory* (1877); first American associate of the Royal College of Organists (1881); for eight terms president of the American College of Musicians from 1884 on; organist and conductor of the Temple Choir of the Baptist Temple at Brooklyn (1895); professor of music at Vassar College (1891); examiner to Evelyn College at Princeton; composed many important numbers.

BRAHMS, JOHANNES (1833-1897). A distinguished German composer; born at Hamburg; settled in Vienna. The appearance of his compositions were an event in the musical world; approaches Beethoven as no other does. Among his works are *German Requiem*, *Funeral Hymn*, four symphonies, and a series of songs upon which alone his fame might rest.

BRAMANTE, DONATO (about 1444-1514). An Italian architect; born (probably) near Urbino. He spent 28 years at Milan (1472-1499) and 15 years at Rome (1499-1514). He founded the Lombard Early Renaissance, known as the "Bramantesque style," and best shown in the Church of San Satiro and of Santa Maria della Grazie. In Rome he inaugurated the Middle Renaissance and was intrusted with the reconstruction of the Vatican and St. Peter's, which was never carried out as he designed it.

BRETON, JULES ADOLPHE (1827-1906). A French painter of peasant life; born at Corrières; studied at Ghent, Antwerp, and Paris. Among his works are "Blessing the Grain," "Return of the Gleaners," "Planting a Calvary," "Women Weeding," "Song of the Lark" (Art Institute at Chicago), and "Twilight Glory."

BREWER, JOHN HYATT (1856-). An American organist and composer; born in Brooklyn, N. Y.; studied with Buck; organist of the Lafayette Avenue Presbyterian Church; professor of vocal music at Adelphi College.

SONG OF THE LARK. BY JULES BRETON.
The Art Institute, Chicago.

BRIDGMAN, FREDERICK ARTHUR (1847-). An American painter; born at Tuskegee, Ala.; steel engraver for the American Bank Note Company (1863-1866); studied in Paris under Gérôme; visited Africa (1872); chief works are "An American Circus in Normandy," "Burial of a Mummy," "Pharo," and "L'Arabe"; chevalier of the Legion of Honor and member of several American societies.

BRIGNOLI, PASQUALE (1824-1884). An Italian tenor; born in Naples. After a most successful European tour he came to America in 1855 and for a quarter of a century was most popular; sang with Patti, Parepa-Rosa, La Grange, Tietjens, and Nilsson.

BROCK, THOMAS (1847-). An English sculptor; pupil and assistant of J. H. Foley, many of whose works he completed, including the O'Connell Monument at Dublin. The bust of Longfellow in Westminster Abbey is by Brock; member of the Royal Academy (1891).

BROCKWAY, HOWARD (1870-). An American composer and musician; born in Brooklyn, N. Y.; studied in Berlin; composed symphonies, cavatinas, ballads, sonatas, piano solos, and the *Sylvan Suite* given by the Boston Symphony Orchestra in 1901.

BRONZINO, AGNOLO or **ANGIOLO** (1502-1572). An Italian painter; born at Monticelli; pupil of Jacopo da Pontormo. Among his works are "Descent of Christ into Hell," "Young Sculptor," "The Dead

Christ,'' and a portrait of Duke Cosimo I. His portraits are excellent.

BROUWER, or BRAUWER, ADRIAN (1608-1638). A Flemish painter; born at Oudenarde. Nine of his best works are in Munich; Dresden has three; St. Petersburg, five; Frankfort, three; and one is at the Louvre.

BROWN, FORD MADOX (1821-1893). An English painter; born in Calais, France; supported Rossetti in the Pre-Raphaelite Brotherhood movement. Among his works are ''Wikliff Reading His Translation of the Scriptures,'' ''King Lear,'' ''Chaucer at the Court of Edward III.,'' ''Christ Washing Peter's Feet,'' ''Work,'' and ''Don Juan.''

BROWN, GEORGE LORING (1814-1889). An American painter; born in Boston, Mass.; studied under Hartwell two years abroad, and, on his return, with Washington Allston. Then, in 1840, he entered the studio of Isabey in Paris. Among his works are ''Doge's Palace and Grand Canal,'' ''Bay of Naples,'' and ''A Moonlight Scene.'' His ''Bay of New York'' and "Crown of New England" were owned by King Edward VII.

BROWN, HENRY KIRKE (1814-1886). An American sculptor in bronze; born in Leyden, Mass.; studied in Boston and several years in Italy; settled in Brooklyn, N. Y. He made the first bronze statue ever cast in America. Among his works are statues of DeWitt Clinton in Greenwood, of Nathanael Greene and General Scott in Washington, and of Lincoln in Union Square, New York City.

BROWN, J. APPLETON (1844-1902). An American painter; born in Newburyport, Mass.; studied under Benjamin C. Porter in Boston and Emile Lambinet in Paris. Among his works are ''Old Road Near Paris,'' ''On the Merrimac at Newburyport,'' and ''The Grain Field.''

BROWN, JOHN GEORGE (1831-1913). An American painter; born in Durham, England; came to America in 1853; president of the Water Color Society (1901). His works are very popular, especially his portrayals of New York bootblacks and street children. They include ''His First Cigar,'' ''The Passing Show,'' ''A Merry Air and a Sad Heart,'' ''Street Boy,'' ''The Gang,'' and ''Street Boys at Play.''

BROZIK, VACZLAV (1851-1901). A Bohemian painter; born in Tremoschna; studied at Prague and under Piloty in Munich. Among his works are ''The Ballad Singer,'' ''The Execution on the White Mountain,'' and ''The Imperial Councillors thrown out of the Window at Prague.'' His ''Columbus at the Court of Ferdinand and Isabella'' is in the Metropolitan Art Museum in New York.

BRUNELLESCHI, FILIPPO (about 1379-1446). An Italian architect; born in Florence. He was the founder of Renaissance architecture. He raised the dome of the Cathedral of Florence to a height of 300 feet—the problem of the century—and began the Pitti Palace, his masterpiece.

BRUSH, GEORGE DE FOREST (1855-). An American figure painter; born in Shelbyville, Tenn.; studied under Gérôme in Paris. Among his works are ''The Portrait'' and ''Ossian and the Bard''; took the Hallgarten prize in 1888 and a gold medal at the Paris Exposition (1900).

BRUYN, BARTHEL (1493-1556). A German portrait and historical painter; born in Cologne; ''the last portrait painter of Antwerp.'' In the Cologne Museum are ''Martyrdom of Saint Ursula,'' ''Adoration of the Magi,'' and ''Burgomaster Browiller and His Wife.'' Others are ''Corpus Christi,'' ''Madonna,'' and numerous portraits.

BRYAXIS (about 350 B. C.). A Greek sculptor; worked on the Mausoleum at Halicarnassus, which Queen Artemisia raised to the memory of her husband, Mausolus. Newton's excavations of 1857 revealed a series of statues and bas-reliefs which decorated this tomb, and include the statue of Mausolus, one of the most ancient Greek portraits known.

BUCK, DUDLEY (1839-1909). An American composer and organist; born in Hartford, Conn.; studied at Leipzig under Richter, Hauptmann, and Rietz; wrote the music for Lanier's cantata at the opening of the Centennial Exhibition at Philadelphia (1876), numerous cantatas, comic opera *Deseret*, symphonic overture *Marmion*, and much organ music.

BULL, OLE BORNEMANN (1810-1880). A Norwegian violinist; born in Bergen. He secured great triumphs both throughout Europe and in the United States by his wonderful playing. He lost all his money in a scheme to found a colony of his countrymen in Pennsylvania, and had to take again to his violin to repair his broken fortunes. He afterward settled in Cambridge, Mass., and had also a summer residence in his native city, where he died.

BULOW, HANS GUIDO VON (1830-1894). A German pianist and conductor; born in Dresden; studied under Wieck, Eberwein, and Hauptmann; conductor of the royal opera at Munich (1864), where he conducted the first performances of Wagner's *Tristan und Isolde* and *Die Meistersinger*; visited the United States (1875-1876 and 1889-1890); one of the greatest pianists of the century and a famous conductor; the greatest authority on Beethoven.

BURGESS, NEIL (1846-1910). An American comedian; born in Boston, Mass.; made a specialty of female rôles. *Josiah Allen's Wife* was written for him; greatest success was *Widow Bedott* (1879) at Providence, and New York in 1880; produced *The County Fair* in 1889.

BURNE-JONES, SIR EDWARD (1833-1898). An English painter; born at Birmingham, of Welsh descent. He was one of the foremost, if not the foremost, of the artists of his day; imbued with ideas that were specially capable of art-treatment; designed several stained-glass windows, notably the Saint Cecilia window at Christ Church College, Oxford. He was the ''greenery-yallery, Grosvenor-gallery'' young man of *Patience*. He overcame the ridicule which greeted his earlier efforts. Among his works are ''Venus's Mirror,'' ''Chant d'amour,'' ''The Golden Stair,'' ''The Wheel of Fortune,'' ''Cophetua and the Beggar Maid,'' and numerous water colors.

BURROUGHS, MARIE, or LILLIE ARRINGTON (1866-1926). An American actress; born in San Francisco; played Gladys in *The Rajah*; several seasons with E. S. Willard in *The Middleman*, *Judah*, and as Ophelia; *The Profligate* (1894), *The Gadfly* with Stuart Robson, and in *The Meddler*; and as Guida Landresso in *The Battle of the Strong*. She married Robert Barclay MacPherson in 1901.

BUTLER, HOWARD RUSSELL (1856-). An American landscape and marine painter; born in New York; studied at the Art Students' League and in Paris; largely instrumental in housing the Fine Arts Society, of which he was the first president.

CABANEL, ALEXANDRE (1823-1889). A French portrait and historical painter; born at Montpellier; studied with Picot; won the Prix de Rome (1843); elected to the Academy (1863); professor in the Académie des Beaux-Arts. Among his portraits are those of Napoleon III. and his ministers. One of ''Miss Catherine Wolfe'' is in the Metropolitan Art Museum at New York. His ''Death of Moses'' is in the Corcoran Gallery at Washington. ''Birth of Venus,'' his masterpiece, is in the Louvre and a replica of it in the Metropolitan Museum. His ''Expulsion from Paradise'' and ''Death of Francesca and Paolo'' are among his best works.

CALLCOTT, JOHN WALL (1766-1821). One of the most eminent composers of the British school of music; born in Kensington; especially noted for his glees.

CALLET (*ka-lai'*), **ANTOINE FRANCOIS** (1741-1823). A French portrait and historical painter; born in Paris; member of the Academy (1780); chief portraits are those of Comte d'Artois, Louis XVI., Louis XVIII. His other works are ''Biton and Cleobis''; ''Spring,'' a fresco in the Louvre; ''Winter, or Saturnalia''; ''Autumn, or Fête of Bacchus''; ''Summer, or Fête of Ceres''; and ''Spring, or Fête of Juno Lucina.''

CALLICRATES (fifth century B. C.). A Greek architect who shared in the building of the Parthenon on the Acropolis at Athens.

CALLOT, JACQUES (1592-1635). A French designer, engraver, and etcher; born in Nancy. He was a pitiless realist, noted for painstaking effort, originality, life, and humor. He left over 1500 prints of genre pictures.

CALVAERT, DENIS or **DIONYSIUS** (about 1540-1619). A Flemish historical and landscape painter; born in Antwerp. He founded a school in Bologna (1574) which thereafter became a center of Italian art. Domenichino, Guido Reni, and Albani were among his pupils.

CALVÉ, EMMA, or **EMMA DE ROQUER** (1866-). A French dramatic soprano; born in France; studied under Rosine Laborde; made her début in *Faust* in Brussels (1882); made her début in New York (1893); has sung in *Lalla Rookh, Nozze di Figaro, Magic Flute, Carmen, Hamlet, Cavalleria Rusticana, Mefistofele, Pagliacci.* She has created many rôles and ranks among the greatest singers of the world.

CAM, AUGUSTE NICOLAS (1822-). A French sculptor; born in Paris; studied under Rude; noted for productions of animals, chiefly in combat.

CAMPANINI, ITALO (1846-1896). An Italian tenor; born in Parma; studied in Milan under Francesco Lamperti; made his début in *Faust* there; sang in New York with Christine Nilsson (1873) and became the most popular operatic tenor of his day. He was a notable Lohengrin, and scored successes in *Aïda, Carmen, The Huguenots,* and *Faust.*

CAMPBELL, BEATRICE STELLA TANNER, or **MRS. PATRICK** (1867-). An English actress; born in London; gained a wide reputation in *The Second Mrs. Tanqueray, The Masqueraders, John-a-Dreams, The Notorious Mrs. Ebbsmith,* Ibsen's *Little Eyolf,* and as Lady Macbeth, Ophelia, and Juliet with Forbes Robertson. She toured the principal cities of the United States (1901-1903).

CAMPHAUSEN, WILHELM (1818-1885). A German painter; born in Düsseldorf. He was specially famous for battle pieces.

CANO, ALONSO (1601-1667). A Spanish painter, sculptor, and architect; born in Granada. He has been called the Michelangelo of Spain. There are many fine examples of his work in the Cathedral of Granada, six in the Prado, and several throughout Europe.

CUPID AND PSYCHE. BY CANOVA.

CANOVA, ANTONIO (1757-1822). A great Italian sculptor; born in Treviso. His first great work, which established his fame, was the group of "Theseus and the Minotaur," which was succeeded by his "Cupid and Psyche," distinguished by a tenderness and grace quite peculiar to him, and erelong by "Perseus," perhaps the triumph of his art. His works were numerous and brought him a large fortune.

CARAVAGGIO, MICHELANGELO AMERIGHI (1569-1609). An Italian painter, founder of the Naturalistic school; born in Caravaggio. Among his best works are "The Entombment of Christ" in the Vatican, "Death of Mary" in the Louvre, "Saint Matthew Writing the Gospel," "Christ and the Apostles at Emmaus," "Love as a Ruler," "Love Conquered," "Gypsy Fortune-Teller," "Card-Players," "Portraits of Himself," and "Grand Master of the Knights of Malta."

CARPACCIO, VITTORE (about 1450-about 1522). An Italian painter; born, probably, at Capro d'Istria, but passed most of his life in Venice; assisted Gentile Bellini; painted the series of nine pictures on the life of Saint Ursula, now in the Academy at Venice (1490), and series of nine each on the lives of Saints George, Jerome, and Tryphonius. His masterpiece is the "Presentation in the Temple."

CARPEAUX, JEAN BAPTISTE (1827-1875). A French sculptor; pupil of Duret and Rude. His work is intensely naturalistic. His "Dancing" group on the façade of the Opera House in Paris, spattered with a bottle of ink thrown by a fanatic (1869), created not only a scandal but a school. His "The Four Quarters of the World" fountain in Paris was done with Frémiet.

CARRACCI or **CARACCI, AGOSTINO** (1557-1600). A Bolognese painter; accompanied his brother Annibale to Rome to work on the Farnese frescoes; settled in Parma; chief works are "Communion of St. Jerome" and "Love—Celestial, Terrestrial, and Venal."

CARRACCI, ANNIBALE (1560-1609). A famous Bolognese painter, the most celebrated of the family; executed the Farnese frescoes in Rome. His mythological frescoes have been frequently engraved. Seven of his works are in the National Gallery at London, and a "Christ on the Cross" is in Dublin.

CARRACCI, LUDOVICO (1555-1619). A Bolognese painter; studied under Tintoretto; founded a school with his cousins Agostino and Annibale. Their work arrested for a time the decadence of Italian art.

CARRIERE, EUGENE ANATOLE (1849-1906). A French painter; born at Gournay; noted for his paintings of maternity. His famous "Maternity" and "The Sick Child" in the Luxembourg, his "Théâtre de Belleville," and portraits of Daudet, Verlaine, and others are his chief works.

CARSTENS, ASMUS JAKOB (1754-1798). A Danish painter; born near Schleswig. His drawing is superior to his coloring; initiated the classical reaction in Germany. His "Argonaut" cycle has been engraved in 24 plates. Many of his pictures are at Weimar, Copenhagen, and Berlin.

CARTER, MRS. LOUISE LESLIE. An American actress; made her début (1890) in New York in *The Ugly Duckling*; studied with Belasco; scored successes in *The Heart of Maryland, Zaza, Du Barry,* and *Adrea.*

CARUSO, ENRICO (1874-1921). An Italian dramatic tenor; born at Naples; came into prominence as a singer in 1896; sang in Milan (1898); since 1903 has attained great popularity in the United States.

CARY, ANNIE LOUISE (1842-1921). An American contralto; born at Wayne, Me.; studied in Milan under Giovanni Corsi; made her début in Copenhagen in Italian opera. For over 12 years she was the favorite of the American public. She created the part of Amneris in *Aïda*; married Charles Monson Raymond of Brooklyn (1882).

CAVEDONE, GIACOMO (1577-1660). An Italian painter; born near Modena; studied under Ludovico Carracci. His chief works are "Saint Cecilia" at the Louvre, "The Last Supper," "Among the Doctors," and a "Madonna and Child" at Bologna.

CAYVAN, GEORGIA EVA (1860-1906). An American actress; born at Bath, Me.; first appeared at Madison Square Theatre, New York, as Dolly in *Hazel Kirke* (1880); played Daisy Brown in *The Professor,* Liza in *The White Slave,* and Lena in *Romany Rye*; was with Dion Boucicault's company; leading lady for Daniel Frohman; retired in 1897.

CAZIN, JEAN CHARLES (1841-1901). A French painter; born at Samer; originated the French landscape in religious subjects as in "Hagar and Ishmael," "Dusk," and "A Dead City."

CELLINI, BENVENUTO (1500-1571). The greatest of the Italian Renaissance goldsmiths; born in Florence. His works comprise elaborate silver vases, statuettes, silver-gilt repoussé, bronze statues, and bronze portraits. Among his best known is his "Victorious Perseus" with the Gorgon's head.

CESNO'LA, LUIGI PALMA DI (1832-1904). An American archaeologist; born in Piedmont, Italy. He served in the Italian War with Austria and came to the United States in 1860, serving in the Civil War. He was United States Consul at Cyprus, where he made extensive archaeological discoveries. In 1879 he became a trustee and director of the Metropolitan Museum of Art, in New York City.

CHADWICK, GEORGE WHITEFIELD (1854-). An American composer; born in Lowell, Mass.; studied under Thayer and at Leipzig; instructor and, later, director of the New England Conservatory of Music; composed *The Viking's Last Voyage*; the overtures *Thalia, Melpomene*, and *Rip Van Winkle*; and *Judith*, a lyric drama; conducted the Springfield and Worcester, Mass., music festivals.

CHAM or **AMEDEE DE NOE** (1819-1879). A noted French caricaturist; born in Paris; was connected with the *Charivari* and the *Journal des Pélerinages*. His sketches are collected under the titles of *Douze années comiques* and *Les folies Parisiennes*.

CHAMINADE, CECILE LOUISE STEPHANIE (1861-). A French pianist and composer; born in Paris; noted throughout Europe as a pianist and as an orchestra conductor. She wrote *Callirrhoë*, a ballet symphony; *Les Amazones*; *Ménétriers*; *La Lisonjera*; and a number of songs.

CHAMPAIGNE, PHILIPPE DE (1602-1674). A Flemish painter; born in Brussels; went to Paris and was one of the few distinguished painters there before the accession of Louis XIV. Most of his works are in the Louvre and include "The Dead Christ" and "Portrait of Cardinal Richelieu." His "Triple Portrait of Cardinal Richelieu," "Portrait of Fénelon," and three religious subjects are in London.

CHAMPNEY, BENJAMIN (1817-1907). An American painter; born in New Ipswich, N. H.; spent several years in Europe painting at the Louvre (1841-1848); painted White Mountain landscapes and New England flower groups; ex-president of the Boston Art Club; published *Sixty Years' Memories of Art and Artists* (1900).

CHAMPNEY, JAMES WELLS (1843-1903). An American painter; born in Boston, Mass.; served in the Civil War; studied in France under Edouard Frère and at Antwerp and Rome; a clever worker in pastel portraiture; associate of the National Academy (1882).

CHANTREY, SIR FRANCIS LEGATT (1781-1842). An English sculptor; born at Norton, Derbyshire; member of the Royal Academy (1818); made the statue of Washington in the State House at Boston, Mass.; also Pitt, Watt in Westminster Abbey, Canning, and Wellington.

CHASE, WILLIAM MERRITT (1849-1916). An American painter; born in Franklin, Ind.; studied under B. F. Hayes in Indianapolis and at New York; settled in St. Louis; thence to Munich under Wagner and Piloty for six years; one year at Venice on Tintoretto's works; returned to New York (1878) and was president of the Society of American Artists for 10 years; taught in the Art Students' League and in his own schools; has received many medals and is a National Academician. His best work is in still life.

CHASSERIAU, THEODORE (1819-1856). A French painter; born near Santo Domingo; studied under Ingres in Paris. His frescoes on the walls of the Cour des Comptes were largely destroyed in the commune (1871). "Arab Riders and Their Dead," "Arab Chiefs," "Macbeth and the Witches," and "Chaste Susannah" are among his chief works.

CHERUBINI, MARIA LUIGI CARLO ZENOBIO SALVATORE (1760-1842). An Italian musical composer; born in Florence; director in the French Conservatory and instructor of hundreds of eminent musicians. In the interval from 1780 to 1788 he composed 11 Italian operas, including *Ifigenia in Aulide* —the most successful of the series. His operatic masterpiece is *Les deux journées*. His greatest work is the *Requiem in C minor*.

CHIPPENDALE, THOMAS (lived about 1760). An English cabinetmaker and upholsterer. Beyond the fact that he plied his trade in St. Martin's Lane in London about 1752 we know nothing about his life. The name "Chippendale" is frequently applied to mahogany furniture of the period.

CHOPIN (*sho-pan'*), **FREDERIC FRANCOIS** (1809-1849). An eminent Polish musical composer and pianist; born near Warsaw; settled in Paris (1831). As a pianist Chopin was second to Liszt only.

CHRISTY, HOWARD CHANDLER (1873-). An American illustrator; born in Morgan County, Ohio; studied in New York; began to illustrate in 1895; war artist in the Spanish War for *Scribner's* and *Leslie's*; instructor in the Cooper Institute, New York.

CHURCH, FREDERICK STUART (1841-1924). An American animal and figure painter and illustrator; born at Grand Rapids, Mich.; studied with Shirlaw in Chicago and with Wilmarth in New York; member of the National Academy, of the Society of American Artists, and of the American Water-Color Society; chief works are "Weirdness," "Mad as March Hares," "The Sea Princes," "Hard Times," "The Phantoms," "Saint Cecilia," and "The Sea Serpent."

CIMABU'E, GIOVANNI (1240-1302). A Florentine painter and founder of the Florentine school, which ranked among its members such artists as Michelangelo, Raphael, and Leonardo da Vinci; was the first to leave the stiff traditional Byzantine forms of art and copy from nature and the living model, though it was only with the advent of his great disciple, Giotto, that art found beauty in reality. His "Madonna" in the Church of Santa Maria has been long regarded as a marvel of art, and of all the "Mater Dolorosas" of Christianity, Ruskin does not hesitate to pronounce his at Assisi the noblest.

CLAUDE LORRAIN (1600-1682). A great French landscape painter; born at Chamagne, of poor parents; went to Rome; became servant and color-grinder to Tassi, who instructed him in his art; by assiduous study of nature in all her aspects attained to fame; was eminent in his treatment of aërial perspective, and an artist whom it was Turner's ambition to rival.

CLAUSEN, GEORGE (1852-). An English realist painter; born in London; called the Bastien-Lepage of England; joined Holman Hunt and Walter Crane in their crusade against the Royal Academy (1886), yet was elected an associate (1890). Among his works are the "Girl at the Gate," "The Ploughman's Breakfast," "The Listener," and "A Morning in June."

CLAXTON, KATE (1848-1924). An American actress; born in New York City; made her début with Lotta in Chicago in 1870; with Augustin Daly's stock company in New York; and with A. M. Palmer's Union Square company in 1872. Her greatest success was as Louise in *The Two Orphans*; married Charles A. Stevenson, her second husband (1878).

CLAYTON, ESTELLE, or **ESTELLE EVESSON.** An American actress; born in New York City; member of Augustin Daly's company in 1879 and 1880; played in *Esmeralda, Hazel Kirke, Young Mrs. Winthrop*, and in her own plays, *Tric-o-trim, The Quick or the Dead, A Puritan Romance*, and *Paulita* and *The Viking*, her two operettas; married Charles W. Durant (1888).

CLINEDINST, BENJAMIN WEST (1860-). An American artist; born at Woodstock, Va.; studied in Paris under Cabanel and Bonnat; settled in New York; chiefly engaged as illustrator in black and white for books and magazines. His oil and water-color work has been on genre subjects and portraits; member of the National Academy (1898).

COFFIN, WILLIAM ANDERSON (1855-1925). An American painter and writer; born in Allegheny, Pa.; studied in Paris under Bonnat; received several prizes and medals for his landscapes and figure work; art critic on New York papers and frequent contributor to magazines on art matters, and has written largely for encyclopedias; associate of the National Academy (1899).

COGHLAN, CHARLES FRANCIS (1841-1899). An Irish-American actor; born in Paris, France; played in London; member of Augustin Daly's company in New York (1876) as Alfred Evelyn in *Money*, and was for many years the most popular leading man in the United States.

COGHLAN, ROSE (1853-). An Irish-American actress; sister of Charles Coghlan; born in England; played in London; first appearance in New York (1872) with Lydia Thompson; played with Sothern; leading lady at Wallack's until 1889; naturalized in 1902 and settled on a ranch in Montana. In 1909 returned to the stage, at New Theater in New York.

COLE, BELLE (1845-1904). An American contralto singer; born in Chautauqua, N. Y.; church soloist in New York; leading contralto with Theodore Thomas's Festival tour (1883); sang in *Elijah* in London under Sir Joseph Barnby (1888); made a tour around the world in 1901; lived in London after 1888.

COLE, THOMAS (1801-1848). An American painter; born in England; came to Ohio with his father (1819); removed to New York (1825); landscape painter of scenes along the Hudson and in the Catskills.

COLE, TIMOTHY (1852-). An American wood engraver; born in London, England; emigrated with

his parents to Chicago (1857); removed to New York (1871); noted for his series of engravings of the paintings of the old masters of Europe, which appeared in the *Century Magazine*.

COLERIDGE-TAYLOR, SAMUEL (1875-1912). An Anglo-African musical composer; born in London; studied at the Royal College of Music. His choral-orchestral work, *Scenes from the Song of Hiawatha, Blind Girl of Castèl Cuillè*, and a cantata, *The Atonement*, are best known; conducted *Hiawatha* in Washington in 1904.

COLLINS, WILLIAM (1788-1847). An English landscape and figure painter; born in London; father of Wilkie Collins, the novelist; studied at the Royal Academy; chief works are "Young Fifer," "The Sale of the Pet Lamb," "As Happy as a King," and "Early Morning"; elected to the Royal Academy in 1820.

COLMAN, SAMUEL (1832-1920). An American painter; born in Portland, Me.; studied under Durand and abroad; member of the National Academy (1860); a founder and the first president of the American Society of Painters in Water Colors (1866-1871); chief works are foreign and American landscapes in oil and water colors and some etchings, "Moonrise in Venice," "Sunny Afternoon in the Harbor of Algiers," and "Mosque of Side Bou Hac."

COLONNE, JULES JUDE or **EDOUARD** (1838-1910). A French orchestra leader and violinist; born in Bordeaux. He popularized the works of Berlioz; presented to Paris the works of Tschaikowsky, Grieg, Wagner, and Raff for the first time; led the Philharmonic Society in New York in 1906.

CONRIED, HEINRICH (1855-1909). A German-American impresario; born at Bielitz; an actor in Vienna; came to New York (1878); stage manager of the Germania Theatre there; star in the principal German theaters of this country; formed the Conried Opera Company; managed the Irving Place Theatre (1892); succeeded Maurice Grau as manager of the New York Metropolitan Opera House.

CONSTABLE, JOHN (1776-1837). An eminent English landscape painter; born in Suffolk, England. His works were more generously appreciated in France than in his own country, where they had to stand comparison with those of Turner. Enormous prices have been given of late for his best pictures. Some of his best works adorn the walls of the National Gallery. Among these are "The White Horse," "Cornfield," "Hampstead Heath," "The Valley Farm," "The Hay Wain," and many others. Constable was a leader of modern art.

CONSTANT, JEAN JOSEPH BENJAMIN (1845-1902). A highly popular French painter of the Realistic school; born at Paris. His first picture was "Hamlet and the King." Afterwards he took chiefly to Oriental subjects, which afforded the best scope for his talent; occupies a high place in the modern French school. His "Justinian in Council" is in the Metropolitan Museum of Art in New York.

COPLEY, JOHN SINGLETON (1737-1815). An American portrait and historical painter; born in Boston. Benjamin West was his patron; went to England in 1775; painted portraits of the king and the queen; began the historical works on which his fame chiefly rests, perhaps the most widely known of which is the "Death of Chatham," now in the National Gallery, London.

COQUELIN (*kok-lan'*), **BENOIT CONSTANT** (1841-1909). A French actor; born in Boulogne; made his début at the Théâtre Français (December 7, 1860). For over a quarter of a century he played there with unbroken success. He appeared in 1887 in London, in 1888 in South America and the United States. He played Flambeau in *L'Aiglon* to the Duc de Reichstadt of Sarah Bernhardt.

CORNELIUS, PETER VON (1783-1867). A German painter; born in Düsseldorf. He studied the great masters, especially Raphael. In 1811 he went to Rome, where, in conjunction with Overbeck, Veit, and other associates, he may be said to have founded a new school of German art, and revived fresco painting in imitation of Michelangelo and Raphael. In 1841 he was invited to Berlin by Frederick William IV., who intrusted him with the painting of the royal mausoleum or Campo Santo. His "Last Judgment" in the Ludwig church is the most colossal fresco ever painted.

COROT (*ko-ro'*), **JEAN BAPTISTE CAMILLE** (1796-1875). A celebrated French landscape painter; born in Paris. His landscape work is a new interpretation, marked by the freshness of the morning and the silvery mists of evening. He is a worshiper of nature in her quieter moods. His "Ville d'Avray" is in the Metropolitan Museum of Art in New York, "Dante and Vergil" in the Boston Museum of Fine Arts, and many fine examples are in private collections.

CORREGGIO, ANTONIO ALLEGRI DA (1494-1534). An Italian painter; known as "the divine." His work excels in harmony, grace, and sweetness of color and form. He is one of the greatest Italian painters of the Renaissance. His fine "St. Francis Madonna" in Dresden, "The Ascension of Christ" in the cupola at Parma, "The Assumption of the Virgin" at Parma, "The Marriage of St. Catherine" in the Louvre, "The Madonna della Scodella" in Parma, "The Holy Night" in Dresden, and his "Ecce Homo" in London are among his most famous works.

COSIMO, PIERO DI (1462-1521). An Italian painter; born in Florence; pupil of Cosimo Roselli and master of Andrea del Sarto. His chief works are a "Conception" in the Uffizi at Florence, a "Madonna" and "Death of Procris" in London, a "Coronation of the Virgin" in the Louvre, and "Christ and John the Baptist" in Berlin.

COURBET, GUSTAVE (1819-1877). A French painter, of peasant birth; studied in Paris; joined the Commune and led in the overthrow of the Vendôme Column to distract the maddened populace from the collections of Thiers and of the Luxembourg. Courbet was essentially a realist and naturalist. His "Winnowers" in Nantes, "Burial at Ornans" in the Louvre, "Combat of the Stags," and "The Wave" are among his best.

COUSIN, JEAN (about 1501-1589). A French painter, worker in stained glass, sculptor, and author; born at Soucy. His "Last Judgment" in the Louvre and his "Eva Prima Pandora" are among his best.

COX, KENYON (1856-1919). An American painter; born in Warren, Ohio. He studied in Paris under Carolus-Duran and Gérôme, settling in New York in 1882 as a portrait and figure artist. He did two decorations in the Library of Congress and similar works elsewhere.

COX, PALMER (1840-1924). An American artist and writer for young people; born in Quebec. Since 1875 his home has been in New York. He is best known as the originator of the "Brownies," a series of funny pictures and verse for children.

COYSEVOX, ANTOINE (1640-1720). A French sculptor; born at Lyons; most famous works are tomb of Cardinal Mazarin, statue of Condé, monument of Colbert, busts of Le Brun, Vauban, Fénelon, Racine, statue of Louis XIV., and "A Nymph" and "Venus."

CRANACH, LUCAS, or **LUCAS MULLER** (1472-1553). A German painter; born at Kronach; second to Dürer among his contemporaries. The finest collection of his works is in Berlin. It includes "Hercules and Omphale" and "The Fountain of Youth." London has a "Portrait of a Young Girl." Dublin has a "Judith" and a "Christ on the Cross." New York has a portrait of "John Frederick the Magnanimous," a "Portrait," and a "Venus and Cupid." Brussels has a "Charity" and a "Portrait of an Old Man."

CRANACH, LUCAS, THE YOUNGER (1515-1586). A German painter; son of Lucas Cranach; born in Wittenberg, of which he became burgomaster. His works include a "Crucifixion," "Nativity," and "Lord's Supper" at Wittenberg. A "Portrait of a German Lady" is in the Metropolitan Museum of New York.

CRANE, WALTER (1845-1915). An English artist; born at Liverpool; joined William Morris in the revival of decorative arts and crafts and opposed the pre-Raphaelite movement of Rossetti; won the Albert gold medal of the Society of Arts (1904). His works include allegories, designs for tapestries, illustrations, and show remarkable fertility.

CRANE, WILLIAM HENRY (1845-1928). An American actor; born in Leicester, Mass.; leading comedian in Hooley's Theatre, Chicago (1874); in partnership with Stuart Robson (1877-1889). His later rôles were in *The Senator, David Harum, Business is Business*, and *The American Lord*.

CRAWFORD, THOMAS (1814-1857). An American sculptor; born in New York; died in London. Among his works are the bronze statue of Beethoven in Boston Music Hall, an equestrian statue of General Washington at the Capitol, Richmond, Va., and a number of marble

and bronze pieces in the Capitol, Washington, D. C., including the "Liberty" surmounting the dome, the bronze doors, and the relief "Progress of American Civilization."

CROME, JOHN (1768-1821). An English landscape painter; founder of the "Norwich school" (1805); known as the "English Hobbema."

CROSMAN, HENRIETTA (1870-). An American actress; born at Wheeling, W. Va.; made her début in *The White Slave* (1889); played with Daly's and Frohman's companies; married Maurice Campbell (1897); appeared as a star (1898) in the rôles of *Mistress Nell* and Rosalind in *As You Like It*.

CRUIKSHANK, GEORGE (1792-1878). An English pictorial satirist; born in London. His illustrations for Hone's political squibs and pamphlets, and especially those dealing with the Queen Caroline trial, attracted much attention. He illustrated a number of Dickens's works. In his late years he devoted himself to oil painting.

CUSHMAN, CHARLOTTE SAUNDERS (1816-1876). An American actress; born in Boston; appeared first in opera and as Lady Macbeth in New Orleans in 1835. In 1844 she accompanied Macready on a tour throughout the Northern states and afterward appeared in London. Miss Cushman retired from the stage in 1875. She was at her best in such rôles as Rosalind, Romeo, Meg Merrilies, Portia, and Lady Macbeth.

MADONNA AND CHILD. BY DAGNAN-BOUVERET.
The Louvre, Paris.

CUYP, ALBERT (1606-1672). A Dutch painter; born at Dordrecht; son of the painter, Jakob Gerritsz Cuyp (1575-1649); one of the greatest of the masters in animal painting. Ruskin says that "for expression of effects of yellow sunlight, parts might be chosen out of the good pictures of Cuyp which have never been equaled in art."

CZERNY (*zair'ne*), **KARL** (1791-1857). An Austrian pianist and musical composer; born in Vienna; pupil of Beethoven. Among his pupils were Liszt, Thalberg, and other distinguished musicians; best known by his *Theoretical and Practical School*.

DAGNAN-BOUVERET, PASCAL ADOLPHE JEAN (1852-). A French painter; born in Paris; a painter of Breton life and a follower of Holbein. Among his famous works are "A Wedding Party at the Photographer's," "Vaccination," and "Le pain bénit" in the Luxembourg; the "Breton Pardon," a "Virgin" in sunlight and shadow, the "Last Supper," and "The Supper at Emmaus." A "Breton Peasant" is in Chicago, "A Pardon in Brittany" is in New York, and the fine "Village Musician" is in the Walters collection in Baltimore.

DALOU, JULES (1838-1902). A French sculptor; born in Paris; pupil of Carpeaux; fled to London during the Commune and was prominent in the English renascence. The "Triumph of Silenus" in the Luxembourg, "The States-General" in the Chamber of Deputies in Paris, the colossal "Triumph of the Republic" in the Place de la Nation, the bronze statue of Eugène Delacroix, and numerous busts are among his more celebrated works.

MATERNAL LOVE. BY DALOU.
Metropolitan Museum of Art, New York.

DALY, (JOHN) AUGUSTIN (1838-1899). An American theatrical manager and dramatist; born at Plymouth, N. C. His plays and adaptations number 75. He was associated with the best and most popular actors and actresses of the times; managed theaters in New York and in London that made his name celebrated.

DAMROSCH, FRANK HEINO (1859-). An American musician; born in Breslau, Silesia; pupil of his father, Leopold Damrosch, and others; conductor of the Denver Chorus Club (1884-1885); chorus master at the Metropolitan Opera House in New York (1885-1891); organized the People's Singing Classes in New York (1892); supervisor of music in the New York public schools (1897); conductor of the New York Oratorio Society (1898).

DAMROSCH, LEOPOLD (1832-1885). A German-American musician and composer; born in Posen; took an M.D. at Berlin (1854); studied the violin under Ries, Dehn, and Böhmer. Through Liszt he became solo violinist at Weimar, where he made the acquaintance of Wagner; conductor of the Breslau Philharmonic concerts (1859-1860); came to America in 1871 as conductor of the Arion Society, and until his death was

the leading musical figure in New York; founded the Oratorio Society (1873) and the Symphony Society (1877); and gave a season of German opera in 1884.

DAMROSCH, WALTER JOHANNES (1862-). An American musician; son of Leopold Damrosch; born at Breslau; studied with his father, Rischbieter, Draeseke, von Inten, Max Pinner, and von Bülow; conductor of the Newark, N. J., Harmonic Society; took up his father's work on his death in 1885 and carried it through; conductor of the New York Oratorio and Symphony societies; rendered *Parsifal* for the first time in America (1886); organized the Damrosch Opera Company (1894); composed *The Scarlet Letter*, an opera, and a *Te Deum* in honor of Dewey's victory at Manila.

DANNAT, WILLIAM T. (1853-). An American artist and figure painter; born in New York City; studied in Munich and in Paris under Munkácsy; teacher in the Ecole des Beaux-Arts; chief works are "Belle Otero," "Spanish Women," "A Sacristy in Aragon," "A Lady in Red," and "A Lady in White."

DANNECKER, JOHANN HEINRICH VON (1758-1841). A German sculptor; born near Stuttgart; studied in Paris and in Rome with Canova; professor of sculpture at Stuttgart (1790); chief works are "Sappho," "Psyche," "Ariadne on the Panther," "Christ," "John the Baptist," and busts of Schiller, Gluck, Lavater, and others.

DARLEY, FELIX OCTAVIUS CARR (1822-1888). An American artist and illustrator; born in Philadelphia; illustrated Irving, Cooper, Dickens, and others with sharply defined, flowing outline; painted "Cavalry Charge at Fredericksburg, Va.," and "Street Scene in Rome"; member of the National Academy (1852).

DAUBIGNY, CHARLES FRANCOIS (1817-1878). A French landscape painter and etcher; born in Paris; member of the Barbizon school; studied with Paul Delaroche. Of his many works in the United States, "On the River Oise" in New York, a "Town and River Scene" in Philadelphia, are well known.

DAVENPORT, EDWARD LOOMIS (1816-1877). An American actor; born in Boston. His first appearance was with the elder Booth in *Sir Giles Overreach*. He progressed rapidly and became a leading artist in tragedy, comedy, and melodrama. His impersonations of *Brutus*, *Hamlet*, *Sir Giles*, and *Bill Sykes* were notable.

DAVENPORT, FANNY LILY GIPSY (1850-1898). An American actress; born in London, England; daughter of Edward Loomis Davenport; first appeared as a child in the Chambers Street Theatre in New York (1857); most successful in Daly's company in leading parts (1869-1873).

DAVID, FELICIEN CESAR (1810-1876). A French composer; born at Vaucluse; wrote *The Desert*, a symphonic ode which achieved an instant and complete triumph; an oratorio, *Moses on Sinai*; a symphony, *Christopher Columbus*; and several operas.

DAVID, JACQUES LOUIS (1748-1825). Regenerator of the modern French school of painting; born in Paris. In the Revolution he was a violent Jacobin and wholly devoted to Robespierre. Several of the scenes of the Revolution supplied subjects for his brush. He was appointed first painter to Napoleon about 1804; and after the second restoration of Louis XVIII. he was included in the decree which banished all regicides from France, when he retired to Brussels, where he died; painted "The Dead Marat," the emperor, the pope, the famous "Mme. Récamier" in the Louvre, "The Three Fates," "The Death of Socrates," "The Oath on the Tennis Court," and "Rape of the Sabines."

DAVID, PIERRE JEAN (1788-1856). A French sculptor; born in Angers (hence commonly called David d'Angers). He executed a great number of medallions, busts, and statues of celebrated persons of all countries, including those of Washington, Lafayette, and Jefferson.

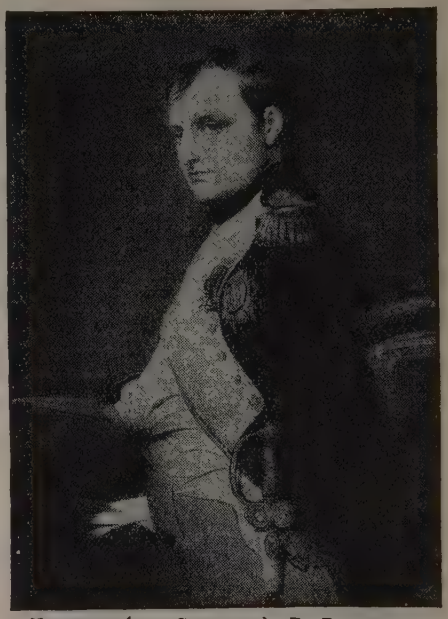
DECAMPS, ALEXANDRE GABRIEL (1803-1860). A French painter; born in Paris; studied under David and Ingres. His "Midnight Watch at Smyrna" is in the Metropolitan in New York and "The Suicide" in the Walters collection at Baltimore. His best work is at Chantilly and in London; one of the best colorists France has produced.

DEGAS, HILIARE-GERMAINE EDGARD (1834-1917). A French impressionist artist; born in Paris; a pupil of Ingres; chief works are the "Absinthe Drinkers," the "Danseuse assise," and the "Danseuse" in the Luxembourg; "The Ballet in Robert le Diable" in London.

DE HAAS, MAURICE FREDERICK HENDRICK (1832-1895). A Dutch marine painter; born in Rotterdam. In 1857 he was made artist to the Dutch navy, and in 1859 he went to New York, where he lived till his death. His best known American work is "Farragut Passing the Forts."

DE KOVEN, HENRY LOUIS REGINALD (1859-1920). An American composer; born at Middletown, Conn.; graduate of Oxford (1879); studied music and singing at Stuttgart, Florence, and elsewhere with Vanuccini, Genée, Delibes, and others; wrote operas with Harry Bache Smith as librettist, such as *The Begum*, *Robin Hood*, and *Rob Roy*; others are *Don Quixote*, *The Fencing Master*, *The Highwayman*, *The Mandarin*, and *Maid Marian*. Songs, such as "Oh, Promise Me" and "The Armorer's Song," have been very popular.

DELACROIX (*d'lah-krwaw'*), **FERDINAND VICTOR EUGENE** (1799-1863). A French painter; chief of the Romantic school; born near Paris. In 1857 he was chosen by the Institute to fill the place of Delaroche. He was an artist of great versatility. Among his works are "Lady Macbeth," "The Massacre of Scio," "Dante's Boat," and "Milton Dictating Paradise Lost."



Napoleon (the Snuffbox). By Delaroche.

DELAROCHE (*d'lah-rosh'*), **HIPPOLYTE** (familiarly styled **PAUL**) (1797-1856). A French painter; born in Paris. His signal merits consist in correct drawing, brilliant and harmonious color, and great distinctness and perspicuity in treatment, rendering the story of his pictures at once intelligible. Among them are "The Princes in the Tower," "Strafford Blessed by Archbishop Laud," "Mazarin Playing Cards," "Execution of Lady Jane Grey," "Murder of the Duke of Guise," "Joan of Arc in Prison," and numerous portraits.

DELIBES, CLEMENT PHILIBERT (1836-1891). A French composer; born at St. Germain-du-Val; wrote the music of the ballet *La source*; *Coppélia*; an opera, *Le roi l'a dit*; the ballet *Sylvia*; the grand scena *La mort d'Orphée*; and the opera *Lakmé*, in which Marie Van Zandt sang the title rôle.

DETAILLE, JEAN BAPTISTE EDOUARD (1848-1912). A French historical and military painter; born in Paris; a pupil of Meissonier. His works include "Conquerors," which won him the Legion of Honor (1872); "In Retreat," "Charge of the Cuirassiers at Morsbronn," and the "Passing Regiment" in the Corcoran Gallery at Washington; "Skirmishing near Paris" and three others in New York; and equestrian portraits of Edward VII. and the duke of Connaught.

DIXEY, HENRY EDWARD (1859-). An American actor; born in Boston, Mass.; first appeared with the Boston Athenaeum stock company in *Under the Gaslight* in 1868; played Sir Joseph Porter in *Pinafore*, Dr. Syntax in *Cinderella at School*, the Lord Chancellor in *Iolanthe*, the title rôle in *Adonis*, *The Man on the Box*, and David Garrick in *Oliver Goldsmith*.

DOMENICHINO (*do-main-e-kee'no*), **DOMENICO ZAMPIERI** (1581-1641). A distinguished Italian painter of the Bolognese school. His "Communion of St. Jerome" in the Vatican is considered among the finest works of the masters. He assisted Annibale Carracci on his Farnese frescoes at Rome.

DONATELLO or **DONATO DI NICCOLO DI BETTO BARDI** (1386-1466). One of the revivers of the art of sculpture in Italy; born and died in Florence; patronized by Cosimo de' Medici and pupil of Brunelleschi and Squarcione. His masterpiece is "St. George," for San Michele in Florence. Other works are the bronze "David," the "St. John," the bust of Niccolo da Uzzano, and "Angel with the Tambourine."

DONIZETTI (*do-nid-zet'te*), **GAETANO** (1797-1848). An eminent Italian musical composer; born at Bergamo; composed in all over 65 operas. Among them are *Lucrezia Borgia*, *Lucia di Lammermoor*, *La fille du régiment*, *La favorita*, and *Don Pasquale*.

DONOGHUE, JOHN (1853-1903). An American sculptor; born in Chicago; studied there and at the Ecole des Beaux-Arts under Jouffroy. The "Young Sophocles Leading the Chorus after the Battle of Salamis" is considered one of the masterpieces of American sculpture. It is in the Chicago Art Institute. The "St. Paul" in the rotunda of the Congressional Library, the "Seraphim," and the "Hunting Nymph" are among his best works.

DORE (*do-ray'*), **LOUIS CHRISTOPHE GUSTAVE PAUL** (1833-1883). A French draughtsman and painter; born in Strassburg. He distinguished himself greatly as an illustrator of books. His illustrations of the Bible and Milton's *Paradise Lost* are of high excellence. Doré also won fame as a sculptor.

DOW or **DOUW, GERARD** (1613-1675). A distinguished Dutch genre painter; born at Leyden; a pupil of Rembrandt. His works, which are very numerous, are the fruit of a devoted study of detail and are remarkable for delicacy and perfect finish.

DRAKE, FRIEDRICH JOHANN HEINRICH (1805-1882). A German sculptor; born at Pyrmont; executed numerous statues and busts, among others, busts of Oken, Ranke, Bismarck, and Moltke. His chief works are the "Eight Provinces of Prussia," represented by large allegorical figures, and the "Warrior Crowned by Victory." His large bronze statue of Alexander von Humboldt is in Philadelphia.

DREW, JOHN (1853-1927). An American actor; born in Philadelphia; first appeared as Plumper in *Cool as a Cucumber* at the Arch Street Theatre there (1874); joined Daly's company in 1875 and became leading man in it (1879); played with Ada Rehan in Shakespearean plays; since 1892 has played under Charles Frohman.

DUBOIS, PAUL (1829-1905). A French sculptor and painter; born at Nogent-sur-Seine. His "Florentine Singer" in the Luxembourg, his equestrian statue of "Jeanne d'Arc" at Rheims, and his "Le connétable de Montmorency" at Chantilly are his chief works.

DUCCIO DI BUONINSEGNA (about 1260-1340). An Italian painter; founder of the Sienese school; born in Siena; learned his art at the hands of the best Byzantine masters. He became a master of composition, perspective, grouping, and light. His altarpiece, "Virgin and Child Enthroned," and "Life of Christ" in 27 scenes, in Siena; the "Transfiguration," "Annunciation," "Healing the Blind," and "A Madonna and Child" in London are his chief works. He was the first Italian painter of genius.

DUPRE, JULES (1811-1889). A French painter; born in Nantes. He is one of the most original and powerful of the French school. His landscapes are very popular in this country. He was the most prominent of the Fontainebleau artists of 1830, known as the Romantic or Natural school, which included Rousseau, Corot, Delacroix, Millet, and others.

DURAND, ASHER BROWN (1796-1886). An American painter; born at Jefferson, N. J.; an engraver until 1835; painted a series of heads of the presidents; took up landscape work and with Cole was the earliest of the first American school of landscape artists; founder of the National Academy and its president (1845-1861); chief works, "The Catskills from Hillsdale," "Harvey Birch and Washington," "A Mountain Forest," and "Kaaterskill Clove."

DURER (*doo'rair*), **ALBRECHT** (1471-1528). A German engraver and painter; born at Nuremberg. He is considered one of the earliest etchers. Among his more important copperplates (1494-1504) are "Adam and Eve," "The Nativity," "The Great Horse," and "The Little Horse." His magnificent woodcuts of the "Apocalypse" and the "Prodigal Son" were made about 1500. His paintings, "The Adoration of the Magi" in the Uffizi, the portrait of himself in Munich, the "Crucifixion" at Dresden, and "The Feast of the Rosary," and his portraits, including that of "Jerome Holzschuher" and "The Four Evangelists," are a few of the works of a man who ranks in the history of art with Leonardo da Vinci and Michelangelo.

DUSE (*doo'sa*), **ELEANORA** (1859-1924). An Italian actress; born in Vigevano. She has played in all the principal countries of Europe and visited the United States. She has played Juliet, Frou-frou, La Femme de Claude, Magda in *Heimat*, Santuzza in *Cavalleria Rusticana*, Mirandolina in *La locandiera*, Marguerite Gautier in *La dame aux camélias*, *Giaconda*, and *Francesca da Rimini*.

DUVENECK, FRANK (1848-1919). An American artist; born in Covington, Ky.; studied in Munich under Dietz. He has exercised a great influence on American art as an instructor. In 1875 his group of portraits was exhibited at the Boston Art Club. His "Turkish Page," "Circassian," "Italian Girl," "The Professor," and many etchings of Venetian subjects are among his best works.

DVORAK (*dvor'zhahk*), **ANTONIN** (1841-1904). A Bohemian composer; born near Kralup. Attention was first called to him by what remains his best work, a *Stabat Mater*, the most modern and one of the finest settings of this hymn. He came to the United States in 1892, and became director of the National Academy of Music in New York City until 1899; director of the Prague Conservatory (1901). His symphony *From the New World* was produced in New York in 1893. He has utilized the Hungarian music with all of its rhythms, intervals, sudden transitions, and wealth of harmony in his chamber music and songs.

EAMES, EMMA (1867-). A talented and popular American soprano; born in Shanghai, China; studied in Boston, Mass., under Miss Munger, in Paris under Mme. Marchesi, and in Brussels under Gevaert; made her début in Paris in *Romeo and Juliet*, having been rehearsed by Gounod himself (1889); became a prima donna at the Metropolitan Opera House in New York in the grand operas, especially in Wagnerian rôles, in which she has achieved great success.

EICHBERG, JULIUS (1824-1893). A German-American violinist and composer; born at Düsseldorf; studied under Fröhlich and Rietz; professor of violin and composition at the Geneva Conservatory; emigrated to Boston, Mass. (1856); director of the Boston Conservatory and superintendent of instrumental music in Boston public schools; wrote four operettas, including *The Doctor of Alcantara*, and many pieces for violin.

ELGAR, SIR EDWARD (1857-). An eminent English music composer; born and educated at Worcester; son of W. H. Elgar, organist for many years of St. George's Roman Catholic Church there; attended Worcester Glee Club from boyhood; learned the violin and occasionally led the orchestra; bandmaster of the county lunatic asylum; began to compose in 1883. Among his more than 50 works is the setting of Cardinal Newman's hymn, "The Dream of Gerontius." A three-day Elgar festival was held at Covent Garden, London, in 1904, in which year he was knighted. *The Apostles* was produced at Birmingham Festival in 1903, and at Cologne in 1904; oratorio, *The Kingdom*, in 1906, and a symphony in 1908.

ELSON, LOUIS CHARLES (1848–1920). An American critic and teacher of music; born in Boston, Mass.; studied under Glöggner at Leipzig; professor and lecturer at the New England Conservatory of Music; wrote *Curiosities of Music*, *History of German Song*, *The Great Composers*, *Woman's Work in Music*, *Modern Composers of Europe*, and *History of American Music*; *Folksongs of Many Nations*; *Elson's Musical Dictionary*; he has contributed many articles on music to newspapers and magazines; also lecturer at Lowell Institute and the colleges.

ELWELL, FRANK EDWIN (1858-1922). An American sculptor; born at Concord, Mass.; studied under French at Boston and Falguière at Paris; settled in New York (1885); chief works are "Death of Strength," "Diana and the Lion," "Egypt Awaken-

ing," and "Dickens and Little Nell," which is in Fairmount Park, Philadelphia.

EMERY, STEPHEN ALBERT (1841-1891). An American musician; born in Paris, Maine; studied at Leipzig and at Dresden under Spindler; instructor in harmony at the New England Conservatory of Music (1867-1891); teacher of Parker, Foote, Hadley, and Nevin.

EMMETT, DANIEL DECATUR (1815-1904). An American negro minstrel and song composer; born at Mt. Vernon, Ohio; organized the "Virginia Minstrels" with Frank Brown, Whitlock, and Phelam (1842), opening at the Chatham Square Theatre in New York; wrote "Dixie" (1859), "Old Dan Tucker," "The Road to Richmond," "Boatman's Dance," and "Walk Along, John."

ESSIPOFF, ANNETTE (1851-) A Russian pianist; born at St. Petersburg; considered one of the best women performers of the day. From the strength of her hands and the vigor of her playing she has been called "iron wrists"; married her teacher, Leschetitzky (1880); visited the United States in 1876; professor at the St. Petersburg Conservatory (1893).

ETTY, WILLIAM (1787-1849). An English painter; born in York; studied under Lawrence and in Venice; R. A. in 1828. Among his works, which are marked by beauty and brilliance of color, are "Cleopatra" and "Youth on the Prow and Folly at the Helm."

EYCK, HUBERT VAN (about 1370-1426), **JAN VAN EYCK** (about 1390-1440), and **MARGARET VAN EYCK** (about 1377-1430). Eminent Flemish artists; founders of the early Flemish school; born at Maaseyck on the Maas. They were two brothers and sister. Tradition says they discovered the art of oil painting, but the art was known in the twelfth century. They discovered drying mediums and brilliant coloring. Their works include "The Adoration of the Lamb" at Ghent by Hubert; two said to have been painted by Jan are in the Metropolitan Museum in New York; Margaret, a member of the order of Our Lady of Ghent, led a retired life. She is believed to have painted a series of miniatures for the missal of the duke of Bedford.

EZEKIEL, MOSES (JACOB) (1844-1917). An American sculptor; born in Richmond, Va.; served in the Confederate army; studied sculpture at Berlin; won admission to the Society of Artists by his colossal bust of Washington; took the Michael Beer prize—the first foreigner to win it; settled in Rome. His "Religious Liberty" in Fairmount Park at Philadelphia, "Apollo and Mercury" in Berlin, "Judith" in Cincinnati, and the Jefferson monument at Louisville, Ky., are the best examples of his work.

FABRIANO, GENTILE DI NICCOLI DI GIOVANNI MASSI DA, or **GENTILE DA FABRIANO** (1360-1428). An Italian painter; the first great master of the Umbrian school. His chief work is the "Adoration of the Kings" for the Church of the Trinità at Florence.

FAED, JOHN (1819-1902). A Scottish painter; born at Burley Mill; a miniature painter in Edinburgh (1841-1849); settled in London; chief works are "The Cottar's Saturday Night," "Shakespeare and his Contemporaries," "The Soldier's Return," "The Morning after Flodden," and "An Incident of Scottish Justice."

FAED, THOMAS (1826-1900). Brother of John Faed; born at Burley Mill; distinguished himself in his art studies at Edinburgh; went to London (1852), where his pictures of Scottish life won him a foremost place among those of his contemporaries. Among his works are "The Mitherless Bairn," "The First Break in the Family," "Faults on Both Sides," "In Time of War," and "Annie's Tryst."

FALGUIERE, JEAN ALEXANDRE (1831-1900). A French sculptor; pupil of Jouffroy; born at Toulouse. His chief works are "The Winner of the Cockfight," "The Young Martyr Tarcisius," "St. Vincent de Paul," "Lamartine," "Eve," "Progress Abasing Error," and "Poet Holding a Lyre."

FANTIN-LATOUR, IGNACE HENRI JEAN THEODORE (1836-1904). A French painter; born at Grenoble; friend of Ingres, Delacroix, Corot, Millet, Courbet, Leighton, and Millais; excelled as a portrait painter and in the delicate drawing of flowers. His works include "Hommage à Delacroix," "Manet's Study at Batignolles," "Coin de table," "Autour du piano," "Scene from Tannhäuser," "Temptation of Saint Anthony," and "Prelude to Lohengrin."

FARINELLI or **CARLO BROSCHI** (1705-1782). An Italian male soprano of remarkable compass and power; made his début at Rome; went to England (1734); to Spain (1738); banished by Charles III. and went to Bologna (1759).

FASSETT, CORNELIA ADELE (1831-1898). An American portrait painter; born at Owasco, N. Y.; studied in New York, Paris, and Rome; settled in Chicago (1855); member of the Academy of Design there (1873); lived in Washington, D. C., after 1875; painted portraits of such celebrities as Garfield, Chief Justice Waite, and Clara Barton. Her "Electoral Commission in Open Session" is in the Capitol.

FECHTER, CHARLES ALBERT (1824-1879). An Anglo-French actor; born at Paris. He excelled in *Ruy Blas, The Corsican Brothers, Hamlet, Othello, Duke's Motto,* and *No Thoroughfare*; came to the United States in 1870, where his acting was most popular, but his attempts at management were unsuccessful.

FERRUZZI, ROBERTO (1854-). A modern Venetian painter. His "Madonina" was exhibited at the International Art Exposition at Venice in 1887 and excited a great deal of admiration.

MADONINA. BY ROBERTO FERRUZZI.

FEUERBACH, ANSELM VON (1829-1880). A German painter; born at Speyer; studied at Düsseldorf, Munich, Antwerp, Paris, Vienna, and Rome. Among his works are "Hafiz at the Well," "Death of Pietro Aretino," "Iphigenia in Tauris," "Pietà," and "The Titans," a ceiling design in the Museum of Modeling at Vienna.

FIELD, JOHN (1782-1837). A British composer; born in Dublin; remembered for his "nocturnes," which greatly influenced Chopin.

FILDES, SAMUEL LUKE (1844-). An English artist; born at Liverpool; contributed to various magazines and illustrated books, notably Dickens's *Edwin Drood.* His most noted pictures are "The Poor of London," "The Widower," and "The Doctor."

FISKE, MINNIE MADDERN (1865-). An American actress; born at New Orleans, La.; played Françoise in *Richelieu* when only 12 years old; at 16 appeared as a star in *Fogg's Ferry*; married Harrison Grey Fiske, editor of the New York *Dramatic Mirror* (1890); played the title rôles in *Tess of the d'Urbervilles, Becky Sharp, Leah Kleschna,* and *Rosmerholm.*

FITCH, WILLIAM CLYDE (1865-1909). An American dramatist; born in New York City; was graduated at Amherst (1886); wrote *Beau Brummel, Pamela's Prodigy, The Moth and the Flame, Nathan Hale, Barbara Frietchie, The Cowboy and the Lady, The Climbers, The Last of the Dandies, Major André, The Woman in the Case,* and many adaptations.

FLAGG, GEORGE WHITING (1816-1897). An American painter; born in New Haven, Conn.; nephew

and pupil of Washington Allston; lived in London for some years; settled in New York; member of the National Academy (1861). Among his works are "Columbus and the Egg," "Haidee," "Washington Receiving his Mother's Blessing," and "Landing of the Pilgrims."

FLANDRIN (*flon-dran'*), **JEAN HIPPOLYTE** (1809-1864). A French painter; born in Lyons, France. Among his chief works are the fine series of frescoes in the churches of St. Germain-des-Près and St. Vincent de Paul, Paris, which are reckoned among the masterpieces of modern painting. He was the favorite pupil of Ingres, and his works show a mystic tendency. "Christ Going up to Jerusalem," "Christ Going to Calvary," and "Recognition of Theseus" are among his best works.

FLAXMAN, JOHN (1755-1826). An English sculptor and draughtsman; born in York. The monuments to Nelson and Howe in St. Paul's are by his hand. One of his finest productions is the "Shield of Achilles"; elected R. A. (1800); and professor of sculpture (1810).

FLOTOW, FREDERICK FERDINAND ADOLPHUS VON (1812-1883). A German composer of operas; born at Teutendorf. His best known work is *Martha*. The best among his later operas are *Indra*, *La veuve Grapin*, and *L'ombre*.

FOLEY, JOHN HENRY (1818-1874). An Irish sculptor; born in Dublin. The most popular of his works is a statue of Selden placed in the new palace of Westminster, considered his masterpiece. Among his other works of great merit are "Death of Abel," "Innocence," "Ino and Bacchus," "Youth at the Stream," "Caractacus," "Egeria," "O'Connell," "Goldsmith," "Burke," "Asia," and "Prince Consort." He designed the seal for the Confederate States. His last work was a bronze statue of Stonewall Jackson for South Carolina.

FONTA'NA, DOMENICO (1543-1607). An Italian architect. Under Pope Sixtus V. he erected the Egyptian obelisk in front of St. Peter's, Rome (1586), and later built the Lateran Palace, the Vatican Library, and the Royal Palace at Naples.

FOOTE, ARTHUR WILLIAM (1853-). An American musician and composer; born at Salem, Mass.; studied under Paine; settled in Boston and studied under Lang; organist of the First Unitarian Church at Boston (1878). Among his works are chorus and orchestra accompaniment to Longfellow's *Farewell of Hiawatha*, *Wreck of the Hesperus*, and *Skeleton in Armor*; overtures; piano music; and vocal works.

FORBES, STANHOPE ALEXANDER (1857-). An Irish painter; born in Dublin; studied under Bonnat in Paris; elected A. R. A. (1892). Among his works are "The Fish Sale," "Forging the Anchor," and "The Smithy."

FORBES-ROBERTSON, JOHNSTON (1853-). English actor; born in London; played Romeo to Modjeska's Juliet, Claudio, Launcelot, Buckingham, Lucas Cleeve in *The Notorious Mrs. Ebbsmith*, Romeo to Mrs. Patrick Campbell's Juliet, Constantine Brancomir in *For the Crown*, and *Hamlet* and *Macbeth*. Visited the United States and Canada (1909-1910).

FORREST, EDWIN (1806-1872). An American actor; born in Philadelphia, Pa. He played with remarkable success in Europe and the United States; in 1871 retired from the stage. His first appearance was at the Walnut Street Theatre in Philadelphia as young Norval in Home's *Douglas* (1820). He played Shakespearean rôles in New York with great success. In 1849 the jealousy between him and Macready culminated in the Astor Place riots, which caused the 7th Regiment to be called out, and resulted in the death of a score of people and the wounding of many more.

FORRESTER, ALFRED HENRY, or ALFRED CROWQUILL (1804-1872). An English artist; born in London; noted for his contributions to *Punch* and *The Illustrated London News*.

FORTUNY Y CARBO, MARIANO JOSE MARIA (1839-1874). A Spanish painter; born at Réus, Catalonia; studied at Rome. His "Mendicant," "Don Quixote," "The Hindu Snake Charmer," and "An Ecclesiastic" are in Baltimore. His "Camels at Rest," "The Serpent Charmer," and a "Lady in Black" are at the Metropolitan Museum in New York. "The Court Jester" and the "Arabian Fantasia" are in private collections in New York.

FOSTER, BENJAMIN (1852-1926). An American landscape and animal painter; born at North Anson, Me.; studied under Thayer in New York and with Merson and Morot in Paris; is especially strong in his hazy moonlit scenes and in seascapes; member of the National Academy (1904) and of its Council (1905).

FOSTER, STEPHEN COLLINS (1826-1864). An American song writer; born near Pittsburg, Pa. He composed the music and wrote the words of over 125 popular songs and melodies, such as "Old Folks at Home," "Nellie Bly," "Old Black Joe," "Nelly was a Lady," "Massa 's in the Cold, Cold Ground," and "Come Where My Love Lies Dreaming."

FOUCQUET, JEAN (1415-about 1485). A French painter; born at Tours; studied in Italy; court painter to Louis XI. He was a very great artist in his time. Among his works are a miniature "Adoration of the Magi" at Chantilly, portraits at Paris and Berlin, and a series of 40 miniatures for Etienne Chevalier's *Book of Hours*.

FOWLER, FRANK (1852-1910). An American painter; born in Brooklyn, N. Y.; studied with Edward White at Florence, with Carolus Duran and at the Ecole des Beaux-Arts in Paris; assisted Carolus Duran on a ceiling for the palace of the Luxembourg, now in the Louvre; settled in New York (1879); member of the National Academy (1899); noted for his portraits of celebrities and a decorative ceiling in the ball room of the Waldorf-Astoria.

FRANCIA or **FRANCESCO RAIBOLINI** (1450-1517). An Italian painter; born at Bologna. His best work is seen in his madonnas. He came very near to being a genius.

FRANZ, ROBERT (1815-1892). A German musician; born in Halle, Prussia. He was famous for his songs, which were of a peculiar lyric beauty and number about 250. His first published composition appeared in 1843. His later years were spent in editing the works of Bach, Handel, and others.

FREER, FREDERICK WARREN (1849-1908). An American artist; born at Chicago; studied in Munich; settled in New York (1880); associate of the National Academy. Among his chief works are "Souvenir of Gainsborough," "In Ambush," "Behind the Fan," "A Lady in Black," and "The Mirror"; removed to Chicago (1890) and taught in the Art Institute.

FREMIET, EMMANUEL (1824-1910). A French sculptor; born in Paris; nephew and pupil of Rude. Among his best works are "Joan of Arc" at Paris, "Joan of Arc" and "Condé" at Nancy, "Velasquez" at Paris, "Lesseps" at the entrance to the Suez Canal, and "Gorilla Carrying off a Woman."

DEATH AND THE YOUNG SCULPTOR. BY FRENCH. Milmore Memorial, Forest Hills Cemetery, Boston.

FRENCH, DANIEL CHESTER (1850-). An American sculptor; born at Exeter, N. H.; studied with J. Q. A. Ward and in Florence and Paris. Among his works are "Minute Man"; busts of Emerson, Alcott, Hunt, and John Boyle O'Reilly; groups on the St. Louis Customhouse, the Philadelphia Courthouse, the Boston Post Office, and the New York Customhouse; "The Angel of Death and the Young Sculptor," "The Republic," and "Alma Mater" at Columbia University; statues of John Harvard, Rufus Choate, Thomas Starr King, and General Cass. His "Washington" in collaboration with Potter was presented to France by the

Daughters of the Revolution. His group of "Doctor Gallaudet and his First Deaf Mute Pupil" is in Washington.

FRITH, WILLIAM POWELL (1819-1909). An English painter; born at Aldfield, Yorkshire; elected A. R. A. (1845) and R. A. (1853). Among his best works are "Ramsgate Sands," "The Derby Day," "The Railway Station," "The Marriage of the Prince of Wales," and "The Road to Ruin."

FROHMAN, CHARLES (1858-1915). An American theatrical manager; born in Sandusky, Ohio; began at 18 as manager of one of Haverly's minstrel troupes; leased Madison Square Theatre (1890); opened the Empire with Belasco's *The Girl I Left Behind Me* (1893); manager, lessee, or owner of several theaters in New York and London; perished on the Lusitania.

FROHMAN, DANIEL (1853-). An American theatrical manager; born at Sandusky, Ohio; brother of Charles Frohman; began as manager of the Lyceum in New York (1884); leased Daly's (1898); opened the New Lyceum (1903).

FROMENTIN, EUGENE (1820-1876). A French painter and writer; born in La Rochelle. His "Crossing the Ford" and "Arabs Watering Horses" are in New York, and his "Encampment in the Atlas Mountains" is in Baltimore. His *Les maitres d'autrefois* is the sole masterpiece of art criticism published in France in the nineteenth century.

FROST, ARTHUR BURDETT (1851-1928). An American illustrator; born in Philadelphia, Pa.; studied in Paris. Among his illustrations are those in Frank Stockton's *Rudder Grange* and collected volumes *Stuff and Nonsense*, *The Golfer's Alphabet*, and *Book of Drawings*.

FULLER, GEORGE (1822-1884). An American painter; born at Deerfield, Mass.; studied under Henry Kirke Brown at Albany, N. Y., and abroad; noted for his portraits. Among his other works are "A Turkey Pasture in Kentucky," "And She was a Witch," and "Winifred Dysart"; member of the National Academy (1857).

FURNESS, WILLIAM HENRY, JR. (1828-1867). An American portrait painter; born in Philadelphia, Pa.; studied in Düsseldorf under Leutze.

FURNISS, HARRY (1854-1925). An English caricaturist; born at Wexford; special artist on *The Illustrated London News* and on *Punch's* "Essence of Parliament."

FURSCH-MADI, EMMA (1847-1894). A French soprano singer; born at Bayonne; sang the leading soprano parts in *Aïda*, *Don Giovanni*, *Huguenots*, *Trovatore*, and others in France, England, and in the United States from 1884 till 1894.

GADE, NIELS WILHELM (1817-1890). A Danish musical composer; born at Copenhagen; studied at Leipzig and formed a friendship with Mendelssohn; with Hartmann founded the conservatory at Copenhagen (1865). His best works include *Michael Angelo*, an overture; eight symphonies; several compositions for piano and for strings; and cantatas, such as *Spring Message*, *Spring Fantasy*, *Psyche*, and *The Erl-King's Daughter*.

GADSKI (TAUSCHER), JOHANNA (1872-). A German soprano singer; born at Anclam; sang Brunhilde in the Metropolitan Opera House at New York (1896) and for several years sang leading parts there; a popular singer of German *Lieder*. She is greatest in Brunhilde in the *Ring*, Eva in *Die Meistersinger*, and Senta in *The Flying Dutchman*.

GAINSBOROUGH (*gainz'bro*), **THOMAS** (1727-1788). An eminent English landscape and portrait painter; born at Sudbury; became a fashionable portrait painter at Bath (1760); one of the 36 original members of the Royal Academy; settled in London (1774). He painted more than 300 canvases, of which 220 were portraits. The portrait of the "Duchess of Devonshire" was bought for £10,065. It was cut from the frame in the galleries of Thomas Agnew and Sons by a thief (1876) and recovered in the United States (1901). It is now in the collection of Mr. J. Pierpont Morgan of New York. "A Landscape with Figures" is in the Chicago Art Institute; and two "Landscapes," "Mr. Burroughs," and "A Child with Cat" are in the Metropolitan Museum at New York.

GALLAIT, LOUIS (1810-1887). A Belgian painter; born at Tournai; chief works are "Render unto Caesar the Things which are Caesar's," "Christ Healing a Blind Man," "Abdication of Charles V.," "Egmont Preparing for Death," "Alva Looking upon the Bodies of Egmont and Horn," "The Last Moments of Count Egmont," and "The Plague of Tournai."

GARCIA, MANUEL DEL POPOLO VICENTE (1755-1832). A noted Spanish tenor singer and composer; born at Seville. He spent his closing years in Paris as a teacher of singing, his voice being greatly impaired by age as well as fatigue. His eldest daughter was the celebrated Madame Malibran.

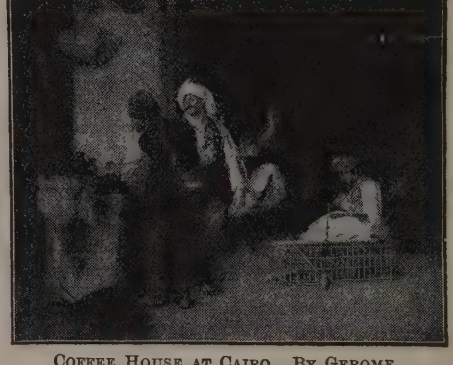
GARRICK, DAVID (1717-1779). A distinguished English tragedian; born at Hereford; pupil of Samuel Johnson; played Richard III. (1741); remained at Drury Lane Theatre in London for 30 years; buried in Westminster Abbey.

GAVAR'NI, PAUL (1801-1866). The *nom de plume* of **SULPICE GUILLAUME CHEVALIER**, caricaturist; born in Paris. Most of his best work appeared in *Le Charivari*, but some of his bitterest and most earnest pictures, the fruit of a visit to London, appeared in *L'Illustration*. He also illustrated Balzac's novels and Sue's *Wandering Jew*.

GAY, EDWARD (1837-). An American artist; born in Dublin, Ireland; brought to America (1848); studied under James Hart at Albany, N. Y., and under Lessing at Düsseldorf; settled in New York (1867); member of the National Academy (1870). His "Broad Acres" won the Metropolitan prize of $2,000 in 1887 and is now in the Metropolitan Museum at New York.

GAY, WALTER (1856-). An American artist; born at Hingham, Mass.; studied with Bonnat in Paris. His "Fencing Lesson" was exhibited at the Salon (1879); his "Bénédicité" was purchased by the French government and given to the Amiens museum; his "Las cigarreras" is in the Luxembourg; his "Spinners" is in the Metropolitan Museum at New York; and there are some highly representative pieces in the Tate collection in London and in the Boston Museum of Fine Arts.

GERARD, FRANCOIS PASCAL SIMON, BARON (1770-1837). A French painter; born at Rome, of French and Italian parentage. In 1795 his "Blind Belisarius" brought him to the front, while subsequent work as a portrait painter raised him above all his contemporaries. His masterpiece, "Entry of Henry IV. into Paris," brought him a barony at the hands of Louis XVIII. His historical paintings, characterized by minute accuracy of detail, include "Napoleon in his Coronation Robes" and "Battle of Austerlitz."



COFFEE HOUSE AT CAIRO. BY GEROME.
In the Metropolitan Museum of Art, New York.

GERICKE, WILHELM (1845-1925). A German orchestra conductor; born at Gratz, Austria; studied at the Vienna Conservatory and with Dessoff and Hans Richter; conductor at Linz (1865); second conductor at Vienna under Richter (1874); succeeded Brahms as conductor of the Gesellschaftconcerte in Vienna (1880); succeeded Georg Henschel as conductor of the Boston Symphony Orchestra (1884-1889); returned to Vienna on account of ill health until 1898, when he succeeded Emil Paur in the Boston Symphony Orchestra until his resignation in 1906.

GEROME (*zhay-rome'*), **JEAN LEON** (1824-1904). A celebrated French painter and sculptor; born at Vesoul. He studied at Paris under Paul Delaroche.

with whom he subsequently traveled in Italy. Among his most famous pictures, all characterized by vivid coloring and strong dramatic effect, are "The Age of Augustus and the Birth of Christ," "Roman Gladiators before Caesar," and "Cleopatra and Caesar." His "Abyssinian Chief" and "Sheik at Devotions" are at the Metropolitan Museum; "Louis XIV. and the Grand Condé" is also in New York; "The Duel after the Masquerade" is in the Walters collection at Baltimore; and his "Caesar Dead" is in the Corcoran Art Gallery in Washington.

GHIBERTI (*ge-bair'te*), **LORENZO** (1378-1455). An Italian sculptor and designer; born at Florence. His most famous achievement, which immortalized his name, was the execution of two doors with bas-relief designs in the baptistery at Florence. He spent 21 years at this work, and so noble were the designs and so perfect the execution that Michelangelo declared them fit to be the gates of Paradise.

GHIRLANDAJO, DOMENICO DI TOMMASO CORRADI DE BIGORDI (1449-1494). An Italian painter; born at Florence. He was a painter of amazing facility, as shown by his "Visitation" in the Louvre; his "Adoration of the Magi" in the Church of the Innocents at Florence; his "Birth of John the Baptist" in the Church of Santa Maria Novella at Florence; and his fresco, "The Last Supper," in the Church of the Ognisanti at Florence.

GIBSON, CHARLES DANA (1867-). An American artist; born at Roxbury, Mass.; studied at the Art Students' League in New York; contributor in black and white for many years to *Life*; studied in Julien's studio in Paris; developed the American girl or the "Gibson girl." In 1906 he began the study of color work in Europe.

GIBSON, JOHN (1790-1866). An English sculptor; born at Gyffin, near Conway, Wales. He took to carving in wood and stone, and supported by Roscoe became a pupil of Canova and afterwards of Thorwaldsen in Rome. His best works are "Theseus and the Robber"; "Amazon Thrown from Her Horse"; statues of George Stephenson, Peel, and Queen Victoria; "The Hunter and the Dog"; "The Tinted Venus"; "Pandora"; "Mars and Cupid"; and "Hero and Leander." The only pupil he ever had was Harriet Hosmer, the American sculptor.

GIFFORD, ROBERT SWAIN (1840-1905). An American artist; born on Naushon Island, Mass.; studied with Albert van Beest in Rotterdam, Holland; painted mostly landscapes of scenes along the coast of New England.

GIFFORD, SANFORD ROBINSON (1823-1880). An American artist; born in Greenfield, N. Y.; traveled and studied abroad. His works include "San Giorgio," "Venice," "Ruins of the Parthenon," "Tivoli," "The Golden Horn," "Morning on the Adirondacks," "Sunset on the Hudson," and "Mount Rainier."

GILBERT, ANNE HARTLEY (1821-1904). An American actress; born at Rochdale, England; came to America in 1849; played Mrs. Hardcastle to W. E. Burton's Tony Lumpkin at Cleveland (1857); was most successful in "old woman" parts.

GILBERT, SIR JOHN (1817-1897). An English artist; born at Blackheath, London; an illustrator of books, among the number an edition of Shakespeare; illustrated also Longfellow's *Poems* (1858) and an edition of *Evangeline* (1856); contributed to the *Illustrated London News* and the London *Journal*; elected R. A. in 1876. He was a chevalier of the Legion of Honor.

GILLETTE, WILLIAM HOOKER (1855-). An American actor and playwright; born at Hartford, Conn.; played *The Private Secretary, The Professor, Esmeralda, A Legal Wreck, Held by the Enemy, Too Much Johnson, Mrs. Wilkinson's Widows, All the Comforts of Home, Because She Loved Him So, Clarice Morland, Secret Service*, and *Sherlock Holmes*, all his own plays, in which he took the leading part.

GIORGIONE or **GIORGIO BARBARELLI** (about 1478-1511). A Venetian painter; born at Castelfranco. He was one of the seven supreme colorists of the Renaissance; studied with Giovanni Bellini. His authentic works are "The Madonna with Saints Francis and Liberale" at Castelfranco, "The Sleeping Venus" at Dresden, "Fête Champêtre" in the Louvre, "The Family of Giorgione," "The Three Philosophers," and "The Concert."

GIOTTO (*jot'to*) **DI BONDONE** (1266-1337). A great Italian painter; born at a village near Florence; was a shepherd's boy. While tending his flock and drawing pictures of his sheep, it is said he was discovered by Cimabue, who took him home and made a pupil of him. That he was a pupil of Cimabue is now discredited. Ruskin says of him: "His special character among the great painters of Italy was that he was a practical person; what others dreamed of he did; he could work in mosaic, he could work in marble, and paint; could build . . . built the Campanile of the Duomo, because he was then the best master of sculpture, painting, and architecture in Florence, and supposed in such business to be without a superior in the world."

GIULIO ROMANO (*joo'le-o ro-mah'no*) (properly **GIULIO PIPPI DE' GIANNUZZI**) (1492-1546). An Italian artist; born in Rome; assisted Raphael in the execution of several of his finest works, especially in the Vatican series known as "Raphaël's Bible." "The Battle of Constantine" and the "Apparition of the Cross" in the Sala di Constantino are Giulio's own work.

GLUCK (*glook*), **CHRISTOPH WILLIBALD RITTER VON** (1714-1787). A German composer. He conjoined with himself in his labors the poet Ranieri di Calzabigi, and his opera, *Orpheus and Eurydice*, was received with tumults of applause. In 1774 he went to Paris and presented there successively several masterpieces, including *Alcestis, Paris and Helen, Iphigenia in Aulis, Armida, Bauci e Filemone*, and *Echo and Narcissus*.

GOLDMARK, KARL (1830-1915). An Austrian composer; born at Keszthely, Hungary. Among his works are *The Queen of Sheba*; his symphony, *The Country Wedding*; *The Cricket on the Hearth*; and *Merlin*.

GOMEZ, SEBASTIANO (1616-1690). A Spanish painter; a slave of Murillo, who liberated him and took him into his studio.

GOODWIN, NATHANIEL CARL (1857-1919). An American actor; born at Boston, Mass.; played a minor part in *Law of New York* at the Howard Athenaeum in Boston (1876), Captain Dietrich in *Evangeline*, in *Hobbies, The Mascot, Pinafore, Cinderella at School, In Mizzoura, David Garrick*, and *Nathan Hale;* is to be the star in *The Prodigal Father*, 1910.

GOTTSCHALK, LOUIS MOREAU (1829-1869). An American pianist and composer; born at New Orleans, La.; studied at Paris under Hallé, Stamaty, and Maleden; played with phenomenal success all over the United States after 1853. Among his 100 compositions are *Bananier, Cradle Song, Last Hope*, and a *Tarantella* for piano and orchestra.

GOUJON (*goo-zhon'*), **JEAN** (about 1515-1572). A French sculptor and architect; born in Paris. He was the author of what is considered the masterpiece of French sculpture, the "Huntress Diana," now in the Louvre collection, and the "Fontaine des Innocents."

GOULD, THOMAS R. (1818-1881). An American sculptor; born in Boston, Mass.; studied under Seth Cheney and in Florence. Bust of "Satan" and of "Christ"; portrait busts of Emerson, Booth, and John A. Andrew; and the statue of John Hancock in the town hall of Lexington are among his best works.

GOUNOD (*goo-no'*), **CHARLES FRANCOIS** (1818-1893). A French composer; born in Paris. In 1859 he produced *Faust*, his chief work, which attained European popularity, and raised its composer to the foremost rank of contemporary musicians. From 1870 to 1875 he resided in England. His other works include *Sapho, Messe solennelle, Philemon and Baucis, Mireille, Romeo and Juliet, Cinq Mars, Polyeucte, La rédemption*, and *Mors et vita*.

GOYA Y LUCIENTES, FRANCISCO JOSE DE (1746-1828). A Spanish painter; born near Saragossa; friend of Louis David at Rome; painted the portrait of the duke of Wellington. His etchings and aquatints are much finer than his sacred subjects. His three best styles are adequately shown by "The Picnic," "The Bewitched," and "A Portrait" in the National Gallery at London.

GOZZOLI, BENOZZO (1420-1498). An Italian painter; born at Florence; pupil of Fra Angelico; assisted Ghiberti in bronze work; painted the immense frescoes in the Church of Saint Agostino at San Gemignano, and the vast series of frescoes in the Campo Santo at Pisa.

GRAU, MAURICE (1849-1907). A German-American opera manager; born at Brünn in Moravia; brought to the United States in 1854; brought Aimée to America in 1872; formed the Clara Louise Kellogg Opera Company (1873); managed the tours of Salvini, Rubinstein, Patti, Bernhardt, Irving, Jane Hading, Mounet-Sully, and Mme. Réjane; manager of the Metropolitan Opera House at New York (1897-1903).

Head of a Young Girl. By Greuze.

GREENOUGH (*green'oh*), **HORATIO** (1805-1852). An American sculptor; born in Boston, Mass.; studied four years at Harvard; from 1825 spent the greater part of his life in Italy. His "Venus Victrix" is in the Boston Athenaeum, and his colossal statue of Washington, his principal work, in front of the National Capitol.

GREUZE, JEAN BAPTISTE (1725-1805). A French painter; born at Tournus, near Mâcon; elected to the Academy (1769). His portraits and heads are the more esteemed of his works. The Wallace collection at London has the greatest number of his works; several are in the Louvre; and some in the Metropolitan Museum at New York.

GRIEG, EDVARD HAGERUP (1843-1907). A Norwegian composer and pianist; born at Bergen, of Scottish ancestors. His works include orchestral suites, cantatas, quartets, trios, sonatas for violin and for violoncello, songs, and compositions for the piano.

GUERIN, PIERRE NARCISSE, BARON (1774-1833). A French painter; born at Paris; pupil of Regnault and influenced by David; chief works are "The Return of Marcus Sextus," "Phedra Accusing Hippolytus," "Orpheus at the Tomb of Eurydice," "Andromache," "Clytemnestra," "Aeneas and Dido," and "Bonaparte Pardoning the Rebels at Cairo." He exhibited at Salons (1799-1819).

Mater Dolorosa. By Guido Reni.

GUIDO RENI (1575-1642). An Italian painter of the school of Bologna; best known by his masterpiece "Aurora and the Hours" at Rome, painted on a ceiling; his unfinished "Nativity" at Naples; the "Crucifixion of St. Peter" in the Vatican; the "Madonna della Pietà," the "Crucifixion," and the "Massacre of the Innocents" at Bologna; and "St. Paul the Hermit" and "St. Anthony in the Wilderness" in Berlin.

Aurora. By Guido Reni.
In the Rospigliosi Palace, Rome.

HACKETT, JAMES HENRY (1800-1871). An American actor; born in New York City. He was particularly successful in impersonating Yankees and Westerners, but was best known by his Falstaff, which he played first about 1832. He wrote *Notes and Comments on Shakespeare.*

HACKETT, JAMES KETELTAS (1869-1926). An American actor; born at Wolf Island, Ontario; first appeared with A. M. Palmer's company (1892). His

successes have been in *The Prisoner of Zenda*, *Rupert of Hentzau*, *The Pride of Jennico*, *Don Caesar's Return*, and *The Walls of Jericho*.

HADING, JANE, or **JEANNE ALFREDINE TREFOURET** (1859-). A French actress; born at Marseilles; one of the most famous *comédiennes* of her day; accompanied Coquelin to America (1888 and in 1894); played Claire in Ohnet's *Maître de Forges*, Sapho, Frou-frou, Comtesse Sara, and in *The Second Mrs. Tanqueray*.

Ecce Homo. By Guido Reni.

HALEVY (*ah-lay-vé'*), **JACQUES FRANCOIS** (1799-1862). A French operatic composer; born at Paris; became a student at the Conservatoire; wrote a number of operas, of which *La Juive* and *L'éclair* were the best.

HALS, FRANZ, THE ELDER (1584-1666). A Dutch portrait and genre painter; born in Mechlin. He is usually regarded as the founder of the Dutch school of genre painting and the greatest portrait painter of Holland excepting Rembrandt. He died in Haarlem, Netherlands. His brother, **DIRK HALS** (1589-1656), a pupil of Abraham Bloemaert, was also an excellent genre painter. Several of Franz's sons were artists, the most celebrated being **FRANZ HALS, THE YOUNGER,** who flourished from about 1637 to 1669.

HAMILTON, JOHN McLURE (1853-). An American portrait painter; born in Philadelphia; studied with Van Lerius in Antwerp and with Gérôme in Paris; painted "The Syren," "The Heiress," and "Cerise"; then turned to portrait painting; settled in London (1878); chief portraits are a "Gladstone" in the Luxembourg at Paris and one in the Pennsylvania Academy of Fine Arts in Philadelphia along with the portrait of Richard Vaux; Mrs. Gladstone, Bismarck, Cardinal Manning, John Tyndall, Herbert Spencer, G. F. Watts, and Sir Frederick Leighton.

HANDEL, GEORGE FREDERICK (1685-1759). A German composer; born at Halle-an-der-Saale, in Lower Saxony; settled in England in 1712. *The Messiah*, the greatest of oratorios, was produced in 1741. His other important oratorios are *Esther*, *Saul*, *Israel in Egypt*, *Samson*, *Judas Maccabaeus*, and 17 others. He wrote more than 40 operas, the cantatas *Acis and Galatea* and *Alexander's Feast*, and much church and chamber music, also many odes and songs. Handel was stricken with blindness (1752), but continued to conduct his oratorios until his death.

HARDING, CHESTER (1792-1866). An American portrait painter; born in Conway, Mass.; settled in Boston (1823); went to London (1832) and painted portraits of many noblemen. Among his portraits of Americans are those of Webster, Washington Allston, John Randolph, Clay, Calhoun, Chief Justice Marshall, Presidents Madison, Monroe, and John Quincy Adams, and General Sherman.

HARDING, JAMES DUFFIELD (1798-1863). An English water-color artist; born probably at Deptford; introduced the free use of opaque colors in his work. He was also a skilled lithographer and wrote *The Principles and Practice of Art*.

HARPIGNIES, HENRI JOSEPH (1819-1906). A French landscape painter; born at Valenciennes; visited Italy with Corot (1860). Among his works are "Lisière de bois de l'allier," "Le saut de loup" (his masterpiece in the Louvre), "Evening," "Rising of the Moon," and a water color, "Garden of the Villa Medici."

HART, JOEL T. (1810-1877). An American sculptor; born in Clark County, Ky. His chief works are "Angelina," "Woman Triumphant," "Il Penseroso," statue of Henry Clay at Richmond, Va., and portrait busts of Governor Crittenden, General Taylor, and Robert Wickliffe.

HART, SOLOMON ALEXANDER (1806-1881). An English painter; born at Plymouth, of Jewish descent; elected R. A. (1840); professor of painting at the Academy (1854-1863) and librarian (1865-1881). His works include "The Elevation of the Law," "Isaac of York in the Donjon of the Castle of Front-de-Boeuf," "English Nobility Receiving the Communion of the Catholic Church," and "Lady Jane Grey on Tower Hill."

HARTLEY, JONATHAN SCOTT (1845-1912). An American sculptor; born at Albany, N. Y.; studied with E. D. Palmer; three years at the Royal Academy at London and one year at Berlin; professor of anatomy for the Art Students' League at New York (1878-1884); member of the National Academy of Design (1891); married the daughter of George Inness, the painter. Among his works are "The Whirlwind," "Miles Morgan," "Ericsson," "Alfred the Great," and many portrait busts.

HARVEY, SIR GEORGE (1806-1876). A Scottish painter; born at St. Ninian's, Stirlingshire. His works are of Scottish history and life.

HAUCK, MINNIE (1852-1912). An American mezzo-soprano; born in New Orleans, La.; studied in Europe; made her début in New York in 1868; sang Violetta in *La traviata* at the Vienna court opera (1869); made a success of Bizet's *Carmen* in London, which had not pleased on its first performance there.

HAYDN, JOSEPH (1732-1809). A German musical composer. His masterpiece, the oratorio of *The Creation*, was produced in 1798; composed 125 symphonies, including *Farewell* and *Joy*; the "Emperor's Hymn," *Gott erhalte Franz den Kaiser*; the *Seasons*, an oratorio; and 83 string quartets. Haydn is regarded as the creator of the symphony.

HAYDON, BENJAMIN ROBERT (1786-1846). An English painter; born at Plymouth; studied at the Royal Academy. Among his works are "Dentatus," "The Judgment of Solomon," "Christ's Entry into Jerusalem" (now in Cincinnati), and "The Raising of Lazarus." He suffered keenly because his work was not appreciated, and, disappointed at the rejection of his historical designs for the Houses of Parliament, he committed suicide.

HEALEY, GEORGE PETER ALEXANDER (1808-1894). An American portrait painter; born in Boston, Mass.; studied in Paris; painted "Webster's Reply to Hayne," containing 130 portraits, now in Faneuil Hall, Boston; "Franklin Presenting Claims of the American Colonists to Louis XVI."; and portraits of several of the presidents, now in the Corcoran Art Gallery in Washington.

HEEM, JAN DAVIDSZ VAN (about 1603-1683). A Dutch painter; born at Utrecht. His work in flower and fruit still life is the greatest ever produced by any of the Dutch school. He also excelled in painting glass and crystal.

HEL'LER, STEPHEN (1814-1888). A distinguished pianist and composer; born at Budapest. In 1838 he settled in Paris and gave himself to teaching and composition. He ranks beside Chopin as a master of technique. His *Etudes*, *Preludes*, *morceaux* under quaint titles, and *Pensées fugitives* are his best familiar works. His work is generally elegant in form conception.

HELST, BARTHOLOMEUS VAN DER (1613-1670). One of the greatest of the Dutch portrait painters; born at Haarlem, but spent his life in Amsterdam. His "Banquet of the Civic Guard" was considered by Sir Joshua Reynolds to be "the first picture of portraits in the world." The Metropolitan has a portrait of a "Dutch Burgomaster."

FABIOLA. BY J. J. HENNER.

HENNER, JEAN JACQUES (1832-1905). A French painter; born in Bernwiller, in Alsace; pupil of Drölling and Picot; one of the most poetic and realistic of the French school. Among his works are "St. John the Baptist," "The Evening," "The Dead Christ," "The Chaste Susanna," "An Idyl," "The Good Samaritan," "Naiad," "Magdalene," and "St. Sebastian."

HENRY, EDWARD LAMPSON (1841-1919). An American painter; born in Charleston, S. C.; studied at Philadelphia and in Paris; member of the National Academy (1869). Among his works are "Initial Excursion of the First Railway Ever Constructed in New York," containing about 50 figures, in the Corcoran Art Gallery; "Old Clock on the Stairs;" and "A Morning Call in 1800."

HENSCHEL, ISIDOR GEORG (1850-). A German baritone singer, composer, and conductor; born at Breslau; achieved great successes at Brussels, Cologne, and London; conducted the Boston Symphony Orchestra for its first three seasons (1881-1884); succeeded Jenny Lind as professor of singing at the Royal College of Music (1886-1888). He composed songs, vocal studies, a *Requiem Mass*, *Stabat Mater*, *Te Deum*, an opera, *Nubia*, and an operetta, *A Sea Change* or *Love's Stowaway*, to words by W. D. Howells.

HENSELT, ADOLF VON (1814-1889). A German composer; born at Schwabach, in Bavaria; court pianist and imperial instructor at St. Petersburg. Schumann and Herr von Lenz regarded him as one of the greatest pianists. His *Concerto in F minor* (Op. 16), *Frühlingslied*, *Wiegenlied*, *Impromptu in C minor*, and *La Gondola* are among his best works.

HERBERT, VICTOR (1859-1924). An American violoncellist, conductor, and composer; born in Dublin. His mother was a daughter of Samuel Lover, the novelist; studied in Germany; came to the United States in 1886; violoncellist in the Metropolitan Opera House and appeared as soloist under Anton Seidl and Theodore Thomas; bandmaster of the 22d Regiment Band (1894); conductor of the Pittsburg Orchestra (1898-1904); formed his own orchestra in New York (1904); composed *The Captive* for the Worcester, Mass., Festival in 1891; the comic operas, *Prince Ananias*, *The Wizard of the Nile*, *The Serenade*, *The Idol's Eye*, *Happy Land*, *It Happened in Nordland*, and *Babes in Toyland*, besides several suites. He is grandson of Samuel Lover.

HERNE, JAMES A. (1840-1901). An American actor and dramatist; born at Troy, N. Y. In the latter part of his life he appeared only in his own plays, such as *Hearts of Oak*, *Margaret Fleming*, *Shore Acres*, *Rev. Griffith Davenport*, and *Sag Harbor*. His Uncle Nat Berry in *Shore Acres* was a notable creation in American comedy.

HEROLD, LOUIS JOSEPH FERDINAND (1791-1833). A French composer; born in Paris. His three *opéras comiques*, upon which his fame chiefly rests, are *Marie*, *Zampa*, and *Le pré aux clercs*. The overture to *Zampa* has always been extremely popular.

HERRERA (*er-ray'rah*), **FRANCISCO DE** (1576-1656). A distinguished Spanish painter; founder of the Seville or new Spanish school; born at Seville. His finest paintings include the famous "St. Hermenegild in Glory" in the Seville Museum and "The Last Judgment" and a "Saint Peter," both in churches at Seville. Others are in the Louvre, Paris. They exhibit boldness of execution with faultless technique.

HERVE, FLORIMOND RONGER (1825-1892). A French composer, librettist, actor, and manager; born at Houdain, near Arras; conducted popular promenade concerts in London; composed *Babil et Bijou*, *L'oeil crevé*, *Chilpéric*, and *Le petit Faust*.

HILLER, FERDINAND (1811-1885). A German composer, conductor, and pianist; born at Frankfort-on-the-Main; studied and toured with Hummel; went to Paris (1829); popularized the works of Bach and Beethoven; musical director at Düsseldorf (1847-1850); founded the Conservatorium at Cologne (1850); composed chamber music; *The Destruction of Jerusalem*, which is the finer of his two oratorios, and six operas.

HOB'BEMA, MEINDERT (1638-1709). A famous Dutch landscape painter; born at Amsterdam. His fine, subdued pictures of woodland life and scenery are ranked among the masterpieces of Dutch landscape painting, along with those of Cuyp and Ruysdael. Among his best works are "The Avenue of Middelharnis," "Showery Weather," "Watermills and Bleacheries," "Ruins of Brederode Castle," and "The Mill."

HOFFMAN, RICHARD (1831-1909). An American pianist and teacher; born at Manchester, England; came to the United States (1847) and for 50 years was closely connected with musical activities in New York, playing with Jenny Lind, Gottschalk, Bülow, and frequently as soloist with the Philharmonic Society.

HOFMANN, HEINRICH (1824-1911). A German historical painter; born in Darmstadt; professor at the Academy in Dresden (1862). His best known works are scenes from the life of Christ, though his works are drawn from every department of literature. His strongest point is his ideal conception of biblical scenes.

HOFMANN, JOSEF (1876-). A Polish pianist; born at Cracow; pupil of Rubinstein; made his début when only six years old. The Society for the Prevention of Cruelty to Children interrupted his concert tour in the United States in 1887, after he had given 52 concerts in two and a half months. He is among the most promising and popular of modern pianists.

HOGARTH, WILLIAM (1697-1764). Founder of the British school of painting; born in London, England; in 1718 commenced engraving arms and making designs and bookplates for the booksellers. His "Industry and Idleness" and "Marriage à la Mode" attracted universal attention. Ten of his principal pictures are in the National Gallery in London. The satire of Hogarth's works is great, but it is inspired by benevolence. The costumes are excellent and the painting good.

HOLBEIN (*hol'bine*), **HANS, THE YOUNGER** (1494-1543). A German painter; son of Hans Holbein the Elder; born at Augsburg; attracted the attention of Erasmus, who took a great interest in him, and persuaded him to go to England, and introduced him to Sir Thomas More, who in turn introduced him to Henry VIII. Here under Henry's patronage he remained, executing numerous portraits of his courtiers, till his death of the plague. His "Last Supper" and "Dance of Death" are well known. His "Virgin and Child with the Family of the Burgomaster Meyer" is at Darmstadt; his "Portrait of Erasmus" is in the Louvre; and his masterpiece in portraiture, "The Ambassadors," is in the National Gallery in London.

HOLL, FRANCIS MONTAGUE, or FRANK HOLL (1845-1888). An English portrait painter; born in London; painted "Hush" and "Hushed" in the Tate Gallery in London; "No Tidings from the Sea" for Queen Victoria; and portraits of Sir John Millais, Lord Wolsey, Gladstone, and others; R. A. in 1884.

HOLLAND, EDMUND MILTON (1848-1913). An American actor; born in New York City; played in Wallack's company (1867-1879), Pittacus Green in *Hazel Kirke*, Old Rogers in *Esmeralda*, Capt. Redwood in *Jim, the Penman*, Jenkins Hanby in *A Social Highwayman*, Leopold Kolditz in *Hearts are Trumps*, and Eben Holden.

CHRIST IN GETHSEMANE. BY H. HOFMANN.

HOMER, WINSLOW (1836-1910). An American painter; born in Boston, Mass.; studied at the National Academy of Design and with Frederick Rondel; did book and newspaper illustrations; sent war pictures to *Harper's Weekly* from Washington during the Civil War; first oil paintings were "Prisoners from the Front," "Home, Sweet Home," and "Zouaves Pitching Quoits"; then "Cotton Pickers," "A Visit from the Old Mistress," and marine work, such as "The Life Line," "Eight Bells," "Launching the Boat," "A Northeaster," and "The Maine Coast," probably his best.

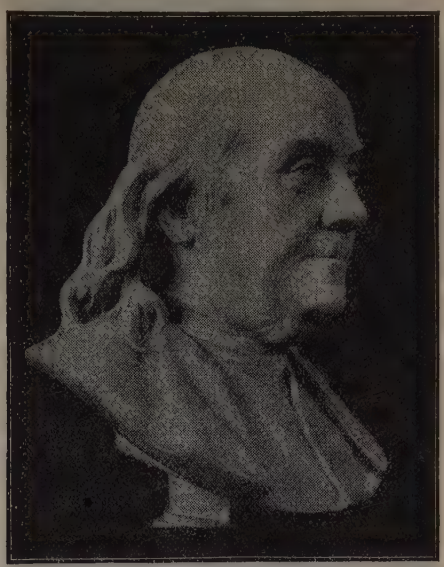
HOOK, JAMES CLARK (1819-1901). An English painter; born in London; elected R. A. in 1860. His work is especially good in Cornish landscapes and idyls of the sea.

HORSLEY, JOHN CALCOTT (1817-1903). An English painter; born at Brompton, London; painted frescoes for the Houses of Parliament (1845-1848), "Rent Day at Haddon Hall," "The Chess Players," "Youth and Age," "Under the Mistletoe," "Wedding Rings," and "The Healing Mercies of Christ."

HOSMER, HARRIET (1830-1908). An American sculptor; born at Watertown, Mass.; the only pupil Gibson ever had; studied at Rome, where she later took up her residence. Among her works are "Oenone," "Puck," "Beatrice Cenci," "Zenobia," "Sleeping Fawn," and "Waking Fawn."

HOUDON (*oo-don'*), **JEAN ANTOINE** (1741-1828). A French sculptor; born in Versailles. After studying in Italy he returned to Paris and executed the busts of Voltaire, Rousseau, Molière, Franklin, Buffon, Catherine II., and others. He was invited to the United States and carved the statue of Washington now at the Virginia State Capitol in Richmond, which is considered the most authentic likeness of "the father of his country."

HUMMEL, JOHANN NEPOMUK (1778-1837). A Hungarian composer and pianist; born at Pressburg; Mozart's most talented pupil; musical director to Prince Esterházy (1803), at Stuttgart (1816), and at Weimar (1820). Of his 127 compositions only a few are played, but in their day they were regarded by many as equaling those of Beethoven.



BUST OF FRANKLIN. BY HOUDON.

HUMPERDINCK, ENGELBERT (1854-1921). A German composer; born at Siegburg-on-Rhine; taught at Barcelona (1885-1886), at Frankfort-on-Main (1890-1396), and at Berlin since 1900. His fame was made by the fairy opera, *Hänsel und Gretel*, for which his sister wrote the libretto. In his operas he has drawn upon the folk song very freely.

MARY MAGDALENE. BY H. HOFMANN.

HUNT, WILLIAM HOLMAN (1827-1910). An English religious painter; born in London. Among his works are "Hireling Shepherd," "Awakened Conscience," "Light of the World," "The Scapegoat," "Christ Discovered in the Temple," and "The Triumph of the Innocents." Hunt was a potent force in the

pre-Raphaelite movement, to which he was drawn by his mystical and symbolical turn of mind.

THE LIGHT OF THE WORLD. BY W. HOLMAN HUNT.

HUNT, WILLIAM MORRIS (1824-1879). An American painter; born at Brattleboro, Vt.; studied in Paris under Couture; one of the discoverers of Millet, whose "Sower" he bought; established himself in Boston (1855); decorated the ceiling of the Capitol at Albany, N. Y., with "The Flight of Night" and "The Discoverer." His "Prodigal Son," "The Drummer Boy," "Charles River," and portraits of Chief Justice Shaw, Evarts, and Sumner are among his best works.

ICTINUS (fifth century B. C.). A famous architect of Greece; employed at Athens during the administration of Pericles. He designed the Parthenon, completed about 438 B. C., and, in collaboration with Carpion, it is said, wrote an architectural treatise thereon. He designed also the Temple of Apollo Epicurius at Bassae, and is mentioned by Vitruvius and Strabo as one of the architects of the Temple of Demeter and Persephone Eleusis.

IDRAC, ANTOINE (1849-1884). A French sculptor; born at Toulouse. Among his important works are "Cupid Stung by a Bee," bought by the French government, and "Mercury Discovering the Caduceus," now in the Luxembourg Museum. One of his later works, a "Salambo," received a first prize at the Munich Exposition, and secured for him the French Legion of Honor.

IFFLAND, AUGUST WILHELM (1759-1814). A noted German actor, dramatist, and director. He studied at Gotha; became director of the Berlin National Theatre in 1796; 15 years later was appointed manager of all the royal theaters. He was a fine comedian. His plays met with great success, notably *Die Jaeger*, *Dienstpflicht*, *Der Spieler*, and *Die Mündel*.

IMOLA, INNOCENZO DA, or INNOCENZO FRANCUCCI (about 1494-about 1550). An Italian painter. Among his important works are the frescoes of the "Death and Assumption of the Virgin" at San Michele, Bologna; the "Madonna in Glory" and "Madonna with Kneeling Donors" in the gallery of that city; and altarpieces in Berlin, Munich, and Faenza.

INGHAM, CHARLES CROMWELL (1796-1863). A British-American painter; born in Dublin; came to America in 1817 and became active in helping to promote an interest in art. He was successful as a painter of portraits and miniatures, and numbered many prominent men among his subjects. His best known figure paintings are "Death of Cleopatra," "Day Dream," and "White Plume." Among his portraits are those of De Witt Clinton and Lafayette. He was one of the original members of the National Academy of Design.

INGRES, JEAN AUGUSTE DOMINIQUE (1781-1867). An eminent French painter; born at Montauban. He became a pupil of David in 1796 and won the Prix de Rome in 1801. He went to Italy in 1806 and during his residence there produced many of his notable works. He supported himself for some years by portrait work. Of the latter Reinach says, "The portraits in pencil . . . must always be reckoned among the marvels of art." His historical paintings brought him much fame and many honors. Among them are "Oedipus and the Sphinx," the "Vow of Louis XIII.," "Joan of Arc," and the "Martyrdom of Saint Symphorien."

INMAN, HENRY (1801-1846). An eminent American artist; born in New York; died while at work on a commission from Congress for the historical embellishment of the Capitol. While in England he painted portraits of Wordsworth, Macaulay, Dr. Thomas Chalmers, and others. His American portraits are in the Boston Athenaeum, New York City Hall, and elsewhere. His other work includes "Rydal Water," "The Newsboy," and "Rip Van Winkle Awaking."

INNESS, GEORGE (1825-1894). An American painter; born in Paris, France; resided in Italy from 1871 to 1875. His pictures are noted for the accuracy with which they represent the American climate and the aspects of American scenery. He was elected to the National Academy in 1868. Some of his works are "Delaware Valley," "American Sunset," "Pontine Marshes," "Niagara Falls," "Sunset—Montclair," and "Autumn Oaks."

AUTUMN OAKS. BY GEORGE INNESS.

INNESS, GEORGE, JR. (1854-1926). An American painter; born in New York; studied with his father in Rome and with Bonnat in Paris. Among his works are "The Ford," "Pasture at Watchung," "Roswell Smith," "Monarch of the Herd," and "After the Combat."

IRVING, SIR HENRY (1838-1905). An English actor; born in Keinton. His family name was Brodribb, which was changed to Irving by royal patent. His rôles include Mephistopheles, Hamlet, Coriolanus, King Lear, and a repertory that has been presented not only in England but in the United States, Australia and France. He was knighted in 1895. His performance of Matthias in *The Bells* established his reputation in London. He associated with Ellen Terry; came with her to America in 1883 and several times afterward.

ISRAELS, JOZEF (1824-1911). A Dutch painter; born of Jewish parentage in Amsterdam. His more

noteworthy pictures are "The Frugal Meal," "The Faithful Comrades," "The Village Poor," and "The Struggle for Life." He is the interpreter of the peasants and fishermen in their daily lives.

ITTENBACH, FRANZ (1813-1879). A German painter; born at Düsseldorf; royal professor and member of the Academy at Vienna. His "Holy Family in Egypt" in the National Gallery at Berlin and "Christ and the Doctors" at Remagen are among his best works.

MORNING ON THE MEADOW. BY GEORGE INNESS, JR.

JACKSON, JOHN ADAMS (1825-1879). An American sculptor; born in Bath, Me.; studied in Paris under Suisse; lived in New York (1858-1860); then removed to Italy; chief works are a bust portrait of Wendell Phillips in the Boston Museum; one of Lyman Beecher owned by Henry Ward Beecher; "Eve and the Dead Abel;" "Cupid Stringing the Bow;" "The Culprit Fay;" a group at the southern gatehouse of Central Park in New York; and the Soldiers' Monument at Lynn, Mass.

THE CRUCIFIXION. BY ITTENBACH.

JANAUSCHEK, FRANCESCA ROMANA MAGDALENA (1830-1904). A German and American actress; born in Prague, Bohemia; leading actress at Frankfort (1848-1860); came to New York (1867), playing in German; studied English and presented Medea, Lady Macbeth, Meg Merrilies, and *The Great Diamond Robbery*.

JANSSENS VAN NUYSSEN, ABRAHAM (1567-1631). A Flemish painter; born at Antwerp; ranks next to Rubens among the Flemish masters of the seventeenth century. Among his best works are a "Madonna"; an "Adoration of the Magi"; "Scaldis," a representation of the river god of the Scheldt; an "Entombment" and "Madonna with Saints" at Antwerp; and an "Ecce Homo" and "Descent from the Cross" at Ghent. He was especially strong in torch-light effects.

JARVIS, JOHN WESLEY (1780-1840). An American artist; born in South Shields, England; nephew of John Wesley; came to Philadelphia at five years of age; encouraged in art by Malbone. His portraits of statesmen, divines, and naval heroes are in the City Hall at New York and in the New York Historical Society rooms; the pioneer of the study of anatomy in art in America.

JEANRON, PHILIPPE AUGUSTE (1809-1877). A French historical and genre painter; born at Boulogne-sur-Mer; director of the Louvre and National museums (1848), where he classified and arranged the art treasures of the Louvre; founded the Luxembourg Museum; chief works are "Little Patriots," "The Abandoned Port of Ambleteuse," "The Flight," and "The Repose in Egypt."

JEFFERSON, JOSEPH (1829-1905). An American comedian; born in Philadelphia, Pa. Jefferson was on the stage from his very infancy, appearing as Cora's child in *Pizarro* when only three years of age. In 1865 he visited London, and at the Adelphi Theatre played for the first time his world famous part of Rip Van Winkle, September 4, 1865. With this character his name is identified, and though he has shown himself an admirable comedian in many characters, to the English speaking world he will always be Rip Van Winkle.

JEHIN-PRUME, FRANTZ (1839-1899). A Belgian-Canadian violinist; born at Spa; pupil of Servais, François Prume, De Bériot, Léonard, Fétis, Vieuxtemps, and Wieniawski; toured Europe with the Rubinsteins, Jenny Lind, and Essipoff; and America with Carlotta, Patti, and Theodor Ritter (1869-1871); settled in Montreal, Canada, in 1887 and became professor at the Trafalgar Institute there.

JENSEN, ADOLF (1837-1879). A German song composer; born at Königsberg; conductor of the Posen City Theatre; two years in Copenhagen; taught in Tausig's school at Berlin (1866-1868); ranked only little below Schumann and Franz as a composer of *Lieder*.

JERICHAU, JENS ADOLF (1816-1883). A Danish sculptor; born at Assens, in Fünen; studied at home and with Thorwaldsen in Rome; professor at the Academy in Copenhagen (1849); chief works are "Hercules and Hebe," "Penelope," "The Panther Hunter," "Adam and Eve after the Fall," "Christ," "David," and the much admired monuments to Oersted and Andersen in Copenhagen.

JOACHIM, JOSEPH (1831-1907). A German violinist; born near Pressburg; regarded as the greatest performer of his time, his success extending over a period of more than 60 years. His greatest composition is his *Hungarian Concerto, Opus* 11. His other works follow Schumann's models and are grave and melancholic, but of earnest purpose and high ideal. He founded the Joachim Quartet in 1869 and it occupied a supreme position in the world of chamber music.

JOANES, VICENTE DE, or VICENTE JUAN MACIP (1523-1579). A Spanish painter of portraits and religious subjects; founder of the school of Valencia. His "Baptism of Christ," "Conversion of Paul," and a "Holy Family" in the Cathedral of Valencia; a "Last Supper" in the Church of St. Nicholas there; and a series of six pictures on the "Life of St. Stephen" in the Prado Museum are among his best works.

JOHNSON, DAVID (1827-1908). An American painter; born in New York City. His only instruction was a few lessons from J. F. Cropsey. Among his highly creditable work are scenes in New York state. His works are owned by private collectors.

JOHNSON, EASTMAN (1824-1906). An American painter; born in Lovell, Maine; studied at Düsseldorf, Italy, Paris, Holland, and at The Hague; member of the National Academy (1860); especially successful in pictures of American domestic and negro life. Many of his works have been reproduced. His "Card Players" and "The Savoyard" were done at The Hague; his "Old Kentucky Home" first gave him reputation; his

"Old Stage Coach" and the "Wandering Fiddler," which sold for $2,375, are among his many notable works.

JOHNSON, SAMUEL FROST (1835-). An American painter; born in New York City; studied there and in Düsseldorf, Antwerp, Paris, and with Edouard Frère. Among his important works are "The Bouquet," "Caught at It," "Study of an Interior," "Roasted Chestnuts," "Good Night," and "A Thirsty Party."

JOMMELLI, NICCOLO (1714-1774). An Italian composer; born at Aversa, near Naples; the most conspicuous among the many eminent composers of the eighteenth century. Among his available music is a *Miserere, Victimae paschali, Lux eterna, Hosanna filio, Mulieres bonae, In Monte Oliveto, Requiem,* and some scattered works in collections.

JONCIERES, VICTORIN DE, or **FELIX RUDGER ROSSIGNOL** (1839-1903). A French composer; born in Paris; studied with Elwart, Leborne, and at the Conservatoire; wrote the music for the *Hamlet* of Dumas and Paul Meurice; the grand operas *Sardanapale, Le dernier jour de Pompéi,* and *Dimitri*; a *Symphonie Romantique*; *Sérénade Hongroise*; *La Mer*; and other instrumental music.

JONES, INIGO (1573-1652). An English architect; born in London; studied in Italy, and, returning to England, obtained the patronage of James I., and became chief architect in the country. The banqueting hall at Whitehall is reckoned his masterpiece. The portico of the Church of St. Paul, London, destroyed in the fire of 1666, was from his design. His style follows Palladio of Venice. He was the principal representative of Renaissance architecture in England.

JORDAENS (*yor'dahnz*), **JAKOB** (1593-1678). A Flemish painter and engraver; born at Antwerp; was a friend of Rubens, and ranks next to him among the Flemings. Reinach calls him a "brilliant but vulgar painter, sometimes caricatures Rubens and at other times appears as his compeer in boisterous good humor." Among his works are "Christ Chasing the Money Lenders from the Temple," "The Four Evangelists," "The Entombment of Christ," "The Last Supper," "Diogenes Seeking an Honest Man," and a "Holy Family" which is in New York.

JOSEFFY, RAFAEL (1852-1915). An Hungarian-American pianist, teacher, and composer; born at Miskolcz; studied under Brauer, Wenzel, Moscheles, and Carl Tausig. After a successful career in Europe he came to America in 1879; played with the Philharmonic Orchestra and with Theodore Thomas and his orchestra; revealed Brahm's pianoforte beauties; composed the important *School of Advanced Piano Playing.*

JOUVENET, JEAN (1644-1717). A French painter; born at Rouen; assisted Le Brun on the decorations of Versailles and succeeded him as the head of the French school; one of the best French academic painters. His "Descent from the Cross" in the Louvre is his great work.

JUCH, EMMA (1863-). An American dramatic soprano singer; born of American parents in Vienna, Austria; studied under Madame Murio-Celli; made her début in London (1881); prima donna with Theodore Thomas (1884); sang Marguerite in *Faust,* Elsa in *Lohengrin,* Senta in *The Flying Dutchman,* Crysa in *Nero,* and Eurydice in *Orfeo et Eurydice;* prima donna of American Opera Company.

KALTENBORN, FRANZ P. (1865-). An American musician; born at Hamburg; brought to America in 1870; first violin at the Metropolitan Opera House in New York and, later, in the Philharmonic and in Seidl's orchestras; organized the Kaltenborn Quartet (1896) and his orchestra of 50 musicians in 1900.

KAUFFMANN, MARIA ANGELICA (1741-1807). A Swiss painter; born at Coire; studied in Italy; passed some years in England; married Zucchi, the Italian painter (1781), and spent the rest of her life in Rome; one of the first members of the Royal Academy.

KAULBACH, WILHELM VON (1805-1874). A German painter; born at Arolsen; studied with Cornelius; painted "The Battle of the Huns," "The Destruction of Jerusalem," and several frescoes into which he introduced the free use of profane subjects.

KEAN, EDMUND (1787-1833). A distinguished English tragedian; born in London. His first success was Shylock in the *Merchant of Venice* in 1814, and the representation of it was followed by equally famous representations of Richard III., Othello, and Sir Giles Overreach. He led a very dissipated life, and under the effect of it his constitution gave way. He broke down one evening beside his son as Iago, as he was playing the part of Othello, was carried off the stage, and never appeared on the boards again.

KELLOGG, CLARA LOUISE (1842-1916). An American soprano; born at Sumterville, S. C.; educated in New York; sang in the United States (1868-1872), in London, and in Italian opera in the United States; organized her own company (1874), for which she made her own translations, libretti, and was stage and chorus manager; married Carl Strakosch in 1887.

KELLY, JAMES EDWARDS (1855-). An American sculptor; born in New York City; studied at the National Academy; at first a wood engraver, then an illustrator, and since 1881 a sculptor. From his well executed historical subjects he has been called "the sculptor of American history." His bronze "Sheridan's Ride"; "General Buford;" the 6th New York Cavalry Monument on the field of Gettysburg; and "The Call to Arms," a 17-foot figure of Columbia on the Soldiers' Monument at Troy, N. Y., are among his best works.

KEMBLE, CHARLES (1775-1854). An English actor; born at Brecon; appeared first at Sheffield as Orlando in 1792, and two years later went to London, where he continued playing till 1840, when he was appointed examiner of plays. Macready called him "a first-rate actor in second-rate parts"; made a sensation in the United States on his visit with his daughter Fanny (1832-1834).

KEMBLE, FRANCES ANNE or **FANNY** (1809-1893). Daughter of Charles Kemble; born in London; made her début in 1829, and proved a queen of tragedy; in 1832 came to America, where, in 1834, she married a planter, from whom she was divorced in 1849. Resuming her maiden name, Fanny Kemble, she gave Shakespearean readings for 20 years.

KEMBLE, JOHN PHILIP (1757-1823). An English actor; born at Prescott, Lancashire; son of Roger Kemble and brother of Mrs. Siddons; appeared first at Wolverhampton in 1776. After touring in Yorkshire and Ireland he went to London in 1783, playing Hamlet at Drury Lane; became manager of that theater in 1788; in 1802 transferred himself to Covent Garden. He retired in 1817. He was a great tragedian and a man of character.

KEMEYS, EDWARD (1843-1907). An American sculptor; born at Savannah, Georgia; removed early to New York; served in the Civil War; did his first work in sculpture as a member of the civil engineering corps of Central Park; made a specialty of Indians and wild animals. His "Bison and Wolves," "The Still Hunt" in Central Park, "Wolves" in Fairmount Park at Philadelphia, "Panther and Deer," "Raven and Coyote," and "Panther and Cubs" are among his chief works.

KENDAL, MR., or **WILLIAM HUNTER GRIMSTON** (1843-1917). An English actor; born in London. With his wife (Margaret or "Madge" Robertson Grimston), whom he married in 1869, he led a successful English career. They came to America in 1889 and presented *A Scrap of Paper* and in 1893 *The Second Mrs. Tanqueray.*

KEYSER, EPHRAIM (1850-). An American sculptor; born in Baltimore, Md.; studied in Munich under Widman and in Berlin. Among his works are a "Memorial to Chester A. Arthur" in Albany, a statue of De Kalb at Annapolis, a "Stein Memorial," "Psyche," and "The Toying Page."

LABLACHE, LUIGI (1794-1858). An Italian operatic basso; born at Naples. He had a voice of extraordinary volume and quality, compassing two octaves from E below the bass staff to E above. He created the part of Dr. Bartolo in *Il barbiere.* Bellini wrote *I Puritani* for him; Mercadante, *Elisa e Claudio*; and Donizetti, *Don Pasquale.*

LA FARGE, JOHN (1835-1910). An American painter; born in New York City; studied in Paris with Couture, at the Louvre, and in this country with William M. Hunt. Among his works are "St. John," some excellent drawings on wood, a notable series of flower pictures, decorations of Trinity Church at Boston, frescoes in St. Thomas's at New York, and lunettes in the state capitol at Minneapolis; revolutionized stained glass work.

LANDSEER, SIR EDWIN HENRY (1802-1873). An English painter; born in London. He began to draw animals when a mere child; exhibited regularly at the Academy; took the very highest rank among animal painters, and, though he was criticised for introducing too human a sentiment and expression into some of his animals, the humor and pathos of animal nature has had no finer exponent. Among his works are the famous bronze lions on Trafalgar Square, "The Shepherd's Chief Mourner," "The Return from Deer Stalking," "Dignity and Impudence," "Piper and Pair of Nutcrackers," and "Oxen at the Tank."

MADAME LE BRUN AND DAUGHTER. PAINTED BY HERSELF.

LANGTRY, MRS. LILLIE (1852-1929). An English actress; born in Jersey; made her début (1881) in London as Blanche Haye in *Ours*. Kate Hardcastle in *She Stoops to Conquer*, Rosalind in *As You Like It*, Pauline in the *Lady of Lyons*, and the leading rôle in *The Crossways* are among her more important parts; married Hugo Gerald de Bathe in 1899.

LE BRUN, CHARLES (1619-1690). A celebrated French painter; born in Paris; studied in Rome; settled in Paris. He exercised for about 40 years a great influence on the art of the period. He decorated Versailles, and has many works in the Louvre. His reputation was greater in his own day than now.

LE BRUN, MARIE LOUISE ELISABETH VIGEE (1755-1842). A French painter; born in Paris; married a grandnephew of Charles Le Brun (1776); painted portraits of many celebrities.

LEECH, JOHN (1817-1864). An English artist and humorist; born in London. His political cartoons in *Punch*, his illustrations of Gilbert A'Becket's *Comic Histories*, of Hood's *Comic Annual*, and of Dickens's works are the basis of his great reputation.

LEHMANN, LILLI (1848-). A German soprano singer; born at Würzburg. Her mother was a celebrated harp player and prima donna; made her début in Berlin (1870); appointed an imperial chamber singer (1876); sang in the Nibelungen trilogy at Baireuth; took Wagnerian parts in London; leading soprano in Wagnerian opera at the Metropolitan Opera House in New York.

LEIGHTON (*lay'ton*), **SIR FREDERICK, BARON LEIGHTON OF STRETTON** (1830-1896). An English artist; born in Scarborough. Among his works are "Cimabue's Madonna Carried in Procession Through Florence," "Daphnephoria," "Phryne," "The Garden of the Hesperides," and "Captive Andromache."

LELY, SIR PETER, or PIETER VAN DER FAES (1618-1680). An Anglo-Dutch painter; born in Soest, Westphalia; went to England after the death of Van Dyck (1641); painted portraits of Charles I.; knighted by Charles II. Much of his work is in Hampton Court and the National Portrait Gallery.

LENBACH, FRANZ (1836-1904). A German portrait painter; born in Munich; studied there under Piloty. Among his portraits are those of Bismarck, Gladstone, Wagner, and Heyse, in which the character and personality of the subject is magnificently brought out. Other important works are "Shepherd Boy" and "Peasants Taking Refuge from the Weather."

LACHRYMAE. BY SIR FREDERICK LEIGHTON.

LEO, LEONARDO (about 1694-1746). An Italian composer; born near Brindisi; studied at Naples and Rome; choirmaster and director of the school of San Onofrio in Naples (1717); wrote the oratorios *Santa Elena* and *La morte d'Abele*; the operas *Sofonisbe*, *Olimpiade*, *La clemenza di Tito*, and *Achille in Sciro*; and church music, including masses, the well-known *Miserere*, introits for Lent, and sacred solos.

LEONARDO DA VINCI (1452-1519). An Italian painter, sculptor, and architect; born at Vinci, between Pisa and Florence; studied with Andrea del Verrocchio and Ludovico Sforza. He holds a supreme place as an artist; but few of his paintings have endured. His "Last Supper," painted on the wall of the refectory of the Convent of Santa Maria delle Grazie at Milan has been frequently "restored" because of the injury from the dampness of the wall; yet it remains one of the world's masterpieces. His "Mona Lisa," a half-length portrait of a woman with a mysterious smile, is

his most celebrated easel picture. It, with "The Virgin of the Rocks" and "The Virgin and Child with Saint Anne," is in the Louvre. Da Vinci and Michelangelo are the giants of the Florentine Renaissance.

LEONCAVALLO, RUGGIERO (1858-1919). An Italian composer; born at Naples; studied there with Cesi, Ruta, and Rossi. After a life of hardship and discouragement he wrote his two-act opera *Pagliacci*, which was first produced at Milan in 1892. This opera has been vastly more successful than his *Medici*, *Savonarola*, *Zaza*, or *Der Roland*.

LEUTZE, EMANUEL (1816-1868). An American artist; born in Gmünd, Württemberg; was brought to the United States in infancy. Among his works are scenes from the life of Columbus, from English history, and "Washington Crossing the Delaware."

LIND, JENNY, or MADAME GOLDSCHMIDT (1820-1887). A distinguished vocalist; born at Stockholm; made her first appearance in 1838 as Agatha in *Der Freischütz*; studied in Paris under Garcia; made a tour of America (1849-1852) and with the proceeds she endowed musical schools and charities in Sweden. She retired from the stage on her marriage to Otto Goldschmidt (1852) and resided in London. Her last appearance was at Düsseldorf in 1870.

LAST SUPPER. BY DA VINCI.
The Refectory of Santa Maria delle Grazie, Milan.

LIPPI, FILIPPINO (about 1458-1504). An Italian artist; born at Florence; son of Fra Filippo Lippi and pupil of Botticelli; noted for his frescoes in churches in Florence and Rome and for "The Virgin and Saints," "The Adoration of the Magi" in the Uffizi at Florence, "The Virgin Appearing to St. Bernard" in the Church of the Badia at Florence, and "The Vision of St. Francis."

LIPPI, FRA FILIPPO, or LIPPO LIPPI (1412-1469). An Italian painter; born in Florence. His greatest works are on the walls of the choir of Prato Cathedral and the "Coronation of the Virgin" in the Academy at Florence.

LISZT (*list*), **FRANZ** (1811-1886). An eminent Hungarian pianist and musician; born at Raiding, near Oedenburg; studied at Vienna and Paris; brought out Wagner's *Lohengrin* and Berlioz's *Benvenuto Cellini* at Weimar, which became the musical center of Germany; took minor orders in the Catholic Church (1865) and was consequently known as Abbé. He was unapproachable as a pianist, both by reason of his supreme command of technique and the poetic quality of his playing. His compositions for the pianoforte are enormous in number. His 12 symphonic poems, one or two masses, and the "Legend of St. Elizabeth" form the body of his religious and other works.

LOW, WILL HICOCK (1853-). An American artist and illustrator; born at Albany, N. Y.; studied in Paris with Gérôme and Carolus Duran; joined the Barbizon school; painted "Day of the Dead"; returned to New York (1877); taught the life class at Cooper Union (1882-1885); at the National Academy (1889-1892); elected N. A. (1890); did much mural decoration; painted the portrait of Mme. Albani, "Lady of the Empire," "Telling the Bees," "Aurora," and "Spring."

LUCAS, JOHN SEYMOUR (1849-1923). An English painter; born in London; elected R. A. (1898). Among his important works are "The Armada in Sight," "After Culloden," "Flirtation," and an excellent fresco in the Royal Exchange at London.

LUINI or LOVINO, BERNARDINO (about 1477-1533). An Italian painter; supposed to have been born in the village of Luino, near Lake Maggiore, but it is only known for certain that his works were mostly executed between 1520 and 1530. He is one of the five painters of whose supremacy Ruskin was most certain. He was the most popular of the disciples of Leonardo da Vinci at Milan. Among his works are "The Marriage of the Virgin" and "The Nativity," two frescoes in the Church of Saronno.

McCHESNEY, CLARA T. (1861-). An American painter; born at Brownsville, Cal.; studied in Paris under Courtois and Girardot and at New York under Mowbray and Beckwith. She excelled in the drawing of children and in water-color work; received many medals and much public recognition.

MacDOWELL, EDWARD ALEXANDER (1861-1908). An American composer and pianist; born in New York City; studied in Paris and Germany from 1876 until 1887. He returned to America, established himself in Boston, and engaged in teaching and concert work; appointed to the chair of music in Columbia University, New York City, in 1896; resigned in 1904. His musical career was terminated by ill health in 1905. Among his works are a number of beautiful compositions for the pianoforte, songs, choruses, and orchestral works. He ranks among the best of contemporary composers.

MACKAYE, JAMES STEELE (1842-1894). An American dramatist; born at Buffalo, N. Y.; studied in Paris under Delsarte and became his American exponent; wrote *Hazel Kirke*, produced as a "stop-gap" at Madison Square Theatre (1880), which ran for 336 performances.

McKIM, CHARLES FOLLEN (1847-1909). An American architect; born in Chester County, Pa.; studied at Harvard and at L'Ecole des Beaux-Arts in Paris; settled in New York (1872) and formed a partnership with William R. Mead (1877) and with Stanford White (1879). The work of this firm produced a renaissance in American architecture. Buildings with which they are associated are Boston Public Library, Columbia Library, Century Club in New York, J. Pierpont Morgan's Library, War College at Washington, the new Pennsylvania depot in New York, Bellevue Hospital, and the Madison Square Presbyterian Church.

MACMONNIES, FREDERICK (1863-). An American sculptor; born in Brooklyn, N. Y.; studied with St. Gaudens and with Falguière in Paris. Among his important works are "Diana," "Nathan Hale" in the City Hall Park in New York, the huge fountain at the Columbian Exposition in Chicago, "Bacchante" and "Sir Henry Vane" in the Boston Public Library, "Victory" at West Point, "Shakespeare" and the bronze doors in the Congressional Library, and groups on the Memorial Arch in Prospect Park in Brooklyn.

MacNEIL, HERMON ATKINS (1866-). An American sculptor; born at Chelsea, Mass.; studied in Paris under Falguière and Chapu; for three years instructor at the Chicago Art Institute; assisted Martiny in his work for the Columbian Exposition; studied in Rome for four years. His notable works include "The Moqui Runner," "A Primitive Chant," "The Sun Vow," "The Fountain of Liberty" at the St. Louis Exposition, "Coming of the White Man" in Portland, Ore., and the "McKinley Memorial" at Canton, Ohio.

MACREADY, WILLIAM CHARLES (1793-1873). An English tragedian; born in London. In 1826 he made his first visit to America, and in 1828 played in Paris, with great success in both countries. He did much to reform the stage and cultivate the public taste for Shakespearean drama; revisited the United States in 1849; returned to England; gave a series of farewell performances and finally retired from the stage in 1851. The Astor Place Riot (May 10, 1849) was caused by the rivalry and ill feeling between Macready and Forrest.

MacWHIRTER, JOHN (1839-1911). A Scottish painter; born at Slateford, near Edinburgh; elected R. A. in 1894. Among his notable works are "Nature's Archway," "June in the Austrian Tyrol," "The Lord of the Glen," "The Track of the Hurricane," "The Silver Strand," and "Loch Katrine."

MAKART, HANS (1840-1884). An Austrian painter; born at Salzburg; studied with Piloty at Munich (1861-1865); settled in Vienna (1869); professor of the Art Academy (1879); chief works are "Amorettes," "The Seven Deadly Sins," "The Homage of Venice to Catherine Cornaro," "Cleopatra on

the Nile,'' ''Entrance of Charles V. into Antwerp,'' ''Death of Cleopatra,'' ''The Spring,'' and ''Diana's Hunting Party,'' which is in the Metropolitan Museum at New York.

MALIBRAN, MARIA FELICITA (1808-1836). A French mezzo-soprano and actress; born at Paris; daughter of Manuel Garcia; made her début in London in 1825, and soon her reputation extended over Europe. She married M. Malibran, a French merchant, who soon became bankrupt. She then returned to the stage, and was received with great enthusiasm in France, England, Germany, and Italy. Her first marriage having been dissolved, she married M. de Bériot, a famous violinist, in 1836. She was one of the greatest of operatic singers.

MALONE, JOHN (1854-1906). An American actor; born at Westfield, Mass.; appeared in San Francisco (1880); played with Edwin Booth (1886-1887), Mrs. Langtry (1888), Salvini (1889-1890), Modjeska (1897), and with Mansfield. After 1900 he wrote theatrical newspaper criticisms in New York.

Bronze Horses. By Macmonnies.
Prospect Park, Brooklyn, N. Y.

MANET, EDOUARD (1832-1883). A French painter; born at Paris; studied under Couture. He was a realist, and his treatment of ''open air light'' paved the way for the impressionists or ''pleinairists.'' Among his works are ''Olympia'' in the Luxembourg and ''The Boy with the Sword'' in the Metropolitan in New York.

MANSARD. The name of two French architects; born in Paris—**FRANCOIS** (1598-1666), who constructed Hotel Toulouse, now the Bank of France, and **JULES HARDOUIN** (1645-1708), his grandnephew, architect of the dome of the Invalides and of the palace and chapel of Versailles.

MANSFIELD, RICHARD (1857-1907). An American actor; born in the island of Heligoland, Germany; in business in Boston, Mass., for some years; went to England and played small parts in comic opera; came to the Standard Theatre in New York (1882); made a great success as Baron Chevrial in the *Parisian Romance* (1883); played in American cities in a number of rôles, from Ko-Ko in *The Mikado* to Richard III. and Shylock (1883-1890). He played Dr. Jekyll and Mr. Hyde, Prince Karl, Richard III., Beau Brummel, Dimmesdale in his own *Scarlet Letter*, Shylock, Bluntschli in *Arms and the Man*, Dick Dudgeon in *The Devil's Disciple*, Cyrano de Bergerac, and numerous other parts.

MANTEGNA (*man-tane'yah*), **ANDREA** (1431-1506). An Italian painter; born in Vicenza, Italy; pupil and adopted son of Squarcione. Mantegna excelled in perspective, which was then a rare merit. He introduced the art of engraving on copper into Upper Italy; painted nine tempera pictures representing the ''Triumph of Caesar,'' now in Hampton Court. Among his frescoes are ''The Martyrdom of St. James'' in the Eremitani at Padua and ''Barbara of Brandenburg, Marchesa di Gonzaga, and her Court'' in the Palace at Mantua. It is probable that the highest qualities of the great Venetian art of the fifteenth century were derived from Mantegna.

MARA, GERTRUDE ELISABETH (1749-1833). A celebrated German singer; born at Cassel; died at Revel; in childhood a student of the violin. She appeared successfully in public, but gave up the violin to cultivate her voice under the instruction of Paradies. Later she entered the music school of Hiller in Leipzig, where she remained until 1771; employed shortly afterward by Frederick II. as court singer. She appeared in London in 1784.

MARCELLO, BENEDETTO (1686-1739). An eminent Venetian composer. He was also a student of law, and in his early life held several important government posts. His great work, *Estro poetico-armonico, Parafrasi sopra i primi 50 psalmi, Poesia di Girolamo Giustiniani*, appeared in two parts (1724-1727). They are composed for one, two, three, and four voices, and for expression, it is said, far surpass any other work of the kind. Among his other compositions are instrumental concertos; an opera, *La Fede riconosciuta*; and an oratorio, *Giuditta*. Marcello was also a poet of much distinction.

MAROCHET'TI, CARLO, BARON (1805-1868). An Italian sculptor; born in Turin; after working in Paris went to England in 1848 and executed several public statues, one of Queen Victoria among others.

MASCAGNI (*mas-kan'yee*), **PIETRO** (1863-). An Italian composer; born in Leghorn, Tuscany. He produced a one-act opera, *Cavalleria Rusticana*, in competition for a prize; also *L'amico Fritz, I Rantzau, Nerone, William Ratcliff*, and *Zanetto*; director of the Conservatorium at Pesaro in 1896.

The Sun Vow. By MacNeil.

MASSYS or **MATSYS, QUENTIN** (1466-1530) A Flemish painter; born at Louvain; settled in Antwerp in 1491. His greatest works are ''The Burial of Christ'' and ''The Martyrdom of the Two Johns'' at Antwerp, ''The Enthroned Virgin'' in Berlin, and ''Virgin in Glory'' in St. Petersburg.

MATTESON, TOMPKINS HARRISON (1813-1884) An American painter; born at Peterborough, N. Y.; best known by his ''Spirit of '76,'' often reproduced; elected N. A. in 1874.

MATTHEWS, JOHN (? -1905). An Anglo-American actor; trained in England; joined A. M. Palmer's stock company at the Union Square Theatre in New York; played in Laura Keene's company in Ford's Theatre in Washington on the night Lincoln was assassinated. On account of his friendship for Booth he was arrested, but his innocence of any knowledge of Booth's plans was soon made clear.

MAX, CORNELIUS GABRIEL (1840-). A German historical painter; born at Prague; son of Joseph Max, sculptor, and pupil of Piloty at Munich; professor at the Academy at Munich (1879-1883); chief works are "The Anatomist," "The Last Token," "Nydia," and "The Lion's Bride."

Ein Grüss—A Token. By Gabriel Max.

MAY, PHIL (1864-1903). An English caricaturist; born at Leeds; one of the most powerful masters of "line" drawings; contributed to the *Graphic*. A few years before his death he was permanently placed on the staff of *Punch*. He illustrated *Phil May's Annuals*.

MAYNARD, GEORGE WILLOUGHBY (1843-1923). An American painter; born in Washington, D. C.; studied under Edwin White in Italy, at the Antwerp Academy, and in Paris; painted portraits of Kate Field and of Frank D. Millet; settled in New York (1885). One of the earliest of American mural decorators, his work on the Agricultural Building at Chicago (1893), on the Congressional Library, the Waldorf-Astoria, and other buildings is of a high order. His "In Strange Seas" is in the Metropolitan Museum in New York.

MAYO, FRANK (1839-1896). An American actor; born in Boston, Mass.; first appeared in San Francisco; played frequently with Edwin Booth; appeared in Boston (1865) as Othello, Hamlet, Macbeth, and D'Artagnan. He is remembered for his Davy Crockett and Pudd'n-Head Wilson.

MEAD, LARKIN GOLDSMITH (1835-1910). An American sculptor; born in Chesterfield, N. H.; studied under Henry K. Brown. His colossal "Vermont" for the dome of the State Capitol at Montpelier; his "Ethan Allen"; the National Lincoln Monument at Springfield, Ill.; the Soldiers' Monument at St. Johnsbury, Vt.; the pediment, "Return of Proserpine," over the Agricultural Building at Chicago in 1893; the colossal "Mississippi River"; the marble group of the Stanford family at Stanford University in California (injured by the earthquake) are among his best works.

MEAD, WILLIAM RUTHERFORD (1846-1923). An American architect; born at Brattleboro, Vt.; a brother of Larkin G. Mead; studied with Russell Sturgis in New York and in Europe; joined Charles F. McKim in 1877; was graduated from Amherst College (1867); honorary LL.D. in 1902.

MEHUL, ETIENNE NICOLAS (1763-1817). A French musical composer; born in Ardennes; settled in Paris in 1778; composed 24 operas, including *Euphrosine et Coradin*, *L'irato*, *Joseph*, and *La journée aux aventures*; several symphonies; and numerous songs, including "Chant du départ," "Chant de victoire," and "Chant du retour," popular with French Revolutionary soldiers.

MEISSONIER (*may-so-ne-a'*), **JEAN LOUIS ERNEST** (1815-1891). A French painter; born in Lyons. All his works were painted with Flemish care and finish, but were thoroughly original in their treatment. His pictures, though of small size, sold for large sums, especially his "Napoleon I." and "Friedland, or 1807"; illustrated *Paul and Virginia* and the *Chaumière Indienne*.

MELBA, MADAME, or **HELEN PORTER ARMSTRONG** (1865-). An Australian soprano operatic singer; born near Melbourne; performed publicly at six; appeared in London (1886); took Brussels and Paris by storm (1887 and 1889); sang in *Lucia di Lammermoor* at Covent Garden in London (1888); most successful in *Romeo and Juliet*; first appeared in New York in 1893 in *Lucia di Lammermoor*, where she has appeared every season since; sang at the World's Fair in Chicago (1893); one of the most celebrated *prime donne* of our time. Her stage name "Melba" is taken from the city of Melbourne.

MELCHERS, GARI (1860-). An American painter; born at Detroit, Mich.; studied at Düsseldorf and at Paris under Lefebvre and Boulanger; spent some time in Holland; noted for his Dutch scenes and figures; one of the decorators of the Columbian Exposition and of the Congressional Library. His best portraits are those of President Harper of the University of Chicago and Donald G. Mitchell or "Ik Marvel."

MEMLING or **MEMLINE, HANS** (about 1430-1495). A Flemish painter; born at Mainz on the Rhine; settled in Bruges. He was the Raphael of Flemish art. Reinach asks, "Is there a more fascinating achievement in all the domain of painting than the 'Shrine of St. Ursula' at Bruges? If we except those of Van Eyck, what portraits are superior to Memling's?"

MEN'DELSSOHN-BARTHOL'DY, FELIX (1809-1847). A celebrated German composer; born in Hamburg. His compositions consist of symphonies, operas, oratorios, and church music. His oratorios of *St. Paul* and *Elijah* are enduring monuments of his genius.

MENZEL, ADOLF (1815-1905). A German painter; born at Breslau; best known for his historical pictures and drawings illustrating the times of Frederick the Great and William I.

MERCADANTE, SAVERIO (1797-1870). An Italian composer; born at Altamura, in Apulia; studied in Naples; musical director of the Cathedral of Novara and of the Conservatorium at Naples (1840-1870); blind after 1862; composed *I briganti*, *Il giuramento*, *L'apoteosi d'Ercole*, and *Elisa e Claudio* (written for Lablache).

Dix-huit-cent-quatorze (1814). By Meissonier.

MERCIE, ANTONIN (1845-1916). A French sculptor; born at Toulouse; won the Prix de Rome (1868). Among his best works are the famous statue of Napoleon on the Vendôme Column; his "Gloria Victis," bought by the French government; "William Tell" at Lausanne; monument of Thiers in Père la Chaise; and "Jules Ferry" at St. Dié.

MESDAG, HENDRIK WILLEM (1831-1905). A Dutch painter: born at Groningen; studied at Brussels;

settled at The Hague (1869); a distinguished interpreter of marine views.

METSU or **METZU, GABRIEL** (1615-1667). A Dutch painter; born at Leyden; pupil of Gerard Dow; lived in Amsterdam; a master of domestic scenes and a better draughtsman than Dow.

MEULEN, ANTON FRANS VAN DER (1634-1690). A Flemish painter; born at Brussels; classed with the French school; painted the battle scenes and sieges for Louis XIV., to whom Colbert appointed him court painter. His works are in Versailles and at the Louvre.

MEUNIER, CONSTANTIN (1831-1905). A Belgian sculptor; born at Brussels; studied painting under Degroux. At 50, under the influence of Rodin, he began sculpture, taking as his subjects the mining poor of Belgium. His "Ecce Homo," "An Old Colliery Horse," "The Shingler," and "Fire Damp" are among his best.

MEYERBEER, GIACOMO (JAKOB MEYER-BEER) (1791-1864). A German musical composer. Among his works are *Robert le diable*, the *Huguenots*, and *L'Africaine*, all successful operas.

MICHAEL ANGELO (MICHELANGELO BUONARROTI) (1475-1564). An Italian painter, sculptor, architect, and poet; "the Dante of the arts;" patronized by Lorenzo the Magnificent; went to Rome, where he designed the decorations for the Church of St. Peter; became architect of that magnificent structure in 1547, and devoted the rest of his life almost exclusively to its completion. Among his works are "Battle of the Centaurs," "Madonna," "Cupid," "Pietà," "David," "The Holy Family of the Tribune," the "Manchester Madonna," the sublime statue of "Moses," and his last picture, "The Last Judgment."

Gloria Victis. By Mercie.
Hotel de Ville, Paris.

MILLAIS, SIR JOHN EVERETT (1829-1896). An English painter; born in Southampton. In portraiture he held the foremost rank, and painted a number of the most distinguished men of his day. Many of the works of Millais are well known by engravings. He was markedly influenced by Dante Gabriel Rossetti and Holman Hunt in the pre-Raphaelite Brotherhood movement as well as by Ruskin.

MILLER, CHARLES HENRY (1842-1922). An American landscape painter; born in New York City; studied medicine; studied art in Munich, Dresden, and Berlin for several years; settled in New York (1870); member of the National Academy (1875). His best works include "Sunset—East Hampton," "Old Oaks at Creedmoor," "An Autumnal Day," and "A Grey Day on Long Island"; wrote *The Philosophy of Art in America* as "Carl de Muldor."

MILLET (*mil-lay'*), **AIME** (1819-1891). A French sculptor; born in Paris. His "Ariadne" (1857) was bought for the Luxembourg. His masterpiece is the colossal "Vercingétorix" at Alise-Ste.-Reine in Côte d'Or. "Apollo" at the Grand Opera and "Mercury" at the Louvre are well known.

MILLET (*mil'let*), **FRANCIS DAVIS (1846-1912).** An American artist and author; born at Mattapoisett, Mass.; studied at Harvard; studied art at Antwerp; war correspondent in the Russo-Turkish War (1877-1878) for the New York *Herald*, London *Daily News*, and *Graphic*, and for London and New York papers at Manila (1898); director of decorations at the World's Fair (1893); studied mural work under La Farge; helped to decorate Trinity Church, Boston; best work is "Between Two Fires" in the National Gallery, London.

The Princes in the Tower. By Millais.

MILLET (*mil-lay'*), **JEAN FRANCOIS** (1814-1875). A French painter. In 1849 he settled among the peasants of Barbizon, on the edge of Fontainebleau forest, and devoted himself to transferring their simple everyday life to his canvases, which he did with great truth of sentiment and subdued poetic charm. Of his paintings "The Angelus" was sold by auction in Paris, in 1889, for about $115,000. His "Sower," "Peasants Grafting," "The Gleaners," "Waiting," "The Sheep Shearers," "The Man with the Hoe," "Women Carding," and "The Shepherdess and Flock" are his chief productions.

MILMORE, MARTIN (1845-1883). An American sculptor; born at Sligo, Ireland; studied sculpture with Thomas Ball in 1860; made several statues for Boston Horticultural Hall; modeled the Soldiers' Monument for Roxbury, Mass. (1867); the Soldiers' and Sailors' Monument for Boston Common (1877); busts of Pope Pius IX., Wendell Phillips, Emerson, Sumner (in the Metropolitan Museum at New York), Grant, Lincoln, and Webster; and, with his brother, the granite sphinx in Mount Auburn Cemetery, Cambridge, Mass.

MILLS, CLARK (1815-1883). An American sculptor; born in Onondaga County, N. Y. Charleston, S. C., bought his bust of Calhoun for the City Hall (1846); cast the statue of General Jackson for Lafayette Square at Washington (1852). The colossal equestrian statue of Washington was bought by the government for $50,000 (1860); cast Crawford's colossal statue of Liberty for the dome of the Capitol (1863).

MINOR, ROBERT CRANNELL (1840-1904). An American landscape painter; born in New York City; studied in New York, in Barbizon, under Diaz, and at Antwerp; settled in New York in 1872; painted much

of the Hudson valley, including his effective "Twilight" in the Metropolitan Museum at New York; elected N. A. in 1897.

MITCHELL, MARGARET JULIA, or "MAGGIE MITCHELL" (1832-1918). An American actress; born in New York City; began acting at five; appeared as Julia in *The Soldier's Daughter* (1851). Her best rôles were Jane Eyre, Mignon, and Fanchon in *Fanchon the Cricket*, which last she played more than 2,000 times.

MODJESKA, HELENA (1844-1909). A Polish actress; born in Cracow. She began to act in a traveling company in 1861. Four years later she made a great name at Cracow. She settled with her second husband near Los Angeles, Cal., to try farming, but the enterprise not succeeding she returned to the stage and won a complete triumph at San Francisco in 1877 as Adrienne Lecouvreur in English. Among her most successful rôles were Juliet, Rosalind, Beatrice, and the leading part in the *Dame aux camélias*. She returned to farming in California in 1895.

THE GLEANERS. BY J. F. MILLET.

MOELLER, LOUIS CHARLES (1856-). An American painter; born in New York City; studied decorative painting with his father, at the National Academy, and with Duveneck and Dietz at Munich; settled down to genre painting in New York and was elected N. A. in 1895.

MOLLENHAUER, EDWARD (1827-1914). An American violinist; born in Erfurt, Prussia; studied with Ernst in London and with Spohr in Cassel; first violin in Jullien's band in London (1850); settled and taught in New York (1853); composed much chamber music and the operas *The Corsican Bride*, *Breakers*, and *The Masked Ball*.

MONET, CLAUDE (1840-1926). A French painter; born at Paris; noted for his "Seine Pictures," his impressionism, and "open-air" landscape work; fought the mannerisms and academical conventionality and did much to secure greater freedom to the artist in treatment of his subjects; much influenced by the work of Corot, Millet, Manet, Degas, and Turner.

MOORE, ALBERT JOSEPH (1841-1893). An English painter; born in York; brother of Henry Moore. Has been called "the poet of drapery."

MOORE, HARRY HUMPHREY (1844-1926). An American painter; born in New York City; studied with Gérôme in Paris and with Fortuny. Among his gorgeously colored pictures of oriental life are "The Gypsy Encampment, Granada," "Moorish Water Carriers," and "A Moorish Bazaar."

MOORE, HENRY (1831-1896). An English marine painter; born at York; noted for his "wild blue wastes" of sea and sky; elected R. A. in 1893; won the Grand Prix at Paris with his "Clearness after Rain" in 1889. The Tate Gallery has his "Catspaw off Land."

MORAN, EDWARD (1829-1901). An American painter; born at Bolton, England; came to America in 1844 and settled finally in Philadelphia; studied under James Hamilton and Paul Weber, then in London; noted for his marine work; elected A. N. A. (1873). Among his works are "Launching of the Life-Boat," "Relief Ship Entering Havre," "On the Narrows," "Nations Paying Tribute to Liberty," and 13 marine historical paintings, concluding with "Return of Admiral Dewey."

MORAN, PETER (1842-1914). An American etcher and painter; born at Bolton, England; brother of Edward Moran; studied with his brothers and in London; one of the founders of the New York Etching Club (1877); president of the Society of Etchers in Philadelphia. His works include "The Return of the Herd," "Going to the Hunt," "The Challenge," "Wolves on the Buffalo Trail," and "The Stable Door."

MORAN, THOMAS (1837-1926). An American painter; born at Bolton, England; brother of Edward and Peter Moran; studied with James Hamilton; visited England to study Turner's works; studied in France and Italy; noted for his marvelous colorings of a series of paintings of the Yellowstone and Colorado, including "Grand Cañon of the Yellowstone" and "The Chasm of the Colorado," bought by Congress and now in the Capitol; also "The Mountain of the Holy Cross," "Ponce de Leon," "San Juan Abajo," and "A Storm on the Coast of Easthampton."

MOREAU, GUSTAVE (1826-1898). A French painter; born in Paris; a French exponent of pre-Raphaelism. His "Oedipe et le sphinx," "Orpheus," and "L'apparition" are among his best works.

MORETTO, IL, or ALESSANDRO BONVICINO (about 1498-about 1555). An Italian painter; born at Brescia; studied with Titian in Venice. His "Assumption" in the Church of San Clemente in Brescia is regarded as his masterpiece.

MORLAND, GEORGE (1763-1804). An English painter; born in London. Among his noted works are "The Gypsies," "The Tea Garden," "Inside of a Stable," "Old Sportsman," and "Dogs Fighting," owned by the New York Historical Society; "Midday Meal" and "Weary Wayfarers" in the Metropolitan Museum of New York.

MORRIS, CLARA (1849-1925). An American actress; born in Toronto, Canada; settled in Cleveland, Ohio; trained by John Ellslers; played in Cincinnati (1869); with Augustin Daly (1870); played Annie Sylvester in *Man and Wife*, her first success (1871); has done much literary work during her forced retirement from the stage through illness; married Frederick C. Harriot in 1874. Wrote reminiscences.

MORRIS, WILLIAM (1861-). An American actor; born in Boston, Mass.; played (1875) with the Boston Museum stock company; acted with Augustin Daly, Madame Modjeska, and as Lieutenant Hawkesworth in *The Girl I Left Behind Me*; in *The Lost Paradise* and *Under the Red Robe*; in partnership with Edward E. Rice (1901) in *When We were Twenty-one*, by H. V. Esmond.

MOSCHELES, IGNAZ (1794-1870). An Hungarian pianist and composer; born at Prague, of Jewish parents; taught at the London Academy of Music (1825); at the Leipzig Conservatory (1844-1870).

MOUNT, WILLIAM SYDNEY (1807-1868). An American genre painter; born in Long Island, N. Y.; successful in delineation of farm life and of negro character. Among his works are "Dance of the Haymakers" and "Music Hath Charms."

MOZART (*mo-zart'*; *Ger.*, *mo'tzart*), **JOHANN CHRYSOSTOMUS WOLFGANG AMADEUS** (1756-1791). A German composer; composed short pieces at the age of six, and at seven gave concerts in Paris and London; distinguished for the universality of his genius. He gave artistic form to opera. His *Marriage of Figaro*, *Don Giovanni*, *The Magic Flute*, and *The Requiem Mass* are among the most successful of his 624 compositions. His C major or *Jupiter*, G minor, and E flat symphonies are the best of his 41 symphonies.

MOZIER, JOSEPH (1812-1870). An American sculptor; born in Burlington, Vt.; settled in New York as a merchant until 1845; went to Rome. Among his works are "The Prodigal Son" in the Pennsylvania Academy, "The Wept of Wish-ton-Wish," "Tacite and Truth," "The Peri," "Pocahontas," "Rebecca at the Well," and "Il Penseroso."

MULLER, WILLIAM JOHN (1812-1845). An English landscape painter; born at Bristol; noted for his fine color in his Oriental studies.

MULREADY, WILLIAM (1786-1863). An Irish painter; born in Ennis, County Clare. Among his works are "Old Kaspar," "The Rattle," "The Carpenter's Shop and Kitchen," "Idle Boys," "Fight Interrupted," "The Sonnet," "Choosing the Wedding Gown," and "The Seven Ages"; elected R. A. in 1816.

MUNKAC'SY or LIEB, MICHAEL (1846-1900). A Hungarian painter; born in Munkacs. In 1872 he settled in Paris. He visited New York in 1886. Except a few portraits, "Milton Dictating Paradise Lost," "Christ before Pilate," and "Mozart's Last Moments," his works are nearly all genre pictures.

THE DIVINE SHEPHERD. BY MURILLO.
Prado Museum, Madrid.

MURIL'LO, BARTOLOME ESTEBAN (1617-1682). A celebrated Spanish painter; born at Seville. His subjects were drawn partly from low life and partly from religious or scripture themes, such as the "Immaculate Conception" and the "Assumption of the Virgin," as well as "Moses Smiting the Rock" and the "Miracle of the Loaves and Fishes"; died from a fall from a scaffold while painting an altarpiece at Cadiz.

MURPHY, JOHN FRANCIS (1853-1921). An American painter; born in Oswego, N. Y.; elected N. A. in 1887; won the second Hallgarten Academy prize with his "Tints of a Vanished Past" in 1885, and the Webb prize for the best landscape at the Society of American Artists in 1887. His "Autumn" in the Metropolitan Museum is considered his best. His "Uplands—Morning" is noted for its color.

MYRON (born about 480 B. C.). A Greek sculptor; born at Eleutherae, in Boeotia; famous for his bronzes, especially the "Cow" and the "Discobolus" or disc thrower.

NAEGELE, CHARLES FREDERICK (1857-1912). An American portrait painter; born in Knoxville, Tenn.; studied in New York under C. Myles Collier, William Sartain, and William Merritt Chase; won the Columbian medal design prize (1892), the George Inness diploma prize, the Proctor diploma prize, and the seat of the Salmagundi Club prize. His most noted portraits are of Charles L. Tiffany, Roswell P. Flower, John W. Gates, Waldo Hutchins, and Mrs. Frederick S. Flower.

NASH, JOHN (1752-1835). An English architect; born in London; was the architect of Buckingham Palace and the Pavilion at Brighton.

NAST, THOMAS (1840-1902). An American artist; born in Landau, Bavaria. He is best known for his political cartoons, which were of great influence in the various political campaigns, and were effective in the exposure of the "Tweed ring." In 1902 he was appointed United States consul at Guayaquil, where he died of yellow fever.

NAUJOK, G. (1861-). A contemporary German artist; born in Königsberg. His world-wide fame rests upon his "St. Cecilia," which was painted in 1891 and excited popular interest when it was first exhibited at Dresden.

NEAGLE, JOHN (1799-1865). An American painter; born in Boston, Mass.; married the daughter of Thomas Sully, painter. His "Patrick Lyon at the Forge" in the Pennsylvania Academy is his best known. Among his portraits are those of Henry Clay, Dr. Thomas Parke, George Washington, and Gilbert Stuart.

NEAL, DAVID DAHLHOFF (1837-1915). An American painter; born at Lowell, Mass.; studied in Munich under Ainmüller (his father-in-law) and with Piloty and Wagner. Among his works are "The First Meeting of Mary Stuart and Rizzio," "Cromwell Visits Milton" (in the Public Library at Cleveland), "Nuns at Prayer," and portraits of Adolph Sutro, Rev. Mark Hopkins (at Williams College), and Whitelaw Reid.

NEILSON, LILIAN ADELAIDE (1848-1880). An English actress; born at Leeds; a brilliant and beautiful tragedienne; played five times in the United States (1872-1880).

NETHERSOLE, OLGA (1870-). An English actress; born in London; first appeared at Brighton (1887); lessee and manager of the Court Theatre in London (1894) and of Her Majesty's (1898); chief rôles are Sapho, Janet Preece in *The Profligate*, and the heroine in *La Tosca*; first appeared in America in 1894. Her most popular rôle was Paula in *The Second Mrs. Tanqueray* (1899).

NETTLETON, WALTER (1861-). An American painter; born in New Haven, Conn.; was graduated at Yale; studied in Paris under Lefebvre, Duran, Boulanger, and Harrison; settled in Stockbridge, Mass.; noted for his Breton landscapes and for his New England snow scenes.

NEUVILLE', ALPHONSE DE (1836-1885). A French painter of battle scenes; born at St. Omer. He was an illustrator of books, among others Guizot's *Histoire de France*. His "Rorke's Drift," "Bivouac before Le Bourget, 1872," and "Tel-el-Kebir" are well-known paintings.

THE VEIL OF ST. VERONICA. BY MURILLO.

NEVADA (WIXON), EMMA (1861-). An American soprano singer; born in Austin, Nevada; pupil of Marchesi in Vienna; made her début in London in *La sonnambula*; sang in *Lucia*, *Mignon*, *Martha*, and *Rigoletto*; made a tour of the United States in 1885; married Raymond Palmer, an English surgeon, lived in England since.

NEVIN, ETHELBERT (1862-1901). An American composer; born in Vineacre, near Pittsburg, Pa.; studied in Dresden under Von Böhme; returned and taught in Pittsburg; studied in Berlin under Klindworth

and with Bülow; taught in the music department of Yale University (1900). His *Water Scenes*, including the universally popular *Narcissus*; the suite *En Passant*; the *Tuscan* suite; and his songs "Lehn' deine Wang' an meine Wang'," "Rosemary," "I' the Wondrous Month of May," "'T was April," "Boris," and "In Winter I Get up at Night."

NEWELL, PETER, or **"SHEAF HERSEY"** (1862-1924). An American illustrator; born near Bushnell, Ill.; studied at the Art Students' League in New York; noted for his humorous drawings collected in *Topsys and Turvys*, *A Shadow Show*, and *Peter Newell's Pictures and Rhymes*. He illustrated Stockton's *The Great Stone of Sardis*, Twain's *Innocents Abroad*, and Bangs's *House-Boat on the Styx*.

NICOL, ERSKINE (1825-1904). A Scottish painter of Irish life and character; born in Leith; lived in Dublin (1845-1849); settled in London (1862). Among his popular works are "Among the Old Masters," "Both Puzzled," "Paying the Rent" in the Vanderbilt collection in New York, "The Trio," "Paddy's Mark" in the Corcoran Gallery, and "Interviewing their Member."

NICOLINI, ERNESTO, or **ERNEST NICOLAS** (1834-1898). A French tenor singer; born at St. Malo; settled in Italy (1859) and studied grand opera; sang *Faust* in London (1872); joined Patti's company as principal tenor, and sang with her in Europe and America for several years. After Patti's divorce from the marquis de Caux, Nicolini married her (1886).

St. Cecilia. By Naujok.

NICOLL, JAMES CRAIG (1847-1918). An American marine painter; born in New York City; studied with M. F. H. de Haas and Kruseman van Elten; one of the jury at the St. Louis Exposition (1904); elected N. A. in 1885; noted for his surf pictures. Among his best are "Squally Weather," "On the Newport Rocks," "Sunlight on the Sea," and "A Summer Surf."

NIEHAUS, CHARLES HENRY (1855-1922). An American sculptor; born in Cincinnati, Ohio; studied at the McMicken School of Design there and at Munich, where he won a first prize with his "Fleeting Time." Among his works are a statue of Washington on Race Street, Cincinnati, and another in the rotunda of the National Capitol; lived in Rome for a few years, where he did "The Scraper, or Greek Athlete Using a Strigil," "Caestus," and "Silenus"; lived in New York after 1885, where he executed a statue of William Allen for the National Capitol. Among others are those of Thomas Hooker, John Davenport, Moses, Gibbon, Lincoln, Farragut, McKinley, Hahnemann, and the Astor Memorial Doors of Trinity Church in New York.

NIKISCH, ARTHUR (1855-1921). An Hungarian conductor; born at Lebény Szent Miklós; studied at Vienna under Dessoff and Hellmesberger; conductor at Leipzig (1878); director of the Boston Symphony Orchestra (1889-1893); director at Budapest; conductor of the Philharmonic concerts in Berlin (1895) and of the Gewandhaus concerts in Leipzig, where he succeeded Reinecke; professor of the Leipzig Conservatory (1901); director of the Leipzig Opera (1905). He has composed a symphony and much chamber music.

NIKITA, LOUISE, or **LOUISA MARGARET NICHOLSON** (1872-). An American soprano singer; born in Philadelphia; studied with M. Le Roy in Washington; connected with an opera troupe for a time; studied in Paris under Maurice Strakcsch; made her début in grand opera as Zerlina in *Don Giovanni* in Paris (1889); prima donna soprano at the Paris Opéra (1894).

NILSSON, CHRISTINE (1843-1921). A Swedish soprano singer; born at Wexiö; studied at Stockholm and Paris; made her début in Paris (1864) as Violetta in *La Traviata*, and became one of the foremost soprano singers; frequently visited the United States. Ophélie, Violetta, Elsa, Margaret, Mignon, Donna Elvira, and the Countess were her most famous rôles.

NOLLEKENS, JOSEPH (1737-1823). An English sculptor; born in London; lived for many years at Rome, where he executed his "Timocles before Alexander" and "Mercury and Venus Chiding Cupid," and the busts of Garrick and Sterne; elected R. A. in 1772. Among his other works are Mrs. Howard's monument, statue of Venus, and the monuments of Captains Manners, Bayne, and Blair in Westminster Abbey.

NORDICA, MADAME LILLIAN (1859-1914). An American soprano; born in Farmington, Me.; studied at the Boston Conservatory and in Italy; sang at the Crystal Palace, London, and at the Trocadero in Paris (1873); studied under Sangiovanni at Milan and appeared in *La traviata* at Brescia (1880). Her chief parts have been in *Faust*, *Robert le diable*, *Rigoletto*, *Lucia*, *L'Africaine*, *Aïda*, *Les Huguenots*, *Don Giovanni*, and the Wagner rôles; sang at Baireuth (1894). At the Metropolitan Opera House in New York in recent years she has appeared as Isolde, Elsa, Brünnhilde, Elisabeth, and Kundry.

NOVELLO, VINCENT (1781-1861). An English composer and musical editor; born in London; for many years an organist; edited the works of Haydn, Mozart, and others; founded the musical publishing house which is now Novello, Ewer & Co.

O'BRIEN, LUCIUS RICHARD (1832-1923). A Canadian painter; born in Ontario; president of the Royal Canadian Academy of Arts (1880-1890). Among his works are many illustrations in *Picturesque Canada*, "Sunrise on the Saguenay" at Ottawa, and "A Portage on the Peribonea" in the Canadian Club of New York.

OCHTMAN, LEONARD (1854-). An American landscape painter; born in Zeeland, Holland; came to America in 1866; studied at the Art Students' League; won the landscape prize at the Brooklyn Art Club (1892), a medal at the World's Fair (1893), silver medals at the Pan-American (1901) and Charleston (1902), the Shaw prize at the Society of American Artists (1902), the Inness gold medal (1903), the Webb prize (1904), two gold medals at St. Louis (1904), and second prize at the Corcoran Gallery (1905); elected N. A. in 1904.

OFFENBACH, JACQUES (1819-1880). A musical composer, born at Cologne of Jewish parents. Conducted the Théâtre Français orchestra at Paris (1848-1855), and the Théâtre Comique in 1855. Wrote *Orphée aux enfers*, *La belle Hèléne*, *Madam Favart*, and *Les contes d'Hoffman*, which was produced in New York in 1908 by Hammerstein.

OLMSTED, FREDERICK LAW (1822-1903). American landscape architect of Hartford, Conn. Prepared the general plan of Central Park, New York, in collaboration with Calvert Vaux. Also consulting designer of the Capitol grounds at Washington and of other parks.

O'NEIL, JAMES (1849-1920). An American actor; born in Kilkenny, Ireland; brought to Buffalo (1850); studied acting in Cincinnati; appeared there and in St. Louis; noted for his presentations of Othello and other Shakespearean rôles. Later he excelled as Edmond Dantes in *Monte Cristo*, Virginius, Hamlet, and D'Artagnan in *The Three Musketeers*.

OPIE, JOHN (1761-1807). An English painter; born at St. Agnes, near Truro. His most noted works

are "Murder of James I. of Scotland," "Slaughter of Rizzio," "Jephtha's Vow," "Presentation in the Temple," "Arthur and Hubert," "Belisarius," and "Juliet in the Garden."

OPPER, FREDERICK BURR (1857-). An American illustrator; born in Madison, Lake County, Ohio; obtained a position as humorous illustrator with Frank Leslie in New York; on *Puck* for nearly 20 years; joined the New York *American* (1902). His works include "Our Antediluvian Ancestors," "Happy Hooligan," and "John Bull."

ORCAGNA, or ARCAGNOLO, or ANDREA DI CIONE (about 1316-about 1376). An Italian painter and sculptor who succeeded Giotto as the leading painter at Florence. His frescoes in the chapel of Santa Maria Novella at Florence; "St. Zenobius Enthroned;" "Crowning of the Virgin;" the architecture of the chapel of the Or San Michele at Florence; and a beautiful marble tabernacle in it are his chief works.

ORCHARDSON, WILLIAM QUILLER (1835-1910). A British painter; born in Edinburgh. Among his works are "The Challenge," "The Duke's Antechamber," "The Protector," "The Bill of Sale," "Queen of the Swords," "Hard Hit," "On Board H. M. S. Bellerophon," "Mariage de Convenance," "After," "Salon of Madame Récamier," "The First Cloud," "Her Mother's Voice," "The Young Duke," and "Reflections." He was a most refined painter of genre and history.

OSTADE, ADRIAEN VAN (1610-1685). A Dutch painter and engraver. His masterpiece is the "Schoolmaster" in the Louvre. He was a worthy pupil of Franz Hals.

OULESS, WALTER WILLIAM (1848-). An English portrait painter; born at St. Helier, Jersey. His best known portraits are those of Darwin, Gladstone, Bright, Lord Roberts, Newman, and Manning.

OVERBECK, JOHANN FRIEDRICH (1789-1869). A German painter; born at Lübeck; studied at Vienna; settled in Rome. Among his works are a "Madonna," five fresco compositions from Tasso's *Jerusalem Delivered*, "The Vision of St. Francis," "Christ's Entry into Jerusalem," "Christ's Agony in the Garden," "Lo Sposalizio," "The Triumph of Religion in the Arts," and the "Incredulity of St. Thomas."

PACHMANN, VLADIMAR DE (1848-). A Russian pianist; born at Odessa; first appeared in 1869; visited the United States in 1900 and several times since. His work is noted for his control of the *pianissimo* and for his excellent interpretations of Chopin.

PADEREW'SKI, IGNACE JAN (1859-). A celebrated Polish pianist; born at Podolia, in Russian Poland; made his début in 1887 with instant success. His first appearance created quite a furore in Paris and London; has several times visited the United States; professor at the Conservatoire at Warsaw (1878) and at the Strassburg Conservatoire (1884). He has composed for the piano, for the voice, and for the piano and orchestra.

PAGANI'NI, NICOLO (1784-1840). A phenomenal Italian violinist; born at Genoa; gave his first concert in 1793; began his professional tours in 1805. His success was unbounded in Austria, Germany, London, and Paris.

PAGE, WILLIAM (1811-1885). An American artist; born at Albany, N. Y.; studied art under James Herring and S. F. B. Morse; became a portrait painter at Albany and, later, in New York; elected N. A. in 1836 and president of that society (1871-1873); resided in Boston (1844-1847) and in Florence and Rome (1849-1860); painted portraits of the Brownings; settled in New York (1860) and made portraits of Beecher, Wendell Phillips, Lowell, Charlotte Cushman, Grant, Sumner, and the painting of Farragut in Mobile Bay, which was presented to the czar of Russia. His other works include "Venus," "Moses and Aaron on Mount Horeb," "The Holy Family," and "The Infancy of Henry IV."

PAINE, JOHN KNOWLES (1839-1906). An American composer; born in Portland, Me.; was educated by Hermann Kotzschmar in Boston and by Haupt in Berlin; instructor in music at Harvard University (1872); professor of music there (1876). Theodore Thomas played his first symphony (1876). His symphony *Spring* has been played many times. His *Oedipus Tyrannus*; overtures for *The Tempest* and *As You Like It*; the music for Whittier's *Centennial Hymn* (1876); the *Columbus March* for the World's Fair (1903); the *Hymn of the West* for St. Louis Exposition (1904); an opera, *Azara*; a mass; an oratorio, *St. Peter*; several cantatas; some chamber music; and piano and voice compositions are his chief works.

PALESTRI'NA, GIOVANNI PIERLUIGI DA (1524-1594). A celebrated Italian composer of sacred music; surnamed "the Prince of Music"; born at Palestrina; produced a number of masses which at once raised him to the foremost rank among composers; was the author of the well known *Dies Sanctificatus*.

PALLA'DIO, ANDREA (1518-1580). An Italian architect; born at Vicenza, of poor parents; was precursor of the modern Italian style of architecture. His works, which are masterpieces of the Renaissance, consist principally of palaces and churches.

PALMA, JACOPO, or PALMA VECCHIO (about 1480-1528). An Italian painter; born in Venice; the foremost of the second class of great Venetian artists. His "Adoration of the Shepherds" in the Louvre is one of the most charming idyls of Venetian art.

PALMER, ALBERT MARSHAM (1838-1905). An American theatrical manager; born at North Stonington, Conn.; studied law and practised for less than one year; librarian of the New York Mercantile Library (1869-1872); manager of the Union Square Theatre (1872-1882), and presented there *Agnes*, *The Two Orphans*, *Rose Michel*, *The Danicheffs*, *Miss Multon*, *A Parisian Romance*, *The Banker's Daughter*, and *My Partner*; manager of the Madison Square Theatre (1884-1888), presenting such plays as *Jim the Penman*, *A Pair of Spectacles*, and *Saints and Sinners*; bought Wallack's Theatre, which he renamed Palmer's Theatre. It was not successful; originated (1882) and was president for 14 years of the Actors' Fund of America.

PALMER, ERASTUS DOW (1817-1904). An American sculptor; born at Pompey, N. Y.; began to cut cameos in Albany, N. Y. (1846); exhibited his marble bust, "Infant Ceres" (1851), followed by "Faith," "Mercy," portrait busts of Alexander Hamilton and Washington Irving, and statues of the "Sleeping Peri," "The White Captive," and "The Angel of the Sepulchre" in the Rural Cemetery at Albany.

PALMER, WALTER LAUNT (1854-). An American landscape painter; born in Albany, N. Y.; son of Erastus Dow Palmer; studied under F. E. Church and in Paris under Carolus Duran; won the second Hallgarten prize (1887), a medal at the World's Fair (1893), honorable mention at Paris (1900), silver medal at the Pan-American (1901) and at St. Louis (1904); elected N. A. (1897); noted for his snow scenes. His "Across the Fields" and "Lake George" are typical pictures.

PARE'PA-ROSA, MADAME, or EUPHROSYNE PAREPA DE BOYESKU (1836-1874). A British operatic singer; born in Edinburgh; first appeared in England in 1857 and in the United States in 1865. Her voice was a soprano of great power and compass and she was greatly admired in oratorio singing.

PARKER, HORATIO WILLIAM (1863-1919). An American composer; born in Auburndale, Mass.; studied with Emery and Chadwick and with Rheinberger at Munich; professor of music at St. Paul's School, Long Island (1888); Battell professor of music at Yale University (1894). His oratorio, *Hora Novissima*, has been sung on many important choral occasions in America and at Chester and Worcester in England—the first American composition heard there. His *Wanderer's Psalm* was sung at the Hereford festival in England in 1900. His other works comprise cantatas, songs, hymns, and organ and piano music.

PARMIGIANO, FRANCESCO MAZZUOLI (1504-1540). An Italian painter; born at Parma; studied in Rome; lived for a time in Bologna, then returned to Parma. Among his works are "Baptism of Christ," "St. Margaret," "Cupid Fashioning his Bow," and "Vision of St. Jerome."

PARRATT, SIR WALTER (1841-1924). An English organist and composer; born at Huddersfield; professor of the organ at the Royal College of Music in London (1883); organist to St. George's Chapel at Windsor (1882); conductor of the Windsor Madrigal Society; one of the foremost organists and one of the greatest exponents of Bach.

PARRHASIUS (*par-ray'she-us*) (flourished 400 B. C.). A gifted painter of ancient Greece; born at

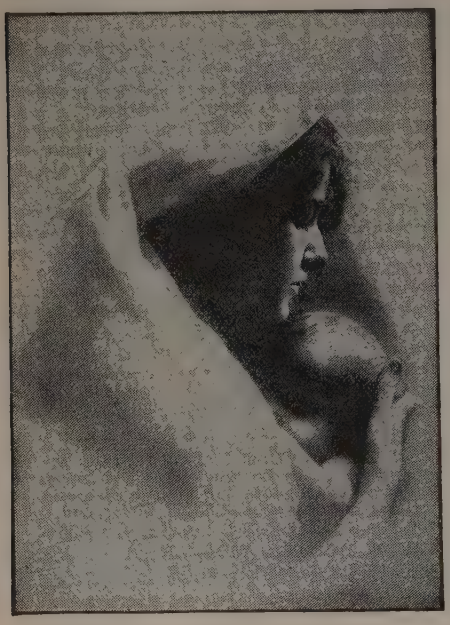
Ephesus; went to Athens and became the rival of Zeuxis. He was the contemporary of Socrates.

PARRISH, MAXFIELD (1870). An American painter and illustrator; born in Philadelphia; studied at the Pennsylvania Academy of Arts and with Howard Pyle. He is first in designing magazine covers; received honorable mention at the Paris Exposition (1900) and a silver medal at the Pan-American (1901).

PARSONS, ALBERT ROSS (1847-1920). An American musician and archaeologist; born at Sandusky, Ohio; studied at the Leipzig Conservatory and with Kullak, Moscheles, and Tausig. His songs "Night has a Thousand Eyes" and "Three Fishers" have been very popular. His contributions to musical literature include a translation of Wagner's *Beethoven, The Science of Pianoforte Practice, The Secret of Wagner's Genius,* and an essay on *Parsifal.*

PARSONS, ALFRED WILLIAM (1847-1920). An English painter; born at Beckington, Somersetshire. His chief work is of English landscapes in water color. The nation purchased through the Chantrey Bequest his "When Nature Painted All Things Gay." He illustrated Wordsworth's *Sonnets, The Warwickshire Avon,* and *The Danube from the Black Forest to the Black Sea* (with F. D. Millet).

PARTRIDGE, JOHN (1790-1872). An English portrait painter. His works are numerous and rank in the second class of portrait productions; painter in extraordinary to the queen.



MADONNA AND CHILD. BY PARTRIDGE.

PARTRIDGE, WILLIAM ORDWAY (1861-). An American sculptor; born in Paris, France; studied in Florence under Galli; came to the United States (1885) and was an actor and public reader; studied in Paris under Welonski. Among his works are a "Shakespeare" in Lincoln Park at Chicago, an "Alexander Hamilton" for the Hamilton Club in Brooklyn, a "General Grant" for the Union League Club of Brooklyn, and a series of portrait busts of the poets, including Shelley, Tennyson, and Whittier (in the Boston Public Library).

PAS'TA, JUDITH (1798-1865). A famous Italian operatic singer; born near Milan, of Jewish birth. Her celebrity lasted from 1821 to 1832, after which she retired into private life. She had a voice of great compass.

PAT'TI, ADELINA MARIA CLORINDA (1843-1919). A popular operatic singer of Italian extraction; born in Madrid, Spain; made her début in New York as Lucia in 1859, and she was ever afterward looked upon as one of the first singers of the day. Her voice was an unusually high, rich, ringing soprano.

PAUER, ERNST (1826-1905). An Austrian-English pianist; born in Vienna; studied there under Sechter; went to London in 1851; professor of the Royal Academy of Music (1859); in the National Training School (1867) and in the Royal College of Music (1883-1896). His lectures on music made him widely known. His compositions comprise three operas, a symphony, several songs, and some chamber music.

PAUR, EMIL (1855-). An Austro-American conductor; born at Czernowitz; studied in Vienna and under Hellmesberger and Dessoff; first violin at the Vienna Opera House; conductor at Cassel (1876-1880), at Mannheim (1880-1888); at Leipzig (1888-1893); director of the Boston Symphony Orchestra (1893-1898); conductor of the Philharmonic Society of New York (1898-1900); conductor of German works at Metropolitan Opera House (1900-1902); guest conductor in Spain, Germany, and Austria (1902-1904); director at Pittsburg (1904-1911); director Royal Opera House, Vienna (1912-1913); composer of songs, sonatas, concertos, etc.

PAYNE, JOHN HOWARD (1791-1852). An American actor and dramatist; born in New York City; made his début at the Park Theatre in New York (1809) as Young Norval in Home's *Douglas;* visited England in 1813, where he remained until 1832; wrote his *Brutus; or the Fall of Tarquin,* in which Edmund Kean took the principal part (1818). His opera, *Clari; or the Maid of Milan,* in which "Home, Sweet Home" occurs, was produced at Covent Garden (1823), sung by Miss M. Tree. Charles Kemble appeared in his *Charles II. Procrastination* and *The Spanish Husband* are also his plays; lived in Washington after 1832; appointed United States consul to Tunis by President Tyler and died there. He is best known as the author of "Home, Sweet Home."

PEALE, CHARLES WILSON (1741-1827). American writer and artist; born in Maryland. He attained distinction as a portrait painter and naturalist.

PEALE, REMBRANDT (1778-1860). An American artist; born in Bucks County, Pa.; when 17 years old executed a portrait of Washington, from whom he had three sittings. Congress purchased a later portrait.

PEEL, PAUL (1860-1892). A Canadian figure painter; born in London, Ontario; studied at the Pennsylvania Academy and in Paris under Gérome and Constant. His gold medal picture "After the Bath" was bought by Hungary for the gallery at Budapest. His "Two Friends" is in Buckingham Palace, London.

PENFIELD, EDWARD (1866-1925). An American artist; born in New York City; studied at the Art Students' League; an impressionist on poster work; art editor for the Harper publications (1891-1901); designed many advertising posters; devised many methods for printing and illustrating magazine articles in color; originator of the poster in America.

PENNELL, JOSEPH (1860-1926). An American illustrator, etcher, and author; born in Philadelphia; studied there; illustrator on the *Century* magazine for many years since 1881; visited Italy in 1883 to make illustrations for Mr. Howell's *Tuscan Cities;* married Elizabeth Robbins (1884), who has collaborated with him in a number of books, such as *A Canterbury Pilgrimage, Our Sentimental Journey through France and Italy, Two Pilgrims' Progress, Our Journey to the Hebrides,* and a *Life of James McNeill Whistler* at his own request.

PERRAULT, LEON BAZELE (1837-). A French genre painter; born at Poitiers; pupil of Picot and Bouguereau; won medals at Paris (1864) and Philadelphia (1876); chief works include "The Bather," "Repose," "Christ in the Tomb," and "Maternal Tenderness."

PERUGINO (*pay-roo-je'no*), **PIETRO,** or **PIETRO VANNUCCI** (1446-1524). An Italian painter; born in Città della Pieve. He was employed for 10 years in the Sistine Chapel and the Stanze of the Vatican, and on his return to Perugia opened a school and had Raphael among his pupils. His best works are the "Pietà" in the Pitti Palace and "Christ Giving the Keys to Peter" in the Sistine Chapel (the rest of his frescoes there being destroyed to make way for Michelangelo's "Last Judgment"). His fresco in the Stanze of the Vatican, "Stanza del Incendio," was the only one spared by Raphael when he repainted the walls.

PERUZZI, BALDASSARE (1481-1535). An Italian architect and painter; born at Accajano, near Siena; designed the Villa Farnesina; succeeded Raphael as the

architect of St. Peter's; city architect of Siena and designed the fortifications and executed "The Sibyl Announcing the Nativity to Augustus"; returned to Rome in 1532 and designed the palaces of the Orsini, Massimi, and Vidoni.

MADONNA. BY LEON PERRAULT.

PHIDIAS (490-432 B. C.). The greatest of Greek sculptors and architect of the Parthenon. He was never excelled in expressing the ideal majesty of the human form, and his "Zeus" at Olympia is counted among the wonders of the world.

PHILLIPS, ADELAIDE (1833-1882). An American contralto; born at Stratford-on-Avon, England; brought to Boston, Mass., at seven; appeared at the Boston Museum (1843) as Little Pickle. Through the efforts of Jenny Lind she was sent to Italy to study singing; made her début at Brescia in *Semiramide*; returned in 1854; appeared as Azucena in *Il trovatore* (1856) and for 20 years was the leading contralto operatic singer in America.

PICKNELL, WILLIAM LAMB (1852-1897). An American painter; born at Hinesburg, Vt.; studied at Rome, Paris, and in Brittany under Inness, Gérôme, and Wylie; came back in 1882. His works include "Route de Concarneau," "Coast of Ipswich," "Bleak December," "Among the Olives," and "Route de Nice."

PINERO, ARTHUR WING (1855-). An English dramatist; born in London; studied law; acted in London theaters; noted for a series of comedies, including *The Magistrate*, *The Schoolmistress*, *Dandy Dick*, *The Cabinet Minister*, *The Amazons*, *Sweet Lavender*, *The Profligate*, *Lady Bountiful*, *The Second Mrs. Tanqueray*, and *The Notorious Mrs. Ebbsmith*.

PINSUTI, CIRO (1829-1888). An Italian composer; born near Siena; taught singing in England (1848); at the Royal Academy of Music at London (1858-1885); wrote the operas *Il mercante di Venezia* and *Mattia Corvino*, a *Te Deum*, nearly 300 songs, and numerous pianoforte compositions.

PISANO, ANDREA (1270-about 1349). An Italian sculptor; apprentice to Giovanni; worked on the Campo Santo; made the bronze door of the baptistery of Florence; and completed Giotto's bas-reliefs for the Campanile.

PISANO, GIOVANNI (1240-1320). An Italian sculptor and architect; son of Niccola Pisano; built the beautiful Campo Santo Cemetery at Pisa and the tomb of Pope Benedict XI. at Perugia.

PISANO, NICCOLA (1206-1278). An Italian sculptor and architect; born at Pisa; designed the basilica of St. Anthony at Padua; built the Santa Trinità at Florence and the San Domenico at Arezzo.

PLANQUETTE, ROBERT (1850-1903). A French composer; born in Paris; wrote the popular operas *Cloches de Corneville* or *Bells of Corneville*, *Le chevalier Gaston*, *Rip Van Winkle*, *The Old Guard*, *Paul Jones*, *Le Talisman*, and *Mam'zelle Quat'sous*.

PLATT, CHARLES ADAMS (1861-). An American painter, etcher, and architect; born in New York City; studied there and with Boulanger and Lefebvre in Paris. His works include the landscapes "Early Spring," "Clouds," and "Snow," and the etchings "The Market Slip at Low Tide in St. John, N. B.," "On the Connecticut River," and many Dutch scenes.

PLOCKHORST, BERNHARD (1825-). A German painter; born in Brunswick; studied in Munich with Piloty; professor at the Weimar Art School (1866-1869). His works are confined to religious and historical subjects.

POLLAIUOLO, ANTONIO (1429-1498). An Italian painter and sculptor; born at Florence. In metal work he did "The Feast of Herod" and "The Dance of Herodias's Daughter"; in painting, "Battle of the Nudes," "Hercules Strangling Antaeus," and St. Christopher and the Infant Christ" (in the Metropolitan Museum at New York); one of the first to study anatomy in connection with drawing.

THE CONSOLING CHRIST. BY PLOCKHORST.

POLYCLITUS (about 480-about 410 B. C.). A Greek sculptor; born at Sicyon and lived in Argos; studied along with Myron and Phidias. Among his chief works is the "Doryphorus" or spear bearer, known as the "Canon" or chief type of a perfect male figure. A copy of it found in Pompeii is now in Naples. His "Diadumenos," an athlete binding a fillet around his head, is revealed to us by a copy now in the British Museum. His gold and ivory statue of Hera was made for the Heraeum at Argos. He designed the theater at Epidaurus.

POORE, HENRY RANKIN (1859-). An American painter; born in Newark, N. J.; studied in New York, Philadelphia, and at Paris under Lumenais and Bouguereau; instructor in the Pennsylvania Academy. Among his works are "Close of a City Day," "Fox Hounds," "Hounds in Winter," and "Clearing Land."

PORTER, BENJAMIN CURTIS (1843-1908). An American portrait painter; born at Melrose, Mass.; noted for his portraits of the leading society women of Boston and New York; elected N. A. in 1880.

POTTER, PAUL (1625-1654). A Dutch animal painter; born at Enkhuizen. The life-size "Young Bull" at The Hague, his "Dairy Farm," and "The Bear Hunt" are among the best known of his works.

POUSSIN, NICOLAS (1594-1665). A French painter; born at Les Andelys, in Normandy. He was the greatest artist of the seventeenth century. His renderings of Scriptural subjects are among the finest illustrations that have been made of the Bible. In them he falls little short of Raphael.

POWERS, HIRAM (1805-1873). An American sculptor; born in Woodstock, Vt. In 1835 he went to Washington. Two years later he was enabled to go to Italy to study his art, and he resided in Florence till his death. There he produced his statue of "Eve," which excited the admiration of Thorwaldsen, and in 1843 the still more popular "Greek Slave," of which six copies in marble, with cast copies innumerable, were produced. Among the other works, the chief were "Proserpine," "Il Penseroso," "A Californian," "An American," and a bust of Washington for the state of Louisiana, of Calhoun for South Carolina, and of Daniel Webster for Boston, as well as of John Q. Adams, Andrew Jackson, Marshall, Van Buren, and other distinguished Americans.

POYNTER, SIR EDWARD JOHN 1836-1919). An English painter; born in Paris; studied in Rome under Leighton, in England under Dobson, and in Paris under Gleyre; elected R. A. in 1876. Among his works are "Atalanta's Race" and "Visit to Aesculapius." His *Lectures on Art* are taken from those delivered at University College at London; president of the Royal Academy (1896).

PRADIER, JAMES (1790-1832). A Swiss sculptor; born at Geneva; won the Prix de Rome with his "Philoctetes" in 1813; studied for five years in Rome; one of the greatest sculptors of his day. Among his other works are "Bacchante and Centaur," "The Children of Niobe," "Psyche," "An Odalisque," "Spring," and "Pandora."

PRADILLA, FRANCISCO (1847-1921). A Spanish painter; born at Villanueva de Gallego. Among his best works are "The Rape of the Sabines," "Mad Johanna Following the Coffin of Philip the Fair," and "The Surrender of Granada to Ferdinand and Isabella"—a magnificent canvas.

PRATT, SILAS GAMALIEL (1846-1916). An American composer; born in Addison, Vt.; studied in Berlin with Kullak and Bendel, and, later, with Liszt and Dorn; organized the Apollo Club in Chicago (1872) and conducted a season of opera there; made a tour of Europe (1884), playing his own music. Among his works are the operas *Zenobia*, *The Triumph of Columbus*, and *Lucille*, and symphonies, cantatas, songs, etc.; established a school in New York City in 1895.

Detail from the Muses. By Puvis de Chavannes. Boston Public Library.

PRAXIT'ELES (360-280 B. C.). A celebrated Greek sculptor; executed several fine statues, in bronze and marble, of Bacchus, a satyr, Venus, and Apollo. Of his work the "Hermes of Olympia" is the only original example extant. He excelled by the grace, tenderness, and finish of his works. He was esteemed as second to Phidias only.

PRUD'HON, PIERRE (1758-1823). A French painter; one of the most fascinating of the great French masters and the most original of the painters of the Empire period of France. His "Zephyr and Psyche" in the Louvre and his "Justice and Divine Vengeance Pursuing Crime" are fine examples of his work.

The Old Violin. By Howard Pyle. Illustration from Holmes' Autocrat.

PURCELL, HENRY (1658-1695). An eminent English musician; born at Westminster; excelled in several forms of musical compositions; was the author of anthems, cantatas, glees, etc., which attained great popularity. He is regarded as the greatest of English composers.

PUVIS DE CHAVANNES, PIERRE (1824-1898). A French painter; born at Lyons; studied under Henri Scheffer. Among his works are "Peace," "War," "Labor," "Repose," "Ave Picardia Nutrix," "Ludas pro Patria," five panels from the "Life of St. Geneviève" at the Pantheon in Paris, and nine fine panels in the Boston, Mass., Library, including "The Muses Saluting the Spirit of Enlightenment" and the "Arts" and "Sciences."

PYLE, HOWARD (1853-1911). An American illustrator and author; born in Wilmington, Del.; an illustrator for periodicals, and became popular also as a writer, chiefly of juvenile literature. His works include *Buccaneers and Marooners of America*, etc.

QUERCIA, JACOPO DELLA (about 1374-1438). An Italian sculptor; born at Quercia, near Siena; first to use a wooden framework covered with plaster in making large statues; best work is seen in a door of San Petronia at Bologna, decorations in Santa Maria del Fiore, and the marble fountain in the market place at Siena.

QUIDOR, JOHN (1800-1881). An American figure painter; born in Gloucester County, N. J.; studied with Jarvis and Inman; settled in New York in 1851. Four of his paintings used in illustration of Irving's *Knickerbocker History of New York* are at the Brooklyn Museum.

RACHEL, ELISA (1821-1858). A great French tragédienne; born in Switzerland, of Jewish parents; made her début in Paris in 1837, and soon became famous as the interpreter of the principal characters in the masterpieces of Racine and Corneille, her crowning triumph being the representation, in 1843, of Phèdre in the tragedy of Racine.

RAEBURN, SIR HENRY (1756-1823). A British portrait painter; born at Stockbridge, near Edinburgh;

was introduced to Reynolds in London, and after two years' absence in Italy settled in Edinburgh and became famous as one of the greatest painters of the day. He painted portraits of many distinguished Scotchmen of the period, including Sir Walter Scott.

RAMEAU (*ra-mo'*), **JEAN PHILIPPE** (1683-1764). A French composer; born at Dijon; wrote on harmony and, settling in Paris, composed operas, his first successful one, *Hippolyte et Aricie*, and his best, *Castor et Pollux*. His work laid the foundation for a rational science of harmony.

RAPHAEL, RAFFAELLO SANZIO, or SANTI D'URBINO (1483-1520). The greatest of modern painters; born in Urbino, Italy. He received his earliest instructions from his father, Giovanni Santi, after whose death, in 1494, he probably became the pupil of Timoteo Viti. In 1504 he visited Florence and lived there till 1508, when he was called to Rome by Pope Julius II. and employed to paint the chambers of the Vatican. Raphael spent the rest of his short life at Rome. In the numerous works, frescoes, and oil paintings of this unrivaled master, three styles are distinctly recognizable. The first is the "Umbrian," the second "Florentine," and the third style "Roman," and is peculiarly Raphael's own—that which constitutes him the greatest of painters. Its supreme excellence is the equable development of all the essential qualities of art, composition, expression, design, coloring. Among Raphael's oil paintings are the "St. Cecilia" at Bologna; the famous "Madonna di San Sisto," now in the Dresden Gallery; the "Spasimo di Sicilia," now at Madrid; and the "Transfiguration," his last work. His drawings are very numerous, and are to be found in most of the public and private museums of America and Europe. Raphael, who had occupied himself with architecture as well as painting, was charged, on the death of his friend, Bramante, in 1514, with the direction of the building of St. Peter's. Raphael died at Rome, in the height of his fame, on his thirty-seventh birthday.

MADONNA DI SAN SISTO. BY RAPHAEL.
Dresden Gallery.

RAUCH, CHRISTIAN DANIEL (1777-1857). An eminent Prussian sculptor; born in Waldeck; patronized by royalty; influenced at Rome by Thorwaldsen and Canova; resided chiefly in Berlin; executed statues of Blücher, Dürer, Schiller, and others, as well as busts. His masterpiece is a colossal monument in Berlin of Frederick the Great.

RAYMOND or O'BRIEN, JOHN T. (1836-1887). An American comedian; born in Buffalo, N. Y. His chief parts were in *Our American Cousin* with E. A. Sothern and as Colonel Mulberry Sellers in Mark Twain's *Gilded Age*.

REGNAULT (*reh-no'*), **ALEXANDRE GEORGES HENRI** (1843-1871). A French painter; born in Paris; son of Henri Victor Regnault (1810-1878); a genius of great power and promise, of which several remarkable works by him are proof; volunteered in the Franco-German War and fell at Buzenval.

REHAN or CREHAN, ADA (1860-1916). An American actress; born in Limerick, Ireland; played juvenile parts in Mrs. Drew's Arch Street Theatre in Philadelphia (1873); played in Daly's company from 1879 until his death in 1899. Among her many successful rôles are Rosalind, Katharine, Lady Teazle, Viola, Portia, and Peggy in *The Country Girl*.

REID, SIR GEORGE (1841-1913). A Scottish portrait painter; born at Aberdeen; illustrated *The Tweed from its Source*; studied under Israels; president of the Royal Scottish Academy (1891-1902).

REID, GEORGE AGNEW (1861-). A Canadian artist; born near Wingham, Ontario; studied under Harris at Toronto and Thomas Eakins at Philadelphia; worked under Constant, Lefebvre, and others in Paris. His "Foreclosure of the Mortgage," a medal winner at the World's Fair (1893), and his panels in the City Hall of Toronto are among his chief works.

REID, ROBERT (1863-). An American figure and mural painter; born at Stockbridge, Mass.; a pupil of William M. Chase and of Boulanger and Lefebvre in Paris. His designs in the Congressional Library, the Appellate Court House, the Paulist Fathers' Church in New York, and in the State House at Boston are among his best works.

REINHART, CHARLES STANLEY (1844-1896). An American artist; born in Pittsburg, Pa. He exhibited in Paris, Munich, and New York City, and was a member of several art associations.

THE DRAPERS' GUILD. BY REMBRANDT.
Rijks Museum, Amsterdam.

REMBRANDT VAN RYN, PAUL, or REMBRANDT HERMANSZOON (1606-1669). A Dutch painter; chief of the Dutch school; the greatest master of colors and unrivaled as an etcher. His "Entombment," "The Night Watch," the "Anatomical Lecture," and several portraits of himself and others are among his best works. Several are in the Metropolitan Museum at New York.

REMENYI (*ray-mane'yeh*), **EDOUARD** (1830-1898) An Hungarian violinist; born in Heves, Hungary. In 1854 he visited London, where he was appointed solo violinist to Queen Victoria; in 1860 returned to Hungary, where he attained great distinction. In 1878 he came to the United States, where he spent much of his time and gave many concerts.

REMINGTON, FREDERIC (1861-1909). An American artist and author; born in Canton, N. Y. He was one of the most conspicuous of American artists in "black and white." His "Broncho Buster," "The Wounded Bunkie," and his stories illustrated by his own drawings, *Pony Tracks*, *Crooked Trails*, *Frontier Sketches*, *Sundown Leflare*, and *John Ermine of the Yellowstone*, are among the more notable of his many fine works.

RENWICK, JAMES (1818-1895). An American architect; born in New York City; constructed the Croton Reservoir; studied under Upjohn; designed St. Patrick's Cathedral in New York (1858-1883), Vassar College, Grace and Calvary churches in New York, and the Smithsonian Institution and the Corcoran Gallery in Washington.

RESZ'KE, EDOUARD DE (1855-1917). A Polish opera singer; born in Warsaw; a brother of Jean de Reszke. He made his first appearance in Paris in 1876, taking rank as a leading star, with a bass voice of remarkable range and power. He has made several visits to the United States, filling the chief rôles in grand opera.

RESZKE, JEAN DE (1850-1925). A Polish opera singer; born in Warsaw. His début was made in Venice in 1874, under the name of De Reschi, as a baritone. In 1879 he sang as a tenor in Madrid, and since that year he has sung only in tenor rôles. His voice is of remarkable scope. He has made several tours in America.

REYNOLDS, SIR JOSHUA (1723-1792). The chief of English portrait painters; born in Devonshire; visited Italy and the great centers of art there, when he lost his hearing and settled in London in 1752, where he began to paint portraits and had as the subjects of his art the most distinguished people; "filled England with the ghosts of her noble squires and dames."

RIBE'RA, JUSEPE DE (1588-1656). A Spanish painter; born near Valencia; indulged in a realism of a gruesome type; had Salvator Rosa and Giordano for pupils.

RICHARDS, WILLIAM TROST (1833-1905). An American marine painter; born in Philadelphia; a pupil of Paul Weber; studied also in Florence, Rome, and Paris; noted for his painting of surf scenes. Many notable examples of his work are in the several galleries of the United States.

RICHARDSON, HENRY HOBSON (1838-1886). An American architect; born in St. James Parish, La.; studied in Paris; settled in Boston, Mass., in 1875; designed Trinity Church, Boston; the State Capitol at Albany; Brattle Street Church in Boston; Sever Hall at Harvard; the Allegheny County buildings at Pittsburg; the Field Building in Chicago; and the Chamber of Commerce in Cincinnati.

RICHTER, HANS (1843-1916). An Austrian musical conductor; born at Raab; chief assistant to Wagner; musical conductor at Munich and Budapest; conductor of the Court Opera Theatre and of the Philharmonic concerts at Vienna; conductor of an annual series of concerts at London; conductor of the Hallé concerts in Manchester; noted for his intimate knowledge of each instrument and for a prodigious memory.

RIMMER, WILLIAM (1821-1879). An American sculptor and teacher; born in Liverpool, England; settled in Boston (1868); lectured at the Lowell Institute and at Harvard University; director of the art school of Cooper Union (1866-1870). His "Falling Gladiator" in Boston, with a replica in the Metropolitan Museum in New York; a colossal head of St. Stephen; and a statue of Alexander Hamilton are his chief works; wrote *The Elements of Design*.

LATONA AND HER CHILDREN. BY W. H. RINEHART. Metropolitan Museum, New York.

RINEHART, WILLIAM HENRY (1825-1874). An American sculptor; born in Carroll County, Md.; studied in Italy and eventually settled in Rome. His "Chief Justice Taney" at Annapolis; "Atalanta," "Latona and her Children," "Diana," "Endymion," and "Rebecca" in the Corcoran Gallery; and his masterpiece, "Clytie Forsaken by Apollo" in Baltimore, are his chief works; left his property to assist young sculptors. The fund amounts to $100,000.

RISTO'RI, ADELAIDE (1822-1906). A distinguished Italian tragedienne; born at Cividale. Her career on the stage was a continuous triumph. The rôles in which she specially shone were those of Lady Macbeth, Medea, and Mary Stuart; visited the United States in 1866-1875 and 1884.

THE THINKER. BY RODIN.

RITTER, FREDERIC LOUIS (1834-1891). An American composer; born in Strassburg; pupil of Hauser in Strassburg and of Kastner in Paris; settled in Cincinnati, Ohio, in 1856; organized the Cecilia Society and the Philharmonic Society; conductor of the Arion Society in New York (1861); professor of music at Vassar College (1874); wrote five symphonies and more than 100 songs.

RITTER, HENRY (1816-1853). A Canadian painter; born in Montreal; studied with Gröger at Hamburg and with K. F. Sohn at Düsseldorf.

RIVE-KING, JULIE (1859-). An American pianist; born in Cincinnati, Ohio; studied with William Mason in New York and with Reinecke and Liszt in Germany. For 20 years she played with the leading orchestras; composed some piano pieces that have been popular.

RIVIERE, BRITON (1840-1920). An English painter; born in London; noted as a faithful painter of animals. His "Sympathy" in Holloway College and six pictures in the Tate Gallery are among his best works.

ROBBIA, ANDREA DELLA (1437-1528). A Florentine sculptor; nephew of Luca della Robbia; noted for his enameled terra cotta reliefs. His retable of the "Assumption" in the Metropolitan Museum at New York is a fine example of his work.

ROBBIA, LUCA DELLA (1399-1482). A Florentine sculptor; made 10 fine panels in the Cathedral at Florence, reliefs for the Campanile, a bronze door for the sacristy of the Cathedral, and the tomb of the bishop of Fiesole; originated the idea of terra cotta reliefs covered with enamel in polychrome, since known as Della Robbia ware.

ROBERTS, HOWARD (1843-1900). An American sculptor; born in Philadelphia; studied under Joseph A. Bailly and with Dumont in Paris. His "Fulton" in the National Capitol, "Lot's Wife," "Hypatia," and other statuettes are among his best known works.

ROBINSON, THEODORE (1852-1896). An American artist; born at Irasburg, Vt.; studied with Gérôme and Duran in Paris and with Monet; one of his best pictures—"Hudson River Canal"—was rejected when offered as a gift to the Metropolitan Museum in New York. A storm of protest followed. His "Winter Landscape" was accepted. His work was too impressionistic for the academic standard which obtained at the time.

ROBSON, STUART, or **ROBSON STUART** (1836-1903). An American actor; born at Annapolis, Md.; appeared first in Baltimore; played Captain Crabtree in *Black-eyed Susan* and in *Our Boarding-House*, Bronson Howard's *The Henrietta, She Stoops to Conquer, Oliver Goldsmith*, and others. He was associated with William H. Crane (1877-1889).

RODIN, AUGUSTE (1840–1917). A French sculptor, painter, and etcher; born in Paris. His work has been most hotly discussed and abused. On more than one occasion the commission has been withdrawn. Among his best known are "L'Age d'Airain," which he was accused of having cast from a living model; "Balzac;" "Victor Hugo Listening to the Inner Voices;" "The Burghers of Calais;" "La heaulmière;" "Gate of Hell;" "The Pillar of Work;" and the bronze statue of "St. John the Baptist."

ROGERS, RANDOLPH (1825-1892). An American sculptor; born in Waterloo, N. Y.; studied with Bartolini in Rome, where he spent much of his life. His most remarkable works include the bronze doors in the National Capitol with the eight panels of scenes from the life of Columbus; "The Angel of the Resurrection" for the tomb of Colonel Colt at Hartford; figures of Marshall, Nelson, and Mason on the Washington Monument at Richmond, Va.; the bronze statue of Lincoln in Philadelphia; "The Genius of Connecticut" for the Capitol at Hartford; and "Seward" in Central Park, New York.

Lady Hamilton. By George Romney.
National Portrait Gallery, London.

ROMNEY, GEORGE (1734-1802). An English portrait painter; born at Dalton, Lancashire; settled in London and became a rival of Reynolds in popularity. He painted men and women of the day, especially Emma, Lady Hamilton, whom he depicted in a long series of portraits. He was never admitted to the Royal Academy.

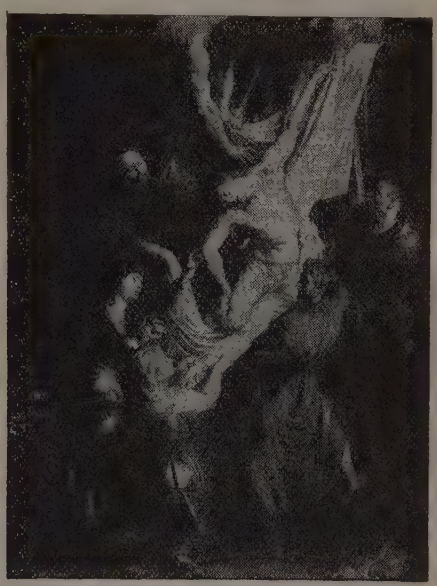
ROOT, GEORGE FREDERICK (1820-1895). An American composer and organist; born at Sheffield, Mass.; studied with George J. Weber; composed many popular songs, such as "The Battle Cry of Freedom," "Tramp, Tramp, Tramp," "Just before the Battle, Mother," and "There 's Music in the Air." His serious works include the cantatas *Flower Queen, Daniel, The Pilgrim Fathers, Belshazzar's Feast*, and *The Haymakers*.

ROSA, SALVATOR (1615-1673). An Italian painter; born near Naples; a man of versatile ability. His paintings of landscape were of a somber character, and generally representative of wild and savage scenes. His great ambition was to paint historical scenes; in "Conspiracy of Catiline," "Saul and the Witch of Endor," his aspiration is justified

ROSENTHAL, MORITZ (1862-). An Austrian pianist; born at Lemberg; a pupil of Liszt and occupied the front rank of pianists; made tours of the United States in 1887, 1896-1897, 1898, and 1906.

ROSENTHAL, TOBY EDWARD (1848-1917). An American painter; born in New Haven, Conn.; studied in San Francisco under Henri Bacon and Arriola, and under Piloty in Munich, where he has since lived. Among his works are "Morning Prayers in the Bach Family," "Elaine," "The Trial of Constance Beverly," and "A Dancing Lesson during the Empire."

ROSSI'NI, GIOACHINO (1792-1868). A celebrated Italian composer of operatic music; born at Pesaro. His operas were numerous, of a high order, and received with unbounded applause, beginning with *Tancred*, followed by *Barber of Seville, La gazza ladra, Semiramis, William Tell*, etc. He composed a *Stabat Mater*, and a *Mass* which was given at his grave,



Descent from the Cross. By Rubens.
Cathedral, Antwerp.

RUBENS, PETER PAUL (1577-1640). The greatest of the Flemish painters; born at Siegen, in Westphalia; went with his widowed mother in 1587 to Antwerp, where he sedulously cultivated the painter's art and early revealed his masterly gift of coloring; went to Italy, and for a number of years was in the service of the duke of Mantua, who encouraged him in his art and employed him on a diplomatic mission to Philip II. of Spain; executed at Madrid some of his finest portraits; returned to Antwerp in 1609; completed in 1612 his masterpiece, "The Descent from the Cross" in Antwerp Cathedral. With the aid of assistants he painted the series of 24 pictures now in the Louvre, illustrating the principal events in the life of Maria de' Medici during 1628-1629. Diplomatic missions engaged him in Spain and at the English courts, where his superabundant energy enabled him to execute many paintings for Charles I.

RU'BINSTEIN, ANTON GREGOR (1830-1894). A Russian musician; born at Wechwotynecz, Kherson; in 1848 settled in St. Petersburg as teacher of music, where he succeeded in getting a musical conservatory founded and became its director. In 1872 he came to the United States and had an enthusiastic reception. He ended his concert tours in 1886. As a pianist he held the highest rank, being usually reckoned the greatest since Liszt. He ceased playing in public some time before his death, which occurred in St. Petersburg, Russia.

RUCKSTUHL, FREDERICK WELLINGTON (1858-). An American sculptor; born at Breitenbach, Alsace. His parents brought him to St. Louis, Mo. (1854); studied in Paris. His works include "Evening" in the Metropolitan Museum in New York; "Mercury Leading the Eagle of Jupiter" in St. Louis;

"Solon" in the Congressional Library; statue of General Hartranft in Harrisburg; "Victory" on the Soldiers and Sailors' Monument at Jamaica, N. Y.; heads of Franklin, Goethe, and Macaulay on the façade of the Congressional Library; "Wisdom" and "Force" on the Appellate Court of New York; and "Gloria Victis" on the Confederate Monument at Baltimore.

RUDE, FRANCOIS (1784-1855). A French sculptor; born at Dijon; gained the Grand Prix (1812). His "Mercury," "Young Neapolitan Fisherman," and the trophy on the Arc de Triomphe de l'Etoile are among his best known works.

RUSK, WILLIAM (1756-1833). An American sculptor; born in Philadelphia. His works include the figureheads of the frigates *United States* and *Constitution*, "Exultation" and "Praise" in St. Paul's Church at Philadelphia, and statue of Washington in Independence Hall in Philadelphia.

RUSSELL, ANNIE (1869-). An American actress; born in Liverpool, England; appeared when a child on the stage at Montreal, Canada; played in *Pinafore*; joined the Madison Square company and played in *Esmeralda*, *Elaine*, and *May Blossom*; played *The Royal Family*, *Miss Hobbs*, and *The Girl and the Judge* (1898); played Puck in *A Midsummer Night's Dream* at the Astor Theatre (1906).

RUSSELL, SOL SMITH (1848-1902). An American actor; born in Brunswick, Me.; a drummer boy in the Union army; joined Daly's company (1874); starred in *Edgewood Folks*, *Peaceful Valley*, *A Poor Relation*, *A Bachelor's Romance*, and *The Hon. John Grigsby*.

The Windmill. By Ruysdael.

RUYSDAEL (*rois'dayhl*), **JACOB** (1628-1682). A famous Dutch landscape painter; born and died at Haarlem. Few particulars of his life are known. His best pictures, to be seen in the galleries of Dresden, Berlin, Paris, etc., display a fine poetic spirit.

RYDER, ALBERT PINKHAM (1847-1917). An American painter; born in New Bedford, Mass. His "Lowlands near Highbridge," "Forest of Arden," "Tempest," "Macbeth," "Siegfried," and "Flying Dutchman" are his best works.

SAFONOFF, VASILI DE (1852-1918). A Russian conductor; born at Istchory, in the Caucasus; studied at St. Petersburg under Zaremba, Leschetitzky, and Brassin; taught there and at Moscow; directed at St. Petersburg, Paris, and Berlin for years; led one of the Philharmonic Society concerts in New York (1905) and again in 1906, when he was appointed conductor of the society.

SAINT-GAU'DENS, AUGUSTUS (1848-1907). An American sculptor; born in Dublin, Ireland; came to the United States in infancy. In 1871, while in Rome, he produced his first figure, "Hiawatha." He returned to the United States in 1873. He designed the Medal of Award of the Columbian Exposition and a number of presentation medals authorized by Congress. His "Diana" on the tower of Madison Square Garden; "Farragut" in Madison Square, "Peter Cooper," and the equestrian statue of Sherman, all in New York; "Lincoln" and "John A. Logan" in Chicago; "Col. Shaw" in Boston; "Deacon Chapin" in Springfield, Mass.; his relief panel of Robert Louis Stevenson and "Grief" in Rock Creek Cemetery at Washington are his chief works.

SAINT-SAENS (*san sŏn'*), **CHARLES CAMILLE** (1835-1921). A French musician; born in Paris; for 19 years organist of the Madeleine; composer of a number of operas indifferently successful, and of much orchestral and chamber music of a masterly kind; is held to be one of the greatest pianists and organists; visited the United States in 1906.

Shaw Memorial. By Saint-Gaudens. Boston Common.

SAL'OMON, JOHANN PETER (1745-1815). A German violinist and composer; born at Bonn; went to London, and is remembered for the great stimulus he gave to musical culture; composed songs, glees, violin pieces, etc.; buried in Westminster Abbey.

SALVINI (*sal-vee'nee*), **TOMMASO** (1829-1915). An Italian tragedian; born in Milan. In 1849 he won great distinction in the revolutionary war. He scored success in Brussels and Madrid; visited the United States in 1873 and England in 1875. After another visit to the United States in 1880, and to Great Britain in 1884, he retired from the stage to enjoy a life of leisure in his villa near Florence (1890). Among his rôles were Romeo, Hamlet, Othello, the leading parts in Racine's and Corneille's plays, of Voltaire's *Zaïre*, and Alfieri's *Merope* and *Saul*.

SANDERSON, SIBYL (1865-1903). An American soprano; born in Sacramento, Cal.; studied in Paris under Massenet, Sbriglia, and Marchesi; made her début at The Hague in *Ninon* (1888); drilled by Massenet for her appearance in Paris in his *Esclarmonde* and *Thaïs* (1889). Saint-Saëns wrote *Phryne* for her (1893); sang Manon, Juliette, and Michaëla in the Metropolitan Opera House in New York in 1894 and in 1898; married Antonio Terry, a Cuban, in 1897.

SANDHAM, HENRY (1842-1910). A Canadian painter; born in Montreal; studied under J. A. Fraser and in Paris; lived for a time in Boston, Mass., then settled in Toronto (1890). His "Battle of Lexington," "Founding of Maryland," and portrait of Sir John A. McDonald are his chief works.

SARASATE, PABLO MARTIN MELITON (1844-1908). A Spanish violinist; born at Pamplona; studied in Paris and became one of the great artists of his time; first appeared in London at the Crystal Palace in 1861; played in America with Eugène d'Albert in 1889.

SARGENT, JOHN SINGER (1856-1925). An American portrait painter; born of American parents in Florence, Italy; studied there and with Carolus Duran in Paris. He settled in London in 1884, making occasional visits to America. He is the most distinguished of American portrait painters. The list of his excellent works is a long one and includes portraits of leading Americans, the "Pageant of Religions" in the Boston Public Library, and some idealistic works. He has been widely honored abroad and was awarded the Grand Prize at St. Louis in 1904.

SARTAIN, JOHN (1808-1897). An American artist; born in London, England; came to the United States in 1830 and was one of the first to introduce mezzotint engraving. He was the author of a large number of engravings for book illustration, and engraved many historical paintings; designed the monument to Washington and Lafayette in Monument Cemetery, Philadelphia, and published interesting personal reminiscences.

SARTAIN, WILLIAM (1843-1924). Born in Philadelphia, Pa.; son of John Sartain; studied under Bonnat in Paris; first picture exhibited at Royal Academy in London (1875). His "Lucia," "An Arab Café," "Narcissus" in Smith College, "In the Hackensack Valley," "The End of Day," and "The Sudden Shower" are notable.

HEAD OF EZEKIEL. BY SARGENT.
In the Boston Public Library.

SCHUBERT, FRANZ PETER (1797-1828). An Austrian composer; born in Vienna. The number and variety of his compositions are extraordinary. The most admired are his songs, and among them "The Erl-King" and "Ave Maria" are perhaps the best known; but he wrote also operas, sonatas, symphonies, overtures, cantatas, six masses, etc. Schubert spent almost his whole life at Vienna.

SCHUMANN, ROBERT (1810-1856). A German musical composer; born in Zwickau, Saxony. In the year following his marriage he published nearly 140 songs, many on Heine's words. He then commenced his great series of orchestral works, his symphony in B flat being first performed at the close of 1841. Under stress of work, however, his reason failed him, and after an attempt to drown himself in 1854 he was confined in a lunatic asylum, where he died.

SCHUMANN-HEINK, ERNESTINE (1861-). A German contralto; born at Lieben; studied with Marietta von Leclair at Gratz; made her début at Dresden (1878); sang at Baireuth (1896); came to the United States in 1898 and attained to great popularity in both opera and concert singing.

SCOTT, JULIAN (1846-1901). An American battle painter; born in Johnson, Vt.; studied in New York and with Leutze. His works are chiefly scenes from the Civil War and include "Rear Guard at White Oak Swamp" (in the Union League Club at New York), "Capture of André," and "In the Cornfield at Antietam."

SEIDL, ANTON (1850-1898). An Hungarian musical conductor; born in Budapest; studied at Leipzig; chorus master at Vienna (1870); Wagner's secretary (1873) and assisted with the production of the *Nibelungen Trilogy* at Baireuth (1876); conductor at Bremen (1883-1885); conductor of Wagner scores in Europe for several years; succeeded Leopold Damrosch at the Metropolitan Opera House in New York (1885-1891) and there produced for the first time in America *Tristan und Isolde*, *Siegfried*, *Die Götterdämmerung*, and *Die Meistersinger*; led the Philharmonic Orchestra for several years; conducted at Baireuth in 1886 and in 1897. He was one of the world's greatest Wagnerian leaders.

SEMBRICH, MARCELLA (1858-). A Polish soprano singer; born at Wisniowczyk; studied with Wilhelm Stengel, whom she married afterward, and with Epstein and Rokitansky; made her début in Athens in *I Puritani* (1877); sang in Europe and America for 10 years. After 1900 she sang for several seasons in New York. Among her notable parts are Rosina in the *Barber of Seville*, Norina in *Don Pasquale*, Lucia, Martha, and Leonora in *Il trovatore*.

SEWELL, ROBERT VAN VORST (1860-1924). An American painter; born in New York; studied in Paris under Lefebvre and Boulanger (1883-1887); won the first Hallgarten prize at the National Academy (1888); elected A. N. A. in 1902. His chief mural work is "The Story of Psyche" in the St. Regis Hotel in New York and "The Canterbury Pilgrims" in the residence of George Gould at Lakewood, N. J.

SHERWOOD, ROSINA EMMETT (1854-). An American artist and illustrator; born in New York; studied under William M. Chase and at the Julien Academy at Paris; did some decorations for the Woman's Building at Buffalo in 1901 and at St. Louis in 1904; has received medals in recognition of much good work.

SHERWOOD, WILLIAM HALL (1854-1911). An American teacher, composer, and pianist; born in Lyons, N. Y.; studied under William Mason in New York and in Europe under Kullak, Deppe, and Liszt; did concert work in Germany (1882-1884); taught in the New England Conservatory (1885); head of the piano department of the Chicago Conservatory (1889-1899); established the Sherwood Piano School; wrote a *Scherzo-Caprice*, a *Gypsy Dance*, and many other pieces.

SHIELD, WILLIAM (1748-1829). An English musical composer; born in Swalwell, Durham; wrote "The Ploughboy" and "The Wolf," and is said to have composed the air of "Auld Lang Syne" and "Comin' through the Rye."

SHIRLAW, WALTER (1838-1909). An American painter; born in Paisley, Scotland; came with his parents to Chicago in 1840; went to Munich (1870); teacher in the Art Students' League in New York (1876); first president of the Society of American Artists (1878); elected N. A. in 1888. His notable works include "Tuning the Bell," "Sheep Shearing in the Bavarian Mountains," "The Goose Girl," "The Marble Quarry," "A Street Scene in Brittany," "Rolling Steel Plates," "Emptying the Crucible," many designs for stained glass, and some mural decorations.

MADONNA AND CHILD. BY SICHEL.

SICHEL, NATHANAEL (1844-). A German painter; born in Mentz; studied with Schrader at Berlin and at Rome and Paris. Among his works are "Philip the Generous at his Wife's Tomb" and "Scenes from the Life of Mary Stuart."

SIDDONS, SARAH (1755-1831). The most distinguished of English tragediennes; born at Brecon, in South Wales. She belonged to the Kemble family, noted as actors; played with Garrick's company (1775). Her chief rôles were Euphrasia, Zara, Jane Shore, Belvidera, Calista, Lady Macbeth, Queen Katherine, Constance, Portia, Isabella, Desdemona, Imogen, Hermione, and Volumnia.

SIGNORELLI, LUCA (1441-1523). An Italian painter; born at Cortona; taught Michelangelo; worked

on the frescoes of San Francesco at Arezzo, in Perugia Cathedral, at Volterra, at Monte Oliveto, and at the Orvieto Cathedral. His paintings in the Vatican were destroyed to make way for those of Raphael.

SIMMONS, EDWARD EMERSON (1852-). An American painter; born at Concord, Mass.; was graduated at Harvard (1874); studied under Lefebvre and Boulanger in Paris; did part of the decorations of the Columbian Exposition buildings (1893) and mural work on courthouses and leading hotels in New York and on the Congressional Library.

PORTRAIT OF MRS. SIDDONS. BY GAINSBOROUGH.

SIMMONS, FRANKLIN (1839-1913). An American sculptor; born in Webster, Me.; was graduated at Bates College (1861); made medallion portraits of Farragut, Porter, Grant, Meade, Sheridan, Thomas, Sherman, and Hooker; went to live in Rome in 1868; made statues of Roger Williams, Governor Pierpont, Longfellow, General Logan, the statue of Grant for the G. A. R. memorial in the rotunda of the National Capitol, "Paris and Helen," and "Grief and History" on the Peace Monument at Washington.

SKINNER, OTIS (1858-). An American actor; born at Cambridge, Mass.; began acting at the Philadelphia Lyceum in 1877; engaged by Booth in 1880; leading man with Mme. Modjeska (1892-1895).

SMART, HENRY (1813-1879). An English composer and organist; born in London; wrote the opera *Bertha, or the Gnome of Hartzburg*, the cantata *The Bride of Dunkerron*, several anthems, many part songs, and several highly valued compositions for the organ.

SMEDLEY, WILLIAM THOMAS (1858-1920). An American painter and illustrator; born in Chester, Pa.; studied in Philadelphia and under J. P. Laurens in Paris; settled in New York in 1880 and did much work for *Harper's* and other magazines; elected N. A. in 1905. His works include a number of portraits, that of "Ruth" being exhibited in 1906.

SMETANA, FRIEDRICH (1824-1884). A Bohemian pianist and composer; born at Leitomischl; a pupil of Liszt; conductor of several societies; opened a school of music at Prague and taught Dvorák; a brilliant pianist.

SMILLIE, GEORGE HENRY (1840-1920). An American painter; born in New York; studied under James Hart and in Europe. Among his works are "The Merrimac River" in the Boston Art Club, "Light and Shadow Along the Shore" in the Union League Club at Philadelphia, "Boats of Venice," "Gloucester Harbor," "A Grey Day," "Vineyard Sound," and "At Narragansett"; elected N. A. in 1882.

SMILLIE, JAMES DAVID (1833-1909). An American painter; born in New York; studied in Europe (1862); elected N. A. in 1876. His recent works include "A Pool in the Woods" and "The River's Source."

SMIRKE, SIR ROBERT (1781-1867). An English architect; born in London; designed the Board of Trade, the Mint at Tower Hill, the Post Office in London, the British Museum, Covent Garden Theatre, London Customhouse, Carlton Club, and Union Club; elected R. A. in 1811.

SONTAG, HENRIETTE, COUNTESS ROSSI (1806-1854). A German singer; born in Koblenz; appeared with great success in European capitals; married Count Rossi in 1828 and retired in 1830; reappeared in 1849; made a tour of the United States in 1853.

SOTHERN, EDWARD ASKEW (1826-1881). An English-American comedian; made his mark in Taylor's *Our American Cousin*, appearing thousands of times in America and England; scored great successes as David Garrick and Lord Dundreary. His son, **EDWARD HUGH** (1859-), is now appearing with Julia Marlowe in Shakespearean rôles.

SOU'SA, JOHN PHILIP (1854-). An American musician; born in Washington, D. C. He was band leader of the United States Marine Corps (1880-1892), and in the latter year organized the famous Sousa Band, which gave concerts in England, France, and Germany, and all over the United States. He has composed numerous songs, waltzes, operas, and orchestral suites, but is best known from his marches, which have been republished throughout Europe. His *Washington Post, Liberty Bell, The Stars and Stripes Forever*, and his operettas *El Capitán, The Charlatan*, and *The Bride Elect* are very popular.

SPOHR, LUDWIG (1784-1859). A German composer and violinist; born in Brunswick; produced both operas and oratorios, *Faust* among the former, the *Last Judgment* and the *Fall of Babylon* among the latter.

SQUARCIONE, FRANCESCO (1394-1474). An Italian painter; born at Padua; founded one of the first Italian academies of art, and known as the "father of Italian painting"; taught Mantegna; best known by his altarpiece at Padua.

STAINER, JACOB (1621-1683). An Austrian violin maker; born near Innsbruck; founder of the Tyrolese school of violin makers.

STAINER, SIR JOHN (1840-1901). An English composer and organist; born in London; organist of St. Paul's (1872-1888); professor of music at Oxford (1889); wrote two cantatas, *The Daughter of Jairus* and *Mary Magdalen*; an oratorio, *The Crucifixion*; and a *Treatise on Harmony*.

STANFORD, SIR CHARLES VILLIERS (1852-1924). An Irish composer; born in Dublin; organist of Trinity College (1872); professor at the Royal College (1882) and at Cambridge University (1887). His work is varied and he stands in the front rank of British composers.

STEELL, SIR JOHN (1804-1891). A Scottish sculptor; born at Aberdeen; studied in Rome; modeled "Alexander Taming Bucephalus," the statue of Scott on Scott's Monument, statue of Queen Victoria, statue of Wellington, and the Albert Memorial, all in Edinburgh. His "Sir Walter Scott" and "Robert Burns" are in Central Park, New York.

STEEN, JAN (1626-1679). A Dutch painter; born in Leyden; studied under Knupfer, Adriaen von Ostade, and Van Goyen; known as the "Molière of painting."

STERLING, ANTOINETTE (1850-1904). An American contralto; born at Sterlingville, N. Y.; studied with Abella in New York and in Europe with Mme. Marchesi and Garcia; sang for a time in Beecher's church in Brooklyn; settled in London (1873). Sullivan wrote for her "The Lost Chord" and Barnaby, "When the Tide Comes In."

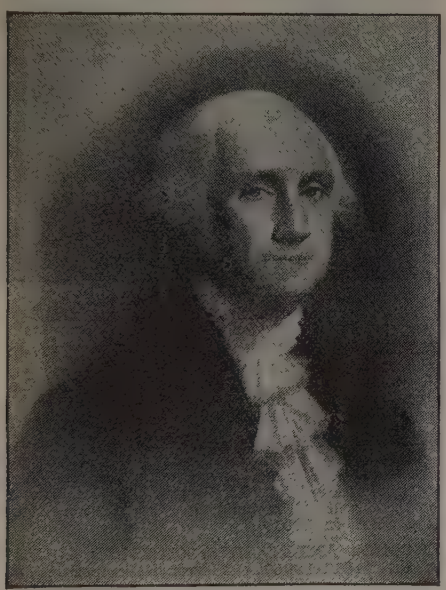
STERNBERG, CONSTANTIN (1852-). A Russian-American pianist; born at St. Petersburg; studied under Moscheles, Reinecke, Hauptmann, Kullak, and Dorn; came to America in 1880; taught in New York, in Atlanta, Ga., and established the Sternberg School of Music in Philadelphia in 1890.

STILLMAN, WILLIAM JAMES (1828-1901). An American painter and author; born in Schenectady, N. Y.; studied under Church and in London, where he

was influenced by Turner and Ruskin; painted in New York until 1861, when he was made consul at Rome, and at Crete in 1865; a friend of Lowell, Longfellow, Holmes, and Agassiz; wrote *The Acropolis of Athens, The Cretan Insurrection, The Old Rome and the New, Francesco Crispi,* and *Autobiography of a Journalist.*

STORY, WILLIAM WETMORE (1819-1895). An American sculptor and poet; born in Salem, Mass.; was graduated at Harvard (1838) and at the Law School in 1840; practised until 1845; went to Rome and opened a studio (1848), where he completed the statue of his father, which is in the Mount Auburn Cemetery at Cambridge, Mass. Among his sculptures are "Cleopatra," "Libyan Sibyl," "Delilah," "Jerusalem in her Desolation," "Semiramis"; statue of George Peabody in London, Edward Everett in Boston Public Garden, Professor Henry in the Smithsonian Institution, and the Francis Scott Key Monument in Golden Gate Park at San Francisco. Taft says that "Story's art came at the right time, and had its very powerful influence in interesting a large public."

STRADIVARI, ANTONIO (STRADIVARIUS) (1644-1737). An Italian violin maker; born in Cremona. It was he who settled the typical pattern of the Cremona violin, and his instruments, for tone and finish, have never yet been excelled. Though he sold his violins for $20, one recently realized $15,000 and one of his 'cellos, $20,000.



STUART'S PORTRAIT OF WASHINGTON.
Boston Art Museum.

STRAUSS, JOHANN (1804-1849). An Austrian composer; born at Vienna; formed his own orchestra and made successful tours of Europe (1833); wrote 152 waltzes, which did much to raise this form of music.

STRAUSS, JOHANN (1825-1899). An Austrian musician; born in Vienna. After composing dance music for many years he undertook an operetta, *Indigo,* which was produced in 1871 and met with instantaneous success. Subsequently he produced *The Forty Thieves, Cagliostro, The Gypsy Baron,* etc., and numerous waltzes, the best known being *The Beautiful Blue Danube.*

STRAUSS, RICHARD (1864-). A German composer and conductor; born at Munich; director at Meiningen; second conductor at Munich (1894); first conductor at Berlin (1898); visited the United States and conducted several of his own compositions (1905). Since the death of Brahms he is the most noted of living German musicians; wrote *Symphonia Domestica,* several symphonic poems, over 50 extremely popular songs, and the operas *Guntram, Feuersnot, Salome* (to Oscar Wilde's text), and *Elektra.*

STUART, GILBERT CHARLES (1755-1828). An American painter; born in Narragansett, R. I. In 1775 he made his way to London, where he led for two years a Bohemian life. Upon his talent being recognized he became a fashionable portrait painter. In 1792 he returned to the United States and painted portraits of Washington, Jefferson, Madison, John Adams, and many of the distinguished men of the period.

STURGIS, RUSSELL (1836-1909). An American architect and writer on art and architecture; born at Baltimore, Md.; studied in New York and in Europe; designed several of the Yale buildings and the Flower Hospital in New York; professor of architecture and of the arts of design at the College of the City of New York (1878-1880); edited the valuable *Dictionary of Architecture* and wrote *How to Judge Architecture, The Appreciation of Sculpture, The Appreciation of Pictures,* and *A History of Architecture.*

SULLIVAN, SIR ARTHUR SEYMOUR (1842-1900). An English musical composer; born in London; wrote the music for *The Tempest,* the dramatic work *Cox and Box,* and the grand opera *Ivanhoe;* with W. S. Gilbert, *Thespis, Trial by Jury, H. M. S. Pinafore, Pirates of Penzance, Patience, Iolanthe, Mikado, Yeomen of the Guard, Gondoliers, Utopia Ltd.,* oratorios, cantatas, anthems, part songs, hymns, tunes, and songs.

SULLY, THOMAS (1783-1872). An American portrait painter; born in Lincolnshire, England; brought by his parents to Charleston, S. C., in 1792; studied in London under Benjamin West; settled in Philadelphia in 1812. Stephen Girard built a home for him in 1825; visited London in 1837 and painted a portrait of Queen Victoria. His portraits include those of George Frederick Cooke as Richard III., Dr. Rush and Dr. Coates, Commodore Decatur, Thomas Jefferson, Charles Kemble, Rembrandt Peale, Andrew Jackson, William Gynn, and the portrait of himself which is in the Metropolitan Museum at New York.

SUPPE, FRANZ VON (1820-1895). An Austrian composer; born at Spalato, in Dalmatia; musical director at Vienna. Among his operas are *Fatinitza, Boccaccio,* and the overture to *Poet and Peasant* (*Dichter und Bauer*).

SVENDSEN, JOHAN SEVERIN (1840-1911). A Norwegian musical composer; born at Christiania; conductor there and at Copenhagen; wrote a symphony, chamber music, concertos, and songs. His *Romance* for violin is especially fine.

TAFT, LORADO (1860-). An American sculptor; born at Elmwood, Ill.; was graduated at the University of Illinois (1879); studied at the Ecole des Beaux-Arts in Paris (1880-1883) and won the *atelier* prize; instructor at the Chicago Art Institute (1886); lecturer in University Extension Courses; sculptor of the statues of Schuyler Colfax at Indianapolis and of Grant at Fort Leavenworth, Kansas; won a silver medal at Buffalo in 1901 and at St. Louis in 1904; wrote *History of American Sculpture.*

TAIT, JOHN ROBINSON (1834-1909). An American painter; born in Cincinnati; studied at Florence, Düsseldorf, and Munich; art critic on the New York *Mail and Express.* His paintings are chiefly scenes in the Bavarian Tyrol; wrote *European Life, Legend, and Landscape* and a book of poems, *Dolce far Niente.*

TALMA, FRANCOIS JOSEPH (1763-1826). A famous French tragedian; born in Paris. During the Revolution he was the foremost actor at the Théâtre de la République, and subsequently enjoyed the favor of Napoleon. His notable carriage and matchless elocution enabled him to play with great dignity such characters as Othello, Nero, Orestes, and Leicester.

TANNER, HENRY OSSAWA (1859-). An American painter; born in Pittsburg, Pa.; studied in Philadelphia and in Paris under Laurens and Constant. His works are in the Luxembourg, at the Carnegie Institute in Pittsburg, and in Philadelphia. His "Le Pèlerin d'Emmaus," and "Le retour de la sainte femme" were exhibited at the Paris Salon in 1906.

TARBELL, EDMUND C. (1862-). An American painter; born at West Groton, Mass.; studied in Boston and at Paris under Boulanger and Lefebvre; won several medals and prizes in America and abroad. His works are principally outdoor, sunlit scenes full of grace and vigor.

TAYLOR, WILLIAM LADD (1854-1926). An American illustrator; born at Grafton, Mass.; studied

in Boston, New York, and at Paris under Boulanger and Lefèbvre; illustrated *Selections from Longfellow, The Century in New England*, and *The Pioneer West*.

TENIERS, DAVID, THE ELDER (1582-1649). An eminent Dutch painter. His "Dutch Kitchen" and "Temptation of St. Anthony" are in the Metropolitan Museum of New York.

EVANGELINE. BY W. L. TAYLOR.

ELLEN TERRY AS PORTIA. BY MILLAIS.

TENIERS, DAVID, THE YOUNGER (1610-1690). Son of the preceding. He excelled his father. His "Marriage Festival" and "Judith" are in the Metropolitan Museum of New York, and his "Parable of the Laborer," "Incantation Scene," "Village Fête," and others are in the New York Historical Society's rooms.

TENNIEL, SIR JOHN (1820-1914). English artist and cartoonist; born in London; associated with *Punch* (1852-1901). His best work is, perhaps, his illustrations of Lewis Carroll's *Alice in Wonderland* and *Through the Looking Glass*.

TERRY, ELLEN ALICIA (1848-1928). An English actress; born in Coventry; made her first appearance on the stage during Charles Kean's Shakespearean revivals in 1856. In 1864 she married and left the stage, but reappeared again in October, 1867. She accompanied Henry Irving on his numerous American tours, playing with unprecedented success all over the United States. In 1910, is lecturing on dramatic art.

CARITAS, OR CHARITY BY THAYER.
In the Boston Museum of Fine Arts.

THALBERG (*tahl'burg*), **SIGISMUND** (1812-1871). A celebrated German pianist; born at Geneva; took rank as one of the most brilliant pianists of the age. He was in the United States (1856-1858) and made tours of the principal cities.

THAYER, ABBOTT HENDERSON (1849-1921). An American painter; born in Boston, Mass.; studied in Paris under Gérôme. Among his best known works are "Corps Ailé," "The Virgin," "The Virgin Enthroned," and "Caritas" in the Boston Museum; elected N. A. in 1901.

THOMAS, AMBROISE or **CHARLES LOUIS AMBROISE** (1811-1896). A French composer; born in Metz; studied under Zimmermann, Kalkbrenner, Dourlen, Barberean, and Le Sueur. His masterpiece is *Mignon*, which placed him in the front rank of French composers.

THOMAS, THEODORE (1835-1905). A German-American conductor; born at Esens, East Friesland; settled in New York in 1845; first violin at the Jenny Lind concerts (1851); traveled for several years as violinist with Jenny Lind, Grisi, Sontag, Mario, and others; formed an orchestra (1864); president of the new College of Music in Cincinnati (1878); conductor of the Philharmonic Society of New York (1885); leader of the Chicago Orchestra (1888). America learned through his efforts to know the works of Wagner, Berlioz, Rubinstein, and Liszt; and the Wagner festival which he conducted in New York in 1881 made the establishment of a German opera in that city possible a few years later.

THOMPSON, DENMAN (1833-1911). An American actor; born near Girard, Pa.; appeared first at Lowell, Mass., in 1852; went into business, but resumed the stage in 1871; wrote *Joshua Whitcomb* and acted in it until 1886, when *The Old Homestead*, with Joshua Whitcomb as the chief character, was presented at the Boston Theater; it is still popular.

THOMPSON, LAUNT (1833-1894). An American sculptor; born at Abbeyleix, in Ireland; brought to

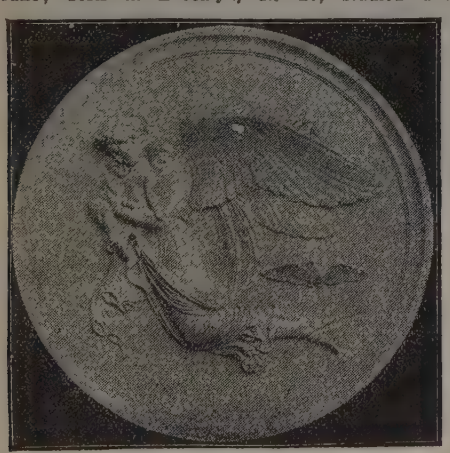
Albany, N. Y., in 1847; elected N. A. in 1862. His colossal "Napoleon" in the Metropolitan Museum in New York, his bust of "Edwin Booth," the statue of John Sedgwick at West Point, and of President Pierson at Yale College are his chief works.

MORNING. BY THORWALDSEN.

THORNYCROFT, W. HAMO (1850-1925). An English sculptor; born in London; elected R. A. in 1888. His chief works are his statue of "General Gordon," "Cromwell," "The Stanley Memorial," "King Alfred," "The Mower," and "Gladstone."

THOR'WALDSEN, BERTEL (1770-1844). An eminent Danish sculptor; born near Copenhagen; the son of a poor Icelander; studied in Rome, where Canova encouraged him, and a fine statue of Jason established his reputation; executed a colossal group of "Christ, the Consoler," "The Twelve Apostles," "St. John Preaching in the Wilderness," and other religious subjects, besides statues of Copernicus and Galileo and the celebrated reliefs "Night" and "Morning"; bequeathed to his country his large fortune and nearly 300 of his works, now in the Thorwaldsen Museum, Copenhagen.

THURSBY, EMMA (1854-). An American soprano; born in Brooklyn, N. Y.; studied under



NIGHT. BY THORWALDSEN.

Errani in New York and Lamperti in Milan; sang for years in Broadway Tabernacle in New York; made a tour of Europe in 1880 under Maurice Strakosch, and gave concerts in Japan and China in 1903.

TIFFANY, LOUIS COMFORT (1848-). An American artist and art manufacturer; born in New York; studied under George Inness, Samuel Coleman, and with Léon Bailly in Paris; devoted himself to decorative glass, known as the Tiffany "Favrile" glass; chevalier of honor in 1900 and N. A. in the same year.

TINTORET'TO, GIACOMO ROBUSTI, IL (1512-1594). An Italian painter; born at Venice. Save for a few lessons under Titian he seems to have been self-taught; took for his models Titian and Michelangelo, and came specially to excel in grandeur of conception and in strong chiaroscuro effects. Among his most notable pictures are "Belshazzar's Feast," "The Last Supper," "The Crucifixion," "The Last Judgment," "The Resurrection," etc.

TISSOT, JAMES JOSEPH (1836-1902). A French painter; born at Nantes; pupil of Ingres and Flandrin. His "Faust and Marguerite," "La femme à Paris," "Life of Our Lord Jesus Christ" in 365 small water colors, owned by the Brooklyn Institute of Arts and Sciences, and about 400 illustrating the Old Testament.

TITIAN (*tish'yan*), **VECELLIO** (1477-1576). A great Italian painter; born at Pieve di Cadore; the prince of colorists and head of the Venetian school. He was a master of his art from the very first, and his fame led to employment in all directions over Italy, Germany, and Spain. His works were numerous and rich in variety. He ranks with Michelangelo and Raphael as the head of Italian Renaissance. His list of works is long and contains many masterpieces.

TOSTI, FRANCESCO PAOLO (1846-1916). An Italian composer; born in the Abruzzi; singing master to the queen of Italy (1870); teacher to the English royal family (1880); best known as a song writer. Among his more popular works are "Come to My Heart," "Good-bye," "That Day," "Mother," and "For Ever and For Ever."

TREE, HERBERT BEERBOHM (1853-1917). An English actor and theatrical manager; born in London. His chief rôles are the leading characters in *The Private Secretary, The Balladmonger, The Red Lamp, A Bunch of Violets,* and *Hamlet.*

TROYON, CONSTANT (1810-1865). A French landscape and animal painter; born in Sevres; "Return from the Farm," "Oxen Going to Work in the Fields," and "Sheep after a Storm" are his most noted pictures.

TRUMBULL, JOHN (1756-1843). An American artist; born in Lebanon, Conn.; served on the staffs of Generals Washington and Gates; a pupil of Benjamin West; produced his first historical picture, "The Battle of Bunker Hill" (1786); employed by Congress (1817) to paint four pictures for the rotunda of the Capitol at Washington,—"The Signing of the Declaration of Independence," "The Surrender of Burgoyne," "The Surrender of Cornwallis," and "The Resignation of Washington at Annapolis." His "Alexander Hamilton" is in the Metropolitan Museum of New York.

TRYON, DWIGHT WILLIAM (1849-1925). An American painter; born at Hartford, Conn.; studied in Paris under Daubigny, Guillemet, and Harpignies; art professor at Smith College, Northampton, Mass.; settled in New York (1890); elected N. A. (1901). His works rank among the first American landscapes, and include "First Leaves," "Rising Moon," "Evening in Early Spring," and "Autumn."

TSCHAIKOVSKY, PETER ILYITCH (1840-1893). A Russian composer; born at Votkinsk; studied under Rubinstein; professor of harmony at Moscow (1866-1878). His *Fifth* and the *Sixth* (*Pathétique*) symphonies rank among the world's best; visited the United States (1891) and conducted several of his own compositions at the dedication of Carnegie Hall. His operas include *Eugene Onegin, The Maid of Orleans, Mazeppa, The Enchantress,* and *Iolanthe.*

TURNER, JOSEPH MALLORD WILLIAM (1775-1851). An English landscape painter. His "Slave Ship" is in the Boston Museum; the "Grand Canal" in the Metropolitan Museum at New York; his "Norham Castle" and the "Fountain of Indolence" in private collections there; and his "Scene on the French Coast" and "Staffa" are in the Lenox Library in New York. He gave the bulk of his work—362 paintings and 9000 drawings—to the nation, and left £140,000 to endow an institution for poor artists.

UHDE, FRITZ VON (1848-1911). A German painter; born in Wolkenburg, Saxony; studied in Paris under Munkácsy. Among his best works are "Suffer Little Children to Come Unto Me," "The Last Supper," "The Nativity," and "The Walk to Bethlehem."

ULRICH, CHARLES FREDERIC (1858-1908). An American painter; born in New York; studied there and in Munich under Loefftz and Lindenschmidt. His

"Glass Blowers of Murano" in the Metropolitan Museum and "Promised Land" are among his best; elected N. A. in 1883; has lived in Venice since 1886.

UNGER, JOHANN FRIEDRICH (1750-1813). A German printer and engraver.

VAN BRUNT, HENRY (1832-1903). An American architect; born in Boston, Mass.; was graduated at Harvard (1854); designed Memorial Hall at Harvard, library of the University of Michigan, First Church in Boston, and the Electricity Building at the World's Fair at Chicago (1893).

OXEN GOING TO LABOR. BY TROYON.

VANDERLYN, JOHN (1775-1852). An American painter; born at Kingston, N. Y.; studied with Gilbert Stuart and, later, in Paris; returned in 1801 and lived with Aaron Burr, vice-president, and painted the famous picture of Burr and his daughter painted in Rome (1803) his two chief works, "Marius among the Ruins of Carthage" and "Ariadne of Naxos," which latter was reproduced by the engraver Durand; painted portraits of Washington, Monroe, Madison, Calhoun, and Zachary Taylor. The "Landing of Columbus" on the $5 notes was designed by him.

VAN DYCK or **VANDYKE, SIR ANTHONY** (1599-1641). A Flemish painter; born at Antwerp; resided in England for several years before his death, where he became the most popular artist of his time. Two of his portraits are in the Metropolitan Museum at New York.

VAUX, CALVERT (1824-1895). An American architect and landscape gardener; born in London, England; came to America in 1850; associated with Frederick Law Olmsted; made the plans for Central, Morningside, and Riverside parks in New York; Prospect Park in Brooklyn; State Reservation at Niagara Falls; and parks at Bridgeport, Conn., Chicago, and elsewhere; also designed the Metropolitan Museum of Art and the Museum of Natural History in New York.

VEDDER, ELIHU (1836-1923). An American painter and illustrator; born in New York; studied with Picot in Paris; went to Rome (1857); illustrated the *Rubaiyát of Omar Khayyám* and the *Arabian Nights*. Among his paintings are "Lair of the Sea Serpent," "Cumaean Sibyl," "Questioning the Sphinx," "The Crucifixion," "The Last Sun Worshipper," and the "African Sentinel." His mural work in the Congressional Library is notable.

VEIT (*fite*), **PHILIPP** (1793-1877). A German painter of the Romanticist school; born at Berlin. His best known work is a fresco, "Christianity Bringing the Fine Arts to Germany." He has also "The Two Marys at the Sepulcher," "The Assumption," "The Good Samaritan," and "The Glorification of the Christian Faith."

VELAS'QUEZ, DIEGO RODRIGUEZ DE SILVA Y (1599-1660). The greatest of Spanish painters; born at Seville, of Portuguese family. Portrait painting was his forte, one of his earliest works being a portrait of Olivarez, succeeded by those of Philip IV., Juan Pareja, and Innocent X. Specimens of his work are found in different countries, but the best are in Madrid, Spain. They include sacred subjects, genre, landscape, and animal paintings, as well as portraits. His "Venus with a Mirror" was bought for the National Collection at London for £45,000 in 1906.

VELDE, WILLEM VAN DE, THE ELDER (1611-1693). A Dutch marine painter; born at Leyden; painter of sea fights to Charles II. of England and, later, to James II.

VELDE, WILLEM VAN DE, THE YOUNGER (1633-1707). A Dutch marine painter; born at Amsterdam.

VERBOECKHOVEN (*ver-book'ho-ven*), **EUGEN JOSEPH** (1799-1881). A Flemish painter; born at Warneton, in West Flanders; noted for his pictures of peasant and animal life, such as "Sheep Surprised by a Storm," "Horses Attacked by Wolves," "Sheep in the Campagna," "Souvenirs of Scotland," and "Ewe and Lambs, or the Good Mother." Some of his works are in the Metropolitan Museum at New York.

VER'DI, GIUSEPPE (1813-1901). An Italian composer; born at Roncole, Parma. His musical talent was slow of recognition, but the appearance of his *Lombardi* and *Ernani* established his repute, which was confirmed by *Rigoletto*, *Il trovatore*, and *La traviata*.

VERESTCHAGIN (*va-res-tchah'gin*), **VASSILI** (1842-1904). A Russian military painter; realistic to an extreme degree and anti-conventional; confined himself largely to martial subjects; perished with the sinking battleship *Petropavlovsk* at the siege of Port Arthur.

VERNET (*ver-nay'*), **CLAUDE JOSEPH** (1714-1789). A distinguished French marine painter. His son, **ANTOINE CHARLES HORACE** (1758-1835) was eminent as a painter of battle scenes. **EMILE JEAN HORACE** (1789-1863), son of the latter, exceeded his father in the painting of battle scenes and ranks as the first French artist of his age.

VERONESE (*va-ro-na'se*), **PAOLO**, or **PAOLO CAGLIARI** (1528-1588). A painter of the Venetian school; born at Verona; painted his "Temptation of St. Anthony" for Mantua Cathedral and settled in Venice in 1555, where he soon earned distinction and formed one of a trio along with Titian and Tintoretto. The subjects he treated were mostly Scriptural, the most celebrated being the "Marriage Feast at Cana of Galilee."

VIBERT, JEHAN GEORGES (1840-1902). A French painter and dramatist; born in Paris. Among his works are "L'appel après le pillage," "La tentation," "Le barbier ambulant," "Un couvent sous les armes," "Le départ des mariés," "Le premier né," "L'apothéose de Thiers," "Bailli de Suffren," "Presentation," "Assumption," "Annunciation," "Mater Dolorosa," "Committee on Moral Books," and "The Missionary's Story."

VIERGE, DANIEL URRIBJETA (1848-1904). A Spanish artist; born at Madrid; went to Paris (1870) and worked in the art department of *Le Monde Illustré* and *La Vie Moderne*; illustrated Hugo's *L'année terrible*, *Les travailleurs de la mer*, *L'homme qui rit*, *Quatre-vingt-treize*, and *Notre Dame de Paris*, and many other works; one of the foremost artists in black and white.

VOGLER, GEORG JOSEF (1749-1814). A German composer; born at Würzburg; ordained priest at Rome (1773); founded schools of music at Mannheim, Stockholm, and Darmstadt; taught Meyerbeer and Weber; was the "Abt Vogler" of Browning's poem.

VOLK, DOUGLAS (1856-). An American artist; born in Pittsfield, Mass.; studied with Gérôme in Paris; taught in the Cooper Union (1879-1884); organized the Minneapolis School of Fine Arts; elected N. A. in 1899; won several prizes, including the Carnegie prize of 1905, taken by his "Boy with Arrow."

VOLLON, ANTOINE (1833-1900). A French painter; born at Lyons. His works include "Coin de Halle" in the Luxembourg, "Portrait d'un pécheur," "Après le bal," and "The Pumpkin," which is in New York.

VONNOH, BESSIE POTTER (1872-). An American sculptor; born in St. Louis; studied in Chicago and in Paris. Among her works are the miniatures "Dancing Girl," "Reading Girl," and "Mother and Children, or Motherhood"; wife of Robert William Vonnoh.

VONNOH, ROBERT WILLIAM (1858-). An American painter; born in Hartford, Conn.; studied in Boston and with Boulanger and Lefebvre in Paris; taught in the Boston Museum (1885) and at Philadelphia (1891-1896); elected A. N. A. in 1906.

WAGNER, WILHELM RICHARD (1813-1883). A great musical composer; born at Leipzig. His prin-

cipal works were *Rienzi*, *The Flying Dutchman*, *Tannhäuser*, *Lohengrin*, *Tristan und Isolde*, *The Mastersingers of Nurnberg*, and the *Ring of the Nibelungen*, the composition of which occupied 25 years. This last was performed in 1876, at Baireuth, in presence of the emperor of Germany and the principal musical artists of the world. *Parsifal* was his last work.

WALKER, FREDERICK (1840-1875). An English painter; born in London; illustrated Thackeray's *Philip*; has been called the "creator of the English Renaissance"; noted for his quiet harmonies. His "Harbour of Refuge" and "Vagrants" are in the Tate Gallery.

WALKER, HORATIO (1858-). An American painter; born at Listowel, Ontario, Canada; won many prizes with his landscapes and farm incidents among the Canadian farmers. His "Ice Cutters" and "A Milkyard" are notable examples of his work; elected N. A. in 1891; awarded the gold medal of honor of

Surrender of Breda. By Velasquez.
In the Prado at Madrid.

the Philadelphia Academy of Fine Arts in 1906; self-taught.

WALLACE, WILLIAM VINCENT (1814-1865). An Irish composer; born at Waterford; leader of an orchestra in Dublin; went to Australia; brought out his successful opera, *Maritana*, on his return in 1845; wrote also *Matilda of Hungary*, *Lurline*, *The Amber Witch*, and *The Desert Flower*.

WALLACK, JAMES WILLIAM (about 1795-1864). An Anglo-American actor; born in London; acted in Drury Lane and supported Edmund Kean; appeared as Macbeth in New York (1818) and settled there about 1850; opened Wallack's Theatre at Broadway and Broome Street (1852) and the theater at Broadway and Thirteenth Street in 1861; noted for such parts as Don César de Bazan.

WALLACK, JOHN JOHNSTONE, or "LESTER" WALLACK (1819-1888). An American actor; born in New York; son of James William Wallack; educated in England and became a lieutenant in the British army in 1842; resigned in 1844 and became an actor; appeared in New York as Sir Charles Coldstream in *Used Up* in 1847; acted leading parts in his father's theater (1852-1864) and assumed proprietorship of it on his father's death; opened the present "Wallack's" at Thirtieth street and Broadway.

WALTER, THOMAS USTICK (1804-1887). An American architect; born in Philadelphia; designed Girard College, St. George's Hall, Philadelphia Savings Bank, Chester County Bank, the Biddle and Cowperthwaite residences in Philadelphia and vicinity; superintended the enlargement of the Capitol at Washington and completed the Post Office and the Treasury building; president of the American Institute of Architects (1876).

WAPPERS, EGIDE CHARLES GUSTAVE (1803-1874). A Belgian painter; born at Antwerp; professor at the Academy (1832) and director (1840-1853); president of the Belgian National Museum (1846-1853). Among his works are "Dévouement du Bourgmestre de Leyde," "Le Christ au tombeau," "Scènes des journées de septembre," "L'adieu de Charles I. à ses enfants," "La tentation de Saint Antoine," "Geneviève de Brabant," and "Christophe Colomb."

WARD, EDGAR MELVILLE (1839-1915). An American painter; born in Urbana, Ohio; studied in New York and under Cabanel in Paris; taught the life class in the National Academy (1885); elected N. A. in 1883. His "The Coppersmith" is in the Metropolitan Museum in New York.

WARD, EDWARD MATTHEW (1816-1879). An English painter; born in London; studied there, in Rome, and under Cornelius at Munich; painted "Cimabue and Giotto," "Doctor Johnson in Lord Chesterfield's Ante-Room," "South Sea Bubble," "Marie Antoinette Parting with the Dauphin," and "Marie Antoinette Listening to the Act of Accusation"; elected R. A. in 1855.

WARD, JOHN QUINCY ADAMS (1830-1910). An American sculptor; born at Urbana, Ohio; studied under Browne in Brooklyn, whom he assisted with his equestrian statue of Washington in Union Square in New York. His "Indian Hunter" was the first statue placed in Central Park. His "Seventh Regiment Citi

zen-Soldier," "Shakespeare," and "The Pilgrim" are also in Central Park. "The Freedman" and "The Good Samaritan" are in Boston. His "Washington" on the Sub-treasury in Wall Street, "Henry Ward Beecher" in City Hall Park in Brooklyn, "Commodore Perry" in Newport, R. I., and "Horace Greeley" in front of the Tribune Building are noted examples of his work; elected N. A. in 1863.

WARFIELD, DAVID (1866-). An American actor; born in San Francisco; settled in New York in 1890; played Irish characters and Jewish representations, of which his best was Solomon Levi in Belasco's *Auctioneer*; created the part of Herr Anton von Barwig in Klein's *The Music Master* in 1904; and played the leading rôle in Belasco's *A Grand Army Man* in 1907.

WARNER, OLIN LEVY (1844-1896). An American sculptor; born at West Suffield, Conn.; studied in Paris. Among his works are a high relief portrait of Edwin Forrest; colossal heads of Michelangelo, Rembrandt, Raphael, Titian, and Velasquez on the Art Building at the World's Fair of 1893; his nude figure "Diana"; head of Daniel Cottier; "William Lloyd Garrison" at Boston; and a fountain in Portland, Ore.

CONQUERORS. BY VERESTCHAGIN.
In the Louvre.

WARREN, SAMUEL PROWSE (1841-1915). An American organist; born in Montreal, Canada; studied in Berlin; one of the leading organists of the country; wrote much church music.

WATERMAN, MARCUS (1834-1914). An American artist; born in Providence, R. I.; studied in Boston; lived in New York; settled in Boston (1874); latterly lived in Italy. His scenes are chiefly Oriental, noted for brilliant sunlight effects. Among them are "Roc's Egg," "The Merchant and the Genius," and many American forest scenes.

WATTEAU (*wat-toe*), **ANTOINE** (1684-1721). A distinguished French painter; born at Valenciennes. His "Fêtes Galantes" and "Fêtes Champêtres," decorations on the Louvre; and his fine collections in the Louvre, Sans Souci, in Berlin, and in London are noted for the sunlit colors and great purity of tone.

WATTS, GEORGE FREDERICK (1820-1904). An eminent English painter; born in London; is distinguished as a painter at once of historical subjects, ideal subjects, and portraits; did one of the frescoes in the Poets' Hall of the Houses of Parliament and the cartoon of "Caractacus Led in Triumph Through the Streets of Rome"; has, as a "poet painter," by his "Love and Death," "Hope," and "Orpheus and Eurydice," achieved a world-wide fame. He was twice offered a baronetcy, but on both occasions he declined.

WEBER, KARL MARIA FRIEDRICH ERNST VON, BARON (1786-1826). A German musical composer; born at Eutin, near Lübeck. He was the founder of German romantic opera and one of the most brilliant pianists of his day. His best known works are *Der Freischütz*, *Euryanthe*, *Oberon*, *Preciosa*, and masses, cantatas, songs, symphonies, overtures, concertos, and sonatas.

WEIR, HARRISON WILLIAM (1824-1906). An English artist; born at Lewes; an expert animal painter and draughtsman. Among his works are "The Dead Shot," "Startled," "The Forester," "A Servant of All Work," "The Christmas Carol," illustrations for Routledge's *Natural History*, "Our Cats and All About Them," "Poultry and All About Them," and many other works.

WEIR, JOHN FERGUSON (1841-1926). An American sculptor, painter, and author; born at West Point, N. Y.; director of the School of Fine Arts at Yale University (1869). Among his works are statues of President Woolsey and Professor Silliman. His chief paintings are "The Gun Foundry," "Forging the Shaft," "Tapping the Furnace," and "An Artist's Studio." His books include *The Way, the Nature, and the Means of Revelation*; *John Trumbull and His Works*; and *Human Destiny in the Light of Revelation*.

WEIR, JULIAN ALDEN (1852-1919). An American painter; born at West Point, N. Y.; studied under Gérôme in Paris; elected N. A. in 1886; won the Hart prize of $2000 with his "Idle Hours" (1886) and a gold medal at St. Louis in 1904.

WEIR, ROBERT WALTER (1803-1889). An American painter; born in New Rochelle, N. Y.; studied under Jarvis in New York and with Benvenuti in Florence; professor of drawing at West Point for over 40 years. His works include "The Embarkment of the Pilgrims" in Washington at the Capitol, "Columbus before the Council of Salamanca," "Taking the Veil," several portraits, and the allegory "Peace and War"; elected N. A. in 1829; father of the painters John Ferguson Weir and Julian Alden Weir.

WEST, BENJAMIN (1738-1820). An American painter; born in Springfield, Pa., of Quaker parents. He went to Rome in 1760, and proceeded to England in 1763, where he made his permanent residence. His "Death of General Wolfe" was among the first of his productions that attracted public notice; president of the Royal Academy (1792) to succeed Reynolds. His "Christ Healing the Sick" and "Penn's Treaty with the Indians" are in Philadelphia; "Kingdom" is in the Boston Museum; and "Triumph of Love" and "Hagar and Ishmael" are in the Metropolitan in New York.

WESTMACOTT, SIR RICHARD (1775-1856). An English sculptor; born in London; studied at Rome under Canova. He executed statues of Pitt, Addison, and others, and a number of monuments in Westminster

Abbey and St. Paul's. His latest work was the sculptured pediment groups of the British Museum.

WHISTLER, JAMES ABBOTT McNEILL (1834-1903). An American painter; born in Lowell, Mass.;

Sir Galahad. By Watts.

studied for a time at the United States Military Academy; went to Paris and afterward settled in London. The finest of his oil pictures are "The Artist's Mother —an Arrangement in Black and Gray," the "Portrait of Thomas Carlyle," and the "Portrait of Miss Alexander—Harmony in Gray and Green." Whistler's art is original and individual.

Portrait of His Mother. By Whistler.

WHITE, STANFORD (1853-1906). An American architect; son of Richard Grant White; studied in Europe (1878-1880); formed a partnership with Charles F. McKim and William R. Mead (1881); able to adapt Old World decorative effects to New World conditions; designed the Giralda Tower for Madison Square Garden, the New York University buildings, the New York Washington Arch, the University of Virginia buildings, the Century and Metropolitan Clubs, and the new Madison Square Presbyterian Church.

Washington Memorial Arch, New York.

WILLARD, EDWARD S. (1853-1915). An English actor; born at Weymouth; acted in London in *The Lights o' London*, *The Silver King*, *Hoodman Blind*, *The Romany Rye*, and *Jim the Penman*; managed the Shaftesbury Theatre and produced *The Middleman* and *Judah* (1889-1890); came to the United States in 1890 in *The Professor's Love Story*; managed the St. James's Theatre and produced *The Cardinal* in 1903.

WREN, SIR CHRISTOPHER (1632-1723). The greatest of English architects; born in East Knoyle, Wiltshire. He began to rebuild St. Paul's in 1675, and saw the last stone laid by his son 35 years afterward. He designed the modern part of the palace of Hampton Court, the library of Trinity College, Cambridge, and the hospitals of Chelsea and Greenwich, the churches of St. Stephen's, Walbrook; St. Mary-le-bow, Cheapside; St. Michael, Cornhill; and St. Bride, Fleet street; as also the campanile of Christ Church, Oxford, and Marlborough House, Pall Mall; sat in Parliament (1685-1700).

WYANT, ALEXANDER H. (1836-1892). An American painter; born at Port Washington, Ohio; studied with George Inness in Paris, where he was influenced by Corot and Dupré, and in Düsseldorf under Hans Gude; settled in New York in 1864; elected N. A. in 1869. His works in the Metropolitan Museum in New York include "Looking toward the Sea," "Broad, Silent Valley," and "A View in County Kerry."

Portrait of Whistler By W. M. Chase.

BIOGRAPHICAL DICTIONARY OF AUTHORS.

Where an author has been more critically noted in the introductory articles of this section special reference is made to the particular literature in order to avoid repetition.

ABBEY, HENRY (1842-1911). An American poet; born in Rondout, N. Y. The author of *May Dream, Ralph and Other Poems, Stories in Verse, Ballads of Good Deeds, The City of Success,* and *Phaëton.*

ABBOTT, JACOB (1803-1879). American juvenile writer; born at Hallowell, Me. Among the best known of his more than two hundred volumes are *The Rollo Books, American Histories for Youth, The Franconia Stories.*

ABBOTT, JOHN S. C. (1805-1877). American pedagogical writer, and historian; born at Brunswick, Me. *The Mother at Home* has been translated into many languages.

A'BECKET, GILBERT ABBOTT (1811-1856). An English humorous writer; founded *Figaro in London,* the forerunner of *Punch;* dramatized *The Chimes* and other of Dickens's works; wrote the *Comic History of England,* etc.

ABEN-EZRA (1092-1167). A most learned Jew of his times; born in Toledo, Spain. His *Commentaries on the Old Testament* and some treatises on astrology are his most important works.

ABOUT (*a-boo'*), **EDMOND** (1828-1885). French dramatist, journalist, and novelist; born at Dieuze; elected a member of the Academy in 1885. *The Man with a Broken Ear, The Notary's Nose,* and *The King of the Mountains,* are among his most popular stories.

ABSCHATZ, HANS ASSMAN, FREIHERR VON (1646-1699). One of the best known of the German poets of the seventeenth century. He was one of the second Silesian school of poets.

ABULFAZL (*ah-bool-faz'l*) (? -1602). Vizier and historiographer of the great Mongol emperor, Akbar, of whose reign he wrote a complete history, and an account of the "constitution and administration of the empire."

ABULFEDA (*a-bool-fay'da*) (1273-1331). Moslem prince and historian, author of *An Abridgment of the History of the Human Race* from the creation to 1328, and a *Geography.*

ABUL SU'UD (1328-?). Arabian poet; born in Lower Egypt. Among his works is a dithyramb on the fall of Sebastopol, containing an appeal for universal brotherhood.

ABU NUWAS (about 762-about 810). A most celebrated Arabian lyric poet; wrote 4,900 verses praising wine, the chase, and asceticism; called the "Heine of Arabic literature."

ACCOLTI, BERNARDO (1465-1536). An Italian poet, known by his contemporaries as "The Unique." Multitudes flocked to hear him recite his verses. His poems were first published in 1513.

ACHARD, LOUIS AMEDEE EUGENE (1814-1875). A French novelist; born in Marseilles. Among his many romances are *La belle rose, Les misères d'un millionaire, Histoire d'un homme.*

ADAM DE LA HALLE (1235-about 1287). One of the founders of the French drama. His *Le jeu de la feuillée* is the earliest French comedy; his *Robin et Marion* is the earliest European comic opera.

ADAM, GRAEME MERCER (1839-1912). A Canadian author and editor; born in Scotland. Wrote *The Canadian Northwest* (1895); *Outline History of Canadian Literature;* with Ethelwyn Wetherald wrote a novel, *An Algonquin Maiden.*

ADAMS, CHARLES FOLLEN (1842-1918). An American humorous German dialect poet; born at Dorchester, Mass. Wrote *Leedle Yawcob Strauss and Other Poems* and *Dialect Ballads.*

ADAMS, HANNAH (1755-1832). One of the earliest American woman writers; lived at Brookline, Mass.; wrote *Views of Religious Opinions, History of New England, Evidences of Christianity,* and *A History of the Jews.*

ADAMS, HENRY (1838-1918). An American historian; third son of Charles Francis Adams; editor of *North American Review* (1875-1876); wrote *Anglo-Saxon Courts of Law, History of the United States from* 1801 *to* 1817, and a life of John Randolph.

ADAMS, HERBERT BAXTER (1850-1901). An American historian; born at Amherst, Mass.; edited the valuable *Johns Hopkins Studies in History and Political Science.* His most important work is *The Life and Writings of Jared Sparks.*

ADAMS, SARAH FULLER FLOWER (1805-1848). An English poetess, wife of William Bridges Adams. Her longest work is *Vivia Perpetua,* a dramatic poem dealing with the life of the early Christians. She wrote *Nearer, My God, to Thee,* and *He Sendeth Sun, He Sendeth Shower.*

ADAMS, WILLIAM TAYLOR, "OLIVER OPTIC" (1822-1897). An American writer of juvenile fiction; born at Medway, Mass. His first work, *Hatchie, the Guardian Slave,* was followed by over 100 volumes, including *The Boat Club* and *Young America Abroad.*

ADDISON, JOSEPH (1672-1719). English poet and essayist; born at Milston, Wiltshire. (See Eng. Lit.)

ADE, GEORGE (1866-). American journalist and author; born at Kentland, Ind. Among his books are *Artie, Fables in Slang, The Girl Proposition, In Pastures New;* his plays include *The Sultan of Sulu, Peggy from Paris, The County Chairman, The College Widow, Just Out of College, The Fair Co-Ed.*

AELIANUS, CLAUDIUS (flourished about 200). A writer of Italy who wrote exclusively in Greek. His *On the Nature of Animals* and *Miscellanies* are entertaining accounts and anecdotes.

AESCHINES (*esk'i-nees*) (389-314 B. C.). A Grecian orator, rival of Demosthenes; overthrown by the latter's famous speech, *On the Crown,* he went into exile (330 B. C.). His chief orations are: *Against Timarchus, On the False Embassy,* and *Against Otesiphon.*

AESCHYLUS (*es'ki-lus*) (525-456 B. C.). The earliest of the three great Athenian tragic poets. (See Gr. Lit.)

AESOP (*ees'op*) (620?-560? B. C.). Thought to have been a Greek slave, set free by his master because of his great talent. The obscurity and inconsistency concerning Aesop's life and writings lead many to believe that he never really existed. However, his name early became associated with the "beast-fables" which are the common heritage of the Indo-European peoples.

AFZELIUS, ARVID AUGUST (1785-1871). A Swedish poet; noted for his translation of the *Elder Edda,* for his *Romances,* and for studies in Norse history and literature.

AGATHIAS ASIANUS (about 530-about 580). A Greek poet and historian; wrote Roman law, love verses, and a most valuable history of the years 552 to 558.

AGOULT, MARIE CATHERINE SOPHIE DE FLAVIGNY, COMTESSE D' (1805-1876). A French author who wrote under the name of Daniel Stern. Her best work is *Esquisses morales et politiques.*

AGUILAR, GRACE (1816-1847). An English writer of Jewish birth; wrote *The Spirit of Judaism, The Jewish Faith, Home Influence, A Mother's Recompense, The Vale of Cedars,* and *The Days of Bruce.*

AGUILERA (*ah-ge-lay'ra*), **VENTURA RUIZ** (1820-1881). Spanish lyric poet, called the "Spanish Béranger." Among his most important works are the collections of poems entitled *Elegias, Armonias y Cantares, La Arcadia moderna,* and *Leyenda de nochebuena.*

AHLGREN, ERNST, the pen name of **VICTORIA MARIA BENEDICTSSON** (1850-1888). A Swedish author. She wrote many novels marked by a simplicity of style and a powerful and artistic description of life.

AHMES or **AAHMESU** (about 1700 B. C.). An Egyptian writer; wrote a compilation entitled *Directions for Obtaining the Knowledge of all Dark Things.* The material was gathered from an old manuscript written about 2500 B. C. It deals largely with the ancient Egyptian mathematics.

AIDE (*ah-e-day'*), **CHARLES HAMILTON** (1830-1907). An English poet and novelist; born in Paris; son of a Greek diplomat. Among his poems are *Eleanore, Songs Without Music, The Danube River,* and *Remember or Forget.* His novels include *Rita, Passages in the Life of a Lady,* and *Elizabeth's Pretenders.*

AINSWORTH, WILLIAM HARRISON (1805-1882). English historical novelist. His first novel was *Sir John Chiverton*, published 1826, soon followed by *Rookwood*, *Crichton*, and *Jack Sheppard*. Among his later works are *Lancashire Witches*, *Star Chamber*, *The Spanish Match*, and *Merrie England*.

AIRD, THOMAS (1802-1876). Scottish poet, whose works, except the *Devil's Dream*, have not received the popular approval their merit deserves.

AKENSIDE, MARK (1721-1770). English author, one of the early romantic poets. Distinguished chiefly for his didactic poem, *Pleasures of the Imagination*.

AKSAKOFF, IVAN SERGEYEVITCH (1823-1886). A Russian writer and leader of the Panslavists. He founded the *Sbornik*, or *Miscellany*, at Moscow, the *Den*, the *Moskva*, a daily paper, the *Moskvich*, and the *Rus*. He was the best known poet of the Slavophil cause.

AKSAKOFF, SERGEI TIMOFEYEVITCH (1791-1859). A Russian writer. His chief works are: *Observations on Angling, Memoirs of a Huntsman, Tales and Memories of a Huntsman, The Family Chronicle*, and *Bogrov's Childhood*.

ALAMANNI (*ah-la-man'ne*), **LUIGI** (1495-1556). Italian poet and refugee. His works include translations, plays, and vigorous satires.

ALARCON, PEDRO ANTONIO DE (1833-1891). A Spanish novelist and statesman. Among his novels are *Cosas que fueron, Amores y amorios, Juicios literarios y artisticos, El escandalo, El niño de la bola*, and *La prodiga*.

ALARCON Y MENDOZA (*ah-lar-kon'e men-do'tha*), **DON JUAN RUIZ DE** (1581?-1639). Noted Spanish dramatist; born in Mexico. Among his twenty surviving plays are *Verdad Sospechosa* ("Truth Suspected"), *Las paredes oyen* ("Walls Have Ears"), *El texedor de Segovia* ("The Weaver of Segovia").

ALAS, LEOPOLDO (1852-1901) A Spanish novelist, journalist, and professor of law at the University of Oviedo. His one important novel is *La Regenta*, a study of criminal passion; *Pipa* is a volume of short stories. He is a fearless critic of literature as well as of men, regardless of their high reputation. In journalism he is known as "Clarin." "He is to be ranked with the very best Spanish dramatists."

ALBUQUERQUE, AFFONSO DE (1453-1515). Viceroy of the Portuguese Indies, whose *Commentaries*, issued by his son and translated by Birch, are the standard authority for this period of Indian history.

ALCAEUS (*al-see'us*) (620-580 B. C.). Greek lyric poet, contemporary with Sappho; wrote many odes, hymns, and songs, of which only fragments remain; invented the stanza called Alcaic, which was later successfully imitated by Horace.

ALCEDO Y HERRERA, ANTONIO (1735-?). A Peruvian soldier and historian whose *Geographical and Historical Dictionary of the West Indies*, published in Madrid (1786-1789), contains much exclusive information about the middle period of Spanish-American history.

ALCMAN (*alk'man*) (flourished about 620 B. C.). Greek poet; founder of Doric lyric poetry and forerunner of the bucolic poets. Fragments of his six books remain to us.

ALCOCK, SIR RUTHERFORD (1809-1897). An English diplomat and writer on Japan; wrote *Life's Problems*, *The Capital of the Tycoon*, and *Art and Industries of Japan*.

ALCOTT, LOUISA MAY (1832-1888). American juvenile writer and novelist, daughter of A. Bronson Alcott; at first a school teacher; during the Civil War, a volunteer army nurse, some experiences as such being depicted in *Hospital Sketches*. Among her many juvenile stories are *Little Women* (the best and most popular), *Little Men*, *Eight Cousins*, *An Old-Fashioned Girl*.

ALDEN, HENRY MILLS (1836-1919). An American editor and author; born at Mt. Tabor, Vt.; classmate of James A. Garfield and Horace E. Scudder at Williams College; managing editor of *Harper's Weekly* (1863-1869); editor of *Harper's Magazine* since 1869; a Greek classical scholar; collaborated with A. H. Guernsey on *Harper's Pictorial History of the Great Rebellion;* wrote a poem, *The Ancient Lay of Sorrow*, and two profound metaphysical essays much read, *God in His World*, and *A Study of Death*.

ALDEN, MRS. ISABELLA McDONALD (1841-1916). ("Pansy"). American writer of fiction, including a juvenile series of about sixty volumes.

ALDEN, WILLIAM LIVINGSTON (1837-1908). An American author; born at Williamstown, Mass.; joined the editorial staff of the New York *Times;* consul general at Rome (1885-1889) in Cleveland's administration; made chevalier of the Order of the Crown of Italy by King Humbert (1889); literary correspondent of the New York *Times* in London; wrote *Domestic Explosions, Shooting Stars, Moral Pirates, Life of Columbus, Cruise of the Canoe Club, A Lost Soul, The Mystery of Elias G. Roebuck*, and *His Daughter*.

ALDRICH, THOMAS BAILEY (1836-1907). American poet and novelist; born at Portsmouth, N. H.; edited the *Atlantic Monthly* (1881-1890). His poetry, graceful and artistic, includes *The Bells, Cloth of Gold, Wyndham Towers, Unguarded Gates. Marjorie Daw* and the *Story of a Bad Boy* are his best-known novels.

ALEARDI, ALEARDO (1812-1878). Italian patriot and poet; author of *Il monte Circello, Canti, I sette soldati*.

ALEMAN, MATEO (about 1545-about 1610). A famous Spanish novelist. His great work is *Guzman de Alfarache*, which was published in 1599. Aleman is supposed to have gone to Mexico, where he died in the reign of Philip III.

ALENCAR, JOSE MARTINIANO D' (1829-1877). Brazilian jurist and novelist; wrote *O Gaucho, Iracema, O Guarany*.

ALFIERI (*ahl'fe-ay're*), **VITTORIO, COUNT** (1749-1803). Italian dramatist, whose *Brutus, Timoleone*, and *Virginia* inspired a generation of Italian patriots, and were factors in the bringing about of Italian political unity. *Saul* is still considered his masterpiece. (See It. Lit.)

ALFORD, HENRY (1810-1871). An English biblical critic and poet; dean of Canterbury (1857). He wrote the *New Testament for English Readers, The School of the Heart and Other Poems*, and *A Plea for the Queen's English;* the latter attracted great attention.

ALGER, HORATIO (1834-1899). An American writer of juvenile fiction; born in Revere, Mass.; worked among street boys in New York; wrote the *Ragged Dick, Tattered Tom*, and *Luck and Pluck* series.

ALISON, SIR ARCHIBALD (1792-1867). A British lawyer, historian, and writer. His *History of Europe* in 10 volumes, begun in 1829 and finished in 1842, was a great success. He wrote also *Life of the Duke of Marlborough*, and *The Principles of Population*.

ALLEN, CHARLES GRANT BLAIRFINDIE, better known as **GRANT ALLEN** (1848-1899). Canadian author; born near Kingston, Canada. Besides his scientific works he wrote a *Life of Charles Darwin*, and novels including *Philistia, The Devil's Die, The Woman Who Did*, and *A Bride from the Desert*.

ALLEN, ELIZABETH AKERS (1832-1911). "Florence Percy." An American author; born at Strong, Me. She is best known as the writer of *Rock Me to Sleep, Mother*, which appeared in 1860.

ALLEN, JAMES LANE (1849-1925). An American novelist; born in Kentucky. He has published *With Flute and Violin, The Blue Grass Region of Kentucky, John Gray, The Kentucky Cardinal, Aftermath, A Summer in Arcady, The Choir Invisible, The Reign of Law*, and *The Mettle of the Pasture*.

ALLEN, KARL FERDINAND (1811-1871). A Danish historian; born at Copenhagen. His great work is *The History of the Three Northern Kingdoms* (1497-1536) in five volumes.

ALLIBONE, SAMUEL AUSTIN (1816-1889). American bibliographer; most important works are his *Critical Dictionary of English Literature, Poetical Quotations*, and *Prose Quotations*.

ALLSTON, WASHINGTON (1779-1843). American artist and author. His writings include *Lectures on Art*, a novel, *Monaldi*, and a poem, *Sylphs of the Seasons*.

ALMEIDA-GARRETT (*al-may'e-da-gar-ret'*), **VISCOUNT D'** (1799-1854). Portuguese poet, dramatist, and statesman. His many noteworthy productions include *Romanceiro*, a collection of Portuguese folk tales; the dramas *Auto de Gil Vicente* and *Dona Filippa de Vilhena;* the poems *Camoens* and *Folhas Cahidas* ("Fallen Leaves").

AMARI (*a-mah're*), **MICHELE** (1806-1889). Italian historian; noted particularly for his *La Guerra del Vespro Siciliano*.

AMICIS (*a-me'chis*), **EDMONDO DE** (1846-1908). A popular Italian writer; author of many books of travel. Of his later works his most popular is *Il Cuore* (*The Heart of a Boy*).

AMIEL, HENRI FREDERIC (1821-1881). A Swiss essayist, poet, and professor of æsthetics. His *Journal intime*, a diary of 1,700 pages of manuscript, was translated and edited by Mrs. Humphry Ward.

AMMIANUS MARCELLINUS (fourth century A. D.). The last Latin historian of the Roman Empire. His *History*, from the accession of Nerva (96) to the death of Valens (378), was in thirty-one books, of which eighteen have come down to us.

AMRU-EL-KAIS (sixth century A. D.) By some considered the greatest of Arabian poets; the author of the first of the seven Arabic poems grouped under the title *Moallakat*, translated by Sir William Jones.

AMUNATEGUI, MIGUEL LUIS (1828-1888). Chilean author. His works include *La Dictadura de O'Higgins*, *Compendio de historia politica y ecclesiástica en Chile*.

ANACREON (*a-nak're-on*) (561-476 B. C.). Greek lyric poet. Few genuine fragments of his poems remain. A conception of their spirit may be gleaned from Thomas Moore's imitations.

ANAXIMENES. A Greek historian (fourth century B. C.). Said to have taught Alexander the Great and to have accompanied him in his Asiatic campaign. We have fragments of his histories of Philip, of Alexander, and of Greece.

ANDERSEN, HANS CHRISTIAN (1805-1875). A celebrated Danish writer; the "children's poet." His *Fairy Tales* gave him world-wide fame (1835), and were followed by *Tinderbox*, *Big Claus and Little Claus*. Mary Howitt's translation of his tales is the best.

ANDRADA E SILVA (1765-1838). Brazilian statesman; published writings on mineralogy and *Poesias d' Americo Elyseo*.

ANDREWS, CHARLES McLEAN (1863-). An American historian; born at Wethersfield, Conn. *The Historical Development of Modern Europe* is a valuable work.

AN'EURIN (lived about 603). A Welsh poet; a bard at the battle of Cattraeth and taken prisoner. After his release he lived at Galloway. His epic poem, *Gododin*, contains over 900 lines and describes the defeat of the Britons by the Saxons at Cattraeth.

ANICET-BOURGEOIS, AUGUSTE (1806-1871). A French dramatist. He wrote many vaudevilles, comedies, and melodramas, both alone and in collaboration with others.

ANNA COMNE'NA (1083-1148?). Byzantine princess and historian; imprisoned for conspiracy against the succession of her brother. Her history of the Empire, *The Alexiad*, is devoted chiefly to the reign of her father, Alexius I.

ANNUNZIO (*an-noon'tse-o*), **GABRIELE D'** (1864-). Well-known Italian poet, dramatist, and novelist. When only fourteen, he published a collection of lyrics, other poems soon following. Both dramas and novels display depth of character analysis.

ANTAR or **ANTARA** (seventh century A. D.). A famous Arabian hero and one of the celebrated pre-Islamic poets. He was the son of a slave but procured his freedom by his warlike exploits. He wrote one of the seven poems included in the *Moallakat*.

ANTHEUNIS, GENTIL THEODOOR (1840-). One of the best lyric poets of Belgium.

ANTIMACHUS (*an-tim'-a-kus*) (about 410 B. C.). Greek poet, placed by Quintilian first after Homer. *Thebais*, an epic, and *Lyde*, an elegy, were his chief poems, but only fragments of his writings remain.

ANZENGRUBER, LUDWIG (1839-1889). An Austrian dramatist and novelist. He became famous by his anticlerical drama, *Pfarrer von Kirchfeld*. This was followed by *Meineidbauer*, *Kreuzelschreiber* and the novels, *Der Schandfleck* and *Der Sternsteinhof*.

APION (first century A. D.). An Alexandrian grammarian. We know little about him except from Josephus's tract, *Against Apion*. He lived and taught in Rome in the reign of Claudius. He wrote a *History of Civilization in Egypt* which contained the famous story of Androcles and the lion.

APULEIUS (*ap-u-lee'yus*), **LUCIUS** (about 130- ?). Roman rhetorician and satirist, remembered particularly for his *Metamorphoses, or the Golden Ass*, a satire on the vices of the time.

ARANY (*o'ro-ny*), **JANOS** (1817-1882). After Petofi, the greatest of Hungarian poets. In 1845 he won the Kisfaludy Society prize at Pesth with his satirical epic, *The Lost Constitution*. Two years later (1847) he won another prize with his *Toldi*, an epic based on Magyar traditions.

ARATOR (sixth century A. D.). A Christian Latin poet; a jurist under Theodoric. About 540 he took orders. Best known by his *De Actis Apostolorum* and *Epistola ad Parthenium*.

ARATUS OF SOLI (about 270 B. C.). A Greek poet and physician of Cilicia; wrote *Phaenomena* and *Diosemeia*, which were translated into Latin by Cicero and others. St. Paul, a native of the same province, quotes from Aratus in his speech on Mars Hill (Acts xvii. 28).

ARBOLEDA, JULIO (1817-1862). Colombian poet and politician. His poems include *Dios y la virtud*, *Mo aussento*, *Estoy en la cárcel*.

AR'BUTHNOT, JOHN (1667-1735). Scottish author and physician, famous for his amusing political satire, *The History of John Bull*, and *The Memoirs of Martinus Scriblerus*.

ARCHIAS, AULUS LICINIUS (about 62 B. C.). A Greek poet known only by the famous oration, *Pro Archia Poeta*, which Cicero delivered in his behalf in 62 B. C. when charged with having gained citizenship illegally.

ARCHILOCHUS (*ar-kil'o-kus*) (seventh century B. C.). Greek lyric poet who was regarded by the ancients as the leading satirist and equal in rank with Homer. Only fragments of his poetry remain.

ARGENSOLA, BARTOLOMEO LEONARDO DE (1562-1631). Spanish poet and historian; wrote *Conquest of the Moluccas*.

ARGENSOLA, LUPERCIO LEONARDO DE (1559-1613). Spanish poet, dramatist, and historian; chronicler of Aragon; best known for his lyric poems and sonnets.

ARGYLL (*ar-gile'*), **GEORGE JOHN DOUGLAS CAMPBELL, EIGHTH DUKE OF** (1823-1900). English statesman, orator, and writer on economics, geology, and ecclesiastical matters. *The Reign of Law*, his best-known work, is a strong defense of theism.

ARGYLL, JOHN DOUGLAS SUTHERLAND CAMPBELL, NINTH DUKE OF (1845-1914). English statesman and author. As Marquis of Lorne he married Princess Louise, daughter of Queen Victoria; was governor general of Canada (1878-1883); wrote *A Trip to the Tropics*, *Guido and Lita*, *The Psalms in Verse*, *Imperial Federation*, and *Canadian Pictures*.

ARION OF METHYMNA (about 625 B. C.). Greek lyric poet, who developed the dithyramb or choral song in honor of Dionysus.

ARIOSTO (*ar-yos'to*), **LUDOVICO** (1474-1533). Italian poet, whose *Orlando Furioso*, one of the great poems of the world, is among the very first epics of chivalry and romance. [See It. Lit.]

ARISTOPHANES (*ar-is-tof'a-nees*) (450-385 B. C.). Greek comic poet; author of many comedies in verse, among them, *The Knights*, *The Clouds*, *The Wasps*, *The Birds*, *The Frogs*. [See Gr. Lit.]

ARISTOTLE (384-322 B. C.). Greek philosopher. [See. Gr. Lit.]

ARNABOLDI, ALESSANDRO (1827-1898). An Italian lyric poet; born at Milan. His works were collected under the titles *Versi*, *I poeti d'azione*, and *Nuovo Versi*.

ARNASON, JON (1819-1888). An Icelandic writer, called "the Grimm of Iceland." His collection of *Popular Legends and Tales of Iceland* is one of the most valuable contributions to folklore.

ARNDT, ERNST MORITZ (1769-1860). ("Father Arndt"): German patriot and author. His *Geschichte der Leibeigenschaft in Pommern* influenced the abolition of serfdom. Chiefly known for his patriotic songs and poems.

ARNOLD, MATTHEW (1822-1888). English poet, essayist, and critic; son of Dr. Thomas Arnold of Rugby. [See Eng. Lit.]

ARNOLD, SAMUEL GREENE (1821-1880). An American historian; born at Providence, R. I. He was lieutenant governor of his state in 1852, 1861, and 1862. He wrote the *History of Rhode Island and Providence Plantations*.

ARNOLD, SIR EDWIN (1832-1904). English author, to whom the popularizing of the philosophy of India is largely due. *The Light of Asia,* an epic on the life and work of Buddha, is his most noteworthy production. Others include *Pearls of the Faith, Light of the World, Seas and Lands, East and West.*

ASBJORNSEN (*as-byern'sen*), **PETER CHRISTEN** (1812-1885). Norwegian author and naturalist. His scientific writings are inferior in value to his *Norwegian Folk Tales* and *Norwegian Fairy Tales and Folk Legends.*

ATHENAEUS. A Greek writer who lived in Rome about 180-250. His great work was the *Deipnosophistae* ("Banquet of the Learned) in 15 books, of which about half remain. It is a storehouse of miscellaneous information, including quotations from 800 authors whose works are otherwise not extant.

ATHERTON, GERTRUDE FRANKLIN (1859-). An American author; born in San Francisco, Cal.; settled in London (1895). Her works are more popular in England than in America. They include *The Aristocrats, The Conqueror, Rulers of Kings,* and *Traveling Thirds.*

ATKINSON, EDWARD (1827-1905). American economist; prolific writer on economic subjects, including the tariff, banking, and fire prevention.

ATTERBOM, PETER DANIEL AMADEUS (1790-1855). Most distinguished Swedish poet of the romantic school. His most important works are *Swedish Seers and Poets* and the dramatic poem, *Isle of Blessedness.*

AUBIGNE (*o-been-yea'*), **THEODORE AGRIPPA D'** (about 1550-1630). French Huguenot statesman, historian, and poet. His *Universal History* and other historical writings are full of satire. The horrors of religious warfare are strongly depicted in his best work, a group of poems called *The Tragedies.*

AUERBACH, BERTHOLD (1812-1882). German author of Jewish parentage, many of whose novels are overcharged with philosophy. His most noteworthy productions are *Schwarzwälder Dorfgeschichten* and the romance, *Auf der Höhe.*

AUGIER (*o-zhe-a'*), **EMILE** (1820-1889). French dramatist; author of a large number of successful plays. He is vigorous in style and possesses great moral earnestness.

AUSTEN, JANE (1775-1817). English novelist. *Sense and Sensibility, Pride and Prejudice, Emma,* and *Mansfield Park* were published 1811-1816; *Northanger Abbey* and *Persuasion* appeared after her death. [See Eng. Lit.]

AUSTIN, ALFRED (1835-1913). English poet; author of many volumes of verse, among which are *The Season, Savonarola, Songs of England, A Tale of True Love;* was made poet laureate of England (1896).

AUSTIN, JANE GOODWIN (1831-1893). An American novelist who dealt with colonial New England. Her more important works are *A Nameless Nobleman, The Desmond Hundred, Standish of Standish, Betty Alden, David Alden's Daughter and Other Stories.*

AVERRHOES (*a-ver'ro-ez*) (1126-1198). Famous Arabic philosopher and jurist; born at Cordova; commentator of Aristotle.

AVICEN'NA (980-1037). Great Arabic physician and philosopher; author of a system of medicine and of a treatise on metaphysics.

AYRER, JAKOB (about 1560-1605). German dramatist. Thirty tragedies and comedies and thirty-six Shrovetide plays and vaudevilles appear in his *Opus Theatricum.*

AYTOUN (*a'toon*), **WILLIAM EDMONDSTOUNE** (1813-1865). Scottish poet; established his reputation by his *Lays of the Scottish Cavalier.* Following this were *Firmilian, Bothwell,* and *Scottish Ballads.* His longer works are in the measure and manner of Walter Scott.

BACCHYLIDES. A typical Greek lyric poet; born in Ceos near the end of the sixth century B.C. He was a rival of Pindar, and a great favorite of Hiero, the tyrant of Syracuse, whom he celebrated in three poems. He was canonized, but, being the youngest, was named last of the nine lyric poets worthy of immortality; 107 lines of his poetry remain in quotations, one of 12 verses being the longest. In 1897 the British Museum secured in Egypt about 200 fragments of his papyrus. These formed 1070 lines; 6 poems were almost wholly intact, 6 in pieces, and 8 only partly; 14 are odes in honor of victories in war, of which 3 are duplicates of Pindar's, and the remaining 6 are hymns and songs of praise. One poem tells the story of Theseus and Poseidon, the first ever known.

BACHELLER, IRVING (1859-). An American author and journalist; born at Pierrepont, N. Y. Prior to 1900 he had published *The Master of Silence* (1890) and *The Still House of O'Darrow* (1894). *Eben Holden* appeared in 1900, achieving popular success immediately. *Dri and I* (1901) was equally successful. Both are stories of life in northern New York; *Darrell of the Blessed Isles* (1903); *Vergilius* (1904); *Silas Strong* (1906); *The Handmade Gentleman, The Masters* (1909); *In Various Moods* (1910).

BACHMAN, JOHN (1790-1874). An American naturalist. He was the chief assistant of Audubon and principal author of *The Quadrupeds of America;* wrote also *The Doctrine of the Unity of the Human Race.*

BACONTHORPE, BACON, or **BACHO, JOHN** (? -1346). An English scholar and philosopher, known as "the Resolute Doctor." He wrote more than 120 works, which were much studied in the Middle Ages. He was the most noted of the Carmelite scholars, and the leading commentator of Averrhoes' philosophy. Many of his works were published soon after printing was introduced.

BACSANYI (*bo'chan-ye*), **JANOS** (1763-1845). Hungarian poet. He wrote chiefly for the *Magyar Museum,* which he helped to found. *The Valor of the Magyars,* his history (1785), first made him noted. The liberal tendency of his poems led to discontinuance of the *Museum* and resulted in imprisonment for two years (1792-1794). Openly sympathizing with the spirit of the French Revolution, he was forced to go to Paris; later compelled to live in Austria. He exerted important influence upon Hungarian literature. He was elected a member of the Hungarian Academy in his eightieth year.

BAGBY, GEORGE WILLIAM (1828-1883). An American humorist who wrote under the name of "Mozis Addums."

BAGEHOT (*baj'ot*), **WALTER** (1826-1877). An English essayist and journalist; wrote *The English Constitution, Physics and Politics, Lombard Street, Literary Studies, Economic Studies,* and *Biographical Studies;* was editor of the *Economist* (1860-1877).

BAGGESEN, JENS (1764-1826). A Danish poet and story writer; wrote *Lyrics, Comic Tales.* His Danish works comprise twelve volumes and his German, five; Longfellow translated his poem on *Childhood.*

BAIF, JEAN ANTOINE DE (1532-1589). A French poet; born in Venice; one of the most voluminous writers of his day.

BAILEY, JAMES MONTGOMERY (1841-1894). An American journalist known as "The Danbury News Man"; born at Albany, N. Y. His works include *Life in Danbury, They All Do It, England from a Back Window, Mr. Philip's Goneness,* and *The Danbury Boom.*

BAILEY, PHILIP JAMES (1816-1902). An English poet. His first poem, *Festus,* begun when he was twenty, was published in 1839. His other works include *The Angel World, The Mystic,* and *The Universal Hymn.*

BAILLIE, JOANNA (1762-1851). A British dramatist and poet; author of *Plays on the Passions,* and the drama *De Montfort.*

BAIRD, CHARLES WASHINGTON (1828-1887). An American historian; born at Princeton, N. J.; author of *The History of the Huguenot Emigration to America.*

BAIRD, HENRY MARTYN (1832-1906). An American scholar, brother of Charles Washington Baird; born at Philadelphia. His six volumes upon the history of the Huguenots is a succinct account of the history of French Protestants from 1512 to 1802.

BAKER, SIR SAMUEL WHITE (1821-1893). An English explorer and author. His works include *Rifle and Hound in Ceylon, The Nile Tributaries of Abyssinia, The Albert Nyanza, Explorations of the Nile Sources, Cast Up by the Sea,* and *Ismailia.*

BAKER, WILLIAM MUMFORD (1825-1883). American novelist; born at Washington, D. C. His chief works are *Insides: a Chronicle of Secession* (by George F. Harrington, his pseudonym); *Carter Quarterman, His Majesty Myself, The Virginians in Texas.*

BALLANTINE, JAMES (1808-1877). A Scottish poet. His best known songs and ballads in Scottish dialect are included in his volumes, *The Gaberlunzie's Wallet* and *The Miller of Deanhaugh.*

BALZAC, HONORE DE (1799-1850). A celebrated French novelist. He classes his works under the title of *La Comédie Humaine*, which, while unfinished, groups in the several novels over two thousand characters. His writings are published in 24 volumes of fiction, separately; the *Human Comedy*, 47 volumes; *Droll Stories*, 3 volumes; *Drama*, 2 volumes; *Correspondence*, 2 volumes; *Letters to Madame Hanska*, 1 volume; *Youthful Works*, 10 volumes.

BALZAC, JEAN GUEZ DE (1594-1654). French author. By the composition and polished style of his *Letters* he purified French prose from the pedantries of the previous century.

BANA (seventh century A. D.). Sanskrit author. The two novels, *Adventures of Harsha* and *Kadambari* are his greatest works.

BANCROFT, GEORGE (1800-1891). An American historian; born at Worcester, Mass. The first volume of his great work, *The History of the United States*, appeared in 1834. The work was thoroughly revised by him and brought down to 1789.

BANGS, JOHN KENDRICK (1862-1922). An American humorist; born at Yonkers, N. Y.; wrote *Coffee and Repartee, House-boat on the Styx, The Enchanted Typewriter, Olympian Nights*, and *Booming of Acre Hill*.

BANIM, JOHN (1798-1842). An Irish novelist. In 1825, with his elder brother, Michael (1796-1874), he brought out the *O'Hara Tales*. He also wrote *Croppy, The Last Baron of Crana*, and *Father Connell*.

BARATYNSKI, YEVGENI ABRAMOVICH (1800-1844). Russian poet; author of *Eda* and *The Gypsy*.

BARBAULD, ANNA LETITIA (AIKIN) (1743-1825). An English poet and essayist. Of her numerous writings she is best known by her *Evenings at Home*. Her *Ode to Life* is an admirable lyric.

BARBIER, HENRY AUGUSTE (1805-1882). French poet and novelist, remembered chiefly for his satires, *Les Iambes;* also wrote *Il Pianto* and *Lazare*.

BARBOUR, JOHN (1316-1395). A Scottish poet. He has been called "the father of Scottish poetry." His most famous poem is *The Brus*, or *The Bruce*, of about 14,000 eight-syllabled lines.

BARCLAY, ALEXANDER (about 1475-1552). A British poet and satirist. His chief work is *The Shyp of Folys* (Ship of Fools) *of the Worlde*, first printed by Pynson in 1509. His *Egloges* are the first eclogues to appear in English.

BARHAM, RICHARD HARRIS (1788-1845). An English clergyman and humorous writer. Under the pseudonym of "Thomas Ingoldsby" he sent to *Bentley's Miscellany* his series of comic papers in prose and verse, *The Ingoldsby Legends*. He published two novels, *Baldwin* and *My Cousin Nicholas*.

BARING-GOULD, SABINE (1834–1924). An English author; born at Exeter. His studies in the superstitions, folklore, and legends of the Middle Ages are of great value, such as *The Book of Werewolves, Curious Myths of the Middle Ages, Post-mediaeval Preachers, The Silver Store;* and *Curiosities of Olden Times*. Among his novels are *Mehalah, Court Royal, Red Spider, The Gaverocks, Richard Cable, John Herring*, and *In the Roar of the Sea*.

BARLOW, JOEL (1754-1812). An American poet; born at Redding, Conn. In 1787 he wrote his *Vision of Columbus*, which brought him fame; he later expanded it into the *Columbiad*. He is more to be remembered as a patriot than as a poet, though his *Hasty Pudding* is still readable.

BARNARD, LADY ANNE (LINDSAY) (1750-1825). A Scottish poetess, the eldest daughter of James Lindsay, Earl of Balcarres. She is best known as the author of *Auld Robin Gray*, written about 1771. Her *Letters* were published in 1901.

BARNES, WILLIAM (1801-1886). An English poet. His poems are written in Dorsetshire dialect: *Poems of Rural Life* (1844), *Homely Rhymes* (1859), and *Poems of Rural Life* (1893).

BARNFIELD, RICHARD (1574-1627). English poet. His works include *The Encomium of Lady Pecunia or the Praise of Money, The Affectionate Shepherd*, and *Cynthia*. There was long a confusion of authorship concerning the poems *If music and sweet poetry agree* and *As it fell upon a day*, which were attributed to Shakespeare; also *Live with me and be my love*, with which Marlowe was credited; but there is now no doubt that they are Barnfield's.

BARR, AMELIA EDITH (1831-1919). An Anglo-American novelist; born at Ulverston, England. Among her thirty novels are *Jan Vedder's Wife, A Daughter of Fife, A Bow of Orange Ribbon, Friend Olivia, Trinity Bells, The Maid of Maiden Lane, The Lion's Whelp*, and *Squire of Sandal-side*.

BARR, ROBERT (1850-1912). A Canadian novelist. Among his works are *Countess Tekla, The Unchanging East, The Victors, Over the Border, The Tempestuous Petticoat, A Rock in the Baltic, The Measure of Rule, Stanleigh's Millions*, and *Cardillac*.

BARRIE, SIR JAMES MATTHEW (1860-). Scottish novelist; author of *Auld Licht Idylls, When a Man's Single, A Window in Thrums, My Lady Nicotine, The Little Minister, Sentimental Tommy, Tommy and Grizel, Margaret Ogilvy*, and *The Little White Bird;* dramatic works: *The Professor's Love Story, Little Minister, Quality Street, Peter Pan, Alice-sit-by-the-Fire*, and *What Every Woman Knows*.

BARROS, JOAO DE (1496-1570). Portuguese historian, author of the first three volumes of the valuable *Decadas*, a history of Portuguese India.

BARTLETT, JOHN RUSSELL (1805-1886). An American author and bibliographer; born at Providence, R. I.; wrote *Progress of Ethnology*, and *Dictionary of Americanisms*.

BARTON, BERNARD (1784-1849). Known as "the Quaker poet"; born in Carlisle, England; wrote *Metrical Effusions, Poems by an Amateur*, and *Poems*. These brought the friendship of Southey and Lamb. His later works include *Napoleon and Other Poems*, and *Household Verses*.

BASHKIRTSEFF, MARIE (1860-1884). Russian artist and diarist. Though young, her paintings showed great promise, but her fame was secured by her *Journal de Marie Bashkirtseff*, a diary begun when 13 and continued till her death.

BATES, ARLO (1850-1918). An American author; born in East Machias, Maine. His chief novels are *The Pagans, The Puritans*, and *Love in a Cloud*. Among his poetical works are *Berries of the Brier, Sonnets in Shadow, Told in the Gate, The Torchbearers*.

BAYLE, PIERRE (1647-1706). Born at Carla, France; known chiefly as the author of the famous *Dictionnaire Historique et Critique*.

BEAUMARCHAIS, PIERRE AUGUSTIN CARON DE (1732-1799). The most important French dramatist of the eighteenth century. His two successful plays are *Le Barbier de Séville* and *Le Mariage de Figaro*.

BEAUMONT, FRANCIS (1584-1616). An English poet and dramatist whose name and works are inseparably associated with **FLETCHER, JOHN** (1579-1626). They wrote fifty-four plays, among the best of which are *Philaster, Maid's Tragedy, The Faithful Shepherdess*.

BECKFORD, WILLIAM (1759-1844). An English author. At 17 he wrote *Biographical Memoirs of Extraordinary Painters*, a satire on biographical writing. His home in Portugal was the "paradise" of Byron's *Childe Harold*.

BECQUER, GUSTAVO ADOLFO (1836-1870). Spanish author of poems and prose legends. Of the latter, the best known is *Leyendas españolas*.

BEDDOES, THOMAS LOVELL (1803-1849). An English dramatist. Among his works are *Improvisatore, The Bride's Tragedy, Death's Jest Book*.

BEDE, BEDA, or **BAEDA,** styled **THE VENERABLE** (about 673-735). The greatest name in the literature of Saxon England; one of the most distinguished scholars of his age. He wrote homilies, hymns, biographies of the saints, epigrams, grammars, chronologies, and commentaries. His most valuable work, *Historia Ecclesiastica Gentis Anglorum*, in five books, gives the history of England to 731; translated by King Arthur. [See Eng. Lit. and Education.]

BELLMAN, KARL MIKAEL (1740-1795). Swedish lyric poet and improvisator, the most original figure in Swedish literature. His most important works are found in *Fredmans Epistlar* and *Fredmans Sänger*, collections of verse. He is regarded by the Swedes with great enthusiasm, because everything patriotic seems to be associated with his songs.

BELLO, ANDRES (1781-1865). Spanish-American writer; born at Caracas. Among his many important works are *Principios de derecho internacional* and *Castellana, dedicado al uso de los Americanos*.

BELOT, ADOLPHE (1829-1890). A French novelist and dramatist; born in Guadalupe. His best-known novels are *Le drame de la Rue de la Paix, Mademoiselle Giraud, La femme de feu*. His best remembered drama is *Parricide;* and his best comedy, *Sapho*, written in collaboration with Daudet.

BELZONI, GIOVANNI BATTISTA (1778-1823). An Italian Egyptologist. He made the first thorough examination of the great Pyramid (1818). He published *Narrative of the Operations and Recent Discoveries within the Pyramids, Temples, Tombs, and Excavations in Egypt and Nubia.*

BEMBO, PIETRO (1470-1547). One of the most celebrated Italian scholars of the sixteenth century. His collected works were published in four volumes in 1729.

BENJAMIN, PARK (1809-1864). An American poet; born at Demerara, British Guiana. His best-known poem is *The Old Sexton.*

BERANGER (*bay-ron-zha'*), **PIERRE JEAN DE** (1780-1857). A celebrated French song-writer. His *Roi d'Yvetot* was a gentle satire of Napoleon and made the poet popular.

BERGERAC (*berzh-rak'*), **SAVINIEN CYRANO DE** (1619-1655). A French author. His most famous book is *Histoire comique des états et empires de la Lune,* followed by a similar work on the sun.

BERNI, FRANCESCO (1498-1535). An Italian satiric poet. His chief poems are *Rime burlesche* and a recast of Boiardo's *Orlando Innamorato.*

BESANT, SIR WALTER (1836-1901). English man of letters; wrote a number of novels jointly with James Rice, and is the author of *All Sorts and Conditions of Men, Ready Money Mortiboy, The City of Refuge,* and *The Orange Girl.*

BETHUNE, GEORGE WASHINGTON, D.D. (1805-1862). An American writer; born in New York; author of *Lays of Love and Faith, Memoirs of Joanna Bethune,* his mother.

BEYLE, MARIE-HENRI (STENDHAL) (1783-1842). French novelist, art and literary critic. His works include notes of travel, essays, and novels which are studies of social types.

BHARTRIHARI. A Sanskrit writer of aphoristic verse, believed to have flourished in the first century.

BHAVABHUTI. (Flourished seventh century). A famous Sanskrit dramatist. Three dramas, the first, the *Malatimadhava,* called the Indian Romeo and Juliet, won him fame which he shares only with Sudraka, Kalidasa and Harsha.

BIELSKI (c. 1495-1575). Polish historian who, with his son Joachim wrote the first history ever published in the Polish language.

BIGELOW, JOHN (1817-1911). American journalist and author; wrote *Some Recollections of A. P. Berryer, Molinos the Quietist, William Cullen Bryant,* and *Life of Samuel J. Tilden.*

BIJNS, ANNA (c. 1494-1575). Dutch poet, known as the Sappho of Brabant.

BILDERDIJK, WILLEM (1756-1831). A Dutch poet and philosopher. [See Dutch Lit.].

BION OF SMYRNA (flourished about 280 B. C.). A bucolic and idyllic poet. He lived in the Greek colony at Sicily. We have seventeen of his short poems and his longer *Lament for Adonis,* which was a model for Shelley's *Adonaïs.*

BIRRELL, AUGUSTINE (1850-). An English essayist and critic. His *Obiter Dicta* (1884) gave him a place among English essayists. The second series appeared in 1887; wrote *The Life of Charlotte Brontë, Men, Women, and Books.*

BJORNSON (*be-yern'son*), **BJORNSTJERNE** (1832-1910). A Norwegian novelist, poet, and dramatist. *Arne* and *A Happy Boy* established his reputation as a novelist. His early dramas are mainly based on native sagas, except *Mary Stuart in Scotland* and *The Newly Wedded Pair.* His later dramas include *The Editor, A Bankruptcy, The King, Leonarda, The New System, A Glove, Beyond Our Strength,* and *Geography and Love.* [See Scand. Lit.]

BLACK, WILLIAM (1841-1898). English novelist. Among his thirty-four novels are *A Daughter of Heth, Strange Adventures of a Phaeton, A Princess of Thule, Macleod of Dare, Judith Shakespeare,* and *Yolande.*

BLACKIE, JOHN STUART (1809-1895). A Scottish author; professor of Greek in Edinburgh University (1852-1882). Among his works are *A Discourse on Beauty, Songs and Legends of Ancient Greece,* and *Self-Culture.*

BLACKMORE, RICHARD DODDRIDGE (1825-1900). An English novelist. Among his novels are *Clara Vaughn, Lorna Doone, The Maid of Sker, Alice Lorraine, Erema, Christowell, Springhaven, Perlycross,* and *Mary Anerley.*

BLAKE, WILLIAM (1757-1827). An English poet; in 1789, published *Songs of Innocence;* in 1794, *Songs of Experience,* showing two opposite states of the human soul. They contained about 60 fine engravings, his own work, remarkable in their peculiar originality. He has been called "the single Englishman of supreme and simple poetic genius of his time." His *Poetical Works* were collected and edited by W. M. Rossetti.

BLESSINGTON, MARGUERITE, COUNTESS OF (1789-1849). An English author and leader of society. Her most valuable work is *Conversations with Lord Byron,* which placed him in a more favorable light.

BLOOMFIELD, ROBERT (1766-1823). An English pastoral poet. In a comfortless garret he wrote his *Farmer's Boy,* which was translated into several languages. This was followed by *Rural Tales* and *Wild Flowers.*

BLOUET (*bloo-ay'*), **PAUL,** or **MAX O'RELL** (1848-1903). A French author. After the publication of *John Bull and His Island,* he made several lecturing tours of the United States. He wrote also *John Bull's Daughters, Friend Macdonald, Jonathan and His Continent,* and *A Frenchman in America.*

BLUNT, WILFRID SCAWEN (1840-1922). An English poet; wrote *Love Sonnets of Proteus,* containing a fine sonnet on Gibraltar; *Esther, Griselda, Quatrains of Youth,* and many other poems.

BOCCACCIO (*bok-kaht'cho*), **GIOVANNI** (1313-1375). Celebrated Italian novelist, author of the *Decameron.* He was the friend of Petrarch, and was among the first to establish the study of Greek literature in Italy. [See Ital. Lit.].

BODIN, JEAN (1530-1596). A French political writer. His greatest work is *Les Six Livres de la République.*

BODMER, JOHANN JAKOB (1698-1783). A German-Swiss poet and critic; translated Milton's *Paradise Lost* into German and did much to arouse an interest in English literature.

BODTCHER, LUDVIG (1793-1874). A Danish lyrist. [See Scandinavian Literature].

BOECE (*bois*) or **BOETHIUS, HECTOR** (1465-1536). A Scottish historian; born in Dundee. His fame rests on his *History of Scotland.*

BOE'THIUS, ANICIUS MANLIUS TORQUATUS SEVERINUS (480-524). A Roman statesman and philosopher, called "the last of the classic writers." During imprisonment he wrote his famous *De Consolatione Philosophiae* in five books. He held high rank during the Middle Ages, until the introduction of the Aristotelian metaphysics in the thirteenth century.

BOGAERS, ADRIAAN (1795-1870). A Dutch poet. Two of his posthumous works, *Philological Papers* and a *Lexicon of Bilderdijk's Poetical Works* were published in 1872 and 1878.

BOGDANOVITCH, IPPOLIT FEODOROVITCH (1744-1803). A Russian poet. The publication of the poem *Dushenka* brought him fame, and the favor of the court.

BOIARDO, MATTEO MARIA, COUNT OF SCANDIANO (about 1434-1494). An Italian poet; wrote *Orlando Innamorato,* an epic, which he left unfinished, and which suggested Ariosto's *Orlando Furioso.*

BOILEAU-DESPREAUX, NICHOLAS (1636-1711). The most famous French critic of the Age of Louis XIV.; called the "legislator of Parnassus"; wrote *Adieus of a Poet to the City of Paris* in 1660 and followed it with twelve other satires before 1666. His two masterpieces are *Art poétique,* and *Le Lutrin.*

BOLINGBROKE, VISCOUNT HENRY ST. JOHN (1678-1751). An English author, orator, and statesman; friend of Swift, Pope, and others; wrote *Dissertation on Parties, Letters on the Study of History.*

BORJESSON, JOHAN (1790-1866). Swedish lyric poet and dramatist. Wrote *Erik XIV.* and *Blommor och Tarar pa en dotters Graf.*

BORROW, GEORGE HENRY (1803-1881). An English author; wrote *Romantic Ballads, The Zincali,* his most important work on the gypsies in Spain; *The Bible in Spain, Lavengro, Romany Rye,* and *Wild Wales.*

BOSCAN-ALMOGAVER, JUAN (about 1493-about 1542). A Spanish poet, tutor of the duke of Alva; experimented with sonnets, blank verse, and the octave stanza, in imitation of Italian measures, and thus founded a new school of Spanish poetry.

BOSWELL, JAMES (1740-1795). A Scotch biographer; the son of Lord Auchinleck; born in Edinburgh. In 1791 appeared his *Life of Johnson*. Macaulay styled Boswell "the first of biographers." His other works include *Account of Corsica* and *Journal of a Tour to the Hebrides*.

BOUCICAULT, DION (1822-1890). A dramatic writer; born in Dublin; author of popular Irish plays, as *The Colleen Bawn* and *The Shaughraun*. Among his later works are *The Streets of London, Flying Scud*, and *After Dark*. He collaborated with Charles Reade on *Foul Play*.

BOURGET, PAUL (1852-). A notable French essayist and novelist. His father was Russian and his mother, English. His many novels include: *Le disciple, Drames de famille, Nouveaux pastels*, and *L'Emigré*.

BOURINOT, SIR JOHN GEORGE (1837-1902). A Canadian historian; born in Sydney, Nova Scotia; wrote *Parliamentary Procedure and Practice, Manual of Constitutional History, Parliamentary Government of Canada, How Canada is Governed, Cape Breton and Its Memorials of the French Régime, Canada Under British Rule, Intellectual Development of the Canadian People*, and *Canada's Intellectual Strength and Weakness*.

BOWLES, CAROLINE ANNE (1787-1854). An English poetess, wife of Robert Southey; wrote *Chapters on Churchyards, The Young Gray Head*, and other poems. She was much praised by Christopher North, Coleridge, Professor Moir, and others.

BOWLES, SAMUEL (1826-1878). An American journalist; editor, for more than thirty years, of Springfield (Mass.) *Republican*, founded by his father. He wrote *Our New West* and *The Switzerland of America*.

BOWLES, WILLIAM LISLE (1762-1850). An English poet. His sonnets, by their "linking," as Professor Saintsbury has it, "of nature's aspect to human feeling," were much admired by Coleridge.

BOYD, ANDREW KENNEDY HUTCHINSON (1825-1899). A Scottish author and divine; gained great popularity as A. K. H. B., the writer of *Recreations of a Country Parson*, and other works.

BOYESEN, HJALMAR HJORTH (1848-1895). An Norwegian novelist; born at Frederiksvärn, Norway. His works include *Gunnar, Tales from Two Hemispheres, Falconberg, Ilka on the Hilltop*, and *A Daughter of the Philistines*. His critical essays include *Goethe and Schiller, Literary and Social Silhouettes, Essays on Scandinavian Literature*. His poems are *Idylls of Norway*.

BRADDON, MARY ELIZABETH (MRS. JOHN MAXWELL) (1837-1915). A popular novelist; born in London; authoress of *Lady Audley's Secret, Aurora Floyd*, and some 50 other novels.

BRADSTREET, ANNE (about 1612-1672). An American poet; born in England; a daughter of Governor Thomas Dudley; married the future Governor Bradstreet (1630), and became a voluminous writer.

BRADY, CYRUS TOWNSEND (1861-1920). An American author; born in Allegheny, Pa. His best work is *Recollections of a Missionary in the Great West*, and several works of fiction, including *For Love of Country* and *Woven with the Ships*.

BRANDES, GEORG MORRIS COHEN (1842-1927). A renowned Danish critic. His many works include *Danske Digtere, Mennesker og Værker i nyere Europæiske Literature*, and a valuable work on *Shakespeare*.

BRANTOME, PIERRE DE BOURDEILLES, SEIGNEUR DE (?1540-1614). French chronicler, whose *Memoirs* are valuable for their portrayal of the manners and personages of the period.

BREDEROO, GERBRAND ADRIAENSS (1585-1618). Dutch dramatist. His works include the farce *Kluchten*, the comedies *Moortje* and *Spaansche Brabander Jerolimo*, and a volume of poems, *Groot Liedboeck*.

BREMER, FREDRIKA (1801-1865). A Swedish novelist; born near Abo, Finland. She wrote *Sketches of Every Day Life, The H. Family, Homes in the New World, The Neighbors, The Four Sisters*, etc.

BRIDGES, ROBERT SEYMOUR (1844-). Poet laureate of England (1913-). His writings comprise lyrics, narrative poems, and plays. A complete edition of his works was published in 1913.

BROCKES, BARTHOLD HEINRICH (1680-1747). German poet; his chief work is *Irdisches Vernügen in Gott*.

BRODZINSKI, KAZIMIERZ (1791-1835). Polish poet. The idyll *Wieslaw* is his most important work.

BRONTE, ANNE (1820-1849). Sister of Charlotte; author of *Agnes Grey* and *Tenant of Wildfell Hall*.

BRONTE, CHARLOTTE (1816-1855). An English author; born at Thornton, Yorkshire; removed with her father, at the age of four, to Haworth, a moorland parish in the same county, where she lived most of her days; spent two years at Brussels as a student; on her return, in conjunction with her sisters, prepared and published a volume of poems under the pseudonyms respectively of "Currer Bell," "Ellis Bell," and "Acton Bell," which proved a failure. Nothing daunted, she set to novel writing and her success was instant; first *Jane Eyre*, then *Shirley*, and then *Villette*, appeared, and her fame was established. In 1854 she married her father's curate, Mr. Nicholls. [See Eng. Lit.].

BRONTE, EMILY (1818-1848). Sister of Charlotte; author of a novel, *Wuthering Heights*. Her poetry was highly praised by Matthew Arnold. [See Eng. Lit.].

BROOKE, STOPFORD AUGUSTUS (1832-1916). An English author; wrote *Life and Letters of Frederick W. Robertson, Theology in the English Poets, A Primer of English Literature, Sermons, Poems, Study of Tennyson, English Literature to the Norman Conquest*.

BROUGHAM, HENRY PETER, LORD BROUGHAM AND VAUX (1778-1868). A British statesman, orator, and author. In 1802 he helped to found the Edinburgh *Review*. The article on Byron's *Hours of Idleness* provoked the poet to write his *English Bards and Scotch Reviewers*. He left a memoir, *Life and Times*.

BROUGHTON, JOHN CAM HOBHOUSE, BARON (1786-1869). An English statesman and writer. He was a friend of Byron, and published in 1813 his *Journey Through Albania with Lord Byron*.

BROUGHTON, RHODA (1840-1920). A popular English novelist. Among her works are *Cometh Up as a Flower, Not Wisely but too Well, Red as a Rose is She, Nancy, Belinda, Doctor Cupid, Alas!*

BROWN, CHARLES BROCKDEN (1771-1810). An American novelist and editor; born in Philadelphia. His first novel, *Wieland, or the Transformation*, came out in 1798, followed by *Arthur Mervyn, Ormond, Edgar Huntley*, and *Clara Howard*. He was the first really professional American man of letters.

BROWN, JOHN (1810-1882). A Scotch physician and author; wrote the widely read *Rab and His Friends*.

BROWNE, CHARLES FARRAR, or "ARTEMUS WARD" (1834-1867). An American humorist; born at Waterford, Me. He delivered his first humorous lecture, *The Babes in the Wood*, in Brooklyn, and it was so successful that he abandoned journalism for the lecture platform. He published *Artemus Ward, His Book; Artemus Ward, His Travels*, and *Artemus Ward in London*.

BROWNE, FRANCIS FISHER (1843-1913). An American editor, poet, and critic; born at South Halifax, Vt. He wrote *Everyday Life of Abraham Lincoln*, and *Volunteer Grain*.

BROWNE, SIR THOMAS (1605-1682). An English philosopher and writer. He began life as a medical practitioner. His best works are the famous *Religio Medici* and the *Hydriotaphia or Urn-Burial*.

BROWNELL, WILLIAM CRARY (1851-1928). American writer; author of *French Traits, French Art, Victorian Prose Masters*.

BROWNING, ELIZABETH BARRETT (1806-1861). A distinguished English poetess, regarded by some as the greatest which England has ever produced; wrote *Sonnets from the Portuguese, Aurora Leigh, The Seraphim and Other Poems*. In 1846 she was married to Robert Browning.

BROWNING, ROBERT (1812-1889). One of the greatest of the Victorian poets; born in Camberwell, England. At the age of twenty he traveled on the continent and resided for some time in Italy. In 1846 he married Elizabeth Barrett, and settled with her in Florence, where they remained for nearly fifteen years. Recognition of his literary fame, which came slowly, was made in 1867, when he was elected an honorary fellow of Balliol, and an M.A. of Oxford. He died in Venice and was buried in Westminster Abbey between Cowley and Chaucer. [See Eng. Lit.]

BRUNETIERE, FERDINAND (1849-1906). The greatest systematic critic of contemporary French literature. His greatest work is his *Manuel de l'histoire de la littérature française*.

BRYANT, WILLIAM CULLEN (1794-1878). American poet and journalist; born in Massachusetts; entered Williams College, read law, admitted to the bar in 1815; published *Thanatopsis* in 1817; became editor of the New York *Evening Post* in 1828.

BRYCE, JAMES. (See Dictionary of Government). He wrote *The American Commonwealth*, which gives probably the best account ever written of the national institutions in relation to the history, the habits, and the character of the American people.

BUCHANAN, ROBERT WILLIAM (1841-1901). An English poet, dramatist, and novelist; wrote *Undertones, London Poems.* He wrote a number of novels, as *God and the Man* and *The Wandering Jew.*

BUCKLE, HENRY THOMAS (1821-1862). An English historian. The *History of Civilization*, the first volume of which appeared in 1857, made Buckle famous. He left his work unfinished.

BULFINCH, THOMAS (1796-1867). An American author; born at Boston, Mass. His *Age of Fable* is a perennial favorite and was revised (1881) by Edward Everett Hale. Bulfinch also published *Hebrew Lyrical History, The Age of Chivalry*, and *Oregon and the Eldorado.*

BULKELEY, PETER (1583-1659). American clergyman. His *Gospel Covenant* represents the "intellectual robustness of New England in the first age."

BULWER-LYTTON, EDWARD GEORGE EARLE, LORD LYTTON (1803-1873). An English novelist, playwright, and poet. Altogether his works exceed 60 in number, and fill 110 volumes. He wrote several plays which have long kept the stage: *The Lady of Lyons, Richelieu*, and *Money.* His first successful novel was *Pelham* (1828). It was followed by *Ernest Maltravers, Alice, Night and Morning, The Caxtons, My Novel, Kenelm Chillingly, Paul Clifford, Eugene Aram, Devereux, Last Days of Pompeii, Rienzi*, and *Leila.*

BUNNER, HENRY CUYLER (1855-1896). An American humorist and novelist; born in Oswego, N. Y. He wrote *Zadok Pine, Short Sixes, More Short Sixes, Love in Old Cloathes, Jersey Street and Jersey Lane*, and *The Midge.* His poems are collected in *Airs from Arcady.*

BUNYAN, JOHN (1628-1688). English author; the son of a tinker. He followed that vocation and led for many years a wandering life; served in the Parliamentary army; joined the Nonconformists in 1653, and in 1655 became a minister. He wrote *The Life and Death of Mr. Badman* and *Grace Abounding*, masterpieces of realistic literature; was imprisoned for more than twelve years, and during that time wrote his *Pilgrim's Progress*, his masterpiece.

BURGER, GOTTFRIED AUGUST (1747-1794). A German poet; born in Anhalt. His best ballad is *Lenore*, which was a potent influence in the revival of the ballad. Bürger also revived the sonnet in German.

BURKE, EDMUND (1729-1797). Irish orator, statesman, and writer. He wrote *Vindication of Natural Society, Essay on the Sublime and Beautiful, European Settlements in America, On the Cause of the Present Discontents, American Taxation, Conciliation with America*, and *Reflections on the Revolution in France.*

BURNETT, FRANCES ELIZA HODGSON (1849-1924). An Anglo-American novelist; born in Manchester, England; the wife of Stephen Townsend. Her chief work is *Little Lord Fauntleroy.* She wrote also *That Lass o' Lowrie's, Haworth's, A Fair Barbarian, Through One Administration*, and *The Making of a Marchioness.*

BURNS, ROBERT (1759-1796). Scotland's national poet; born in a clay-built cottage less than two miles south of the town of Ayr. *The Cottar's Saturday Night, To Mary in Heaven, Highland Mary, Scots Wha Hae Wi' Wallace Bled, The Jolly Beggars, Tam O' Shanter*, are among his best poems and typical of his style. [See Eng. Lit.].

BURROUGHS, JOHN (1837-1921). An American essayist and naturalist. His literary achievements are the outcome of his keen observation of nature and animal life. All his works bear the mark of his delightful originality.

BURTON, ROBERT (1577-1640). An English clergyman; author of the *Anatomy of Melancholy*, which he wrote to alleviate his own depression of mind, a book which is a perfect mosaic of quotations.

BUSTAMANTE, CARLOS MARIA DE (1774-1848). A Mexican historian; his works include *Cuadro historico de la revolición Mexicana*, published in eight volumes.

BUTLER, SAMUEL (1612-1680). An English satirist, author of *Hudibras*, the hero of which is Sir Samuel Luke, one of Butler's masters. It is a kind of metrical *Don Quixote* and ridicules the Puritans.

BUTLER, WILLIAM ALLEN (1825-1902). An American lawyer and satirical poet, son of Benjamin F. Butler. He is best known by his satire, *Nothing to Wear*, which was published anonymously in 1857.

BUTTERWORTH, HEZEKIAH (1839-1905). An American author, poet, and juvenile writer; born at Warren, R. I.; wrote *Zigzag Journeys* (1876-1890), *A Knight of Liberty, The Boyhood of Lincoln, The Wampum Belt*, and *In Old New England.*

BYLES, MATHER (1706-1788). An American poet, and distinguished pulpit orator. His published sermons were noteworthy, but his poems received an undue amount of praise from his contemporaries.

BYRON, GEORGE GORDON NOEL, LORD (1788-1824). English poet. In 1815 he married Anne Isabella Millbanke, but separated from her and left England in 1816. Espousing the cause of the Greeks in their struggle for liberty, he left for Greece in 1823, and died at Missolonghi from the effects of exposure while preparing for the siege of Lepanto. [See Eng. Lit.].

CABALLERO, FERNAN (1797-1877). A Spanish novelist whose real name was Cecilia Bohl von Faber. Her first success in a literary line was *La Gaviota.* She was the first to publish a collection of Spanish popular tales.

CABLE, GEORGE WASHINGTON (1844-1925). An American novelist; born in New Orleans, La. His sketches of creole life in *Scribner's Monthly* proved so successful that in 1879 he turned his entire attention to literature. He has written *Creole Days, Strange True Stories of Louisiana, The Cavalier, The Grandissimes, Madame Delphine, Dr. Sevier, Bonaventure*, and *John March, Southerner.* His work is original and unique, and much appreciated. Since 1886 he has lived in Northampton, Mass.

CAEDMON (*kad'mon*) (flourished 670). An English poet. The fragment of a hymn, or *Paraphrase*, written by him and preserved by Bede, is the oldest specimen of English poetry extant.

CAESAR, GAIUS JULIUS. (See Dictionary of Government). Most of Caesar's writings have been lost, though we have his invaluable *Commentaries.* This was first printed at Rome in 1449. He has never been surpassed as a historian; his style is simple and vigorous. The value of his works is enhanced by the truthfulness of the accounts of the events which he records, of many of which he was an eyewitness.

CAINE, THOMAS HENRY HALL (1853-). An English novelist and dramatist; born in Runcorn, Cheshire, England. His novels, which are striking in their pictures of human motives and passions, are read throughout the world; wrote *The Manxman, The Christian, The Shadow of a Crime, The Deemster, The Bondman, The Scapegoat*, and *The Eternal City.*

CALDERON DE LA BARCA (1600-1681). The great Spanish dramatist; born at Madrid; entered the army and served in Italy and Flanders, producing the while dramas which were received with great enthusiasm; took holy orders, and became a canon of Toledo. There survive 120 regular plays and 80 *autos* or religious plays. Of the former the best known are *El alcalde de Zalamea, El principe constante, La dama duende* (The Fairy Lady), and *El mayor monstruo los zelos* (No Monster Like Jealousy). [See Sp. Lit.].

CALDERON, SERAFIN ESTEBANEZ (1801-1867). Spanish writer, author of *Escenas andaluzas*, sketches of Andalusian life; *El solitario* (poems), and the novel, *Cristianos y Moriscos.*

CALLIMACHUS (about 310-240 B. C.). A Greek poet and grammarian of the Alexandrine school. He taught Eratosthenes, Aristophanes, and other leading Greek scholars. He left behind over 800 books. The most important are *The Tablets*, in 120 books; four books of *Causes; Berenice's Lock*, an elegy, and an idyllic poem, *Hecate.*

CALLISTHENES (about 360-328 B. C.). A Greek historian; born in Olynthus. He wrote several historical works, of which only fragments have survived.

CALLISTRATUS (flourished 375 B. C.). The greatest Athenian orator of his day; born at Aphidnae. His oration on the cause of Oropus made a great impression on Demosthenes, who heard it when a boy.

CALVERLEY, CHARLES STUART (1831-1884). An English writer of humorous verse, hymns, and *vers de société*; parodied and wrote examination papers on *Pickwick Papers*; wrote *Verses and Translations, Translations into English and Latin* (especially felicitous), *Theocritus in English Verse*, and *Fly Leaves.*

CAMDEN, WILLIAM (1551-1623). An English historian and antiquarian; born in London and known

as the "British Pausanias." His famous work is *Britannia*, an account of the British Isles from the earliest ages, written in elegant Latin and published in 1586. He wrote also *Annals of the Reign of Elizabeth*, *A Collection of Ancient English Historians, Monuments and Inscriptions of Westminster Abbey*, and *A Narrative of the Gunpowder Plot*.

CAMOENS, LUIZ DE (1524-1580). The greatest poet of Portugal; born at Lisbon; studied at Coimbra; fell in love with a lady of high rank in Lisbon, and she with him, but they were not allowed to marry; left Lisbon, joined the army, and fought against the Moors; volunteered service in India, arrived at Goa, and got into trouble with the Portuguese authorities; went to Macao, and consoled himself by writing his *Lusiad*; coming home he lost everything but his poem; died neglected and in poverty. It is the Portuguese national epic, called, not inaptly, the *Epos of Commerce*. [See Port. Lit.]

CAMPBELL, THOMAS (1777-1844). A Scotch poet; was interred at Poets' Corner, in Westminster Abbey, close to the tomb of Addison. Some of his poems have gained a permanent place in literature, as *The Battle of the Baltic*, *Hohenlinden*, *Ye Mariners of England*, *The Exile of Erin*, and *Lochiel's Warning*. His longer works are *The Pleasures of Hope* and *Gertrude of Wyoming*.

CAMPBELL, WILLIAM WILFRED (1861-1918). Canadian lyric and dramatic poet. Author of *Beyond the Hills of Dreams*, *Lake Lyrics*, and *Mordred and Hildebrand Tragedies*.

CAMPOAMOR Y CAMPOOSORIO, RAMON DE (1817-1901). Spanish politician, philosopher, and author; most popular and perhaps the greatest of modern Spanish poets. [See Span. Lit.]

CANTU, CESARE (1804-1895). An Italian historian and novelist. During imprisonment he wrote his popular romance, *Margherita Pusterla*. His greatest works are *Storia universale*, in 35 volumes; *History of the Italians*, *History of Italian Literature*, *Independence of Italy*, and *Milan, A History of the People for the People*.

CAPUANA, LUIGI (1839-1918). Italian novelist and critic. A "realist," his best known novel is *Giacinta*.

CARDUCCI, GIOSUE (1836-1907). An Italian poet. His chief works are *Juvenilia*, *Levia gravia*, *I Decennali*, *Odi barbare*, *Nuove odi barbare*, and *Terze odi barbare*. His prose works of remarkable critical value are *Studi letterarii* and *Bozetti critici*.

CARLETON, WILL (1845-1912). An American poet; born in Hudson, Mich. His *Poems* appeared in 1871 and were followed by *Farm Ballads*, *Farm Legends*, *Young Folks' Centennial Rhymes*, *City Ballads*, *City Festivals*, *Rhymes of Our Planet*.

CARLYLE, THOMAS (1795-1881). A Scottish author; born in Ecclefechan, Dumfriesshire, Scotland. He was the eldest son of James Carlyle, a mason, afterward a farmer, and was intended for the Church, with which object he was carefully educated. His first literary productions were short biographies and other articles for the *Edinburgh Encyclopaedia*. His career as an author may be said to have begun with the issue in monthly portions of his *Life of Schiller* in the *London Magazine* in 1823, this work being enlarged and published separately in 1825. The largest and most laborious work of his life was *The History of Frederick II. of Prussia, called Frederick the Great*, the last two volumes of which appeared in 1865, and after this time little came from his pen. *Sartor Resartus*, *French Revolution, Past and Present*, and *Heroes and Hero-worship* are among his best known works. [See Eng. Lit.]

CARMAN (WILLIAM) BLISS (1861-). A Canadian poet and author; born at Fredericton, N. B.; wrote *Low Tide on Grand Pré*, *Songs from Vagabondia*, *Behind the Arras*, *A Sea Mark*, *Ballads of Lost Haven*, *By the Aurelian Wall*, *More Songs from Vagabondia*, *Last Songs from Vagabondia*, and *The Kinship of Nature*. The *Vagabondia* series were written in collaboration with Richard Hovey. [See Can. Lit.]

CARPIO, MANUEL (1791-1860). Mexican physician, politician, and poet. His collected poems have gone through several editions.

CARY, ALICE (1820-1871). An American poet; born near Cincinnati, Ohio. Her works include *The Clovernook Papers*, *Married not Mated*, *Pictures of Country Life*, and *The Bishop's Son*.

CARY, HENRY FRANCIS (1772-1844). An English clergyman and writer; noted for his famous *Translation of Dante*, *Pindar's Odes*, *Birds of Aristophanes*.

CARY, PHOEBE (1824-1871). An American poet and prose writer, sister of Alice; born in Cincinnati, Ohio. These two poets worked together and published *Poems of Alice and Phoebe Cary* in 1850. Phoebe published *Poems and Parodies* and numerous hymns.

CASGRAIN, HENRI RAYMOND (1831-1904). Canadian historian. His works include *Légendes canadiennes*, *Biographies canadiennes*, *L'histoire de la Marie de l'Incarnation*.

CASTELAR, EMILIO (1832-1899). A Spanish republican leader, orator, and writer; born in Cadiz; wrote *La cuestion del oriente*, *Historia del descubrimiento de America*, and *La politique européenne*.

CASTIGLIONE, BALDASSARE, COUNT (1478-1529). Italian statesman and author, noted for his many talents and wide knowledge. His chief work is the famous *Libro del cortegiano*, written in 1528, which Dr. Johnson pronounced "the best book that was ever written upon good breeding." It is in four parts, forming a series of imaginary dialogues between distinguished men and noble ladies, upon varied subjects. It was one of the most popular books of the period in Italy. In his *Lettere* he gives many interesting contributions to the literature and history of the period.

CASTLE, EGERTON (1858-). An English novelist. His novels include *Consequences*, *The Light of Scarthey*, *The Pride of Jennico*, *The Bath Comedy*, and *Young April*. He wrote plays for Irving and Mansfield.

CATHERWOOD, MARY HARTWELL (1847-1902). An American novelist; born at Luray, Ohio. Among her works are *Craque o' Doom*, *The Romance of Dollard*, *The Story of Tonty*, *The Lady of Fort St. John*, *Old Kaskaskia*, *Lazarre*, *The Days of Jeanne D'Arc*, and *The White Islander*.

CATLIN, GEORGE (1796-1872). An American traveler, artist, and author; born at Wilkesbarre, Pa. He published *The Manners, Customs, and Conditions of the North American Indians*, *The North American Portfolio of Hunting Scenes*, *Eight Years' Travel and Residence in Europe*, *The Breath of Life*, and *Rambles Among the Rocky Mountains and the Andes*.

CATS, JAKOB (1577-1660). A Dutch poet. He wrote *Maiden Duty*, *Inward Strife*, *Manly Respectability*, *Marriage*, *Fidelity*, *Betrothal Ring*, *Age and Country Life*. [See Dutch Lit.]

CAVALCANTI, GUIDO (about 1250-1300). Florentine lyric poet. The canzone on the *Essence of Love* is his most famous poem.

CAVALLOTTI, FELICE (1824-1898). Italian writer and politician. Bitterly attacked Germany in *Germania e Italia*. Author of lyrics and dramas.

CAVENDISH, GEORGE (1500-about 1561). An English author, the biographer of Cardinal Wolsey. He entered Wolsey's service and remained his constant friend. The *Life of Wolsey* was written in 1557 and published 1641.

CAWEIN, MADISON JULIUS (1865-1914). An American poet; born in Louisville, Ky. His poems include *Blooms of the Berry*, *The Triumph of Music*, *Lyrics and Idyls*, *Days and Dreams*, *Moods and Memories*, *Undertones*, and *One Day and Another*.

CAXTON, WILLIAM (1422-1491). An English printer and scholar. His *Recuyell* (collection) *of the Historyes of Troye*, translated by him from the French, appears to have been printed in 1474, most probably at Bruges in Belgium. It was the first book printed in the English tongue. He set up a printing office in Westminster (1477). He is known to have printed 99 books, of which 38 survive. [See Eng. Lit.]

CERVANTES SAAVEDRA, MIGUEL DE (1547-1616). Author of *Don Quixote* and one of the greatest writers of modern times; born in Alcalá de Henares. Two of his plays survive—*Life in Algiers* and *Numantia*, the first worthless, the second the admiration of such authors as Goethe. He wrote also *Exemplary Tales* and *Voyage to Parnassus*. [See Sp. Lit.]

CHAMBERS, ROBERT WILLIAM (1865-). An American author; became first an illustrator; since 1903 devoted time to literature; *The King in Yellow*, *Ashes of Empire*, *The Conspirators*, *The Fighting Chance*, *The Firing Line*, etc., besides two plays.

CHAMFORT, SEBASTIEN ROCH NICOLAS (1741-1794). French epigrammatist. His aphorisms, *Maximes et pensées*, are keen and incisive.

CHAMISSO, ADELBERT VON (1781-1838). A German poet and scientist; born in France. His most noteworthy prose work is *Peter Schlemil*. Among his poems are the *Lion's Bride* and *Cousin Anselmo*.

CHAPMAN, GEORGE (about 1559-1634). An English poet and dramatist. Among his plays are *The Blind Beggar of Alexandria, All Fools, Eastward Ho! The Widow's Tears,* and *Caesar and Pompey.* He was the first translator of *Homer* into English verse.

CHARTIER, ALAIN (about 1390-about 1440). French poet and diplomatist. Author of patriotic and love poems, the political work *Le Quadriloge Invectif,* and *Bréviarie des Nobles.*

CHATEAUBRIAND (*shah-to-bre-on'*), **FRANCOIS RENE AUGUSTE, VICOMTE DE** (1768-1848). A French author; born in St. Malo, Brittany. His style did much to mold French literature; wrote *René, Atala, Les Natchez, Les aventures du dernier des Abencérages,* and translated Milton's *Paradise Lost.* His *René* and *Atala* mark the beginning of the Romantic School of French literature. [See Fr. Lit.].

CHATTERTON, THOMAS (1752-1770). An English poet. During his short career he indulged a mania for forging old manuscripts, which deceived for a time even Walpole himself. He wrote the "Rowley poems" in the name of one Thomas Rowley, a mythical monk of the fifteenth century. The "Rowley poems" were collected after Chatterton's death by T. Tyrwhitt in 1777 and published.

CHAUCER, GEOFFREY (1340-1400). "The father of English poetry"; born in London. His most celebrated work, *The Canterbury Tales,* was written at different periods between 1373 and 1400. It consists of a series of tales in verse, supposed to be told at the Tabard Inn by a company of pilgrims to the shrine of St. Thomas à Becket at Canterbury in 1386. In its pages we get such pictures of English life and English ways of thought in the fourteenth century as are found nowhere else. He wrote several minor poems, the *Complaint to Pity, Complaint to His Purse,* translation of *The Romance of the Rose.* He invented the seven line stanza and the heroic couplet extensively used by Dryden, Pope, and many others. He was buried in Westminster Abbey. [See Eng. Lit.].

CHENEY, JOHN VANCE (1848-1922). An American librarian and poet; born at Groveland, N. Y. His chief poetical works are *Thistle-Drift, Queen Helen and Other Poems, Out of the Silence,* and *For Thinking Hearts.*

CHENIER (*sha-nya'*), **ANDRE MARIE DE** (1762-1794). A French poet. His mother was a Greek and Chenier displayed remarkable aptitude for adapting Greek poems to French ideals. In 1791 he wrote the *Jeu de Paume,* a superb Pindaric ode on the meeting of the Third Estate. While waiting execution in Saint-Lazare prison he wrote his most famous poems, a denunciation of the Convention and the exquisite *Jeune Captive,* dedicated to his fellow prisoner, afterwards the countess of Fleury.

CHERBULIEZ, CHARLES VICTOR (1829-1899). A French novelist. His first successful novel was *Le comte Kostia.* The best of an immense number are *Prosper Randoce, Ladislas Bolski, Miss Rovel, Meta Holdenis,* and *Samuel Brohl et Cie.*

CHESTERFIELD, PHILIP DORMER STANHOPE, EARL OF (1694-1773). Statesman, orator, and man of letters; born in London; celebrated for his *Letters to his Son.*

CHILD, LYDIA MARIA FRANCIS (1802-1880). An American author; born at Medford, Mass. Her works include the novels *Hobomok, The Rebels, Philothea,* probably her best work.

CHITTY, JOSEPH (1776-1841). An English lawyer and legal writer. His celebrity rests mainly upon his legal works, which include *Treatise on Parties to Actions and to Pleadings, Treatise on Criminal Law, Synopsis of Practice, Treatise on Bills of Exchange and Promissory Notes,* and *Treatise on the Law of Nations.*

CHURCHILL, WINSTON (1871-). An American author; born in St. Louis, Mo. He wrote *Richard Carvel, The Crisis, The Crossing,* and *Coniston.*

CHURCHILL, WINSTON LEONARD SPENCER (1874-). An English author, son of Lord Randolph Churchill; wrote *The Story of the Malakand Field Force, The River War, Savrola, London to Ladysmith via Pretoria,* and *Ian Hamilton's March.*

CIBBER, COLLEY (1671-1757). English actor, dramatist, and poet laureate. His entertaining autobiography is entitled *Apology.*

CICERO, MARCUS TULLIUS (106-43 B. C.). A Roman orator; born in Arpinum. He was one of the greatest orators the world has known. He was executed at the instance of the Triumvirate—Octavianus, Antony, and Lepidus. His works include *De Oratore, De Republica, De Legibus, De Senectute, De Amicitia, De Officiis, De Natura Deorum,* and there remain to us 57 orations, of which the most famous are the four against Catiline, 14 Philippics against Antony, those on behalf of Archias, L. Murena, and Marcus Caelius.

CLARETIE, JULES (properly **ARSENE ARNAUD**) (1840-1913). A French author who became famous as a dramatist and dramatic critic. He is best known for his novels and historical works. Among the former are *L'Assassin Les Muscadins,* and *Le Prince Zilah,* both of which established his reputation; in the drama *Monsieur le Minister, Puyjoli, L'Accusateur,* and others. In 1888 he was elected to the French Academy.

CLARKE, CHARLES COWDEN (1787-1877). An English author; wrote *Tales from Chaucer, Shakespeare Characters, Molière Characters, Recollections of Writers.*

CLARKE, MacDONALD (1798-1842). An American poet; born in Bath, Me. From his eccentricities he was known as the "Mad Poet." Best known by his expression, "Now Twilight lets her curtain down, and pins it with a star." Among his works are *A Review of the Eve of Eternity, The Elixir of Moonshine by the Mad Poet,* and *A Cross and a Coronet.*

CLAUDIANUS, CLAUDIUS (flourished 400). A Latin poet; born in Alexandria; went to Rome (395). We have two of his epics, *The Rape of Proserpina* and *The Battle of the Giants,* besides some fragments.

CLAUDIUS, MATTHIAS (1740-1815). German poet and author. His collected works are published under the title *Asmus Omnia Sua Secum Portans.*

CLEMENCEAU, GEORGES BENJAMIN EUGENE (1841-). A French politician and writer. Losing his seat in the Chamber of Deputies (1892) through the Panama disclosures, for the next ten years he devoted himself to literature; wrote for and edited his radical journal, *La Justice;* published *Les massacres d'Arménie;* a series of articles in favor of Dreyfus; several works of fiction and essays.

CLEMENS, SAMUEL LANGHORNE, or **"MARK TWAIN"** (1835-1910). An American humorist; born in Florida, Mo.; his first book, *The Jumping Frog;* visit to Europe described in *Innocents Abroad; Roughing It;* wrote *Huckleberry Finn, Tom Sawyer, Tramp Abroad;* with Warner produced a drama entitled *The Gilded Age;* wrote *The Stolen White Elephant, The Prince and Pauper, A Connecticut Yankee at King Arthur's Court, The American Claimant, The* £1,000,000 *Bank Note, The Tragedy of Pudd'nhead Wilson, Tom Sawyer Abroad, Personal Recollections of Joan of Arc, More Tramps Abroad, Following the Equator, The Man that Corrupted Hadleyburg, A Double-Barreled Detective Story, Adam's Diary,* and *Christian Science;* compiled the *Memoirs of General Grant.*

CLOUGH (*kluf*), **ARTHUR HUGH** (1819-1861). A lyric poet; born at Liverpool; educated at Rugby under Dr. Arnold. He wrote *Dypsicus,* the *Bothie of Toberna-Vuolich,* and *Amours de Voyage,* besides shorter poems. Matthew Arnold wrote his famous elegy, *Thyrsis,* to commemorate Clough.

COBBETT, WILLIAM (1762-1835). An English political writer; spent some time in the United States; taught English to French emigrants, one of whom was Talleyrand. His best known works are *Grammar of the English Language, Rural Rides, Cottage Economy, Advice to Young Men and Women, History of the Protestant Reformation,* and *Life and Adventures of Peter Porcupine,* which is an autobiography.

COFFIN, CHARLES CARLETON (1823-1896). An American war correspondent, novelist, and juvenile writer. His works include *Days and Nights on the Battlefield, Following the Flag, Boys of '76, Story of Liberty, Old Times in the Colonies, Life of Garfield,* and *Daughters of the Revolution.*

COLERIDGE, HARTLEY (1796-1849). English poet, biographer, and essayist; son of S. T. Coleridge; best known by his verse, particularly his sonnets, which are among the finest examples in English. Such are "Whither," "To Shakespeare," "Prayer," "May, 1840," "Regrets," and "Ideality." His longest literary work was an edition of Massinger and Ford's dramas. He wrote their biographies and a series of lives of the *Worthies of Yorkshire and Lancashire.*

COLERIDGE, SAMUEL TAYLOR (1772-1834). English poet, philosopher, and critic; educated at Christ's Hospital; had Charles Lamb for schoolmate; at Cambridge devoted himself to classics; falling into debt, enlisted as a soldier, but after four months his friends procured his discharge; married and lived near

Wordsworth, in Somersetshire, where he produced the *Ancient Mariner, Remorse,* and the first part of *Christabel;* took to opium, about 1808; broke off the habit in 1816, and went to stay with the Gillmans at Highgate as their guest, under whose roof, after four years' confinement to a sick-room, he died. Among his other works were *The Friend,* his *Biographia Literaria, Aids to Reflection, Confessions of an Inquiring Spirit, Literary Remains, Table Talk,* and *Kubla Khan,* which Swinburne calls "for absolute melody and splendor the first poem in the language." [See Eng. Lit.].

COLLETT, JAKOBINE CAMILLA (1813-1895). Norwegian author. The "emancipation of woman" is the underlying principle of her work. Her best novel is *The Magistrate's Daughters.*

COLLINS, WILLIAM (1721-1759). An English poet. His most popular ode is *The Passions.* Among his other poems are *To Liberty, To Mercy, To Evening, How Sleep the Brave Who Sink to Rest,* and *Song from Cymbeline.*

COLLINS, WILLIAM WILKIE (1824-1889). English novelist. His many novels include *No Name, Armadale, Man and Wife, The New Magdalen, The Law and the Lady, The Legacy of Cain,* and his two masterpieces *The Woman in White* and *The Moonstone.*

COLONNA, VITTORIA (1490-1547). An Italian poet; born near Rome; noted for her friendship for Michelangelo, whom she addresses as "Magnificent master."

COMINES, PHILIPPE DE (1445-1509). French statesman and historian. His *Mémoires* deal with the political history of his time, and strongly portray the character of Louis XI.

CONDORCET (*kon-dor-say'*), **MARIE JEAN ANTOINE NICOLAS CARITAT, MARQUIS DE** (1743-1794). A French mathematician and philosopher. His best known work is his *Esquisse d'un tableau historique des progrès de l'esprit humain.*

CONGREVE, WILLIAM (1670-1729). English comic dramatist; born near Leeds. *The Old Bachelor* first brought him into repute. The production of *Love for Love* and the *Mourning Bride,* a stilted tragedy, added immensely to his popularity, but his comedy, *The Way of the World,* being coldly received, he gave up writing plays, and wrote only a few verses afterwards. The oft quoted "Music hath charms to soothe the savage breast" occurs in the *Mourning Bride.*

CONSTANT DE REBECQUE, HENRI BENJAMIN (1767-1830). A French politician and novelist. His novel *Adolphe* is based on his friendship with Madame de Staël. Among his other works are *Mémoires sur les Cent Jours* and *De la religion.*

COOK, ELIZA (1818-1889). An English poet; born in London. She wrote *Lays of a Wild Harp, Melaia and Other Poems, Jottings from My Journal, New Echoes and Other Poems, God Speed the Plough, The Old Armchair,* and *The Star of Glengarry.*

COOK, JOSEPH (1838-1901). An American lecturer and author; born in Ticonderoga, N. Y. He published *Monday Lectures, The Higher Levels of Arbitration,* and *New Defences of the Lord's Day.*

COOKE, ROSE TERRY (1827-1892). An American poet and short story writer of New England life; born at West Hartford, Conn. She wrote *Steadfast, Happy Dodd, Somebody's Neighbors, The Sphinx's Children, Huckleberries,* and *Poems.*

COOPER, JAMES FENIMORE (1789-1851). An American novelist; born in Burlington, N. J. His novels achieved wide popularity; showed him an expert in the narration of events, the description of scenes, as well as in the delineation of character. His well known "Leather Stocking Series" of Indian tales have been translated into every European language. He also wrote *Wing and Wing, Red Rover, The Spy, The Pilot, The Last of the Mohicans, History of the Navy of the United States, Pathfinder, Deerslayer, Satanstoe, The Chainbearer,* and many others.

COPPEE, FRANCOIS EDOUARD JOACHIM (1842-1908). A French poet, dramatist, and novelist. He achieved some reputation among the younger poets, known as "Parnassiens," as early as 1866 by the publication of three volumes of verses: *Le reliquaire, Les intimités,* and *Poèmes modernes. Les humbles* first gave him popularity. Then followed *Le cahier rouge, Olivier, Une idylle pendant le siège, L'exilée, Les mois, Le naufragé.* The best of his dramas are *Le luthier de Crémone* and *Pour la couronne.* The best of his prose tales are *Fille de tristesse, Henriette, Madame Nunu,* and *Le coucher du soleil.*

CORDOVA Y FIGUEROA, PEDRO DE (1692-about 1770). Chilean historian, whose authoritative history of Chile from the conquest until 1717 has been published in the *Colección de historiadores de Chile.*

COREL'LI, MARIE (1864-1924). An English author; born in Italy; was adopted by Dr. Charles Mackay, the author. Among her works are *The Romance of Two Worlds, The Sorrows of Satan, Ziska, Jane, Thelma, The Master Christian, The Mighty Atom, The Boy,* and *Temporal Power.*

CORNEILLE (*kor-na'y'*), **PIERRE** (1606-1684). One of the greatest of French tragic poets; born at Rouen; was bred for the bar, but gave it up for literature; threw himself at once into the drama; began by dramatizing an incident in his own life, and became the greatest dramatic author of France. His best tragedies are *The Cid,* which indeed is his masterpiece; *Horace, Cinna, Polyeucte, Rodogune,* and *Le Menteur.* [See Fr. Lit.].

COWLEY, ABRAHAM (1618-1667). An English poet and essayist. His poetical inspiration came, he says, from reading Spenser's *Faerie Queene.* His collected works were published by him in 1656 and included *Elegies* on Harvey and Cranshaw, *Pindaric Odes, The Mistress,* and the *Davideis.* Dr. Johnson calls him a "metaphysical poet."

COWPER, WILLIAM (1731-1800). An English poet. His greatest poem is *The Task,* the subject for which was suggested to him by Lady Austen, who also told him the history of *John Gilpin.* He translated Homer (1784-1791). His friendship for Mrs. Unwin—the Mary of his poetry—caused the suggestion of *The Progress of Error, Truth, Table Talk,* and *Expostulation.* [See Eng. Lit.].

CRABBE, GEORGE (1754-1832). An English poet; born in Aldborough, Suffolk. Under Burke's patronage he wrote his best-known poem, *The Village.* Other poems are *The Newspaper, The Parish Register, The Borough, Tales in Verse,* and *Tales of the Hall.*

CRAIK, DINAH MARIA MULOCK (1826-1887). An English author. In 1865 she married George Lillie Craik, a partner in the publishing house of Macmillan and Company; wrote *John Halifax, Gentleman; Olive, Alice Learmount, Agatha's Husband, Christian's Mistake,* and *Poems of Thirty Years.*

CRANE, STEPHEN (1870-1900). An American novelist; wrote *Maggie, A Girl of the Streets; The Black Riders and Other Lines, The Red Badge of Courage, George's Mother, The Little Regiment, The Open Boat, On Active Service, Whilomville Stories,* and *The Master. Wounds in the Rain* and *Great Battles of the World* were published after his death.

CRASHAW, RICHARD (about 1613-1649). English religious poet; author of *Epigrammatum Sacrorum Liber* and *Steps to the Temple.*

CRAWFORD, FRANCIS MARION (1854-1909). An American novelist; born in Italy; during 1879-1880 was engaged in press work at Allahabad, India; wrote the National Ode at the Centennial of the American Constitution (September 17, 1887). His works, which are numerous, are chiefly novels and include *Mr. Isaacs, Dr. Claudius, A Roman Singer, Zoroaster, A Tale of a Lonely Parish, Saracinesca, Paul Patoff, Greifenstein, Sant' Ilario, A Cigarette-Maker's Romance, The Witch of Prague, Don Orsino, Pietro Ghisleri, The Ralstons, Casa Braccio, Corleone, Via Crucis,* and *In the Palace of the King.*

CRAWFORD, ISABELLA VALANCY (1851-1887). Canadian poet. Most of her works are contained in *Old Spookses' Pass, Malcolm's Katie,* and *Other Poems.*

CREASY, SIR EDWARD SHEPHERD (1812-1878). Chief justice of Ceylon; author of *The Fifteen Decisive Battles of the World, Imperial and Colonial Constitutions of the British Empire, History of the Ottoman Turks,* and *Historical and Critical Account of the Several Invasions of England.*

CREBILLON, PROSPER JOLYOT DE (1674-1762). French tragic poet. Won public notice by *Idoménée,* but his best work is *Rhadamiste et Zénobie.*

CREIGHTON, MANDELL (1843-1901). English prelate and historian; Bishop of London (1897-1901). Besides his excellent *History of the Papacy,* his *Cardinal Wolsey* and *Age of Elizabeth* are worthy of special note.

CREVECOEUR, JEAN HECTOR ST. JOHN DE (1731-1813). French agriculturist, traveler and author, much of whose life was spent in America. His *Letters of an American Farmer* influenced immigration to this country.

CRITIAS (? -403 B. C.). An Athenian orator and poet; pupil of Socrates and of Gorgias; wrote tragic and elegiac poetry, historical prose, and orations.

CROCKETT, SAMUEL RUTHERFORD (1860-1914). A Scotch novelist. His works include *The Stickit Minister, The Raiders, The Lilac Sunbonnet, Lad's Love, The Standard Bearer, The Black Douglas, Kit Kennedy, Joan of the Sword Hand, The Dark o' the Moon,* and *The Banner of Blue.*

CROLY, JANE CUNNINGHAM, or **"JENNIE JUNE"** (1831-1901). An American author and journalist; born in England. Among her works are *For Better or Worse, Jennie Juniana, Thrown on Her Own Resources, Cookery Book for Young Housekeepers,* and *History of the Woman's Club Movement in America.*

CROZIER, JEAN BEATTIE (1849-1921). English writer on philosophy and history; born in Canada. Noted particularly for his *History of Intellectual Development.*

CUNNINGHAM, ALLAN (1784-1842). A Scottish poet and miscellaneous writer. Among his numerous works are *Songs of Scotland, Ancient and Modern; Traditional Tales of the English and Scottish Peasantry,* etc. He was the author of the old sea song, *A Wet Sheet and a Flowing Sea.*

CURTIN, JEREMIAH (1840-1907). An American linguist and translator. He translated the works of Sienkiewicz, Zagoskin, and Tolstoy, and wrote many books on folklore and mythology. He was more or less familiar with more than sixty languages.

CURTIS, GEORGE WILLIAM (1824-1892). An American author; born in Providence, R. I.; for many years the editor of *Harper's Weekly,* and the writer of the "Editor's Easy Chair" in *Harper's Monthly,* besides *Prue and I, Trumps, Potiphar Papers,* and *Eulogy on Wendell Phillips.* Charles Eliot Norton edited his *Orations and Addresses.*

CYNEWULF or **CYNWULF** (about 750-about 825). A writer of some of the best Old English or Anglo-Saxon verse: *Juliana,* on the martyrdom of St. Juliana; *Elene,* on the discovery of the true cross by Empress Helena; *Christ, Fates of the Apostles, Andreas or the Legend of St. Andrew.*

DA COSTA, ISAAC (1798-1860). A Dutch poet and Protestant theologian; after the death of Bilderdijk was chief poet of Holland; wrote *Prometheus, Poems, Festive Songs, Hagar, The Battle of Nieuwpoort;* translated Byron's *Cain* and two theological works: *Gospel Harmony* and *Israel and the Gentiles.*

DAHLGREN, FREDRIK AUGUST (1816-1895). A Swedish poet and dramatist; born in Nordmark. He has written many dialect songs and ballads. He has translated a great many dramas from foreign languages, and has written a history of the Swedish stage.

DALIN, OLOF VON (1708-1763). A Swedish poet and historian; "father of modern Swedish poetry"; born in Vinberga, in Holland. His time is known as the "age of Dalin"; published *Thoughts about Criticism;* a comedy, *The Jealous Man;* a tragedy, *Brunhild; The Story of the Horse* and *April Work of Our Glorious Time,* satires on Swedish history and politics, and a *History of Sweden.*

DANA, CHARLES ANDERSON (1819-1897). American journalist; born in Hinsdale, N. H. Among his works are *The Art of Newspaper Making, Lincoln and His Cabinet,* and *Recollections.*

DANA, RICHARD HENRY (1787-1879). An American poet, novelist, and critic, born in Cambridge, Mass.; editor of the *North American Review;* author of the *Dying Raven, The Buccaneer,* and other poems.

DANA, RICHARD HENRY (1815-1882). An American author; born at Cambridge, Mass.; son of Richard Henry Dana, the poet; wrote *Two Years Before the Mast, The Seaman's Friend, To Cuba and Back;* contributor to legal journals and to the *North American Review;* edited *Wheaton's International Law.*

D'ANNUNZIO, GABRIELE (1864-). An Italian poet, novelist, and dramatist. Among his best efforts is an exquisite epic, *La Canzone di Garibaldi* (1901), the drama *Francesca da Rimini* (1902), and the work *La Vergine delle Rocce* (1895).

DAN'TE (a contraction of Durante), **ALIGHIERI** (1265-1321). Greatest Italian poet and one of the greatest of all time; born in Florence. He is famous as the author of the *Divina Commedia,* containing awful word pictures of hell. The *Vita Nuova* contains in mingled poetry and prose the story of his love for Beatrice. In the struggle between the Guelphs and Ghibellines, Dante allied himself with the latter and was banished in 1302 and spent the remaining years in Ravenna. [See Ital. Lit.].

D'ARBLAY, FRANCES BURNEY (1752-1840). An English novelist; wrote *Evelina* (1778), the best novel since *Clarissa Harlowe.* There followed *Cecilia, Camilla,* and *The Wanderer,* which in no way compare with *Evelina.*

DASS, PETER (1647-1708). A Norwegian poet. His most famous poem is *The Northland's Trumpet. Valley Song* and *Spiritual Pastime* are noteworthy.

DAUDET (*do-day'*), **ALPHONSE** (1840-1897). A noted French novelist. He has been likened to Dickens in his choice of subjects and style of treatment. His greatest novels are *Numa Roumestan, Le nabab,* and the immortal *Tartarin de Tarascon,* with its sequels, *Tartarin sur les Alpes* and *Port Tarascon.* Among his other works are *Les prunes, Lettres de mon moulin, Contes du lundi, Le petit chose, La dernière classe, Le siège de Berlin, Le jeu au billard, Le bac, Fromont jeune et Risler aîne* or *Sidonie, Jack, Sapho,* and *Souvenirs d'un homme de lettres.*

DAVENANT, SIR WILLIAM (1606-1668). An English poet and playwright. On the death of Ben Jonson, Davenant was appointed poet laureate (1637). He staged his own plays, introduced opera, and initiated the presentation of female parts by women (1656). The best of his dramas is *The Siege of Rhodes,* and his epic, *Gondibert,* was much praised.

DAVID, AP GWILYM (about 1300-1370). The greatest of medieval Welsh poets. Two hundred and sixty-two of his poems were published (1789) and others were recently discovered in the British Museum. He was commonly called the "Cambrian Petrarch" on account of 147 poems addressed to a sweetheart.

DAVIS, REBECCA HARDING (1831-1910). A popular American short-story writer and novelist. Her best short story is *Life in the Iron Mills,* which established her fame as an author. Her principal novels are *Dallas Galbraith, A Law Unto Herself,* and *Doctor Warwick's Daughters.*

DAVIS, RICHARD HARDING (1864-1916). An American novelist; born in Philadelphia; has written *Captain Macklin, Ranson's Folly, Soldiers of Fortune, King's Jackal, Cuba in War Time, Princess Aline, Our English Cousins.* Among his earlier works are *Gallegher and Other Stories, Stories for Boys,* and the *Van Bibber* series.

DAVIS, VARINA ANNE JEFFERSON (1864-1898). Known as "The Daughter of the Confederacy." An American author; born in Richmond, Va.; the daughter of Jefferson Davis. She was a musician, painter, and writer. Among her works are *Sketch of the Life of Robert Emmet, The Veiled Doctor,* and *A Romance of Summer Seas.*

DAY, THOMAS (1748-1789). An English author; born in London; a strong sympathizer with the Americans in the War of Independence. He is best known as the author of the famous *History of Sandford and Merton* and the *History of Little Jack.*

DEFOE, DANIEL (1661-1731). An English writer; born in London. In 1719 appeared the most popular of all his works, *Robinson Crusoe;* wrote also *True-Born Englishman,* a vindication of William III.; *Memoirs of a Cavalier, Journal of the Plague Year, Colonel Jack, Captain Singleton, Moll Flanders,* and *The Apparition of One Mrs. Veal.*

DEFOREST, JOHN WILLIAM (1826-1906). An American author and soldier; born in Seymour, Conn.; wrote a *History of the Indians in Connecticut, Oriental Acquaintances, European Acquaintances, Seacliff,* followed by nine novels, of which the best are *The Wetherell Affair, Honest John Vane,* and *Justine's Lovers.*

DE KAY, CHARLES (1848-). An American author; published *Hesperus and Other Poems, Vision of Nimrod, Bird Gods, Essays on Ancient Ireland, Love Poems of Louis Barnaval* (his pen name).

DEKKER or **DECKER, THOMAS** (about 1570-about 1641). An English dramatist; born in London; wrote more than forty plays. Among these are *The Shoemaker's Holiday, Old Fortunatus, The Honest Whore, The Virgin Martyr,* and *The Witch of Edmonton.*

DELAND, MARGARET WADE (CAMPBELL) (1857-). An American novelist; born at Allegheny, Pa. In 1880 she married L. F. Deland of Boston. Among her novels are *John Ward, Preacher; Sidney, Mr. Tommy Dove and Other Stories, Philip and His Wife,* and *The Wisdom of Fools.*

DELAVIGNE, JEAN FRANCOIS CASIMIR (1793-1843). A French lyric poet and dramatist. His poems of patriotism won him great favor, and two *Élégies sur la vie et la mort de Jeanne d'Arc* touched the French heart. Among his best plays are *L'école des vieillards, Marino Falieri, Les vêpres siciliennes, Louis XI., Les enfants d'Edouard,* and *La fille du Cid.*

DEMETRIUS PHALEREUS (about 354-284 B. C.). Grecian orator and statesman. Of his historical and philosophical works fragments only are extant.

DE MILLE, JAMES (1837-1880). A Canadian author; born at St. John, N. B.; wrote *Andy O'Hara, The Soldier and the Spy, The Dodge Club, The American Baron, The Living Link, The Cryptogram,* and *A Castle in Spain.*

DEMOSTHENES (385?-322 B. C.). Athenian orator; conquered an impediment in his speech, and by perseverance and determination became the greatest orator of the ancient world; opposed Philip of Macedon, against whom he delivered his *Philippics.* His *De Corona* or *Oration on the Crown* in defense of Ctesiphon is regarded as one of the world's masterpieces in oratory. Over 60 of his orations have come down to us.

DENHAM, SIR JOHN (1615-1669). An English poet; born in Dublin. His first publication was a successful tragedy, *Sophy.* He then wrote *Cooper's Hill,* the earliest of English descriptive poems. His address to the Thames beginning "O could I flow like thee" appeared in 1665.

DE QUINCEY, THOMAS (1785-1859). An English author; born in Manchester. While at Oxford he contracted the habit of eating opium, to which he remained a slave for many years. The consequences were fearful, as he himself relates in his principal work, *The Confessions of an English Opium-Eater.* He was a very prolific writer, and his works are mostly essays and papers on historical, literary, and miscellaneous topics, such as *Letters to a Young Man* and the very valuable *Literary Reminiscences.* [See Eng. Lit.].

DESCHAMPS, EUSTACHE (about 1328-1415). French poet. His *Miroir de Mariage,* 13,000 lines long, is his best known poem.

DES PERIERS, BONAVENTURE (1500-1544). French satirist; a courtier of Margaret of Navarre, to whom is assigned the chief authorship of her *Heptameron.* His *Cymbalum Mundi* (1537) was a satire on the Christian religion.

DEUS-RAMOS, JOAO DE (1830-1897). A Portuguese lyric poet. In 1865 published his masterpiece, *Flores do campo.*

DIAS, GONCALVES ANTONIO (1823-1866). A Brazilian poet. His works comprise a report, *Brazil e Oceania,* and valuable papers on the migrations of South American Indian tribes, and several volumes of poems.

DIBDIN, CHARLES (1745-1814). Musician, dramatist, and song writer; born in Southampton. His celebrity is wholly due to his sea-songs *Tom Bowling, The Waterman, The Quaker,* and *Poor Jack.*

DICKENS, CHARLES (1812-1870). Celebrated English novelist; born at Landport, Portsmouth; son of a navy clerk, latterly in great straits; was brought up amid hardships; was sent to a solicitor's office as "an office boy," learned shorthand, and became a reporter, a post in which he learned much of what afterwards served him as an author; wrote sketches for the *Monthly Magazine* under the name of "Boz" in 1834, and the *Pickwick Papers* in 1836-1837, which established his popularity. These were succeeded by *Oliver Twist, Nicholas Nickleby, Old Curiosity Shop, A Tale of Two Cities,* and many others. They were all written with an aim. He was a little man, with clear blue eyes, a face of extreme mobility, and a quiet shrewdness of expression. [See Eng. Lit.].

DICKINSON, EMILY (1830-1886). An American poet; born in Amherst, Mass. Nothing of her writings was published during her lifetime. In 1890 T. W. Higginson and Mrs. Mabel Loomis Todd edited a volume, *Poems by Emily Dickinson.*

DICKINSON, JOHN (1732-1808). An American statesman and publicist, called the "Penman of the Revolution"; born in Talbot County, Md.; best known as a writer of state papers. He wrote or drafted the *Resolutions in Relation to the Stamp Act* adopted by the Pennsylvania Assembly (1765); the *Declaration of Rights* and *Petition to the King* adopted by the Stamp Act Congress.

DIDEROT, DENIS (1713-1784). A French writer, leader of the "Encyclopedists" or writers for the *Encyclopédie,* which Diderot had planned as an enlargement of *Chambers's Encyclopaedia.* Diderot gave to this work twenty years of the closest attention. The work consisted (1751-1772) of 28 volumes, with six volumes of supplement (1776-1777) and two volumes of tables (1780). Diderot wrote two plays: *Le fils naturel* and *Le père de famille,* which mark the beginning of the domestic drama; besides novels and essays of criticism.

DIODORUS SICULUS (flourished 21 B. C.). A Greek historian; born in Sicily. He traveled in Europe and Asia collecting material for his great work, the *Library,* a universal history in 40 books from the beginning to 60 B. C. He was 30 years in compiling it.

DIOGENES, LAERTIUS (flourished about 200). A Greek writer. Little is known about his life. He wrote *Lives of Philosophers* in 10 books, which is really a history of philosophy from its beginning.

DISRAELI, BENJAMIN, EARL OF BEACONSFIELD (1804-1881). (See Beaconsfield in Dictionary of Government). An English novelist and writer; wrote *Vivian Grey, Coningsby, Sybil, Tancred, Lord George Bentinck, an Autobiography; Henrietta Temple,* and *Endymion.*

D'ISRAELI, ISAAC (1766-1848.) An English author; descendant of a Hebrew family which settled in England in 1748; wrote *Curiosities of Literature, A Dissertation on Anecdotes, Amenities of Literature,* and some political and historical works. He was the father of Benjamin Disraeli, Earl of Beaconsfield.

DIX, DOROTHEA LYNDE (1805-1887). An American philanthropist and writer of juvenile books; wrote *The Garland of Flora, Prisons and Prison Discipline,* and *Alice and Ruth.*

DIXIE, LADY FLORENCE CAROLINE DOUGLAS (1857-1905). An English explorer, writer, and champion of woman's rights; daughter of the Marquis of Queensberry. She described her explorations in *Across Patagonia;* wrote *Defence of Zululand, In the Land of Misfortune, Gloriana,* and *The New Woman.*

DIXON, RICHARD WATSON (1833-1901). An English poet and historian. His poetic works include *Mano, Odes and Eclogues, Lyrical Poems, Songs and Odes, On Advancing Age,* and *The Spirit Wooed.* His important work is *History of the Church of England from the Abolition of the Roman Jurisdiction.*

DIXON, WILLIAM HEPWORTH (1821-1901). An English writer; wrote *John Howard and the Prison World of Europe, Life of William Penn,* written in 1859 to refute Macaulay's damaging charges; the *French in England, The Personal History of Lord Bacon,* etc.

DOBELL, SYDNEY THOMPSON (1824-1874). An English poet of the "spasmodic" school. His poems *The Roman* (1850), and *Balder* (1853), met with great success.

DOBSON, HENRY AUSTIN (1840-1921). An English poet; born in Plymouth; has written *Vignettes in Rhyme, Proverbs in Porcelain, Old World Idylls;* lives of *Steele, Goldsmith, Hogarth, Fielding,* etc.

DODD, WILLIAM (1729-1777). An English clergyman and writer. He wrote *Beauties of Shakespeare, Reflections on Death,* and *Thoughts in Prison.*

DODGE, MARY ABIGAIL (1830-1896). An American journalist and author; born in Hamilton, Mass.; she has written, under the pseudonym of "Gail Hamilton," a number of well known books, such as *Gala Days, Woman's Wrongs, Red Letter Days in Applethorpe, The Battle of the Books, Sermons to the Clergy,* and *The Irrepressible Book.*

DODGE, MARY ELIZABETH MAPES (1838-1905). An American writer; born in New York City. Her best known work is *Hans Brinker, or the Silver Skates,* and two volumes of poetry, *Along the Way* and *When Life is Young.*

DODGE, THEODORE AYRAULT (1842-1909). An American soldier and military writer; born in Pittsfield, Mass.; wrote *Bird's Eye View of Our Civil War, Campaign of Chancellorsville, Patroclus and Penelope, A Chat in the Saddle,* and *Great Captains.*

DODGSON, CHARLES LUTWIDGE, or "LEWIS CARROLL" (1832-1898). An English author. A writer of mathematical treatises, he is, however, best known by his invention of a literary genre in *Alice's Adventures in Wonderland, Through the Looking-Glass and What Alice Found There, The Hunting of the Snark, Sylvie and Bruno,* and *Sylvie and Bruno Concluded.*

DOLE, NATHAN HASKELL (1852-). An American author, editor, and translator; born at Chel-

sea, Mass.; edited *The Rubaiyat of Omar Khayyam*, based on Fitzgerald, and the *Collected Works* of Count Tolstoy. He wrote *The Hawthorn Tree and Other Poems*, life of *Francis William Bird*, and *Omar, the Tent-Maker*.

DONNELLY, IGNATIUS (1831-1901). An American journalist, politician, and essayist; born in Philadelphia; wrote *Atlantis* and *Ragnarok*. His *Great Cryptogram* was a cipher applied to the first folio of Shakespeare's works to prove that Bacon was the author and not Shakespeare.

DORAN, JOHN (1807-1878). A British miscellaneous writer; wrote *Lives of the Queens of the House of Hanover, Knights and Their Days, In and About Drury Lane*, etc.

DORR, JULIA CAROLINE RIPLEY (1825-1913). An American poet; born at Charleston, S. C. Among her works are *Isabel Leslie, Farmingdale, Lanmere, Expiation, Bermuda, The Flower of England's Face, Daybreak, Afternoon Songs, A Cathedral Romance, Afterglow*, and *Beyond the Sunset*.

DOSTOYEVSKI, FYODOR MIKHAYLOVITCH (1821-1881). A Russian novelist; wrote *Poor People, The Downtrodden and Oppressed, Memoirs from a Dead House, Crime and Punishment, Author's Diary*, and *The Brothers Karamazoff*.

DOUGALL, LILY (1858-1923). A Canadian writer; her popular novels include: *Beggars All* (1891), *What Necessity Knows* (1893), and *The Mormon Prophet* (1899).

DOWDEN, EDWARD (1843-1913). An English scholar and critic; wrote *Shakespeare, His Mind and Art; Shakespeare Primer, Introduction to Shakespeare, Studies in Literature, Southey, Shelley, Transcripts and Studies, Wordsworth, New Studies in Literature, The French Revolution and English Literature*, and a *History of French Literature*.

DOYLE, SIR ARTHUR CONAN (1859-). A British novelist. After practising medicine for some years, the success of several of his books induced him to enter literature. Among his works are *Adventures of Sherlock Holmes, The Hound of the Baskervilles, Micah Clarke, The White Company, The Refugees, Rodney Stone, The Exploits of Brigadier Gerard, Round the Red Lamp, The Stark Munro Letters*, and *The Green Flag*. He also wrote a volume of poems, *Songs of Action*, and a play called *Halves*. He was knighted in 1902.

DOZY, REINHART (1820-1883). A Dutch orientalist and historian; born in Leyden. He wrote *History of the Almohades, History of Africa and of Spain*, and several histories relating to the Arabs.

DRAKE, JOSEPH RODMAN (1795-1820). An American poet; born in New York City; wrote *The Culprit Fay, The American Flag*, the eulogy on Fitz-Greene Halleck, *Green be the turf above thee*, and, in conjunction with Halleck, *The Croakers*.

DRAKE, SAMUEL ADAMS (1833-1905). An American author; born in Boston, Mass.; brigadier general in the Civil War; wrote *Old Landmarks of Boston, New England Legends and Folk-lore, The Watch Fires of '76*, and *Myths and Fables of To-day*.

DRAYTON, MICHAEL (1563-1631). An English poet. Among his works are *The Shepherd's Garland, The Barons' Wars, Poems, Lyrical and Pastoral, Muses' Elysium*, and *Poly-Olbion*.

DRUMMOND, HENRY (1851-1897). An English author and evangelist. His aim was to reconcile science and religion. He wrote *Natural Law in the Spiritual World, The Ascent of Man, Tropical Africa, Travel Sketches*, and *The Greatest Thing in the World*.

DRUMMOND, WILLIAM HENRY (1854-1907). A Canadian poet; born in Quebec. He was a physician and in his intercourse with the French-Canadians learned their life stories, which he was able to depict in dialect poems published under the title of *The Habitant*. Frechette transfers to Drummond Longfellow's flattering tribute to Frechette: "He is the pathfinder of a new land of song." [See Can. Lit.]

DRYDEN, JOHN (1631-1700). [See Eng. Lit.]

DU BELLAY, JOACHIM (about 1524-1560). A French poet, known as "The French Ovid." Translated two books of the Aeneid (1552), and published his most noteworthy collection of poems *Les regrets* (1559).

DUMAS (*du-mah*), **ALEXANDRE, or DUMAS PERE** (1802-1870). The Elder; a French romancist. He was the grandson of a French marquis and a San Domingo negress. The works which bear his name amount to some 300 volumes, including several dramas; but the only claim he could lay to a great number of the productions issued under his name was that he either sketched the plot or revised them before going to press. *Monte Cristo, Three Musketeers, Forty-five, Twenty Years After*, are among his best novels.

DUMAS, ALEXANDRE, or DUMAS FILS (1824-1895). The Younger; a French dramatist and romancist, son of the preceding. In 1848 he found himself with a pen and 50,000 francs of debts. He wrote *La dame aux camélias* (1848; dramatized 1852) and soon became a wealthy man. His other plays fill seven volumes and they inaugurate in French drama the realistic study of social problems.

DU MAURIER (*du mo-re-ay'*), **GEORGE LOUIS PALMELLA BUSSON** (1834-1896). Artist, caricaturist, and novelist; born in Paris, France; joined the *Punch* staff, and became famous through his weekly drawings for that publication. In 1891 appeared his first novel, *Peter Ibbetsen*, and in 1894 he issued *Trilby*, a story which had great popularity both in book form and on the stage. His last work, *The Martian*, appeared after his death.

DUNBAR, PAUL LAURENCE (1872-1906). An American poet of the African race; born at Dayton, Ohio; wrote *Oak and Ivy, Majors and Minors, Lyrics of Lowly Life, Poems of Cabin and Field, The Uncalled*, and *The Sport of the Gods*.

DUNBAR, WILLIAM (about 1465-about 1525). The greatest of the old Scottish poets. Among his works are *Visitation of Saint Francis, The Thistle and the Rose*, and *The Dance of the Deadly Sins*.

DUNNE, FINLEY PETER, or "MR. DOOLEY" (1867-). An American humorist; born in Chicago, Ill. In his works he passes humorous comment on current topics with the assistance of Martin Dooley, a public-house keeper on the Archey Road. He has written *Mr. Dooley in Peace and War, Mr. Dooley in the Hearts of His Countrymen, Mr. Dooley's Philosophy*, and *Mr. Dooley's Opinions*.

DUYCKINCK (*di'kink*), **EVERT AUGUSTUS** (1816-1878). An American writer; wrote with his brother, George Long, the *Cyclopaedia of American Literature*, also *Wit and Wisdom of Sydney Smith, History of the War for the Union, National Portrait Gallery of Eminent Americans*, and *Poems Relating to the American Revolution*.

EARLE, ALICE MORSE (1853-1911). An American author; born in Worcester, Mass. Her works deal with Colonial history and include *The Sabbath in Puritan New England, Customs and Fashions in Old New England, Home Life in Colonial Days, Child Life in Colonial Days, Stage Coach and Tavern Days, In Old Narragansett*, and *Two Centuries of Costume in America*.

EASTMAN, CHARLES GAMAGE (1816-1861). An American editor and poet; born in Oxford County, Me. From his poetical delineations of rural life in Vermont he was called the "Burns of the Green Mountains."

EBERS (*ay'bers*), **GEORG MORITZ** (1837-1898). A German Egyptologist and novelist. His visit to Egypt resulted in the discovery of the celebrated hieratic medical *Papyrus Ebers*. Among his works are *Egyptian Kings* and the novels *Uarda, Serapis, The Sisters, Homo Sum, Der Kaiser*, and *Eine Frage*.

ECHEGARAY, JOSE (1833-1916). Spanish dramatist; born in Madrid. [See Span. Lit.]

ECHEVERRIA, ESTEBAN (1809-1851). A South American poet, born at Buenos Ayres; the poem *La cautiva* (1837), is national in spirit, whereas his earlier works showed the influence of his French education.

ECKERMANN, JOHANN PETER (1792-1854). A German author and editor of Goethe's works; born at Winsen; became Goethe's private secretary (1823); wrote *Gespräche mit Goethe*.

EDGAR, JAMES DAVID (1841-1899). A Canadian legislator and author; born in Quebec; wrote *The Insolvent Act of* 1864 and *This Canada of Ours and Other Poems*.

EDGEWORTH, MARIA (1767-1849). An English novelist; born in Black Bourton, Oxfordshire; wrote *Castle Rackrent, Leonora, Stories of Ireland, Belinda, Popular Tales, Tales of Fashionable Life, Ennui, The Absentee, Harry and Lucy*, and *Rosamond and Frank*.

EDGREN, ANNE CHARLOTTE LEFFLER (1849-1892). A Swedish novelist and dramatist. Her short stories include *By Chance, From Life, A Summer Story*, and *Woman and Love*. Among her best known dramas are *The Actress, The Curate, The Fairy, Ideal Women*, and *A Rescuing Angel*.

EDWARDS, HARRY STILLWELL (1855-). An American journalist, novelist, and poet; born at Macon, Ga. His best stories are studies of plantation life and include *Two Runaways and Other Stories, The Marbeau Cousins,* and *Sons and Fathers,* which won a $10,000 prize from the Chicago *Record.*

EGAN, MAURICE FRANCIS (1852-1924). An American scholar; born in Philadelphia; wrote *That Girl of Mine, Preludes, Songs and Sonnets, The Life Around Us,* and *Lectures in English Literature.*

EGGLESTON, EDWARD (1837-1902). An American author; born in Vevay, Ind. In fiction he achieved celebrity with stories of life in Southern Indiana in pioneer days. As a historian he made a specialty of American subjects; wrote *Hoosier Schoolmaster, The End of the World, The Circuit Rider, Roxey, The Graysons,* and *The Faith Doctor.* With the assistance of his daughter, Mrs. Lillie E. Seelye, he wrote many juvenile biographies of American Indians, including *Tecumseh, Pocahontas and Powhatan, Brant and Red Jacket,* and *Montezuma.*

EGGLESTON, GEORGE CARY (1839-1911). An American editor, author, and journalist; born at Vevay, Ind.; brother of Edward Eggleston; wrote *A Rebel's Recollections, Southern Soldier Stories, The Last of the Flatboats, A Carolina Cavalier,* and many books for the young.

EGILL SKALLAGRIMSSON (about 900-about 980). An Icelandic skald; fought under the English king Athelstan for several years after 925; returned to Norway and fought against Erik Bloodaxe (934), by whom he was taken prisoner; released for writing laudatory verses about his captor. This poem is called *Höfudhlausn* (the Redemption of the Head). Egill died in Borg, Iceland, where he settled after 950. Among his sagas are *Sonartorrek,* written on the death of his favorite son; *Arinbjanar drapa* in honor of his friend Arinbjörn, and *Skjaldar drapa.* "Egill's Saga," the famous Icelandic poem, is supposed to have been written by Snorri Sturluson, and contains many of Egill's songs.

EKKEHARD, AURA VON († -about 1125). A German historian; abbot of Aura, near Kissengen; wrote a valuable history of the first crusade, *Hierosolymita.*

"ELIOT, GEORGE" (1819-1880). The assumed literary name of **MARY ANN,** or, as she preferred to write the name in later years, **MARIAN EVANS,** an English novelist. Her first literary undertaking was the continuation of a translation of Strauss's *Life of Jesus,* completed in 1846. In 1849 she went abroad, returning to England next year, and in 1851 she took up her abode as a boarder in the house of John Chapman, editor of the *Westminster Review.* It was not, however, till 1857 that she came prominently into public notice, when the first of a series of tales entitled *Scenes from Clerical Life* appeared in *Blackwood's Magazine.* The credit of authorship of *Adam Bede,* her first novel, was openly ascribed to several persons of varying note. The secret soon began to leak out. Months before her second novel, *The Mill on the Floss,* was published, it was well known, among literary circles at least, that George Eliot was none other than Marian Evans, the Westminster reviewer. By this time was established that close association and literary fellowship with the talented philosophical writer, George H. Lewes, which terminated only with the death of the latter but a little more than two years before her own. In May, 1880, she married John Cross. Others of her novels are *Silas Marner, Romola, Daniel Deronda,* and *Middlemarch.* [See Eng. Lit.].

ELIOT, JOHN (1604-1690). The apostle of the Indians; born in Essex, England; entered the Church of England, but seceded and emigrated to New England; became celebrated for his successful evangelistic expeditions among the Indians during his lifelong occupancy of the pastorate at Roxbury. He wrote *Indian Grammar Begun* (1660), *Indian Primer* (of which only one complete copy exists and is in the library of the University of Edinburgh); one of the translations of the famous "Bay Psalm Book." His *Christian Commonwealth* was published in London in 1659.

ELIZABETH, PAULINE ELIZABETH OTTILIE LOUISE, or **"CARMEN SYLVA"** (1843-1916). Queen of Roumania, poet, and novelist; born at Neuwied, Germany; married Prince Charles of Roumania (1869), who became King Carol I. (1881). Her chief works are *Leidens Erdengang* or *Pilgrim Sorrow, Jehovah, Pensées d'une reine,* and *Handwerkerlieder.*

ELZEVIR, LOUIS (about 1540-1617). Dutch printer at Leyden. **BONAVENTURE** (1583-1652), son, and **ABRAHAM** (1592-1652), grandson, of Louis. Dutch printers and publishers at Leyden and Amsterdam of exquisite editions of the classics, which are highly prized for the elegance of type and high grade of paper. About 2,000 books were printed—968 in Latin, 44 in Greek, 126 in French, 32 in Flemish, 11 in German, 10 in Italian, and 22 in oriental languages.

EMERSON, RALPH WALDO (1803-1882). An American philosophic author; born in Boston. He graduated at Harvard College in 1821, and was minister of the Second Unitarian Church of Boston; but soon after formed peculiar views with regard to forms of worship, abandoned his profession and, retiring to the quiet village of Concord, devoted himself to the study of the nature of man and his relation to the universe. He was one of the most eminent American philosophers of the Transcendental school; wrote *Representative Men, The American Scholar, English Traits, Nature,* also volumes of *Essays* and *Poems.*

ENCINA (*en-the'na*), **JUAN DEL** (about 1468-1534). The father of the Spanish drama; born near Salamanca; took orders, and finally became prior of the Monastery of Leon. More than 170 of his lyrics have survived, many of them with musical settings by the author. His 14 plays, all being presentations of very primitive themes, sometimes sacred, sometimes not, are far more interesting, and mark the transition from the religious to the secular stage.

ENGLISH, THOMAS DUNN (1819-1902). An American physician and author; born in Philadelphia. His works include *Zephaniah Doolittle, Walter Wolfe, Poems, Ambrose Fecit, American Ballads, Boy's Book of Battle Lyrics.* He is best known as the author of the song *Ben Bolt.*

ENNIUS, QUINTUS (239-about 169 B. C.). A Roman poet; father of the Roman epos. Fragments of his tragedies, comedies, satires, and of his *Annales,* originally in 18 books, survive.

ENNODIUS, MAGNUS FELIX (about 473-521). A bishop of Ticinum, Italy. He wrote a life of Epiphanius, his predecessor; a partial autobiography entitled *Eucharisticum,* and some poems and hymns.

EPHORUS (about 400-about 330 B. C.). A Greek historian; born in Eolis. His chief work is a *History* in 30 books of the Greeks and barbarians covering a period of 750 years down to 340 B. C. Only fragments of it exist, though it was of great service to Diodorus Siculus and later historians.

EPICHARMUS (flourished fifth century B. C.). The greatest of the Sicilian comic poets. He lived 90 years and was much honored by the Syracusans. Fragments of his 36 comedies survive.

EPINAY (*ay-pe-nay'*), **LOUISE FLORENCE PETRONILLE TARDIEU D'ESCLAVELLES DE LA LIVE D'** (1726-1783). A French writer. Her *Mémoires et Correspondence* give a lively picture of her times. She wrote *Les conversations d'Emilie,* a complement to Rousseau's *Emile.*

ERCILLA Y ZUNIGA (*ar-the'lya e thoo'nye-ga*), **ALONSO DE** (1533-1594). A Spanish epic poet; born in Madrid. He went with the Spanish army to quell the insurrection of the Araucanians in Chile. The courage of the natives in the unequal struggle gave him a theme for an epic poem, *La Araucana,* in 37 cantos.

ERCKMANN-CHATRIAN. The name indicating the joint authorship of **EMILE ERCKMANN** (1822-1899) and **ALEXANDRE CHATRIAN** (1826-1890); both born in Lorraine. Their novels deal with historical events in the section of their homes and have been widely read. They include *Histoire d'un conscrit de* 1813, *Waterloo,* and two dramas, *Le juif polonais* and *L'ami Fritz.* The former was adapted under the title of *The Bells,* in which Sir Henry Irving achieved such success as "Mathias."

ESPRONCEDA, JOSE DE (1810-1842). Spanish poet, known as the Spanish Byron. He is unsurpassed among his countrymen as a lyrical poet. His *El Pelayo* won him much fame.

EUPOLIS (about 446-411 B. C.). A Greek poet, a contemporary of Aristophanes. Produced fourteen dramas, fragments of which are extant.

EURIPIDES (480-406 B. C.). The latest of the three great Greek tragic poets; born at Salamis, of poor parents; first trained as an athlete, and then devoted himself to painting and eventually to poetry. Of his plays the *Alcestis, Bacchae, Iphigenia at Aulis, Electra,* and *Medea* may be mentioned. He won the tragic prize five times. [See Gr. Lit.].

EUSTATHIUS (about 1125-about 1194). A celebrated Byzantine commentator on Homer, Pindar, and Dionysius the Periegite; born in Constantinople; archbishop of Thessalonica (1175-1194). His *Commentary*

on the Iliad and Odyssey is a treasure house of ancient learning. He left a great number of historical writings, speeches, and tracts.

EVA'GRIUS SCHOLASTICUS (about 536-?). An early church historian; born at Epiphania in Coele-Syria; legal adviser of the patriarch Gregory at Antioch; questor under Tiberius II. and prefect under Mauritius. He wrote an *Ecclesiastical History* covering the period from 431 to 594.

EVALD, HERMAN FREDERIK (1821-1908). A Danish novelist. Among his works are *Valdemar Krone's Youth, The Nordby Family, Johannes Falk, Charles Lyng,* and three historical novels, *The Swedes at Kronborg, Anna Hardenberg,* and *Clara Bille.*

EVALD, JOHANNES (1743-1781). A great lyric poet of Denmark; born at Copenhagen. His *Rolf Krange* is the first original Danish tragedy. *The Fishers,* a drama, is the noblest of his works and contains the Danish national song, *King Christian stood by the lofty mast.*

EVELYN, JOHN (1620-1706). An English author; born at Wotton, Surrey. His works cover a variety of topics—art, architecture, gardening, and commerce. His *Sylva, or a Discourse on Forest Trees,* was long a standard on the subject; but his celebrity rests upon his *Diary,* covering a period of 70 years.

EVERETT, ALEXANDER HILL (1792-1847). An American diplomatist and political writer; born in Boston, Mass.; brother of Edward Everett. Among his works are *A General Survey of the Political Situation in Europe;* a similar work on *America,* and *Lives of Joseph Warren* and *Patrick Henry.* His best orations are *The French Revolution, The Battle of New Orleans,* and *The Battle of Bunker Hill.*

EWING, JULIANA HORATIA (1841-1885). An English writer of stories for children; born in Yorkshire; the daughter of Alfred Gatty. Among her many delightful tales are *The Land of Lost Toys, Jackanapes, The Story of a Short Life,* and *Lob Lie by the Fire.*

FABYAN or **FABIAN, ROBERT** (? -1513). An English chronicler; wrote *New Chronicles of England and France,* aiming to give a true history of England from the landing of Brutus to the Battle of Bosworth (1485). It was extended by unknown writers to 1558.

FAGUET (*fa-gay'*), **EMILE** (1847-1916). A French critic and literary essayist. His work *La tragédie française au XVI. siècle* is the best treatise upon the subject. Among his other works are *Etudes littéraires, Politiques et moralistes du XIX. siècle, Le théâtre contemporain, Classiques populaires, La littérature française,* and *Problèmes poétiques du temps présent.*

FANNIUS STRABO, GAIUS (flourished 150 B. C.). A Roman historian and orator; one of the speakers in the *De Amicitia* and *De Republica* of Cicero; served in Africa under Scipio Africanus (149-146 B. C.).

FARGUS, FREDERICK JOHN, or **"HUGH CONWAY"** (1847-1885). An English novelist; born in Bristol; wrote *Called Back* (translated into six languages and dramatized), *Dark Days, Slings and Arrows, A Cardinal Sin,* and *Bound Together.*

FARINA, SALVATORE (1846-1918). An Italian novelist, known as the Italian Dickens. He wrote *Due amori, Fiamma vagabonda, Frutti proibiti, Il romanzo di un vedovo, Il tesoro di Donnina, Amore bendato, Capelli biondi, Dalla spuma del mare, Il signor Io, Piu dell' amore,* and *Il numero* 13.

FARJEON (*far'jon*), **BENJAMIN LEOPOLD** (1833-1903). An English author; born in London; spent some years in Australia and New Zealand, where he wrote *Shadows on the Snow;* returning to London he wrote *Grif, Blade-o'-Grass, Fair Jewess,* and *Last Tenant.*

FARQUHAR, GEORGE (1678-1707). An English dramatist; born in Londonderry, Ireland. He was one of the finest of English comic dramatists. His works include *Love and a Bottle, Constant Couple, Sir Harry Wildair, The Inconstant, Twin Rivals, The Stage Coach, The Recruiting Officer,* and *The Beaux' Stratagem.*

FAWCETT, EDGAR (1847-1904). An American author; born in New York City; wrote *Short Poems for Short People, Purple and Fine Linen, Song and Story, Romance and Reverie, Songs of Doubt and Dream, Ambitious Woman, House at High Bridge,* etc.

FAWCETT, HENRY (1833-1884). An English political economist; lost his sight by an accident (1858); wrote a *Manual of Political Economy* (1863); elected the same year professor of political economy at Cambridge; member of Parliament (1865, 1868, 1874); postmaster general (1880); wrote also *Pauperism: Its Causes and Remedies,* and *Free Trade and Protection.*

FAY (*fi*), **ANDRAS** (1786-1864). An Hungarian author; wrote *Mesék,* a book of fables; *The Two Bathorys,* a tragedy; *Ancient Coins,* a comedy; *The House of the Beltekys,* the first attempt at an Hungarian society novel.

FECHNER, GUSTAV THEODOR (1801-1887). A German physicist and philosopher; born near Muskau, Prussia. He was the founder of modern psychology and psychophysics; under the pseudonym of Dr. Mises wrote some satirical theses and poetry. In 1846 he wrote his ethical treatise *Ueber das höchste Gut.* His *Elemente der Psycophysik* (1860) was an epoch-making contribution. In 1876 he gave out his profound *Vorschule der Aesthetik.*

FEISI (*fi'se*), or **FEIYASI, ABUL FEIS IBN MUBARAK** (1547-1595). An Indo-Persian poet and scholar; born in Agra. His works include lyrics, epics, a commentary on the *Koran,* and translations of the *Mahabharata* and *Lilivati.*

FEITH, RHIJNVIS (1753-1824). Dutch poet and dramatist. His best known works are the tragedies *Lady Jane Grey* (1791), and *Inez de Castro.*

FENELON (*fayn'lon'*), **FRANCOIS DE SALIGNAC DE LA MOTHE** (1651-1715). A French prelate and author; born in the Château de Fénelon, province of Périgord, France; was educated at Plessis College, in Paris, and at the seminary of St. Sulpice, where he received holy orders in 1675. In 1695 he was created archbishop of Cambray. A theological dispute with Bossuet, his former instructor, terminated in his condemnation by Pope Innocent XII. He was the author of numerous works on philosophy, theology, and belles-lettres, among which are *Telemachus, Fables,* and *Epitome of the Lives of the Ancient Philosophers.*

FERLAND, JEAN BAPTISTE ANTOINE (1805-1864). Canadian writer. His *Cours d' histoire du Canada* established his reputation as an historian.

FERREIRA, ANTONIO (1528-1569). Portuguese poet; born at Lisbon. [See Port. Lit.].

FERRIER, SUSAN EDMONSTONE (1782-1854). A Scotch novelist; born in Edinburgh. Among her novels, *Marriage, The Inheritance,* and *Destiny* have retained their popularity even to the present day.

FESSLER, IGNAZ AURELIUS (1756-1839). A Hungarian author and historian; wrote an excellent *History of the Hungarians* and several historical novels.

FEUERBACH (*foy'er-bah*), **PAUL JOHANN ANSELM VON** (1775-1833). A German penalogist and one of the most distinguished jurists of Germany; wrote *Remarkable Cases in Criminal Law Trial by Jury and Judicial Procedure in France.*

FEUILLET (*feh-yay'*), **OCTAVE** (1821-1890). A French novelist. He wrote *The Romance of a Poor Young Man, Monsieur de Camors, Julia de Trécoeur,* and *History of a Parisienne.*

FIELD, EUGENE (1850-1895). An American journalist; born in St. Louis, Mo.; wrote *Book of Western Verse, Book of Profitable Tales, With Trumpet and Drum,* etc.

FIELDING, HENRY (1707-1754). First great English novelist or the father of the modern novel. After ill success as playwright and lawyer he embarked upon a literary career, in which he won fame. His three important works are *Tom Jones, Joseph Andrews,* and *Amelia.* [See Eng. Lit.].

FIELDS, JAMES THOMAS (1817-1881). An American publisher and author; born in Portsmouth, N. H.; wrote *Poems, A Few Verses for a Few Friends, Yesterdays with Authors, Hawthorne, In and Out of Doors with Charles Dickens,* and a volume of essays entitled *Underbrush.*

FIRDAUSI or **FIRDUSI** (935-1020). The greatest of Persian epic poets and one of the most famous in all literature. He wrote the *Shah Namah,* one of the greatest epics of literature. It traces the history of Persia. It contains 60,000 couplets and is more than seven times the length of Homer's *Iliad.*

FISCHART, JOHANN (about 1545-c. 1591). German satirist. His best known works include the *Rabelaisian Aller Praktik Grossmutter* (1572), and *Das Glückhafft Schiff von Zürich,* in verse.

FISHER, GEORGE PARK (1827-1909). An American author and educator; born in Wrentham, Mass.; was professor of divinity from 1854-1861, and subsequently of ecclesiastical history at Yale; author of many theological and historical works. Dr. Fisher was one of the leading church historians of the United States.

FISKE, JOHN (1842-1901). An American historian; born in Hartford, Conn. He was for a while

lecturer on philosophy at Harvard, and in 1872-1879 assistant librarian. He wrote *Outlines of Cosmic Philosophy, Destiny of Man, Idea of God as Affected by Modern Knowledge, Origin of Evil*, and other works popularizing the philosophy of evolution; in history, *Beginnings of New England, American Revolution, Discovery of America, Essays, Literary and Historical*, and *New France and New England*.

FITZGERALD, EDWARD (1809-1883). An English poet. His writings are for the most part remodeled translations of poems in other languages; among them *Six Dramas of Calderon* and *The Rubâiyat of Omar Khayyam*, a translation that won for Fitzgerald great celebrity.

FLACCUS, GAIUS VALERIUS (died about 88). A Roman poet; the author of an epic poem, *Argonautica*, on the Argonautic expedition. It exists in an incomplete form.

FLAUBERT (*flo-bayr'*), **GUSTAVE** (1821-1880). A French novelist; born and died in Rouen. Among his works are *Madame Bovary, Salammbô, L'éducation sentimentale, La tentation de Saint-Antoine, Trois contes, Hérodias, La légende de Julien l'hospitalier*, and *Bouvard et Pécuchet*. Zola says that in *Madame Bovary* Flaubert gave "the formula of the modern novel."

FLEMING, PAUL (1609-1640). A German poet; made Martin Opitz his master, but his works exceed in excellence those of his model.

FLETCHER, JOHN (1579-1625). English dramatist; the son of a bishop of London; collaborated with Beaumont in the production of their plays. *The Faithful Shepherdess, The Two Noble Kinsmen, Maid's Tragedy*, and *Philaster* are the best of the 54 dramas produced by the two poets. [See Eng. Lit.].

FLORIAN, JEAN PIERRE CLARIS DE (1755-1794). A French poet and romancer; a relative and protégée of Voltaire; wrote *Galatée, Numa Pompilius, Estelle, Gonsalve de Cordoue*, and *Fables*.

FLUGEL, JOHANN GOTTFRIED (1788-1855). A German lexicographer. He spent many years in the United States in business, diplomatic, and official occupations. He died in Leipzig. His fame rests upon his *English-German and German-English Dictionary*.

FOGAZZARO, ANTONIO (1842-1911). One of the greatest Italian novelists. Religion and patriotism are the two dominant notes in his work. His poem *Miranda* gave him immediate fame throughout Italy; *Vasolda* and *Profumo* are collections of verse. His novels, *Malombra, Daniele Cortis* (a very popular story), *Piccolo mondo antico* (*The Patriot*), *Piccolo mondo moderno* (*The Sinner*), *Il Santo* (*The Saint*—the most famous), and *Leila* are noted for their idealism.

FOGLIETTA, UBERTO (1518-1581). An Italian historian; born in Genoa. His *Della repubblica di Genoa* caused the forfeiture of his estate and banishment from Genoa. His *Historiae Genuensium* placed him among the foremost Latin writers of Italy.

FONTANES, LOUIS, MARQUIS DE (1757-1821). A French poet and orator. Among his works are *Le cri de mon coeur, La forêt de Navarre*, translation of Pope's *Essay on Man*, and an imitation of Gray's "Elegy," *Le jour des morts*.

FONTENELLE (*font-nel'*), **BERNARD LE BOVIER DE** (1657-1757). A French miscellaneous writer; a nephew of Corneille, whose life he wrote; author of *Dialogues of the Dead*, in imitation of Lucian, and *Conversations on the Plurality of Worlds*.

FORBES, ARCHIBALD (1838-1900). An English journalist and war correspondent. Among his numerous works are *Drawn from Life, My Experiences in the Franco-German War, Life of Chinese Gordon, William I. of Germany, The Afghan Wars, Tzar and Sultan*, and *Napoleon III*.

FORD, PAUL LEICESTER (1865-1902). An American author; born in Brooklyn, N. Y. He wrote *Washington* and *Franklin, Janice Meredith, The Honorable Peter Stirling*, and *Story of An Untold Love*.

FOSCOLO, UGO (1778-1827). An Italian writer; born in the Ionian Isles. His masterpiece is *I Sepolcri*, a magnificent lyric poem. His greatest fame rests upon his prose works, especially his novel *Ultime lettere di Jacopo Ortis*.

FOTHERGILL, JESSIE (1856-1891). An English novelist; born at Manchester. Her novels depict life in the factory towns and in the moorlands. They include *The First Violin, Kith and Kin, One of Three, Peril, Borderland, A March in the Ranks*, and *The Oriole's Daughter*.

FOUQUE, FRIEDRICH HEINRICH KARL, BARON DE LA MOTTE (1777-1843). A German novelist and poet; born in Brandenburg. He is best known as the author of *Undine*, a romantic classic.

FOWLER, ELLEN THORNEYCROFT (about 1873-). An English novelist; eldest daughter of Sir Henry Fowler, secretary of state for India (1894-1895). Miss Fowler wrote *Concerning Isabel Carnaby*, a clever society novel; *A Double Thread, The Farringdons, Sirius and Other Stories*, and some poems.

FOX, JOHN (1863-1919). An American novelist; born in Bourbon County, Ky. He wrote *A Mountain Europa, A Cumberland Vendetta, The Kentuckians, Crittenden, The Little Shepherd of Kingdom Come*, and *Blue Grass and Rhododendron*.

FOXE, JOHN (1516-1587). An English martyrologist. His most famous work is his *History of the Acts and Monuments of the Church*, which is known as his *Book of Martyrs*, first published in Latin on the continent, the noble English version appearing in 1563.

FRANCE, ANATOLE, or **JACQUES ANATOLE THIBAULT** (1844-1924). A noted French critic, novelist, and humorist. Among his best known works are *Le crime de Sylvestre Bonnard, L'orme du mail, Le mannequin d'osier, L'anneau amethyste, Monsieur Bergeret à Paris, Thaïs, Le lys rouge, La vie littéraire*, and *Le jardin d'Epicure*.

FRANCIS, PHILIP, SIR (1740-1818). An Irish-English statesman; born in Dublin; the best accredited of the candidates for authorship of the *Junius* letters.

FRASER, MARY CRAWFORD, or **MRS. HUGH.** An English author, sister of Marion Crawford; wrote *A Diplomat's Wife in Japan, The Customs of the Country or Tales of New Japan, A Chapter of Accidents*, and *The Splendid Porsenna*.

FRECHETTE, LOUIS HONORE (1839-1908). A French-Canadian poet; born at Point Lévi, Quebec. He was honored by the French Academy and the Imperial Institute of London; made a knight of the Legion of Honor; wrote a five-act drama, *Veronica;* an English sketch, *Christmas in French Canada;* translation of Howell's *Chance Acquaintance* and of Cable's *Creole Days, Mes loisirs, La voix d'un exilé, Pêle-mêle, Les fleurs boréales, Les oiseaux de neige, La légende d'un peuple*, and *Les feuilles volantes*.

FREDERIC, HAROLD (1856-1898). An American journalist and novelist; born in Utica, N. Y.; wrote *Damnation of Theron Ware, The Lawton Girl, In the Valley, The Copperhead, March Hares*, and *In the Marketplace*.

FREDRO, ALEXANDER COUNT (1793-1878). A Polish dramatist; wrote eighteen successful comedies, which were published in the collection of 1877.

FREEMAN, EDWARD AUGUSTUS (1823-1892). An English historian. His first publication was a *History of Architecture*, especially devoted to Gothic architecture. *History of the Norman Conquest* is his great work. He wrote also *Growth of the English Constitution, Comparative Politics, The Reign of William Rufus, History and Conquest of the Saracens*, and *Ottoman Power in Europe*. He was appointed professor at Oxford (1884). [See Eng. Lit.]

FREILIGRATH, FERDINAND (1810-1876). A German poet; wrote the famous lyrics *Löwenritt, Prinz Eugen*, and *Der Blumen Rache;* democratic poems *Trotz alledem* (translation of Burns's "A Man's a Man for a' That"), *Die Freiheit, Das Recht*, and *Hamlet*. Among his translations are Longfellow's *Hiawatha* and Shakespeare's *Winter's Tale* and *Cymbeline*.

FRENCH, ALICE, or **"OCTAVE THANET"** (1850-). An American novelist; born in Andover, Mass. Besides several successful short stories of an economic character she wrote *The Regulator, Knitters in the Sun, Otto the Knight, Stories of a Western Town, Expiation, We All*, and *Man of the Hour*.

FREYTAG (*frī'tahg*), **GUSTAV** (1816-1895). A German author and orientalist; born in Silesia. Among his works outside of the drama may be mentioned *Ancestors*, a cycle of six stories portraying the German civilization from the beginning of historic times.

FROISSART (*frwa-sar'*), **JEAN** (1338-1410?). A French chronicler; born in Valenciennes, in Hainault. His *Chronicles* form a work of permanent value, because of their accurate and impartial account of important events of the fourteenth century. They narrate events connected with France, England, Scotland, Spain, Brittany, etc.

FROUDE (*frood*), **JAMES ANTHONY** (1818-1894). An English historian; born in Devonshire, England;

wrote, under the pen name of "Zeta," *The Shadows of the Clouds* and the *Nemesis of Faith*, both of which were condemned by the Oxford College authorities; wrote *The History of England from the Fall of Wolsey to the Defeat of the Spanish Armada*. [See Eng. Lit.].

FULLER, SARAH MARGARET (OSSOLI) (1810-1850). An American essayist and critic; took an active part in the Italian struggle for independence and served in the hospitals; on fleeing to America was drowned with her husband and son off Fire Island Beach as they were approaching New York. Her works include *Woman in the Nineteenth Century*, *Papers on Literature and Art*, and her *Letters*.

FUNK, ISAAC K. (1839-1912), entered the ministry after his graduation from Wittenberg College. He organized the Funk and Wagnalls Company and started or edited these publications: *Metropolitan Pulpit*, 1876, *Literary Digest*, 1890, *Standard Dictionary* 1890-4, *Jewish Cyclopedia*, 1901.

FUST or **FAUST** (*foust*), **JOHANN** (? -1466). One of the three artists to whom the invention of printing has been ascribed, was the son of a goldsmith at Mentz, Germany. The other two were Gutenberg and Schöffer. Fust was a partner of Gutenberg. Their best-known publication is the Latin Bible of forty-two lines or Mazarin's Bible. A *Psalter* (1457) was the publication of Fust and Schöffer and is the first printed book to bear a complete date. Its beautiful initials in red and blue were printed from types made in two pieces.

GABORIAU (*ga-bo-re-o'*), **EMILE** (1835-1873). A French writer of criminal and detective stories. His early years were a succession of vicissitudes; the army, the law, and even the church, were in turn the objects of his inconstant attentions till at last he wrote his way to fame and fortune. He wrote *The Lerouge Affair*, *Monsieur Lecoq*, and *File No.* 113.

GARDINER, SAMUEL RAWSON (1829-1902). An English historian; declined the regius professorship of history at Oxford on the death of Froude; wrote *History of the Great Civil War*, *Calendars of State Papers*, *Cromwell's Place in History*, *Oliver Cromwell*, *A Student's History of England*, and many other historical works.

GARLAND, HAMLIN (1860-). An American story writer; born in La Crosse, Wis. His best novel is *Rose of Dutcher's Coolly*. Among his other works are *Prairie Folks*, *A Little Norsk*, *Main-Traveled Roads*, *Her Mountain Lover*, *Prairie Songs*, *Ulysses Grant: His Life and Character*, and *Captain of the Gray Horse Troop*.

GARNEAU, FRANCIS XAVIER (1803-1866). Canadian historian; author of *Histoire du Canada, depuis sa decouverte*, and *Voyage en Angleterre et en France*.

GARNETT, RICHARD (1835-1906). An English librarian and author; born at Litchfield; was connected with the British Museum from his sixteenth year; wrote several volumes of verse and edited many books; wrote *Relics of Shelley*, *Twilight of the Gods and Other Tales*, *Age of Dryden*, *William Blake, Painter and Poet*, and a *History of Italian Literature*.

GASKELL, ELIZABETH CLEGHORN (1810-1865). An English author. She wrote *Mary Barton*, *Ruth*, *Cranford*, *North and South*, *Lizzie Leigh*, *Sylvia's Lovers*, *Cousin Phillis*, *Wives and Daughters*, and *Life of Charlotte Brontë*.

GAUTIER (*go-te-ay'*), **THEOPHILE** (1811-1872). A French poet and prose writer. He applied himself at first, but without much success, to painting, and then turned to literature. He was a prince of short story writers. His poems are considered by critics his best claim to fame.

GAY, JOHN (1685-1732). An English poet. His verse tales, the *Fables*, are the best of their kind in English. Among his poems the best known is his ballad, *Black-ey'd Susan*. *The Beggar's Opera* ran for 63 days at Lincoln's Inn Fields when first presented.

GELLERT, CHRISTIAN FURCHTEGOTT (1715-1769). A German poet; born in Saxony. He wrote *Fables and Tales*. He was the most important of the writers preceding the golden age of German literature ushered in by Lessing.

GEOFFREY OF MONMOUTH (about 1100-about 1154). A Welsh chronicler; was born at Monmouth, Wales; bishop of St. Asaph (1152); author of the famous *Historia Regum Britanniae*, published in 1139. This is one of the main sources of the Arthurian legend.

GEORGE, HENRY (1839-1897). American author and economist, and advocate of the single tax; born in Philadelphia. His most important work, *Progress and Poverty*, was published in 1879. *The Science of Political Economy* was published after his death.

GERHARDT, PAULUS or **PAUL** (1607-1676). Next to Luther the greatest of German hymn writers; born in Saxony. Among his best-known hymns are *O sacred head once wounded*, *Commit thou all thy griefs*, and *Jesus, Thy boundless love to me*.

GIBBON, EDWARD (1737-1794). An English historian; born in Putney; studied at Westminster School, Magdalen College, Oxford, and Lausanne. In 1763 he went to Italy, and while sitting amid the ruins of the Capitol at Rome, he conceived the idea of writing the history of the decline and fall of that city. In 1772 he began his celebrated *Decline and Fall of the Roman Empire*, a history of the world for 13 centuries. [See Eng. Lit.]

GILBERT, SIR WILLIAM SCHWENCK (1836-1911). An English dramatist; noted as the author of *Bab Ballads* and librettos of a series of well known popular comic operas set to music by Sir Arthur Sullivan, including *H. M. S. Pinafore*, *The Pirates of Penzance*, *Patience*, *Iolanthe*, *The Mikado*, and *The Gondoliers*.

GILDER, JEANNETTE LEONARD (1849-1916). An American critic and journalist; born at Flushing, N. Y.; wrote *Representative Poems of Living Poets*, *Pen Portraits of Literary Women*, *Essays from the Critic*, *Authors at Home*, *Autobiography of a Tomboy*, and *Taken by Siege*.

GILDER, RICHARD WATSON (1844-1909). An American poet and editor; born in Bordentown, N. J.; wrote *The New Day*, *The Celestial Passion*, *Lyrics*, *Two Worlds*, *The Great Remembrance*, *Five Books of Song*, *For the Country*, *In Palestine and Other Poems*, and *Poems and Inscriptions*.

GISSING, GEORGE (1857-1903). An English novelist. His chief publications are *The Unclassed*, *Thyrza*, *Life's Morning*, *The Emancipated*, *The Odd Woman*, *Eve's Ransom*, *New Grub Street*, *Denzil Quarrier*, *The Whirlpool*, *Charles Dickens*, *Our Friend the Charlatan*, *Demos*, and *The Nether World*.

GIUSTI, GIUSEPPE (1809-1850). A celebrated popular Italian poet and satirist. *Lo stival*, or the history of a boot (Italy), *Gingillino*, *Il Re Travicello*, *Il Brindisi di Girella*, and *Dies Irae* are his most famous works.

GODWIN, MARY WOLLSTONECRAFT (1759-1797). An English writer. She married William Godwin (1797) and became the mother of Mary Godwyn, the future Mrs. Shelley. Among her works are *Vindication of the Rights of Women*, *Thoughts on the Education of Daughters*, *Vindication of the Rights of Men*, and *Posthumous Works*.

GODWIN, PARKE (1816-1904). An American journalist and author; born in Paterson, N. J.; wrote *Out of the Past*, *A Popular View of the Doctrine of Fourier*, *Democracy*, *Civic and Constructive*.

GOETHE, JOHANN WOLFGANG VON (1749-1832). German poet, author, dramatist, scientist, and art critic; one of the world's greatest writers; born at Frankfort-on-the-Main; son of an imperial councilor and of Elisabeth Textor. His life at Frankfort, and the ideal companionship of his mother, had a remarkable influence on his character. His friendship with Kätchen Schönkopf at Leipzig is pictured in his *Die Laune des Verliebten*. While spending a few years at Frankfort to regain his health, he continued his studies and learned much which proved useful in writing *Faust* and *Wilhelm Meister*. At Strassburg he met Herder and Friederike Brion, whose influence may be recognized in *Götz*, *Werther*, *Clavigo*, *Egmont* and *Faust*. He finally removed to Weimar where he lived at the Court of Karl August. At Weimar he became interested in scientific studies and mining, managed the Court Theatre and war department, superintended the roads and bridges, and carried on a very helpful correspondence with Charlotte von Stein. In 1786 he started for Italy, where he studied for several years, some of his best works—*Iphigenie*, *Tasso*, *Faust* and *Egmont*—showing the influence of Italian life. After a close relationship with a woman of Weimar, they were married in 1806. For a time after his return to Weimar he turned his attention to scientific research. In 1794 Goethe met Schiller, and a warm and stimulating friendship developed. During this period he produced several successful novels and ballads. After the death of his wife in 1816, he traveled little and wrote intermittently, completing some of his earlier attempts and producing his *Gespräche*. [See Ger. Lit.].

GOGOL, NIKOLAI VASSILYEVITCH (1809-1852). One of the greatest of Russian writers; born in Poltava; wrote *Evenings at a Farmhouse Near Dikan 'Ka, Mirgorod, Taras Bulba, Old World Proprietors, How the Two Ivans Quarreled, Arabesques, Revizor* (a comedy), and *Dead Souls.*

GOLDONI, CARLO (1707-1793). Italian comedy writer; left about 150 plays, including *La donna di garbo, La bottega del caffè,* and *La locandiera.* [See It. Lit.].

GOLDSMITH, OLIVER (1728-1774). English man of letters; born at Pallas or Pallasmore, Ireland, and celebrated in English literature as the author of the *Vicar of Wakefield;* produced poems, *The Traveller* and *The Deserted Village,* besides comedies, such as *She Stoops to Conquer* and *The Good Natured Man;* lived extravagantly, and died in debt; wrote histories of Greece and Rome, and *Animated Nature.* [See Eng. Lit.].

GOODRICH, SAMUEL GRISWOLD, or **"PETER PARLEY"** (1793-1860). An American author; born in Ridgefield. Conn. His *Peter Parley* books won great popularity. He wrote *Poems, Sow Well and Reap Well, Men and Things I Have Seen.*

GORDON, CHARLES WILLIAM (1860-). Canadian novelist and clergyman; wrote *Black Rock, The Sky Pilot, The Prospector, The Man from Glengarry,* and *Beyond the Marshes.*

GORKY, MAXIM, or **ALEXEI MAXIMOVITCH PYESHKOFF** (1868-). A Russian author. He wrote *Makar Chudra, Foma Gordyéeff, Chelkash, Tales,* and *Orloff and His Wife.* Gorky visited the United States in 1907 in the interests of Russian freedom. His works have been admirably translated by Isabel Hapgood and by R. Nisbet Bain.

GOSSE, EDMUND WILLIAM (1849-1928). An English poet, essayist, and critic; born in London; author of *History of Eighteenth Century Literature,* a collection of lyrics, and a series of monographs, in particular *Life of Gray, Short History of English Literature, Life and Letters of Dr. Donne,* and *An Illustrated History of English Literature.*

GOWER, JOHN (about 1325-1408). An English poet. He wrote three great poems, one each in French, Latin, and English, to which he gave Latin names—*Speculum Meditantis,* long supposed to be lost, but found by G. C. Macaulay in the Cambridge University Library in 1895; *Vox Clamantis,* describes the insurrection of Wat Tyler, and *Confessio Amantis.*

GRAND, SARAH, or **FRANCES ELIZABETH CLARKE** (1862-). An English novelist; born in Ireland, of English parents; married Lieutenant-Colonel McFall when she was only 16. She accompanied her husband to the East, visiting India, China, and Japan. She wrote *Ideala, The Heavenly Twins, Our Manifold Nature, The Beth Book,* and *Babs the Impossible.*

GRANT, GEORGE MONRO (1835-1902). A Canadian author, educator, and orator; born at Albion Mines, N. S.; wrote *Ocean to Ocean, Advantage of Imperial Federation, Our National Objects and Aims,* and *Religions of the World in Relation to Christianity.*

GRANT, ROBERT (1852-). An American author; born in Boston, Mass.; wrote *Unleavened Bread, The Confessions of a Frivolous Girl, The Carletons, An Average Man, Opinions of a Philosopher, Reflections of a Married Man, The Art of Living.*

GRAY, MAXWELL, or properly **M. G. TUTTIETT.** An English novelist; born on the Isle of Wight; wrote *The Silence of Dean Maitland, In the Heart of the Storm, The Lost Sentence, A Costly Freak, House of Hidden Treasure, The World's Mercy, Four-leaved Clover,* and *The Forest Chapel and Other Poems.*

GRAY, THOMAS (1716-1771). An English poet; born in Cornhill, London; produced in 1747 *Ode on a Distant Prospect of Eton College,* and in 1750 his well known *Elegy Written in a Country Churchyard.* These were followed by the Pindaric odes, the *Progress of Poesy* and *The Bard,* finished in 1757. [See Eng. Lit.]

GREELEY, HORACE (1811-1872). An American journalist; born in New Hampshire; wrote *Hints Towards Reforms, Glances at Europe, Overland Journey to San Francisco, The American Conflict, Recollections of a Busy Life,* and *Essays on Political Economy.*

GREEN, JOHN RICHARD (1837-1883). An English historian; born at Oxford. In 1874 he published his *Short History of the English People,* which was speedily adopted in schools, and was widely accepted as one of the ablest summaries of the history of the country. The welcome with which this small work was received induced the author to essay a larger, which he accordingly published in four volumes. This was followed by *The Making of England* and *The Conquest of England.*

GREENE, ROBERT (about 1560-1592). English dramatist and poet; wrote *The Famous History of Friar Bacon, Pandosto, Menaphon,* and *Groat's Worth of Wit.*

GREGORY VII., HILDEBRAND (1020?-1085). Son of a carpenter; born in Soano, Tuscany. Succeeded to the papacy in 1073; his writings are contained in Migne's *Patrologia.*

GRILLPARZER, FRANZ (1791-1872). A popular Austrian dramatist; born at Vienna. His first notable drama was the tragedy *Die Ahnfrau,* the *motif* of which is an extreme fatalism. *Sappho, Das Goldne Vlies,* and many others followed, all of which are marked by dramatic power and lyric grace.

GRIMM, Brothers. **JAKOB LUDWIG** (1785-1863), and **WILHELM KARL** (1786-1859). German authors. The former gained renown as a philologist, producing his *Deutsche Grammatik.* Wilhelm's best-known book is *Die deutsche Heldensage.* Together they wrote *Deutsches Wörterbuch* and *Kinder- und Hausmärchen,* a collection of fairy stories which has made them famous.

GROTE, GEORGE (1794-1871). An English historian. In 1846 appeared the first two volumes of his magnificent *History of Greece.* The remaining ten volumes followed rapidly; the last, published in 1856, terminated with the death of Alexander the Great.

GRUNDTVIG, NIKOLAI FREDERIK SEVERIN (1783-1872). A noted Danish poet and historian. Always a champion of civic and religious freedom, he attempted to secure reforms by establishing a school. He wrote many popular ballads, translations, and essays. [See Scand. Lit.] His son, **SVEND HERSLEB** (1824-1883), was a famous philologist and balladist. *Danmarks gamle Folkeviser,* a work in four volumes, was his best.

GUICCIARDINI, FRANCESCO (1483-1540). Italian historian; wrote *Ricordi Politici e Civili,* and *Reggimento di Firenze.* [See It. Lit.].

GUINEY, LOUISE IMOGEN (1861-1920). An American poet and essayist; born in Boston, Mass.; the daughter of General Patrick R. Guiney; wrote *Songs at the Start, The White Sail and Other Poems, The Martyr's Idyl, Goose-Quill Papers, Monsieur Henri, A Roadside Harp, A Little English Gallery,* and *Patrins.*

GUIZOT (*gee-zo'*), **FRANCOIS PIERRE GUILLAUME** (1787-1874). A French historian. He was minister of the interior, ambassador to Great Britain, and minister of foreign affairs. After the fall of Louis Philippe, Guizot escaped and fled to England. Henceforth he practically retired from public life. Among his numerous works may be mentioned *History of Civilization in France, General History of Civilization in Europe, History of the English Revolution, History of the Origin of Representative Government,* and *Life, Correspondence, and Writings of Washington.*

GUTHRIE, THOMAS ANSTEY, or **F. ANSTEY** (1856-). An English author; born at Kensington. His works include *Vice Versa, The Giant's Robe, The Black Poodle, The Tinted Venus, The Fallen Idol, The Pariah, Voces Populi, The Travelling Companions, Under the Rose, Lyre and Lancet, The Statement of Stella Maberly, Paleface and Redskin,* and *The Brass Bottle.*

HAFIZ or **SHAMS-UD-DIN MOHAMMED** (? - about 1389). One of the world's greatest names in lyrical poetry; lived at Shiraz, Persia. The *Divan* or collection of the writings of Hafiz was made by his friend, Mohammed Gulandam. His *Ghazals* or *Odes,* corresponding in some respects to our sonnet, are the most famous among the Persians.

HAGGARD, HENRY RIDER (1856-1925). An English novelist; born at Norfolk. Among his works are *King Solomon's Mines, She, Elissa, Swallow, Nada, the Lily; The People of the Mist, Jess, Cleopatra,* and *Rural England.*

HAKLUYT (*hak'loot*), **RICHARD** (about 1552-1616). An English geographer and historian; wrote *Divers Voyages Touching the Discovery of America* (1582); *A Particular Discourse Concerning Western Discoveries* (1584), *Principall Navigations, Voiages, and Discoveries of the English Nation.*

HALEVY, LUDOVIC (1834-1908). A French dramatist. From 1852 to 1865 he wrote the librettos for Offenbach's most popular operettas; from 1864 to 1881 wrote comic operas in collaboration with Henri Meilhac; they produced *La belle Hélène,* their first great success,

in 1865; the work on the Cardinal family is the best illustration of his satires. Halévy was elected to the Academy (1886).

HALIBURTON, THOMAS CHANDLER, or "SAM SLICK" (1796-1865). A Canadian humorist; born at Windsor, Nova Scotia; became judge of the Supreme Court (1842); retired (1856) and thereafter resided in England. His *Sam Slick* is the drollery, wit, knowledge of human nature, and successful use of "soft sawder" by a Yankee clock-maker and peddler.

HALLAM, HENRY (1777-1859). An English historian and critic; practised law until 1812; gave ten years of preparation to his first great work, *A View of the State of Europe during the Middle Ages* (1818). Others of his works which have remained standard authorities are *The Constitutional History of England from the Accession of Henry VII. to the Death of George II.*, published in 1827, and the *Introduction of the Literature of Europe in the Fifteenth, Sixteenth and Seventeenth Centuries* (1837-39).

HALLECK, FITZ-GREENE (1790-1867). An American poet; born at Guilford, Connecticut. With Joseph Rodman Drake, he contributed the humorous series of *The Croaker Pavers*, to the New York *Evening Post*.

HANNAY, JAMES (1842-1910). A Canadian journalist and historian; born at Richibucto, N. B.; wrote *History of Acadia, Story of the Queen's Rangers in the American Revolution, History of the Loyalists*, and *Life and Times of Sir Leonard Tilley*.

HARDY, THOMAS (1840-1928). An English novelist; born in Dorset, England. He was brought up as an architect. Among his works are *Tess of the D'Urbervilles, The Woodlanders, Two on a Tower, Far from the Madding Crowd, The Three Strangers, Poems of the Past and Present, A Pair of Blue Eyes*, and *Jude the Obscure*.

HARLAND, HENRY (1861-1905). An American novelist; born in St. Petersburg, Russia; wrote *As It Was Written, Mrs. Peixada, The Yoke of the Thorah, My Uncle Florimond, A Latin Quarter Courtship, Mea Culpa, The Cardinal's Snuffbox*, and *The Lady Paramount*.

HARNACK, ADOLF (1851-). The leading living church historian; born at Dorpat, Russia; wrote *Monasticism: Its Ideals and Its History, The Confessions of Saint Augustine, History of Dogma, The Apostles' Creed*, and *What is Christianity?*

HARRADEN, BEATRICE (1864-). An English novelist; wrote *Ships That Pass in the Night, Things Will Take a Turn, In Varying Moods, Hilda Strafford*, and *The Fowler*.

HARRIS, JOEL CHANDLER (1848-1908). An American author; born at Eatonton, Georgia; studied law; became editor of the Atlanta *Constitution* (1876); his *Uncle Remus* sketches in negro dialect first appeared in this paper in 1880; these were followed by studies of Afro-American folk lore; published a memoir of Henry W. Grady (1890), and a volume on *Georgia from the Invasion of De Soto to Recent Times* (1899).

HARRISON, CONSTANCE CARY, or MRS. BURTON (1846-1920). An American novelist; born at Vaucluse, Va.; married in 1867 to Burton Harrison, a lawyer and private secretary to Jefferson Davis; wrote *Golden Rod, The Anglomaniacs, Sweet Bells Out of Tune, A Daughter of the South, A Son of the Old Dominion, Good Americans, Flower de Hundred*, etc.

HARRISON, FREDERIC (1831-1923). An English essayist; born in London. Among his works are *Meaning of History, Order and Progress, The Choice of Books, Oliver Cromwell, Victorian Literature, Tennyson, Ruskin, Mill, and Other Literary Estimates; John Ruskin*, and *Washington*.

HARRISON, MARY SAINT LEGER, or "LUCAS MALET" (1852-). An English novelist; daughter of Charles Kingsley. Her novels are written with an ethical purpose and include *Mrs. Lorimer, The Wages of Sin, The Carissima, The Gateless Barrier, Sir Richard Calmady*, and *The Far Horizon*.

HARRISON, SUSAN FRANCES (1860-). Canadian author. Wrote *Crowded Out* (stories), *Pine, Rose, and Fleur-de-Lis* (verse), *Canadian Birth-Day Book*.

HART, ALBERT BUSHNELL (1854-). An American historian; born at Clarksville, Pa. His writings include *Introduction to the Study of Federal Government, Formation of the Union, Practical Essays on American Government, Studies in American Education, Source Book of American History*, and *Life of Salmon P. Chase*.

HARTE, FRANCIS BRET (1839-1902). An American humorous poet and novelist; born at Albany, New York; removed to California (1854); entered newspaper work (1857) as compositor in the office of the *Golden Era;* became editor-in-chief of the *Weekly Californian;* was secretary of the United States mint in San Francisco (1864-1867); had been writing sketches which had attracted much attention and in 1868-1870 published *The Luck of Roaring Camp*, and *The Outcasts of Poker Flat;* these with the poem *The Heathen Chinee* (1870), won him a national reputation; was United States consul at Crefeld, Germany (1878-1880), and at Glasgow (1880-1885); his last years were spent in England.

HAUPTMANN, GERHART (1862-). Noted German dramatist; his works are democratic, his later poems of a social altruism.

HAVERGAL, FRANCES RIDLEY (1836-1879). An English religious writer; born at Astley. Her works include *The Ministry of Song, Loyal Responses, Coming to the King*, and *Red Letter Days*. She is best known for her hymn, *Take my life and let it be*.

HAWEIS (*haws*), **HUGH REGINALD** (1838-1901). An English clergyman and author; born in Surrey; served under Garibaldi at the siege of Capua; wrote *Music and Morals, American Humorists, Christ and Christianity, The Broad Church, Travel Talk*, and *Old Violins*.

HAWKINS, ANTHONY HOPE (1863-). An English novelist writing under the name "Anthony Hope"; born in London. Among his best known works are *A Man of Mark, The Prisoner of Zenda, Phroso, The Dolly Dialogues, Quisanté, The Intrusions of Peggy, Rupert of Hentzau*, and *The King's Mirror*.

HAWTHORNE, JULIAN (1846-). An American novelist and journalist, son of Nathaniel. Among his works are *Garth, Noble Blood, The Professor's Sister, A Fool of Nature*. He also wrote *Saxon Studies, Nathaniel Hawthorne and His Wife, American Literature*, and *A History of the United States*.

HAWTHORNE, NATHANIEL (1804-1864). American novelist; born at Salem, Massachusetts. *Twice-told Tales* was the first production by which he won distinction. After the publication of *Twice-told Tales* he spent some months at Brook Farm, leaving which he married and took up house at Concord. From 1848 to 1850 he held a state appointment, and in his leisure hours wrote his *Scarlet Letter*, which appeared in the latter year and established his fame as a master of literature. This was followed by *The House of Seven Gables, The Snow Image, The Blithedale Romance*, and later by *The Marble Faun* and *Our Old Home*.

HAYNE, PAUL HAMILTON (1831-1886). An American poet; born in Charleston, S. C. At first a lawyer, he turned to journalism, and in 1855 his maiden volume of verse appeared. His works include *Legends and Lyrics, The Mountain of the Lovers*, and *Complete Poetical Works* (1882).

HAZELTINE, MAYO WILLIAMSON (1841-1909). An American journalist and reviewer; born in Boston, Mass.; wrote *Chats about Books, Poets, and Novelists;* but he is most widely known for his masterly reviews in the New York *Sun*.

HAZLITT, WILLIAM (1778-1830). An English critic. He wrote *On the Principles of Human Action, Lectures on the Dramatic Literature of the Reign of Queen Elizabeth, Round Table*, and *Characters of Shakespeare's Plays*. Robert Louis Stevenson said of him: "Though we are mighty fine fellows nowadays, we cannot write like Hazlitt."

HEADLEY, JOEL TYLER (1813-1897). An American prose writer; born in Walton, N. Y. His writings, such as *Washington* and *Chaplains of the Revolution*, contain much valuable information about early American history.

HEARN, LAFCADIO (1850-1904). An American author; born in the Ionian Isles; wrote *Chita, Two Years in the French West Indies, Youma or The Story of a West Indian Slave, Out of the East, Hints and Echoes of Japanese Inner Life, Gleanings in Buddha Fields, Shadowings*, and *Kotto*.

HEAVYSEGE, CHARLES (1816-1876). A Canadian poet; born in Liverpool, England; a cabinetmaker in Canada (1853); afterwards a journalist on the staff of the Montreal *Witness;* wrote *The Revolt of Tartarus*, a volume of sonnets, a three part tragedy entitled *Saul, Count Filippo or The Unequal Marriage, The Dark Huntsman, The Owl, Jephthah's Daughter*, and a novel entitled *The Advocate*.

HECATAEUS (flourished 500 B. C.). A Greek writer; the most important of the logographers; wrote *Genealogies* and *Tour of the World*, which contains a map probably based on that of Anaximander.

HECTOR, ANNIE (FRENCH), or MRS. ALEXANDER (1825-1902). An Irish novelist; born in Dublin; wrote *The Wooing O't, Her Dearest Foe, By Woman's Wit, Mona's Choice, A Life Interest, A Winning Hazard,* and *Barbara: Lady's Maid and Peeress.*

HEINE, HEINRICH (1797-1856). The greatest lyric poet of Germany; born of Jewish parents in Düsseldorf. In 1831 he settled in Paris, supported himself by his literary labors, and dwelt there till his death. From 1837 to the overthrow of Louis Philippe in 1848 he enjoyed a pension of $800 from the French government. As a poet Heine is remarkable for the simplicity and pathos of many of his lyric pieces. He collected them in *The Book of Songs;* wrote *Romanzero, Pictures of Travel, The Romantic School,* and *Atta Troll.* His works are published in 21 volumes. [See Ger. Lit.].

HELPS, SIR ARTHUR (1813-1875). An English essayist; born in Surrey; edited the speeches of the prince consort for Queen Victoria (1862); prepared for the press her *Highland Journals* (1868-1869); wrote *Las Casas, Columbus, Pizarro, Cortez,* and *The Spanish Conquest in America.* His *Essays,* particularly *Friends in Council,* have gained his greatest fame.

HEMANS, FELICIA DOROTHEA (BROWNE) (1793-1835). An English poet; born in Liverpool. She was the author of a number of works, the best of her productions being lyrics. Among them are *The Forest Sanctuary,* which included the well known "Casabianca"; *Records of Women, Hymns for Childhood, National Lyrics and Songs for Music,* and *Scenes and Hymns of Life.*

HENLEY, WILLIAM ERNEST (1849-1903). An English author; a collaborator with Robert Louis Stevenson for 13 years (1874-1887). Together they wrote the plays *Deacon Brodie, Beau Austin, Admiral Guinea,* and *Robert Macaire;* alone he wrote *Views and Reviews, Literature; Views and Reviews, Painting and Sculpture; London Voluntaries, London Types, For England's Sake, Hawthorn and Lavender,* and *Poems.*

HENTY, GEORGE ALFRED (1832-1902). An English author; born in Cambridgeshire; served in the army in the early part of the Crimean War; war correspondent of the London *Standard* in various campaigns; wrote numerous popular historical novels for boys, including *All but Lost, The Tiger of Mysore, To Herat and Cabul, With Roberts to Pretoria, The Treasure of the Incas, With the British Legion,* and *With Clive in India.*

HERBERAY DES ESSARTS (? -1552). French translator, called "the founder of the heroic romance in France."

HERBERT, GEORGE (1593-1633). An English poet; was the author of poems entitled *The Temple* and a prose work entitled *The Country Parson.* A charming life of Herbert was written in 1670 by Izaak Walton.

HERDER, JOHANN GOTTFRIED VON (1744-1803). A German author. His greatest work is his *Ideas on the Philosophy of the History of Man.*

HEREDIA Y CAMPUZANO, JOSE MARIA DE (1803-1839). Cuban lyric poet, the first of the patriotic group. Wrote also the valuable *Lecciones de historia universal.*

HEROD'OTUS (484-424 B. C.). The "Father of History"; born at Helicarnassus, in Caria; traveled in Asia Minor, Egypt, and Syria, and in his old age recorded with fidelity the fruits of his observations and inquiries. His chief work was on Xerxes' invasion of Greece, in nine books. [See Gr. Lit.].

HERRERA, FERNANDO DE (1534-1597). Spanish poet, chief of the "Seville" school of lyric poetry. His masterpiece is *Por la vitoria de Lapanto.*

HERRICK, ROBERT (1591-1674). An English poet; a collection of his poems entitled *Hesperides* and *Noble Numbers* appeared in 1648; the songs *Gather Ye Rosebuds While Ye May* and *Cherry Ripe* are examples of lyrical art in English; after his death his fame declined and his works were neglected. His fame revived in the nineteenth century.

HERTZ, HENRIK (1798-1870). A Danish dramatist and poet; born in Copenhagen, of Jewish extraction. His *King René's Daughter* (1845) won him universal recognition, and has been translated into English by Sir Theodore Martin (1850).

HESIOD (flourished about 750 B. C.). One of the earliest Greek poets; born in Ascra, Boeotia. [See Gr. Lit.]

HEWLETT, MAURICE HENRY (1861-1923). An English novelist. His reputation as a writer is assured by his novel, *The Forest Lovers;* his short stories, *Madonna of the Peach Tree* and *The Duchess of Nona* in *Little Novels of Italy,* and *New Canterbury Tales.*

HEYSE, PAUL (1830-1914). Noted German writer of short stories, poems, and dramas.

HEYWOOD, THOMAS (?1575-?1650). English poet and author, the most prolific playwright of the period. His best production is *A Woman Killed with Kindness.*

HICH'ENS, ROBERT SMYTHE (1864-). An English novelist. His *Green Carnation* (1894) was published anonymously and created a literary sensation. Other of his novels are *An Imaginative Man, Flames, The Slave, Tongues of Conscience,* and *Felix.*

HIGGINSON, THOMAS WENTWORTH (1823-1911). Author and essayist; born in Cambridge, Mass. His works include *History of the United States, Memoir of Longfellow, Life of Margaret Fuller, Short Stories of American Authors, English History for Americans.* also many essays, in which he was at his best.

HILDRETH, RICHARD (1807-1865). An American historian; born at Deerfield, Mass. Besides *The Slave* (1837) he published other books on the social aspects of slavery; his most noteworthy effort was the *History of the United States,* in six volumes (1849-1856).

HOBBES, JOHN OLIVER, or PEARL RICHARDS CRAIGIE (1867-1906). An English novelist; born in Boston, Mass. Taken to England in childhood. She wrote *The Sinner's Comedy, A Study in Temptations; The Gods, Some Mortals, and Lord Wickenham; A Bundle of Life, Robert Orange, The Serious Wooing,* and *Love and the Soul Hunters.*

HOFFMAN, AUGUST HEINRICH (1798-1874). German philologist and poet. Wrote *Alemannische Lieder, Jägerlieder, Reineke Vos, Deutsche Philologie.*

HOFFMANN, ERNST TEODOR AMADEUS (1776-1822). German romantic novelist. His most noted works are *Die Elixire des Teufels* and *Lebensansichten des Katers Murr.*

HOGG, JAMES (1770-1835). A Scotch poet, known as the "Ettrick Shepherd." After receiving a very scanty education he began to earn his bread by daily labor as a shepherd. The appearance of *The Queen's Wake* in 1813, with its charming ballad of Kilmeny, established Hogg's reputation as a poet. Among his poems and songs are *When the Kye Come Hame* and *Flora Macdonald's Farewell.*

HOLBERG, LUDWIG (1684-1754). A Danish poet, novelist, and historian. His works are of four classes —poems, stage pieces, philosophical treatises, and historical works. His poems are chiefly satirical. His best works are *Henrik and Pernille* and *Subterranean Journey of Niels Klim.* He is known as "the father of Danish comedy." [See Scand. Lit.].

HOLLAND, JOSIAH GILBERT (1819-1881). An American author; born in Belchertown, Mass. He became assistant editor of the Springfield *Republican,* of which he was part proprietor from 1851 to 1866; wrote the novels *Bay Path, Seven-oaks, Nicholas Minturn,* and *Arthur Bonnicastle;* the poems *Bitter Sweet, Kathrina,* and *Garnered Sheaves.*

HOLMES, OLIVER WENDELL (1809-1894). A celebrated American author, son of a Unitarian minister; became professor of anatomy and physiology at Dartmouth College, but resigned and settled in Boston as a general practitioner. In 1847 he was elected to the chair of anatomy in Harvard, a position he held till 1882. A successful professor, it is as an essayist, novelist, and poet that he is remembered. The appearance of *The Autocrat of the Breakfast-Table,* with its quaint humor, fresh thought, and charming egotism took literary America by storm. The *Professor* and the *Poet at the Breakfast-Table* followed in after years and remain his most widely popular works. *Elsie Venner, The Guardian Angel, Songs of Many Seasons, Memoirs of Motley and of Emerson* are some of his many works, all of which bear the impress of his personality.

HOMER (flourished about 1000 B. C.). The great epic poet of Greece and the greatest of all time; author of the *Iliad* and the *Odyssey;* is said, when old and blind, to have wandered from city to city rehearsing his verses. It is only modern criticism that has called in

question his existence, and has ventured to argue that the poems ascribed to him are a mere congeries of compositions of the fabulous age of Greece, but the unity of the plan and the simplicity of the style of the poems go to condemn this theory. [See Gr. Lit.].

HOOD, THOMAS (1799-1845). An English poet and humorist. From 1829 to 1837 he conducted his *Comic Annual*. He contributed to *Punch* during his last illness *The Song of the Shirt, The Bridge of Sighs,* and *The Lay of a Laborer*. Hood is unrivaled as a punster, and he possesses a singular power of combining the humorous with the pathetic. His best comic poem is *Miss Kilmansegg*.

HOOKER, RICHARD (about 1553-1600). An English clergyman; the author of the most famous treatise on the constitution of the Church of England, the celebrated *Laws of Ecclesiastical Polity*.

HORACE or **QUINTUS HORATIUS FLACCUS** (65-8 B. C.). A Latin lyric poet. The talent which he had displayed procured him the friendship of two eminent poets, Vergil and Varius, and to them he was indebted for his first acquaintance with Maecenas, a refined man of the world. Nine months after, Maecenas received Horace into the circle of his intimate friends and after some years presented him with the Sabine estate which Horace so often mentions in his poems. It was sufficient to maintain him in ease and comfort during the remainder of his life. Horace wrote the *Odes, Epodes, Satires,* and *Epistles*.

HORNE, RICHARD HENGIST (1803-1884). An English poet and miscellaneous author. He wrote *Orion: a Tragic Poem*, his best work, and two tragedies, *Cosmo de Medici* and *The Death of Marlowe*.

HOVEY, RICHARD (1864-1900). An American poet; born at Normal, Ill; wrote *Launcelot and Guenevere, Quest of Merlin, The Marriage of Guenevere, The Birth of Galahad, Taliesin, Songs from Vagabondia* in collaboration with Bliss Carman, and *Along the Trail*.

HOWARD, HENRY, EARL OF SURREY (about 1517-1547). English soldier and poet: introduced into the language blank verse and the sonnet of three quatrains and a couplet.

HOWE, JULIA WARD (1819-1910). An American poet; married Dr. Samuel G. Howe, noted for his labors in the education of the blind; wrote *Passion Flowers, Words for the Hour, Later Lyrics,* including *Battle Hymn of the Republic;* two dramas, *The World's Own* and *Hippolytus; Life of Margaret Fuller,* and *Reminiscences*.

HOWELLS, WILLIAM DEAN (1837-1920). An American author; born in Martins Ferry, Ohio. From 1861 to 1865 he resided in Venice as United States consul. Soon after his return appeared a series of papers under the title *Venetian Life,* followed by a similar volume, *Italian Journeys*. He was assistant editor of the *Atlantic Monthly* during 1866-1871, and editor in chief from 1871 till his resignation in 1881. He is seen at his best in the *Rise of Silas Lapham* and *A Hazard of New Fortunes*. His has been the most influential work in American literature during the last 30 years.

HUBBARD, ELBERT (1859-1915), American author and lecturer, who went down on the *Lusitania*, is best known as the editor of the *Philistine* and *Little Journeys*. Estab. Roycroft shops at East Aurora, N. Y.

HUGHES, THOMAS (1823-1896). An English judge, author, and philanthropist. As an author, Thomas Hughes is doubtless best known by his first work, *Tom Brown's School Days,* published in 1856, which has gone through many editions and been translated into several languages. He wrote also *Alfred the Great* and *Tom Brown at Oxford*.

HUGO, VICOMTE VICTOR MARIE (1802-1885). A distinguished French poet and man of letters; born in Besançon, France. His father was a general in the French army. In 1822 he brought out the first volume of his *Odes and Ballads*. Hugo, who published a number of dramatic pieces of various merit, was, after much opposition, admitted into the Academy in 1841. On the *coup d'état* of December 2, 1851, Hugo, then a member of the legislative assembly, was among those deputies who vainly attempted to assert the rights of the assembly and to propose the constitution. His conduct led to his proscription. He took refuge in the island of Jersey, and subsequently in that of Guernsey, having steadfastly refused to avail himself of the general amnesties issued in 1859 and in 1869. His trenchant satire, *Napoleon the Little,* appeared at Brussels in 1852, and was rigorously suppressed in France, into which country it had been smuggled. On the fall of the empire in 1870 he returned to France, was elected to the National Assembly, but soon resigned and repaired to Brussels, whence he was expelled by the government on account of the violence of his political writings and his sympathy with the Communists. Returning to Paris he was elected a senator for life in 1876. *Notre Dame de Paris, Les Misérables, Ninety-three* are his great novels. His best lyric verses are found in *The Terrible Year,* treating patriotically the French disaster of 1870-1871. [See Fr. Lit.].

HUME, DAVID (1711-1776), Scottish historian and philosopher. In 1751 appeared at Edinburgh his *Inquiry Concerning the Principles of Morals*. In 1754 he published the first volume of his *History of England,* his best work, which he did not complete till 1762. [See Eng. Lit. and Ethics.]

HUNT, JAMES HENRY LEIGH (1784-1859). An English poet and essayist. He was the personal friend of Byron, Shelley, Keats, Lamb, and Coleridge. The *Story of Rimini* is his longest and perhaps his best known poem. He wrote also *Palfrey* and *Abou ben Adhem*. His *Imagination or Fancy* contains the familiar essay *What is Poetry?* and his *Men, Women, and Books* is a charming collection of miscellany.

IBSEN, HENRIK (1828-1906). A Norwegian novelist and dramatist; born in Skien, Norway. His youth was passed in extreme poverty. His attention was turned to dramatic writing and he produced *The Banquet at Solhaug, The Vikings at Helgeland, Love's Comedy, Ghosts, A Doll's House, When We Dead Awaken, The Pillars of Society, The Wild Duck,* etc. In 1857 he became artistic director of the Norwegian Theater at Christiania. [See Scand. Lit.].

INGELOW, JEAN (1820-1897). An English poet and story writer. Her first published work appeared anonymously in 1850, but not till the publication of *Poems* in 1863 did Miss Ingelow become famous. This volume won the enthusiastic praise of critics. She wrote a great many poems and novels, among which are *Poems of Old Days and New, Off the Skelligs, Mopsa,* and *Stories Told to a Child*.

INGERSOLL, ROBERT GREEN (1833-1899). An American lawyer; born in Dresden, N. Y.; wrote *The Gods and Other Lectures, Great Speeches, Lectures Complete,* and *Prose Poems and Selections*.

IRELAND, WILLIAM HENRY (1777-1835). A Shakespearean forger; born in London; wrote a remarkable series of forgeries which deceived many scholars. They included legal documents, verses, and letters purporting to be Shakespeare's, and two plays, *Vortigern* and *Henry II*. He confessed in 1805.

IRVING, WASHINGTON (1783-1859). An American author; born in New York, where his father had emigrated from Scotland before the Revolution. He was originally educated for the legal profession, but his tastes were all in the direction of literature, in which field he made his first appearance by the publication, in 1802, of the *Letters of Jonathan Oldstyle,* in the New York *Morning Chronicle*. In December, 1809, appeared his celebrated *History of New York, by Diedrich Knickerbocker*. In May, 1815, he embarked for England, where he commenced in 1818 the series of papers entitled *The Sketch-Book,* which was published in New York and London. Up to 1832 Mr. Irving continued to reside in Europe. During this period were composed some of his most famous literary works. He wrote also *Alhambra, Christopher Columbus, Bracebridge Hall, Washington, Conquest of Granada, The Rocky Mountains, Wolfert's Roost, Goldsmith,* and *Mahomet*.

JACKSON, HELEN FISKE HUNT (1831-1885). An American author; wrote under the pen name of "H. H."; born in Amherst, Mass. She wrote *Ramona, A Century of Dishonor* (a plea for better treatment of the Indians), *Mercy Philbrick's Choice, Hetty's Strange History,* and several poems, among them *Sonnets and Lyrics*. *Habeas Corpus* is one of the finest American lyrics.

JAMES, GEORGE PAYNE RAINSFORD (1801-1860). An English novelist; wrote about 60 novels. The best examples of his style are perhaps *Richelieu Philip Augustus, Henry Masterton, Mary of Burgundy, Darnley, Corse de Léon, The Smuggler*.

JAMES, HENRY (1843-1916). An American novelist and essayist; born in New York. From 1869 until 1907 he made his home in England. Among his works are *The Bostonians, The Sacred Fount, What Maisie Knew, The Wings of a Dove, The Better Sort, The Soft Side, The Awkward Age, In the Cage, Washington Square, Daisy Miller, Roderick Hudson*. His published works number over 40 volumes. His writings are

marked by an elusiveness of thought and complexity of style only thoroughly appreciable by a reader of marked intuition.

JAMI, NUR-ED-DIN ABDUR RAHMAN (1414-1498). A romantic, lyric, and mystic Persian writer, the last of the great Sufi poets; most famous work is *Haft Aurang*, a collection of seven poems; composed three *Diwans*, collections of lyrics and odes; *Baharistan* in his well-known prose work.

JEROME, JEROME KLAPKA (1859-1927). An English humorous writer; wrote *On the Stage—and Off, Stage Land, Barbara, Sunset, Idle Thoughts of an Idle Fellow, Three Men in a Boat, Diary of a Pilgrimage, John Ingerfield, Sketches in Lavender, Observations of Henry*, and *Paul Kelver*.

JERROLD, DOUGLAS WILLIAM (1803-1857). An English humorist; one of the most brilliant wits of his day. He wrote about 40 plays, *Black-Eyed Susan* being his chief success; joined the staff of *Punch*, in which first appeared the *Caudle Lectures*.

JEVONS, WILLIAM STANLEY (1835-1882). An English economist; born at Liverpool; wrote *Treatise on Logic, Theory of Political Economy, Money and the Mechanism of Exchange*, and *Coal Question*.

JEWETT, SARAH ORNE (1849-1909). An American writer; born in South Berwick, Me. Her best work portrays New England character. Among her works are *Deephaven, Play Days, Old Friends and New, The Mate of the Daylight, A Country Doctor, A Marsh Island, A White Heron, The King of Folly Island, The Life of Nancy*, and *The Country of the Pointed Firs*.

JODELLE, ETIENNE (1532-1573). French dramatist. Wrote *Cléopâtre, Dido, Eugène*.

JOHN OF SALISBURY (about 1120-1180). An English scholar and churchman; for 30 years the central figure of English learning; wrote *Policraticus sive de nugis Curialium et Vestigiis Philosophorum, Metalogicus, Vita et Passio Sancti Thomæ, Entheticus, Vita Sancti Anselmi*, and *Historia Pontificalis*.

JOHNSON, E. PAULINE (1862-1913). A Canadian poet; born at Chiefswood, Ontario; daughter of George Henry M. Johnson, chief of the Mohawk Indians, and Emily S. Howells of Bristol, England; wrote a volume under the title of *The White Wampum*.

JOHNSON, ROSSITER (1840-). An American author and editor; born at Rochester, N. Y.; wrote *Phaeton Rogers, Idler and Poet, A History of the French War*, and *A History of the War of Secession*.

JOHNSON, SAMUEL (1709-1784). One of the most distinguished English writers; born in Lichfield, England, where his father, Michael Johnson, was a bookseller. Among many great works the most useful to mankind was his *Dictionary*. In 1759 he wrote his celebrated romance of *Rasselas, Prince of Abyssinia*, which fine production he composed in the evenings of one week in order to defray the funeral expenses of his aged mother. At length, in 1762, the Bute administration granted nim a pension of $1,500 per annum, which he accepted after a short struggle against the reception of a favor from the house of Hanover. The concluding portion of Johnson's life was saddened by the loss of many old friends and by declining health. His remains were interred in Westminster Abbey with great solemnity. His statue has been placed in St. Paul's. Among his works are *Lives of the Poets, The Rambler*, and *The Vanity of Human Wishes*. [See Eng. Lit.]

JOHNSTON, MARY (1870-). An American novelist; born at Buchanan, Va.; wrote *Prisoners of Hope, To Have and to Hold*, and *Audrey*.

JOINVILLE, JEAN, SIRE DE (1224-1317). French historian, remembered particularly for his *Histoire de Saint Louis*.

JO'KAI (*yo'ko-i*), **MAURUS** (1825-1904). A Hungarian novelist; born in Komorn. He wrote almost 300 volumes, comprising novels, dramas, poems, including *The New Landlord, There is No Devil, Love's Fools*, the drama *Milton*, and *History of Hungary*.

JONES, SIR WILLIAM (1746-1794). An English orientalist, jurist, and man of letters; wrote a *Life of Nadir Shah, Persian Grammar, Poeseos Asiaticae Commentariorum Libri Sex, Essay on the Law of Bailments*, translations of *Sakuntala*, and *Ordinances of Manu*.

JONSON, BEN (1573-1637). An English dramatist; born at Westminster; was in his youth first a bricklayer, afterwards a soldier in the Netherlands, whence he returned about 1592; married a shrew and became connected with the stage. He was one of the most learned men of his age, and for 40 years the foremost, except Shakespeare, in the dramatic and literary world. Killing his challenger in a duel nearly cost him his life in 1598. He was branded on the left thumb, imprisoned, and his goods confiscated. In prison he turned Catholic, but 12 years later reverted to Protestantism. For 10 years after Shakespeare's death he produced no dramas. He died in poverty, but was buried in Westminster Abbey. He wrote at least 16 plays, among them *Every Man in His Humour*, in which Shakespeare acted; *The Poetaster*, the tragedy of *Sejanus, The Silent Woman*, a comedy; and his best work, *The Alchemist*. [See Eng. Lit.]

JORDANES (flourished 550). A Latin historian; wrote *De Rebus Geticis* or *Getica*, a work of the highest importance on the early history of the Goths.

JOSEPHUS, FLAVIUS (about 37-about 102). A famous Jewish historian; wrote *History of the Jewish War, Jewish Antiquities*, and *Apology* for the Jews against Apion.

JOUBERT, JOSEPH (1754-1824). French philosopher, author of *Pensées*.

KALIDA'SA (flourished about 500?). A great Indian dramatist and poet; was the author of *The Lost Ring*, translated by Sir William Jones, and much praised by Goethe and Max Muller, and *The Hero and the Nymph*.

KARAMZIN', NIKOLAI MIKHAILOVITCH (1766-1826). A Russian historian and author. His first work was *Letters of a Russian Traveler*, which gained him a high reputation. It was followed by his *History of Russia*. [See Rus. Lit.]

KEATS, JOHN (1795-1821). An English poet; born in London, England. The first poems Keats published in 1817 were dedicated to Leigh Hunt. In the next year he published *Endymion*, a poetical romance, and in 1820 *Lamia*, and other poems. He died in Rome. Shelley lamented his poet friend in the beautiful and well known *Adonais*. [See Eng. Lit.]

KEBLE, JOHN (1792-1866). An English poet; born in Fairford, Gloucestershire, England. Of his great work, *The Christian Year*, hundreds of thousands of copies have been sold, and from its profits the author built one of the most beautiful parish churches in England. He translated parts of the *Library of the Fathers*, and wrote seven *Tracts for the Times*.

KEM'PIS, THOMAS A' (1380-1471). A German mystic; born in Kempen (whence his name, "Thomas from Kempen"), near Cologne. His true name was Hamerken. He was author of the *Imitation of Christ*.

KERNIGHAN, ROBERT KIRKLAND (1857-). A Canadian poet; known as "The Khan," author of songs and patriotic and humorous verse, including "Men of the Northern Zone," and "Canada First."

KEY, FRANCIS SCOTT (1780-1843). An American poet; born in Frederick County, Md. He was a lawyer by profession. Being detained on one of the British ships during the bombardment of Fort McHenry, September 14, 1814, he composed the words of *The Star-Spangled Banner*. The words were sung to the tune of *Anacreon in Heaven*.

KHERASKOFF, MIKHAIL MATVEYEVITCH (1733-1807). A Russian poet; "the dean of Russian literature"; born in Poltava. His chief work is the *Rossyada*, an epic which describes, on the plan of the *Aeneid*, the invasion of Kazan by Ivan the Terrible.

KIELLAND, ALEXANDER LANGE (1849-1906). Norwegian author, satirical and epigrammatic. Won notice by his *Garman og Worse*.

KINGLAKE, ALEXANDER WILLIAM (1809-1891). An English historian; wrote *Eothen*, descriptive of a tour in the Orient, and *The Invasion of the Crimea*, in eight volumes (1863-1887).

KINGSFORD, WILLIAM (1819-1898). Canadian historian, author of *Canadian Archaeology* and a valuable *History of Canada*.

KINGSLEY, CHARLES (1819-1875). An English author; born at Holne vicarage, near Dartmoor; was the author in 1848 of a drama entitled *The Saint's Tragedy*, with St. Elizabeth of Hungary for heroine, which was followed successively by *Alton Locke, Yeast, Hypatia*, and *Westward Ho!* and besides other works, including *Two Years Ago, Water Babies*, and *Hereward the Wake;* he was the author of the popular ballads of *The Three Fishers, The Starlings*, and *The Sands o' Dee*. Written up under social reformers.

KINGSTON, WILLIAM HENRY GILES (1814-1880). An English novelist and writer of books for boys; wrote *The Circassian Chief, Peter the Whaler, The Fireships, Ben Burton, The Three Midshipmen,*

The Three Lieutenants, The Three Commanders, The Three Admirals, and many historical works.

KIPLING, (JOSEPH) RUDYARD (1865-). An English author; born in Bombay. He was educated in England, and in 1882 went to India and joined the staff of the *Civil and Military Gazette*, Lahore, for which paper his early tales were written. He depicts Anglo-Indian and military life. Among his works are the novels *The Light That Failed, Soldiers Three, Stalky and Co.*, and *Kim*, whose wonderful revelation of India marks it as his best romance; *The Recessional, Barrack Room Ballads, White Man's Burden*, and *Departmental Ditties*, which include his best poetry, and two *Jungle Books*, give a highly imaginative picture of the older India.

KIRBY, WILLIAM (1817-1906). Canadian author, whose *Le Chien d' Or* is one of the best Canadian romances. Wrote also poems and dramas.

KLEIST, HEINRICH VON (1777-1811). German dramatist and poet. His *Broken Pitcher* is considered by some the best one act comedy of Germany.

KLOPSTOCK, FRIEDRICH GOTTLIEB (1724-1803). German poet; born at Quedlinburg; distinguished as the author of an epic poem entitled the *Messiah*, the publication of which did much to enrich the poetic vocabulary of Germany. [See Ger. Lit.]

KORNER, KARL THEODOR (1791-1813). German poet and dramatist, famous for his songs, collected as *Leier und Schwert*.

KOTZEBUE, AUGUST FRIEDRICH FERDINAND VON (1761-1819). A German dramatist. Of about 200 tragedies, comedies, dramas, and farces, the best known now is *Misanthropy and Repentance*, reproduced in Paris as late as 1862, and famous in the United States and England in Sheridan's adaptation entitled *The Stranger*.

KRASINSKI, ZYGMUNT, COUNT (1812-1859). One of the greatest of Poland's poets; born in Paris; published *Undivine Comedy, Irydion, Dawn*, and *Psalms of the Future*.

KRASZEWSKI, JOSEPH IGNACY (1812-1887). Polish historian, novelist, and poet; published over 350 titles, chiefly fiction. *Anafielas* is his best poetical work.

KYD, THOMAS (about 1557-about 1595). English dramatist. Wrote *Jeronimo* and *The Spanish Tragedy*.

LABERIUS, DECIMUS (105-43 B. C.). A famous Roman writer of farces. Only fragments of his works remain.

LA BRUYERE, JEAN DE (1645-1696). A French essayist; born in Paris; tutor to the grandson of the great Condé, and court attendant; wrote *Caractères*, some translations, his *Discours*, and a few *Letters*.

LA FONTAINE, JEAN DE (1621-1695). A French poet and fabulist. *Contes et Nouvelles en vers* written 1665 to 1683, and *Fables*, 1668 to 1671, made him one of the most popular writers in France.

LAMARTINE, ALPHONSE DE (1790-1869). An eminent French historian, poet, orator, and statesman; wrote *Méditations poétiques, Nouvelles meditations, Jocelyn, La chute d'un ange, Recueillements, Harmonies poétiques et religieuses, Histoire des Girondins*, and others, which fill 40 volumes.

LAMB, CHARLES (1775-1834). A brilliant English essayist. In 1796 and 1797 some short poems by him appeared along with others by Coleridge, and in 1798 he published a volume of poems in conjunction with his friend, Charles Lloyd. It met with little success. Nor was his tale of *Rosamund Gray* much more favorably received. Under the name of *Elia* a series of his essays has been frequently republished in a collected form since 1823; latterly along with *Last Essays of Elia*, first published in 1833. Here, in a style ever happy and original, and with humor of the rarest and most pungent description, he has carried the short essay to a point of excellence perhaps never before attained.

LAMENNAIS, HUGUES FELICITE' ROBERT DE (1782-1854). French religious and political writer. His *Essai sur l' indifférence en Matière de religion*, was a masterpiece of philosophy and served to make him known over Europe. The greater part of his works were aimed against monarchy and the Papacy.

LAMPMAN, ARCHIBALD (1861-1899). A Canadian poet; born in Morpeth, Ontario; wrote *Among the Millet and Other Poems* and *Lyrics of Earth*.

LANDON, LETITIA ELIZABETH (1802-1838). An English author. She wrote several volumes of verse, under the initials "L. E. L.," which include her first poem, *Rome*, and the *Improvisatrice*. The best of her three novels is *Ethel Churchill*.

LANDOR, WALTER SAVAGE (1775-1864). An English poet. In 1824 he took up his abode in Florence, where he resided for several years, and where many of his works were written. His principal poetical works are *Hellenics, Poems and Inscriptions, Dry Sticks*, and *Last Fruit off an Old Tree*. His most important prose work is the *Imaginary Conversations of Literary Men and Statesmen*.

LANG, ANDREW (1844-1912). Scotch critic, poet, humorist, and anthropologist; most versatile writer of his day. His writings include prose renderings of the *Odyssey, Iliad, The Making of Religion, History of Scotland, Letters on Literature, Letters to Dead Authors, Essays in Little, Cock-Lane and Common Sense, Adventures Among My Books*, the *Red, Blue, Green, Yellow*, and *Pink Fairy Books*; verse, both grave and gay, *Ballades in Blue China, Grass of Parnassus*, and *Helen of Troy*; biographies of J. G. Lockhart and Tennyson.

LANGLAND, WILLIAM (about 1332-about 1400). An English poet. His great poem is *Piers Plowman*, an allegory of life written in the alliterative or head-rhyme measure. Langland was, next to Chaucer, the greatest English poet of the fourteenth century.

LANIER, SIDNEY (1842-1881). An American poet; born at Macon, Ga. The poems *Corn*, one of his earliest pieces, and *The Marshes of Glynn* show insight into nature. He wrote also several works in prose, mostly pertaining to literary criticism. Among the former are *The Science of English Verse* and *The English Novel and the Principles of its Development*. His fame is steadily growing, and he is coming to be regarded as the greatest American poet of the last quarter of the nineteenth century.

LARCOM, LUCY (1826-1893). An American poet; born in Beverly, Mass. In her youth, a factory girl in Lowell, Mass. Her later life was mainly devoted to literary work. She wrote stories and four or five volumes of poetry, among which were *Ships in the Mist* and *The Sunbeam*.

LA ROCHEFOUCAULD, FRANCOIS (1613-1680). French moralist and satirist. In 1665 was published his *Maximes*, or *Reflexions ou sentences et Maximes morales*, which are unsurpassed in literary excellence. His *Memoires* were published in a complete form in 1817 and his *Lettres in* 1818.

LAROUSSE (*lah-roos'*), **PIERRE** (1817-1875). A celebrated French grammarian and lexicographer; best known by his *Grand dictionnaire universel du XIXe siècle*. This work is kept up to date by a weekly *Revue Encyclopédique*, and there is published in connection with it a small and popular *Dictionnaire complet illustré*.

LA SALLE, ANTOINE DE (1398-1461?). French satirist and prose narrator. His works include *La salade* and the compilation, *Cent nouvelles nouvelles*.

LATHROP, GEORGE PARSONS (1851-1898). An American journalist and poet; born in the Sandwich Islands; wrote *Rose and Roof Tree, Study of Hawthorne, Afterglow, A Masque of Poets, An Echo of Passion, In the Distance, Spanish Vistas, Newport, Gold of Pleasure*, and *Dreams and Days*.

LAVATER (*lah-vah-tair'*), **JOHANN CASPAR** (1741-1801). Swiss physiognomist and mystic; born in Zurich; wrote *Schweizerlieder, Aussichten in die Ewigkeit*, and *Physiognomische Fragmente*.

LAYAMON (about 1200). An early English writer of the *Brut*, a metrical or rhymed chronicle of events in England. He was a priest at Ernley on the Severn. He derived much of his information from Wace's *Roman de Brut*, which in turn was founded upon Geoffrey of Monmouth's *History of the British Kings*. The *Brut* contains 32,243 short lines in which both alliterative or head-rhyme and assonance or end-rhyme are employed.

LECKY, WILLIAM EDWARD HARTPOLE (1838-1903). An English historian; born near Dublin, Ireland. Already in 1861 he had published anonymously *The Leaders of Public Opinion in Ireland*, four brilliant essays on Swift, Flood, Grattan, and O'Connell. Later works were his learned, luminous, and dispassionate *History of the Rise and Influence of the Spirit of Rationalism in Europe, History of European Morals from Augustus to Charlemagne*, and *History of England in the Eighteenth Century*.

LE CONTE DE LISLE, CHARLES MARIE (1818-1894). The leading French poet of the Parnassian school; wrote *Poèmes antiques, Poèmes et poésies, Poèmes barbares, Poèmes tragiques, Derniers poèmes;* translated the *Iliad, Odyssey, Horace, Sophocles*, and *Euripides*. Elected to the French Academy (1887).

LE GALLIENNE, RICHARD (1866-). An English journalist and man of letters; born in Liverpool; wrote the *Religion of a Literary Man, Rudyard Kipling, Retrospective Reviews.* In 1898 he took up his residence in New York and wrote *The Quest of the Golden Girl;* an adaptation of the *Rubaiyat* of Omar Khayyam; *Travels in England, George Meredith, Some Characteristics,* and an adaptation of the poems of Hafiz.

LELAND, CHARLES GODFREY, or **"HANS BREITMANN"** (1824-1903). An American poet, humorist, and writer; born in Philadelphia; wrote *Hans Breitmann's Ballads, The Poetry and Mystery of Dreams, Meister Karl's Sketch Book, Pictures of Travel, Sunshine in Thought, Heine's Book of Songs, Legends of Birds,* and many others.

LELAND or **LEYLAND, JOHN** (about 1506-1552). An English antiquary whose MSS. in the Bodleian Library at Oxford are invaluable to historians; wrote *A New Yeare's Gift to King Henry VII. in the 37th Yeare of His Raygne, Commentarii de Scriptoribus Britannicis, Itinerary of England,* and *De Rebus Britannicis Collectanea.*

LEMOINE, SIR JAMES MACPHERSON (1825-1911). A Canadian naturalist and author; born in Quebec. His work on Canadian history and ornithology is marked by more than ordinary thoroughness and reliability; wrote *L'ornithologie du Canada, Legendary Lore of the Lower St. Lawrence, Les pêcheries du Canada, Maple Leaves, The Tourists' Note Book, Quebec, Past and Present; The Scot in New France, Chronicles of the St. Lawrence, Picturesque Quebec, Monographies et esquisses, Canadian Heroines, Birds of Quebec,* and *Conférences et mémoires, Histoire, archéologie.*

LEMON, MARK (1809-1870). An English journalist; the founder and editor of *Punch.* With Henry Mayhew he founded *Punch,* and the first number appeared July 17, 1841. Among his works are *Faulkner Lyle, Leyton Hall,* and his well known *Jest Book.*

LERMONTOFF, MIKHAIL YURYEVITCH (1814-1841). The greatest Russian poet after Pouchkine; wrote *On the Death of a Poet* to commemorate Pouchkine (1837), *Hero of Our Time, The Demon, Song of the Merchant, Kalashnikoff,* and *The Circassian Boy.* [See Russ. Lit.].

LE SAGE, ALAIN RENE (1668-1747). A French novelist and dramatist; famous for his *Gil Blas,* his greatest novel; *Turcaret,* his greatest comedy; *Le diable boiteux,* and *Crispin, rival de son maître.*

LESCARBOT, MARC (about 1570-1630). A French writer who went to Canada in 1605 to report on the settlement at Port Royal. In 1607 he embodied his observations in a book, *Histoire de la Nouvelle France.*

LESSING, GOTTHOLD EPHRAIM (1729-1781). A German author and founder of modern German literature; born at Kamenz, Saxony; son of the pastor there; sent to study theology at Leipzig, studied hard; conceived a passion for the stage; wrote plays and criticisms; wrote an essay on Pope; took English authors as his models, revolting against those of France; made it his aim to inaugurate or rather revive a purely German literature, and produced examples regarded as classics to this day. His principal dramas are *Miss Sara Sampson, Minna von Barnhelm, Emilia Galotti,* and *Nathan der Weise,* and his principal prose work is his *Laocoon,* a critical work on art still in high repute. [See Ger. Lit.]

LEVER, CHARLES JAMES (1806-1872). An Irish novelist; born at Dublin; was by profession a physician; author of numerous Irish stories written in a rollicking humor, *Harry Lorrequer, Charles O'Malley, Jack Hinton, Tom Burke of Ours, The Martins of Cro' Martin, Roland Cashel,* and *The Dodd Family Abroad.*

LEWES, GEORGE HENRY (1817-1878). An English critic and man of letters; wrote *Biographical History of Philosophy from Thales to Comte, Comte's Philosophy of the Sciences, Life and Works of Goethe, Sea-Side Studies at Ilfracombe, Physiology of Common Life;* founded the *Fortnightly Review* (1865).

LEWIS, MATTHEW GREGORY (1775-1818). An English writer, sometimes nicknamed "Monk" Lewis, from his book *Ambrosio, or the Monk* (1795), which gained a wide success.

LIE, JONAS LAURITZ EDEMIL (1833-1908). A Norwegian novelist. His novels give admirable realistic pictures of life in Norway, especially of the fisher-folk of the west coast. *The Pilot and His Wife* is the best known of his 20 novels.

LIGHTHALL, WILLIAM DOUW (1857-). A Canadian writer. Has published *Thoughts, Moods and Ideals* (1887), *Montreal after 250 years* (1892), and other works in verse and prose.

LINDSAY or **LYNDESAY, SIR DAVID** (1490-1555). The most popular of the early Scotch poets. His first poem was *The Dreme,* an allegory; satires on the court, nobles, and king followed. In 1540 appeared his famous morality play, *Ane Satyre of the Thrie Estaitis,* in which he denounced the clergy.

LIVY (59 B.C.-17 A.D.). A great national historian of Rome of whom we have little information. His history consisted of 142 books, 35 of which are extant. He invented a new style of prose which gave him the title of "first writer of Silver Latinity."

LOCKHART, JOHN GIBSON (1794-1854). The biographer of Sir Walter Scott; a Scottish lawyer and writer; wrote *Peter's Letters to His Kinsfolk;* married Sophia, daughter of Sir Walter Scott (1820); wrote the novels *Valerius, Adam Blair, Reginald Dalton,* and *Matthew Wald;* editor of *Quarterly Review* (1825); wrote *Life of Burns* and *History of Napoleon.* His *Life of Scott* is, next to Boswell's *Johnson,* the most admirable biography in English.

LONGFELLOW, HENRY WADSWORTH (1807-1882). An eminent American poet; born in Portland, Me. He was graduated from Bowdoin College (1825); soon after appointed professor of modern languages at his alma mater, with four years' leave of absence for travel and study; sailed for Europe, May, 1826, returned in the summer of 1829, and began his duties in the following September; resigned in 1835 and went to Europe for a year's study to fit for the Smith professorship at Harvard University. He wrote *Hyperion,* a romance in prose, and a succession of poems and lyrics, among the former *Evangeline, The Golden Legend, Hiawatha,* and *Miles Standish.*

LONGINUS, DIONYSIUS CASSIUS (about 213-273). A philosopher and rhetorician; born in Athens; studied Greek literature at Alexandria; settled as a teacher in Athens. *On the Sublime* and a few fragments of his works have survived.

LOSSING, BENSON JOHN (1813-1891). An American historian; born in Beekman, N. Y. He was a voluminous writer, but his most useful and enduring works were his great *Pictorial Field-Books* of the Revolution, the War of 1812, and the Civil War. He wrote *Life and Times of Philip Schuyler, Our Country,* and *Cyclopaedia of United States History.*

LOTHROP, HARRIET MULFORD (STONE) (1844-1924). An American writer; born in New Haven, Conn.; married Daniel Lothrop, the Boston publisher (1881); wrote, under the name of Margaret Sidney, *Five Little Peppers, and How They Grew; The Pettibone Name, What the Seven Did, The Minute-Man,* and *Dilly and the Captain.*

LOTI, PIERRE (1850-1907). A French poet and novelist; real name Louis Marie Julien Viaud. In 1891 he was elected a member of the French Academy. His works include *Le Desert, Galilee, Le livre de la pitié et de la mort,* and *Figures et choses qui passent.*

LOUNSBURY, THOMAS RAYNESFORD (1838-1915). An American critic and historian of literature; born in Ovid, N. Y.; wrote *Studies in Chaucer,* his most important work; *History of the English Language,* a *Life of James Fenimore Cooper,* which is regarded as one of the best short biographies, and *Shakespearean Views.*

LOVELACE, RICHARD (1618-1658). An English poet; imprisoned for the active part which he took in the Revolution; wrote *The Scholar,* a comedy; *The Soldier,* a tragedy; and while in prison a volume of poems, *Lucasta.* This latter contains his well known lyrics *Going to the Wars* and *To Althea from Prison.*

LOVER, SAMUEL (1797-1868). An Irish author; born in Dublin; wrote the ballad, *Rory O'More, Legends and Stories from Ireland, Handy Andy, Treasure Trove,* and *Songs and Ballads.*

LOWELL, JAMES RUSSELL (1819-1891). An American essayist, poet, and diplomatist; born in Cambridge, Mass. Succeeding Longfellow in the chair of modern languages and literature in Harvard (1855), he visited Europe to study; returned as United States minister to Spain (1877), was transferred to England (1880-1885). Of his prose work *My Study Windows* and *Among My Books* are essays on literary subjects; *Fireside Travels* contain reminiscences. He wrote *Biglow Papers, Vision of Sir Launfal, Old English Dramatists,* and a *Life of Hawthorne.*

LUCILIUS, GAIUS (149-103 B. C.). A Roman poet; the creator of that form of poetic satire which was wielded so brilliantly by his successors, Horace,

Persius, and Juvenal. Over 800 fragments, the longest of 13 verses, remain of his 30 satires, a comedy, epodes, and hymns.

LYALL, EDNA, or ADA ELLEN BAYLY (? - 1903). An English author; wrote *Won by Waiting, Donovan, We Two, In the Golden Days, Knight Errant, The Autobiography of a Slander, Derrick Vaughn, A Hardy Norseman, To Right the Wrong, Doreen, The Autobiography of a Truth, Wayfaring Men, Hope the Hermit, In Spite of All,* and *The Hinderers.*

LYLY, JOHN (about 1554-1606). An English romancer and dramatist; born in Kent; wrote *Euphues,* which added the word "euphuism" to our language. The style is marked by excessive use of alliteration, similes from mythology, and fabulous natural history. He also wrote eight plays for presentation before the court by children.

LYTTON, EDWARD ROBERT, EARL OF, or **"OWEN MEREDITH"** (1831-1891). An English statesman and novelist; became viceroy of India in 1876, and subsequently ambassador at Paris. He wrote *Orval, Lucile, The Wanderer* (verse), *Fables in Song,* and *Glenaveril.*

MAARTENS, MAARTEN, or **J. M. W. VAN DER POORTEN-SCHWARTZ** (1858-1915). A Dutch-English novelist; wrote *The Sin of Joost Avelingh, An Old Maid's Love, A Question of Taste, God's Fool, The Greater Glory,* and *My Lady Nobody.* A distinct moral note pervades all of his work.

MABIE, HAMILTON WRIGHT (1846-1916). An American author, critic, essayist, and editor; born at Cold Spring, N. Y. He has done much toward spreading a love of good reading among Americans; wrote *Norse Stories Retold from the Eddas, Nature in New England, My Study Fire, In the Forest of Arden, Essays in Literary Interpretation, Essays on Nature and Culture, The Life of the Spirit, Parables of Life,* etc.

McCARTHY, JUSTIN (1830-1912). An English journalist, author, and politician; born in Cork, Ireland; spent three years in the United States (1868-1871); elected to the House of Commons (1879), and became vice-president of the Irish National League (1886). On the deposition of Parnell, McCarthy became the Parliamentary chief of the Home-Rule Party (1896); wrote *Modern Leaders, Epoch of Reform, History of the Four Georges and William IV., The French Revolution, A History of Our Own Times* (completed in 1905), *Modern England, The Story of Gladstone's Life, Reminiscences,* and *The Story of an Irishman.*

McCARTHY, JUSTIN HUNTLY (1861-). An English novelist, historian, and dramatist; wrote *A History of England Under Gladstone,* translation of the *Rubaiyat* of Omar Khayyam, *The French Revolution,* and the plays, *The White Carnation, The Highwayman, The Wife of Socrates,* and *If I Were King.*

MACAULAY, THOMAS BABINGTON (1800-1859). An English historian; born at Rothley Temple, Leicestershire, England. He composed a compendium of universal history before he was eight years old; went to school at Shelford and entered Cambridge in 1818. In 1826 he was called to the bar, but not succeeding in law practice he soon abandoned it. In 1825 he won distinction by his *Essay on Milton.* After the failure of the firm of which his father was a member he was offered a seat in the Commons by Lord Lansdowne. In 1834 he accepted a seat on the Supreme Council of India. Here he drafted a penal code which became the basis of the criminal code of India. In 1838 he returned to England, and in 1839 became war secretary in Lord Melbourne's cabinet. In 1846 he was appointed paymaster general in Lord John Russell's cabinet, where he had time to devote himself to his *History of England,* which he had now begun. He soon retired to private life in order to prosecute this work, refusing a seat in the cabinet in 1849. In 1848 the first two volumes of the *History* appeared. No other historical work ever met with so favorable reception or circulated so rapidly. In 1857 he was raised to the peerage as Baron Macaulay of Rothley. He wrote also *Lays of Ancient Rome* and several volumes of essays.

MacDONALD, GEORGE (1824-1905). A Scotch novelist and poet. He lectured in the United States. He wrote *David Elginbrod, The Portent, Malcolm, The Seaboard Parish, Annals of a Quiet Neighborhood, Thomas Wingfold, Curate; What's Mine's Mine, Lilith, Dealings with Fairies, At the Back of the North Wind, The Princess and the Goblin, Unspoken Sermons,* and *The Miracles of Our Lord.*

MACKAY, CHARLES (1814-1889). A Scotch journalist; wrote the songs *Cheer, boys, cheer* and *There's a land, a dear land;* 14 volumes of verse, two novels, *Longbeard* and *Luck, and What Came of It,* and miscellaneous works, including *Forty Years' Recollections, Through the Long Day,* and several philological works of the Gaelic.

MACLEOD, NORMAN (1812-1872). A Scottish clergyman and author; wrote *The Earnest Student, Life of John Mackintosh, Reminiscences of a Highland Parish, Eastward, The Old Lieutenant and His Son, The Starling, Peeps at the Far East, The Gold Thread, Wee Davie, Home Education,* and *Sermons.*

McMASTER, JOHN BACH (1852-). An American historian; born in Brooklyn, N. Y. He wrote *Benjamin Franklin as a Man of Letters, History of the People of the United States, Bridge and Tunnel Centers, Daniel Webster, Origin, Meaning, and Application of the Monroe Doctrine.*

MAETERLINCK, MAURICE (1862-). A Belgian poet; born in Ghent; wrote *Serres chaudes, Douze chansons, La princesse Maleine, Les aveugles, L'intruse, Les sept princesses, Pelléas et Mélisande, Alladine et Palamides, Intérieur, Mort de Tintagiles, Aglavaine et Sélysette, Monna Vanna,* and the essays *Le trésor des humbles, La sagesse et la destinée,* and *La vie des abeilles.* His dramas were translated by Richard Hovey (1896). Received Nobel prize for literature (1911).

MAHONY, FRANCIS SYLVESTER, or **"FATHER PROUT"** (1804-1866). An Irish poet and humorist; born in Cork; contributed to *Fraser's Magazine* and *Bentley's Miscellany* under the name of Father Prout; wrote *The Reliques of Father Prout,* in which *The Bells of Shandon* appears, and *The Final Reliques of Father Prout.*

MAISTRE, XAVIER DE (1763-1852). A French novelist and essayist. His *Les prisonniers du Caucase* (1825), and *Voyage autour de ma Chambre* (1794), won for him a place among the most noted of French writers.

MAJOR, CHARLES (1856-1913). An American author; born at Indianapolis, Ind.; wrote *When Knighthood Was in Flower, The Bears of Blue River,* and *Dorothy Vernon of Haddon Hall.*

MALLOCK, WILLIAM HURRELL (1849-1923). An English writer on theology and sociology. His works include *The New Republic, Belgravia, The New Paul and Virginia, Poems, A Romance of the Nineteenth Century, Social Equality, The Old Order Changes, A Human Document,* and *Tristram Lacy, the Individualist.*

MAN'ETHO (flourished 273 B. C.). The greatest classical writer on the history of Egypt; born in the Delta of Egypt; a high priest and scribe in the temples of Egypt. His chief work is *Egyptian History,* written under Ptolemy II., Philadelphus.

MANNING, HENRY EDWARD (1807-1892). An English clergyman and writer; cardinal (1875); founded the Roman Catholic University in Kensington (1874); wrote *Petri Privilegium, The True Story of the Vatican Council, The Temporal Mission of the Holy Ghost, The Internal Mission of the Holy Ghost.*

MANUEL, DON JUAN (1282-1349). A Spanish author, soldier and prince. His best known work contained in the *Biblioteca de autores* is the *Conde Lucanor.*

MANZONI, ALESSANDRO (1785-1873). An Italian poet and novelist. Produced many poems of political and religious sentiment. His *Cinque maggio* (1821), and *I promessi sposi* made him famous.

MARLOWE, CHRISTOPHER (1564-1593). An English dramatist and poet, precursor of Shakespeare; son of a shoemaker at Canterbury. Besides a love poem entitled *Hero and Leander,* he was the author of seven plays, *Tamburlaine,* in two parts; *Dr. Faustus, The Jew of Malta, Edward the Second, The Massacre at Paris,* and *Dido.* He may be called the creator of the English tragedy. [See Eng. Lit.]

MARRYAT, FLORENCE (1837-1899). An English novelist; daughter of Frederick Marryat and wife of Mr. Francis Lean; editor of *London Society* (1872); wrote many novels, among which are *Love's Conflict, Her Lord and Master, A Little Stephen, Facing the Footlights,* and *Tom Tiddler's Ground.* She has also written a *Life of Frederick Marryat.*

MARRYAT, FREDERICK (1792-1848). An English novelist; born in London; father of Florence Marryat. He entered the navy at the age of 14; won many honors and was rapidly promoted during his service, and retired in 1830; a member of various distinguished orders. His first novel was *Frank Mildmay.* This was followed by *Newton Forster, Mr. Midshipman Easy, Japhet in Search of a Father, Peter Simple, Snarley-yow, The Phantom Ship, The Children of the New Forest, The Little Savage,* and many other works

of fiction. He also published *A Diary in America, with Remarks on its Institutions.*

MARSTON, PHILIP BOURKE (1850-1887). An English poet and essayist; the son of Westland Marston, dramatist and poet. He was totally blind from early childhood; published his first volume of poems, *Song-Tide* (1870), followed by *All in All* and *Wind Voices.*

MARTEL DE JANVILLE, GABRIELLE, COUNTESS DE. Known as "Gyp" (about 1850-). A French author. Her novels in dialogue include *Petit Bob* (1882), *Elles et lui* (1885), and *Eux et Elle* (1896).

MARTIAL (MARCUS VALERIUS MARTIALIS) (40-104). A Latin epigrammist; born in Bilbilis, Spain. His *Epigrams* are of great literary value, being the first examples of what we now know as epigrams.

MARTINEAU, HARRIET (1802-1876). An English reformer and author; sister of James Martineau; born in Norwich, England. She visited the United States in 1834, aiding the abolitionists. She labored under the disability of being all her life without the senses of taste and smell, and at 20 became very deaf. She produced works in almost every department of literature, notably *Society in America, Retrospect of Western Travel, The Hour and the Man, Eastern Life, Past and Present,* and *British Rule in India.*

MARTINEAU, JAMES (1805-1900). An English clergyman and author; born in Norwich; brother of Harriet Martineau. Among his works are *The Rationale of Religious Inquiry, Endeavors after the Christian Life, Studies of Christianity, Modern Materialism,* and *The Relation between Ethics and Religion.*

MATTHEWS (JAMES) BRANDER (1852-1929). An American author; born in New Orleans, La. In fiction he steadily gained in reputation; his short stories of New York City life in the realistic vein being among the very best of their kind. Among his works are *His Father's Son, Aspects of Fiction, Studies of the Stage,* and *Philosophy of the Short-Story.*

MAUPASSANT, GUY DE (1850-1893). A French romancer; gave himself to letters, producing novels, stories, lyrics, and plays, among them *A Life, Pierre and Jean, Yvette, Fort comme la mort, Bel-ami, Mont-Oriol, Notre coeur,* and about 200 short stories, of which he is one of the greatest of modern writers.

MENDES, CATULLE (1841-1909). A French poet and novelist. Founded the *Revue Fantaisiste* (1849). His many works include *Le capitaine Fracasse* (1870), a drama, and *La femme-enfant* (1891), a novel.

MEREDITH, GEORGE (1828-1909). An English poet and novelist; born in Hampshire, England; educated in Germany; studied law, but essayed a literary career with a volume of poems in 1851. He has written *The Ordeal of Richard Feverel, Essay on Comedy, The Egoist, Adventures of Harry Richmond,* and *Diana of the Crossways.* His life and a full bibliography are to be found in *George Meredith: Some Characteristics,* by Richard Le Gallienne. [See Eng. Lit.].

MERIMEE, PROSPER (1803-1870). A French author; studied law, but he attached himself to literature under the *nom de plume* of Joseph L'Estrange; an academician (1844); and a senator of the Empire (1853). Among his works are *Theater of Clara Gazul, Chronicles of the Reign of Charles IX., Colomba,* a popular novel; *Carmen,* and *Don Pedro of Castile.*

MICHELET (*mee-shlay'*), **JULES** (1798-1874). The greatest French historian of the Romantic School; assistant to Guizot at the Sorbonne; an academician and professor in the College de France (1838); involved in a bitter controversy with the Jesuits; refused allegiance to Napoleon in 1851 and lived thereafter in Brittany and on the Riviera; wrote *Histoire de France* down to Waterloo in 21 volumes, *Précis d'histoire moderne, Introduction à l'histoire universelle, Origines du droit français, Mémoires de Luther, Les Jésuits, Du peuple,* and many poetical romantic impressions of nature.

MICKIEWICZ (*mits-ki-a'vich*), **ADAM** (1798-1855). The greatest of Polish poets; born of a noble family; in 1834 published his great poem, *Sir Thaddeus,* and in 1840 was appointed to a professorship of Slavic literatures in Paris. He wrote also *Crimean Sonnets, Wallenrod, Ancestors or Festival in Honor of the Dead,* and edited at Paris the *Tribune des peuples,* which was suppressed by the government. [See Pol. Lit.].

MILLER, CINCINNATUS HEINE or **JOAQUIN** (1841-1913). An American poet; born in Wabash district, Indiana. His checkered life included the extremes of being a California gold miner, editor of an Oregon newspaper, an Oregon lawyer and judge, a social lion in London, etc.; wrote *Songs of the Sierras, Songs of the Sunland, Songs of Italy, Songs of the Mexican Seas, The Danites in the Sierras,* and *'49 or The Gold Seekers of the Sierras.*

MILTON, JOHN (1608-1674). An English poet; born in London. His father, a notary, was a man of cultivated mind, and gave him a careful education, which was continued at St. Paul's School and the University of Cambridge. He entered the latter in 1624, and quitted it in 1631 with the degree of M. A. His first polemical work was a treatise *Of Reformation.* On the establishment of the Protectorate, Milton became Latin secretary to the Council of State and held office till the abdication of Richard Cromwell (1659). In 1652 he had become totally blind, deliberately and heroically preferring, as he says, the loss of his sight to the desertion of his duty. The last short intervals of sight allotted him were devoted to the composition of the *Defense.* In 1665, being in his 57th year, he completed *Paradise Lost.* He wrote also *Hymn on the Nativity, Comus, Lycidas, L'Allegro, Il Penseroso, Samson Agonistes;* sonnets *On His Blindness, To Fairfax, To Cromwell, Areopagitica,* a plea for freedom of the press; *On Shakespeare,* and his second epic, *Paradise Regained.* [See Eng. Lit.].

MITCHELL, DONALD GRANT, or **"IK MARVEL"** (1822-1908). An American author; born in Norwich, Conn. In 1851 he published *The Reveries of a Bachelor* and his *Dream Life;* has since written many popular books, such as *My Farm at Edgewood, Dr. Johns, Seven Stories with Basement and Attic,* and *English Lands, Letters, and Kings.*

MITCHELL, (SILAS) WEIR (1829-1914). American physician, poet, and novelist; born in Virginia; practised in Philadelphia and became prominent as a physiologist, especially as a neurologist and toxicologist. Among his works are *Dr. North and His Friends, Hugh Wynne* (his best), *In War Time, The Adventures of François,* and *Circumstances.*

MITFORD, MARY RUSSELL (1787-1855). An English author; born at Alresford, Hampshire; lived with her father, an extravagant physician, at Lyme Regis and London. She published poems in 1810-11-12, but, forced to earn a living, took to dramatic work. *Julian, The Foscari,* and *Rienzi* were successful, if ephemeral, tragedies. Her best work was *Our Village,* sketches of homely English life, written with much care.

MITFORD, WILLIAM (1744-1827). An English historian; born in London. Under the advice of Gibbon, he wrote his celebrated *History of Greece* between 1784 and 1810. His minor works include *An Essay on the Harmony of Language* and other essays.

MOLIERE, or **JEAN BAPTISTE POQUELIN** (1622-1673). The greatest French dramatist; born in Paris. A friend of Boileau, Racine, and La Fontaine; his chief patron was Louis XIV. His more important works are *Les précieuses ridicules, Sganarelle, L'ecole des femmes, Tartufe, Le misanthrope, George Dandin, l' Avare, le Bourgeois gentilhomme, les Fourberies de Scapin, le Médecin malgré lui, les Femmes savantes, le Malade imaginaire.* Called by Voltaire the Father of French Comedy.

MOMMSEN, THEODOR (1817-1903). A German historian. His great work is *Roman History.* He wrote besides *Roman Chronology down to Caesar* and *History of Roman Courage.* His historical work incorporates the results of vast learning in widely separate fields.

MONTAGU, LADY MARY WORTLEY (1689-1762). An English author; the eldest daughter of Evelyn, duke of Kingston; born in Thoresby, Nottinghamshire. In 1712 she married Edward Wortley Montagu, whom she accompanied in 1716 on his embassy to Constantinople, from which place she wrote *Letters* to Pope, Addison, and other eminent literati of the time, which are very interesting and contain many curious facts respecting the manners of the Turks. She first introduced the practice of inoculation into her native country. Her *Letters* certainly place her at the head of female epistolary writers in Great Britain.

MONTAIGNE, MICHEL EYQUEM DE (1533-1592). A French essayist and moralist. His fame rests on his *Essays,* in which he records his observations of mankind. Among his other works are *Apologie de Raimond Sebond,* whose *Theologia Naturalis* he translated. [See Fr. Lit.].

MONTALEMBERT (*mon-tal-aim-bair'*), **CHARLES FORBES DE TRYON, COMTE DE** (1810-1870). A French politician; born in London; son of a noble French emigrant; spent his life in advocating the cause of a free unfettered system of national education; wrote the *Monks of the West,* his chief work; *Catholic Interests in the Nineteenth Century, The Political Future of England, Pius IX. and France in* 1849 *and* 1859, and *Pius IX. and Lord Palmerston.*

MONTESQUIEU, CHARLES DE SECONDAT, BARON DE LA BREDE ET DE (1689-1755). A famous French writer. His greatest work is the *Spirit of Laws*, which occupied him 20 years. It was published in 1748, and secured to him a very high place among writers on political science. [See Fr. Lit.].

MONTGOMERY, ROBERT (1807-1855). An English preacher; born at Bath; author of *The Omnipresence of Deity* and *Satan;* minister of Percy Street Chapel, London. All his many works are forgotten save the above, which live in Macaulay's famous review.

MOORE, THOMAS (1779-1852). An Irish poet; born in Dublin; author of *Lalla Rookh*. His fame now rests chiefly on *National Airs* and *Irish Melodies*. He was distinctively the poet of Ireland.

MORE, HANNAH (1745-1833). An English author; born near Bristol; wrote dramas, a novel entitled *Coelebs in Search of a Wife*, and the tracts *Village Politics* and *Cheap Repository Tracts*.

MORLEY, JOHN (1838-1923). An English politician and man of letters; an advanced Liberal in both capacities; besides essays and journalistic work, has written biographies, particularly on men associated with politics and social movements, such as Voltaire, Rousseau, and Diderot, as well as Burke, whose biography he contributed to "English Men of Letters Series"; *Life of Cobden, Diderot and the Encyclopaedists, Walpole, Cromwell,* and *Life of Gladstone*.

MORRIS, WILLIAM (1834-1896). An English poet, art-worker, and socialist; son and heir of a wealthy merchant; studied at Oxford, where he became the bosom friend of Burne-Jones. He devoted his working hours to decorative art, in particular designing wall papers; produced in 1858 *The Defence of Guenevere and Other Poems*, in 1867 *The Life and Death of Jason*, and from 1868 to 1870 his masterpiece, *The Earthly Paradise*. Among other works he translated the *Aeneid* and the *Odyssey*, and gave a splendid rendering of some of the Norse legends.

MORRISON, ARTHUR (1863-). An English novelist; born in London. His work is a remorselessly true picture of London life and includes *Tales of Mean Streets, Martin Hewitt, Investigator; Chronicles of Martin Hewitt, Adventures of Martin Hewitt, A Child of the Jago, The Dorrington Deed-Box, To London Town, Cunning Murrell,* and *The Hole in the Wall*.

MOTLEY, JOHN LOTHROP (1814-1877). An eminent American historian; born in Dorchester, Mass. He published, after 10 years' labor and a journey to Europe, his great *History of the Rise of the Dutch Republic*, in 1856, a work which was further developed in the *History of the United Netherlands, The Life and Death of John of Barneveldt*. He was minister from the United States to Austria and to Great Britain.

MOULTON, ELLEN LOUISE CHANDLER (1835-1908). An American poet; born in Pomfret, Conn.; married William U. Moulton, a Boston publisher; published children's stories, novels, essays, and poems. Among these are *Juno Clifford, My Third Book, Bedtime Stories, More Bedtime Stories, New Bedtime Stories, Poems, Random Rambles,* and *At the Wind's Will*.

MULLER, FRIEDRICH MAX (1823-1900). A German philologist; son of Wilhelm Müller, the German poet. He was the author of *A History of Ancient Sanskrit Literature, On the Origin and Growth of Religion as Illustrated by the Religions of India, Chips from a German Workshop, Comparative Mythology, Last Essays,* and *My Autobiography*.

MUNCHAU'SEN, BARON VON (1720-1797). A cavalry officer in the service of Hanover, famed for the extravagant stories he used to relate of his adventures and exploits, which, with exaggerations, were collected by Rudolph Erich Raspe, and published in 1785 under Münchausen's name.

MURFREE, MARY NOAILLES, or **"CHARLES EGBERT CRADDOCK"** (1850-1922). An American novelist; born in Murfreesboro, Tenn. Her subjects deal largely with Tennessee. She wrote *A Spectre of Power, The Mystery of Witch-Face Mountain, In the Tennessee Mountains, The Phantoms of the Foot-Bridge, The Bushwhackers,* and *The Young Mountaineers*.

MURGER (*moor-zhay'*), **HENRI** (1822-1861). French novelist and poet; born at Paris; is chiefly distinguished as the author of *Scènes de la vie de Bohême* from his own experiences.

MURRAY, DAVID CHRISTIE (1847-1907). An English novelist. Though known chiefly as a writer, he was also a landscape painter of ability. Many of his writings were done in collaboration with Henry Herman. His first work was *A Life's Atonement* in 1880. He continued to write until 1901, when *Despair's Last Journey* was published. Some of his other works were *Joseph's Coat, The Way of the World, Bit of Human Nature, A Model Father, Rainbow Gold, Cynic Fortune, First Person Singular, Mount Despair, This Little World,* and *A Rogue's Conscience*.

MURRAY, LINDLEY (1745-1826). An English grammarian; born in Lancaster County, Pa.; removed to New York, where he studied and practised law; made a fortune in trade in the Revolutionary War; wrote *Power of Religion on the Mind, Grammar of the English Language,* readers, and spelling book.

MURRAY, WILLIAM HENRY HARRISON (1840-1904). An American author; born in Guilford, Conn.; from 1869 until 1873 delivered Sunday evening talks in the Boston Music Hall, which were popular. He resigned his charge in 1874 to engage in business and to preach to independent congregations. His works include *Adventures in the Adirondacks, Adirondack Tales* (6 vols., 1877), *The Story of Mamelons, Daylight Land, How John Norton the Trapper Kept His Christmas, Mamelons and Ungava,* a legend.

MUSSET (*moo-say'*), **ALFRED DE** (1810-1857). Celebrated French poet; achieved his first signal success with the dramas *Andre del Sarto* and *The Caprices of Marianne;* in the same year began his famous *liaison* with George Sand, involving him in the ill-fated expedition to Venice, whence he returned in 1835 shattered in health and disillusioned. His writings are chiefly remarkable for the intense sincerity of feeling which animates them, and which finds its highest expression in his four great lyrical pieces, *The Nights*. Of his prose works *The Son of Titian, Mademoiselle Mimi Pinson,* and the *Confessions* are his best.

NAIRNE, LADY CAROLINA OLIPHANT (1766-1845). A Scottish poet. From her great beauty she was called in youth "The Flower of Strathearn." Regretting the coarseness of many popular songs, she undertook to furnish new words for the beautiful tunes, and attained eminent success. Her authorship was not disclosed till near her death. Among her best known songs are *Land o' the Leal, Caller Herrin', The Laird o' Cockpen,* and *The Auld Hoose*.

NAPIER, SIR WILLIAM FRANCIS PATRICK (1785-1860). An English general and historian; brother of the conqueror of Scinde; served all through the Peninsular War, and wrote besides the *Conquest of Scinde,* the *History of the Peninsular War,* a celebrated work, written with matchless graphic power.

NICCOLINI, GIOVANNI BATTISTA (1782-1861). An Italian poet. His first tragedy, *Polissena,* was given the prize of the Della Cruscan Academy in 1810. His other dramas include *Ino e Temisto, Medea, Edipo, Matilda, Nabucco, Antonio Foscarini, Ludovico Sforza, Rosmunda,* and *Filippo Strozzi*.

NICOLAY, JOHN GEORGE (1832-1901). An American author; born in Bavaria; brought to America (1838); wrote *The Outbreak of the Rebellion,* and, with John Hay, *Abraham Lincoln: A History,* which appeared serially in the *Century Magazine* (1886-1890).

NIETZSCHE, FRIEDRICH WILHELM (1844-1900). An important German writer. His theories are fully set forth in his philosophical works. He was also popular as a poet, producing *Gedichte und Sprüche* and *Also sprach Zarathustra*. [See Ger. Lit.].

NOLDEKE, THEODOR (1836-). An eminent German orientalist; born at Hamburg; professor at Kiel (1868); of Semitic philology at Strassburg (1872). He is the leading authority on Semitic philology.

NORDAU, MAX SIMON (1849-1923). A German author; born in Budapest, Hungary. He wrote a number of books, of which the best known, perhaps, in the United States is *Degeneration*.

NORRIS, FRANK (1870-1902). An American novelist; born in Chicago, Ill.; wrote *Yberville, McTeague, Moran of the Lady Letty, The Octopus, The Pit,* and *The Wolf*.

NORRIS, WILLIAM EDWARD (1847-1925). An English novelist; born in London. His first book, *Heaps of Money,* appeared in 1876. It has been followed by *Mademoiselle de Mersac, Thirlby Hall, Matrimony, A Man of His Word, That Terrible Man, Chris, Major or Minor, Miss Shafto, The Rogue, My Friend Jim, Misadventure, The Countess Radna, Billy Bellew, The Dancer in Yellow, Clarissa Furiosa, The Widower. An Octave,* and *Lord Leonard the Luckless*.

NORTON, CHARLES ELIOT (1827-1908). An American scholar; son of Andrews Norton; born at Boston. In 1867 he published a translation of the *Vita*

Nuova of Dante, accompanied with *Essays and Notes*, a part of which had already appeared in the *Atlantic Monthly*. He lived in Europe about 10 years. *Notes of Travel and Study in Italy* was the result. Other works are *Memoir of Arthur Hugh Clough*, prefixed to an edition of his *Poems; Sketch of the Life and Works of William Blake*, accompanying his *Illustrations of the Book of Job; List of the Principal Works Relating to Michael Angelo, Historical Studies of Church Building in the Middle Ages*. He edited *James Russell Lowell's Letters*.

"NOVALIS," the pseudonym of **FRIEDRICH VON HARDENBERG** (1772-1801). A German author. His writings, with the exception of a few short pieces, notably, *Hymns to the Night*, were written in a kind of rhythmical prose, and are altogether fragmentary. They were published, edited by his friends Tieck and Friedrich von Schlegel, in 1802.

NYE, EDGAR WILSON, or **"BILL NYE"** (1850-1896). An American humorist; born at Shirley, Me; regularly contributed humorous letters to various American journals; gave lectures throughout the country and published *Bill Nye and the Boomerang, The Forty Liars, Baled Hay, Bill Nye's Blossom Rock, Remarks,* and *Bill Nye's History of the United States*.

OAKES, URIAN (about 1631-1681). An American clergyman, president of Harvard. In his *Elegie upon the Death of the Reverend Mr. Thomas Shepard*, lies his claim to fame.

OEHLENSCHLAEGER (*ö'len-shlay-ger*), **ADAM GOTTLOB** (1779-1850). One of the greatest dramatic poets of the Scandinavian North; born in Vesterbro, near Copénhagen, Denmark. He commenced his career on the stage, but abandoned the profession for literature, and finally became professor of aesthetics in his native city. Among his greatest works are *The Death of Balder, Haakon Jarl, Palnatoke,* and *Aladdin*.

OLIPHANT, LAURENCE (1829-1888). An English author and traveler; born at Cape Town; spent his boyhood in Ceylon; married Alice l'Estrange. With her he went to Palestine, and wrote two mystical books under her inspiration. Oliphant was special correspondent for the *Times* and was a brilliant journalist. He wrote *A Journey to Khatmandu, The Russian Shores of the Black Sea, Episodes in a Life of Adventure, Sympneumata, Scientific Religion, Massollam,* and *Piccadilly*.

OLIPHANT, MRS. MARGARET (*née* **WILSON**) (1828-1897). An English author; began her literary career as a novelist. Her reputation as such was assured by *Chronicles of Carlingford*. She wrote on history, biography, and criticism; the *Makers of Florence, Makers of Venice, Makers of Modern Rome,* lives of *Dante, Cervantes,* and *Edward Irving*.

OLMEDO, JOSE JOAQUIN (1782-1847). A Spanish-American poet, popular in his own country. His ode addressed to General Bolivar as the deliverer of Peru brought him into public notice.

OMAR KHAYYAM (*o'mar khi-yahm'*) (? -1123). A Persian poet, astronomer, and mathematician; born in Nishapur, in Khorassan. His scientific works, which were of high value in their day, have been eclipsed by his *Rubaiyat*, or quatrains, a collection of about 500 epigrams in praise of wine, love, and pleasure, translated by Fitzgerald.

OPITZ, MARTIN (1597-1639). German poet. Produced the critical *Aristarchus seu de Contemptu Linguae Teutonicae* and in 1627 wrote the libretto for the oldest German opera, *Dafne*.

OTFRIED (about 800-about 870). An Alsatian poet and theologian. Wrote *Liber Evangeliorum*, in which rhyme instead of alliteration is used. Fragments only of his other works are extant.

OTWAY, THOMAS (1652-1685). An English dramatist; born in Sussex; left Oxford without a degree and went to London (1671); made a failure as an actor and devoted himself to play writing; wrote *Alcibiades, Don Carlos, Friendship in Fashion, Caius Marius, The Orphan, The Soldier of Fortune,* and the finest of all of his plays, *Venice Preserved,* which was produced in 1682.

OVID (PUBLIUS OVIDIUS NASO) (43 B. C.-18 A. D.). A Roman poet of the Augustan age; born at Sulmo; was the author, among other works, of the *Amores, Fasti,* and the *Metamorphoses;* the friend of Horace and Vergil, and the favorite of Augustus.

OXENFORD, JOHN (1812-1877). An English author. He translated poems and wrote songs, which have been set to music. Among his works for the stage are *My Fellow Clerk, A Day Well Spent, Porter's Knot,* and £456, 11*s*. 3*d*. He published translations of the *Autobiography of Goethe,* the *Conversations of Eckermann with Goethe,* the *Hellas* of Jacob, and a collection of songs from the French entitled *The Illustrated Book of French Songs*.

PAGE, THOMAS NELSON (1853-1923). An American novelist; born in Oakland, Va. His books are widely read and include *In Ole Virginia, Red Rock, Gordon Keith, The Old South,* and *Pastime Stories*.

PAGET, VIOLET, or **"VERNON LEE"** (1856-). An English author. Since 1871 she has lived in Italy, where she has studied art and literature. Her *Studies of the Eighteenth Century in Italy* was well received. Her other books are *Belcaro, Essays on Aesthetical Questions, The Prince of a Hundred Soups, Ottilie: an Eighteenth Century Idyl; Euphorion,* essays; *The Countess of Albany, Miss Brown, Baldwin, Juvenilia, Hauntings, Limbo,* and *Genius Loci*.

PAINE, ROBERT TREAT, JR. (1773-1811). An American poet; born in Taunton, Mass. He is best remembered as the author of two songs, *Rise, Columbia,* and *Adams and Liberty*.

PAINE, THOMAS (1737-1809). An American political and philosophical writer; born in England. At the outbreak of the Revolutionary War (1774) he emigrated to the United States; gave an impulse to the Revolution by his famous pamphlet called *Common Sense* and *The Crisis,* in which he advocated the policy of separation and independence. He went to Paris in 1787. In September, 1792, he was elected a member of the French National Convention, acted with the Girondists, narrowly escaped death in the Reign of Terror, and brought out in 1795 his celebrated work entitled *The Age of Reason*. He returned to the United States in 1802.

PALFREY, JOHN GORHAM (1796-1881). An American publicist and historian; born at Boston. Besides sermons, magazine and newspaper essays, he published *Evidences of Christianity,* originally delivered as a course of Lowell lectures; *Lectures on the Jewish Scriptures and Antiquities, The Relation between Judaism and Christianity,* and a *History of New England*. It brings the history down to the appointment of Washington as commander in chief of the Colonial army in 1775.

PALGRAVE, SIR FRANCIS (1788-1861). An English author. His family name was Cohen, which at his marriage he exchanged for that of his wife's mother. He published a *History of England, The Rise and Progress of the English Commonwealth,* and *Observations on Principles of New Municipal Corporations*. In 1832 he was knighted. In 1837 he published *Merchant and Friar*. During the last 23 years of his life he held the office of deputy keeper of her Majesty's records. His greatest work is a *History of Normandy and of England*.

PALGRAVE, FRANCIS TURNER (1824-1897). An English poet; the eldest son of Sir Francis Palgrave; born at London. He was educated at Balliol College, Oxford; professor of poetry at Oxford (1886). His principal poetical works are *Idylls and Songs, Hymns,* and *Lyrical Poems*. He also compiled *The Golden Treasury of English Songs* and wrote *Essays on Art, Life of Sir Walter Scott, The Visions of England,* and *The Treasury of Sacred Songs*.

PANINI (fourth century B. C.). The greatest grammarian of India; born in the north of the Punjab. His work is the oldest Sanskrit grammar in existence. The effect of his work was to fix permanently the literary form of the Sanskrit language.

PARDO-BAZAN, EMILIA (1851-1921). Principal Spanish female writer of the nineteenth and twentieth centuries; a novelist and critic; of the naturalistic school and a disciple of Zola. *De mi tierra, La madre naturaleza,* and *Los pazos de Ulloa* are the best.

PARINI, GIUSEPPE (1729-1799). Italian poet; introduced depth and morality into Italian poetry. His best productions are the *Odi* and the *Giorno,* the latter being one of the finest works of the eighteenth century.

PARKER, SIR (HORATIO) GILBERT (1862-). A Canadian novelist; born in Camden East, Ontario; studied pedagogy and taught in Frankford and Seaforth; studied for the ministry; taught in the Belleville Deaf and Dumb Institute; wrote *Pierre and His People, Mrs. Falchion, The Translation of a Savage, When Valmond Came to Pontiac, The Seats of the Mighty, The Battle of the Strong, The Lane That Had No Turning, The Right of Way, Donovan Pasha, The Weavers, History of Old Quebec, A Ladder of Swords,* and *Northern Lights*.

PARKMAN, FRANCIS (1823-1893). An American historian; born in Boston, Mass.; worked his way to

recognition as a historical writer on the period of rise and fall of the French dominion in America. He wrote *Conspiracy of Pontiac, Montcalm and Wolfe, A Half Century of Conflict, La Salle, The Jesuits in North America,* and *The Old Régime in Canada.*

PARTON, JAMES (1822-1891). An American author; born in England. Up to 1875 he resided at New York, and subsequently at Newburyport, Mass. His principal works are *Life of Horace Greeley, Life and Times of Aaron Burr, Life of Andrew Jackson, General Butler at New Orleans, Life and Times of Benjamin Franklin, Famous Americans of Recent Times, Life of Thomas Jefferson,* and *Captains of Industry.*

PATER, WALTER HORATIO (1839-1894). An English author. He was educated at Oxford, and in 1864 was made a fellow of Brasenose College in that university. His books include *The Renaissance, Marius, the Epicurean,* a story of ancient Rome; *Imaginary Portraits,* a later edition of *The Renaissance, Appreciations, Plato and Platonism, The Child in the House, Greek Studies,* and a volume of *Essays.* His work is the interpretation of the spirit of the Renaissance in literature and art.

PATMORE, COVENTRY KEARSEY DIGHTON (1823-1896). An English poet; born at Woodford, Essex. From 1846 to 1868 he was an assistant librarian in the British Museum. In 1844 he published a small volume of poems, under the title of *Tamerton Church Tower, and Other Poems.* His principal work, *The Angel in the House,* appeared in four parts: *The Betrothal, The Espousal, Faithful Forever,* and *The Victories of Love.* He wrote *The Unknown Eros, Amelia,* and a memoir of "Barry Cornwall."

PAYN, JAMES (1830-1898). An English author; born in Cheltenham; was educated at Eton, Woolwich, and Trinity College, Cambridge; succeeded Leslie Stephen as editor of the *Cornhill Magazine* (1882). Among his works are *Stories from Boccaccio,* poems; *The Foster Brothers, Halves, Carlyon's Year, One of the Family, What He Cost Her, Mirk Abbey, Murphy's Master, Under One Roof, The Luck of the Darrells, Some Literary Recollections, Thicker than Water, Glow-worm Tales, The Burnt Million, The Word and the Will, Not Wooed but Won, Gleams of Memory, autobiographical; In Market Overt, Another Burden,* and *The Backwater of Life.*

PAYNE, JOHN (1842-1928). English poet and translator; belongs with the Neo-Romantic poets, Rossetti, Morris, and Swinburne. His verse includes *A Masque of Shadows, Intaglios,* and *Lautrec;* translations, *Arabian Nights, Tales from the Arabic,* and *Decameron.*

PAYNE, WILLIAM MORTON (1858-1919). An American critic and educator; born in Newburyport, Mass. He is a strong critic of modern literature of Europe and America; wrote *Our New Education, Little Leaders,* and *Various Views.*

PEABODY, ANDREW PRESTON (1811-1893). An American preacher, professor, and author; born in Beverly, Mass. From 1852, for 11 years he edited the *North American Review.* Among the books written by him are *Reminiscences of European Travel, Manual of Moral Philosophy, Christianity and Science, Harvard Reminiscences, Harvard Graduates Whom I Have Known,* and *King's Chapel Sermons.*

PECK, GEORGE WASHINGTON (1840-1916). An American humorist; born at Henderson, N. Y. For several years he was proprietor of *Peck's Sun,* Milwaukee. His books are *Peck's Compendium of Fun, Peck's Sunshine, Peck's Bad Boy, How George W. Peck Put Down the Rebellion,* and *Peck's Boss Book.*

PECK, HARRY THURSTON (1856-1914). An American editor and critic; born in Stamford, Conn.; editor of the *Bookman* (1895); wrote *The Personal Equation, The Adventures of Mabel, Graytone and Porphyry,* and *What Is Good English?*

PECK, SAMUEL MINTURN (1854-). An American poet; born in Tuscaloosa, Ala.; wrote *Cap and Bells, Rings and Love-Knots, Rhymes and Roses,* and *Fair Women of To-day.*

PEELE, GEORGE (about 1558-about 1597). English dramatist; author of *Arraignment of Paris, Edward I., The Battle of Alcazar, The Old Wives' Tale, David and Bethsabe,* and a few miscellaneous pieces which include "An Eclogue Gratulatory," and "The Beginnings, Accidents, and End of the Fall of Troy."

PELLICO, SILVIO (1789-1854). An Italian poet; born at Saluzzo. While quite young he achieved a high reputation, especially by his dramatic poems, *Laodamia* and *Francesca da Rimini.* In 1831 he put forth *My Prisons,* containing an account of his 10 years' incarceration. Pellico subsequently published several works in verse and prose, one of the latest being a treatise on *The Duties of Man.*

PEMBERTON, MAX (1863-). An English novelist; born in Birmingham, England. He has published a number of stories of adventures, including *The Iron Pirate, The Sea Wolves, The Impregnable City, A Gentleman's Gentleman, Queen of the Jesters, The Garden of Swords, Fêo,* and *The House Under the Sea.*

PERRY, BLISS (1860-). An American editor and author; born at Williamstown, Mass.; wrote *The Broughton House, Salem Kittredge, The Plated City, The Powers at Play,* and *A Study of Prose Fiction.*

PERSIUS (AULUS PERSIUS FLACCUS) (34-62). A Roman satirist; born in Etruria; wrote six short satires of much native vigor, though not equal to those of Horace and Juvenal.

PETRARCH, FRANCESCO (1304-1374). A famous Italian lyric poet; born at Arezzo, in Tuscany; spent his youth in Avignon; intended for the profession of law, devoted his time to the study of Cicero and Vergil; met Laura, a lady of surpassing beauty, in the church of St. Clare there in 1327, conceived a passion for her which she could not return, and wrote sonnets in praise of her which have immortalized him. The historic reality of Laura has been doubted. Petrarch wrote more in Latin than in Italian, but his fame rests upon the *Canzoniere,* comprising sonnets and madrigals, and mainly love poetry. [See Ital. Lit.].

PHAEDRUS. A Latin fabulist of the age of Augustus; originally a slave; was manumitted by Augustus. His fables, 100 in number, were written in verse and are mostly versifications from Aesop.

PHELPS, ELIZABETH STUART (Mrs. Ward) (1844-1911). American writer; her books include *The Gates Ajar, The Story of Avis, Beyond the Gates, A Singular Life,* and *Within the Gates.*

PHILEMON (about 361-263 B. C.). A Greek poet, and one of the founders of Attic new comedy. He produced nearly 100 comedies, of which about 57 have been preserved to us in fragments in other works.

PIERPONT, JOHN (1785-1866). American poet; a volume of his works was published in 1840 as *Airs of Palestine, and Other Poems;* his *Anti-Slavery Poems* appeared in 1843.

PIKE, ALBERT (1809-1891). An American journalist, lawyer, and poet; born in Boston. He rose to a high grade in the order of Freemasons. Besides several Masonic works he has published *Hymns to the Gods,* reprinted in *Blackwood's Magazine* in 1839; *Prose Sketches* and *Poems; Nugae,* a collection of poems, and two similar collections.

PINKNEY, EDWARD COATE (1802-1828). American poet; known principally for a small volume of *Poems.*

PISAN, CHRISTINE DE (1363-1431). French author; her *Le chemin de longue estude* and *Poème de la pucelle* give accurate ideas of the society of her time.

PLATEN, AUGUST (1796-1835). German poet; author of *Ghaselen, Sonette aus Venedig, Die Verhängnisvolle Gabel, The Abbassiden, Polenlieder,* and *Gedichte.*

PLAUTUS, TITUS MACCIUS (254-184 B. C.). A Latin comic poet; born in Umbria. He wrote about 130 comedies, but only 20 have survived, the plots mostly borrowed from Greek models.

POE, EDGAR ALLAN (1809-1849). An American poet and story writer; born in Boston. Left an orphan early, he was adopted by John Allan of Richmond, Va. At the age of 18 he left this home and published his first volume of verse at Boston. He was a cadet at the United States Military Academy (1830-1831), and subsequently embarked on a literary career. He is one of the most remarkable characters in literature, gifted with great power of invention, vividness of imagination, and artistic skill. His work consists of criticism, prose tales, and poetry. His tales are remarkable for their imaginative vigor and finished art, notably *Ligeia, The Fall of the House of Usher, Eleonora, The Mask of the Red Death,* and *The Murders of the Rue Morgue.* His best poems are *Valley of Unrest, Lenore, Helen, City in the Sea, Israfel, The Raven,* and *The Bells.*

POLYBIUS (205-120 B. C.). A Greek historian. His great work is a general history of the extension of Rome from 220 to 146 B. C. Five only of its 40 books are now extant, with some fragments of the rest.

PONCE DE LEON, LUIS (1529-1591). Spanish poet. While in prison he produced *Los Nombres de Cristo*, a famous mystic prose work. Some of his best known odes are *La Profecia del Tajo*, *La Noche Serena*, and *La Vida Retirada*. [See Sp. Lit.].

POOLE, WILLIAM FREDERICK (1821-1894). An American bibliographer; born at Salem, Mass. While at Yale he prepared and published his *Index to Subjects in Reviews and Periodicals*, which afterward became the larger work, *Index to Periodical Literature*. He was the author of *Cotton Mather and Salem Witchcraft*, *The Popham Colony*, *The Ordinance of* 1787, *Anti-Slavery Opinions Before* 1800, *The Battle of the Dictionaries*, and *Websterian Orthography*.

POPE, ALEXANDER (1688-1744). An English poet; born in London. In 1711 he published his poem the *Essay on Criticism*, which was followed by *The Rape of the Lock*, a polished and witty narrative poem, founded on an incident of fashionable life. From 1715 to 1726 he was engaged on a poetical translation of Homer's works, the *Iliad* being wholly from his pen, the *Odyssey* less than half. He wrote *Imitations of Horace* and *The Dunciad*. [See Eng. Lit.].

PORTER, JANE (1776-1850). A British novelist; born in Durham. Her father, an officer in the army, died when his children were all young. Jane, the eldest child, wrote several novels, two of which, *Thaddeus of Warsaw* and the *Scottish Chiefs*, had a high reputation in their day, and are still read.

PORTER, NOAH (1811-1892). An American scholar; born in Farmington, Conn. In 1871 he succeeded Theodore D. Woolsey as president of Yale College. His principal works are *The Educational Systems of the Puritans and the Jesuits*, *The Human Intellect*, *Books and Reading*, *American Colleges and the American Public*, *Science and Sentiment*, *Elements of the Moral Sciences*, *Kant's Ethics*, and *Fifteen Years in the Chapel of Yale College*; editor in chief of *Webster's Dictionary* and *International Dictionary*.

POUCHKINE, ALEXANDER SERGEYEVITCH (1799-1837). The greatest poet of Russia; born at Moscow; wrote *Recollections of Tsarskoye Selo*, where he was educated; *Ruslan and Lyudmila*, *The Prisoner of the Caucasus*, *The Gypsies*, *The Brother Murderers*, *Peltava*, *History of the Pugatcheff Insurrection*, *The Captain's Daughter*, and *Dubrovski*. [See Rus. Lit.].

PRAED, WINTHROP MACKWORTH (1802-1839). An English poet; born at London. A complete edition of his works was issued in 1864, edited by his sister, Lady Young, with a memoir by Derwent Coleridge. Praed wrote many charades, which are among the cleverest in our language.

PRATI, GIOVANNI (1815-1884). Italian poet; author of *Edmenegarda*, and the *Psiche* and the *Iside*, containing his best lyrics. [See It. Lit.]

PRESCOTT, WILLIAM HICKLING (1796-1859). An eminent American historian; born at Boston, Mass. Growing blind, the result of an accident at college, he fortunately inherited means, employed assistants, and with great courage in 1826 began to study Spanish history. *Ferdinand and Isabella* (1838) established his reputation in both worlds. *The Conquest of Mexico*, his best work, was published in 1843, and *The Conquest of Peru* in 1847. He died of apoplexy at Boston before completing the *History of Philip II*.

PRIME, WILLIAM COWPER (1825-1905). An American lawyer and author; brother of Samuel I. Prime; born at Cambridge, N. Y. In 1857 he published *Boat Life in Egypt and Nubia* and *Tent Life in the Holy Land*. He devoted much attention to archaeology, numismatics, and ceramics, and published *Coins, Medals, and Seals; Pottery and Porcelain of All Times and Nations*, and an annotated edition of the hymn, *O Mother, Dear Jerusalem*.

PRINCE, THOMAS (1687-1758). American historian; author of *The Chronological History of New England* to 1633, valuable on account of its accuracy; *Account of the English Ministers at Martha's Vineyard*, and *Earthquakes of New England*.

PRIOR, MATTHEW (1664-1721). An English politician and poet; born in Dorsetshire. In 1686 he was graduated at Cambridge, where he formed an intimacy with Charles Montague, afterwards earl of Halifax. He held various civil and diplomatic positions; was returned to Parliament in 1701. In 1713 he was made ambassador at Paris; but when the Whigs came into power, in 1714, he was recalled, and imprisoned on a charge of treason. After his release he published by subscription a folio volume of his *Poems*, from which he realized 4,000 guineas. Lord Harley added an equal sum for the purchase of an estate. He was buried in Westminster Abbey, where a monument was erected to his memory, for which he left £500 in his will.

PROCTER, ADELAIDE ANNE (1825-1864). An English poet; daughter of "Barry Cornwall." Early in 1853 *Household Words* received a poem bearing the signature "Mary Berwick" which Charles Dickens, the editor, thought "very different from the shoal of verses perpetually setting through the office of such a periodical, and possessing much more merit." It was not until nearly two years after that Dickens learned that "Mary Berwick" was Adelaide Procter, whom he had known from childhood, and who was the daughter of one of his oldest literary friends. With the exception of a little volume entitled *A Chapter of Verses*, published in 1862, all of her poems originally appeared in periodicals edited by Dickens, who prefixed a biographical introduction to a complete edition issued shortly after her death.

PROCTER, BRYAN WALLER, or **"BARRY CORNWALL"** (1787-1874). An English lyrist; born in London; is chiefly memorable as a friend of all the eminent literary men of two generations, such as Wordsworth, Lamb, and Scott on the one hand, and Carlyle, Thackeray, and Tennyson on the other. His *Charles Lamb* is a delightful memoir. He wrote nearly 300 songs, among which are *The Sea*, *A Petition to Time, Life*, and *Song to His Wife*.

PULCI, LUIGI (1432-1484). Italian poet; wrote *Il Morgante Maggiore*, *Confessions*, *Beca di Dicomano*.

QUARLES, FRANCIS (1592-1644). English religious poet and author of royalist pamphlets. His *Emblems* have frequently been reprinted.

QUENTAL, ANTHERO DE (1842-1891). Portuguese poet and essayist; author of *Primaveras romanticas*, *Os sonetos completos*, *Bomsensoe e bomgosto*.

QUEVEDO Y VILLEGAS, FRANCISCO DE (1580-1645). Spanish author. His most important works are *El Buscón* (*El gran Tacaño*), and *Las Visiones* (*Sueños*).

QUILLER-COUCH (*kootch*), **ARTHUR THOMAS** (1863-). An English author; born at Cornwall; wrote *Dead Man's Rock*, *Troy Town*, *The Splendid Spur*, *The Delectable Duchy*, *Wandering Heath*, *Ia*, *The Ship of Stars*, *Old Fires and Profitable Ghosts*, *Adventures of Harry Revel*, and *Adventures in Criticism*. He was selected to finish Stevenson's unfinished novel, *St. Ives*; wrote much under the pseudonym of "Q."

QUINAULT, PHILIPPE (1635-1688). A French librettist and dramatist; *Les rivales* and *L'amant indiscret*, his first comedies, are among his best. *Psyché*, his first lyric drama, was followed by librettos almost entirely, of which his masterpieces are *Amadis*, *Roland*, and *Armide*.

QUINET, EDGAR (1803-1875). French man of letters; attracted by his early translations, the French Institute sent him to Greece, where he wrote *La Gréce moderne*; the poems *Ahasvérus*, *Napoleon*, and *La genie des religions* gained a lectureship at Lyons and later at the College de France, from which he was dismissed for his attacks on the Jesuits; later famous works are *La création*, *La révolution*, and *La république*, all relating to the conditions in France.

QUINTANA, MANUEL JOSE. Spanish statesman and writer; author of patriotic *Odes* and *Vidas de Españoles célebres*.

RABELAIS (*rah-be-lay'*), **FRANCOIS** (1483-1553). A great French humorist; born at Chinon; studied medicine and for a time practised it, particularly at Lyons. Here he commenced the series of writings that have immortalized his name, his *Gargantua* and *Pantagruel* forming a succession of satires in a vein of riotous mirth mingled with keen political insight and pedantic wisdom.

RACINE, JEAN (1639-1699). A French poet and dramatist; born at La Ferte-Milon; educated at Beauvais and Port Royal. While at Paris he was associated with La Fontaine, Moliere, and Boileau. In 1664 he was granted a pension from the Court for his *Odes* to the king. He wrote only one comedy, *Les Plaideurs* (1668), which did not prove a success. His other productions include *La Thebaïde* (1664), his earliest play, *Alexander the Great* (1665), *Mithridate* (1673), *Britannicus* (1669), *Berenice* (1670), *Bajazet* (1672), *L' Andromaque* (1667), *Iphigenie* (1675), *Phèdre* (1677), the last three being most popular. In 1689 he wrote *Esther* for the girls at St. Cyr Col-

lege, and in 1681 *Athalie* appeared. For many years he was royal historiographer, holding the office jointly with Boileau. In his later years he produced four *Cantiques spirituels* and an *Histoire abregée de Port Royal.* [See Fr. Lit.]

RADCLIFFE, ANNE (1764-1823) English novelist; author of *A Sicilian Romance, The Italian, Mysteries of Udolpho, Journey through Holland and Germany.*

RALEIGH, SIR WALTER (about 1605-1666). [See under Government, also Eng. Lit.]

RALPH, JULIAN (1853-1903). An American author and journalist; South African correspondent for the London *Daily Mail* (1899); wrote *Dutchman or German, On Canada's Frontier, Chicago and the World's Fair, Our Great West, People We Pass, Dixie, Alone in China, A Prince in Georgia, Toward Pretoria, An American with Lord Roberts, War's Brighter Side,* and *The Millionairess.*

RAMEE, LOUISE DE LA, or **"OUIDA"** (1840-1908). An English novelist; born at Bury St. Edmunds. Her pseudonym is her own childish attempt to pronounce her name—Louisa; wrote *Held in Bondage, Strathmore, Chandos, Idalia, Under Two Flags, Tricotrin, Puck, A Dog of Flanders, Pascarel, Two Little Wooden Shoes, Ariadne, Friendship, Moths, The Village Commune, In Maremma. Bimbi, Wanda, Othmar, Guilderoy, Syrlin, Ruffino, The Silver Christ, Two Offenders, Le Selve, Two Massarenes, Toxin, La Strega, Street Dust, Views and Opinions,* and *Critical Studies.* Recently she made her home in Florence, where, through her prodigal extravagance, she suffered from poverty; granted a pension by the British government (1907).

RAMSAY, ALLAN (1686-1758). A Scotch poet; born at Leadhills, Lanarkshire. A collection of his poems appeared in 1721; *Fables and Tales* (1722), *The Teatable Miscellany* (1724), *The Evergreen* (1724), and *The Gentle Shepherd* (1725), which established his fame. He also wrote many songs, *The Yellow-hair'd Laddie* being most popular. A complete edition of his works appeared in 1731.

RANDALL, JAMES RYDER (1839-1908). An American song writer and journalist; born at Baltimore, Maryland. He is the author of a number of songs in behalf of the Confederate cause, including *Maryland, My Maryland* (his most popular work); *The Sole Sentry, There's Life in the Old Land Yet,* and *The Battle Cry of the South.*

RANKE, FRANZ LEOPOLD VON (1795-1886). A German historian; born at Wiehe, near Nuremberg; from 1825, professor of history at Berlin. He was sent by the government to examine the archives at Vienna, Rome, Venice, and Florence. His thorough researches made him the father of a school of historiography. *A History of the Roman and Teutonic Nations* was his first work, covering the period 1494-1535. This was followed by a *History of Southern Europe in the Sixteenth and Seventeenth Centuries, The Servian Revolution,* and the *Conspiracy Against Venice in* 1688. Then came his best known work, the *History of the Popes.*

RAWLINSON, GEORGE (1812-1902). An English orientalist and historian; brother of Sir Henry Rawlinson. His principal works are *Historic Evidences for the Truth of Christian Records, The Contrasts of Christianity with Heathenism and Judaism,* and *Manual of Ancient History.* His great work is *Seven Great Monarchies of the Eastern World.* These are: I. Chaldaea; II. Assyria; III. Media; IV. Babylonia; V. Persia; VI. Parthia; VII. The Sassanian or New Persian Empire. His *History of Phoenicia* appeared in 1890.

RAYMOND, HENRY JARVIS (1820-1869). An American journalist; born in Lima, N. Y.; founded the New York *Times* (September 18, 1851); lieutenant governor of New York (1854); drafted the famous *Address to the People* (1856); in 1864 was chosen as representative from New York to the thirty-ninth Congress; wrote *A Life of Daniel Webster, Political Lessons of the Revolution,* and *The Life and Public Services of Abraham Lincoln.*

READ, OPIE PERCIVAL (1852-). An American journalist; born in Nashville, Tenn. His studies of Arkansas life have been widely read; wrote *A Kentucky Colonel, Emmett Bonlore, A Tennessee Judge, My Young Master, Bolanyo, The Wives of the Prophet,* and *In the Alamo.*

READ, THOMAS BUCHANAN (1822-1872). An American poet and artist; born in Chester county, Pa. His *Poems* appeared in 1847. *Lays and Ballads* (1848), *The New Pastoral* (1854), *The House by the Sea* (1856), *Female Poets of America* (1848). The most popular of his productions are *Sheridan's Ride* and *Drifting.*

READE, CHARLES (1814-1884). An English novelist. The books by which he first became known were his *Peg Woffington* and *Christie Johnstone. The Cloister and the Hearth* is his masterpiece. Among his others are *Hard Cash, It Is Never Too Late to Mend, Griffith Gaunt, Put Yourself in His Place, A Terrible Temptation, A Woman Hater,* and *Good Stories of Man and Other Animals.*

READE, JOHN (1837-1919). Canadian writer; born in Ireland. Autnor of *Aboriginal American Poetry, The Prophecy and Other Poems, Making of Canada.*

REGNIER, MATHURIN (1573-1613). French satirical poet. One of the best editions is by Viollet-le-Duc.

RENAN (*reh-non'*), **JOSEPH ERNEST** (1823-1892). A French writer; born in Tréguier. In 1862 he was appointed professor of Hebrew, Chaldee, and Syriac in the Collège de France, but the skeptical views manifested in his *Life of Jesus* raised an outcry against him, and he was removed from his chair to be restored again, however, in 1871. This work was the first part of a comprehensive *History of the Origins of Christianity,* written from the standpoint of one who disbelieves in the supernatural claims of Christianity. Renan's latest important work was the *History of the People of Israel Till the Time of King David;* became a member of the French Academy (1878).

REPPLIER, AGNES (1858-). An American essayist; born in Philadelphia; published *Books and Men, Points of View, Essays in Miniature, Book of Famous Verse, Essays in Idleness, In the Dozy Hours, Varia, Philadelphia,* and *The Fireside Sphinx.*

REUTER, FRITZ (1810-1874). One of the most realistic of German writers. His best known productions, *Ut mine Festungstid, Ut mine Stromtid,* and *Ut de Franzosentid* are included in *Olle Kamellen.*

RHODES, JAMES FORD (1848-1927). American historian, whose *History of the United States from the Compromise of* 1850 is considered the best work on the period covered.

RHYS, ERNEST (1859-). English author, editor of the Camelot series, Dekker's *Plays;* author of *The Great Cockney Tragedy, A London Rose and Other Rhymes.* **SIR JOHN RHYS** (1840-1915) was a profound Celtic scholar and author. *Celtic Britain, Celtic Folklore,* and *The Welsh People* are among his writings.

RICE, JAMES (1843-1882). An English novelist; born at Northampton; collaborated with Walter Besant on *Ready-Money Mortiboy, The Golden Butterfly, The Monks of Thelema,* and *The Seamy Side.* Rice wrote *History of the British Turf.*

RICHARDSON, SAMUEL (1689-1761). An English novelist; born in Derbyshire; the son of a joiner; was apprenticed to a printer in London; set up in the business for himself, and from his success in it became master of the Stationers' Company in 1754 and king's printer in 1760; was 50 before he came out as a novelist; published his *Pamela* in 1740, his masterpiece; *Clarissa Harlowe,* written in the form of letters, in 1748, and *Sir Charles Grandison* in 1753.

RICHTER, JEAN PAUL FRIEDRICH (1763-1825). Usually called Jean Paul simply; the best known of German humorists; born at Wunsiedel, in Upper Franconia; the son of a poor German pastor; had a scanty education, but his fine faculties and unwearied diligence supplied every defect. His works are numerous, and the chief are the novels *Hesperus, Quintus Fixlein,* and *Schoolmaster Wuz;* idyls, and *Levana,* a work on pedagogy. His works are published in 34 volumes.

RIDPATH, JOHN CLARK (1840-1900). An American educator and historian; born in Putnam County, Ind. In 1874-1875 he published a *History of the United States,* which he supplemented with another in 1877. In 1876 he issued a *School History.* His *History of the United States* in eight volumes was completed shortly before his death.

RILEY, JAMES WHITCOMB (1853-1916). An American poet; born in Greenfield, Ind. His poems are characterized by both humor and pathos and by their sympathy with the simplest phases of life. Those of the Hoosier type are especially popular. Among his works are *The Boss Girl and Other Sketches, Green Fields and Running Brooks, The Rubaiyat of Doc. Lifers, Home Folks, Afterwhiles, Old-Fashioned Roses.*

Pipes o' Pan, Rhymes of Childhood, The Flying Islands of the Night, Neighborly Poems, Here at Home, Armazindy, and *A Child World.*

RIPLEY, GEORGE (1802-1880). An American scholar; born at Greenfield, Mass.; published *Discourses on the Philosophy of Religion* (1839), and *Letters on the Latest Forms of Infidelity.* In 1849 he became literary editor of the New York *Tribune* and literary adviser for the publishing house of Harper & Brothers, filling these positions until his death. In 1853 he published *Hand Book of Literature and Fine Arts.* In 1853 he and Charles A. Dana undertook the editing of Appleton's *American Cyclopedia* (1853, *et seq.*; second edition 1874, *et seq.*).

ROBERTS, CHARLES GEORGE DOUGLAS (1860-). A Canadian poet; born at Douglas, near Fredericton, New Brunswick; professor of English and French literature at King's College, Windsor, Nova Scotia (1885-1887), and of economics and international law (1887-1895); associate editor of the *Illustrated American* at New York (1897); wrote *Orion and Other Poems, In Divers Tones, Ave: An Ode for the Shelley Centennial, Songs of the Common Day, The Book of the Native,* and *New York Nocturnes.* His prose includes *The Canadians of Old, Appleton's Canadian Guide, The Raid from Beauséjour, Reube Dare's Shad Boat, Around the Camp Fire, Earth's Enigmas, A History of Canada, The Forge in the Forest, A Sister to Evangeline, By the Marshes of Minas, The Heart of the Ancient Wood, The Kindred of the Wild, Barbara Ladd, Mam'selle, The Watchers of the Trail,* and *The Haunters of the Silences.*

ROE, EDWARD PAYSON (1838-1888). An American clergyman and novelist; born at Moodna, N. Y. His chief works are *Nature's Serial Story, An Original Belle, Driven Back to Eden, The Earth Trembled, The Home Acre,* and *Taken Alive.*

ROGERS, SAMUEL (1763-1855). An English poet; bred to banking, and all his life a banker; took to literature and produced a succession of poems, *The Pleasures of Memory, Human Life,* and *Italy.*

ROOSEVELT, THEODORE. (See p. 296). The author of *The Naval War of* 1812, *Life of Thomas Hart Benton, Life of Gouverneur Morris, Ranch Life and Hunting Trail, History of New York City, The Winning of the West, Essays on Practical Politics, The Wilderness Hunter, American Political Ideals, The Rough Riders, Life of Oliver Cromwell, The Strenuous Life,* and *The Deer.*

ROSCOE, WILLIAM (1753-1831). An English historian; born near Liverpool; studied law and began to practice (1774); wrote *Life of Lorenzo de' Medici, Called the Magnificent, Life and Pontificate of Leo X.,* and devoted much attention to the study of botany.

ROSSETTI, CHRISTINA GEORGINA (1830-1894). An English poet; born at London; a sister of Dante Gabriel Rossetti. Their father, **GABRIELE ROSSETTI** (1783-1854) was from 1814 to 1821 director of the Museum at Naples, but was exiled on account of his political opinions. In 1824 he settled in England, and in 1831 was made professor of Italian literature in King's College, London. Having become blind he resigned the professorship in 1845. He wrote several poems in Italian, but is specially notable as a commentator upon Dante. The daughter wrote several volumes in verse and prose. Among her poems are *Goblin Market, The Prince's Progress, Sing-Song, Annus Domini,* a prayer and a text for each day of the year; *A Pageant, Letter and Spirit, Time Flies,* and *The Face of the Deep.*

ROSSETTI, DANTE GABRIEL (1828-1882). An English poet and painter; the head of the Pre-Raphaelite Brotherhood; born in London. He wrote *The Blessed Damozel,* a poem of great simplicity and spiritual beauty; *My Sister's Sleep, The House of Life,* of 101 sonnets; a prose work, *Hand and Soul,* and two remarkable ballads, *Sister Helen* and *The King's Tragedy.* Robert Buchanan, under the pseudonym of Thomas Maitland, attacked the morality of Rossetti's poems in the famous article "The Fleshly School of Poetry," which Rossetti answered in his "The Stealthy School of Criticism."

ROSTAND, EDMOND (1868-1918). A French poet. His first play, *The Romanticists,* was an instantaneous success and was followed by *Princess Lointaine, The Samaritan, Cyrano de Bergerac,* and *L'Aiglon.* Rostand's versification is of remarkable beauty. In 1901 he was elected one of the 40 "immortals" of the French Academy. In 1910 his satire drama, *Chantecler,* was produced.

ROYCE, JOSIAH (1855-1916). Born in Grass Valley, Cal.; one of the foremost exponents of neo-Hegelianism in America; published *A Primer of Logical Analysis, The Religious Aspect of Philosophy, The Conception of Immortality.*

ROWSON, SUSANNA HASWELL (1762-1824). Anglo-American novelist, dramatist and actress. Of her plays, the two farces *Americans in England* and *The Volunteers* were the most popular; of her novels, *Charlotte Temple.*

RUCKERT, FRIEDRICH (1788-1866). A German poet; born in Bavaria. His most popular books are the collection of lyrics entitled *Springtime of Love* and the reflective poems *The Wisdom of the Brahman.*

RUNEBERG, JOHAN LUDWIG (1804-1877). Famous Swedish poet of Finland, born at Jacobstadt. [See Scan. Lit.]

RUSKIN, JOHN (1819-1900). An English author; born in London. He was Slade professor of fine arts at Oxford. In *Modern Painters* he advocated a complete revolution in the received conventions of art and art criticism. Ruskin was the first art critic to place criticism upon a scientific basis. In 1851 he appeared as a defender of pre-Raphaelitism. About 1860 he began to write as a political economist and social reformer; his chief works in this sphere being *Unto This Last, Munera Pulveris,* and *Fors Clavigera,* a periodical series of letters to the working men and laborers of Great Britain. In this connection he founded, in 1876, the Guild of St. George; founded a linen industry at Keswick, and revived, in Langdale, hand loom weaving. Among his other works are *Crown of Wild Olive, Sesame and Lilies, Ethics of the Dust, Queen of the Air, and Stones of Venice.*

RUSSELL, WILLIAM CLARK (1844-1911). An English author; born in New York City. His father, **HENRY RUSSELL** (1813-1900), was the composer of the songs *Cheer, Boys, Cheer; To the West, There's a Good Time Coming, Boys; A Life on the Ocean Wave,* and *O Woodman, Spare That Tree.* W. C. Russell was educated at Winchester, England, and in France. He then entered the British merchant service, made voyages to Australia and to China, and after eight years of sailor life abandoned it and devoted himself to literature. His ambition was to raise the nautical novel to a high standard, and his books were written out of his own experience. His books include *The Wreck of the Grosvenor, A Sailor's Sweetheart, An Ocean Free Lance, Jack's Courtship, The Dutch Ship, A Frozen Pirate, Marooned, On the Fok'sle Head, An Ocean Tragedy, My Shipmate Louise, Life of Nelson, Helma,* and *The Good Ship Mohock.*

RYAN, ABRAM JOSEPH, or **"FATHER RYAN"** (1839-1886). An American poet; born at Norfolk, Va. For several years he was pastor of St. Mary's Church, Mobile, Ala., and in 1880 he went north to lecture and to publish his *Poems, Patriotic, Religious, Miscellaneous.* The longest of these is a narrative poem entitled *Their Story Runneth Thus.*

RYDBERG, VIKTOR (1829-1895). Swedish poet and historical novelist. His works include *Frybytaren pa Oestersjön, Den siste athenaren.*

SACHS, HANS (1494-1576). A German meistersinger; born at Nuremberg. He was active in literature for 51 years (1514-1567), during which time he produced in all over 6,300 pieces, consisting of mastersongs, dramas, stories, fables, histories, and hymns. His works have been published in 23 volumes.

SA DE MIRANDA, FRANCISCO DE (about 1495-1558). Portuguese poet, who wrote also in Spanish. "First of the 'Petrarchists' in Spain and Portugal."

SAINTE-BEUVE, CHARLES AUGUSTIN (1804-1869). A French writer and one of the greatest of modern critics; born in Boulogne, France. In 1845 admitted a member of the French Academy. He wrote three volumes of poetry. His 53 volumes, marked by precision, subtlety, delicacy, tact, and knowledge, cause him to stand alone in the field of criticism.

SAINT-PIERRE, JACQUES HENRI BERNARDIN DE (1737-1814). A French novelist; an engineer by profession; was a disciple of Rousseau both sentimentally and speculatively; his chief work, *Paul and Virginia.*

SALTUS, EDGAR EVERTSON (1858-1921). An American novelist and journalist; born in New York City. His works include *Balzac, The Philosophy of Disenchantment, The Anatomy of Negation, Eden, A Transaction in Hearts, The Pace That Kills, Imperial Purple, Madame Sapphira, Enthralled,* and *When Dreams Come True.*

SAND, GEORGE, or MADAME ARMANTINE LUCILE AURORE DUPIN DUDEVANT (1804-1876). One of the greatest of French novelists; born in Paris. In 1822 she married Baron Dudevant, but in 1831 separated from him. In conjunction with Jules Sandeau, a young lawyer, she wrote *Rose and White*, which was published in 1831, with the pseudonym Jules Sand. The reception it met with afforded her an opportunity of publishing a novel solely by herself—*Indiana*, under the name of George Sand, which she ever after retained. In 1854 she published *Story of My Life*, a psychological autobiography. Her published works consist of upward of 80 separate novels, a large number of plays, and numerous articles in literary journals.

SARDOU', VICTORIEN (1831-1908). A French dramatist; born in Paris. He began play writing in early life, though intended originally for the medical profession. Among his plays are *Cleopatra*, *Thermidor*, *Gismonda*, *Madame Sans-Gêne*, and *Fedora*. He entered the Academy in 1878.

SAXE, JOHN GODFREY (1816-1887). An American humorous poet; born in Highgate, Vt. His most popular verses include *Rhyme of the Rail*, *The Proud Miss McBride*, *Progress*, *The Money King*, *Fables and Legends of Many Countries*, and *Leisure-Day Rhymes*.

SAYCE, ARCHIBALD HENRY (1846-). An English orientalist. His works are widely known. He wrote *An Assyrian Grammar for Comparative Purposes*, *The Principles of Comparative Philology*, etc.

SCHEFFEL, JOSEPH VIKTOR VON (1826-1886). A German poet. His first and best work is *Der Trompeter von Säckingen*, a charming tale in verse of the Thirty Years' War.

SCHILLER, JOHANN CHRISTOPH FRIEDRICH VON (1759-1805). A German poet; born in Marbach, Würtemberg; in his twenty-second year wrote the tragedy of *The Robbers*, which at once raised him to the foremost rank among the dramatists of his country. In 1789 he was appointed to the chair of history in the University of Jena, and besides lecturing to crowded audiences he published his *History of the Thirty Years' War* and engaged in various literary enterprises which had great influence on the literature of Germany; settled at Weimar, in order to be near a theater and with Goethe. At intervals he published *Wallenstein*, *Mary Stuart*, *Maid of Orleans*, and *William Tell*. [See Ger. Lit.].

SCHREINER, OLIVE (1862-1920). An English novelist; daughter of a Lutheran clergyman at Cape Town; achieved a great success by *The Story of an African Farm* in 1883, which was followed in 1891 by *Dreams;* also, later, *Dream Life and Real Life*, and *Trooper Peter Halket*.

SCHUYLER, EUGENE (1840-1890). An American author and diplomat; born at Ithaca, N. Y. His books include *Turkistan, Notes of a Journey in Russian Turkistan, Khokand, Bokhara, and Kuldja; Peter the Great as Ruler and Reformer*, and *American Diplomacy and the Furtherance of Commerce*.

SCOLLARD, CLINTON (1860-). An American poet; born at Clinton, N. Y. He has published several volumes of poems, *Pictures in Song, With Reed and Lyre, Old and New World Lyrics, Giovio and Giulia, Songs of Sunrise Lands, The Hills of Song, Skenandoa*, and *A Boy's Book of Rhyme*, besides the prose works *Under Summer Skies* and *On Sunny Shores*.

SCOTT, DUNCAN CAMPBELL (1862-). A Canadian poet; born at Ottawa; entered the civil service and rose to chief clerk and accountant (1893); wrote *The Magic House, Labor and the Angel*, and *The Village of Viger*, a collection of 10 short stories of Canadian country life.

SCOTT, HUGH STOWELL, or "HENRY SETON MERRIMAN" (1862-1903). An English author; born at Newcastle-upon-Tyne; wrote *Phantom Future, Suspense, Prisoners and Captives, Slave of the Lamp, With Edged Tools, Grey Lady, The Sowers, In Kedar's Tents, Flotsam, Roden's Corner, Isle of Unrest, Velvet Glove*, and *The Vultures*.

SCOTT, SIR WALTER (1771-1832). A British author; born in Edinburgh, Scotland. From the commencement of his literary career in 1796, when he published his translations of Burger's *Lenore* and *Wild Huntsman*, to the year of his decease, he was constantly writing. His romances are universally known. His patrimonial estate was considerable; and in 1799 he obtained the preferment of sheriff of Selkirkshire, with about £300 ($1,500). In 1811 he built a mansion on the Tweed, to which he gave the name of Abbotsford. In 1826 the great publishing house of Constable & Co. failed and with it the Ballantyne firm in which Scott was a partner. He regarded the Ballantyne debt as personal and, resolving to "owe no man a penny," he began at the age of 55 the task of paying the creditors $600,000. In two years his work had gained for them nearly $200,000; but the severity of his labors permanently broke down his health, and he died before his aim was realized. But in 1847, by sale of copyrights, his debts were all liquidated. Scott was the originator of the historical novel and has added greatly to our appreciation of history by such novels as *Ivanhoe, Legend of Montrose, Kenilworth;* and *The Talisman, Guy Mannering, Waverley, Rob Roy*, and *Heart of Midlothian* are also among his best novels. The *Lady of the Lake, Marmion*, and the *Lay of the Last Minstrel* constitute his best poetry.

SCUDDER, HORACE ELISHA (1838-1902). An American author; born at Boston, Mass. He contributed to Justin Winsor's *Memorial History of Boston* and was joint author with Mrs. Bayard Taylor of the *Life and Letters of Bayard Taylor; The Life and Letters of David Coit Scudder, Boston Town, Noah Webster*, in the "American Men of Letters Series"; besides a number of books for children.

SEELEY, SIR JOHN ROBERT (1834-1895). English essayist and historian. Author of *Ecce Homo, Expansion of England, Growth of British Policy*.

SHAFTESBURY, ANTHONY ASHLEY COOPER, THIRD EARL OF (1671-1713). An English freethinker, philanthropist, and author. A complete collection of his works was published in 1716 under the title *Characteristics of Men, Manners, Opinions, and Times*.

SHAKESPEARE, WILLIAM (1564-1616). An English dramatist and poet; born in Stratford-on-Avon, Warwickshire, England. His birthplace, as pointed out by traditions, is the house in Henley street, Stratford, which belonged to his father. In his nineteenth year he married Anne Hathaway, daughter of a yeoman at the neighboring hamlet of Shottery, and eight years older than himself. He went to London about 1586, and lived there many years, leaving his wife and children at Stratford. He gained an honorable position as actor, play writer, and shareholder in the theater of Blackfriars, and afterward in that of the Globe; enjoyed the favor and patronage of Queen Elizabeth, James I., and the earl of Southampton, the warm friendship of Ben Jonson, and the highest respect and admiration of his associates, not only for his preeminence as a poet, but for his honesty, geniality, and worth as a man. Of his end we have no other account than the short statement in the diary of the Rev. John Ward, vicar of Stratford, that "Shakespeare, Drayton, and Ben Jonson had a merry meeting, and it seems drank too hard, for Shakespeare died of a fever then contracted." The first collected edition of Shakespeare's plays was the folio of 1623. His poems of *Venus and Adonis* and the *Rape of Lucrece* were published in 1593 and 1594, and were the only works which appeared with his name in his lifetime. Of the 36 plays (exclusive of *Pericles*), the dates of publication of only a few are known. *The Two Gentlemen of Verona* and *Love's Labor's Lost* were among the earliest; and *The Tempest, Troilus and Cressida, Henry VIII., Coriolanus, Julius Caesar*, and *Antony and Cleopatra* among the latest. The *Midsummer Night's Dream, Merchant of Venice, Romeo and Juliet, Richard II., Richard III., Henry IV.*, and *King John* were all produced before 1598. A copy of *Hamlet* is extant, bearing the date 1603. *Twelfth Night* was produced in 1601; *King Lear* was printed in 1607; *The Tempest* was written in 1611. The second folio edition of the collected plays appeared in 1632, and two others subsequently. [See Eng. Lit.].

SHAW, ALBERT (1857-). An American economist and editor; born at Shandon, Ohio; wrote *Icaria: A Chapter in the History of Communism;* editor of the American *Review of Reviews;* wrote also *Municipal Government in Great Britain*, and *Municipal Government in Continental Europe*.

SHAW, GEORGE BERNARD (1856-). A British critic, essayist, and dramatist; born in Dublin; began his literary career in London as a fine art critic; wrote four novels, *The Irrational Knot, Love Among the Artists, Cashel Byron's Profession*, and *An Unsocial Socialist*. His plays have aroused much discussion. They are included in *Plays Pleasant and Unpleasant, Three Plays for the Puritans*, and *The Admirable Bashville*. Other works are *Fabian Essays, The Quintessence of Ibsenism*, and *The Perfect Wagnerite*.

SHAW, HENRY WHEELER, or "JOSH BILLINGS" (1818-1885). An American humorist; born at Lanesborough, Mass. His sketches, written in his original method of spelling, were very popular. His published works include *Josh Billings, His Sayings; Josh Billings on Ice, Every Body's Friend,* and *Josh Billings' Spice Box.* In 1870 he began the publication of *Josh Billings' Farmers' Allminax,* which appeared annually.

SHELLEY, PERCY BYSSHE (1792-1822). An English poet; son of Sir Timothy Shelley; born near Horsham, England. At Oxford he published anonymously a scholastic thesis entitled *Necessity of Atheism;* refusing either to acknowledge or deny it, was at once expelled. His first great poem, *Queen Mab,* was followed by the *Revolt of Islam,* a poem in the Spenserian stanza. In 1811 he eloped to Edinburgh with Harriet Westbrook, the daughter of a retired innkeeper. She was 16 years of age, his own age being 19. The marriage turned out unhappily. In November, 1816, she committed suicide by drowning. Shelley was deeply affected by this event, but soon after married Mary Godwin. Shelley left England in March, 1818, and the whole short remainder of his life was passed in Italy. On July 8, 1822, he was sailing with a Mr. Williams in the Bay of Spezia, when both were drowned. He wrote also *Alastor, Adonais, Sensitive Plant, The Skylark,* and *The Defense of Poetry.* [See Eng. Lit.]

SHERIDAN, RICHARD BRINSLEY (1751-1816). An English dramatist and politician; born in Dublin; scored his first success with *The Rivals. The School for Scandal* and *The Critic* set flowing the tide of prosperity. Turning his attention next to politics, he entered Parliament, and two years later became undersecretary for foreign affairs. His great speech impeaching Hastings placed him in the front rank of orators. He died in poverty, but was accorded a burial in Westminster Abbey.

SHERMAN, FRANK DEMPSTER, or "FELIX CARMEN" (1860-1916). An American poet; born at Peekskill, N. Y. He achieved fame as a writer of graceful, piquant verses; published *Madrigals and Catches, Lyrics for a Lute, New Waggings of Old Tales,* in collaboration with John Kendrick Bangs, and *Little-Folk Lyrics.*

SHILLABER, BENJAMIN PENHALLOW, or "MRS. PARTINGTON" (1814-1890). An American humorist; born at Portsmouth, N. H. His *Life and Sayings of Mrs. Partington* gave him fame. His other works are *Rhymes with Reason and Without, Knitting Work, Partingtonian Patchwork, Lines in Pleasant Places, The Ike Partington Juvenile Series, Ike and His Friends, Cruises with Captain Bob, The Double-runner Club, Wide-Swath,* a collection of verses; and *Mrs. Partington's New Gripsack Filled with Fresh Things.*

SHORTHOUSE, JOSEPH HENRY (1834-1903). English novelist, noted for his *John Inglesant.*

SIDNEY, SIR PHILIP (1554-1586). An English poet and one of the most attractive figures at Elizabeth's court; born at Penshurst, Kent; the son of Sir Henry Sidney, lord deputy of Ireland; sent as ambassador in 1577 to the court of Vienna. In 1583 he received a knighthood. He received his death wound at the battle of Zutphen. His fame as an author rests securely on his prose romance *Arcadia,* his critical treatise *The Defense of Poesy,* and above all on his exquisite sonnet series *Astrophel and Stella.* [See Eng. Lit.]

SIDONIUS, APOLLINARIS (431-about 482). Roman poet, received political advance as reward for his panegyrics. Author of *Poems* and *Letters.*

SIENKIEWICZ (*se-en'ke-vix*), **HENRYK** (1846-1916). A Polish author; born in Siedlce. He is the author of the historical novel *Quo Vadis, With Fire and Sword, Knights of the Cross,* etc.

SIG'OURNEY, LYDIA (HUNTLEY) (1791-1865). An American author; born in Norwich, Conn. In her *Letters of Life* she enumerates 46 distinct works wholly or partially from her pen, besides over 2,000 articles in prose and verse contributed to nearly 300 periodicals.

SILL, EDWARD ROWLAND (1841-1887). An American poet and essayist; born at Windsor, Conn.; wrote *Hermione and Other Poems, The Hermitage and Other Poems, The Venus of Milo and Other Poems, Essays in Literature and Education and Friendly Letters,* and a posthumous collection embracing most of his better verse.

SIMMS, WILLIAM GILMORE (1806-1870). A prolific American writer; born at Charleston, South Carolina; turned from law to literature. *Southern Passages and Pictures* contains characteristic examples of his poetry, and of his novels *Woodcraft, The Partisan,* and *Beauchampe* may be mentioned.

SISMON'DI, JEAN CHARLES LEONARD SIMONDE DE (1773-1842). A celebrated Swiss historian; born at Geneva. The works which have established his reputation are his great histories of *The Italian Republics in the Middle Ages, European Literature,* and *A History of the French.*

SLOANE, WILLIAM MILLIGAN (1850-). American historian. His works include *French War and the Revolution, Napoleon Bonaparte, French Revolution and Religious Reform, Life of James McCosh.*

SLOWACKI, JULIUSZ (1809-1849). Polish poet, called "Satan of Literature" from the misanthropic tenor of his writings.

SMILES, SAMUEL (1812-1904). A British author. The greater portion of his works are biographical. Among these works are *The Life of George Stephenson, Self-Help, Lives of the Engineers, Industrial Biography, The Huguenots in England and Scotland, Character, The Huguenots in France, Duty, Life and Labor, A Publisher and His Friends, Jasmin the Barber Poet,* and *Josiah Wedgwood.*

SMITH, ADAM (1723-1790). A British political economist. In 1776 he produced his *Inquiry in the Nature and Causes of the Wealth of Nations,* a work to which he devoted ten years of his life and which has rendered his name world-famous.

SMITH, FRANCIS HOPKINSON (1838-1915). An American author, engineer, and artist; born in Baltimore, Md. (For his work as an artist, see Dictionary of Fine Arts); wrote *Well-Worn Roads, Colonel Carter of Cartersville, A Day at Laguerre's, Tom Grogan, Gondola Days, Caleb West Master Diver, The Other Fellow, The Fortunes of Oliver Horn,* etc.

SMITH, GOLDWIN (1823-1910). An English man of letters; born in Berks; regius professor of modern history at Oxford (1858-1866); a stanch friend of the North during the Civil War; came to America as professor of English history in Cornell University; in 1871 settled in Canada; was regent of the University of Toronto; editor of the *Canadian Monthly,* the *Nation,* and the Toronto *Week.* He believed that Canada will be annexed to the United States; wrote a number of books and pamphlets to that effect, including *Relations between England and America* and *The Political Destiny of Canada.* A few of his other voluminous writings are *Lectures on Modern History, Irish History and Irish Character, The Empire, Lectures and Essays, Essays on the Questions of the Day,* and *History of the United States.* He was an ultra-Liberal.

SMITH, SAMUEL FRANCIS (1808-1895). An American clergyman and author; born in Boston; wrote *My country, 't is of thee,* and he says, "It was written at Andover in 1831 or 1832; was first used at a children's Fourth of July celebration at the Park Street Church (1832), and made a national hymn, without my planning or seeking for such a distinction, because the people, unasked, took it up, and *would* sing it."

SMITH, SYDNEY (1771-1845). An English clergyman; born in Woodford, Essex. In 1803 he removed to London. He became renowned as one of the wittiest and most genial of men. He wrote *Letters on Catholics* or *The Plymley Letters, Three Letters to Singleton,* and *Letters on American Debts.*

SMOLLETT, TOBIAS GEORGE (1721-1771). A British novelist; born at Dalquhurn, Dumbartonshire, Scotland; bred to medicine, but drifted to literature; achieved his first success in *Roderick Random,* which was followed by *Peregrine Pickle, Count Fathom,* and *Humphrey Clinker;* wrote a *History of England* and a political lampoon, *The Adventures of an Atom.*

SOPH'OCLES (495-406 B. C.). A Greek tragic poet; born in the Attic demus or village of Colonus, a suburb of Athens. He was 15 when the battle of Salamis was fought, and for his remarkable beauty and skill in music he was chosen to lead the chorus which sang the paean of victory. The number of plays attributed to him without question was 113. Seven only are extant, viz., *Antigone, Electra, Trachinian Women, King Oedipus, Ajax, Philoctetes,* and *Oedipus at Colonus.* These exhibit his art in its maturity, and sustain the verdict of ancient and modern critics that Sophocles carried the Greek drama to its highest perfection.

SOUTHEY, ROBERT (1774-1843). An English poet. In 1803 he took up his residence at Keswick, in Cumberland, being thenceforth classed as one of the Lake poets. The latter years of his life were clouded by a mental imbecility. His chief poems are *Joan of Arc, A Vision of Judgment, Roderick, Thalaba, Madoc,*

and *The Curse of Kehama*. His prose is of most value, especially *Letters from England by Don Manuel Espriella, The Doctor*, containing *The Three Bears;* and the lives of *Wesley* and of *Nelson*.

SPARKS, JARED (1789-1866). An American historian; born in Willington, Conn.; author of a large number of sermons, biographical, historical, and theological works, notably *The Library of American Biography* and *Correspondence of the American Revolution*.

SPENSER, EDMUND (1552-1599). One of England's greatest poets. Details of his life are scanty. He wrote *Shepherd's Calendar*, more rhythmical than any preceding poem in English; *Epithalamion*, the finest English marriage hymn; *Faerie Queene*, his great poem, in which he invented Spenserian stanza; *Four Hymns* in honor of love and beauty; and the *Prothalamion*. [See Eng. Lit.]

SPIELHAGEN, FRIEDRICH (1829-1911). A German novelist of the old school, one of the best. His descriptions of the period of 1848 are notable. Author of *Problematische Naturen, Durch Nacht zum Licht, Der neue Pharao, Beiträge zur Theorie und Technik des Romans*.

SPOFFORD, HARRIET PRESCOTT (1835-1921). American author; born in Calais, Me.; wrote *New England Legends, Thief in the Night, Marquis of Carabas, Hester Stanley at St. Mark's, Ballads About Authors, Scarlet Poppy, A Master Spirit*, and *In Titian's Garden*.

STAEL (*deh stah-l'*), **ANNE LOUISE GERMAINE, BARONNE DE** or **MADAME DE** (1766-1817). Born in Paris; daughter of Necker and only child; a woman of eminent ability and an admirer of Rousseau; wrote *Letters* on his character and works; married the Baron de Staël-Holstein, the Swedish ambassador in Paris. Her salon became the center of the literary and political activity of the time. The ambition of Napoleon excited her distrust, and forced her into opposition so expressed that in 1803 she was ordered to leave Paris. In 1802 she was left a widow, and soon after she went to Weimar, where she met Goethe and Schiller. By and by she returned to France and published *Corinne*, her best novel. After this appeared her great epoch-making work on Germany, *De l'Allemagne*, which was seized by the French censors and she was banished from France and settled in Switzerland.

STANNARD, HENRIETTA ELIZA VAUGHAN, or **"JOHN STRANGE WINTER"** or **"VIOLET WHYTE"** (1856-1911). An English novelist; born at York; married Arthur Stannard, a civil engineer (1884); wrote *Sketches of Cavalry Life, Bootles' Baby, Houplá, On March, Garrison Gossip, A Siege Baby, Beautiful Jim, A Blameless Woman, Heart and Sword, The Married Miss Binks, A Blaze of Glory*, and *Marty*.

STEDMAN, EDMUND CLARENCE (1833-1908). An American poet and banker; born in Hartford, Conn. The best known of his critical works are *Victorian Poets, Edgar Allan Poe, Poets of America, The Nature and Elements of Poetry, A Victorian Anthology, An American Anthology*, and editor with Miss Ellen M. Hutchison of *A Library of American Literature* and with George E. Woodberry of the *Works of Edgar Allan Poe*.

STEELE, RICHARD (1672-1729). A British author; born at Dublin; was educated at Charterhouse School, London, Addison being one of his schoolfellows; afterwards entered the University of Oxford, but left without taking a degree, and enlisted in the Horse Guards, where he rose to the rank of captain. In 1701 he put forth *The Christian Hero*, a religious treatise, and within a few years produced several fairly successful comedies, the earliest being *The Funeral, or Grief à la Mode*, the last and best being *The Conscious Lovers*. Steele was an industrious pamphleteer, but his fame rests upon his essays in *The Tatler* and *The Spectator*, rather than upon his dramas or his political writings. [See Eng. Lit.].

STEPHEN, SIR LESLIE (1832-1904). An English man of letters, biographer, and critic; became editor of the *Cornhill* and of the *Dictionary of National Biography;* author of *Hours in a Library, History of English Thought in the Eighteenth Century, The Science of Ethics, Life of Henry Fawcett, An Agnostic's Apology, Life of Sir James Fitzjames Stephen, Studies of a Biographer, The English Utilitarians*, and lives of *Swift, Pope, Johnson, Hobbes*, and *George Eliot*.

STERNE, LAURENCE (1713-1768). An English humorist; born at Clonmel, Ireland. In 1759 appeared the first two volumes of *Tristram Shandy*, and in 1767 the last one; in 1768 his *Sentimental Journey;* and in the interim his *Sermons*.

STESICHORUS (about 640-555 B. C.). Greek lyric poet. His arrangement of strophe, antistrophe, and epode became the model for lyric poetry.

STEVENSON, ROBERT LOUIS BALFOUR (1850-1894). A British author; born in Edinburgh, Scotland; wrote for periodicals till 1878, when his first book appeared; visited California in 1879. In 1888 he cruised in the Southern Pacific for his health; bought a tract of land ("Vailima" or "Five Streams") in Samoa, where he made his home. His chief works are *Treasure Island, Dr. Jekyll and Mr. Hyde, St. Ives, Weir of Hermiston* (his best), *Underwoods*, and *Prince Otto*.

STOCKTON, FRANCIS RICHARD (1834-1902). An American author; born at Philadelphia; became an engraver, but soon abandoned art for literature. He wrote several novels and numerous short stories, which have been collected into separate volumes, among which are *Rudder Grange, The Lady or the Tiger? The Late Mrs. Null, Christmas Wreck, The Bee-Man of Orn, The Casting Away of Mrs. Lecks and Mrs. Aleshine, The Dusantes, Amos Kilbright, Personally Conducted, Ardis Claverden, The Stories of the Three Burglars, The House of Martha, The Rudder Grangers Abroad, The Squirrel Inn, The Watchmaker's Wife, Pomona's Travels, Adventures of Captain Horn, Afield and Afloat*, and *The Captain's Toll-Gate*.

STOWE, HARRIET ELIZABETH BEECHER (1811-1896). An American novelist; daughter of Lyman Beecher and sister of Henry Ward Beecher; born in Litchfield, Conn.; was married to Professor Calvin Ellis Stowe. In 1864 she settled in Hartford, Conn. She published *The Mayflower, or Sketches of the Scenes and Characters Among the Descendants of the Pilgrims; Uncle Tom's Cabin, or Life Among the Lowly;* and a large number of other works. Her best known work, *Uncle Tom's Cabin* (suggested by the life of Josiah Henson), has been translated into 19 languages, its sale exceeding that of any previous work of English fiction.

STRICKLAND, AGNES (1796-1874). An English author; born in London. She wrote several books of verse and fiction before entering upon her career as a writer of historical biography. Her principal works in this department are *Lives of the Queens of England*, in which she was assisted by her sister, Elizabeth Strickland; *Lives of the Queens of Scotland*, and *Lives of the Seven Bishops*.

STUBBS, WILLIAM (1825-1901). English prelate and historian; wrote *Constitutional History of England, Historical Introductions to the Rolls Series, Seventeen Lectures on the Study of Mediæval and Modern History*.

SUDERMANN, HERMANN (1857-1928). German novelist and dramatist. Among his numerous productions are the dramas *Die Ehre, Heimat* (*Magda*), *Es lebe das Leben* (*The Joy of Living*), and the novels *Frau Sorge* (*Dame Care*), *Der Katzensteg* (*Regina*), *Es war*.

SUE, MARIE JOSEPH or **EUGENE** (1804-1857). A French novelist; born in Paris. His most famous works are *The Mysteries of Paris* and *The Wandering Jew*. In 1850 he was elected to the Constituent Assembly and sat as an advanced radical. After the *coup d'état* by Napoleon III. in 1851 he left France and retired to Savoy.

SULLY-PRUDHOMME, RENE FRANCOIS ARMAND (1839-1907). French poet; born in Paris; in 1907 received the Noble prize in literature. His works include *Stances et poèmes, La justice, Le bonheur*.

SULTE, BENJAMIN (1841-1923). Canadian poet and historian. His songs are included in *Les Laurentiennes* and *Les chants nouveaux*. Author of *Histoire des Canadiens-Français, Histoire de Saint François-du-Lac*.

SWIFT, JONATHAN (1667-1745). The greatest of English satirists; born in Dublin, Ireland. He was the posthumous son of Jonathan Swift, an Englishman, and was educated at Kilkenny and at Trinity College, Dublin. In 1701 he took his doctor's degree and in 1704 he published anonymously his famous *Tale of a Tub*, to which was appended the *Battle of the Books*. In 1710 Swift began his *Journal to Stella*, which constitutes a splendid commentary on his own history. His famous *Gulliver's Travels* appeared in 1726. He died in Dublin, bequeathing the greatest part of his fortune to a hospital for lunatics and idiots. [See Eng. Lit.].

SWINBURNE, ALGERNON CHARLES (1837-1909). An English poet and essayist; son of Admiral Charles Henry Swinburne; born in London. His first productions were *Queen Mother* and *Rosamund*. They were followed by two tragedies, *Atalanta in Calydon* and *Chastelard*, and by *Poems and Ballads*, reprinted as

Laus Veneris. He also wrote *A Study of Shakespeare, Astrophel, and Other Poems; Essays and Studies, The Tale of Balen,* and *Rosamund, Queen of the Lombards.* His reply to Robert Buchanan's attack on himself and Rossetti is entitled *Under the Microscope.*

SWINTON, WILLIAM (1833-1892). An American author; born in Scotland. His principal works in the department of military history are *Campaigns of the Army of the Potomac, The Twelve Decisive Battles of the War,* and *History of the New York Seventh Regiment During the War of the Rebellion.*

SYMONDS, JOHN ADDINGTON (1840-1893). An English author; born at Bristol. He was educated at Harrow and Oxford. Most of his works—the earliest of which appeared in 1872—are upon Italian subjects. In verse he has translated *Sonnets of Michelangelo and Campanella* and a volume of *Sonnets on the Thought of Death, Many Moods, New and Old.* His prose works are *Introduction to the Study of Dante, Studies of the Greek Poets, Renaissance in Italy, Sketches in Italy and Greece, Italian By-Ways,* and the lives of *Shelley* and *Sir Philip Sidney* in the "English Men of Letters." The seventh and last volume of his work on the Italian Renaissance was published in 1886. *In the Key of Blue* and *Walt Whitman* were published after his death in 1893. He is the Opalstein in Stevenson's *Memories and Portraits.*

TACITUS, PUBLIUS CORNELIUS (about 55-about 117). A Roman historian; born presumably at Rome. Of writings extant, the chief are his *Life of Agricola, Germania, Histories,* and *Annals.* His *Agricola* is admired as a model biography, while his *Histories* and *Annals* are distinguished for their conciseness, their vigor, and their poetical coloring.

TAINE, HIPPOLYTE ADOLPHE (1828-1893). Born at Vouziers; French historian, critic, and man of letters; educated at Ecole Normale. Among his most important writings are his *History of English Literature,* and the *Beginnings of Contemporaneous France,* the former considered one of the finest on that subject, while the latter is the most noted of his works. In 1878 he was elected to the French Academy.

TALFOURD, SIR THOMAS NOON (1795-1854). An English lawyer and dramatist; was for some years a member of Parliament; introduced the copyright bill (1837), for which Dickens dedicated *Pickwick* to him; author of four tragedies, of which *Ion* is the best known.

TARBELL, IDA MINERVA (1857-). An American author; wrote *Short Life of Napoleon Bonaparte, Life of Madame Roland, Early Life of Abraham Lincoln, Life of Abraham Lincoln,* and *History of the Standard Oil Company.*

TARKINGTON, NEWTON BOOTH (1869-). An American author; born in Indianapolis, Indiana; graduated from Princeton University (1893). His first novel, *The Gentleman from Indiana,* won for him much success, and was followed by his *Monsieur Beaucaire* (1900), *The Two Vanrevels* (1902), and *The Conquest of Canaan,* etc. (1905).

TASSO, TORQUATO (1544-1595). A famous Italian poet; born at Sorrento, March 11, 1544. Tasso's lyrics, plays, and letters contained many fine passages, but the poet owes his fame to two works alone—the narrative, *Jerusalem Delivered,* and the pastoral play *Aminta.* [See Ital. Lit.].

TAYLOR, HENRY, SIR (1800-1886). An English poet. His best-known tragedies are *Philip Van Artevelde* (1834), *Isaac Comnenus* (1827), *Edwin the Fair* (1842), and *Saint Clement's Eve* (1862). In 1847 his *Eve of Conquest* appeared.

TAYLOR, JAMES BAYARD (1825-1878). An American writer and traveler; born in Kennett Square, Chester County, Pa. He wrote *Ximena: or the Battle of the Sierra Morena,* translation of Goethe's *Faust, Ode* in honor of the opening of the Centennial Exhibition at Philadelphia, and many books of travel and novels.

TCHEKHOV, ANTON PAVLOVITCH (1860-1904). A Russian novelist. Wrote *In Twilight* (1887), and *Morose Folks* (1890), *Memoirs of a Stranger,* and *Steppe,* all of which are humorous and witty.

TEGNER, ESAIAS (1782-1846). A popular Swedish poet; the son of a country parson. His poems, of which *Frithjof's Saga* is reckoned the finest in Swedish, have the finish of classic models, but are charged with the fire and vigor of modern romanticism.

TENNYSON, ALFRED, LORD (1809-1892). An English poet; born in Somersby, England. His literary career may be said to date from 1830, when he published a volume entitled *Poems, Chiefly Lyrical.* It was not received with any great favor by the public, but its success was sufficient to encourage the poet to prepare a second collection, which appeared in 1833 and contained such poems as *A Dream of Fair Women, Oenone,* and others. It was not till 1842 that he again appealed to the public with a selection of his poems in two volumes. *The Idylls of the King* is his highest achievement. He received the laureateship upon the death of Wordsworth (1850). Thereafter hardly a year passed without his adding some gem to our language. Among his later compositions are the dramas *Queen Mary, Harold,* and *The Cup.* Tennyson was raised to the peerage in 1884 as Baron Tennyson of Aldworth, Sussex, and Freshwater, Isle of Wight. He died in Aldworth, England, and was buried in Westminster Abbey. [See Eng. Lit.].

TERHUNE, MARY VIRGINIA, or "MARIAN HARLAND" (1831-1922). An American author; born in Richmond, Va.; author of *Common Sense in the Household, At Last, Sunnybank, Sketches of European Travel, Our Daughters and What Shall We Do With Them? Judith,* and *A Gallant Fight.*

THACKERAY, WILLIAM MAKEPEACE (1811-1863). An English novelist; born in Calcutta, India. Being well provided for, he chose the profession of an artist. He spent several years in France, Germany, and Italy, staying at Paris, Weimar, and Rome, but gradually became convinced that art was not his vocation, and, having lost his fortune, he resolved to turn his attention to literature. His first appearance in this sphere was as a journalist. In 1846-1848 his novel of *Vanity Fair* was published in monthly parts, with illustrations by himself; and long before its completion its author was unanimously placed in the first rank of British novelists. His next great novel was *Pendennis,* completed in 1850. In 1851 he delivered a course of lectures in London on the *English Humorists of the Eighteenth Century,* which was repeated in Scotland and America. In 1855-1856 he delivered a series of lectures in the United States—*The Four Georges*—and afterward in England and Scotland. Besides those mentioned, Thackeray's other great novels are *The Newcomes* and *Henry Esmond.*

THAXTER, CELIA (LAIGHTON) (1836-1894). An American author; born at Portsmouth, N. H.; daughter of a lighthouse keeper. Her poems are full of the shimmer and dash of the sea—many of them exquisite marine paintings as well as glowing utterances of the heart. Her collected poems were published in 1871 and 1876; *Drift-weed, Poems for Children, The Cruise of the Mystery and Other Poems,* and *Idyls and Pastorals. Among the Isles of Shoals* is a series of charming prose sketches.

THIERRY, JACQUES NICOLAS AUGUSTIN (1795-1856). A French historian. In 1825 published his *History of the Conquest of England by the Normans,* which placed him in the first rank of modern historians, as distinguished from mere chroniclers on the one hand and from historical theorists on the other. While engaged upon this work his eyesight was impaired, and in 1827 he became totally blind, although, as in the similar case of Milton, there was no outward indication of the loss of vision. A few years later he became paralyzed in all his limbs, being unable to walk or even hold a pen. He nevertheless continued his minute historical researches by the help of the eyes and hands of others, notably those of his young wife, Julie de Qurangel, whom he married in 1831 and who was herself the author of several esteemed works. Thierry's other works are *Letters on the History of France, Ten Years of Historical Studies, Narrative of the Times of the Merovingians,* and *Essay on the Formation and Progress of the Third Estate.*

THIERS, LOUIS ADOLPHE (1797-1877). French historian. Although his *Histoire de la Révolution française* has not stood the test of historical criticism it won him fame when first published in 1823.

THOMPSON, JAMES MAURICE (1844-1901). An American author; born in Fairfield, Ind.; was state geologist of Indiana (1885-1889); wrote nature studies. He published in book form *Hoosier Mosaics, The Witchery of Archery, A Tallahassee Girl, Alice of Old Vincennes* (his best novel), and *My Winter Garden.*

THOMSON, JAMES (1700-1748). A Scottish poet; the author of *The Seasons;* the son of the parish minister at Ednam, Roxburghshire. His poem *Winter* had immediate success and raised up a host of friends and patrons. The *Masque of Alfred,* with its popular song *Rule Britannia,* and his greatest work, *The Castle of Indolence,* were the outcome of his later years of leisure.

THOREAU, HENRY DAVID (1817-1862). An American author; born in Concord, Mass. In 1845 he built for himself a hut in a wood near Walden Pond, Concord, Mass., and there for two years lived the life of a hermit. Besides contributing to the *Dial* and other periodicals, he published *A Week on the Concord and Merrimac Rivers* and *Walden, or Life in the Woods.* After his death appeared *Excursions in Field and Forest, The Maine Woods, Cape Cod,* and *A Yankee in Canada.* Thoreau was a friend of Emerson and imbibed much of his spirit and method of thought. His best essays are *Miscellanies and Excursions,* of remarkable style and substance.

THUCYDIDES (about 460-about 400 B. C.). The Greek historian of the Peloponnesian War; born in Athens, of a wealthy family; naval commander in 424 B. C. in the Peloponnesian War, but from neglect of duty was banished; returned from exile 20 years after. His great achievement is his history, all derived from personal observation and oral communication, the materials of which were collected during the war, and the whole executed in a style to entitle it to rank among the noblest literary monuments of antiquity. He was the greatest historian of ancient times.

TICKNOR, GEORGE (1791-1871). An American scholar; born at Boston. In 1840 he set himself strenuously at work upon the composition of his *History of Spanish Literature,* which was published in 1849. The work was at once recognized as the best upon the subject in any language, and was almost immediately translated into Spanish and German. In the numerous translations from Spanish poets, Ticknor evinced poetical ability of a high order. Besides this great work he contributed some valuable papers to the *North American Review.* He also published a *Memoir of Nathaniel Appleton Hazen, Life of William H. Prescott,* and *Remarks on the Character of Edward Everett. Life, Letters, and Journals of George Ticknor* appeared in 1876.

TIMROD, HENRY (1829-1867). An American poet; born in Charleston, S. C.; the best of southern lyrists after Poe and Lanier. Among his best poems are *Katie, The Cotton Boll, Charleston,* and an *Ode* on the Confederate dead in Magnolia Cemetery, Charleston.

TOCQUEVILLE, ALEXIS CHARLES HENRI CLEREL DE (1805-1859). A French economist and political philosopher; bred to the bar, and especially distinguished as the author of two works in high repute, *La démocratie en Amérique* and *L'ancien régime et la révolution;* died at Cannes, leaving much of his work unfinished. He was elected to the Academy in 1841.

TOLSTOY, COUNT LYOF NIKOLAYEVITCH (1828-1910). A Russian novelist; born on the family estate of Yasnaya Polyana in the province of Tula, Russia. He served in the Crimean War, and afterward traveled extensively. In 1861 he took up permanent residence on his country estate. Among his earliest works are *Detsvo* (Childhood), *Otrchestvo* (Boyhood), and *Iunost* (Youth); also *Cossacks, Sevastopol,* and a number of military sketches. *War and Peace* was published in 1865-1868; *Anna Karenina* in 1875-1876. His peculiar doctrines are promulgated in *My Confession, In What My Faith Consists,* etc.; many of them are forbidden in Russia. His later works are *The Kreutzer Sonata, Death of Ivan Ilyitch, Master and Man, The Resurrection,* and *Hadji Murat,* unfinished.

TOTTEL, RICHARD (about 1525-1594). An English publisher. Noted for his compilation of the famous *Tottel's Miscellany,* published 1557, containing 271 heretofore unpublished poems by English authors.

TREITSCHKE, HEINRICH VON (1834-1896). German historian. His chief work is *Deutsche Geschichte im neunzehnten Jahrhundert* brought down to the year 1848.

TRENCH, RICHARD CHENEVIX (1807-1886). Archbishop of Dublin, poet, and scholar; born in Dublin; was educated at Harrow and Cambridge; wrote *Notes on the Parables, Notes on the Miracles, Commentary on the Epistles to the Seven Churches, Studies on the Gospels, The Study of Words, English Past and Present,* and *Lectures on Mediaeval Church History.*

TROLLOPE, ANTHONY (1815-1882). An English novelist; born in London. He was educated at Harrow and Winchester; in 1834 became a clerk in the post office, and in 1841 was appointed clerk to a post office surveyor in Ireland. His Irish experiences gave him material for his first novels. His first success was *The Warden,* followed by *Barchester Towers, Doctor Thorne, The Three Clerks, The Bertrams, Castle Richmond, Framley Parsonage, Orley Farm, The Small House at Allington, Can You Forgive Her? Phineas Finn, The Eustace Diamonds, Phineas Redux, The Way We Live Now,* and *Is He Popenjoy?*

TRUMBULL, JOHN (1750-1831). An American poet. The satiric poem *The Progress of Dullness* was published in 1772. His most famous work was *McFingal,* an epic poem after the style of Hudibras.

TUPPER, MARTIN FARQUHAR (1810-1889). An English poet; author of *Proverbial Philosophy;* born in Marylebone; bred to the bar; wrote some 40 works. The *Philosophy* had a phenomenal success.

TURGUENIEV, IVAN SERGEYEVITCH (1818-1883). A Russian novelist; born at Orel. By him the term "nihilist" was first used in its political sense. In 1843-1844 he issued several books of poetry. Among his other volumes are *Memoirs of a Sportsman, Fathers and Sons, Smoke, Liza, On the Eve, Dimitri Rudin, Journal of a Useless Man, A Lear of the Steppe, Spring Floods, The Unfortunate One, Virgin Soil, First Love,* and *Assya.* [See Rus. Lit.].

TYLER, ROYALL (1757-1826). An American writer. Produced *The Contrast,* a drama which had much success. His masterpiece was *The Algerine Captive* (1797).

TYNDALE, WILLIAM (about 1490-1536). English translator of the Bible. [See Eng. Lit.].

UDALL, NICHOLAS (1505-1556). An English dramatist; born at Hampshire. From 1534 to 1543 he was master at Eton. In 1555 he became master of Westminster School; he wrote several plays for his pupils, one of which, *Ralph Roister Doister,* in five acts, is the earliest specimen of English comedy. It was written before 1541, and it marks the transition from the mysteries and interludes of the Middle Ages to the comedies of modern times.

UHLAND, JOHANN LUDWIG (1787-1862). A distinguished German poet; born at Tübingen. He wrote poetry which appeared in periodicals as early as 1806. His works include *Gedichte,* the dramas *Ernst von Schwaben* and *Ludwig der Bayer, Alte hoch- und niederdeutsche Volkslieder,* and *Schriften zur Geschichte der Dichtung und Sage.* His poems have been translated by Longfellow and by Alexander Platt, and his *Songs and Ballads* by W. W. Skeat.

URQUHART, DAVID (1805-1877). A Scotch writer and politician; secretary of the legation at Constantinople (1835-1836); wrote *Turkey and Its Resources, The Spirit of the East, The Mystery of the Danube,* and *Letters and Essays on Russian Aggressions.*

VANBRUGH, SIR JOHN (1664-1726). English dramatist. His plays include *The Relapse* (1697), *The Provok'd Wife* (1697), and *The Mistake* (1705).

VAN DYKE, HENRY (1852-). An American educator; born in Germantown, Pa. His publications include *The Reality of Religion, The Poetry of Tennyson, The Ruling Passion,* and *The Blue Flower.*

VEGA CARPIO, LOPE FELIX DE (1562-1635). Known as Lope; a Spanish dramatist; born in Madrid; served in the Armada; was secretary to the duke of Alva; took orders and became a priest; wrote a heroic pastoral entitled *Arcadia* at the instance of the duke, and *La Dragontea* over the death of Drake as the destroyer of the supremacy of Spain on the sea; was a man of fertile inventiveness, and is said to have written 1,500 plays and many verses, and was called by Cervantes a "prodigy of nature." He wrote also *San Isidro.* [See Sp. Lit.].

VERGIL (70-19 B. C.). A great Latin poet; born near Mantua; author in succession of the *Eclogues,* the *Georgics,* and the *Aeneid;* studied at Cremona and Milan, and at 17 was sent to Rome to study rhetoric and philosophy; lost property he had in Cremona after the battle of Philippi; went to settle in Rome. Here, in 37 B. C., he published his *Eclogues,* a collection of 10 pastorals, and gained the patronage of Maecenas, under whose favor he was able to retire to a villa at Naples, where in seven years he, in 29 B. C., produced the *Georgics,* in four books, on the art of husbandry, after which he devoted himself to his great work, the *Aeneid,* or the story of Aeneas of Troy, an epic in 12 books, connecting the hero with the foundation of Rome, and especially with the Julian family, and which was finished in 19 B. C. On his deathbed he expressed a wish that it should be burned, and left instructions to that effect in his will.

VERLAINE, PAUL (1844-1896). A French poet. Little is known of his early life. He was the greatest "Symbolist" poet of France. He wrote *Poemes saturniens, Les fêtes galantes, La bonne chanson, Sagesse,*

Mes prisons, Mes Hôpitaux, Jadis et naguère, Romances sans paroles, Amour, Bonheur, Parallèlement, Chansons pour elle, Les poètes maudits, Confessions, and *Les hommes d'aujourd'hui.*

VERNE, JULES (1828-1905). A French novelist; born in Nantes. He studied law for some time, but afterward began writing short pieces for the stage. His more popular works are *Twenty Thousand Leagues Under the Sea, From the Earth to the Moon, Across Africa in a Balloon, Michel Strogoff, To the Center of the Earth, Round the World in Eighty Days, The Mysterious Island,* etc.

VIGNY (*veen-yee'*), **ALFRED, COMTE DE** (1799-1863). A French poet of the Romanticist school. He wrote *Poems* and *Poems Ancient and Modern* between 1821 and 1826. His strongest drama was *Chatterton,* published in 1835; wrote also *Cinq-Mars,* a long historic novel, and translated into French *Othello.*

VILLANI, GIOVANNI (about 1275-1348). An Italian historian. Wrote a chronicle of Florence to 1348 in twelve books, which was continued by his brother Matteo.

VILLARI, PASQUALE (1827-1917). An Italian historian. His works include *Lives of Savonarola* and of *Machiavelli;* and *The First Two Centuries of Florentine History* (1895).

VILLEHARDOUIN, GEOFFREY OF (about 1155-1213). A French chronicler; born near Troyes. His history of the conquest of Constantinople during the Fourth Crusade, in which he was prominent, is the earliest known history in French.

VILLON (*vee-lyon'*), **FRANCOIS** (1431-1484). The first and one of the greatest lyric French poets of the modern school. His writings are frank and form a highly colored but reliable picture of the time in which he lived, and include *Le petit testament, Le grand testament,* a *Codicille, Le jargon,* and a monologue, *Le franc archier de Bagnolet.*

VIZETELLY, FRANK HORACE (1864-). An Anglo-American author and lexicographer; born in London, England, and educated in England and France; managing editor of Funk and Wagnall's *Standard English Dictionary.*

VOLNEY, CONSTANTIN FRANCOIS CHASSEBOEUF COUNT DE (1757-1820). French writer of philosophy. His chief work is *Les ruines, ou méditations sur les révolutions des empires* (1791).

VOLTAIRE, FRANCOIS MARIE AROUET DE (1694-1778). A great French philosopher and man of letters; born in Paris; son of a lawyer; began his career as a satirist in the production of lampoons which cost him imprisonment in the Bastille. After a second imprisonment he left France in 1726 and went to England, where he stayed two years and got acquainted with the literary free-thinking society there. On his return to Paris he engaged in some profitable commercial speculations and published his *Charles XII.,* which he had written in England; retired to the Chateau of Cirey, where he lived 15 years with Madame du Châtelet, engaged in study and diligent with his pen; after her death made his famous visit to Frederick the Great, with whom he quarreled about three years later, and from whom he was glad to escape, making his headquarters eventually within the borders of France at Ferney; now and again visited Paris, where on his last visit he was received with such raptures of adulation that he was quite overcome, and had to be conveyed home, and died two months after. He was a man of superlative adroitness of faculty, of great clearness and wit as a writer, and more than any other the incarnation of the spirit of his time. [See Fr. Lit.].

WALLACE, LEWIS (1827-1905). An American military commander and author; born at Brookville, Ind. Practiced law in Indiana; governor of New Mexico (1878-1881); United States Minister to Turkey (1881-1885). His leisure moments were spent in writing, some of his works being *The Fair God* (1873), *Ben Hur* (1880), *The Prince of India* (1893), and *The Life of General Harrison* (1888).

WALLER, EDMUND (1606-1687). An English poet; born in Coleshill, Buckinghamshire; was educated at Eton and Cambridge; entered Parliament; detected in a royalist plot, was fined heavily and banished. Pardoned after seven years, he supported the commonwealth. Re-elected to Parliament (1661), he retained his seat until his death. In his poetry he reduced the "heroic" or rhymed pentameter verse to an art; is best known by his song *Go, lovely rose,* lines *On a Girdle,* and a few other perfect poems.

WALPOLE, HORACE, FOURTH EARL OF ORFORD (1717-1797). An English author; son of Sir Robert Walpole; born in London. After receiving an education at Eton and Cambridge he traveled in France and Italy. In 1741 he entered the House of Commons. In 1791 he succeeded his nephew in the peerage. He never took his seat in the House of Lords, and appears to have avoided using his title. The works of Horace Walpole are numerous; but his fame as a writer rests on his *Letters* and *Memoirs.* The former are held to be unsurpassed in the English language. His romance *The Castle of Otranto* is also well known.

WALTON, IZAAK (1593-1683). English author; known as the "Father of angling"; born in Stafford, England. Walton's fame is mainly based on his *Compleat Angler; or the Contemplative Man's Recreation,* first published in 1653. Few more popular books exist.

WARD, MRS. HUMPHRY, or **MARY AUGUSTA ARNOLD** (1851-1920). An English novelist; born in Hobart, Tasmania; is a niece of Matthew Arnold; translated Amiel's *Journal,* but is best known by her romance *Robert Elsmere.* She has written several later books, notably *Eleanor, Lady Rose's Daughter, The History of David Grieve, Marcella, The Story of Bessie Costrell, Sir George Tressady, Helbeck of Bannisdale, Fenwick's Career,* and *Daphne.*

WARMAN, CY (1855-1914). An American journalist and author; born near Greenup, Ill.; wrote *Tales of an Engineer, The Express Messenger, Frontier Stories, The Story of the Railroad, The White Mail, Snow on the Headlight,* and *Short Rails.* Besides some popular verse, he wrote several songs, including the once popular *Sweet Marie.*

WARNER, CHARLES DUDLEY (1829-1900). An American editor and author; born in Plainfield, Mass.; was graduated from Hamilton College in 1851. He was the author of such well-known works as *Saunterings, Backlog Studies, Washington Irving, On Horseback,* and *Captain John Smith,* and editor of *A Library of the World's Best Literature.*

WARREN, SAMUEL (1807-1877). An English lawyer and author; member of Parliament; wrote *Ten Thousand a Year,* a novel which appeared in *Blackwood's Magazine* (1839) and has since gone through several editions. His collected works fill five volumes.

WATSON, JOHN, or **"IAN MACLAREN"** (1850-1907). Till 1893 Dr. Watson was known as a popular preacher and able minister, and in that year he acquired additional distinction and wider fame by writing a series of Scotch idyls for the *British Weekly,* under the title of *Beside the Bonnie Brier Bush.* They became widely popular in the United States and Great Britain. *The Days of Auld Lang Syne,* a second series of idyls, published in 1895, also reached a large circulation. A novel from Dr. Watson's pen, *Kate Carnegie and Those Ministers,* was published in 1896. *The Upper Room* and *The Life of the Master* are perhaps his best known religious works.

WATSON, WILLIAM (1858-). An English poet; born in Yorkshire. The first poem which procured him recognition was *Wordsworth's Grave.* Among his later productions the most important is a volume entitled *Odes and Other Poems;* has also written an admirable volume of essays, *Excursions in Criticism.*

WEBSTER, NOAH (1758-1843). An American lexicographer; born at Hartford, Conn.; bred to law; tried journalism; devoted 20 years to his *Dictionary of the English Language.*

WEYMAN (*way'man*), **STANLEY JOHN** (1855-1928). An English novelist. He was educated at Shrewsbury and Christ Church, Oxford. His first writings appeared in the *Cornhill Magazine* in 1883. Among his principal works are *The House of the Wolf, Francis Cludde, The New Rector, A Gentleman of France, Under the Red Robe, My Lady Rotha, The Red Cockade, From the Memoirs of a Minister of France, The Man in Black, Shrewsbury, The Castle Inn, Sophia,* and *In King's Byways.*

WHARTON, EDITH (JONES) (1862-). An American novelist; born in New York; wrote *The Greater Inclination, The Touchstone, Crucial Instances, The Valley of Decision, Sanctuary,* and *The House of Mirth.*

WHATELY, RICHARD (1787-1863). Archbishop of Dublin, and author; born in London. He did much to forward the cause of general education and to promote liberal views in the English church. Among his numerous works are *Historic Doubts Relative to Napoleon Bonaparte,* a burlesque aimed at the "destructive school" of criticism; *Essays on the Peculiarities of the*

Christian Religion, Elements of Logic, Elements of Rhetoric, Political Economy, Introduction to the Study of St. Paul's Epistles, English Synonyms, Rise, Progress, and Corruption of Christianity; Miscellaneous Lectures and Reviews, and *Remains.*

WHITEING, RICHARD (1840-). An English novelist; born in London. As a journalist he wrote *Mr. Sprouts—His Opinions* for the London *Evening Star.* He was, later, a leader writer on several English dailies, including the London *Daily News;* wrote *The Democracy, The Island, No. 5 John Street, The Life of Paris,* and *The Yellow Van.*

WHITMAN, WALT (1819-1892). An American poet; born in West Hills, Long Island, N. Y.; became editor of the Brooklyn *Eagle. Leaves of Grass* and *Specimen Days and Collect* may be held to embrace the life work of Whitman as a writer. About the close of the war he received a subordinate clerkship under the government, and was summarily dismissed as the author of "an indecent book," though he fortunately obtained a similar post almost immediately. In 1874 he left Washington for Camden, N. J., where he resided till his death.

WHITNEY, WILLIAM DWIGHT (1827-1894). An American philologist and author; born at Northampton, Mass. He was graduated at Williams College in 1845 and studied three years in Germany. From 1854 he was professor of Sanskrit and from 1869 also of comparative philology in Yale College. As a Sanskrit scholar he has a European reputation.

WHITTIER, JOHN GREENLEAF (1807-1892). An American poet; born near Haverhill, Mass. The son of a poor farmer, who was also shoemaker, young Whittier obtained his education with that struggle which seems to foster genius, while the bodily frame, that so well served him till his decease, was developed and hardened by his healthy, outdoor life; was apprenticed to journalism. His poetry attracted the admiration of William Lloyd Garrison, who rode over from Newburyport to see Whittier when quite a lad, and became his lifelong friend. If Garrison may be called the preacher or prophet, Whittier must be wreathed the poet laureate, of abolition. Apart from this strenuous and heroic struggle there is nothing epoch making in Whittier's life, literary or personal. His chief poems are *Voices of Freedom, Snow Bound* (his best), *In War Times, The Tent on the Beach,* and *Poems of Nature.*

WIELAND, CHRISTOPH MARTIN (1733-1813). A German poet and novelist. His best work is a heroic poem entitled *Oberon.* He translated 22 of Shakespeare's plays and wrote *The Republic of Fools.* He is one of the most important of the writers in the classic period of German literature.

WILCOX, ELLA (WHEELER) (1855-1919). An American poet; born at Johnstown Center, Wis. She was educated at the University of Wisconsin. At an early age she began to write for newspapers and periodicals. She has published *Drops of Water, Maurine, Shells, Poems of Passion, Mal Moulée,* a novel; *Poems of Pleasure, A Double Life,* a novel; *How Salvator Won,* reciting poem; *Sweet Danger,* a novel; *Men, Women, and Emotion,* 45 chapters of advice to married folks; *Song of the Sandwich,* a comic poem, and *Was It Suicide?* a collection of stories.

WILDE, OSCAR FINGALL O'FLAHERTIE WILLS (1856-1900). A British poet; born at Dublin. He was the son of Sir William and Lady Wilde ("Speranza"). He was educated at Magdalen College, Oxford, where he took the Newdigate prize for English verse. He became known about 1881 as "the poet and apostle of æstheticism." In 1882 he came on a lecturing tour to the United States. He was for a time the manager of the *Woman's World* of London. He is the author of *Poems, The Happy Prince, and Other Tales; Dorian Gray,* a novel; and several plays, including *Lady Windermere's Fan* and *Salome.* He was imprisoned for two years (1895), during which he wrote *The Ballad of Reading Gaol.* After his release he wrote *De Profundis.*

WILKINS-FREEMAN, MARY ELEANOR (1862-). An American author; born in Randolph, Mass. Her works, studies of New England country life, are *The Adventures of Ann, A Humble Romance, A New England Nun, Young Lucretia, Jane Field, Giles Corey, Pembroke, Madelon, Jerome, A Poor Man; Silence and Other Stories, The Love of Parson Lord, Understudies, Portion of Labor, Wind in the Rose Bush.* She was married to Dr. Charles M. Freeman, January 1, 1902.

WILSON, AUGUSTA EVANS (1835-1909). An American author; born at Columbus, Ga. Her earlier novels were published under her maiden name of Evans. In 1868 she was married to L. M. Wilson of Mobile, Ala. Her novels include *Inez, Beulah, Macaria, St. Elmo, Vashti, Infelice, At the Mercy of Tiberius,* and *A Speckled Bird.*

WILSON, JOHN, or **"CHRISTOPHER NORTH"** (1785-1854). A Scottish writer; born in Paisley; son of a manufacturer, who left him a fortune of £50,000; lost his fortune and settled in Edinburgh, and wrote for *Blackwood's Magazine.* He wrote *Noctes Ambrosianae,* full of humor and pathos, and his best work; *Lights and Shadows of Scottish Life, The Foresters,* and *The Trials of Margaret Lindsay.*

WISTER, OWEN (1860-). An American writer; born in Philadelphia, Pa.; wrote *The Modern Swiss Family Robinson, The Dragon of Wantley: His Tail; Red Man and White, Lin McLean, The Jimmyjohn Boss, U. S. Grant, a Biography; The Virginian, Oliver Wendell Holmes, Benjamin Franklin,* and, with G. B. Grinnell and Caspar Whitney, *The Bison, Musk-Ox, Sheep, and Goat Family.*

WOOD, ELLEN (PRICE) or **MRS. HENRY** (1820-1887). An English novelist; born in Worcestershire; her best novels, *The Channings* and *Mrs. Halliburton's Troubles,* though her most popular is *East Lynne.* She wrote some 30, all popular.

WOOLSEY, SARAH CHAUNCEY, or **"SUSAN COOLIDGE"** (1835-1905). An American writer of books for young people; born in Cleveland, Ohio; wrote *The New Year's Bargain, What Katy Did, Verses, A Guernsey Lily, Mischief's Thanksgiving, A Little Country Girl,* and *Ballads of Romance and History.*

WOOLSON, CONSTANCE FENIMORE (1848-1894). An American author; born in Claremont, N. H. She was the daughter of Charles Jarvis Woolson. From 1873 till 1878 she resided in Florida, Georgia, and the Carolinas, and in 1879 she went to Europe, where she afterwards resided. Her literary field includes sketches, poems, stories, and novels, which have appeared in *Harper's* and other magazines. Her books are *Castle Nowhere: Lake Country Sketches; Rodman the Keeper: Southern Sketches; Anne, For the Major, East Angels, Jupiter Lights, Two Women, The Old Stone House,* and *Horace Chase.*

WORCESTER, JOSEPH EMERSON (1784-1865). An eminent American lexicographer; author of the popular *Dictionary* bearing his name; born at Bedford, N. H. His was the first illustrated dictionary in English (1860).

WORDSWORTH, WILLIAM (1770-1850). An English poet; born in Cockermouth, Cumberland. He was the son of an attorney and in 1787 was sent to St. John's College, Cambridge. His best poems are *The Excursion,* odes on *Immortality* and to *Duty, The Prelude, Thanksgiving Ode,* and *White Doe of Rylstone.* [See Eng. Lit.]

YONGE, CHARLOTTE MARY (1823-1901). An English novelist; born in Otterbourne, Hampshire. Her works number more than 125 volumes, including *The Heir of Redclyffe, The Daisy Chain, The Dove in the Eagle's Nest, Forget-Me-Not, Catherine of Aragon and the Sources of the English Reformation, Life of Hannah More,* and *Life of the Prince Consort.*

YOUNG, EDWARD (1683-1765). An English poet; born at Upham, Hampshire; chaplain to the king (1728); wrote the famous *Night Thoughts on Life, Death, and Immortality.*

ZANGWILL, ISRAEL (1864-1926). An English-Jewish novelist; born in London. He began life as a London teacher; has written novels, essays, and poems; among his works are the *Bachelors' Club, Old Maids' Club, Children of the Ghetto, Dreamers of the Ghetto, The Master, Without Prejudice, The Grey Wig,* and *Merely Mary Ann.*

ZOLA, EMILE (1840-1902). A French novelist; born in Paris; the son of an Italian engineer. After working for Paris publishers and writing for the press he attempted fiction with success. During 1897 and 1898 he took up with splendid courage the cause of Captain Dreyfus, whom he declared to have been illegally condemned, and was in consequence of his action prosecuted by order of the French government and condemned to imprisonment. He escaped punishment by voluntary exile in England. Returning to Paris after the subsidence of the excitement caused by the Dreyfus case, he resumed his literary work; but was accidentally killed by gas escaping from a coal fire.

ZSCHOKKE (*tshok'ke*), **JOHANN HEINRICH** (1771-1848). A German writer; born in Magdeburg; lived chiefly at Aarau, in Aargau, Switzerland, where he spent 40 years of his life and where he died; wrote histories and a series of tales, but is best known by his *Stunden der Andacht* or *Hours of Devotion.* His *Select Works* fill 40 volumes.

DICTIONARY OF NOTED EDUCATORS.

ABBOTT, EDWIN (1838-1926). A celebrated English Shakespearean scholar and theologian; assistant master in King Edward's School in Birmingham; head master of the City of London School, which he made one of the best day schools in London (1865-1880); his works include the well-known *Shakespearean Grammar*.

ABELARD, PIERRE (1079-1142). The boldest thinker of the twelfth century; was born in France. He wandered about, seeking masters and opponents, and by this method of controversy did more than any one else to increase the love of study and intellectual pursuit in Paris. Everything he did then caused adverse criticism, but his example as an independent teacher led to the founding of schools and universities.

ADAMS, HENRY CARTER (1852-1921). Born in Iowa; graduated at Iowa College; has been lecturer at Cornell, University of Michigan, and Johns Hopkins, and since 1887, professor of political economy and finance at the University of Michigan; is statistician of the Interstate Commerce Commission, and president of the Economic Association.

ADLER, FELIX (1851-). German-American educator and reformer; professor of Hebrew at Cornell University (1874), and in 1876 founded Society of Ethical Culture. His principal literary works are *Creed and Deed* and *The Education of Children*.

AGRICOLA, RUDOLPH (1443-1485). A distinguished Dutch humanist; educated at the Universities of Louvain and Paris, and studied in Italy. After 1482 he was very influential in promoting the popularity of Greek and Roman literature. He was a forerunner of Erasmus. His most important work is *De Inventione Dialectica*.

ALBERTUS, MAGNUS, COUNT OF BOLLSTADT (1193-1280). A Dominican friar; was a celebrated teacher of science, theology, and philosophy. He received a bishopric, but retired to a convent in Cologne to devote himself to literary pursuits. He wrote a number of works, principally on *Aristotle*, the best *Summa Theologiae* and *Summa de Creaturis*.

ALCOTT, AMOS BRONSON (1799-1888). An American lecturer. In 1828 he became an educational reformer, establishing a school in Boston which attracted much attention by the novelty of the methods used. His teaching was largely by the conversational method, but he met with so much opposition that he gave up the school and removed to Concord, where he promulgated his views on education, society, civics, and theology, through lectures in Boston and vicinity. He tried to found a community in Harvard, Mass. He published *Concord Days, Table Talk, Sonnets and Canzonets* and an *Essay on R. W. Emerson*.

ALCUIN or **FLACCUS ALBINUS** (735-804). The most distinguished scholar of the eighth century, was an Englishman. Charlemagne made his acquaintance, invited him to his court, himself became his pupil, and established the Palatine School at his court, committing its supervision to Alcuin. Alcuin retired to the abbey of St. Martin in Tours, in 796, teaching clerics and the laity alike, for the love of it. He left many copies of the new books of that time, besides numerous theological writings, works of his own. He was the educational light of the age of Charlemagne.

ALDERMAN, EDWIN ANDERSON (1861-). President of the University of Virginia; born in Wilmington, N. C.; superintendent of Goldsboro, N. C., schools; professor of English in the State Normal College; professor of pedagogy in, and later president of, the University of North Carolina; president of Tulane University; author of several historical books.

ALLEN, WILLIAM (1784-1868). An American author; born at Pittsfield, Mass. He prepared the *American Biographical and Historical Dictionary*, the first work of general biography written in the United States. The first edition contained but 700 names; the third, published in 1857, contained over 7,000. He was president of Dartmouth College (1817-1820), and of Bowdoin (1820-1850).

ANDREWS, ELISHA BENJAMIN (1844-1919). A native of Hinsdale, N. H. He was successively pastor of a Baptist Church; president of Denison University; professor of homiletics in Newton, of history and political economy at Brown University and later at Cornell; was president of Brown University (1889-1898); was superintendent of the Chicago schools for two years. Since then he was chancellor of Nebraska University until he resigned in 1908. He has published several books, among them *Institutes of Constitutional History, An Honest Dollar, Wealth and Moral Law*, and *History of the United States in Our Own Time*.

ANGELL, JAMES BURRILL (1829-1916). Born in Scituate, R. I.; professor of modern languages at Brown; editor of the Providence *Journal* for several years; president of the University of Vermont (1866-1871); president of Michigan University (1871-1910); twice had leave of absence to accept important diplomatic missions, first to China to procure a revision of treaties between that country and the United States, second to Turkey on a similar mission. He was appointed to help arrange a treaty with Great Britain upon the fisheries questions. Regent of Smithsonian Institution (1887-1912). He has written *Progress in International Law* and *The Higher Education*.

ANTHON, CHARLES, LL.D. (1797-1867). Classical scholar and teacher; born in New York City. Served as tutor and professor of Greek and Latin for nearly fifty years in Columbia College. He is chiefly remembered by his annotated editions of numerous classical authors, long used here and in England as school and college text-books. He published also a new edition of Lemprière's *Classical Dictionary* and a dictionary of Greek and Roman antiquities.

APGAR, AUSTIN CRAIG (1838-1908). Born at Peapack, N. J., and was graduated at the New Jersey State Normal School, where he now teaches. He is the author of *Geographical Handbook, Geographical Drawing Book, Trees of the Northern United States*, and *Birds of the United States*.

AQUAVIVA, CLAUDIUS (1543-1615). An Italian, became the head of the order of Jesuits at the age of 38, and was chiefly responsible for its organization. In 1584 he appointed a commission of six Jesuits to frame rules for regulating the studies of the order. The result, after revision and approval by Aquaviva, was *Ratio Atque Institutio Studiorum Societatis Jesu*, a famous pedagogical book.

AQUINAS, THOMAS (1225-1274). Born of a noble Italian family, encountered the strongest opposition when he entered the order of the Dominicans. He became a public teacher at Paris until Pope Urban called him to teach philosophy in Italy. He declined an archbishopric to devote himself to study and lecturing. He was called the "Father of Moral Philosophy," and his *Summa Theologiae* is one of the first attempts at a complete theological system.

ARNOLD, SARAH LOUISE (1859-). Born in Abington, Mass. She taught in several states, and then became successively principal of the training school in Saratoga, N. Y.; supervisor of schools in Minneapolis and Boston; dean of Simmons College since 1902; author of *Waymarks for Teachers, Stepping Stones to Literature, Reading—How to Teach It*, and *The Mother Tongue*.

ARNOLD, THOMAS (1795-1842). The celebrated head master of Rugby; born on the Isle of Wight. His success was due to his endeavor to apply the principles of Christianity to school life. His literary fame rests upon his *History of Rome*.

ASCHAM, ROGER (1515-1568). Born in Yorkshire, Eng. Having pursued the study of the classics, especially Greek, with great ardor, he was appointed by the University to read Greek lectures. In 1548 became the tutor of the Princess Elizabeth in languages; was Queen Mary's Latin secretary, and Elizabeth retained him as tutor and secretary until his death. His treatise on classical education, *The Schoolmaster*, was published in 1570.

AVERY, ELROY McKENDREE (1844-) Author; born in Michigan; principal of high and normal schools, but his chief educational work has been as the author of a series of text-books on physics and chemistry which are used in the public schools throughout the country. He is writing a *History of the United States and its People*, to be completed in 15 volumes.

BACON, FRANCIS (BARON VERULAM) (1561-1626). A celebrated English philosopher. He was the first of his time to make the method of induction the object of investigation, and began the reform of existing sciences and the harmonizing of all knowledge. By his *Essays, Advancement of Learning*, and *Novum Organum*, he directed the attention of learned men to the reform of school methods. He exerted a wonderful influence on the scientific thought and teaching of the

European scholars who succeeded him. (See ENGLISH LITERATURE.)

BACON, ROGER (1214-1294). An English monk and philosopher; born at Ilchester, Eng. In his *Opus Majus*, an encyclopedia of all sciences, grammar, logic, mathematics, physics, and moral philosophy, he shows the need of different methods of study in language and nature. He made remarkable chemical discoveries, invented the magnifying glass, and rectified the calendar.

BAILEY, HENRY TURNER (1865-). An American art teacher, lecturer, and author; born at Scituate, Mass. After being supervisor of drawing in Lowell, was agent of the Massachusetts State Board of Education, in the interest of Industrial Drawing; official representative for the United States to the International Congress of Public Art at Brussels in 1898. He is the author of *First Year in Drawing*, *The Blackboard in Sunday School*, *The Great Painters' Gospel*, and editor of *School Arts Book*.

BAIN, ALEXANDER (1818-1903). English psychologist; born at Aberdeen, Scotland; taught in Aberdeen University; made professor of physics in the Andersonian University, Glasgow; in 1860 became professor of logic in the University of Aberdeen, and in 1881 was elected its rector. He is the exponent of physical psychology, and his chief work, *The Senses and the Intellect*, together with *The Emotions and the Will*, is the most learned and exhaustive treatise on the human mind in the English, or perhaps in any, language. Among his many writings are *English Grammar*, *Mental and Moral Science*, *Logic—Deductive and Inductive*, and *Education as a Science*.

BALLIET, THOMAS M. (1852-). Educated at Franklin and Marshall College, and at Yale; taught for several years, and then for a year devoted his time to lecturing on educational subjects in the West; was superintendent of schools in Reading, Pa., for two years, and in Springfield, Mass., for seventeen years. He has written and lectured much with inspiration and wide influence. The manual training movement found him one of its earliest and most ardent supporters. He is now dean of the School of Pedagogy in New York University, and is associate editor of the *Pedagogical Seminary*.

BARIZZA, GASPARINO (1370-1431). An Italian scholar; professor of Latin at Padua, coming from Milan. With Petrarch, he led in the movement for the revival of classical Latin, the recovery of the Latin text, and for the founding of libraries; he developed boarding schools for boys; wrote a manual of rhetoric for use in schools.

BARKER, GEORGE FREDERICK (1835-1910). Born at Charlestown, Mass.; professor of physiological chemistry and toxicology at Yale; professor of physics at the University of Pennsylvania from 1872 to 1900; now professor emeritus; expert in poisons in criminal cases, and in patent suits; has written a text-book on chemistry.

BASCOM, JOHN (1827-1911). Born at Genoa, N. Y.; professor of rhetoric in Williams, and for thirteen years president of Wisconsin University; returned to Williams to accept the chair of political science, remaining till 1901; he was prominent as a lecturer on sociology and economics, but is most widely known as an efficient teacher and scholarly writer on economics, philosophy, and sociology; author of a *Political Economy*, *Ethics*, *Evolution and Religion*, etc.

BASEDOW, JOHANN BERNARD (1723-1790). Born at Hamburg, came under the influence of Rousseau's *Emile*, and proposed a general reform in education in Germany. His *Elementarwerk* appeared in 1774, combining the principles of Rousseau with the methods of Comenius. The *Philanthropinum* was established as a result, and exerted a wide influence.

BEDE, THE VENERABLE (673-735). The most distinguished scholar of his age; born in England. He obtained all the learning possible in those days, being acquainted with both Latin and Greek. He spent his life teaching and writing at Jarrow. He composed an encyclopedic work for his pupils, and wrote homilies, hymns, epigrams, history, and a work on grammar. His last work was a translation of the Gospel of St. John into Anglo-Saxon

BELL, ALEXANDER MELVILLE (1819-1905). Scotch-American educator, born in Edinburgh; lecturer and instructor at Edinburgh University, the University of London, and Queen's College, Kingston, Canada, successively; famous as the inventor of "visible speech" a system of phonetic notation, very successfully used in the instruction of deaf mutes. He has written *Visible Speech*, *Principles of Phonetics*, and *World-English*.

BELL, ANDREW (1753-1832). A Scotch educational reformer; born at St. Andrew's. He went to India as a chaplain, but became the principal of an orphan school at Madras founded by the East India Company. The scarcity of properly qualified assistants forced him to use pupils to instruct one another under his direction, thus beginning the "Monitorial System," sometimes called the "Madras System." In 1797 Bell published *An Experiment in Education Made at the Male Asylum of Madras*, which attracted little attention until 1803, when Joseph Lancaster in an educational treatise recommended Bell's Monitorial System, the forerunner of the public graded schools.

BLOW, SUSAN E. (1843-1916). The foremost pioneer of the kindergarten training movement in the United States. With Superintendent William T. Harris, in 1873, she made her first experiment, gladly proffering her own services gratuitously to the St. Louis Board of Public Schools. Sixty children were assigned her, quickly dispelling the Froebelian notion that only 12 or 15 could be successfully taught. Miss Blow's success marked a new epoch in the history of elementary education. Her well-known book, *Symbolic Education*, has already become a classic, and her later book, *Letters to a Mother*, is a further welcome addition to kindergarten literature.

BOYNTON, FRANK DAVID (1843-). Superintendent of schools in Ithaca, N. Y.; born in Potsdam; became principal of the Ithaca High School, and director of the Ithaca Conservatory of Music; was chairman of the commission to revise the regents' academic syllabus in 1900 and 1905, and of the commission appointed by the University of the State of New York to arrange courses of study for the secondary schools of the state, and is a member of the state examining board. He is the author of *School Civics*, *Manual of Civics*, and *Plane and Solid Geometry*.

BROWN, ELMER ELLSWORTH (1861-). Born at Kiantone, N. Y.; taught in high schools and universities; United States Commissioner of Education (1906-1911); chancellor of New York University; member International Congress of Arts and Sciences at St. Louis in 1904 and president National Council of Education; has written *The Making of our Middle Schools*, *The Origin of American State Universities*, and a monograph entitled *Secondary Universities*.

BRYAN, WILLIAM LOWE (1860-). Born near Bloomington, Indiana; instructor in Greek, professor of philosophy, and vice-president at the University of Indiana from 1885 to 1902, since which time he has been its president.

BURGESS, JOHN WILLIAM (1844-). Born at Conersville, Tennessee; was professor of political science and history at Amherst, but, since 1876, has been connected with Columbia University as professor of political science and constitutional law; appointed the first Roosevelt professor of American history and institutions at the University of Berlin; published important works on political science and history.

BUSS, FRANCES MARY (1827-1894). A pioneer in the movement for the higher education of women in England, but chiefly in promoting secondary education for girls. A small private school, with the aid of the Brewers' and Clothiers' Companies, developed into the North London Collegiate and Camden Schools, the first school for girls in England offering educational facilities corresponding to the English grammar schools for boys, serving as a model for the many secondary schools founded by the Girls' Public Day School Company, the Church Schools Company, and many others.

BUTLER, NATHANIEL (1853-1927). Born at Eastport, Me., is a graduate of Colby University and has been teacher and professor in high schools and colleges; was president of Colby from 1895 to 1901, and has been dean of the College of Education, University of Chicago, since 1905; largely identified with the University Extension movement.

BUTLER, NICHOLAS MURRAY (1862-). Born in Elizabeth, N. J. Since 1885, he has been connected with Columbia College, as tutor, dean, and professor of philosophy and education, and finally president; he is president of Barnard College, Teachers College, and of the College of Pharmacy; trustee of the Carnegie Foundation for the Advancement of Teaching, and president of the University Settlement Society. In 1893 he founded the *Educational Review*, of which he is still the editor, as he is of the *Great Educators* series; president of the N. E. A. in 1895;

has served on various boards of education, and has also been active in civil and political reform; founded the New York College for the Training of Teachers (now Teachers College), and was its first president. Author of *The Meaning of Education*, and of a number of monographs on *Education in the United States*.

CALKINS, NORMAN A. (1822-1895). Born at Gainesville, N. Y.; successively, teacher, principal, and superintendent of schools; conducted teachers' institutes for many years in New York and adjoining states; assistant-superintendent of schools in New York City and instructor in methods and principles of education in the Saturday Normal School; active in the National Education Association; author of *Primary Lessons* and other books for teachers.

CAPEN, SAMUEL PAUL (1878-). Professor of modern languages at Clark College since 1902; president of Public Education Association since 1908.

CARDAN, JEROME (CARDANO, GIROLAMO) (1501-1575). Born in Italy, studied medicine at Padua, and became a celebrated physician at Milan, and professor of mathematics there, at Bologna, and at Rome; a man of great learning and an original thinker, being the first to demonstrate the formula for the resolution of equations of the third degree. His published works, in ten volumes, include treatises upon almost every department of learning.

CASSIODORUS, MAGNUS AURELIUS (about 468 to 568). Roman historian and statesman. The most profound and enlightened scholar of an age of barbarism. He may be regarded the father of the monastic *scriptorium* to which we owe the preservation of most of the classic literature; writer of text-books on rhetoric and grammar which had great vogue in the Middle Ages.

CAVANAUGH, JOHN WILLIAM (1870-). Roman Catholic clergyman; born at Leetonia, Ohio; was superior of Holy Cross Seminary, Indiana, from 1898 to 1905. He has been professor of English literature, and since 1905 president at the University of Notre Dame. Member of the Rhodes scholarship committee for Indiana; author of *Priests of the Holy Cross*.

CHAMBERLAIN, ALEXANDER FRANCIS (1865-1914). A Canadian educationist, born in England; educated in Canada; graduated at Toronto University (B.A., 1886; M.A., 1889); at Clark University (Ph.D., 1892), where he has since been assistant professor of anthropology; member of several learned societies; made special investigations of the Kootenay (B.C.) Indians; editor of *Journal of American Folk-Lore* since 1900; department editor *American Anthropologist;* author of essays, sonnets, short poems, and hymns.

CHANCELLOR, WILLIAM ESTABROOK (1867-). Born in Dayton, Ohio; lecturer on sociology, history, and economics, at Brooklyn Institute; superintendent of schools in Bloomfield, and Paterson, N. J., and since 1906 in the District of Columbia; lecturer on school administration at Chicago University, and on education and history at the George Washington University; member of several important scientific associations. His principal important scientific works are *Mathematical Series* in 10 volumes, *American History, Graded City Spellers*, and *A Theory of Education*.

CHEEVER, EZEKIEL (1615-1708). Born in London, but came to New England in 1637. He taught in New Haven, Ipswich, and Charlestown, for thirty-two years. In 1670 he went to Boston, and for thirty-eight years served as head master of the Boston Latin School; the most famous of colonial schoolmasters. He wrote the *Accidence*, which was used as a text-book in Latin for over a century, and *Scripture Prophecies Explained*.

CHILD, FRANCIS JAMES (1825-1896). A distinguished American scholar and teacher; born in Boston, Mass.; professor of English at Harvard (1876-1896); wrote *Observations on the Language of Chaucer* and *Of Gower's Confessio Amantis*. His greatest work is the edition of *English and Scottish Ballads* in eight large volumes.

CHRYSOLORAS, MANUEL (? -1415). A Byzantine Greek scholar, the first important teacher of Greek of the Renaissance; taught in Constantinople, and, at the invitation of the Florentine Republic, in Florence; later, in other cities of Italy; his most important work was a *Greek Grammar*, published in Venice in 1484.

CLARKE, SIR CASPAR PURDON, KT. (1846-1911). Director of the Metropolitan Museum of Art, New York (1905-1910); born in London, England; educated in England and France; for a time he was principal of the School of Arts, Calcutta, India, and was a recognized authority on Indian Art; afterwards, he became director of the Art Museum, South Kensington, London, which contains the finest collection in the British Empire.

COCHRAN, DAVID HENRY (1828-1909). Born in Springville, N. Y.; president of the New York State Normal College, and of the Brooklyn Collegiate and Polytechnic Institute; when president of the Brooklyn Y. M. C. A., he organized evening schools and a course of scientific lectures.

COLBURN, DANA POND (1823-1859). Horace Mann's attention being attracted to him by his teaching of arithmetic, he was appointed an institute instructor. In 1852, opened a private normal school in Providence, which became a state institution and of which he was the first principal. He published *Arithmetic and its Applications* and *Common School Arithmetic*.

COLBURN, WARREN (1793-1833). A distinguished American mathematician and educator; born in Massachusetts; his *First Lessons in Intellectual Arithmetic* was immensely popular in America and England and was widely translated. He wrote a *Sequel* to his arithmetic and an *Algebra*.

COMENIUS (or **KOMENSKY**), **JOHANN AMOS** (1592-1670). Bishop of the Moravian Church; born in *Moravia*; in 1631, published his *Janua Linguarum Reserata* in which he attempts to systematize the entire field of knowledge, so as to bring it in outline within the grasp of each child; organized the schools in Moravia, Sweden, and Holland. He recommended a system of schools like the American system of kindergarten, elementary and secondary schools, and university. His *Orbis Pictus* was a description, in short and easy sentences, of objects illustrated by rude engravings, and was the most popular text-book in Europe. He was the forerunner of Rousseau, Pestalozzi, and Froebel.

COMPAYRE, JULES GABRIEL (1843-1913). Born in France; professor of philosophy and the history of education in normal schools, and rector of the Academy at Poitiers and at Lyons; member of the higher council of public instruction, and of the commissions appointed to reorganize primary instruction; was inspector-general of public education in 1905; is considered one of the foremost French writers of this century on pedagogic questions. His principal writings are: *Histoire critique des doctrines de l'education en France*, a brilliant and valuable work, *Etudes sur l'enseignement et l'education, Histoire de la pedagogie*, and *Abelard and the Origin of Universities*.

COOLEY, EDWIN GILBERT (1857-1923). Born at Strawberry Point, Iowa; was superintendent of schools, principal of a high school, and elected principal of Chicago Normal School, but before taking the position was elected to the superintendency of the Chicago Schools; was president of the National Education Association for 1907-1908.

DABNEY, CHARLES WILLIAM (1855-). President of the University at Cincinnati; professor of chemistry in the University of North Carolina and state chemist; discovered the phosphate deposits and tin ore in North Carolina, and was largely instrumental in establishing an industrial school at Raleigh; was president of the University of Tennessee and assistant secretary of agriculture at Washington during Cleveland's administration; author of *Old College and New, Washington's Interest in Education*, and *Agriculture and Education*.

DANA, EDWARD SALISBURY (1849-). Born in New Haven, Conn.; curator of the mineral collection at Yale, and professor of physics; trustee of Peabody Museum and editor of the *American Journal of Science*. His text-books on mineralogy have been deservedly popular and are in use in many schools.

DAVIS, WILLIAM MORRIS (1850-). Geographer and geologist; born in Philadelphia; for three years assistant at the Argentine National Observatory; has been connected with Harvard since 1878 as professor of physical geography and geology; a member of the Carnegie Institution Expedition to Turkestan in 1903, and traveled in South Africa two years later; author of *Physical Geography* and *Elementary Meteorology*, and is associate editor of *Science, American Naturalist*, and *The American Journal of Science*.

DAY, JAMES ROSCOE (1845-1923). Born in Maine; was clergyman in Portland, Boston, and New York Methodist churches; chancellor of Syracuse University since 1894; was elected Bishop of the Methodist Episcopal Church in 1904, but resigned.

DEGARMO, CHARLES (1849-). Born in Wisconsin; professor of modern languages, professor of psychology in the University of Illinois, and president of Swarthmore College. Since 1898 he has been professor of the science and art of education at Cornell; author of *Essentials of Method, Herbart and Herbartians, Language Lessons,* and *Principles of Secondary Education.*

DEWEY, MELVIL (1851-). Born in New York State; while at Amherst College he was acting librarian; planned and directed three national educational societies—the American Library Association, the Metric Bureau, and the Spelling Reform Association; also the Library Bureau for advancing library interests. From 1883 to 1888, he was chief librarian and professor of library economy at Columbia; founder and director of the Albany Library School; has written *Library School Rules* and *Decimal Classification and Relative Index.*

DOLBEAR, AMOS EMERSON (1837-1910). For 33 years professor of physics at Tufts College, and afterwards professor emeritus; invented the writing telegraph, the magneto-telephone, the static telephone, and the air space telegraph cable; discovered the convertibility of sound into electricity, telegraphing without wires, and photographing with electric waves; wrote several books, *Matter, Ether, and Motion* and *Modes of Motion* being his principal works.

DRAPER, ANDREW SLOAN (1848-1913). Born in New York State; American lawyer and educator; served on the City Board of Education in Albany; member of the Court of Commissioners on Alabama claims in 1885; state superintendent of public instruction in New York, and he accomplished among other reforms, the adoption of a system of uniform examinations; superintendent of the Cleveland, Ohio, schools for two years, and president of the University of Illinois for ten years; elected first commissioner of education for the state of New York (1904-1913); declined the election to the first superintendency of the schools of Greater New York; member of the Board of United States Indian Commissioners (1902-1913); published *The Rescue of Cuba* and many addresses; received medals for work as educational writer and speaker; editor-in-chief of *Self Culture for Young People.*

DUNSTER, HENRY (about 1612-1659). Born in Lancashire, England, and educated at Cambridge. He emigrated to America (1640) and at once became president of Harvard College, resigning in 1657.

DUTTON, SAMUEL TRAIN (1849-1919). A teacher, principal and superintendent of schools (1874-1900); professor of school administration and superintendent of Horace Mann Schools, Teachers College, N. Y., since 1900; lecturer in pedagogy at Harvard; author of several valuable text-books.

DWIGHT, TIMOTHY (1828-1916). Born at Norwich, Conn.; for twenty-eight years professor of sacred literature and New Testament Greek at Yale Theological Seminary; president of Yale University, as was his father before him; member of the American committee for the revision of the Bible; translated and edited several foreign works on the Epistles of the New Testament, and has published a volume of his sermons entitled *Thoughts of and for the Inner Life,* and *Memories of Yale Life and Men.*

ELIOT, CHARLES WILLIAM (1834-1926). Called the "First Living Citizen of America"; born in Boston, Mass.; was tutor in mathematics and chemistry at Harvard several years, later professor of analytical chemistry in the Massachusetts Institute of Technology, whence he was elected president of Harvard University (1869). In this position he has led most of the colleges in the country to substitute electives for the former uniform courses of study. He resigned the presidency of Harvard and was elected president emeritus (1909). By his lectures and writings, and by his work on the "Committee of Ten" in the National Education Association, he has also been active in reforming the courses in secondary and common schools. Some of his published works are *The Working of the American Democracy, Educational Reform,* and *Essays and Addresses.*

ELY, RICHARD THEODORE (1854-). Born at Ripley, N. Y.; was professor of political economy at Johns Hopkins, and since has held a similar position at the University of Wisconsin; founded the American Economic Association and the American Bureau of Industrial Research; has been president of the American Association for Labor Legislation since 1900. He is the author of a number of works on political economy, among them *Taxation in American States and Cities, The Social Law of Service, Monopolies and Trusts,* and *Studies in the Evolution of Industrial Society.*

ERASMUS, DESIDERIUS (1467-1536). Born at Rotterdam; one of the greatest scholars of the Renaissance and Reformation period; was famous as chief interpreter to the peoples of northern Europe of the great intellectual movement of the fifteenth century. Having hopes of preferment from Henry VIII., he went to England and became professor of Greek at Oxford. He was a man of profound learning and brilliant wit. Besides editing several classic authors, he prepared the earliest edition of the Greek testament. His *Colloquia* has exerted the greatest influence of all his writings.

ERIGENA, JOHANNES SCOTUS, "JOHN THE SCOT" (about 810 to about 875). A distinguished British philosopher, whose early and late years are shrouded in obscurity; he was invited to France by Charles the Bald and placed in charge of the court school. Erigena translated the writings of Pseudo-Dionysius, the Areopagite. His great work is *De Divisione Naturae,* first printed in Oxford, 1681. His teachings mark the transition from the older Platonism to Neo-Platonism.

FALCONER, REV. ROBERT A. (1867-). Leading educator; born in Nova Scotia. Matriculation honors at Toronto University, gaining B.A. (1888), M.A. (1889); B.D. (1892) at Edinburgh University. Ordained to the ministry; appointed lecturer on New Testament Exegetics in Presbyterian College, Halifax (1892), professor (1895).

FAUNCE, WILLIAM HERBERT PERRY (1859-). Born at Worcester, Mass.; was graduated at Brown; instructor of mathematics at Brown; pastor of Baptist churches at Springfield, Mass., and New York City until his election to the presidency of Brown University in 1899; has been lecturer at University of Chicago and at Yale.

FELLOWS, GEORGE EMORY (1858-). Born at Beaver Dam, Wis.; taught for ten years in high schools; professor of European history at Indiana University and assistant professor of history at Chicago University. Since 1902 he has been president of Maine University; author of *Outlines of the Sixteenth Century* and *Recent European History.*

FENOLLOSA, ERNEST FRANCISCO (1853-1908). Born at Salem, Mass.; went to Japan as professor of political economy and philosophy in Tokyo University; was imperial fine arts commissioner to the Japanese government in 1886; professor of aesthetics and manager of the Tokyo Arts Academy; became curator of the oriental art department of the Museum of Fine Arts in Boston; professor of English literature in the Imperial Normal School in Tokyo; lectured on the Orient, and was the author of several books, including two volumes of poems and monographs on oriental art.

FINLEY, JOHN HUSTON (1863-). Secretary of the State Charities Aid Association in New York; founder and editor of the *State Charities Record* and *Charities Review* of New York; professor of politics, Princeton; president of New York College (1903-1913); Commissioner of Education, New York state (1913).

FITCH, JOSHUA G., SIR (1824-1903). An English educator; vice-principal of the British Normal College, then principal; finally inspector of schools, including the training college for teachers. His books, *Lectures on Teaching, Art of Questioning,* and *Art of Securing Attention,* are well known.

FRANCKE, AUGUST HERMANN (1663-1727). A distinguished German educator. In 1695 he became pastor of a small town near Halle, where he started a private school in his house, which at his death had grown to be a large educational and charitable institution with 2,165 students, comprising three departments, the Pedagogium, for the children of the wealthy, the Latin School, and the common schools. The teachers were students at the University of Halle. This institution was the first to combine Christian and practical training with normal school work. Francke's ideas were opposed both to extreme rationalism and the classical school. He advocated the use of the vernacular.

FROEBEL, FRIEDRICH WILHELM AUGUST (1782-1852). Famous German educationist and originator of the *Kindergarten,* an institution for simultaneously furthering the physical, moral, and intellectual growth of children between the ages of three and seven; a "garden of children" in which young human

plants are nurtured. He held that the essence of education was to be found in wisely directed but spontaneous action, and that play was a child's most natural employment. The master-stroke of Froebel's genius was his organization of children's play. In 1826, he published his great work, *The Education of Man*, and seventeen years later, the *Mutter-und-Kose-lieder* (Songs, Games, and Stories for use of Mothers). Froebel holds that education creates nothing in the children, but merely directs the growth of inborn qualities. To him education meant unity of development in perfect accordance with the laws of being.

FRYE, ALEXIS EVERETT (1859-). Educator and author, teacher of methods and practice, Chicago Normal School; superintendent in California and Cuba; organizer of Cuban school system; educational lecturer; author of many school text-books relating to nature study and geography.

GALLAUDET, EDWARD MINER (1837-1917). Born in Hartford, Conn.; taught in his father's institution for deaf-mutes at Hartford before organizing, in 1857, the institution for Deaf, Dumb, and Blind at Washington; founded in 1864, Gallaudet College for the Deaf, which is the only college of its kind in the world. He is professor of moral and political science there, and president of the convention of American Institutions for the Deaf. He has written *Popular Manual of International Law*, and the *Life of Thomas Hopkins Gallaudet*.

GALLAUDET, THOMAS HOPKINS (1787-1851). American educator of deaf and dumb; born in Philadelphia, Pa., of French Huguenot ancestry. Familiarizing himself with the system of the Abbé Sicard in Paris, and with that of Braidwood and Watson in London, he founded an institution in Hartford, Conn., for the deaf and dumb.

GENUNG, JOHN FRANKLIN (1850-1919). An American educator; born in Willseyville, N. Y.; is professor of rhetoric in Amherst College; has written a number of excellent text-books.

GILDERSLEEVE, BASIL LANNEAU (1831-1924). Distinguished classical scholar; born at Charleston, S. C.; professor of Greek in the University of Virginia; appointed to the professorship of Greek at Johns Hopkins University, which position he still holds; edited the *American Journal of Philology* since its establishment in 1880. Among his numerous works are: *A Latin Grammar*; *Persius*; *Justin Martyr*; *Pindar*; *Essays and Studies*; *Greek Syntax*.

GILMAN, ARTHUR (1837-1909). Born in Alton, Ill.; planned the Harvard Annex School (1876), which became Radcliffe College (1894), of which Gilman became regent; founded the Cambridge school for girls, since known as the "Gilman School" (1886); wrote *Boston Past and Present*, *Shakespeare's Morals*, *History of the American People*, *The Making of the American Nation*, etc.

GILMAN, DANIEL COIT (1831-1908). Born at Norwich, Conn.; successively librarian, secretary of the Sheffield Scientific School, and professor of physical and political geography; president of the University of California, first president of Johns Hopkins University, continuing from 1875 to 1901, and then president emeritus; president of the Carnegie Institution at Washington; member of the United States Commission on the boundary line between Venezuela and British Guiana; trustee of the Russell Sage Foundation and of Carnegie Institution. He published *Life of James Monroe*, *University Problems*, and *The Launching of a University*. He was editor-in-chief of the New International Encyclopedia.

GOODWIN, WILLIAM WATSON (1831-1913). Well-known American classical scholar; born at Concord, Mass.; Eliot professor emeritus of Greek at Harvard University; first director of the American School of classical studies at Athens; author of various text-books.

GRIGGS, EDWARD HOWARD (1868-). Widely-known lecturer; born in Minnesota. Instructor in English literature and professor of literature at Indiana University; professor of ethics, and of ethics and education at Leland Stanford Junior University. Since 1899 he has been giving courses of lectures on ethics and literature to cultured audiences in the larger cities. His writings include *The New Humanism*, *A Book of Seventy Meditations*, and *Moral Education*.

GROSVENOR, EDWIN AUGUSTUS (1845-). American historian; born in Newburyport, Mass.; professor of European history at Amherst from 1892-1899; author of various historical works including: *Constantinople*, *Contemporary History of the World*, also a translation from the French of Duruy's *History of Modern Times*, *etc.*

GULICK, LUTHER HALSEY (1865-1918). Born in the Hawaiian Islands; secretary of the physical training department of the International Committee of the Y. M. C. A.; one of the faculty of the International Y. M. C. A. Training School at Springfield, Mass.; principal of Pratt Institute High School; director of physical training in the public schools of Greater New York until 1908, when he began to serve on the Russell Sage Foundation for playgrounds. His writings are *Physical Measurements*, and *Physical Education by Muscular Exercise*, and *Mind and Work*.

HADLEY, ARTHUR TWINING (1856-). Born in New Haven, Conn.; professor of political science and political economy until 1899, when he became president of Yale; has been lecturer on railroad administration, and commissioner of labor statistics. He has published *Railroad Transportation—Its History and its Laws*, *The Education of the American Citizen*, *Freedom and Responsibility*, and *Standards of Public Morality*. His writings give him first rank among American economists.

HAILMANN, WILLIAM NICHOLAS (1836-). Born in Switzerland; after teaching several years, was elected superintendent of the public schools of La Porte, Indiana; became national superintendent of Indian schools and later superintendent of schools at Dayton, Ohio. Since 1904 has been head of the department of psychology at the Chicago Normal School. His writings include a large number of educational works, among which are *History of Pedagogy*, *Early Education*, *Kindergarten Culture*, *The English Language*, and *The Laurel Primer*.

HALL, GRANVILLE STANLEY (1846-1924). Born in Ashfield, Mass.; professor of psychology at Antioch College; lecturer on psychology at Harvard and at Williams, and professor of psychology at Johns Hopkins, becoming then (1888) president and professor of psychology at Clark University. He has made child-study a specialty, and is a well-known lecturer and writer in various publications on that subject. His books include *Aspects of German Culture*, *Adolescence*, and *Youth—Its Education, Regimen and Hygiene*. He is the founder and editor of *The American Journal of Psychology* and the *Pedagogical Seminary*.

HARPER, WILLIAM RAINEY (1856-1906). An American educator; born at New Concord, Ohio; professor of Hebrew at the Baptist Seminary, Chicago (1879), where he perfected a method of teaching Hebrew by correspondence; professor of Semitic languages and biblical literature at Yale (1886-1889); president of the University of Chicago (1891-1906); wrote *Elements of Hebrew*, *Hebrew Vocabularies*, *Hebrew Method and Manual*, *Elements of Hebrew Syntax*, and *Prospects of the Small College*.

HARRIS, ABRAM WINEGARDNER (1858-). Born in Philadelphia; taught mathematics at Wesleyan and elsewhere; director of the Office of Experiment Stations, United States Department of Agriculture; from 1893 to 1901 president of the University of Maine; since 1906 president of Northwestern University.

HARRIS, GEORGE (1844-1922). President of Amherst College (1899-1912); born in Maine; professor of Christian theology in Andover Theological Seminary; one of the editors of the *Andover Review*; author of *Moral Evolution*, and *Inequality and Progress*.

HARRIS, WILLIAM TORREY (1835-1909). One of the most eminent American educators; was United States Commissioner of Education from 1889 to 1906; superintendent of St. Louis public schools (1867-1888); lecturer at the Concord School of Philosophy; represented the U. S. Bureau of Education at the Brussels Educational Congress and the Paris Exposition in 1889; established the *Journal of Speculative Philosophy*, and was regarded as the best exponent in this country of the philosophy of Hegel. He helped edit Appleton's School Readers, edited Appleton's educational series, department of philosophy in Johnson's Cyclopædia, and was editor-in-chief of Webster's International Dictionary. He was the author of *Introduction to the Study of Philosophy*, *Hegel's Logic*, and *Psychologic Foundations of Education*, besides many other works

HAZARD, CAROLINE (1856-). Born in Rhode Island; member of the Massachusetts State

Board of Education; president of Wellesley (1899-1910). Author of *Some Ideals in the Education of Women.*

HECKER, JOHANN JULIUS (1707-1768). A German educator. Pupil of Francke. By command of Frederick II. of Prussia he formulated a system for the government of common schools, which is now partly in force, and established the first permanent real-schule.

HEGIUS, ALEXANDER (1420-1495). A German humanist. He was a pupil of Thomas à Kempis, and in his turn instructed Erasmus, Pope Adrian VI., and Conrad Goclenius. He used no mediæval text-books, but made Latin his standard. His works include treatises on pedagogy, psychology, and morals.

HERBART, JOHANN FRIEDRICH (1776-1841). A German philosopher and eminent educationist. Following at first in his teaching the methods of Pestalozzi and Fichte, after more reflection he formed one of his own, now familiarly called the *Herbartian System.* The theory of "Apperception" was fully set forth by him as well as the problem of how to realize the ideas of freedom, perfection, right, equity, and benevolence within the sphere of education. Many training schools have been established on his methods. His writings fully explain his position and theories, among them *Herbart's A B C of Sense-Perception, Application of Psychology to the Science of Education,* and *Outlines of Educational Doctrine.*

HIRSCH, EMIL G. (1851-1922). He became a rabbi in 1877, and in 1892 was appointed professor of rabbinical literature and philosophy at Chicago University; for several years editor of the *Zeitgeist,* and now edits the *Reform Advocate,* Chicago.

HOPKINS, MARK (1802-1887). Professor of moral philosophy and rhetoric at Williams in 1830; elected to the presidency of Williams in 1836, which office he held for thirty-six years, retaining the professorship of mental and moral philosophy after resigning the office of president. As a teacher he made a wonderful impression upon his classes, and his administration of the college was remarkably successful. Among his published works are *The Law of Love, Love as a Law,* and *Teachings and Counsels.*

HOWARD, OLIVER OTIS (1830-1909). From 1865 to 1874, he was commissioner of the Freedmen's Bureau, establishing within three years 1,400 schools and 700 Sabbath schools; he was largely instrumental in establishing Howard University, Washington, and was its president from 1869 to 1873; superintendent at West Point for a year; founded Lincoln Memorial University in 1895. He wrote *Donald's School Days, Nez Perces Joseph,* and *Our Wild Indians.*

HOWE, SAMUEL GRIDLEY (1801-1876). An American educational reformer and philanthropist. His name will long be remembered for his work among the blind. In 1832 he established the famous Perkins Institution for the Blind, and later was the means of a number of similar institutions being founded throughout the country. He introduced many improvements in the printing and preparation of books for the blind.

HUNTINGTON, EMILY (1841-1909). A writer as well as educator. In 1872 she became the head of the Wilson Industrial School for Girls, in New York, the first school of its kind in America, laboring for twenty years; started the first boys' club and the first kitchen garden; author of many books on gardening.

HUTCHINS, HARRY BURNS (1847-). President of the University of Michigan (1910-1920). Instructor and assistant professor of history and rhetoric, 1872-1876, of law, 1884-1887, in the same university; professor of law in Cornell, 1887-1894; professor and dean in law department, 1895-1910; acting president in 1897-1898, and again from October, 1909, to June, 1910, of the University of Michigan.

HYDE, WILLIAM DEWITT (1858-1917). Pastor of a church in Paterson, N. J.; called to be the seventh president of Bowdoin College in 1885. He has frequently written and spoken on educational topics. Some of his published works are *Practical Ethics, Social Theology, The Evolution of a College Student, The Art of Optimism,* and *From Epicurus to Christ.*

ISIDORE, ARCHBISHOP OF SEVILLE (?570-636). Most famous ecclesiastic of the seventh century, and most learned man of his time. We are indebted to him for many fragments of Greek and Latin authors. His *Etymologies,* in twenty books (edited by Otto Leipsig, 1833), formed the great mediaeval encyclopedia.

ISOCRATES (436-228 B. C.). The most celebrated teacher of his age, was educated at Athens, being taught by Socrates. In 392 B. C. he opened a school at Athens, where he taught the art of rhetoric. Cicero gained much from him, and said that in his school the eloquence of Greece was developed and perfected. His writings include orations and letters.

JAMES, EDMUND JANES (1855-1925). Political economist; born in Jacksonville Ill.; professor of public finance and administration, Wharton School of Finance and Economy, University of Pennsylvania (1883-1895); professor of political and social science in the same university (1884-1895); professor of public administration, University of Chicago (1896-1901); president of the Northwestern University from 1902 to 1904; now president of the University of Illinois; editor and author of a number of works on political economy and social science and public law.

JAMES, WILLIAM (1842-1910). American psychologist and philosopher; born in New York; filled the following offices at Harvard: assistant professor of comparative anatomy and physiology; assistant professor of philosophy; professor of psychology and philosophy; besides being Gifford lecturer on natural religion at Edinburgh. He contributed much to analytical psychology and to metaphysical analysis in philosophy. Some of his works are: *Principles of Psychology, The Will to Believe, Talks to Teachers on Psychology, Human Immortality, Pragmatism.*

JEROME, SAINT (about 340-420). The most learned of the early fathers of the Latin Church, and a contemporary of Ambrose and Augustine. He presided over a monastery founded by Paula in Bethlehem and finished the book to which he owes his fame, viz., *The Latin Translation of the Bible.*

JESSE, RICHARD HENRY (1853-). Born in Virginia; instructor in the universities of Louisiana and Tulane until called to the presidency of the University of Missouri in 1891; prominent in the National Education Association, being one of the Committee of Ten on the course of study for secondary schools (1892-1893). President of Southern Association of Colleges and Secondary Schools; author of many pamphlets and addresses.

JOHNSON, EMORY RICHARD (1864-). American educator; professor of commerce and transportation, University of Pennsylvania, since 1896; expert on transportation and railway property for U. S. government (1899-1905); author of works on transportation.

JOWETT, BENJAMIN (1817-1893). A distinguished English scholar and educationist. A brilliant university career was followed by a fellowship and tutorship at Balliol, of which college he was master from 1870 until the time of his death. Jowett exercised a marked personal influence over his pupils, and did more perhaps than any of his contemporaries toward shaping the life and thought of his generation. He was the foremost Greek scholar of his day.

JUDSON, HARRY PRATT (1849-1927). Born at Jamestown, N. Y. Teacher and principal of the high school at Troy, N. Y.; professor of history in the University of Minnesota; head professor of political science, and dean of the faculties of art, literature, and science, at the University of Chicago. Since 1907 he has been president of the University of Chicago; author of a number of books on historical and educational subjects.

KING, HENRY CHURCHILL (1858-). Born at Hillsdale, Mich.; was associate professor, professor and dean of Oberlin College from 1884 to 1902, when he was elected its president; was a member of the Committee of Ten in the National Education Association to report on secondary school studies; author of *The Appeal of the Child, Personal and Ideal Elements in Education,* and *Letters to Sunday School Teachers.*

LADD, GEORGE TRUMBULL (1842-1921). American psychologist and philosopher; born at Painesville, Ohio; professor of philosophy at Yale since 1881. He has written numerous works on psychology and philosophy, including *Philosophy of Religion, Outlines of Physiological Psychology, Philosophy of Mind, Philosophy of Conduct.*

LANCASTER, JOSEPH (1778-1838). English educator; born in London. He made use of, and improved, Bell's Monitorial System; established the Royal Lancastrian Society from which grew the British and Foreign School Society.

LA SALLE, JEAN BAPTISTE DE (1651-1719). A French priest; born at Rheims; founder of the order commonly called the "Christian Brothers," having for its object the providing of schools for the poor. After establishing schools in various parts of France, he went

to England and James II. intrusted to him the educating of fifty Irish boys of good family. In 1699 he established the first technical school. At his death the order comprised 274 Brothers and 10,000 pupils. Some of his books have been translated into English: *The Rules of Christian Politeness* and *Management of Christian Schools*. La Salle was canonized by Pope Leo XIII.

LILY, or LILLY, WILLIAM (about 1468-1522). A celebrated English grammarian. He was graduated from Oxford, traveled to the Orient, lived at Rhodes and Rome to perfect his knowledge of Greek and Latin. He opened the first private or aristocratic school in London for training gentlemen's sons for Oxford and Cambridge in the dead languages. He was the first headmaster in Colet's School, in St. Paul's Churchyard, the first public school in England. He was probably the first teacher of Greek in England and was one of the chief exponents of the "new learning" in that country. He edited and published a work known as *Lilly's Grammar*.

LOW, SETH (1850-1916). An American administrator; born in Brooklyn, N. Y.; graduated at Columbia University (1870); president Columbia University (1890-1901); united its several departments, expanded its scope, promoted removal to its present commanding site, and gave to it the great library building completed at a cost of over $1,000,000 to his private fortune; mayor New York City (1902-1903).

LOWELL, ABBOTT LAWRENCE (1856-). Was graduated from Harvard (1877); and from Harvard Law School (1880); legal practitioner (1880-1897); lecturer on government at Harvard (1897-1899); professor of the science of government (1900-1909); president of Harvard University (1909); trustee of the Lowell Institute of Boston; author of *Essays on Government, Governments and Parties in Continental Europe*, a widely used treatise; and *The Government of England*.

LOYOLA, IGNATIUS DE (1491-1556). Founder of the Jesuits; born in Spain. At the age of thirty-three he began to teach the rudiments of grammar in a public school to little boys; continued his studies in Paris, where Francis Xavier was one of his chosen companions; became a priest and founded the Order of the Jesuits in 1534, establishing a number of orphan asylums for boys and girls. At his death no fewer than 130 colleges had been established by the Jesuits. Loyola was canonized in 1622.

LYON, MARY (1797-1849). Pioneer in the movement for the higher education of women; taught at Derry, N. H., and from 1828 to 1834 was principal of Ipswich Seminary; founded in 1837 Mt. Holyoke Seminary, where women could fit themselves for teaching. For the sake of economy and to give the young women exercise and practice in household tasks, she arranged the course so that each student should perform some household labor each day.

McCARTHY, CHARLES HALLAN (1860-). American educator; professor American history, Catholic University of America, since 1904; author of *Lincoln's Plan of Reconstruction*.

MacCRACKEN, HENRY MITCHELL (1840-1916). Born at Oxford, Ohio. He was teacher of classics, school superintendent, chancellor of Western University, then went to New York University as vice-chancellor and professor of philosophy; chancellor of New York University (1891-1911); author of *Kant and Lotze*, and *A Metropolitan University*.

McIVER, CHARLES DUNCAN (1860-1906). Born in North Carolina; taught for several years and was elected president of the State Normal and Industrial College for women; organized many associations for the betterment of educational conditions in his own state and through the South.

MACKAY, ALEXANDER HOWARD. Born at Mount Dalhousie, Pictou, N. S. He was successively principal of Annapolis, Pictou, and Halifax academies; superintendent of education for Nova Scotia. He is very active in the educational field, advocating reforms in the systems of weights and measures, and spelling. He has been connected editorially with various educational and scientific periodicals.

MACY, JESSE (1842-1919). American educator and political economist; professor constitutional history and political science, Grinnell, since 1885; author of the *British Constitution*, texts on civics, and other works on political science.

MAIN, JOHN HANSON THOMAS (1859-). Born at Toledo, Ohio; professor of ancient languages at Moore's Hill College; professor, acting president, dean, and now president of Grinnell College.

MANN, HORACE (1796-1859). President of Antioch College (1852-1859). As secretary of the board of education appointed by the state legislature of Massachusetts (1837) to revise the school laws and to reorganize the school system, Mann wrote 12 volumes of annual *Reports* (1837-1848) which are educational classics; wrote *Lectures on Education, On the Study of Physiology in Schools, Slavery Letters and Speeches*.

MARTIN, GEORGE H. (1841-1917). Born at Lynn, Mass. He was a teacher at Bridgewater Normal School for 18 years; agent of the Massachusetts State Board of Education for two years; supervisor of the Boston schools from 1892-1904, since which time he has been secretary of the State Board of Education. His works include *Civil Government*, a text-book for schools, and *Hints on Teaching Civics*.

MATHER, INCREASE (1639-1723). A colonial divine; born at Dorchester, Mass.; in 1681 he was made president of Harvard, but his régime was characterized by various intrigues. He was a voluminous writer, his books including: *A Brief History of the War with the Indians in New England, Cometographia, Cases of Conscience, Concerning Witchcraft*.

MAXWELL, WILLIAM HENRY (1852-1920). Born in Ireland. He came to the United States, became superintendent of schools in Brooklyn, and finally since 1898 superintendent of the greater New York City schools. He is author of two school grammars.

MUIR, ALEXANDER (1834-1906). Scotch birth; B.A. at Queen's University, Kingston (1851); taught at Scarboro, Newmarket, Beaverton, Toronto (1880); principal Gladstone avenue public school, Toronto (1897). Well known national poet; author of "The Maple Leaf Forever," the national song of Canada (1866); also "Canada," "The Old Union Jack," and "Canada Forever." Member Orange Order; president Army and Navy Veterans' Association, Toronto (1892); bard to Militia Veterans '66 (1894).

MONROE, PAUL (1869-). Professor of history of education since 1902, in Teachers College, Columbia University; author of several books, including *Text-book in the History of Education*, and a brief course in the same subject.

MOULTON, RICHARD GREEN (1849-1924). An English literary critic; born at Preston, England; a well-known University Extension lecturer; now professor of English at the University of Chicago. Among his many writings may be mentioned: *Shakespeare as a Dramatic Artist, Ancient Classical Drama, Four Years of Novel Reading, The Literary Study of the Bible, Introduction to the Literature of the Bible, Modern Readers' Bible*.

MULCASTER, RICHARD (1548-1611). An English schoolmaster of wide repute; first head master of the Merchant Taylors' School (1561-1586); subsequently high master of St Paul's School, London, (1596-1608). His best known books are: *Positions, wherein those primitive circumstances be examined, which are necessarie for the training up of children, either for skill in their book or health in their bodie* (1581); and the *Elementarie, which entreateth Chefelie of the right writing of our English tung* (1582). He strenuously advocated physical training as well as music for boys.

MULLANY, PATRICK FRANCIS (BROTHER AZARIAS) (1847-1893). Born in Ireland. President of Rock Hill College for seven years; teacher of literature at De La Salle Institute, New York; author of *Philosophy of Literature* and *Phases of Thought and Criticism*.

MUNRO, DANA CARLETON (1866-). American educator; instructor and professor of history at University of Pennsylvania (1893-1902); since 1902 professor of European history, University of Wisconsin; author of *Mediaeval History, Source Book of Roman History*, and *Mediaeval Civilization*.

MUNSTERBERG, HUGO (1863-1916). A German-American psychologist. He became instructor in psychology at the University of Freiburg, Germany, assistant professor in 1891; and in 1892 professor of psychology at Harvard University. He has devoted himself chiefly to the psychological side of psychology, and it was under his direction that the psychological laboratory at Harvard was organized. Some of his important publications are *Psychology and Life, Grundzüge der Psychologie, American Traits, Principles of*

Art Education, Science and Idealism. He is editor of *Harvard Psychological Studies.*

MURPHY, THOMAS EDWARD (1856-). Born in New York; professor of Latin and Greek at Georgetown University, as well as vice-president; president of the College of St. Francis Xavier, and (1906-1910) of Holy Cross College, Worcester

NEEDHAM, CHARLES WILLIS (1848-). Born in Castile, N. Y.; elected dean of the Schools of Law of Columbian University, Washington, D. C., and later appointed professor of law. He organized the School of Comparative Jurisprudence and Diplomacy at Washington, and was elected its dean (1898); professor of transportation and interstate commerce. President of George Washington University since 1902.

NICHOLS, ERNEST FOX (1869-1924). Born in Leavenworth, Kan.; professor of physics at Cornell, Colgate, and Dartmouth successively; professor of experimental physics, Columbia (1903-1909); president of Dartmouth College (1909); writer on radiation.

NOLLEN, JOHN SCHOLTE (1869-). American educator; professor modern languages, Grinnell (1893-1903); professor of German, Indiana University (1903-1907); president Lake Forest University since 1907; author *Outline History Modern German Literature*; editor, Schiller's *Maria Stuart*, and other poems.

NORTHROP, CYRUS (1834-1922). Born in Connecticut; professor of rhetoric and English literature at Yale from 1863 to 1884, when he was elected president of the University of Minnesota.

O'CONNELL, DENNIS J. Born at Charleston, S. C.; secretary to Cardinal Gibbons; head of the American College in Rome for several years; rector of the Catholic University of America, and president of the Catholic Educational Association.

ORIGEN (about 185-about 254). The most famous Christian writer and teacher of the third century; born in Alexandria. Educated at the famous Alexandrian School, under Clement, whom he succeeded as head of the Catechetical School. During the persecutions of the Christians by Maximinus he fled to Caesarea, where he ultimately succeeded in raising a school rivaling the fame of Alexandria. He was imprisoned and tortured for heresy, and died from the effects of his injuries. Few of his voluminous writings have come down to us.

OSLER, WILLIAM (1849-1919). American educator and physician; born in Ontario. In 1874 he was appointed professor of physiology and pathology in McGill University, and ten years later was elected professor of chemical medicine in the University of Pennsylvania; subsequently, professor in the Johns Hopkins University; at present in the University of Oxford. His writings include: *Histology Notes, Cerebral Palsies of Children, The Principles and Practice of Medicine.*

PAGE, DAVID PERKINS (1810-1848). Born at Epping, N. H. Principal of the State Normal School at Albany. His *Theory and Practice of Teaching*, the most popular of American pedagogical books, has given him a high place among nineteenth century educators.

PAINTER, FRANKLIN VERZELIUS NEWTON (1852-). An American educator and author. From 1878 to 1882 he was instructor in, and from 1882 till 1906, professor of modern languages at Roanoke College, Va., his alma mater; since then has been professor of pedagogy there. His educational writings, many and of unusual merit, include *A History of Education, Luther on Education, Introduction to American Literature, A History of English Literature, Lyrical Vignettes, Poets of the South, Great Pedagogical Essays from Plato to Spencer, An Ancient History*, and *Poets of Virginia.*

PALMER, ALICE FREEMAN (1855-1902). Born in Colesville, N. Y.; elected to the chair of history at Wellesley in 1879; acting-president the next year, and in 1882 appointed president; appointed non-resident dean of the women's department of the University of Chicago.

PALMER, GEORGE HERBERT (1842-). An American educator. Born in Boston; educated at Harvard and in Germany; became Oxford professor of natural religion, moral philosophy, and civil polity at Harvard in 1889; is a writer on classical and pedagogical subjects, his chief works being: *New Education, Self Cultivation in English, The Glory of the Imperfect.*

PARKER, FRANCIS WAYLAND (1837-1902). An American educator; born in Bedford, N. H.; principal of schools in Manchester, N. H., and Dayton, Ohio; superintendent at Quincy, Mass., and supervisor in Boston, Mass. In 1883 he was made principal of the Cook County Normal School, and in 1896 of the Chicago Normal School. He was appointed president of the Chicago Institute in 1899. His publications include: *Talks on Teaching, Course in Arithmetic*, and *How to Study Geography.*

PARKIN, GEORGE ROBERT (1846-1922). Principal of the Upper Canada College, Toronto (1895-1902). Author and lecturer on Imperial Federation, organizing representative of the Rhodes Scholarship Trust since 1902. Publications include *Reorganization of the British Empire, Imperial Federation, Geographical Unity of the Empire, The Great Dominion*, and *The Life of Dr. Edward Thring.*

PARSONS, FRANK (1854-1908). American educator. Born in New Jersey; professor of political science and economics, dean of College of Liberal Arts, Ruskin University, Mo.; director of history, Bureau of Economic Research, Washington; authority on railroads; noted lecturer on economics and sociology; has written *Our Country's Need, The Drift of Our Time, The New Political Economy, Direct Legislation*, and other works.

PAYNE, WILLIAM HAROLD (1836-1907). Born in New York State. Superintendent of schools for several years; professor of the art and science of teaching in the University of Michigan; chancellor of the University of Nashville and president of the Peabody Normal College; returned to the University of Michigan. His works include *School Supervision, Contributions to the Science of Education, The Education of Teachers*, and translations of several of Compayre's pedagogical books.

PEABODY, ELIZABETH PALMER (1804-1894). Born in Billerica, Mass. She became an ardent disciple of Froebel, and was one of the most active in introducing the kindergarten system into the United States. She published *Kindergarten Culture* and *Letters to Kindergartners.*

PESTALOZZI, JOHANN HEINRICH (1746-1827). A Swiss educational reformer, and the chief founder of modern pedagogy. He was, with the exception of Froebel, the greatest educational reformer since the time of the Revival of Learning. Realizing that social reform must come through education, he early allied himself with the reformers of the day. His principles were elaborated and carried out, and formed the basis of the Educational Movement of the nineteenth century. The modern enthusiasm for technical education is, for example, largely due to his teachings. In 1801 he gave a summary of his ideas on education in the book *Wie Gertrud Ihre Kinder Lehrt* (''How Gertrude teaches her children''). His great idea was to "psychologize education'' (his own expression). Pestalozzi's method is to proceed from the easier to the more difficult; to begin with observation and then pass to consciousness, and from consciousness to speech. Instead of the ''three R's'' he would substitute language, number, and form, as the elements of education. In his masterpiece, *Leonard and Gertrude*, he centers the education in the home itself, and seeks to reform the child's first teacher—the mother. What he strove for was not the mere enlightenment of the mind, but the regeneration of the race through sounder methods of education.

PLATTER, THOMAS (1499-1582). Swiss educator. For thirty-seven years professor of Hebrew at Basle. His autobiography is one of the best pictures extant of the school life of that time.

PRITCHETT, HENRY SMITH (1857-). Was assistant astronomer at U. S. N. Observatory, and later at Morrison Observatory; professor of astronomy at Washington University, St. Louis; superintendent of the United States Coast and Geodetic Survey; elected president of the Mass. Institute of Technology in 1900 and resigned in 1906 to accept the presidency of the Carnegie Foundation for the Advancement of Teaching.

QUICK, ROBERT HERBERT (1831-1891). An English educator; the first to lecture at Cambridge University on the history of education; wrote *Essays on Educational Reformers*, and other educational articles. The former is still a leading text-book in the study of education.

QUINTILIAN (MARCUS FABIUS QUINTILIANUS) (about 35-about 97 A. D.). A Roman rhetorician, born in Spain. Educated in Rome, he revisited Spain to teach oratory, but returned with Galba to Rome in 68. As a teacher of elocution he won great fame. Among his pupils were Pliny the Younger and the two grandnephews of Domitian. His modern reputation is based

on his great work *De Institutione Oratoria*, a complete system of rhetoric in twelve books.

RAND, THEODORE HARDING (1835-1900). Canadian educationist; born in Nova Scotia. Became superintendent of education for Nova Scotia, and later was appointed to a similar post in New Brunswick; professor of history and didactics in Acadia College; professor of education and English history in the University of New Brunswick.

RAYLEIGH, BARON (J. W. Strutt) (1842-1919). Eminent English physicist, professor at Cambridge and Royal Institute. He evaluated electric units, made many discoveries about gases at low pressures, and discovered with Ramsey the element argon. Wrote 250 learned papers. Awarded the Nobel and other prizes.

REMSEN, IRA (1846-1927). Born in New York; professor of chemistry at Williams College and at Johns Hopkins; president of John Hopkins University (1901-1912); editor of the *American Chemical Journal;* author of various works on chemistry, among which are *The Elements of Chemistry* and *Chemical Experiments*.

RICHARDS, CHARLES RUSSELL (1865-). American educator; director of science and technology at Pratt Institute (1888-1898); director of manual training at Teachers College, Columbia University (1898-1908); since 1908 director of Cooper Union, New York.

RICHARDSON, CHARLES FRANCIS (1851-1913). An American author and educator; born at Hallowell, Maine. Professor of Anglo-Saxon and English language and literature in Dartmouth College (1882-1911). Author of *A Primer of American Literature, The Choice of Books, American Literature* (2 vols.), *The End of the Beginning*, and *Daniel Webster for Young Americans*.

ROGERS, HENRY WADE (1853-1926). American educator and jurist; professor of law, University of Michigan (1883-1890); president of Northwestern University (1890-1901); professor of law, Yale (1901-1903); dean of law department, Yale, since 1903; joint author of *Two Centuries of American Law;* published *Illinois Citations and Expert Testimony*.

ROGERS, WILLIAM BANKS (1857-). Born in Cincinnati, Ohio; taught English and the classics at St. Ignatius and St. Xavier's; president of Marquette College for two years, and since 1900 president of St. Louis University.

ROSS, HON. GEORGE WILLIAM (1841-1914). Canadian statesman and educator. Born in Ontario, of Scotch parentage; appointed inspector of public schools for the county of Lambton, and towns of Petrolea and Strathroy; leader in promotion of normal schools, serving as inspector of them; author of *The History of the School System of Ontario*.

ROUSSEAU, JEAN JACQUES (1712-1778). A distinguished French writer of the eighteenth century; born at Geneva. In 1762 he published *Emile*, which had a marvelous effect throughout Europe, continuing in influence upon the whole educational world to the present time. In the opening sentence of his book he sounds the keynote of all his teachings: "All is good as it comes from the hand of the Creator; all degenerates in the hands of man." The burden of his message was nature, the nature of an idealist, perhaps, but still worthy of our efforts. Rousseau presented a negative idea of moral education. "The first education consists not in teaching the principles of virtue or truth, but in guarding the heart against vice and the mind against error." With him, all education was to come by development from within, an expansion of natural powers and not an acquisition of knowledge.

SCHURMAN, JACOB GOULD (1854-). Born on Prince Edward Island; professor at Acadia, at Dalhousie, and at Cornell, where he has been president since 1892; appointed by the president chairman of the U. S. Philippine Commission, he spent most of 1899 in the Philippines. Has written *The Ethical Import of Darwinism* and *Agnosticism and Religion*.

SEAVER, EDWIN PLINY (1838-1917). American educator, born in Northborough, Mass. He taught in the Boston schools and was superintendent of the same for fourteen years; is a member of the American Academy of Arts and Sciences, and the Massachusetts Historical Society. He is the author of the *Franklin Arithmetic, Algebra,* and *Trigonometry,* and the *Mathematical Handbook*.

SEELYE, JULIUS HAWLEY (1824-1895). President of Amherst College (1879-1890) and inaugurated the "Amherst system" of self-government: wrote a translation of Schwegler's *History of Philosophy; The Way, the Truth, the Life,* etc.

SEELYE, LAURENUS CLARK (1837-1924). Born in Connecticut. Pastor of North Congregational Church at Springfield, Mass.; later professor of rhetoric and English literature at Amherst College; first president of Smith College (1873-1909).

SEERLEY, HOMER HORATIO (1848-). President of Iowa State Normal School since 1886; received degrees from Iowa State University and Penn College. Superintendent of schools (1875-1886), Oskaloosa, Ia.; president Iowa State Teachers' Association (1884), and the department of Normal Schools in N. E. A. (1898); member of many educational societies.

SLOCUM, WILLIAM F. (1851-). Born at Grafton, Mass.; president of Colorado College; extensive writer on sociology

SMITH, NORA ARCHIBALD. American author of kindergarten and children's books, born at Philadelphia. She taught in Mexico and Arizona and in 1880 entered kindergarten work in San Francisco, part of the time as superintendent; author of *Children of the Future, Kindergarten in a Nutshell, The Message of Froebel, Kindergarten Principles and Practice, Golden Numbers, The Posy Ring, The Fairy Ring,* and many others.

SPENER, PHILIPP JAKOB (1635-1705). Founder of the German Pietists; born in Alsace; in 1670 held meetings at his house to cultivate greater evangelical piety; reformed the methods of catechising and religious instruction for children; his ideas were practised later by Francke.

STRONG, FRANK (1859-). Born in Venice, N. Y. Principal of the High School, St. Joseph, Mo.; superintendent of schools at Lincoln, Neb.; lecturer on history at Yale; president of the University of Oregon (1899-1902); chancellor of the University of Kansas; author of *Life of Benjamin Franklin, A Forgotten Danger to the New England Colonies, Causes of Cromwell's West Indian Expedition,* and *Government of the American People*.

STURM, JOHANN (1507-1589). The most renowned teacher of his age, and has left his mark on the secondary school system of all northern Europe; born in Germany; reorganized the educational system of Strassburg. His plan aimed at an extended, systematic, and well-balanced course of study. His method of teaching Greek and Latin was by double translation. The important pedagogic ideas in his method were: subjects to be kept within range of pupils' ability; all teaching to be clear and definite; little at a time; all instruction should have an ethical and a spiritual side. The instruction in our classical preparatory schools of the United States still shows Sturm's influence in a marked degree, possibly tracing its origin through English public schools like Eton, Rugby, and Harrow.

SWEET, HENRY (1845-1912). English philologist; foremost British authority on phonetics as well as a distinguished Anglo-Saxon scholar. He has contributed largely to both subjects; in particular, his works on phonetics have done much to foster more scientific methods in the study and teaching of modern languages.

TERTULLIAN (QUINTUS SEPTIMIUS FLORENS TERTULLIANUS) (about 160-about 230). An early Father of the Church; born in Carthage, son of a Roman centurion; converted to Christianity; he was a man of great originality and genius, and his writings display great wit, keen imagination, and profound learning. His chief work is the *Apologeticus*, a weighty defense of Christianity.

THOMAS, M. CAREY (1857-). Born at Baltimore, Md.; the first woman to receive the Doctorate of Arts at a European university; in 1885 appointed professor of English, and in 1894 president of Bryn Mawr College.

THRING, EDWARD (1821-1887). A famous schoolmaster, head of Uppingham School, England, from 1853 until his death; pioneer of many important reforms in secondary education and public school life; first head master in England to evince sympathy with the liberal education of girls. To English composition, pursued *pari passu* with composition in foreign languages, he assigned a foremost place, while he held the opinion that English grammar, taught inductively and analytically, provided the very best basis for language training. His writings include *Education and School,* which sets forth his matured opinions on educational methods. Other books are: *The Theory and Practice of Teaching, Exercises in Grammatical Analysis,* also *School Sermons and Songs*.

THWING, CHARLES FRANKLIN (1853-). Born in Maine; president of Adelbert College and

Western Reserve University. His publications include: *American Colleges, The Reading of Books, Within College Walls, The American College in American Life.*

TUCKER, WILLIAM JEWETT (1839-1926). Born at Griswold, Conn.; professor at Andover, and founder of Andover House, a social settlement, in Boston; president of Dartmouth College from 1893 to 1909; author of *From Liberty to Unity* and *The Making and the Unmaking of the Preacher.*

UPSON, ANSON JUDD (1823-1902). Born in Philadelphia, Pa.; professor of logic and rhetoric from 1853 to 1870; in 1890 became chancellor of the University of the State of New York.

VAN HISE, CHARLES RICHARD (1857-1918). Educator and geologist; born at Fulton, Wis. Held the following appointments in the University of Wisconsin: instructor of chemistry and metallurgy, assistant professor of metallurgy, of mineralogy, and of archean and applied geology; professor of geology; elected president of the University (1903). He is the author of a number of books and papers on geological subjects: *Archean and Algonkian, Principles of North American Pre-Cambrian Geology, Some Principles Controlling the Deposition of Ores.*

VIETOR, WILHELM (1850-). German professor of philosophy in Marburg; one of the pioneers of modern language teaching by the "New Method" (*die neuere Richtung*); the author of many recognized works in modern language teaching, one of the best-known being *Elements of Phonetics* in German, English, and French.

VIVES, GIOVANNI LUDOVICO (1492-1540). Born in Spain; considered the most learned man of his time. After being tutor to the children of Ferdinand and Isabella he lectured at Paris and at Oxford, and taught Latin to Mary, future queen of England. He wrote several pedagogical books, *The Instruction of a Christian Woman* being the most popular book of the age.

WASHBURN, GEORGE (1833-1915). American clergyman and educator; missionary in Turkey under the American Board of Commissioners for Foreign Missions (1858-1868); professor of philosophy and acting president of Robert College, Constantinople (1870-1877); president of Robert College from 1877 until his return to the United States in 1903.

WASHINGTON, BOOKER TALIAFERRO (1859-1915). American negro educator; born a slave in Virginia. In 1879 was appointed instructor in Hampton Institute, and introduced the night school, of which he took charge. In 1881 was appointed by the state to establish a colored industrial and normal school at Tuskegee, Ala., of which he became the successful principal. He is known as an interesting and effective speaker, and for his work in uplifting his race. He has written *Up from Slavery* and *Character Building.*

WAYLAND, FRANCIS (1796-1865). An American educator and author; was graduated at Union College in 1813; assumed the presidency of Brown University in 1827, retiring after 28 years of service. He published several books regarding education, political economy, and religion.

WELLS, BENJAMIN WILLIS (1856-1923). American educator and editor; professor of modern languages at the University of the South (1891-1898). Besides numerous French and German text-books, he published *Modern German Literature, Modern French Literature,* and *A Century of French Fiction* (1898).

WELLS, WEBSTER (1851-1916). Mathematician and educator; born in Boston, Mass.; was graduated at the Massachusetts Institute of Technology in 1873, became associated with the department of mathematics in that institution, and was made full professor of that subject in 1893. His publications include *Logarithms* (1878), *University Algebra* (1878), *Plane and Spherical Trigonometry* (1884), *College Algebra* (1890), *Essentials of Algebra* (1890), *Complete Trigonometry* (1900), and numerous other educational books.

WHEELER, BENJAMIN IDE (1854-1927). Born at Randolph, Mass.; instructor at Brown and Harvard; professor of comparative philology and of Greek at Cornell and at Athens, Greece; president of University of California since 1899; wrote *The Greek Noun-Accent* and *Organization of Higher Education in the United States.*

WHEELOCK, ELEAZER (1711-1779). American educator; graduate of Yale College (1733); pastor (1735); 1754, opened a school to Christianize the Indians, with two Indian boys; 1764, increased to 30 pupils, mostly white youths; 1770, located the school at Dartmouth, N. H.; a charter from George III. gave it the title of college; in recognition of Lord Dartmouth's aid, called Dartmouth College.

WIGGIN, KATE DOUGLAS (*née* **SMITH**), or **MRS. GEORGE C. RIGGS** (1857-1923). Born in Philadelphia, Pa. She went to California, where she studied the kindergarten system and later organized the California Kindergarten Training School. She has written many kindergarten stories and books, also *Rebecca of Sunnybrook Farm, Penelope's Progress, Diary of a Goose Girl, Timothy's Quest, The Birds' Christmas Carol, Penelope's Experiences in Ireland.*

WILSON, WOODROW (1856-1924), both by temperament and by training a deep student of national and international affairs, came to the presidency of the United States with fixed views of national and foreign affairs. His father, the Reverend James Wilson, and his mother, Jessie Woodrow, were of good old Scotch-Irish and English stocks. After their marriage in Ohio, and a sojourn of two years in Western Pennsylvania, they moved to Virginia, where Woodrow was born, then went to Augusta, Georgia, where he was educated at home and by private tutors. After an academic course at Davidson College and Princeton, ending in 1879, Wilson studied law in the University of Virginia and practiced for about a year in Atlanta, Georgia. Turning to political science as his life work, he took a doctorate at Johns Hopkins, where he acted as instructor, after which time he served as an associate professor of history and politics at Bryn Mawr and professor at Wesleyan University. He was called to Princeton in 1890, remaining till he assumed the governorship of New Jersey in 1911,—first, as professor of jurisprudence and political science, and then as president from 1902 to the fall of 1910.

Though serving as a Democrat in a Republican stronghold, he was enabled to initiate a number of important changes in the acts relating to primaries, public service commissions, trusts, and administration of public institutions in New Jersey. Thus the natural candidate of his party for the presidency he defeated Taft and Roosevelt in a three-cornered contest. In spite of more or less opposition, his ideals and high sense of duty won Wilson many friends. He based his claim for a second term on his policy of "watchful waiting" as regards Mexico, his views of international obligations, and his holding aloof from the World War, despite a vigorous insistence that America throw off the mask of neutrality. The return of Germany to submarine warfare on a large scale, and other acts, led President Wilson to ask congress to declare war on April 2, 1917. Hereafter he gave himself unstintedly to the prosecution of the war and to the advocacy of the League of Nations. After securing the recognition of his principles in the Versailles Conference, which he attended in person, Wilson returned to America, began a speaking tour, but was stricken in September, 1920. From this time on, he was forced into virtual retirement from all public appearances. After leaving office in 1921, he returned to private life, dying February 3, 1924, in Washington, D.C. President Wilson was twice married, first to Ellen Louise Axton, 1885, who died in the White House in 1914, and then to Mrs. Edith Bolling Gault, who survived him. He left three daughters, all children of the first Mrs. Wilson.

WIRT, WILLIAM A. (1874-). Since 1907 has been superintendent of schools at Gary, Ind., where he has perfected a system of education by which classes alternate between a regular and special teacher. This has been tried in New York and many other places under various names, such as the Duplicate System, Gary System, Study Play School. It adds 40 per cent to the use of school rooms and 20 to the school time, without increase of teachers.

WRIGHT, CARROLL DAVIDSON (1840-1909). An American economist, statistician, and educator; born in Dunbarton, N. H.; United States commissioner of labor (1885-1902); member of the anthracite coal strike commission (1902); one of the original trustees of the Carnegie Institution; president of the College Department of Clark University, Worcester, Mass.; wrote *The Industrial Evolution of the United States, Outline of Practical Sociology,* and numerous essays.

YOUNG, ELLA FLAGG (1845-1918). Superintendent of Chicago schools (1909); a teacher 47 years; district superintendent (1887-1899); professor of education, University of Chicago (1899-1905); principal of Chicago Normal School (1905-1909); member of Illinois State Board of Education since 1888; president of Illinois State Teacher's Association (1910); editor and author; president of N. E. A. (1910-1914).

RELIGIOUS AND ETHICAL WRITERS AND REFORMERS.

ABBOTT, LYMAN (1835-1922). American clergyman, author, and editor; a lawyer (1856-1859); minister (1860-1898); editor-in-chief of *Outlook* since 1898; author of many ethical works, including *How to Study the Bible* and *Life of Christ*.

ABERDEEN, ISHBEL MARIA, COUNTESS OF (1857-). Wife of the Earl of Aberdeen, former viceroy of Canada. She has devoted much of her wealth, her talents, influence, and personal service to the amelioration of the condition of the people, particularly of the women, in Scotland, Ireland, and Canada. As president of several organizations, she has done much effective work.

ADDAMS, JANE (1860-). An American social settlement worker and a founder of the Hull House at Chicago (1889); born at Cedarville, Ill. Her work is eminently practical. Great executive ability and utter unselfishness have made her a leader of social workers in America; has written much on sociological matters.

ANTHONY, SUSAN BROWNELL (1820-1906). An American reformer; born at Adams, Mass. Very active in total abstinence and anti-slavery movements. After the Civil War she devoted her work to woman suffrage; founded (1868) and published for three years *The Revolution*, a journal advocating woman's rights. Voted at an election in 1872, for which she was fined. On the platform she has lectured eloquently on her life work; has appeared before committees of Congress; and has taken part in state campaigns. Much of her literary work was done with Elizabeth Cady Stanton and Matilda Joslyn Gage.

AUGUSTINE, SAINT (354-430). Famous scholar and preacher; born near Carthage; a teacher in Rome and Carthage; in 396 became a priest and was made Bishop of Hippo in Africa. *Confessions* and *City of God* are his best-known books.

AVERY, RACHEL FOSTER (1858-1919). An American reformer; born at Pittsburgh, Pa. Educated here and abroad, taking a special course in political economy at Zurich. Has always been active in woman suffrage movements; has had charge of many conventions and the Nebraska campaign; corresponding secretary of the National Suffrage Assembly for over 20 years.

BAKER, PURLEY A. (1858-1924). An American reformer and temperance worker; born in Jackson County, Ohio, Ordained to the Methodist Episcopal Church (1884) and has held several important charges. Managed the Cleveland, O., Anti-Saloon League (1896); state superintendent (1897-1903); national superintendent Anti-Saloon League of America since 1903.

BANKS, LOUIS ALBERT (1855-). An American M. E. clergyman, born in Corvallis, Ore. Evangelist of the American Anti-Saloon League; edited *The Pacific Censor* in Vancouver; shot down in the street through the agency of enraged liquor dealers; nominated for governor at state convention of Massachusetts Prohibitionists in 1893, but declined. Has written much on religious and social themes.

BARCLAY, ROBERT (1648-1690). A Scottish divine and writer, known as the celebrated apologist of the Quakers; became a Friend in 1667, and during his travels enjoyed the companionship of William Penn. His great work, "An Apology for the True Christian Divinity," was published in 1676.

BARKER, HELEN MORTON (1834-1910). American reformer; born in Richville, N. Y. Treasurer of the National Women's Christian Temperance Union since 1893; president of Dakota W. C. T. U. for eight years; assisted Mrs. Potter Palmer; member Board of Lady Managers of the World's Fair and superintendent of the industrial department there.

BARROWS, JOHN HENRY (1847-1902). Clergyman; successive pastorates in Lawrence and East Boston, Mass., and First Presbyterian Church of Chicago (1881); Christian lecturer in India in 1896 for Chicago University; organizer and president of the World's Parliament of Religions at Chicago (1893); lecturer throughout Indian Empire (1896-1897); president of Oberlin College (1898-1902). Author of "I believe in God" and "History of the World's Parliament of Religions."

BAXTER, RICHARD (1615-1691). English Non-Conformist divine; educated privately; always strongly religious; became a teacher, then a clergyman. During the Civil War he joined with the Puritans, participating in several sieges. His first and most famous book, *The Saints' Everlasting Rest* (1650), was followed by *Call to the Unconverted*, and then by *Paraphrase of the New Testament*, which book caused his imprisonment for 18 months. Other publications, aggregating 160, appeared while he continued preaching.

BEECHER, HENRY WARD (1813-1887). Protestant pulpit orator; (1837-1847) pastor of Presbyterian churches in Indiana; (1847-1887) pastor of Plymouth Church, Brooklyn, a new Congregational organization, where his fame became world-wide. His speeches delivered in England in 1863 changed English public opinion in favor of the North. His writings are extensive in number and scope.

BEECHER, LYMAN (1775-1863). American theologian. Became famous through a sermon on dueling after the killing of Alexander Hamilton by Aaron Burr (1804); pastor at Litchfield, Conn. (1810-1826), of Hanover Street Church, Boston (1826-1832); president of Lane Theological Seminary (1832-1852); tried by his presbytery for teaching false doctrines and acquitted; sided with the New School when the Presbyterian Church divided (1838). Published Sermons on Intemperance (1814).

BELLAMY, EDWARD (1850-1898). American author, socialist, and journalist; best known work is *Looking Backward or 2000–1887;* a strong socialistic force which led to the formation of Bellamy clubs and of the National Party; *Equality*, a sequel to the first, is on similar lines; other works include sociological essays and short stories.

BENEDICT XV. (Giacomo Della Chiesa) (1854-1922). Born at Pegli, Italy; ordained priest (1878); secretary to Cardinal Rampolla (1887); adviser to the Holy Office and archbishop of Bologna (1907); made cardinal in May and elected Pope in September (1914).

BERNARD, SAINT (1091-1153). Abbot of Clairvaux; born at Fontaines, in Burgundy; pronounced one of the grandest figures in the church militant; founded in 1113 a monastery at Citeaux, in Burgundy; drew around him disciples who rose to eminence as soldiers of the cross; prepared the statutes for the Knights-Templars; defeated Abélard in public debate and procured his condemnation; founded many monasteries; awoke Europe to a second crusade.

BESANT, ANNIE (1847-). An English writer and lecturer on Free Thought; born in London. Was associated with Bradlaugh as lecturer and editor of *The National Reformer*. Carried on work among the poor; associated with Madame Blavatsky, whom she succeeded. Her writings on sociological subjects are very numerous.

BIDDLE, JOHN (1615-1662). Father of the modern Unitarianism; was repeatedly imprisoned for his anti-Trinitarian views. To save his life, Cromwell banished him to one of the Scilly isles in 1655. Here he remained three years, until the Protector liberated him in 1658. He then continued to preach his opinions till the death of Cromwell, and also after the Restoration, when he was committed to jail in 1662, and died a few months after.

BLACKWELL, ALICE STONE (1857-). A prominent writer on woman suffrage; born in Orange, N. J. A member of the staff of the *Woman's Journal* of Boston, Mass.

BLACKWELL, EMILY (1832-1910). Physician and philanthropist; sister of Elizabeth Blackwell. Began study of medicine and graduated from the medical college at Cleveland, Ohio; founded a hospital in New York (1854), which was granted college authority in 1865, and has been a successful school ever since.

BONAR, HORATIUS (1808-1889). A celebrated Scotch hymnist; wrote *Hymns of Faith and Hope*, many of which have been taken into the hymnals of most of the Protestant churches.

BOOTH, BALLINGTON (1859-). Associate founder and head of the Volunteers of America; born in Yorkshire, England. Separated from the Salvation Army in 1896 on the ground that the organization was not sufficiently democratic for the best work in America.

BOOTH, (Mrs.) MAUD BALLINGTON (1865-). Wife of Ballington Booth and with him founder and head of the Volunteers of America; born in Surrey, England. Has done extensive work in Europe and America and, lately, in prison reform work.

BOOTH, WILLIAM (1829-1912). Founder of the Salvation Army; born in Nottinghamshire, England. Associated with the Methodist body; started the "Christian Mission" in London, from which the Salvation Army originated in 1878. The success of the movement is largely due to Booth's skill as an organizer and executive. Wrote "Darkest England" in 1890.

BORGHESE (*bor-gay'zay*), **PRINCESS MARIE PAULINE** (1780-1825). The beautiful sister of Napo-

leon; born in Ajaccio; died in Florence. She left many legacies, and a donation, the interest of which was to enable two young men of Ajaccio to study medicine and surgery. The rest of her property she left to her brothers, the count of St. Leu and the prince of Montfort. The whole property amounted to 2,000,000 francs.

BOSSUET, JACQUES BENIGNE (1627-1704). French prelate and controversialist, and considered the greatest of Christian orators; first attempted philosophical treatment of history. His orations at the funerals of the duchess of Orleans and the great Condé are masterpieces.

BOURDALOUE (*boor-da-loo'*), **LOUIS** (1632-1704). A Jesuit and one of the greatest preachers France ever produced. The extreme popularity of his sermons induced his superiors to call him to Paris, and he became the favorite preacher of Louis XIV.

BOURNE, HUGH (1772-1852). Founder of the sect of Primitive Methodists. He wrote *History of the Primitive Methodists*, and founded *The Primitive Methodist Magazine* (1824).

BOWEN, FRANCIS (1811-1890). An American author; instructor in intellectual philosophy and political economy at Harvard; proprietor and editor of the *North American Review* (1843-1854); Alford professor of natural religion, moral philosophy, and civil polity at Harvard.

BRACE, CHARLES LORING (1826-1890). An American founder of the Children's Aid Society; born at Litchfield, Conn.; studied prison reforms in Europe (1850-1852); returned to active missionary work in New York City. Was secretary and principal agent of the Children's Aid Society; and founded several industrial schools. Wrote extensively on sociological topics.

BRIDGET, SAINT (453-523). An Irish saint; born at Dundalk; takes rank in Ireland with St. Patrick and St. Columba. Also the name of a Swedish saint in the fourteenth century; founded a new order and 72 monasteries of the order.

BROOKS, PHILLIPS (1835-1893). Bishop of the Protestant Episcopal Church. Rector of Church of the Advent (1862), and Holy Trinity Church, Philadelphia, till 1869, when he became rector of Trinity Church, Boston; bishop of Massachusetts (1891-1893); published *Lectures on Preaching, The Influence of Jesus*, and several volumes of sermons.

BRUNO, SAINT (1030-1101). Born at Cologne; retired to a lonely spot near Grenoble, with 14 others, where they lived in cells apart, and met only on Sundays; founder of the Carthusian Order of Monks, the first house of which was established in the solitude of Chartreuse.

BUSHNELL, HORACE (1802-1876). An American clergyman and noted writer on religion, morality, and other topics.

BUTLER, JOSEPH (1692-1752). An eminent English divine; became preacher at the Rolls, where he delivered his celebrated *Sermons;* made dean of St. Paul's and finally bishop of Durham; his great work was *The Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature.*

CALVIN, JOHN (1509-1564). An eminent reformer of the sixteenth century; for his attempts at reforming theology was compelled to flee from France (1533); settled in Basel, where he wrote the *Institutes of the Christian Religion;* went to Geneva (1536) and worked for the Reformation. His religious works fill 59 volumes, published in Berlin (1863-1900). He established the Presbyterian form of church government; the fundamental principle of his theology is that of predestination to eternal happiness or misery by the absolute decree of God.

CAMPBELL, ALEXANDER (1788-1866). Irish founder of the denomination known as "Campbellites"; educated at the University of Glasgow; came to the United States in 1809 and settled at Bethany, W. Va.; founded Bethany College (1841) and was president of it until his death; established the *Christian Baptist* (1823), which became the *Millennial Harbinger* from 1829 until 1863.

CATHERINE, SAINT (1347-1380). An Italian nun at Siena; mediator between the rival popes in the great schism.

CAVALIER (*kah-val-yay'*), **JEAN** (1679-1740). Leader of the Camisards; born at Ribaute; fought for religious freedom against Louis XIV.; passed over to England; served against France, and was governor of Jersey.

CHALMERS, THOMAS (1780-1847). A noted Scotch divine; regarded as the founder of the Free Church of Scotland.

CHANNING, WILLIAM ELLERY (1740-1842). Noted American preacher, "the apostle of Unitarianism"; author of many religious and literary works; his widest influence was exerted upon social questions.

CHEMNITZ, MARTIN (1522-1586). German Protestant theologian; by inducing the Saxon and Swabian churches to adopt the *Concordien formel* as their confession of faith, he consolidated Luther's work.

CHRYSOSTOM, JOHN, SAINT (**"GOLDEN MOUTHED"**) (344?-407). A celebrated Greek father of the church; his works consist of *Homilies, Commentaries, Epistles, Treatises*, and *Liturgies*. The *Homilies* are considered to be finer than any other similar early Christian writings.

CLARKE, JAMES FREEMAN (1810-1888). An American Unitarian clergyman and author; settled in Boston, Mass., in 1841, and was pastor of the Church of the Disciples. From 1867 to 1871 he was professor of natural religion at Harvard.

CLEMENS, TITUS FLAVIUS, or **CLEMENT OF ALEXANDRIA** (about 150-about 215). One of the Greek fathers of the church; had Origen for pupil; brought up in Greek philosophy; converted in manhood to Christianity. Jerome called him "the most learned of men." In the *Stromata* is found one of the earliest Christian hymns, "Shepherd of Tender Youth."

COBB, HENRY EVERTON (1863-). Clergyman of the Reformed Church. In 1888 began to preach at West Troy, N. Y.; first pastor of West End Avenue Collegiate Church in New York City since 1893.

COLLYER, ROBERT (1823-1912). Unitarian clergyman of English birth; a blacksmith who became a Methodist preacher, changing to Unitarianism in 1859; founded Unity Church, Chicago (1860); since 1879 pastor of Church of Messiah, New York City (now pastor emeritus). Author of *Nature and Life, The Simple Truth, Talks to Young Men*, and *Things New and Old.*

COLUMBA, SAINT (521-597). A native of Ireland. About 563 he landed in the island of Hy, now called Iona, and founded his church; traversed the whole of northern Scotland, preaching the Christian faith and founding monasteries. The Columban Church was in some points of doctrine and ceremonial opposed to that of Rome, to which it owed no allegiance. He died in Iona.

CONWELL, RUSSELL HERMAN (1842-1925). Baptist clergyman; lawyer in Minneapolis and Boston till 1879, serving in the meantime as immigration agent and foreign correspondent for Boston and New York papers. Pastor of Grace Baptist Church, Philadelphia (1881-1891); founder and president of Temple College (1888); pastor of the Baptist Temple, Philadelphia, since 1891; Lyceum lecturer. Author of *Woman and the Law, Acres of Diamonds, Lives of the Presidents*, and *The New Day.*

COOPER, PETER (1791-1883). A manufacturer and philanthropist; born in New York City; apprenticed to a carriage maker; engaged in furniture manufacture; mover in laying the Atlantic cable; took great interest in education; founded Cooper Institute.

CORNELL, EZRA (1807-1874). An American philanthropist; born in Westchester Landing, N. Y. He accumulated a large fortune and is best known as the founder of Cornell University. He began life as a mechanic and miller at Ithaca, N. Y., and subsequently became a contractor for the erection of telegraph lines. He died in Ithaca.

CROSBY, HOWARD (1826-1891). American clergyman and scholar. In 1863 pastor of the Fourth Avenue Presbyterian Church in New York City; in 1877 a delegate to the first Presbyterian General Council, in Edinburgh; one of the founders and president of the Society for the Prevention of Crime.

CUYLER, THEODORE LEDYARD (1822-1909). American Presbyterian clergyman; after active pastoral work (1848-1890), became minister at large. Active in temperance and philanthropic work; published about 4,000 articles in religious periodicals.

DIONYSIUS EXIGUUS (about 470-about 540). A learned monk, a "Scythian by birth, but wholly Roman in other respects." His works include a collection of the first 50 canons of the Apostles, the canons of 10 Councils, and 38 decretals of the popes from 384 to 498; promulgated by Charlemagne in 802. Dionysius

completed the paschal year and introduced the system of counting the years from the birth of Christ.

DOL'LINGER, JOHANN JOSEPH IGNAZ VON (1799-1890). A Catholic theologian and historian; head of the old Catholic party in Germany; wrote extensively on theological and ecclesiastical topics.

DORNER, ISAAK AUGUST (1809-1884). A German Lutheran divine; born in Württemberg; professor of systematic theology and exegesis at the University of Berlin (1861).

DOW, NEAL (1804-1897). An American temperance reformer; born in Portland, Me. He was the author of the bill which prohibited the manufacture and sale of intoxicating liquors in the state of Maine, widely known as the "Maine Law." During the Civil War he was colonel of a Maine regiment, and a brigadier general of volunteers.

DRACHMAN, BERNARD (1861-). Rabbi Congregation Zichron Ephraim, New York, since 1889, and professor of Bible and Rabbinical Codes, Jewish Theological Seminary of America; author of *From the Heart of Israel;* translator of Hebrew literature.

DUNSTAN, SAINT (925?-988). An English monk who was made Archbishop of Canterbury, and obtained great political influence, which he subsequently lost.

ECK, JOHANN MAIER VON (1486-1543). A German theologian; a violent antagonist of Luther and Luther's doctrines; went to Rome, and procured a papal bull against both (1520); undertook at the Augsburg Diet to controvert Luther's doctrine from the Fathers, but not from the Scriptures; was present at the conferences of Worms and Regensburg; wrote the *Obelisci* to confute Luther's theses. He wrote a German translation of the Old Testament and revised Luther's translation of the New.

EDDY, MARY BAKER GLOVER (about 1822-1910). The founder of the Christian Scientist denomination. Mrs. Eddy assigns 1866 as the date of her discovery; founded the First Christian Science Church at Boston (1879) and opened the Massachusetts Metaphysical College (1881); wrote *Science and Health with Key to the Scriptures* (1875), *People's Idea of God, Christian Healing, Retrospection and Introspection, Unity of Good, Rudimental Divine Science, No and Yes, Manual, Miscellaneous Writings, Christ and Christmas, Christian Science versus Pantheism, Pulpit and Press,* and *Message to the Mother Church.*

EDWARDS, JONATHAN (1703-1758). Most celebrated early American divine; president of Princeton College for 34 days; after a successful pastorate of 17 years he was dismissed in 1750 by council; for eight years he was missionary to the Indians, during which time he wrote *Freedom of the Will, Original Sin,* and *Nature of Virtue,* all works of great power and influence, which led to a distinct theological movement in America.

ELIZABETH, SAINT (1207-1231). Daughter of Andrew II. of Hungary and wife of Louis IV., landgrave of Thuringia; spent her life in charitable and religious work; at the death of her husband, driven with her children from Thuringia to Marburg, she identified herself with a new religious order; four years after her death canonized by Gregory IX.

ERASTUS, THOMAS (1524-1583). A Swiss physician and theologian; occupied several positions as chief physician to dignitaries throughout Europe and held the chair of medicine in several colleges. His fame now rests on his theological writings.

ESCOBAR' Y MENDOZA, ANTONIO (1589-1669). A Spanish Jesuit and casuist; born at Valladolid; a preacher and voluminous writer. He was celebrated for his doctrine that the moral value of action lies in the nature of the intention.

FABER, FREDERICK WILLIAM (1814-1863). English clergyman and author; enthusiastic admirer of John Henry Newman; joined the Roman Catholic Church (1845) and became superior of the House of Oratorians in London (1850). Among his theological works are *All for Jesus, The Blessed Sacrament,* and *The Precious Blood;* best known as a hymn writer; *O gift of gifts, O grace of faith; O Paradise, O Paradise; Hark, hark, my soul;* and *Sweet Saviour, bless us ere we go,* have found a place in Protestant and Catholic hymnals.

FALCONIO, DIOMEDE (1842-1917). Roman Catholic archbishop and Apostolic Delegate; held various positions in educational institutions in United States and Newfoundland till 1883; returned to Italy, holding high ecclesiastical offices until 1892, when he became bishop, archbishop (1895), Apostolic Delegate to Canada and the United States (1902); cardinal (1911).

FARLEY, JOHN MURPHY (1842-1918). American Roman Catholic prelate; secretary to Archbishop McCloskey (1872-1884); private chamberlain to Pope Leo XIII. (1884); vicar general, New York (1891); domestic prelate to Pope Leo XIII. (1892); auxiliary bishop of New York (1895); fourth archbishop (1902); cardinal (1911).

FARRAR, FREDERIC WILLIAM (1831-1903). An English clergyman, dean of Canterbury; 16 years master at Harrow; canon and archdeacon of Westminster, and chaplain to the queen.

FLEISCHER, CHARLES (1871-). Jewish rabbi Temple Adath Israel, Boston, since 1894; prominent lecturer; his subjects include "Democracy and Women," "Aristocracy," and "My Discovery of America."

FOURIER (*foo're-ai*), **FRANCOIS MARIE CHARLES** (1772-1837). A French social economist; at first in trade, then in the army. After seeing a cargo of rice thrown into the sea to raise its price he was led to attempt a reform abolishing the competitive system, by means of associated production and life in "phalansteries." He died in Paris.

FOWLER, CHARLES HENRY (1837-1908). Methodist Episcopal bishop. President Northwestern University (1872-1876); elected bishop (1884); visited South America, Japan, Korea, China; made a trip around the world, holding conferences; organized universities at Peking and Nankin, China, and churches at St. Petersburg, Russia; established Macloy College of Theology in southern California; delegate to many important conferences at home and abroad.

FOX, GEORGE (1624-1691). An Englishman, founder of the Society of Friends, or Quakers. When 19 years old he believed himself called to preach, and wandered about England doing so; his numerous followers gained their name Quakers in 1650, because Fox had bidden the magistrates, who frequently arrested him, "to tremble (quake) at the word of the Lord."

FRANCIS OF ASSISI, SAINT (1182-1226). Founder of the Order of the Friars Minor, or Franciscans. Born in Assisi, Italy; in business with his father until 24, when he retired to lead a life like Christ's; with 11 others he received the approval of Pope Innocent III. to form the order (1209). His rule of life consisted of 23 chapters, prescribing poverty, obedience, chastity, giving up of property, and obligation to live upon alms. The order was formally sanctioned in 1216.

FRY, (Mrs.) ELIZABETH (1780-1845) An English philanthropist; born at Earlham; third daughter of John Gurney, the Quaker banker; devoted her life to prison reform and the reform of criminals, as well as to other benevolent enterprises.

FULGENTIUS OF RUSPE, SAINT (468-533). A Latin Christian father; went to Rome (500); founded a monastery in Ruspe and became bishop of Ruspe (508).

GARRISON, WILLIAM LLOYD (1805-1879). American abolitionist; with Benjamin Lundy, published *Genius of Universal Emancipation* in Baltimore (1829); published *The Liberator* (1831-1865), demanding emancipation and extinction of slavery; riots and violence followed in attempts to suppress the abolitionists, but Garrison was not daunted though dragged through the streets by a mob; his uncompromising spirit and heroic perseverance secured the liberty he desired and he lived to be honored in Europe and America for his efforts.

GAVAZZI (*ga-vat'see*), **ALESSANDRO** (1809-1889). An Italian preacher and reformer; one of the most energetic supporters of Pius IX. in his liberal policy; afterwards withdrew his allegiance, joined the Revolution of 1848, and ultimately fled to England on the occupation of Rome by the French.

GEORGE, SAINT (flourished third century). Bishop of Alexandria; patron saint of England. To him is attributed the destruction of a terrible dragon. This legend occurs first in the *Legenda Aurea* of Jacobus de Voragine in the Middle Ages.

GIBBONS, JAMES (1834-1921). Roman Catholic cardinal; ordained priest (1861); pastor, secretary to Archbishop Spalding and chancellor till 1868; Vicar Apostolic of North Carolina with rank and title of bishop (1868-1872); coadjutor archbishop of Baltimore and succeeded to the See (1872-1877); invested with insignia of cardinal (1886); best known work *The Faith of Our Fathers.*

GIRARD, STEPHEN (1750-1831). An American philanthropist; born in France; died in Philadelphia.

He made a large fortune as a merchant in Philadelphia, and at his death left $5,260,000 to found a college for orphan boys, to be conducted on strictly secular principles. The building is one of the finest in the country.

GLADDEN, WASHINGTON (1836-1918). Congregational clergyman, author, and editor. Since 1882, pastor of First Congregational Church, Columbus, O.; noted as a writer upon social reforms; some of his books are: *Being a Christian*, *Burning Questions*, and *Social Salvation*.

GOTTSCHALK or **FULGENTIUS** (about 805-about 868). A German theological controversialist; ardent believer in predestination; denounced as a heretic, yet wandered everywhere throughout Germany preaching his doctrine; condemned at the Synod of Mainz (848) and again at the Synod at Quircy (849); was whipped and imprisoned for the rest of his life.

GOUGH, JOHN BARTHOLOMEW (1817-1886). A temperance orator; born in Kent, England, became a bookbinder; early a victim to intemperance; took the pledge in 1842, and became an eloquent and powerful advocate of the temperance cause both in England and America.

GREGORY XIII., BUONCOMPAGNI (1502-1585). A native of Bologna, who succeeded Pope Pius V. in 1572. He was deeply versed in the canon and civil law and had distinguished himself at the Council of Trent. He ornamented Rome with many fine buildings and fountains; but his pontificate is chiefly memorable for the reformation of the calendar which bore his name. He published a valuable edition of the *Decretum Gratiani*.

GREGORY NAZIANZUS, SAINT (329-390). Bishop of Constantinople; excelled all his contemporaries in pulpit eloquence. Many of his works are extant, and consist of orations, letters, and poems. His theological system is best set forth in his *Theological Orations*.

GUNSAULUS, FRANK WAKELEY (1856-1921). Congregational clergyman; pastor Columbus, Ohio (1879-1881); Newtonville, Mass. (1881-1885); Baltimore (1885-1887); Plymouth Church, Chicago, till 1899; Central Church, Chicago, since 1899; president Armour Institute of Technology since 1893; lecturer at Yale Theological Seminary and Chicago University. Author of much poetry and religious prose.

HALE, EDWARD EVERETT (1822-1909). Unitarian clergyman, author, and social reformer. Pastor of Church of the Unity, Worcester, Mass. (1846-1856), and of South Congregational Church, Boston (1856-1909); chaplain of U. S. Senate (1902-1909); promoted the Chautauqua movement and assisted in organizing "lend-a-hand" clubs; founder and editor of *The Christian Examiner* and *Old and New*, which were finally merged into the original *Scribner's Monthly*; best known as the organizer of the "lend-a-hand" movement and as the author of *The Man Without a Country*.

HALL, CHARLES CUTHBERT (1852-1908). President of Union Theological Seminary (1897-1908). Pastorates in Newburgh, N. Y. (1875-1887), and Brooklyn, N. Y. (1887-1897). Lecturer at Chicago, Vanderbilt, and Harvard universities. Among his works are *Christian Belief Interpreted by Christian Experience*, *Christ and the Human Race*, and others.

HARRISON, LEON (1866-1928). Since 1891, rabbi Temple Israel (Reformed Jewish), St. Louis; founder of sisterhood of Personal Service, St. Louis, Social Settlement League, Fresh Air Society; Lyceum and Chautauqua lecturer.

HARVARD, JOHN (1607-1638). Founder of Harvard College. An English clergyman; M.A. Cambridge (1635); pastor at Charlestown, Mass. (1637); gave library of 260 volumes and about $2,000 to the college at "New Town" (Cambridge).

HENSON, POINDEXTER SMITH (1831-1914). Baptist clergyman; lawyer till 1856; pastor of Fluvanna Baptist Church, Broad Street Church, Memorial Church, Philadelphia, and First Church, Chicago, till 1901, Hanson Place, Brooklyn (1901-1903), and Tremont Temple, Boston (1903-1909). Editor *Baptist Teacher*.

HICKS, ELIAS (1748-1830). An American preacher of the Quaker connection, who adopted Unitarian views and caused a split in the body.

HILARY OF POITIERS, SAINT. Bishop of Poitiers about 353; banished into Phrygia in 356 for not sanctioning the condemnation of Athanasius; permitted to return in 359; a vigorous and consistent opponent of Arianism.

HILLIS, NEWELL DWIGHT (1858-1929). Presbyterian minister; pastorates in Peoria, Ill. (1887-1890); Evanston, Ill. (1890-1894); Central Church, Chicago (1894-1899), and Plymouth Church, Brooklyn, since 1899. Author of *The Investment of Influence*, *A Man's Value to Society*, *Great Books as Life Teachers*, and many others.

HOPKINS, JOHNS (1795-1873). An American philanthropist; born in Anne Arundel County, Md. In 1873 he gave property worth $4,500,000 to found a free hospital. He presented Baltimore with a public park and he also gave over $3,000,000 to found the Johns Hopkins University in Baltimore.

HORR, GEORGE EDWIN (1856-1927). Theologian and educator; pastor at Tarrytown, N. Y. (1879-1884), and Charlestown, Mass. (1884-1891); professor of Church history at Newton Theological Seminary since 1903; editor-in-chief of the *Watchman* (1891-1903); and since, president of the Watchman Publishing Company.

HOSS, ELIJAH EMBREE (1849-1919). Bishop of Methodist Episcopal Church, South, since 1902; pastor at Knoxville, Tenn., San Francisco, Cal., and Asheville, N. C.; professor and president of Martha Washington College, Va. (1876-1881); vice-president and later president of Emory and Henry College (1881-1885); on theological faculty of Vanderbilt University (1885-1890); editor of Nashville *Christian Advocate* (1890-1902).

HUNTINGTON, WILLIAM EDWARDS (1844-). Methodist clergyman and president of Boston University since 1904; pastor in Boston and vicinity (1870-1882); dean of the College of Liberal Arts, Boston University (1882-1904).

HURLBUT, JESSE LYMAN (1843-). Methodist Episcopal clergyman and editor. Pastor from 1865-1879; agent of Sunday School Union, to 1884; assistant and finally editor of *Sunday School Literature* (1884-1900); pastor in New Jersey since 1901; counselor of Chautauqua Society; author of *Outline Normal Lessons*, *Studies in the Four Gospels*, and other works.

HUSS (*hoos*), **JOHANN** (1373-1415). A distinguished religious reformer; born in Bohemia; convicted of heresy by the Council of Constance, and by the secular authorities burned at the stake. His followers, called Hussites, inaugurated a war for religious freedom (1419), continued until the emperor Sigismund granted acceptable terms and peace was restored.

IGNATIUS, SAINT, surnamed **THEOPHORUS** (32?-107). Bishop of Antioch; martyred in Rome. His writings are still held in high esteem and include seven Greek letters found in the writings of the apostolic fathers. He first applied the term "eucharist" to the Lord's Supper, and in his writings we first find the phrase "the Catholic Church."

IRELAND, JOHN (1838-1918). Roman Catholic archbishop of St. Paul since 1888; priest (1861); rector cathedral, St. Paul; coadjutor Bishop of Saint Paul (1875), succeeded Bishop Grace (1884) with the title of archbishop (1888); important figure in movements for total abstinence, colonization in the Northwest, and the establishment of the Catholic University at Washington; author of *The Church and Modern Society*.

IRENAEUS, SAINT (flourished second century). One of the fathers of the church; was bishop of Lyons, and suffered martyrdom about 202; wrote against the Gnostics in a work in Greek, of which all but a few fragments in Latin is lost.

JANSE'NIUS, CORNELIUS (1585-1638). A Flemish theologian; founded the body of sectaries in the Roman Catholic Church known as Jansenists; made bishop of Ypres; great work is *Augustinus sive Doctrina Sancti Augustini*.

JEROME OF PRAGUE (1360?-1416). A Bohemian reformer; was in faith and sufferings the companion of the famous John Huss; was burned at the stake, and his ashes thrown into the Rhine.

JOHN OF DAMASCUS (about 700-754). A father of the church; the author of the standard text-book on dogmatic theology in the Greek Church; canonized by both the Latin and Greek churches; one of the doctors of the Latin Church; the ablest philosopher of his time; wrote three *Operations* or letters on image-worship.

JONES, JENKINS LLOYD (1843-1917). Independent minister, editor, and lecturer; organizer of the Abraham Lincoln Center and All Souls' Church, Chicago, Ill., of which he has been pastor since 1882; secretary of the World's Parliament of Religions; lecturer in English, university extension department of Chicago

University; editor and founder of *Unity;* author of many books on religious subjects.

JUDSON, ADONIRAM (1788-1850). An American missionary; born in Malden, Mass. In February, 1812, he sailed with his wife for Asia. During the voyage he was converted from the Congregational faith to that of the Baptist church. In 1814, when the Baptists of the United States organized a missionary union, he was taken under its care. He settled in Burma, mastered the language, and labored there for nearly forty years. He died at sea.

JUDSON, EDWARD (1844-1914). Baptist clergyman; professor of Latin, Madison University (1867-1874); pastor of Baptist Church, Orange, N. J. (1875-1881); Berean Baptist Church, N. Y.; later secured a site and erected a church to the memory of his father, Adoniram Judson, of which he became pastor.

JUSTIN, surnamed **THE MARTYR** (about 100-about 165). An early Christian apologist; studied philosophy in the Stoic and Platonic schools, and was converted to Christianity; was the author of *Apologies for the Christians* and *Dialogue with Tryphon the Jew;* suffered martyrdom.

KNOX, JOHN (1505-1572). A Scotch religious reformer; pioneer of Puritanism; prisoner of war, for 19 months, in French galleys; friend of Calvin and Beza; a preacher of sermons that moved his hearers to demolish convents; arrested for treason, an armed "congregation" at his heels; burned in effigy; for years a dictator—he spent his life forwarding the Reformation in Scotland. His great work distinguished in Scottish prose was his *History of the Reformation of Religion within the Realm of Scotland.*

KOHLER, KAUFMANN (1843-1926). Jewish rabbi; president Hebrew Union College since 1903; elected honorary minister for life of Temple Beth-El, New York (1903); previous pastorates in Detroit (1869-1871); Chicago (1871-1879), where he introduced Sunday lectures; editor *Jewish Reformer* (1886); *Sabbath Visitor* (1881-1882); extensive writer and lecturer on Biblical topics.

KYRLE (*kurl*), **JOHN** (1637-1724). Philanthropist; born in Gloucestershire; was distinguished for his benefactions; has given name to a society founded, among other things, for the betterment of the homes of the people.

LACTAN'TIUS, LUCIUS COELIUS FIRMIANUS (290-325). The most eloquent and learned of the Christian fathers; chief works are *Divinarum Institutionum Libri VII., De Ira Dei,* and *De Mortibus Persecutorum.*

LAMPERIERE, ANNA M. J. (1854-). French social reformer, born at Lisieux, Normandy; in 1879 she became director of the Ecole Normale, having been the youngest person to receive the honor; she was delegate to the Congress of Social and Moral Reforms at Chicago in 1893, is especially interested in the advancement and social education of women, and has written much upon that and kindred topics.

LANFRANC (about 1005-1089). An Italian churchman in the medieval church in England; selected by William the Conqueror to fill the archbishopric of Canterbury (1070). After the death of the Conqueror, Lanfranc wielded a great influence over England. He wrote *Commentaries* on St. Paul, *De Corpore et Sanguine Domini,* sermons, and letters.

LASSALLE, FERDINAND (1825-1864). German socialist leader, born at Breslau; his parents were wealthy Hebrews; he was a student of philosophy, called by Humboldt "Das Wunderkind"; at the age of 33 he became an active socialist, and was repeatedly indicted for high treason; founded the Social Democratic party of Germany; was a friend of Bismarck; his death resulted from a duel fought over his fiancée, who had jilted him. Heine called this remarkable man "the Messiah of the nineteenth century." Lassalle was not a theorist, but a practical organizer, and did more for the success of labor organizations and the socialistic movements in Germany than any other man.

LATHROP, ROSE HAWTHORNE (1851-1926). An American poet and philanthropist; daughter of Nathaniel Hawthorne; studied and lived abroad; married George Parsons Lathrop (1871); wrote *Along the Shore* and *Memories of Hawthorne;* founded Saint Rose's Free Home for Cancer in New York (1896); took the title of Mother Mary Alphonsa and became the head of a Dominican community and director of a charitable home in New York City.

LATIMER, HUGH (about 1485-1555). An English reformer and martyr; made bishop of Worcester (1535); burned at the stake with Bishop Ridley. His *Remains and Sermons* was printed by the Parker Society (1844-1845).

LAUD, WILLIAM (1573-1645). An English prelate; archbishop of Canterbury in the reign of Charles I. His endeavors to introduce the liturgy into Scotland made him numerous enemies; therefore he was impeached by the Commons, and sent to the Tower. After lying there nearly three years he was declared guilty of treason, and was beheaded on Tower Hill. Laud enriched the University of Oxford with over 1,300 manuscripts; wrote a *Diary* and a few other works published in collected form in 1887.

LAVAL-MONTMORENCY, FRANCOIS XAVIER DE (1622-1708). French bishop, born at Laval; received the tonsure at nine years of age, becoming a priest at twenty-three and at thirty-one Archdeacon of Evreux; sent to Canada as vicar of Pope Alexander VII., with title of Bishop of Petra (1659); established Seminary of Quebec (1663); titular Bishop of Quebec (1674-1683). His name is perpetuated in Laval University, Quebec, founded in 1852.

LEE, ANN (1736-1784). Founder of the Society of Shakers in America; born in Manchester, England. She was poor and uneducated, and in 1758 joined the Shakers, a sect allied in their belief to the Friends, but who were peculiar in their form of worship. She believed herself inspired, and was imprisoned in 1770 for preaching the new doctrine of celibacy. In 1774 she emigrated to America and founded the Society of Shakers in 1776. She was greatly revered by her followers, and by them was called "Mother Ann." She died in Watervliet, N. Y.

LEVASSEUR, PIERRE EMILE (1828-1911). French political economist and writer, born in Paris; has belonged to the faculty of several different institutions of learning; member of numerous scientific societies; his exhaustive work, *Condition of the Working Classes in France, Before and Since the Revolution,* would alone have established him as an authority upon sociological matters.

LEVINTHAL, BERNARD LOUIS (1866-). Rabbi, United Orthodox Hebrew Congregation since 1891; founder of Hebrew Free Schools; president and founder of Hebrew Talmudic Institute; principal and founder of Hebrew High School, all of Philadelphia, Pa.

LICK, JAMES (1796-1876). An American philanthropist; born in Fredericksburg, Pa. In 1847 he emigrated to California, taking with him $30,000, which he invested in real estate in San Francisco, and its rapid advance in value made him wealthy. In 1874 he placed his entire property in the hands of trustees, to be devoted to public and charitable purposes. The total amount thus given was $13,000,000, of which $700,000 was for Lick Observatory, to be connected with the University of California; $150,000 for free public baths in San Francisco, and $540,000 for an institution to be called the California School of Mechanical Arts. He died in San Francisco, Cal.

LIDDON, HENRY PARRY (1829-1890). Canon of St. Paul's, London; eminent both as a scholar and a preacher; author of an eloquent course of lectures, the Bampton, *On the Divinity of Jesus Christ;* belonged to the Liberal section of the High-Church Party.

LINDSAY, SAMUEL McCUNE (1869-). American sociologist, born in Pittsburg, Pa.; professor of social legislation at Columbia University and director of the New York School of Philanthropy; is especially interested in educational and child labor problems and has written extensively upon these subjects; holds offices in various philanthropic and educational societies.

LIVERMORE, MARY ASHTON (RICE) (1821-1905). An American reformer and lecturer; born in Boston, Mass.; conspicuous in her efforts to promote the woman suffrage and temperance movements. Among her popular lectures are "What Shall We Do with Our Daughters?" "Women of the War," "The Moral Heroism of the Temperance Reform."

LONDON, JACK (1876-1916). American socialist and novelist, born in San Francisco. That he might have material for his books he became successively sailor, miner, fisherman, longshoreman, seal hunter, etc.; lived as tramp and vagabond in America and London; was frequently jailed. He was in the Klondike gold rush, and was war correspondent in Japan; has lectured frequently for the Socialist party, although he holds his own wealth for himself.

LUTHER, MARTIN (1483-1546)). Leader of the Protestant Reformation; ordained a priest (1507); professor of philosophy at Wittenberg (1508); denounced the sale of indulgences (1517); cited to appear before Leo X., he refused; burned papal bull containing order to destroy certain of his works, and denied the authority of the pope; excommunicated; enjoyed the support of the elector of Saxony; attended the Diet of Worms, convened for his trial, in 1521; laid aside his monastic dress in 1524, and married Catherine von Bora, an ex-nun, in 1525; wrote a translation of the New Testament and of the Old Testament. His most famous hymn, *Ein feste Burg ist unser Gott*, was published in 1529.

MacARTHUR, MARY R. (1880-1921). Scotch socialist, born at Glasgow; secretary of Women's Trade Union League and the National Union of Shop Assistants and Clerks; represented the former association at the Women's International Congress in Berlin in 1904; she is the only woman member of the Executive of the London Trades' Council; is a member of the Independent Labor party; her special object is the organization of women's trades unions.

McCABE, CHARLES CARDWELL (1836-1909). A Methodist Episcopal bishop; pastor (1860-1862) in Ohio; chaplain in the army till 1866; prominent in Methodist Church extension movement and raised over a million dollars a year for missions; became bishop in 1896 and chancellor of American University at Washington, D. C., in 1902.

MACKAY, DONALD SAGE (1863-1908). Pastor of Collegiate Church, New York City (1899-1908); previous pastorates at St. Albans, Vt. (1890-1895), and Newark, N. J. (1895-1899); noted for successful work among young men; extensive contributor to religious magazines.

MALLALIEU, WILLARD FRANCIS (1828-1911). Methodist Episcopal bishop (1884-1911); pastorates in Massachusetts until 1881; presiding elder till 1884; voluminous writer for the religious press.

MALTHUS, THOMAS ROBERT (1766-1834). English economist; made a special study of population; as a result wrote *Essay on the Principle of Population as It Affects the Future Improvement of Society*, the main thought of which was that population has tended to outgrow subsistence.

MANES or **MANICHAEUS** (about 216-about 277). A religious teacher in Babylon (242). His religious system of Manichaeism was based upon the Persian dual system.

MARSHMAN, JOSHUA (1768-1837). An English missionary; born in Westbury Leigh, England; was sent in 1799 by the Baptist Missionary Society to Serampore, where he had Carey, Ward, and others as fellow laborers; translated the Bible into Chinese. He died in Serampore, India. His son, John Clark Marshman, founded the first English weekly newspaper in India.

MARX, KARL (1818-1883). A German socialist; born at Treves, of Jewish descent; was at first a student of philosophy and a disciple of Hegel, but soon abandoned philosophy for social economy; early adopted socialistic opinions, for his zeal in which he was driven from Germany and France, to settle in London, where he spent the last 30 years of his life; one of the founders of the "Internationale," and wrote a work, *Das Kapital*, which has become the text-book of Socialism.

MASSILLON, JEAN BAPTISTE (1663-1742). A distinguished French pulpit orator; called to the Church of the Oratory in Paris (1699) and preached the *Advent Sermons* before Louis XIV. at Versailles. Among his celebrated works are *Le petit carême*, a course of 10 Lenten sermons (1718), and his earlier *Advent Sermons* and *Le grand carême;* won distinction through his many brilliant funeral orations; named bishop of Clermont (1717); consecrated in 1719; academician (1719).

MATHER, COTTON (1663-1728). An American theologian and writer; author of 382 works. He believed in witchcraft and became notorious for his zeal in persecuting those against whom it was charged. Among his works are *Magnalia, Wonders of the Invisible World*, and *Essays to Do Good*.

MATHEW, THEOBALD (1790-1856). An Irish reformer; born in Thomastown, near Cashel, Ireland; was ordained in the Franciscan order. On April 10, 1838, he signed a total abstinence pledge and began a temperance crusade. He traveled over all parts of Great Britain and Ireland, and in the United States. The immediate result of his preaching was a marked decrease in crime and intoxication. Thousands of Father Mathew Total Abstinence Societies have been organized throughout the world in his honor. He died in Queenstown.

MELANCH'THON, PHILIP, or P. SCHWARZERD (1479-1560). An eminent German theologian and reformer; was the contemporary, friend, and the successor of Luther as the head of the German Reformation; the foremost teacher of his time; and according to Hallam "far above all others the founder of general learning throughout Europe." His writings fill 28 volumes. At 19 he published an edition of Terence that ran through 73 editions.

MENDES, FREDERIC DE SOLA (1850-). Jewish preacher in London (1873); rabbi of West End Synagogue, New York, since 1874; elected for life (1904); founded *American Hebrew* (newspaper) (1879), and was its editor till 1885; revising editor of *Jewish Encyclopedia* till 1902; author of *Jewish School Books* and *Child's First Bible*.

MENDES, HENRY PEREIRA (1852-). Jewish clergyman and educator; called 1877 to Spanish and Portuguese Congregation, New York; one of the founders and now president of New York Board of Jewish Ministers; a founder of Jewish Theological Seminary; author of *Looking Ahead* and *Jewish Religion Ethically Presented*.

MILMAN, HENRY HART (1791-1868). Dean of St. Paul's or "The Great Dean" (1849-1868); ecclesiastical historian; edited Gibbon's *Decline and Fall;* wrote *History of the Jews, History of Christianity to the Abolition of Paganism in the Roman Empire*, and *History of Latin Christianity;* professor of poetry at Oxford.

MONTEFIO'RE, SIR MOSES (1784-1885). A philanthropic Jewish banker; born in Leghorn; a friend to the emancipation not only of the oppressed among his own race, but of the slaves in all lands; lived to a great age.

MOODY, DWIGHT LYMAN (1837-1899). American evangelist. Began missionary work in 1856 in Chicago, where later a church was erected for him, though he was not ordained as a minister. In 1873, with Ira D. Sankey, he began his famous series of revivals at home and abroad. He established a seminary for young women and a training school for Christian workers at Northfield, Mass., also the Mt. Hermon School for Boys at Gill.

MOTT, LUCRETIA (1793-1880). An American reformer; born in Nantucket, Mass. In 1818 she joined the Friends. In 1833 she assisted in the formation of the American Anti-Slavery Society, and in 1840 went to London as its delegate to the World's Anti-Slavery Convention; was one of the four promoters of the Woman's Rights Convention in the United States, an active exponent of the cause of equal suffrage, temperance, and universal peace.

MUENSTERBERG, EMIL (1855-1911). German political economist; author; jurist; born in Danzig; finally settled in Berlin; member of numerous benevolent organizations; is especially interested in the poor laws and charitable work.

MUHLENBERG, HEINRICH MELCHIOR (1711-1787). Founder of the German Lutheran Church in America; came to America (1742) to work among the destitute Lutherans in Pennsylvania; wrote an *Autobiography*.

MURPHY, FRANCIS (1836-1907). American temperance reformer, born in Wexford, Ireland; came to the United States as a child; lectured in America and England on total abstinence; 10,000,000 people are said to have signed the pledge through his influence; chaplain in the Spanish-American War (1898).

NEWMAN, JOHN HENRY (1801-1890). English religious leader, first in Church of England, later in Roman Catholic Church; vicar of St. Mary's, Oxford (1828); published *Tracts for the Times* (1833-1841); leader in "Oxford movement"; ordained Roman Catholic priest (1846); rector of University of Dublin (1854-1858); made a cardinal (1879); writer of marked ability; poem *Dream of Gerontius* and hymn *Lead, Kindly Light*, most famous; wrote much relating to affairs of the church.

NEWTON, RICHARD HEBER (1840-1914). An American clergyman. In 1869 he became rector of All Souls' Church, New York. Among his works are *The Children's Church, The Morals of Trade, Womanhood, Studies of Jesus, Right and Wrong Uses of the Bible, Book of the Beginnings, Philistinism, Social Studies, Church and Creed*, and *Christian Science*.

NIGHTINGALE, FLORENCE (1820-1910). An English philanthropist; born in Florence, Italy. During the Crimean War she promptly volunteered to organize a select band of nurses at Scutari. The offer was accepted by the British War Office, and within a week Miss Nightingale was on her way to the East, where she rendered invaluable service. She was consulted during the American Civil War and the Franco-German War. She has published *Notes on Hospitals, Notes on Nursing,* and *Notes on Lying-in Institutions.*

OASTLER, RICHARD (1787-1861). English reformer, born near Huddersfield; fought for the ten-hour law in the interest of factory laborers, especially child workers; spent five years in the Fleet Prison for debts, from which place he issued a weekly journal devoted to factory and poor laws; in 1847 he won his victory, and the ten-hour bill was passed; he died in poverty.

OBERHOLTZER, SARA LOUISA (1841-). Author, economist; born in Uwchlan, Pa.; authority on school savings banks; president of numerous philanthropic societies; superintendent of the school savings banks department of the National Woman's Christian Temperance Union.

OBERLIN, JEAN FREDERIC (1740-1826). A benevolent Alsatian Lutheran pastor; labored all his life at Ban de la Roche, a wild mountain district of Alsace, and devoted himself with untiring zeal to the spiritual and material welfare of the people. Oberlin College, Ohio, was named in his honor.

OECOLAMPADIUS (*ek-o-lam-pa'di-us*), **JOANNES** (1482-1531). One of the leaders of the Reformation; born at Weinsberg, in Württemberg; became preacher at Basel; assisted Erasmus in his edition of the New Testament; entered a convent at Augsburg; came under Luther's influence and adopted the reformed doctrine.

OGLETHORPE, JAMES EDWARD (1696-1785). An English military officer and philanthropist; born in London, England. It was through his efforts that a colony was formed of insolvent debtors and persecuted Protestants, whom he brought to America and settled in Georgia in 1733. He remained in America till 1743, when he returned to England. He died in Cranham Hall, Essex, England.

OTTERBEIN, PHILIP WILLIAM (1726-1813). Founder of the Church of the United Brethren in Christ; came as missionary to America in 1752; was a powerful preacher, and started a great revival in 1766.

OWEN, ROBERT (1771-1858). Social reformer; called "the father of modern communism"; born in Newtown, North Wales; at the age of 19 he was manager of a large cotton mill in Manchester; 10 years later brought the New Lanark Mills on the Clyde, where he at once proceeded to improve the condition of the mill employees, by providing better homes and good food at cost prices; transferred children from the factory to the schools which he had established; he worked for better factory laws. Owen contended that character is formed by circumstances; tried to start several communities on the socialistic plan, but as he seemed to lack judgment and discretion they amounted to nothing.

PAINE, ROBERT TREAT (1835-1910). American philanthropist, born in Boston; although a member of the bar he retired from the practice of his profession in order to promote his benevolent enterprises; one of the founders and, since 1878, president of the Associated Charities of Boston; organizer of the Workingmen's Loan Association and many similar societies; is in favor of lower tariff and free raw material; has written extensively upon themes in which he is interested.

PALEY, WILLIAM (1743-1805). An English divine and author; in 1775 became rector of Musgrave, and in 1782 was made archdeacon of Carlisle. It is said that he would have received a bishopric had not King George III. taken offense at a paragraph on "Property" in one of his writings. The principal works of Paley are *The Principles of Moral and Political Philosophy, Horae Paulinae, A View of the Evidences of Christianity,* and *Natural Theology.*

PALMER, RAY (1808-1887). An American hymnologist; taught in New York City and at New Haven, Conn.; occupied a pastorate in Bath, Me., until 1850, and then in Albany, N. Y. Among his hymns are *Jesus, the very thought of Thee* and *My faith looks up to Thee;* the latter has been translated into twenty languages. His chief collections are *Hymns and Sacred Pieces, Hymns of My Holy Hours,* and *Voices of Hope and Gladness.*

PANKHURST, CHRISTABEL (1880-). English lawyer and woman suffragist; born in Manchester; a member of the Independent Labor party, Woman's Trade Union and other similar organizations; all of her work as a reformer is in the interests of the advancement of woman; she is the daughter of Emmeline Goulden Pankhurst.

PANKHURST, EMMELINE GOULDEN (1858-). English woman suffragist, interested especially in the advancement of woman; born in Manchester; member of Independent Labor party; she formed the Women's Social and Political Union.

PARKER, MATTHEW (1504-1575). Archbishop of Canterbury; born in Norwich. In 1544 he was appointed master of Corpus Christi College, Cambridge, and elected vice chancellor of Cambridge University the following year. When Queen Mary succeeded to the throne Parker was deprived of his offices, and remained in concealment till the accession of Elizabeth in 1558. By royal command he was summoned to Lambeth and appointed archbishop of Canterbury.

PARKER, THEODORE (1810-1860). American preacher, scholar, and reformer; pastor of the West Roxbury Unitarian Church (1837-1842). His sermon, *The Transient and Permanent in Christianity* (1841), ranks with Channing's *Baltimore Sermon* of 1819 and Emerson's *Divinity School Address* of 1838; published *A Discourse on Matters Pertaining to Religion, Lessons from the World of Matter and the World of Man,* and *Experiences as a Minister.*

PARKHURST, CHARLES HENRY (1842-). An American clergyman; pastor at Lenox, Mass. (1874); and of Madison Square Presbyterian Church, New York City (1880); president of the Society for the Prevention of Crime (1891); made accusations against the New York City police force which were substantiated by the Lexow Committee appointed by the Senate (1894); wrote *Forms of the Latin Verb Illustrated by the Sanskrit, The Blind Man's Creed, Pattern in the Mount, The Question of the Hour, The Fellowship of Suffering, Our Fight with Tammany, Talks to Young Men,* and *Guarding the Cross with Krupp Guns.*

PATON, JOHN BROWN (1830-1911). English Congregational minister, editor and writer; founder of Young Men's and Young Women's Brigade of Service, and the Boys' and Girls' League of Honor; assisted in establishing the University Extension System, president British Institute of Social Service (1904).

PATRICK, SAINT (flourished fifth century). The apostle and patron saint of Ireland; his birthplace uncertain. His mission, which extended over a great part of Ireland, was eminently successful. Various miracles are ascribed to him. After the Apostles he was among the most successful of missionaries.

PATTON, FRANCIS LANDEY (1843-). Theologian and educator; pastorates in New York and Chicago till 1881, when he became professor of theology in Princeton Seminary and of ethics in the University; president of the University (1888-1902); president of Princeton Seminary (1902-1913).

PAUL, SAINT (originally called Saul) (flourished first century). The great Apostle of the Gentiles; born at Tarsus, in Cilicia; by birth a Jew and a Roman citizen. He did more for the extension, if not the exposition, of the Christian faith at its first promulgation than any of the Apostles, and perhaps all of them together, and it is questionable if but for him it would have become, as it has become, the professed religion of the most civilized section of the world.

PEABODY, GEORGE (1795-1869). Philanthropist; born at Danvers, now Peabody, Mass.; made a large fortune as a dry goods merchant in Baltimore and as a stockbroker in London; gave away for benevolent purposes in his lifetime more than $8,000,000; died in London.

PEASE, EDWARD R. (1857-). English socialist and political economist, born at Bristol; general secretary of Fabian Society; secretary of the National Labor Federation, and actively engaged in all plans for labor reform; founder of the London School of Economics and the British Library of Political Science.

PERIN, HENRI XAVIER CHARLES (1815-1905). Belgian Christian socialist and economist, born at Mons; held the chair of political economy and law in the Catholic University at Louvain for 37 years, when he retired, as professor emeritus (1881). Perin bases his hopes for the success of an ideal society upon the moral influence of the church.

PEROVSKAYA, SOPHIA (1854-1881). Russian revolutionist; born an aristocrat; ran away from home to take up the work of socialism, and became a nihil-

ist; suffered imprisonment and exile; was actively interested in the most desperate of the terrorist enterprises, including the assassination of the Czar in 1881, which she directed, and for which she, with four others, was hanged. In person she was beautiful, winning, and lovable.

PETER (-64?). The Greek surname of an apostle of Jesus. Peter's real name was Simon, his father's Jonas, his brother's Andrew. Peter was of an impulsive temperament, generous, but too forward in speech and rash in action. After the Ascension, he was for a time the most prominent of the Apostles. Tradition makes him die as a martyr at Rome, crucified with his head downward. Roman Catholics claim him as the first bishop of Rome, and consider that the authority delegated him by Jesus appertains also to his successors, the popes of Rome.

PHILLIPS, WENDELL (1811-1884). Slavery abolitionist and emancipationist generally; born at Boston, Mass., and bred to the bar; was Garrison's aid-de-camp in the cause, and chief after his death.

PINGREE, HAZEN S. (1842-1901). American municipal reformer, born in Denmark, Me.; served in the Civil War and was six months in Andersonville prison (1864); afterwards started a shoe factory in Detroit, having previously been employed in a shoe factory; was mayor of Detroit (1890-1896), and threw himself into the work of fighting political corruption; was the advocate of municipal ownership of street railways, free water, the eight-hour law, and other reforms; he secured a reduction in the price of gas; in 1896 he became the Republican governor of Michigan.

PIUS IX. (GIOVANNI MARIA MASTAI FERRETTI) (1792-1878). Chosen to the pontificate (1846). During his incumbency the dogmas of the immaculate conception and of papal infallibility were promulgated, temporal power overthrown (1870), and the papal states annexed to Italy.

PIUS X. (GIUSEPPE SARTO) (1835-1914). Ordained (1858); parish priest until 1875, when made episcopal chancelor; bishop of Mantua (1884-1893); cardinal (1893); chosen to the pontificate (1903).

POLAK, HENRI (1868-). Dutch socialist, born in Amsterdam; president of the Diamond Workers' Union; member of the Social Democratic Federation of Holland and other similar organizations; a founder of Social Democratic Labor party, and secretary of the 1894 strike committee; his efforts reduced the hours of labor; increased the wages two, three, and four fold; made diamond cutters best paid workmen in Europe.

POTTER, HENRY CODMAN (1834-1909). Protestant Episcopal bishop of New York since 1887. Pastorates: Christ Church, Greensburg, Pa. (1857-1858); St. John's, Troy (1859-1866); assistant Trinity Church, Boston; rector of Grace Church, New York, till 1887. Author of *Thirty Years Reviewed, The Church and Her Children, The Religion of To-day,* and many other works.

POWDERLY, TERENCE VINCENT (1849-). American labor reformer; writer; born in Carbondale, Pa.; was formerly general master workman of the Knights of Labor; in 1869 he removed to Scranton, Pa., and soon after became president of the Machinists' and Blacksmiths' Union; mayor of Scranton, representing the labor party (1878, 1880, and 1882); in 1901 he was admitted to the bar of the United States Supreme Court. In both of the McKinley campaigns he made a tour of several states, delivering political speeches for the Republican candidates; has been the chief of division of information in Bureau of Immigration and Naturalization at Washington since 1907. In 1890 he published *Thirty Years of Labor,* covering the period between 1859 and 1889.

PROUDHON, PIERRE JOSEPH (1809-1865). French philosophical anarchist; writer; born at Besançon; he was reared in poverty, but through his own efforts acquired an education; spent three years in prison, and was at other times threatened with imprisonment.

PUSEY, EDWARD BOUVERIE (1800-1882). An English theological writer; a leader of the Anglo-Catholic party in the Established Church; published revolutionary sermons which resulted in his suspension for three years. Of his larger works the most important are *The Doctrine of the Real Presence* and *The Real Presence of the Body and Blood of Christ the Doctrine of the English Church.*

QUELCH, HENRY (1858-1913). English socialist, editor, and author; born in Hungerford, Berkshire; organizer of the South Side Labor Protection League; has been prosecuted for connection with strikes; member of Social Democratic Federation; editor of *Justice.*

RAIFFEISEN, FRIEDRICH WILHELM (1818-1888). German economist; established coöperative savings and loan associations in the country districts of Germany, to save the peasants from the clutches of usurers.

REYNOLDS, JAMES BRONSON (1861-1924). American social reformer; born at Kiantone, New York; educated in the leading universities of America and Europe; head worker in the New York University settlement; member of the State Tenement House Commission; afterward special adviser to President Roosevelt on Washington municipal affairs.

RICHMOND, LEGH (1772-1827). An English divine and religious writer; active in the reforms of his day; best known by his *Annals of the Poor;* his *Dairyman's Daughter* reached, within 20 years after his death, a circulation of 4,000,000 copies in 19 languages; he edited a series of *Fathers of the English Church.*

RIIS, JACOB (1849-1914). Danish-American philanthropist, journalist, and author. Came to New York in 1868, and became police reporter for daily newspapers, and the experience gained in this occupation led him to devote himself to all phases of social uplift and betterment. Among his literary works, by which he accomplished much, were: *How the Other Half Lives, The Children of the Poor, Out of Mulberry Street, The Battle with the Slums, The Making of an American.*

ROBERTSON, FREDERICK WILLIAM (1816-1853). A distinguished English preacher; curate at Winchester, at Cheltenham, and Brighton; is widely known for his printed sermons.

ROGERS, AMES EDWIN THOROLD (1823-1890). English economist; professor of political economy at Oxford; devoted himself to historical research on economic subjects; his *History of Agriculture and Prices* necessitated 20 years of patient study among all kinds of old records.

RUSH, BENJAMIN (1746-1813). American abolitionist, born near Philadelphia; physician; one of the signers of the Declaration of Independence, surgeon general in the army; started the first dispensary in the United States, at Philadelphia; during the yellow fever scourge in 1793 Rush was said to have saved the lives of 6,000 Philadelphians, in recognition of which he received many honors from both Europe and America; president of many moral and religious societies; Rush Medical Institute of Chicago is named for him.

RUSSELL, HOWARD H. (1855-). American clergyman; temperance reformer; born in Stillwater, Minn.; founder of the anti-saloon league; league superintendent in New York State; Russell believes that the reforming power of the world lies in the Church and the Gospel. The anti-saloon league is spreading throughout the country, and now raises and expends about $400,000 a year.

SANKEY, IRA DAVID (1840-1908). An American evangelist; associated with the late Dwight L. Moody for some years, attracting and holding the attention of great audiences by singing hymns composed by himself, which are published as *Gospel Hymns, Sacred Songs,* and *Sacred Songs and Solos.*

SAVAGE, MINOT JUDSON (1841-1918). Unitarian clergyman; Congregational pastor from 1864-1873; Unitarian pastorates in Chicago; Church of the Unity, Boston (1874-1896); Church of the Messiah, New York (1896-1906). A voluminous writer on ethical topics as well as editor.

SAVONAROLA, GIROLAMO (1452-1497). Famous Italian religious and political reformer of noble birth, a member of the Dominican order; by his intense religious zeal and powerful oratory became a prophet to his followers. Political disturbances within Italy followed by French invasion resulted in its control by Savonarola and his party, who aimed to establish a Christian commonwealth. Through too high a standard and his attacks upon the pope, he was forbidden to preach; was imprisoned and tried for heresy and sedition; finally hanged and his body burned. His numerous writings include sermons, poems, religious and political essays.

SCHLEIERMACHER, FRIEDRICH DANIEL (1768-1834). A German theologian; took orders (1794); professor of theology at Halle (1804-1806) and Berlin (1810-1834); pastor of Trinity Church, Berlin. His productions include lectures and essays on church history, philosophy, psychology, politics, and theology. His books are *Reden über die Religion an die Gebildeten unter ihren Verächtern, Monologen, Translation of Plato,* and *Grundlinien einer Kritik der bisherigen Sittenlehre.*

SCHWARTZ, BERTHOLD (1300-1369). A German monk; is said to have discovered gunpowder.

SCOTT, ROSE (1847-). English woman suffragist; lecturer; born in Glendon. Active in many movements for the advancement and benefit of women.

SCUDDER, VIDA DUTTON (1861-). Author; professor at Wellesley College; born in southern India; was one of the prime movers in the establishment of the first college settlements; her special care is for the immigrant Italians, among whom she has done much educational work.

SEBASTIAN, SAINT. A Roman soldier at Narbonne, and martyred under Diocletian when it was discovered he was a Christian; is depicted in art bound naked to a tree and pierced with arrows; and sometimes, with arrows in his hand, offering them to heaven on his knees, he having been first shot with arrows and then beaten to death.

SELIGMAN, EDWIN ROBERT ANDERSON (1861-). Professor of political economy at Columbia University; president of the American Economic Association, Tenement House Building Company, and the Bureau of Municipal Research; editor and author.

SERVE'TUS, MICHAEL (1509-1553). A Spanish theologian; martyred through the intolerance of Calvin.

SHELDON, CHARLES MONROE (1857-). An American clergyman; pastor of the Central Congregational Church at Topeka, Kansas (1889); conducted a Topeka daily newspaper for one week in accordance with his views of Christian daily living (1900); wrote *Robert Hardy's Seven Days, The Crucifixion of Philip Strong, His Brother's Keeper,* and *In His Steps.*

SHEPARD, THOMAS (1605-1649). English Puritan divine; silenced for non-conformity, he went to Boston (1635); pastor at Cambridge, where he took active part in founding Harvard College and in Indian missionary work.

SIMPSON, ALBERT B. (1846-1919). Canadian clergyman, founder of the Christian Alliance (1887); incorporated with the International Missionary Alliance (1897) under the name, Christian and Missionary Alliance, of which he is president and superintendent; equipped hundreds of foreign missionaries and maintains a missionary training institute; pastor of Gospel Tabernacle in New York City.

SINCLAIR, UPTON (1878-). American author; socialist, born at Baltimore, Md. His book, *The Jungle,* which made him famous, exposed the conditions of the packing house industries, and created such a sensation that President Roosevelt ordered an investigation, which resulted in a reform in the meat inspection laws.

SMITH, ALEXANDER COKE (1849-). Bishop of Methodist Episcopal Church, South. A clergyman from 1872 to 1886; became professor of mental and moral philosophy at Wofford College, S. C.; professor of theology at Vanderbilt (1890-1892); returned to pastoral duties and was elected bishop in 1902. Author of *The Teacher's Meeting* and contributor to various church publications.

SMITH, CHARLES SPRAGUE (1853-1910). American municipal reformer; educator, lecturer, and writer; born in Andover, Mass.; director and founder of the People's Institute, New York City. While supporting government monopoly theories, he insisted that such institution be gradually brought about.

SMITH, JOSEPH FIELDING (1838-1914). President of the Church of Jesus Christ of Latter Day Saints since 1901, having been connected with this church as missionary, apostle, and counselor since 1854; has been a strong factor in the political life of Utah; editor of *Juvenile Instructor* and *Improvement Era.*

SOCINUS, or **SOZZINI.** Two Italians, founders of Socinianism, and the precursors of the modern Unitarians. **Lelio** (1525-1562) studied Greek, Hebrew, and Arabic, to understand better the Scriptures; he visited several countries, meeting other liberal leaders, including Calvin. Part of his writings were published, which fell into the hands of his nephew, **Fausto** (1539-1604), who became their champion. He went to Poland, but was banished; wrote several controversial works and an explanation of Socinian theology.

SOLLY, HENRY (1813-1903). Unitarian clergyman (1840); feeling need of social intercourse among workmen, he set himself the task of establishing clubs; traversed entire country to further his idea; formed nearly 3,000 clubs with almost a million members.

SOMERSET, LADY HENRY (1851-1921). President of the British Woman's Temperance Association; philanthropist; born in London; upon the death of her husband in 1884 she renounced society and devoted herself to the welfare of her tenants, numbering over 100,000; took an active part in the temperance movements in both England and America. In collaboration with Frances E. Willard, she organized the World's Woman's Christian Temperance Union, which unites the cause of temperance with that of social purity and woman's suffrage; is editor of *The Woman's Signal,* the leading woman's paper in England, voicing the cause of reform and philanthropy.

SPALDING, JOHN LANCASTER (1840-1916). Roman Catholic bishop of Peoria (1877-1908); built St. Augustine's Church for Catholic negroes of Louisville (1869); secretary and chancellor diocese of Louisville (1871); of New York (1872-1877); appointed in 1902 by the president arbitrator in coal strike; author of many essays and reviews upon social, educational, and ethical questions, also poetry of a high order.

SPARGO, JOHN (1870-). English socialist and reformer; born in Stithians, Cornwall; settlement worker, author, and lecturer; removed to America in 1901 where he now lives, at Yonkers, N. Y.

SPURGEON, CHARLES HADDON (1834-1892). An English preacher. His followers built for him his well known "Tabernacle" in Newington Butts in 1861. Spurgeon preached in the Tabernacle every Sunday to thousands of hearers. His sermons were published weekly from 1854, and yearly volumes were issued from 1856. They had an enormous circulation, many of them being translated into various languages.

STANFORD, JANE LATHROP (1825-1905). An American philanthropist; born in Albany, N. Y.; the wife of Leland Stanford, founder of the Leland Stanford Junior University. She built and endowed the Children's Hospital in Albany, N. Y., at a cost of $200,000; gave $160,000 to the kindergartens in San Francisco, Cal., and after the death of her husband in 1893 devoted herself to the development and support of the Leland Stanford Junior University. In 1901 she supplemented her gifts to the university by turning over to its trustees stocks valued at $18,000,000, her residence in San Francisco, valued at $400,000, for a museum and art gallery, and 1,000,000 acres of land worth $12,000,000. These gifts swelled the endowment of the university to more than $45,000,000, making it the most richly endowed educational institution in the world.

STANFORD, LELAND (1824-1893). An American lawyer and philanthropist; born in Watervliet, Albany County, N. Y. In 1852 he went to California, where he engaged in mining, but in 1856 removed to San Francisco and there engaged in business, laying the foundation of a fortune estimated at more than $50,000,000. He was elected president of the Central Pacific Railroad in 1861; was governor of California (1861-1863); and in 1885 was elected to the United States Senate. In memory of a deceased son, Leland Stanford, Jr., he gave $20,000,000 for the founding of Leland Stanford University at Palo Alto, Cal. He died in Palo Alto.

STANLEY, ARTHUR PENRHYN (1815-1881). Widely known as Dean Stanley; an English scholar and divine; professor of ecclesiastical history in Oxford, and published lectures on the Eastern Church, the Jewish Church, the Athanasian Creed, and the Church of Scotland; accompanied the Prince of Wales to the East in 1862, and became dean of Westminster (1864); wrote *Historical Monuments of Westminster Abbey* and *Christian Institutions.*

STANTON, ELIZABETH CADY (1815-1902). An American reformer; born in Johnstown, N. Y.; called the first Woman's Rights Convention in Seneca Falls, N. Y., in 1848, and was an unsuccessful candidate for Congress in 1868. She was the author of *The History of Woman Suffrage* and other works.

STEAD, WILLIAM THOMAS (1849-1912). English editor and reformer; spent three months in jail for a technical breach of the law committed in order to change the age of consent from 13 to 16 years; a free trader, with a leaning toward socialism; voluminous writer; author; editor of the *Review of Reviews.*

STELZLE, CHARLES (1869-). American Presbyterian clergyman and sociologist; studied industrial problems in machine shops; pastor till 1902; since superintendent of church and labor department for Presbyterian churches in the United States; author of numerous articles and volumes on social problems.

STEPNIAC, SERGIUS MICHAEL DROGOMANOFF (1852-1895). Russian radical; advocate and worker for political and social reforms; removed to London in 1884.

STONE, LUCY (MRS. BLACKWELL) (1818-1893). An American reformer; born in West Brookfield, Mass. She was graduated at Oberlin College in 1847. She published a protest, *Taxation Without Representation.* In 1869 she helped organize the American Woman's Suffrage Association. Her lectures on woman suffrage made her known throughout the country. She died in Boston.

SUTHERLAND, LADY MILLICENT FANNEY ST. CLAIR-ERSKINE (1869-). Economic and industrial reformer; influenced Parliament to appoint a commission to investigate the lead poisoning conditions among the pottery workers. President of many philanthropic societies; author of several books.

SUTTNER, BERTHA, BARONESS VON (1843-1914). Founder and president of the Austrian Society of Peace; author of numerous books; devoted to the cause of peace. Received Nobel peace prize.

SWEDENBORG, EMANUEL (1688-1772). A Swedish theosophist. In his theosophy the central point is the correspondence of the natural and the supernatural; founder of the sect known as Swedenborgians or the Church of the New Jerusalem. All of his works were written in Latin.

TACHE (*ta-shay'*), **ALEXANDRE ANTOINE** (1823-1894). A Canadian Catholic archbishop; joined the Order of the Oblate Fathers and conducted mission work in Northwest Canada among the Indians; archbishop of Saint Boniface (1871); founded the Saint Boniface Theological College; wrote *Vingt années de missions dans le nord-ouest l'Amérique and Esquisses sur le nord-ouest de l'Amérique,* which in its English translation is a most valuable work of reference on that region.

TALMAGE, THOMAS DE WITT (1832-1902). An American clergyman; pastor of the Central Presbyterian Church in Brooklyn, N. Y. (1869-1894); afterwards associate pastor of the First Presbyterian Church in Washington, D. C.; editor of the *Christian Herald* and author of *Crumbs Swept Up; Woman: Her Powers and Privileges, From Manger to Throne, Every-Day Religion,* etc.

TAYLOR, JEREMY (1613-1667). An English prelate and author; "the modern Chrysostom"; in 1638 rector of Uppingham in Rutlandshire. In the civil war Taylor took the royal side, and so lost all his preferments. For many years he lived in retirement in Wales, busily engaged in writing books. In 1658 he went to Ireland; immediately after the Restoration bishop of Down and Connor, also that of Dromore till his death; wrote *Episcopacy Asserted, The Liberty of Prophesying, Life of Christ, Holy Living,* and *Holy Dying.*

THERESA, SAINT (1515-1582). A Spanish Carmelite nun; eminent for learning and piety; founder of a reformed society of barefooted members of that order; canonized by Pope Gregory XV.

TINGLEY, (Mrs.) KATHERINE (1852-). Born at Newburyport, Mass.; appointed successor of Mme. P. Blavatsky and William Q. Judge in the "Universal Brotherhood and Theosophical Society" movement; head of the "Raja Yoga" schools of Point Loma, San Diego, and San Francisco, California, and the Brotherhood schools of England and Cuba; long engaged in philanthropic work, embracing East Side mission movements in New York, relief corps work in the Spanish War, emergency hospital work for sick soldiers at Montauk Point, and charitable work in Havana; first to make complete educational exposition of the idea of "theosophy in practice," upholding to the young the theosophic principles of "Karma," the all-pervading law of relentless justice, and the figure of Christ as one of the most important of the world's great teachers; at present engaged in establishing an eastern replica of the Point Loma institution at Newburyport, occupying the site of the historic "Lord" Timothy Dexter mansion; financial support for the movement is obtained by voluntary contributions. Her society is understood to be distinct from and unaffiliated with "The Theosophical Society," whose head is Mrs. Annie Besant, and the headquarters of which is at Adyar, Madras, India.

TOME, JACOB (1810-1898). An American philanthropist; born in Manheim township, York County, Pa.; went to Port Deposit, Md., in 1833. In 1884 he presented to Dickinson College a valuable building for scientific uses. His largest gift was for the foundation of the Jacob Tome Institute, at Port Deposit, $1,600,000, a sum that was increased by his will to more than $3,500,000. He died in Port Deposit, Md.

TRUEBLOOD, BENJAMIN FRANKLIN (1847-1916). General secretary of the American Peace Society since 1892; editor of the *Advocate of Peace;* in 1899 attended The Hague Peace Conference; holds radical views on the subject of peace, woman suffrage, temperance, and the municipal ownership of street railways; a prominent lecturer and writer on international subjects.

TUCKWELL, GERTRUDE M. (1862-). English Christian socialist; trade unionist; chairman of the Women's Trade Union League; born in Oxford; her father, Rev. William Tuckwell, known as "The radical parson," has a reputation throughout England for his strong views on labor, land, naturalization, etc.; Miss Tuckwell has written extensively upon industrial subjects.

TYSON, ROBERT (1845-1917). English political economist and social reformer; born in Canterbury; removed to Toronto, Canada, in 1870; worked in a machine shop as a boy; has worked vigorously in the cause of single tax, then for direct legislation and proportional representation; is the advocate of electoral reform; newspaper reporter and editor; writer.

ULFILAS (*ul'fi-las*) (about 311-about 381). The apostle and bishop of the Goths; labored among the Goths for over 30 years; preached and wrote in Greek, Latin, and Gothic; his translation of the Bible into Gothic is the beginning of all German literature; he omitted the books of Samuel and Kings, for he considered that they were too vivid a picture of war to present to his fierce countrymen.

URSULA, SAINT. A traditionary virgin martyr; reputed daughter of a British prince, who, with 11,000 other virgins, suffered cruel martyrdom at Cologne in the third or fourth century.

VAIL, CHARLES HENRY (1866-1924). Economic writer; pastor of Pullman Memorial Church, Albion, New York; is the advocate of national ownership of railways, collective ownership of means of production and distribution.

VERRIJN, STUART COENRAAD ALEXANDER (1865-). Professor of economics and industrial law at the Academy of Technology, Delft, Holland; born at Ueesp. A liberal in politics, he claims that social reform can come only through mental and moral improvement of the individual, not through the interference of the state

VINCENT DE PAUL, SAINT (1576-1660). An eminent French philanthropist and reformer; canonized by Pope Clement XII. (1737). He organized the Congregation of Missions and founded the order of Sisters of Charity.

VINCENT, JOHN HEYL (1832-1920). Since 1900 bishop of Methodist Episcopal Church, and since 1878 chancellor of the Chautauqua system, of which he was a founder in 1874. Previously he had been pastor eight years and connected with Sunday school work and publications nine years. He is preacher to Harvard, Yale, Cornell, and other colleges. Author of many books relating to Sunday school work and Bible teaching.

WATTS, ISAAC (1674-1748). An English hymnologist; wrote *Hymns and Spiritual Songs, Divine and Moral Songs for the Use of Children, A Manual of Logic,* several volumes of *Sermons.*

WARREN, JOSIAH (1799-1874). Philosophical anarchist; born near Boston; was associated with Robert Owen in the New Harmony community; individualist; believed that cost was the true standard of price; started an experimental store to exemplify his principles; founded communities which did not prosper.

WAXWEILER, EMILE (1861-1916). Economist, born in Belgium; director of the Solvay Sociological Institute, Brussels; lecturer on sociology and political economy.

WEBB, BEATRICE (1858-). Writer; economist; daughter of Richard Potter, for a time president of the Grand Trunk Railroad; student of working class life in English cities, especially the sweat shop system; member of Fabian Society, and the Royal Commission on the Poor Law.

WESLEY, JOHN (1703-1791). Founder of the sect called Wesleyans or Methodists; went with General Oglethorpe to Savannah, Ga., in 1736, hoping to convert the Indians; returned in 1738. His first hymn book was published at Charleston (1737); spent three months with the Moravians in Germany (1738); organized his religious system of Methodism.

WHITMAN, MARCUS (1802-1847). American pioneer and missionary; with his wife and three other missionaries took the first wagon across the Rocky Mountains to Washington (1836). He secured the Oregon territory for the United States (1842-1843).

WHITEFIELD, GEORGE (1714-1770). An English clergyman; a friend of Charles Wesley; ordained in 1736; preached with great effect, and in 1737 visited America; returned to England; held outdoor meetings and gathered immense crowds. He made seven voyages to America, preaching throughout the colonies with such power that he was called "the wonder of the age."

WICLIF, JOHN (about 1320-1384). An English patriot and reformer; in 1360 became master of Balliol College, and for a while was royal chaplain; translated the Bible into English; was repeatedly arraigned for heresy, and finally prohibited from teaching in the University; retired to his rectory of Lutterworth. His buried remains, by order of the rival pope, Clement VIII., were disinterred, burned, and the ashes cast into the Swift, a branch of the Avon River.

WILBERFORCE, WILLIAM (1759-1833). Founder of the English anti-slavery society; born at Hull, England; member of the House of Commons; framed the abolition of slavery bill which was passed one month after his death; was interested in many other reforms and philanthropies.

WILLARD, FRANCES ELIZABETH (1839-1898). An American temperance reformer; born in Churchville, near Rochester, N. Y. After some years spent in teaching she became professor of esthetics in the Northwestern University, and was made dean of the Woman's College in February, 1871. She began her active temperance work in 1874, and was made secretary of the National Woman's Christian Temperance Union. In 1879 she was made president of that organization and held the office till her death. She was chosen as president of the World's Christian Temperance Union in 1888, and in 1892 visited England as the guest of Lady Henry Somerset, the well known temperance worker. She was an orator of great eloquence, humor, and power. Her executive ability and genius for organization were wonderful, and her work for temperance and social purity will live in the history of her country. She died in New York City.

WILLIAMS, TALCOTT (1849-1928). Journalist; economist; born in Turkey; in favor of free contract, free competition and free labor, believing this régime to tend towards the distribution of wealth, and to result in the greatest good to the greatest number; head of school of journalism at Columbia, 1912.

WISEMAN, NICHOLAS PATRICK STEPHEN (1802-1865). An English Roman Catholic prelate; ordained to the priesthood in 1825; made professor of oriental languages in the University, and rector of the English College of Rome until 1835, when he returned to England, where he became noted as a preacher and lecturer; created by the pope a bishop in partibus (1840); made vicar apostolic of the London district (1849); and in 1850 Roman Catholic Archbishop of Westminster and a cardinal. His principal works are *Lectures on the Connection between Science and Revealed Religion, The Real Presence, Lectures on the Catholic Hierarchy, Recollections of the Last Four Popes,* and *Sermons on Our Lord Jesus Christ and His Blessed Mother.*

WOLFF, HENRY WILLIAM (1840-). English social reformer, born at Leeds; founder and chairman of the International Coöperative Alliance, prolific writer; believes in reform by means of self-help, moral and educational influences, and the breaking down of class distinctions.

WOOLLEY, JOHN GRANVILLE (1850-1922). Temperance reformer; born in Collinsville, Ohio; believes that all reform hinges upon temperance reform, and that the temperance question is the most important in practical politics.

WOOLMAN, JOHN (1720-1772). Philanthropist; abolitionist; Quaker; began by teaching the neglected children of the poor; his journal has been published with an introduction by Whittier; he died of smallpox in England.

YALE, ELIHU (1648-1721). An Anglo-American philanthropist; went to the East Indies as a trader (1672), and acquired great wealth. From 1687 to 1692 he was governor at Fort St. George, Madras. He gave to the Saybrook Collegiate School books and money valued at $4,000, a gift which resulted in the connection of his name with the college after its removal to New Haven.

YOUNG, BRIGHAM (1801-1877). Second president of the Mormon Church, or Church of Jesus Christ of the Latter Day Saints, and founder of the state of Utah. He was active in promoting agriculture; founded the University of Deseret and other schools; was interested in the construction of railroads and the prime mover in building the celebrated Mormon Temple. He displayed remarkable efficiency in organizing and consolidating the Mormon Church.

ZIN'ZENDORF, NIKOLAUS LUDWIG VON, COUNT (1700-1760). A German count; established the religious community of Herrnhut on his estate in Saxony, consisting chiefly of a body of Moravian brethren who had been driven out of Bohemia and Moravia, called Herrnhuters, of which he became one of the leaders and chief apostles; author of more than 100 works in prose and verse.

ZOROASTER, ZARATHUS'TRA or ZER'DUSHT (660-583 B. C.). The founder or reformer of the Parsee religion. Though certainly a historical personage, nothing whatever is known except that his family name was Spitama, that he was born in Bactria, and that he could not have flourished later than 580 B. C.

ZUEBLIN, CHARLES (1866-). Lecturer; writer; member of London Fabian Society; professor of sociology at the University of Chicago; born at Pendleton, Indiana; especially interested in municipal sociology in American cities.

DICTIONARY OF LEADING JURISTS.

AKERMAN, AMOS TAPPAN (1823-1880). Attorney general; born in New Hampshire; was graduated from Dartmouth (1842); admitted to the bar (1844); practised in New Hampshire till 1850, when he removed to Elberton, Ga.; at the opening of the Civil War entered the service of the Confederate government in the quartermaster's department; after the war gave his support to the reconstruction policy of the government; served as United States attorney for the district of Georgia from 1866 to 1870; appointed in the latter year attorney general of the United States; was Republican candidate for United States senator but failed of an election (1873).

ALLISON, WILLIAM BOYD (1829-1908). An American lawyer; born at Perry, Ohio; studied law and practised in Ohio until his removal to Iowa (1857); was on the governor's staff during the Civil War; elected to the House of Representatives, serving from 1863 to 1871; in 1872 was elected to the United States Senate, and re-elected five times; the Bland-Allison Act was due to him; representative to Brussels Monetary Conference (1892); prominent in Republican national conventions for presidential nomination (1888, 1896).

ARCHAMBEAULT, HON. HORACE (1857-1918). Born at L'Assumption, P. Q.; educated at local college and graduated LL. B. with distinction at Laval University (1878); LL. D. (1886). Called to bar (1878); professor of science and law (since 1881); member Legislative Council of Province of Quebec (1888); of Council of Public Instruction (1890); created queen's counsel (1890); attorney general (1897); puisne judge Court of King's Bench, Province Quebec (1907).

BENJAMIN, JUDAH PHILIP (1811-1884). American lawyer and statesman; born in St. Croix, West Indies, of English-Jewish parentage; admitted to the bar in New Orleans (1832); admitted to practice before Supreme Court; United States senator from Louisiana (1852-1861); withdrew from Senate (1861); was appointed attorney general in provisional cabinet of President Davis; was Confederate secretary of war and in 1862 secretary of state; fled to England on the surrender of Lee at Appomattox; admitted to the English bar (1866); became queen's counsel (1872). In 1868 he published a "Treatise on the Law of Sale of Personal Property," which is known as a legal classic. In 1881 he retired and went to Paris.

BERRIEN, JOHN MACPHERSON (1781-1856). Statesman, jurist; born in New Jersey; was graduated from Princeton (1796); admitted to the bar of Georgia (1799), solicitor of the eastern district of Georgia (1809); judge of the same district (1810-1821); sat in Georgia senate (1822-1823); member of United States Senate (1825-1829 and 1840-1852); attorney general of the United States in President Jackson's cabinet (1829-1831); his eloquence before Congress gained him the title of "American Cicero."

BLACK, JEREMIAH SULLIVAN (1810-1883). American jurist; born in Glade, Pa.; admitted to the bar (1831); attorney general of the United States (1857); secretary of state (1860); on the accession of President Lincoln retired from public life; in 1868 counsel for President Johnson in the impeachment case, but withdrew after the answer had been filed; counsel for Tilden before the electoral commission (1877).

BLACKSTOCK, GEORGE TATE (1857-1921). Canadian jurist; educated at Upper Canada College; called to bar (1879); created queen's counsel (1889); wrote on Venezuelan question.

BLACKSTONE, SIR WILLIAM (1723-1780). A celebrated commentator on English law, born in London; educated at Oxford; admitted to the bar (1746); lecturer on law at Oxford (1753-1758) when he became first professor of English law; successively (1761-1780) king's counsel, member of Parliament, bencher of Middle Temple, solicitor general to the queen, and judge in the Court of Common Pleas. He published (1765-1769) the lectures which form the famous *Commentaries on the Laws of England*, upon which his fame chiefly rests. This most influential treatise is the foundation of all legal education in America and England.

BLAIR, HENRY WILLIAM (1834-1920). American lawyer; born in Campton, N. H.; admitted to bar (1859); served in Civil War; in New Hampshire house of representatives and in state senate (1866-1868); Republican member of Congress (1875-1879); United States senator (1879-1891); framed Blair Common School Bill, and that for U. S. Labor Department.

BONAPARTE, CHARLES JOSEPH (1851-1921). American lawyer and cabinet officer; born in Baltimore. A graduate of Harvard (1871) and Harvard Law School (1874); secretary of the navy (1905-1906), and attorney general (1907-1909).

BORDEN, ROBERT LAIRD (1854-). Canadian jurist; educated at Acadia Villa Academy; called to bar (1878); created queen's counsel (1890); distinguished special pleader; counsel for Dominion Government in Queen *vs.* David J. Adams in important Treaty of 1818 case. Member of Parliament for Halifax city and county (1896-1900); member for Carleton (1905). Elected Conservative leader in the House of Commons; premier of Canada (1911-).

BRADFORD, WILLIAM (1755-1795). Jurist; born in Philadelphia, Pa.; was admitted to the bar of the Supreme Court (1779); served in the Revolution; appointed attorney general of Pennsylvania (1780); appointed a judge of the Supreme Court under the new constitution of Pennsylvania (1791); U. S. attorney general (1794-1795).

BRECKENRIDGE, JOHN (1760-1806). Jurist; born in Virginia; admitted to the bar in Charlottesville (1785); said to have been the author of the Kentucky resolutions of 1798; introduced them into the Kentucky legislature; entered the United States Senate (1801); attorney general (1805-1807).

BREWER, DAVID JOSIAH (1837-1910). An American jurist; born in Smyrna, Asia Minor; graduated at Yale (1856) and at Albany Law School (1858); was a United States commissioner (1861-1862); judge of the probate and criminal courts of Kansas; judge of the district court of First Kansas District; justice of the state supreme court (1870-1884); judge of the circuit court of United States (1884-1889); associate justice of the United States Supreme Court (1889-1910); in 1896 appointed a member of the Venezuelan Boundary Commission; affirmed the right of liquor manufacturers to compensation—this was the decision rendered on the Kansas Prohibition Law; member of British-Venezuelan Arbitration Tribunal (1899); president Universal Congress of Lawyers and Jurists, Louisiana Purchase Exposition, St. Louis (1904).

BUTLER, BENJAMIN FRANKLIN (1795-1858). An American lawyer and politician; born at Kinderhook Landing, N. Y.; studied law and was admitted to the bar (1817); district attorney of Albany County (1821-1824); elected to the state legislature (1827); appointed attorney general by Jackson (1833), and by Van Buren in 1837; secretary of war (1836-1837); organized the department of law in the College of the City of New York, and was the principal professor (1837); United States district attorney at New York City from 1838-1841; served at the head of the electoral college in New York (1844); district attorney from 1845-1848.

BUTLER, PIERCE (1866-), jurist, practiced law in Minnesota from 1888 to 1923, acting for a time as counsel for the St. Paul Railway. Attorney in famous cases. Associate justice, Supreme Court, from 1923.

CAMBACERES (*kon-bah-say-res'*), **JEAN JACQUES REGIS DE, DUKE OF PARMA** (1753-1824). A French statesman; born in Montpellier; president of the convention after the fall of Robespierre; his "Plan of a Civil Code" was the basis of the "Code Napoléon"; second consul in France (with Bonaparte and Lebrun) (1799); created high chancellor of the empire and Duke of Parma (1808); directed affairs while Napoleon was absent (1813-1814); during the Hundred Days served Napoleon as minister of justice; exiled in 1816, but restored in 1818.

CHANDLER, WILLIAM EATON (1835-1917). Lawyer; born at Concord, N. H. Graduated from Harvard Law School (1854); admitted to the bar (1855); reporter of decisions supreme court of New Hampshire (1859); member New Hampshire legislature (1862, 1863, 1864, 1881); solicitor and judge advocate general navy department (1865); first assistant secretary of treasury (1865-1867); secretary of the navy (1882-1885); United States senator (1887-1901); president Spanish Treaty Claims Commission (1901-1907).

CHASE, SALMON PORTLAND (1808-1873). American statesman and jurist; born in Cornish, N. H.; graduated at Dartmouth College (1826); admitted to the bar (1830); celebrated for his defense in the Matilda case (1837); leader of the political anti-slavery men; senator from Ohio (1849); withdrew from the Democratic party when they adopted a pro-slavery platform (1852); leader of the Republicans in Ohio, and governor of that state (1856-1860); secretary of the treasury (1861); chief justice of the Supreme Court (1864-1873); presided at the impeachment trial of President Johnson (1868).

CHOATE, JOSEPH HODGES (1832-1917). An American lawyer and diplomat. Since 1865 he has conducted many famous trials, both national and international. He defended General Fitz-John Porter, prosecuted the Tweed ring, conducted the Tilden will case, the Chinese exclusion cases, and represented the Canadian government in the Bering Sea dispute. Ambassador to England (1899-1906), after which he resumed his law practice in New York City.

CHOATE, RUFUS (1799-1859). A famous American lawyer and statesman; born in Ipswich, Mass.; graduated at Dartmouth College (1819); studied law and was admitted to the bar (1823); served in lower house of Massachusetts legislature (1826); in state senate (1826); in the national House of Representatives (1831-1834); in United States Senate (1841-1845); ranked high as a debater and able lawyer.

CLIFFORD, NATHAN (1803-1881). American jurist; admitted to the bar (1827), in New Hampshire legislature (1830-1834), speaker (1832-1834); attorney general (1834-1838); congressman (1839-1843); attorney general of United States (1846); envoy to Mexico to arrange treaty of peace (1848); associate justice of United States Supreme Court (1858); president of electoral commission (1877).

COKE, SIR EDWARD (1552-1634). A distinguished English lawyer and judge; born in Norfolk; called to the bar (1578); recorder of Norwich and London (1586-1592); member of Parliament and speaker of the House of Commons (1593); attorney general (1594-1606); conducted famous trials of Southampton and Essex (1601), of Sir Walter Raleigh (1603), of Gunpowder Plotters (1605); chief justice of the Common Pleas (1606-1613); chief justice of the King's Bench (1613); removed (1616) for opposing the king's unlawful intrusion; imprisoned in the Tower (1621-1622); active in securing Petition of Rights. His best-known work, *Coke upon Littleton, or the First Institute*, is still an authoritative treatise. Others are *Second, Third, and Fourth Institutes; The Complete Copyholder;* and *Reading on Fines*. His law reports mark a period in legal history invaluable to the profession.

CRITTENDEN, JOHN JORDAN (1787-1863). American statesman; United States senator (1817-1819, 1835-1841, 1842-1848, and 1855-1861); attorney general of United States (1841, 1850-1853); governor of Kentucky (1848-1850); congressman (1861-1863).

CUJAS, JACQUES DE (1522-1590). One of the most distinguished French jurists of the sixteenth century; successfully taught law at Cohors, Valence, Bruges, and Paris (1554-1590). He made diligent study of Roman law from original manuscripts, of which he owned 500 on Roman law. His treatment of it and the feudal system was profound.

CUSHING, CALEB (1800-1879). American politician and jurist; born in Salisbury, Mass. Commissioner to China (1843-1845); concluded the first treaty of the United States with that country; attorney general of the United States (1853-1857), and one of the counsel in the *Alabama* case before the Geneva

Arbitration Tribunal (1871); was minister to Spain (1874-1877). He is the author of *Reminiscences of Spain, The Practical Principles of Political Economy,* and *The Growth and Territorial Progress of the United States.*

DAVIS, DAVID (1815-1886). An American jurist, born in Cecil County, Md.; graduated at Kenyon College, Ohio (1832); studied law; admitted to the bar (1835); appointed (1862) associate justice of the United States Supreme Court, by President Lincoln; resigned in 1877, having been elected to the United States Senate, where he served from 1881-1883 as president pro tem., after Vice-President Arthur became president; in 1872 he was a prominent candidate for the presidential nomination.

DEVENS, CHARLES (1820-1891). An American jurist; born at Charlestown, Mass.; graduated at Harvard, and was admitted to the bar (1841); member of the state senate (1848-1849); was United States marshal for the district of Massachusetts (1849-1853); served on the Federal side in the Civil War, attaining the rank of brigadier general, and that of major general; served in the superior and supreme courts of Massachusetts from 1867-1877 as associate justice; appointed United States attorney general by President Hayes, serving from 1877-1881; was again in the state supreme court from 1881 till his death.

DICKINSON, DONALD McDONALD (1846-1917). An American lawyer; born at Port Ontario, New York; was graduated from the University of Michigan (1866); admitted to the bar (1867); in 1888 was appointed postmaster general; was chairman of the National Democratic campaign committee (1892); acted as United States senior counsel before the Bering Sea claims commission (1896); member of court of arbitration to adjust controversy between United States and Republic of Salvador (1902).

ELDON, JOHN SCOTT, EARL OF (1751-1838). Lord high chancellor. Born at Newcastle-upon-Tyne; admitted to the bar (1776); made attorney general, and knighted (1793); appointed chief justice of the Court of Common Pleas (1799); created lord chancellor (1801); as a reward for services rendered the king, George IV., he received the title of Earl of Eldon (1821); retired to private life (1827); was a common-law judge of the highest order.

ELLSWORTH, OLIVER (1745-1807). An American statesman and jurist; born at Windsor, Ct.; admitted to the bar (1771); elected to the Connecticut legislature (1775); sent as a delegate from Connecticut to the Continental Congress (1778-1783); became a judge of the Connecticut superior court (1784); represented Connecticut in the constitutional convention of 1787 at Philadelphia, where he secured the adoption of the Connecticut compromise; instrumental in the organization of the national government (1789); appointed chief justice of the Supreme Court of the United States (1796-1800); sent with Murray and Davie as commissioner to France (1799); was a member of the governor's council in Connecticut from 1802 until his death; received the appointment of chief justice of the state in 1807 but he died before taking office.

ERSKINE, THOMAS, FIRST BARON ERSKINE (1750-1823). An eminent Scotch lawyer; born in Edinburgh; admitted to the bar (1778); entered parliament (1783); opposed Pitt, and it was not till Pitt's death that he gained a position in the cabinet, that of lord chancellor in 1806; received the title of Baron Erskine (1806).

EVARTS, WILLIAM MAXWELL (1818-1901). A famous American lawyer and statesman; born in Boston; studied law, and was admitted to the bar (1841); became leading counsel for President Johnson in the impeachment trial before the Senate (1868); was attorney general of the United States (1869); became chief counsel for the United States before the court of arbitration at Geneva, convened to pass on the *Alabama* claims (1872); leading counsel for Hayes before the electoral commission in 1877; appointed secretary of state by President Hayes (1877-1881); United States delegate to the international monetary conference at Paris (1881); member of the United States Senate (1885-1891).

FAIRCHILD, CHARLES STEBBINS (1842-1924). Lawyer, banker; born at Cazenovia, N. Y. Graduated from Harvard (1863); Harvard Law School (1865); admitted to New York bar same year, beginning practice at Albany. Became deputy attorney general of New York (1874); attorney general (1876-1877); secretary of the treasury United States (1887-1889); member monetary commission, appointed by executive committee of Indianapolis monetary conference of 1897.

FARMAN, ELBERT ELI (1831-1911). Jurist; born in New Haven, N. Y.; graduated from Amherst College (1855); admitted to bar (1858); to United States courts (1862); district attorney, Wyoming County, N. Y. (1868-1875); United States diplomatic agent and consul general at Cairo, Egypt (1876-1881); judge mixed tribunals of Egypt (1881-1884); United States member international commission (1883-1884), to determine amounts to be paid the inhabitants of Alexandria for losses in bombardment of 1882; secured gift of "Cleopatra's Needle" for New York (1879).

FIELD, DAVID DUDLEY (1805-1894). A celebrated American jurist; born in Haddam, Ct.; studied law, and was admitted to the bar (1828); appointed a commissioner on practice and pleading by the New York legislature; he prepared Codes of Civil and Criminal Procedure, which were adopted in New York and subsequently in many other states (1848-1850); placed at the head of a new commission to prepare political, penal, and civil codes (1875); suggested to the British Association for the Promotion of Social Science, a plan for the revision and reform of the law of nations; elected president of an association formed at Brussels for the reform and codification of the law of nations (1873); appointed to fill a vacancy in Congress (1876); presided over the Peace Congress in London in 1890.

FIELD, STEPHEN JOHNSON (1816-1899). A distinguished American judge; born in Haddam, Ct. He was a brother of David Dudley Field and of Cyrus W. Field. Went to California in 1849 and practised law; judge of the supreme court of California (1857) and chief justice (1859). Through his decisions regarding titles to lands the law of real property was placed upon a firm basis. In 1863 Lincoln made him an associate justice of the Supreme Court of the United States, where he contributed greatly to American constitutional law by his famous decisions. He was a member of the Hayes-Tilden electoral commission of 1877 and voted in favor of Tilden.

FORWARD, WALTER (1786-1852). An American lawyer and cabinet officer; born in Hartford County, Ct. Elected to Congress, from Pittsburg, Pa. (1822-1825), as a Democrat; then became a Whig; secretary of the treasury under Tyler (1841-1843), after which he practised law.

FULLER, MELVILLE WESTON (1833-1910). Jurist; born in Augusta, Me.; removed to Chicago, Ill. (1856); sat in the Illinois state legislature (1864, 1872, 1876, and 1880); chief justice of the United States Supreme Court (1888-1910) to succeed M. R. Waite; member of the arbitration commission at Paris to adjust the Anglo-Venezuelan difficulty (1899).

GALT, HON. SIR THOMAS (1815-1910). Born in England; came to Canada (1833); studied law; called to bar (1845); elected bencher of Law Society (1855); created queen's counsel (1858); judge Court of Common Pleas (1869); chief justice (1887); knighted (1888) and retired from judicial life in 1894.

GARLAND, AUGUSTUS HILL (1832-1899). An American politician; born in Tipton County, Tenn.; admitted to the bar (1853); although opposed to secession, he joined the Southern cause; was elected to the Confederate Congress (1861); and afterward elected to the Confederate Senate, which position he held until the close of the war; governor of Arkansas (1874) under the new constitution; U. S. senator (1877-1885); U. S. attorney general (1885-1889).

GILPIN, HENRY DILWOOD (1801-1860). Jurist; born in Lancaster, England; educated in England up to 1816, when he removed to America, completing his education at the University of Pennsylvania (1819); admitted to the bar (1822); appointed district attorney for Pennsylvania (1832); appointed solicitor of United States treasury (1837); attorney general of the United States (1840-1841).

GIROUARD, HON. DESIRE (1836-1911). Born at St. Timothée, P. Q.; educated at Montreal College; studied law; B.C.L. (1860); D.C.L. (1874); called to bar (1860); created queen's counsel (1880); entered political life (1874) representing Jacques Cartier from 1878 to 1896; retired from politics. Distinguished himself in connection with Deceased Wife's Sister bill; was one of group of 16 French Conservative men known as "The Bolters." Contributor to Canadian history, receiving the Confederation

Medal from Lord Aberdeen. Judge of Supreme Court of Canada (1895-1911).

GRESHAM, WALTER QUINTON (1832-1895). American jurist; born near Lanesville, Ind.; admitted to bar (1853); elected to state legislature (1860); brevetted major general Civil War (1865); United States district judge for Indiana (1869); postmaster general (1882); secretary of treasury (1884); United States circuit judge (1884); secretary of state (1893).

GROTIUS (*gro'shus*), **HUGO (DE GROOT)** (1583-1645). Distinguished Dutch jurist and author; born at Delft. His *International Law* is still authoritative.

GRUNDY, FELIX (1777-1840). American jurist; born in Berkeley County, W. Va. Member Kentucky legislature (1799); elected to Congress (1811-1813); United States Senate (1829); United States attorney general (1838); resigned to reënter Senate (1839).

HALE, SIR MATTHEW (1609-1676). Lord chief justice of England; born at Alderley, Gloucestershire; called to the bar (1637); judge of the Court of Common Pleas 1654 till the Restoration, when he was made chief baron of the exchequer, and knighted; chief justice of the King's Bench (1671-1676).

HARLAN, JOHN MARSHALL (1833-1911). American jurist; born in Boyle County, Ky. Studied law at Transylvania University; practised at Frankfort; county judge (1858); elector on Bell and Everett ticket (1860); in Union army (1861-1863); attorney general Kentucky (1863-1867); practised law in Louisville (1867); associate justice United States Supreme Court (1877-1911); one of the American arbitrators of Bering Sea tribunal (1893).

HARMON, JUDSON (1846-1927). American lawyer; born at Newton, Ohio; graduated from Denison University (1866), and Cincinnati Law School (1869); judge common pleas court (1876-1878); elected in 1878 to superior court of Cincinnati; appointed attorney general of United States in President Cleveland's second cabinet (1895-1897); elected governor of Ohio (1908); reëlected (1910).

HIGGINS, ANTHONY (1840-1912). Lawyer; born at Red Lion Hundred, Del.; graduated from Yale; studied law at Harvard and was admitted to the bar in 1864; chairman Republican state committee (1868); United States attorney for Delaware (1869-1876); candidate for Congress in 1884, but defeated; United States senator (1889-1895); counsel for Judge Swayne in his impeachment trial (1905).

HOAR, EBENEZER ROCKWOOD (1816-1895). Jurist; born at Concord, Mass.; studied law, and was admitted to the bar (1835); judge of the court of common pleas (1849-1855); judge of the state supreme court (1859-1869); appointed attorney general of the United States (1869), serving till 1870; member of the Joint High Commission that framed the Treaty of Washington (1871); member of Congress (1873-1875).

HOLMES, OLIVER WENDELL (1841-). Jurist; born at Boston, Mass. Graduated from Harvard (1861), Harvard Law School (1866); served in Civil War, being mustered out with rank of captain. Admitted to Massachusetts bar (1867); practised in Boston; taught constitutional law at Harvard Law School (1870-1871); editor *American Law Review* (1870-1873); member Shattuck, Holmes & Munroe, law firm (1873-1882); professor Harvard Law School (1882); associate justice (1882-1889), chief justice supreme judicial court of Massachusetts (1899-1902); associate justice United States Supreme Court since 1902.

IMPEY, SIR ELIJAH (1732-1809). An English jurist. First chief justice of Bengal (1774-1783); recalled and impeached for condemning to death the famous forger, Raja Nanda Kumar. He was acquitted with honor as an amiable and upright judge.

JAY, JOHN (1745-1829). American statesman and jurist; born in New York City. Was admitted to the bar (1768); was a delegate to the first continental congress (1774), a member of the provincial congress of New York, and president of the continental congress (1778-1779). From 1779 to 1782 he represented his country in Spain; was one of the American peace negotiators in Paris (1782-1783), and helped in securing the ratification of the Federal constitution in New York. From 1789 until 1795 he was the first chief justice of the United States Supreme Court, and in 1794 concluded the Jay treaty with the British government. Was governor of New York (1795-1801).

JEFFREYS or **JEFFERIES, GEORGE, LORD** (1648-1689). Lord high chancellor of England; born at Acton, near Wrexham, Denbighshire; admitted to the bar (1668); was appointed common sergeant of the city of London (1671); became recorder of London (1678); was appointed chief justice of Chester (1680); a baron in 1681; and chief justice of England (1683); presided at the trials of those who had a part in the Rye House and Popish plots, and condemned without mercy; conducted the "Bloody Assizes," after the battle of Sedgemoor, when he ordered 320 executions for high treason (1685); made lord chancellor and keeper of the great seal by James II. (1685); instrumental in consigning the seven bishops to the Tower (1688); attempted flight with his master, James II., but was caught and placed in the Tower, where he died.

JOHNSON, REVERDY (1796-1876). American jurist and statesman; born in Annapolis, Md.; admitted to the bar (1815); state senator (1821-1825); United States senator (1845-1849, and 1863); attorney general (1850); minister to Great Britain (1868).

KENT, JAMES (1763-1847). An American jurist; author of the famous *Commentaries on American Law*, which holds in this country a position similar to that occupied by Blackstone's *Commentaries* in Great Britain.

KNOX, PHILANDER CHASE (1853-1921). American lawyer and cabinet officer; born at Brownsville, Pa.; admitted to the bar (1875); United States district attorney for Western District of Pennsylvania (1876); partner in a Pittsburg law firm in 1877, and devoted his time especially to corporation law; president of Pennsylvania Bar Association (1897); attorney general (1901-1904); member of United States Senate (1904-1909); secretary of state (1909).

LAMAR, JOSEPH R. (1857-1916). American jurist. Educated at University of Georgia, Bethany College, Washington and Lee University; admitted to the bar (1879); member of Georgia legislature (1886-1889); associate justice of supreme court of Georgia (1903-1910); of U. S. Supreme Court (1910-1916).

LAMAR, LUCIUS QUINTUS CINCINNATUS (1825-1893). Statesman; born in Putnam County, Ga.; admitted to bar (1847); elected to Congress (1857-1859); colonel in Confederate army; professor of ethics and metaphysics, University of Mississippi (1866-1867); of law (1867-1870); member of House of Representatives (1873-1877); of Senate (1877-1885); secretary of interior (1885-1888); associate justice United States Supreme Court (1888-1893).

LEE, CHARLES (1758-1815). Jurist; born in Fauquier County, Va.; admitted to the bar; served in the Virginia assembly; naval officer of the Potomac district (1795); attorney general of the United States (1795-1801).

LEGARE, HUGH SWINTON (1797-1843). Jurist; born in Charleston, S. C.; studied law, completing his education in Edinburgh; elected to the state legislature (1824-1830); appointed attorney general of the state of South Carolina; opposed extreme measures during the nullification crisis, although in favor of states rights; served as chargé d'affaires at Brussels (1832-1838); elected to Congress; appointed attorney general of the United States by President Tyler (1841); on the retirement of Webster conducted the state department.

LINCOLN, LEVI (1749-1820). A political leader; born in Hingham, Mass.; graduated at Harvard (1772); made clerk of the court in Worcester County (1775), later becoming probate judge; entered state house of representatives (1796); became a member of state senate (1797); elected to Congress (1800); appointed by Jefferson attorney general of the United States (1801); was acting secretary of state for some months during the same year; was lieutenant governor (1807-1808), and governor of Massachusetts (1808-1809).

LINCOLN, ROBERT TODD (1843-1926). Lawyer; born at Springfield, Ill.; son of Abraham Lincoln; graduated from Harvard (1864); served under Grant in Civil War; admitted to Illinois bar (1867); practised at Chicago; delegate Republican state convention (1880); presidential elector (1880); secretary of war (1881-1885); United States minister to Great Britain (1889-1893).

LITTLE, HON. PHILIP FRANCIS (1824-1897). Born and educated in Prince Edward Island; went to Newfoundland (1844); entered legislature (1850); leader of Liberal party in the colony and largely responsible for vital changes in old system of irresponsible rule, advocating self-government for the colony; enlisted John Bright and others until he won

his cause (1854). Formed ministry of first government; attorney general (1855); senior judge of the supreme court (1858); retired to Ireland (1867).

LURTON, HORACE HARMON (1844–1914). American jurist. Born in Kentucky; graduate of Cumberland University, Tenn., and admitted to the bar (1867); justice of supreme court of Tennessee (1886–1893); judge U. S. circuit court (1893–1909); associate justice U. S. Supreme Court (1909–1914).

McKENNA, JOSEPH (1843-1926). An American jurist; born at Philadelphia; removed to California (1855); admitted to the bar (1865); district attorney of Solano County; in California legislature (1875–1876); member of Congress (1885–1893); judge U. S. circuit court (1893–1897); attorney general of the United States (1897–1898); associate justice of U. S. Supreme Court (1898–).

MacMASTER, DONALD (1846–1922). Lawyer; born in Ontario; educated at McGill University; called to bar at Quebec (1871); appeared before Privy Council in England; served as crown prosecutor; called to the Ontario bar and created Queen's counsel (1882); represented Glengarry in Ontario assembly (1879–1882); returned to the Canadian House of Commons (1883–1887); on Royal Commission (1892). Went to England; became Unionist member of Parliament for Chertsey division of Surrey (1910).

McREYNOLDS, JAMES C. (1862–). Born in Kentucky; graduate of Vanderbilt University (1882), law department of University of Virginia (1884); law professor Vanderbilt University (1900–1903); assistant attorney general of the United States (1903–1907); retained as special assistant to attorney general on trust matters; attorney general in President Wilson's cabinet till September, 1914, when he became an associate justice of the U. S. Supreme Court.

MacVEAGH, WAYNE (1833-1917). Lawyer; born in Pennsylvania; graduate of Yale (1853); admitted to bar (1856); captain in Civil War (1862–1863). Minister to Turkey (1870–1871); attorney general in Garfield's cabinet (1881); ambassador to Italy (1893–1897); U. S. counsel in Venezuelan arbitration before Hague tribunal (1903).

MANSFIELD, WILLIAM MURRAY, EARL OF (1705–1793). British jurist; born at Perth; called to the bar in 1730; appointed solicitor general in 1741; king's attorney (1754); chief justice of the King's Bench (1756); exposed to much abuse and party hatred because of his opinions, his house, with all his valuable books and manuscripts, was burned in the Gordon riots of 1780; with dignity, he refused to be indemnified by Parliament. Created Earl of Mansfield in 1776; resigned chief justiceship in 1778.

MARSHALL, JOHN (1755–1835). American jurist whose work on constitutional law constitutes a record. Born in Fauquier County, Va.; served in Revolution; admitted to bar (1781); member Virginia legislature (1782); member of the convention to ratify the Constitution (1788), its adoption by Virginia being largely due to him; went with Gen. C. Pinckney and Elbridge Gerry to influence the French Directory to remove restrictions laid on American commerce (1797); elected to the lower house of Congress, became an acknowledged leader on constitutional and international law; became secretary of state (1800); chief justice United States Supreme Court (1801–1835), when his great constitutional work was done.

MASON, JOHN YOUNG (1799–1859). A politician; born at Greensville, Sussex County, Va.; studied law and was admitted to the bar (1819); presided over Federal and state courts; served in the Virginia assembly; member of Congress (1831–1837); judge United States district court for Virginia (1837–1844); made secretary of the navy (1844); appointed attorney general in President Polk's cabinet (1845–1846); minister to France (1853); issued with Buchanan and Soulé, ministers of the United States to England and Spain, respectively, the famous Ostend manifesto.

MILLER, WILLIAM HENRY HARRISON (1840–1917). An American lawyer; born in Augusta, Oneida County, N. Y.; graduated at Hamilton College, Clinton, N. Y.; taught school; practiced law at Fort Wayne, Ind. (1866–1874); became law partner of Benjamin Harrison; attorney general of United States (1889–1893); on retirement from public life resumed his law practice.

MOODY, WILLIAM HENRY (1853-1917). American cabinet officer; born in Newbury, Mass.; member of Congress (1895–1902); in March, 1902, he succeeded John D. Long as secretary of the navy; in 1904 he was made attorney general; associate justice of the United States Supreme Court (1907–1910).

MORRISON, WILLIAM RALLS (1825–1909). Lawyer; born in Monroe County, Ill.; educated at McKendree College; served in Mexican War; went to California (1849); returned to Illinois (1851); admitted to the bar; clerk in circuit court (1852–1854); member Illinois legislature (1854–1860, 1871–1872); member Congress (1863–1865, 1873–1887); chairman Ways and Means Committee (1875–1877, 1883–1887); introduced "Morrison" bill and several others; interstate commerce commissioner (1887–1897).

NELSON, JOHN (1791–1860). Jurist; born in Fredericktown, Md.; was graduated from William and Mary College (1811); studied law and was admitted to the bar; was a member of Congress (1821–1823); appointed United States minister to Naples (1831); attorney general of the United States (1843).

OGLESBY, RICHARD JAMES (1824–1899). American soldier, lawyer, and politician; born in Oldham County, Ky.; served as lieutenant in Mexican War; represented his district in the state (Illinois) senate (1860), but at outbreak of Civil War resigned to become colonel of Eighth Illinois Volunteers; brigadier general of volunteers (March, 1862); major general (November, 1862); governor of Illinois (1864–1869), for a few months in 1873, and from 1884 to 1889; member of United States Senate (1873–1879).

OLNEY, RICHARD (1835–1917). An American politician; born in Oxford, Mass.; graduated Harvard Law School (1858); admitted to the bar (1859); served in Massachusetts legislature (1874); appointed attorney general of the United States by President Cleveland (1893); appointed secretary of state, serving from 1895 to 1897; carried the Venezuelan controversy with Great Britain to a successful issue (1895).

PAINE, ROBERT TREAT (1731–1814). American lawyer and patriot; born in Boston; graduated at Harvard (1749); admitted to the bar (1759); member of the Massachusetts general court (1773–1774), of the Continental Congress (1774–1778), and signed the Declaration of Independence; speaker in the Massachusetts house of representatives (1777); state attorney general (1780–1790); associate justice of the state supreme court (1790–1804).

PAPINIAN (about 150–212). The greatest of Roman jurists; his productions include, mostly, digests of decisions, and his writings were so valuable that they formed a part of the course of law study and were employed in settling disputed questions.

PARKER, ALTON BROOKS (1852-1926). American jurist; born at Cortland, N. Y.; graduated at the Cortland Normal School, and at Albany Law School (1872); surrogate of Ulster County (1877–1885); representative at the Democratic National Convention (1884); chairman of the Democratic state executive committee (1885); in the New York supreme court (1886), and court of appeals (1889); chief judge (1897); Democratic candidate for president (1904); and president of the American Bar Association (1906–1907).

PARSONS, THEOPHILUS (1750–1813). American jurist; born in Byfield, Mass.; graduated at Harvard (1769); began practice of law at Falmouth (now Portland, Me.) (1774); member of the constitutional convention which framed a new constitution for Massachusetts (1779–1780); member of the state convention called to ratify the Federal Constitution (1788); in 1801 was attorney general of the United States in John Adams's cabinet; from 1806 till his death he was chief justice of the state supreme court.

PIERREPONT (*peer'pont*), **EDWARDS** (1817–1892). American diplomat; born in New Haven, Ct. Admitted to the bar (1840), and in 1857 was elected judge of the New York superior court. He became attorney general of the United States (1875), tried many famous cases, and won distinction as an orator. United States minister to Great Britain (1876–1877).

PINKNEY, WILLIAM (1764–1822). An American statesman and lawyer; born at Annapolis, Md.; studied law with Justice Samuel Chase; admitted to the bar (1786); member of the convention to ratify the Federal Constitution (1788); elected to the house of delegates (1788); secured (1796) a claim of $800,000 for Maryland on the Bank of England as compensation due American merchants under the Jay Treaty; elected attorney general of Maryland (1805); sent as minister extraordinary to England (1806); recalled (1811); elected to Maryland state senate, but was appointed attorney general of the United States by President Madison (1811); entered the national House of Representatives (1815–1816); minister to Russia and special envoy to Naples (1816); elected to United States Senate (1820).

QUINCY, JOSIAH (1744-1775). American lawyer, orator, and essayist; born in Boston; graduated at Harvard (1763), and with John Adams conducted (1770) the defense of the British soldiers who took part in the Boston Massacre; went South (1773) and arranged for a system of communication between the patriots of that part of the country and those of the North. In 1774 he went to England in the interests of the Patriot party.

QUINCY, JOSIAH (1772-1864). Son of the foregoing; born in Boston; graduated at Harvard (1790); member of the state senate (1804); entered Congress (1805); opposed slavery and maintained that the purchase of Louisiana was sufficient ground for the dissolution of the Union. This was the first utterance of the right of secession made in Congress.

RANDOLPH, EDMUND JENNINGS (1753-1813). An American statesman; born in Williamsburg, Va.; graduated at William and Mary College; joined the cause of the colonies against Great Britain at the outbreak of the Revolution; elected to the Virginia constitutional convention (1776); chosen first attorney general under the new state constitution (1776); member of the Continental Congress from 1780-1782; became governor of Virginia from 1786-1788; appointed attorney general of the United States by Washington (1789) while working at a codification of the Virginia laws; succeeded Jefferson as secretary of state (1795); was counsel for Aaron Burr (1807).

ROUTHIER, HON. ADOLPHE BASILE (1839-1920). Born at St. Placide, P.Q. Educated at College Ste. Thérèse and Laval University, taking B.A. (1858); called to bar (1861); created queen's counsel (1873); puisne judge of Superior Court of Province of Quebec. Judge of Vice Admiralty Court (1897); president of St. Jean Baptiste Society. Declined appointment to lieutenant governorship of the Northwest Territories (1897). Wrote under the nom de plume of "Jean Piquefort"; a noted orator; appointed knight commander of the order of St. Gregory by the Pope.

RUSH, RICHARD (1780-1859). Born in Philadelphia; admitted to bar (1800); attorney general of Pennsylvania and United States comptroller (1811); United States attorney general (1814-1817); secretary of state (1817); minister to England (1817-1825); secretary of treasury (1825); Smithsonian commissioner to England (1836-1838); minister to France (1847-1851).

RUTLEDGE, JOHN (1739-1800). American politician and jurist; born at Charleston, S. C.; studied law in England, and began to practise in Charleston in 1761; sent as a delegate to the Stamp Act Congress (1765); sat in the South Carolina Convention of 1774 and the Continental Congress of the same year; in 1776 appointed chairman of the committee which framed the new constitution for South Carolina; became first president under that constitution; was governor of South Carolina in 1779; served during the Revolutionary War with the Army of the South; served in Congress from 1782-1783; was chancellor of South Carolina (1784); member of the convention which framed the Federal Constitution (1787); appointed an associate justice of the United States Supreme Court (1789-1791); chief justice of South Carolina (1791-1795).

SANFORD, EDWARD TERRY (1865-), judge, was graduated from the University of Tennessee and Harvard. Assistant attorney general of the United States, 1907-08, and judge of the Eastern and Middle Districts of Tennessee, U. S. Courts, from 1908 to 1923, when he was appointed an associate justice of the Supreme Court by President Harding.

SMITH, ROBERT (1757-1842). Jurist; was born in Lancaster, Pa.; was graduated from Princeton (1781); served during the Revolution; studied law, and was admitted to the bar; was state senator from Maryland (1793); member of the house of delegates (1796-1800); secretary of the navy (1802-1805); attorney general of the United States (1805); secretary of state (1809-1811); declined chief judgeship of the district of Baltimore (1806).

SOLEY, JAMES RUSSELL (1850-1911). Lawyer, author; born in Boston, Mass.; educated at Harvard College and Columbia University Law School; professor United States Naval Academy (1872-1882); professor United States navy (1876-1890); department of education Paris Exposition (1878); assistant secretary of the navy (1890-1893); member New York bar since 1893; Venezuelan counsel at Paris Arbitration, Venezuela and British Guiana Boundary (1899); lecturer Naval War College, Newport, R. I.

STANTON, EDWIN McMASTERS (1814-1869). American statesman; born at Steubenville, Ohio; a successful lawyer; attorney general of the United States (1860); secretary of war (1862-1868); made associate justice of the United States Supreme Court (1869), but did not live to assume his new duties.

STORY, JOSEPH (1779-1845). Eminent jurist; graduated from Harvard College (1798); admitted to bar (1801); in state legislature (1805); in Congress (1808); associate justice United States Supreme Court (1811-1845); professor of law, Harvard (1829-1845). His legal writings and decisions are now in use.

STRAUS, OSCAR SOLOMON (1850-1926). Lawyer; born in Rhenish Bavaria; came to the United States (1854); received degrees from several universities; practised law (1872-1881); became member of L. Straus & Sons, importers of pottery and glassware; minister to Turkey (1887-1889, 1898-1901); member permanent court of arbitration at The Hague since 1902; secretary of commerce and labor (1906-1909); minister to Turkey (1909-1911).

SUTHERLAND, GEORGE (1862-), jurist, born in England, for many years practiced law and held local offices in Utah. Member of the Fifty-seventh Congress, 1901-03, Senator from Utah, 1905-17. Associate justice of the Supreme Court from 1922 by appointment of President Harding. President American Bar Association, 1916-17.

TANEY (*taw'ni*), **ROGER BROOKE** (1777-1864). A celebrated American jurist; born in Calvert County, Md.; admitted to the bar (1799); attorney general of the United States (1831); succeeded Duane as secretary of the treasury; chief justice of the Supreme Court (1836-1864); rendered his most famous decision in the Dred Scott case; he denied the right of the president to suspend the writ of habeas corpus.

TAYLOR, HON. SIR THOMAS WARDLAW (1833-1917). Born in Scotland; educated at Edinburgh, taking B.A. (1852), and Toronto M.A. (1856); called to Toronto bar (1858); referee under Act for Quieting Titles (1869); master in Chancery (1872); queen's counsel (1881); puisne judge of Queen's Bench (1883); chief justice of Manitoba (1887); administrator to Province (1893); royal commissioner (1886, 1895); knighted (1897); author of important legal treatises.

VAN DEVANTER, WILLIS (1859-). American jurist; educated at DePauw University and Cincinnati College; city attorney of Cheyenne, Wyoming; chief justice of Wyoming supreme court; assistant United States attorney general (1897-1903); professor of equity pleading and process (1898-1903); of equity jurisprudence, Columbia University (1902-1903); associate justice United States Supreme Court (1910).

WAITE, MORRISON REMICK (1816-1888). American jurist; born at Lyme, Ct.; admitted to the bar (1839); member of Ohio legislature (1849); appointed (1871) to represent the United States at tribunal for arbitration of the *Alabama* and other claims at Geneva; chief justice of the Supreme Court of the United States (1874-1888).

WHITE, EDWARD D. (1845-1921). American jurist; educated at Mt. St. Mary's Jesuit College, New Orleans, and Georgetown College, Washington; served in Confederate army; admitted to bar (1868); state senator (1874); associate justice of Supreme Court, Louisiana (1878); United States senator (1891-1894); associate justice United States Supreme Court (1894-1910); chief justice (1910).

WHITNEY, SIR JAMES PLINY (1843-1914). Distinguished Canadian queen's counsel and legislator. Educated at Cornwall Grammar School; called to bar (1876); created queen's counsel (1890). Member (and now premier) of the Ontario Assembly since 1888. Fine orator; identified with bill to punish bribery. Member of commission to revise Ontario statutes; of council of Trinity College, Toronto. Vice-president Liberal Conservative Union of Ontario (1896).

WILLIAMS, GEORGE HENRY (1823-1910). Jurist; born in New Lebanon, N. Y.; admitted to the bar (1844); judge of the first judicial district of Iowa (1847-1852); chief justice of Oregon territory (1853-1857); U. S. senator from Oregon (1865-1871); member Joint High Commission to settle *Alabama* claims; attorney general of United States (1872-1875).

WIRT, WILLIAM (1772-1834). American lawyer, statesman, author; born at Bladensburg, Md.; settled in Richmond in 1806, and won distinction for prosecution of Aaron Burr; member of Virginia legislature (1807-1808); United States district attorney (1816); attorney general (1817-1829); nominated for president in 1832 by Anti-Masonic party.

CONTEMPORARY BIOGRAPHY.

ADAMS, MAUDE (1872–) was born in Salt Lake City as Minnie Kiskadden, but adopted the maiden and stage name of her mother, who attained some fame in a stock company. After attracting attention in children's parts, at sixteen she joined the E. H. Sothern Company in New York, gradually rising to eminence as a conscientious and finished artist on the stage. Later she was in Charles Frohman's Company, and then supported John Drew. Besides being good in various Shakespeare roles, she was greatly praised in *Peter Pan*, *The Little Minister*, *Chanticleer*, and *What Every Woman Knows*.

ALLENBY, SIR EDMUND (1861–), a distinguished English general, began his military career with the expedition to Bechuanaland in 1884, after which he also engaged in the campaigns in the Zulu War and the war in South Africa. During the World War he was placed in command of cavalry, which invaded Palestine from Egypt, and, after a brilliant campaign, captured Jerusalem from the Turks in December, 1917. Further victories followed and culminated in the battle of Samaria in September of the next year, when the forces of General Allenby routed one hundred thousand Turks instructed by a German field marshal, capturing the larger part of the enemy and 350 guns. This campaign led to far-reaching results with regard to Palestine and the rule of the Turk in Asia Minor.

ALMA-TADEMA, SIR LAWRENCE (1836–1912), of Dutch ancestry, was born in Friesland, studied painting at Antwerp and under Baron Leys, acquiring a classical style. After 1870 he settled in England, and later became a British subject, being made a member of the Royal Academy in 1879 and a knight in 1899. All his paintings are notable for accuracy in the manner, history, and spirit of the past; so far as details of archaeology are concerned, they have been pronounced preeminent. He attained considerable success in painting marble. Some of Alma-Tadema's best works are *The Children of Clotilde*, *Vintage Festival*, *Seasons*, and *Roses of Heliogabalus*.

ALTSCHULER, MODEST (1873–), Russian orchestra conductor, from 1886 to 1890 was a pupil at the Moscow Conservatory, and in 1903 brought to New York the Russian Symphony Orchestra, which introduced Russian music into many centers of America. Among the artists first presented by him are Elman, Lhevine, Rachmaninov, and Skriabin.

ANDREEV, LEONID N. (1871–1919), one of the greatest modern Russians, studied law, but soon turned to literature and was assisted to fame by Maxim Gorky. For a time he acted as an expert court reporter for a Russian newspaper. From the first collection of short stories in 1901 until Andreev died heartbroken because he could not adjust himself to new conditions after the Revolution of 1917 in Russia, he issued a large number of works of great merit. His *Red Laugh*, founded on the Russo-Japanese War, is a stern indictment of all warfare; *To the Stars* is a four-act poetic drama; *Silence and Other Stories* contains some of his best narratives; *Anathema*, a tragedy in seven scenes, sounds the depths of despair; and his *Sorrows of Belgium*, written during the War of Nations, is an eloquent tribute to the courage of the Belgians. Among his best-known works in America because of excellent translations is his *Life of Man*, a mystery play; and *He Who Gets Slapped*, a morality.

ANGELL, JAMES ROLAND (1869–), was graduated from the University of Michigan, of which his father was president for many years, in 1890; became assistant professor, professor, senior dean, and dean of all the university faculties at the University of Chicago, from 1894 to 1919. In 1918–1919 he was acting president of the University, then did important work in connection with The National Research Council, and as President of the Carnegie Corporation, until he was elected President of Yale in 1921. Dr. Angell holds various earned and honorary degrees and is the author of several important works on psychology.

ANTIN, MARY (1881–), born in Russia, has lived in the United States since 1894, having received her education at the public schools and Girls' Latin School in Boston, with a partial course at Teachers' College and Columbia, New York City, where she married Professor A. W. Grabau in 1901. Her books, notably *The Promised Land* and *They Who Knock at our Gates*, tell the stories of our immigrants and their first impressions of American life.

APPONYI, COUNT ALBERT (1846–), for a number of years was identified with the Liberal Party in Hungary, but resigned in 1904 to form the National Party. Among many offices, he was a member of parliament in Hungary during the War of Nations, for a time acting as speaker. He was one of the official representatives of Hungary at the Peace Conference in Paris in 1919. Count Apponyi has visited and lectured in the United States four different times.

ASTOR, NANCY WITCHER, VISCOUNTESS (1879–), was born in America, the daughter of Chiswell D. Langbourne of Greenwood, Virginia. She married William Waldorf Astor, later created Viscount, and represented the Sutton Division of Parliament after the death of her husband in 1919. She was the first woman to sit in the English Parliament. In 1923 she wrote *My Two Countries*.

BAKER, GEORGE FISHER (1840–), capitalist and philanthropist, was a native of Troy, N. Y. He has for many years been interested in various financial interests, including chairmanships of boards of banks and directorships of railroads, including the First National Bank of New York, the New York and Long Branch Railroad, U. S. Steel Corporation, Erie Railroad, American Telephone and Telegraph. As one of the trustees of the Metropolitan Museum in New York, he has taken interest in art, to which he has given large sums. Mr. Baker also gave the famous painting *Salome* in 1916 to the Metropolitan Museum; considerable sums for chemistry and other purposes to Cornell University; five millions to endow the Harvard Graduate School of Business Administration; and large gifts to Yale and various other educational and philanthropic institutions.

BAKER, GEORGE PIERCE (1866–), received his A. B. from Harvard in 1887 and a doctorate in literature from Allegheny College in 1915. He was an instructor and since 1905 a professor of English and of Dramatic Literature at Harvard; called to Yale in 1925 to organize a department of dramatics in the School of Fine Arts and establish a university theatre. As a director of the "47 Workshop," a course in playwriting at Harvard, Mr. Baker trained some of the prominent younger dramatists of America; he also assisted in various movements looking toward the dignity and professional honor of dramatic composition. In 1921 he wrote *The Pilgrim Spirit* and directed the production of this pagent for the Tercentenary Celebration at Plymouth, Mass. Previously he had made notable contributions to the literature of argument in his book *The Principles of Argumentation*, for college courses in debating, and in his *Development of Shakespeare as a Dramatist* and *Dramatic Technique*, a discussion of fundamentals in play construction.

BAKER, RAY STANNARD (1870–), journalist and author, received his collegiate training at the Michigan Agricultural College and the University of Michigan. After several years as a reporter in Chicago, he became identified with the McClure publications, acting as associate editor of *McClure's Magazine* for six years and as one of the editors of the *American Magazine* from 1906 to 1915. Mr. Baker directed the press bureau of the American Commission to Negotiate Peace with Germany and published in 1919 *What Wilson Did at Paris* following by *Woodrow Wilson and World Settlement, a History of the Peace Conference*, in three volumes, in 1922. Mr. Baker also compiled the *Boy's Book of Inventions*, 1899, of which a second book was published in 1903. Under the pseudonym of David Grayson, he also wrote a number of discussions like *Adventures in Contentment*, *The Friendly Road*, and *Great Possessions*.

BALDWIN, JAMES MARK (1861–), psychologist and author, was born in South Carolina, educated at Princeton, and received several honorary degrees, including the first honorary Sc. D. ever given by Oxford University. He was successively professor of philosophy at Lake Forest College, University of Toronto, Princeton, Johns Hopkins, and the National University of Mexico. Since 1913 he has devoted himself to lecturing and teaching abroad, being a member of many learned societies and receiving several decorations, including the Cross of the Legion of Honor, bestowed in person by the president of France. Besides being editor of the *Psychological Review* for fifteen years, he and assistants compiled the *Dictionary of Philosophy and Psychology*, completed in 1906. Some of his original works are *Handbook of Psychology, Story of the Mind, Darwin and the Humanities, History of Psychology, American Neutrality*.

BALDWIN, STANLEY (1867–), Prime Minister of Great Britain and First Lord of the Treasury, was educated at Harrow, and Trinity College, Cambridge. He entered Parliament in 1908; became Financial Secretary of the Treasury, 1917; President of the Board of Trade, 1921; and Premier on the resignation of Ramsey McDonald in 1923.

BALMONT, KONSTANTIN D. (1867–), one of the founders of the modern symbolist poetry, has translated many English works into his native Russian, including Poe, Shakespeare, and Whitman. He has also translated Ibsen, Calderon, some German, Polish, and Sanskrit works. Some of his own poems include *Under Northern Skies, Burning Buildings, Let Us Be Like the Sun,* and *Phlox Clusters,* the last after a journey to Mexico.

BANTING, FREDERICK GRANT (1891–), born near Allison, Ont., and educated at the University of Toronto. Enlisted in the ambulance corps in 1914, and was discharged because of wounds received at Cambrai. In 1920 settled at London, Ont., as a practicing physician and demonstrator of anatomy at Western University. At the age of 30 he discovered insulin in the laboratory of Prof. J. J. McLeod at Toronto, with the assistance of Dr. C. H. Best and with some help also from Dr. J. J. Collip. This remedy, refined from an extract of the pancreas of sheep, is used in diabetes, allowing sufferers to live for years in comfort. Banting was awarded the Nobel prize in medicine, which he shared with his colleagues. He is now Banting-Best Professor at the University of Toronto.

BARBUSSE, HENRI (1874–), in 1916 became famous over night after he published in French his novel, *La Feu,* which is the story of the poilu in the trenches, with his thoughts, ideals, and language. For this work, though it is anti-militaristic, he was awarded the Prix Goncourt. Barbusse since 1917 has allied himself with the internationalists and moderate socialists as the center of a society for promoting humanitarian ideals.

BARRON, CLARENCE WALKER (1855-1928), editor and financial authority, has lived in Boston most of his life. After eight years with the *Boston Transcript,* he founded the *Boston News Bureau* and later the *Philadelphia News Bureau,* tabloid journals devoted mainly to financial news. He is also connected with the *Wall Street Journal, Barron's Financial Weekly,* and other financial and civic organizations, including the Cohasset Harbor Improvement Association and the Massachusetts Inland Waterways Commission. Mr. Barron also wrote *The Federal Reserve Act, The Audacious War, The Mexican Problem, A World Remaking.*

BARTON, CLARA (1821–1912), for many years president of the American Red Cross Society, was born in Massachusetts. She founded a school at Bordentown, N. J., entered the government service in the war department in 1854, and at the outbreak of the Civil War resigned to devote her attention to humanitarian service at the front. She was honored by Lincoln, and after the war marked the graves of some 12,000 Union soldiers who were buried in the South. In the Franco-Prussian War of 1870 she engaged in social service, was decorated by several governments, and in 1881 became president of the American Red Cross, a position she held till 1904. Largely by her suggestions the scope of the Society was changed to include relief work in times of distress other than war, including her services at the time of the Johnstown, Pa., flood, Russian famines, Armenian disasters, and the Galveston flood.

BEATTY, DAVID (1871–), created Earl of the North Sea and Brooksby in 1919, distinguished himself during the World War at various times. He was made a rear admiral in 1910, vice admiral in 1915, admiral in 1919. He was in command of the Grand Fleet of England from 1916 to 1919, and in the Battle of Jutland Banks successfully engaged the Germans in 1916. He was made a Grand Officer of the Legion of Honor. Admiral Beatty married Ethel, oldest daughter of the late Marshall Field of Chicago.

BECK, JAMES MONTGOMERY (1861–), solicitor general of the United States from 1921 to 1925, was educated at the Moravian College at Bethlehem, Pennsylvania. Admitted to the bar in 1884, he held successively positions as U. S. attorney in eastern Pennsylvania and assistant U. S. attorney general, and then from 1903 to 1921 was a member of law firms in New York City. Delivered many orations on various notable occasions. Author of *War and Humanity, The Passing of the New Freedom,* and *The Constitution of the United States.*

BEEBE, WILLIAM (1877–), leader of the expedition in 1925 to study the Sargasso Sea in the Atlantic Ocean, since 1899 has been honorary curator of birds in the New York Zoological Society. He is the member or fellow of many learned societies in America and abroad, and the author of *The Bird, Our Search for A Wilderness, Tropical Wild Life, Edge of the Jungle, Galapagos and World's End.*

BENET, WILLIAM ROSE (1886–), has written several volumes of poetry, among which are *Merchants from Cathay, The Falconer of God, The Burglar of the Zodiac,* and *Moons of Grandeur.* For a number of years after his graduation from Yale in 1907 he was a free lance writer in California, editor and reader connected with magazines in New York, until he joined the staff of the *Literary Review,* of the *New York Evening Post,* established by Henry Canby in 1920, and later with him a member of the staff also of the *Saturday Review.* Mr. Benet is also widely known as a writer of genial and humorous comment on books and authors.

BERGER, VICTOR L. (1860–), first socialist ever elected to the United States Congress, was born in Austria-Hungary, but came to America in 1878. For many years he was connected with various socialist journals in Milwaukee and with the executive committee of the Socialist Party from 1898 to 1923. From 1911 to 1913 he served in the House of Representatives, being again elected in 1918 and in 1919 but refused admission. In 1923 after the U. S. Supreme Court had reversed a decision of Judge Landis sentencing Berger to twenty years in prison for aiding the enemies of the United States in time of war, Berger was again sent to Congress and then admitted without opposition. Author of many essays on social and economic topics.

BERGSON, HENRI (1859–), French philosopher, was educated in Paris, taught school, and then took the doctorate in letters in 1889. In 1900 he became a professor at the College of France; in 1913 he came to America and lectured at Columbia University, New York; and in the same year was elected president of the English Society of Psychical Research, to which he has given considerable attention. Some of his books are *Time and Free Will, Matter and Memory,* and the *Creative Evolution,* upon which his fame securely rests. He also wrote *The Meaning of War.*

BERNHARDI, FRIEDRICH VON (1849–), general in the German armies and interpreter of the necessity of militarism, first became widely known abroad as the author in 1911 of *Germany and the Next War,* which many have taken to be a representative account of the point of view of the German military party. Among other things of interest, Bernhardi said that the World War was determined by conflicting forces as early as 1902. To men like Bernhardi war appears as a biological necessity, and the dream of peace as only evidence of a weak and placid era. Bernhardi doubts the sincerity of those who organize movements like that of the Hague Conference, since he believes many such are only cloaks to mask selfish and national ambitions, according to stern necessity of national growth and expansion. Another book of his, somewhat widely read, is *How Germany Makes War.*

BETHMANN-HOLLWEG, THEOBALD T. VON (1856–1921), German chancellor at the outbreak of the World War, was a friend of the Kaiser when both attended the same school. He entered the Civil Service in 1879, held various political offices, such as the presidency of Potsdam; was Prussian Minister of Education in 1905; Imperial Secretary of Interior in 1907, and Imperial Chancellor in 1909. At the outbreak of the World War, Bethmann-Hollweg inclined to the view that the neutrality of Belgium was of much less importance than maintaining the friendship of England. His famous "scrap of paper" phrase meant that England should not allow a smaller concern like Belgium to stand in the way of friendship for Germany. Through the growing influence of the Junker militarists, Bethmann-Hollweg, at heart a moderate and somewhat peaceful man, finally was forced to give way, and he was replaced by the appointment of another to his position in July, 1917.

BEVERIDGE, ALBERT JEREMIAH (1862-1927), was born in Ohio, but has lived most of his life in Indianapolis. He read law in the office of Senator McDonald, entered the firm, but afterward singly became identified with many important legal cases. Early attaining a great reputation as a speaker, Mr. Beveridge for years was a chief campaign orator for the Republican Party, until in 1912 he became chairman of the Progressive Convention in Chicago. He was senator from Indiana from 1899 to 1911. Mr. Beveridge wrote many notable books, some of which are *The Young Man and the World, The Bible as Good Reading, The Invisible Government,* and an elaborate biography of Chief Justice John Marshall, in four volumes, completed in 1919. This promises to rank among the great biographies.

BIERCE, AMBROSE (1842–1914), an original genius in American letters, after his early life in Ohio, entered the Civil War and at the end was brevetted a major for gallantry. He then became intimately identified with the literary life of San Francisco, writing for the *Overland Monthly,* and editing in turn the *Argonaut* and the *Wasp.* After 1872 he lived for many years in London, where he worked on several humorous papers and compiled a series of volumes. Bierce is best known, however,

by his short stories, many of which, though cynical, show marks of true art and craftmanship. His best volumes are *Can Such Things Be?* and *Tales of Soldiers and Civilians.* Bierce acted as war correspondent in Mexico in 1914, and never returned, presumably having been killed in some skirmish.

BINET, ALFRED (1857–1911), French psychologist and mathematician, studied law and medicine, but soon abandoned thought of either as a profession. Binet may be called the father of the measuring scales to determine intelligence. For many years he worked to devise a series of tests, eventually leading to the celebrated Binet-Simon group, finally perfected in 1909. Altogether more than 90 tests of this nature have been devised in Europe and America since the pioneer work of Binet.

BISPHAM, DAVID S. (1857–), the great baritone singer, was born in Philadelphia and was educated at Haverford College, with a thorough musical training in England and Italy. He made his first appearance on the opera stage in 1891, and for years was one of the leading singers at Covent Garden, London, and the Metropolitan Opera House in New York. Later he attained unusual fame as a concert singer, teacher and critic of music. An ardent advocate of the use of English in opera and concert, Bispham was greatly applauded in his renderings of translation of German and other foreign songs. In opera Wagner rôles were among his favorites.

BLAKELOCK, RALPH ALBERT (1847–1919), one of the greatest landscape artists of his age, after graduation from the City College of New York, educated himself as a painter. From the first crude beginnings he rose rapidly to the heights of his art, using evening and moonlight subjects and Indian life and color as his chief themes. Some of his best works are *Indian Girl, Autumn, Pipe Dance,* now in the Metropolitan Museum, New York, and *Moonlight,* for which the Toledo Museum paid twenty thousand dollars. During the latter part of his life, except for two or three years, he was confined in the state hospital for the insane at Binghamton, New York, but he died at the camp of a friend in the Adirondacks.

BLASCO-IBANEZ, VINCENT (1867-1928), socialist, journalist, and author is best known in America for his *Four Horsemen of the Apocalypse.* He early abandoned the law for writing and soon embraced republican principles, for which at different times he was a political prisoner in Spain. Recently, from his home in France he has carried on an energetic campaign to introduce greater democracy into Spanish life and politics, advocating also the establishment of a republic. Other notable novels by this author are *The Shadow of the Cathedral, Blood and Sand,* *Woman Triumphant.*

BLISS, TASKER HOWARD (1853–), studied for two years at Bucknell University and then completed a course at West Point, receiving in 1884 honors in the U. S. Artillery School. General Bliss was professor in the Naval War College from 1885 to 1888. He rose from the rank of first lieutenant to that of General, which he attained on October 6, 1917, reaching the age of retirement in the following December. By presidential order General Bliss was kept on active duty. He was then a member of the Allied Conference in 1917, of the Supreme War Council in France, of the Commission to Negotiate Peace with the Central Powers in 1818–9, after which he was detailed as governor of the U. S. Soldiers' Home in 1920. By act of Congress in 1918 he was brevetted general and awarded the U. S. Distinguished Service Medal.

BOK, EDWARD WILLIAM (1863–), was brought to the United States from Holland at the age of six and received his educational training in the Brooklyn schools. At the age of 19 he edited the *Brooklyn Magazine* and then conducted a syndicate press from 1886 to 1891. From 1889 to 1919 he edited the *Ladies' Home Journal* and was vice president of the Curtis Publishing Company. In 1923 Mr. Bok gave one hundred thousand dollars to establish a Peace Award, which was won by Charles H. Levermore (q. v.). Mr. Bok wrote *The Young Man in Business, Why I Believe in Poverty, The Americanization of Edward Bok, A Man from Maine.*

BORAH, WILLIAM EDGAR (1865–), was born in Illinois and attended the University of Kansas. Since 1889 he has practiced law in Kansas and Boise, Idaho, until he was elected a senator from Idaho in 1907 and re-elected twice since then. From 1908 to 1912 he was a member of the National Republican Committee, but since then he has allied himself with progressive elements in Congress. Chairman of the Foreign Relations Committee of the U. S. Senate.

BRANTING, KARL HJALMAR (1860–1925), a Swedish statesman, was born in Stockholm and received his university education at Upsala. For many years he was active as a journalist and interested in the democratic movements of his country. He entered the Parliament of Sweden in 1896 and served as premier at three different times in 1920 and 1921. He was a delegate to the Assembly of the League of Nations at Geneva from 1920 to 1922. The Nobel Peace Prize, for the most constructive services in the interests of peace, went to Branting in 1921.

BRENT, CHARLES HENRY (1862-1929), bishop and humanitarian, was born in Canada, trained for the priesthood of the Protestant Episcopal Church at Trinity College, Toronto, and has received many honorary degrees from American, Canadian, and Scotch universities. He served as a minister in Boston and Buffalo until he was consecreated bishop of the Philippines in 1901. After being elected bishop of Washington (twice) and of New Jersey, he became bishop of Western New York in 1918. Being recognized as an authority on the opium traffic, Bishop Brent served on several commissions, including the International Opium Conference, 1908–9; the Opium Conference at the Hague, 1911, being president of the Conference in 1911–12, and adviser to the League of Nations in regard to control of narcotics in 1923. He was one of the chiefs of the chaplain service in France in 1918–19, received decorations, and invitations to lecture before colleges and universities. Among Bishop Brent's books are *With God in the World, Liberty and Other Sermons, Leadership, The Sixth Sense, The Mount of Vision.*

BRISBANE, ARTHUR (1864–), distinguished editor and writer on current topics, began newspaper work on the *Sun* in New York, finally becoming editor of the *New York Evening Journal,* 1897–1921. Since May 1918, he has been editor of the *Chicago Herald and Examiner,* being also syndicate writer for various Hearst newspapers. Mr. Brisbane is reputed to be among the most resourceful and most highly paid newspaper-men in the United States.

BUCKLEY, JAMES MONROE (1836–1920), editor, parliamentarian, and church historian, was educated at Wesleyan University, and for a number of years, after taking a course in theology, held pastorates in New Hampshire, Michigan, and New York. During his editorship of the *New York Christian Advocate,* 1880–1912, he was recognized as a powerful influence in the Methodist Episcopal Church. As a parliamentarian he was widely recognized for many years. His best known works probably are *Christian Science and Kindred Phenomena, History of Methodism in the United States, Extemporaneous Oratory for Professional and Amateur Speakers.*

BULLARD, ROBERT LEE (1861–), United States army officer, after graduation from West Point in 1885, rose to become a major general in 1917. In the meantime he served in Cuba and the Philippines and on the Mexican border. He commanded the second brigade, first division in France in 1917, and after the World War remained in charge of various operations along the Rhine till April, 1919. General Bullard will long be remembered as the author of the famous message at the second battle of the Marne, July, 1918, "We are going to counter-attack," which marked the turning point of the conflict.

BURTON, ERNEST DEWITT (1856–1925), theologian and university president, taught in the Newton Theological Institution, but for many years has been connected with the University of Chicago, as professor in the department of New Testament interpretation and literature, director of the university libraries, and after 1923 as president. He is also notable as an editor, chairman of several religious commissions, and author of many books on biblical criticism. Some of his works are *Harmony of the Gospels* (with W. A. Stevens), *Handbook of the Life of Paul, Studies in the Gospel of Mark, Paul's Epistle to the Galatians.*

BYNG, JULIAN (1862–), general, created Baron Byng of Vimy in 1919, in recognition of his services in the World War, has been connected with the English army since 1883, becoming a major general in 1909 and general in 1917. From 1912 to 1914 he served in Egypt, and in 1917 commanded the third army in France, during the various battles near Vimy Ridge. He received decorations from Belgium, Russia, France, and England in consequence of the World War.

CAMP, WALTER (1859–1925), called the father of modern American football, received his collegiate training at Yale, where he received the A. B. degree in 1880. He played Rugby ball in his preparatory school, and as an undergraduate at Yale had much influence in starting football with Harvard. In 1883 he suggested the rule of five yards in three downs, changed in 1906 to four. During the World War, Mr. Camp was chairman of the athletic department of the Navy Commission on Training Camp Activities. Out of this position developed the exercises later recorded on phonograph disks and called the Daily Dozen. His selection of a national All-American football team yearly for many seasons was a national feature of the sport. Mr. Camp was also active in business and as

an author of books of stories and discussions of sports, including *Book of College Sports, American Football, Keeping Fit All the Way, Jack Hall of Yale,* and *Captain Danny.*

CANBY, HENRY SEIDEL (1878–), author and critic, was born in Delaware and educated at Yale, where he began to teach English in 1900. From 1920 to 1924 he was chief editor of the *Literary Review* of the *New York Evening Post* until he founded an independent critical medium known as *The Saturday Review.* Prof. Canby wrote *The Short Story,* an account of short narratives in English from the beginning to 1900, *College Sons and College Fathers,* a group of essays for college students, *Everyday Americans, Definitions,* and other literary and critical essays.

CANNON, ANNIE JUMP (1863–), astronomer, educated at Wellesley College, did special work in astronomy at Radcliffe College, and became connected with the Harvard Observatory in 1897. She made observations of variable stars of long period, photographed large portions of the heavens, and discovered 200 variable stars, 4 new stars, and phenomena of bright lines and variable spectra of many stars. Her catalog of 225,000 stellar spectra fills nine quarto volumes.

CANNON, JOSEPH GURNEY (1836-1926), for many years a member of the U. S. House of Representatives, was born in Guilford, N. C., but lived most of his life in Illinois. After seven years as a states attorney, he entered the House in 1873, retired in 1891, and again from 1893 to 1913 served continuously. From 1903 to 1911 he was Speaker of the House during the 58th to 61st Congresses. He again served, this time the 18th district of Illinois, from 1915 to 1917, having served previously the 12th district.

CARREL, ALEXIS (1873–), for many years a resident of France, where he was educated at the University of Lyons, came to America in 1905 and became connected with the Rockefeller Institute of Medical Research in 1906. In 1912 he won the Nobel prize in science for successfully suturing blood vessels and proving that organs may be transplanted in the human body. He served during the World War in medical military service in France. Dr. Carrel is the author of many notable monographs on surgical methods. For a time after his arrival in the United States he taught at McGill and Chicago Universities.

CARTER, HOWARD (1873–), discoverer of various tombs of great historical interest in Egypt, began his professional life as a painter. He was trained as an explorer under Lord Amherst, Professors Griffith, Flinders Petrie, and Naville, and Sir Gaston Maspero. He was assistant to Professor Petrie in the Amherst expedition of Tel-el-Amarna in 1892; inspector general of antiquities for the Egyptian government, reorganizing the antiquities administration of Upper Egypt. Acting for the Egyptian government, he discovered many tombs, and others as assistant to the Earl of Carnarvon. In 1916 they began an elaborate series of investigations, which led in 1923 to the discovery of the tomb of Tutankamen, of greatest historical and antiquarian value.

CAVELL, EDITH (1866-1915), English nurse put to death by the Germans in Belgium in 1915, was born in Norfolkshire. From 1907 till her death she lived at or near Brussels, having established a school for nurses there, which trained many Belgian and German nurses before the World War. In 1915 she was suddenly arrested as a spy and accused of aiding English and Belgian men who came under her care as nurse. Brand Whitlock, the United States ambassador to Belgium, protested in vain that she be spared; but after some delay and secrecy, she was finally executed in the early morning of October 13, 1915. The death of Edith Cavell stirred the entire world with pity, and served in England to hasten and greatly accentuate the military efforts of the whole people.

CHAPLIN, CHARLES SPENCER (1889–), comedian, was born in London, of theatrical parentage, became attached to theatres at the age of seven, and was engaged in vaudeville in London for a number of years before coming to America. Began as an actor in moving pictures in 1914, with Keystone Film Company, and has continued with Mutual, First National Exhibitors, and National Artists Corporation. In 1917 he executed a contract for eight two-reel pictures for one million dollars. Perhaps *The Kid* is his most famous motion picture. Chaplin received tremendous ovations when he toured Europe in 1921.

CHESTERTON, GILBERT KEITH (1874–), English author and wit, was born in Kensington and educated at St. Paul's School and the Slade School, after which he spent some years reviewing books of art for various magazines. Chesterton then became widely known as the author of various books of comment, in which his wit and paradoxes abound in the midst of sober criticism. Some of his volumes are *Browning* (in English Men of Letters series), *The Club of Queer Trades, Heretics, Dickens, The Man Who Was Thursday, Tremendous Trifles, George Bernard Shaw, Poems, The Superstition of Divorce, What I Saw in America,* and poems, plays, and sketches.

CHURCHILL, WINSTON LEONARD SPENCER (1874–). Entered the army in 1895, and served as war correspondent with the forces of Spain in Cuba, 1895; then in India; and next in South Africa during the Boer War, when he was captured but escaped in about a month, witnessing many important engagements in 1900. Elected to Parliament in 1900; president of the board of trade, 1908–10; home secretary, 1910–11; first lord of the admiralty, 1911–15. Served in France in 1916, and became minister of munitions the next year. Wrote books describing his experiences in various campaigns.

CLARK, FRANCIS EDWARD (1851-1927), born in Quebec of American parentage, was adopted by an uncle and took his name when his own father, Charles C. Symmes, died in 1859. After a successful pastorate of five years in Portland, Maine, he founded the Society of Christian Endeavor, to which since 1887 as president he has devoted his chief attention, serving also as editor of the *Christian Endeavor World.* He circled the globe five times in the interests of the Society, which has been a world institution for many years. Some of Mr. Clark's many books are *World Wide Endeavor, Old Lanterns for New Paths,* and *Training the Church of the Future.*

CLEMENCEAU, GEORGES (1841–), French journalist, physician, and statesman, born in Vendee, spent four years after 1865 in the United States as a teacher and journalist. He was with the army of Grant at Richmond. Returning to France, he practiced as a physician at Montmarte, of which he served as mayor. He was a member of the Chamber of Deputies from 1876 to 1893 and from 1902 to the close of World War. With Zola he espoused the cause of Alfred Dreyfus, and to defend him founded a daily in 1903, in which Zola's celebrated letter "I Accuse" was printed. For many years Clemenceau has been known as the destroyer of ministries by his oratory, his brilliant editorials, and sympathies for the cause of justice. During his first term as premier from 1906 to 1909, the law separating church and state in France was put into effective operation. In November 1917, after the fall of the ministry of M. Painlevé, Clemenceau again became premier, at the age of 76, and succeeded in uniting the various political elements of France in one grand effort toward victory. Always a dominant figure during these last years, during the Peace Conference his influence was felt as president and spokesman for all of France. Having achieved most of his own ideals, especially in the defeat of Germany and the restoration of Alsace-Lorraine, M. Clemenceau retired to a well earned rest from public life.

COBB, IRVIN S. (1876–), humorous author, born in Kentucky, became a shorthand reporter, contributor to comic weeklies, and editor of papers in his native state. Since 1904 he has been connected as staff correspondent or contributor with *New York Sun, Evening World, Saturday Evening Post,* which last he represented as staff correspondent in Europe in 1914–15 and 1917–18. Among his humorous sketches are *Speaking of Operations, Cobb's Bill of Fare,* and *A Laugh a Day.* His short story *The Belled Buzzard* attracted considerable attention. In 1922 Mr. Cobb won the O. Henry prize for the best short story.

COLLIER, WILLIAM MILLER (1867–), born near Auburn, New York, received his college education at Hamilton, became referee in bankruptcy in 1898, and is known as an authority on the subject. He edited American Bankruptcy Reports, 1–12, from 1899 to 1905, and wrote Collier's *Annotated Rules in Bankruptcy,* served also as a lecturer on bankruptcy in the New York Law School for two years. In 1904 he entered the department of commerce as solicitor; served as U. S. Minister to Spain from 1905 to 1909; lectured on international law at the New York Law School from 1912 to 1918; was president of George Washington University, Washington, from 1917 to 1921, when he was appointed Minister to Chili.

COMMONS, JOHN ROGERS, (1862–), economist, authority on labor organizations, was graduated from Oberlin in 1888, taught political economy at Wesleyan University, sociology at Oberlin, at Syracuse, and since 1904 has been a professor at the University of Wisconsin. During much of this time he has been Director of the American Bureau of Research. Some of his works on labor problems are *Trade Unionism, Labor and Administration, Legal Foundations of Capitalism,* and (with others) *History of Labor in the United States.* Professor Commons has served as member of the Wisconsin Minimum Wage Board, President of the American Economics Association, National Consumers League, and National Monetary Association, and as chairman of the Unemployment Insurance Board.

CONRAD, JOSEPH (1857–1924), distinguished author of sea stories and novels, was born in Poland, learned English when he was man grown, became an English subject, and for many years was a captain in the merchant marine. Beginning with his first novel in 1895, *Almayer's Folly*, he produced a score of books of great literary distinction. Conrad is a master of description, as his *Typhoon, Youth and Other Tales*, and *A Set of Six*, and many other short stories, abundantly reveal. Among his best novels are *Lord Jim*, the story of a coward who became a noble soul, *Nostromo, A Tale of the Seaboard, Chance, Victory*, and *The Arrow of Gold*. Most of his characters have known the sea at first hand; and they are usually shown either in conflict with the powers of the ocean, or as swayed on land by inevitable forces that lead them into strange experience. Throughout, the glamor, the mystery, the stern relentless fate of the sea pervades every page. For a person whose original language was not English, Conrad wrote with admirable freedom from affectation or mannerism.

COUÉ, EMILE (1857-1926), born at Troyes, France, was educated at Nancy in arts and sciences. After serving an apprenticeship for three years in a drug store, he went to Paris to study pharmacy, where he won a scholarship of twelve hundred francs yearly. An old druggist at Nancy offered him a partnership and the entire business by will. Before the bargain could be effected, the druggist died, but his widow decided to carry out the terms of the oral contract. Here Coué remained for twenty-four years, gradually enlarging the business, and marrying the daughter of a local horticulturist, who first propagated the modern gladiolus. After 1910, he retired and then began to take pupils into his home and to cure the sick by autosuggestion. Coué never altogether abandoned drugs as curative agents, and he never claimed credit for making remarkable cures. His familiar "Every day, in every way, I am getting better and better" has inspired many to better mental health at least.

CROSBY, FANNY J. (1820–1915), was born in Putnam County, New York, becoming blind at the age of six weeks. Her education was received mainly in the New York Institution for the Blind, where she spent more than twenty years as pupil and teacher, withdrawing on her marriage to Alexander Van Alstyne in 1858. Before she began to write hymns in 1864, she had already published three books of prose and poetry. For forty years she was associated with most of the great hymn composers of the United States, including William B. Bradbury, Ira D. Sankey, William H. Doane, Philip Phillips, and Hubert P. Main. Altogether she wrote upwards of eight thousand hymn poems, a large number of which were set to music and used under her own name and many pseudonyms. For many years she went about delivering addresses to Y. M. C. A. and other audiences in eastern cities.

DANIELS, JOSEPHUS (1862–), editor and former secretary of the United States Navy, has spent most of his life in North Carolina, his native state. For a time he was state printer of North Carolina and chief clerk, Department of the Interior; since 1885 he has been editor of the *State Chronicle*, with which he consolidated the *News and Observer* in 1894. Mr. Daniels was Secretary of the Navy in the Cabinet of President Wilson for eight years, ending in 1921.

DAVIS, JOHN WILLIAM (1873–), lawyer and public official, a West Virginian by birth, received his college training at Washington and Lee University, taught law there for a year, and was a member of a prominent law firm in Clarksburg, West Va., from 1897 to 1913. Having been a member from West Virginia in Congress from 1911 to 1913, he resigned to become solicitor general of the United States, a position he held from 1913 to 1918. He was Ambassador to Great Britain from 1918 to 1921; counsellor of the Red Cross from 1913 to 1918; and a member of the commission appointed to negotiate with the Germans for the exchange of prisoners after the World War. President of the American Bar Association, 1922. Mr. Davis, as Democratic candidate for the presidency in 1924, received 136 electoral votes to 382 for Mr. Coolidge.

DAWES, CHARLES GATES (1865–), financier and vice president, was graduated from Marietta College, practiced law in Lincoln, Nebr., from 1887 to 1892; and then engaged in business and banking interests in Evanston and Chicago, Illinois. Assisted in the movement resulting in the nomination of William McKinley for the presidency in 1896. Controller of the Currency, 1897–1902. Since 1902 served as chairman of the board, Central Trust Company of Illinois. Served in the engineering corps during the World War, attaining the rank of Brigadier General in October, 1918, but resigned from the Army in 1919, and returned to the United States. Director of the Federal Budget in 1921 and president of commission to inquire into the ability of the Germans to manage a budget. Elected vice president in 1924.

DEBS, EUGENE VICTOR (1855-1926) socialist and labor leader, was a candidate for the presidency as a socialist in 1904 and 1912. From 1880 to 1893 he was grand secretary of the brotherhood of locomotive firemen, and then for four years was president of the American railway union. He won a strike on the Great Northern, but later in 1894 was charged with conspiracy, though acquitted, when he attempted to manage a similar strike on western railroads. Having been adjudged in contempt of court, he served a number of months in jail. During the World War, Mr. Debs was arrested for violation of laws against inciting disorders and for a time was imprisoned in the Federal prison at Atlanta. He was pardoned by President Harding. Though in his time considered ultra-radical, Mr. Debs more recently repudiated some propaganda of communists and others.

De MILLE, CECIL B. (1881–), motion picture producer, for ten years with David Belasco and others acted and produced regular dramas. Since 1914 interested in scenic and spectacular motion pictures, some of which are the Ten Commandments, Feet of Clay, Road to Yesterday, and many others. Now president of his own company and officer of many banks.

DENEEN, CHARLES SAMUEL (1863–), governor and senator, was born in Illinois and graduated from McKendree College in 1882. Member of the Illinois House in 1892; served as attorney for sanitary district of Chicago, 1895–6; state's attorney, Cook County, Illinois from 1896 to 1904; governor of Illinois from 1904 to 1913. Defeated Medill McCormick for nomination as senator from Illinois in the primaries of 1924, was elected on the Republican ticket, and served out the unexpired term at the death of Mr. McCormick a few days before his own term was to begin on March 4, 1925.

DESCHANEL, PAUL (1856–1922), member of the French Academy, 1899, orator and statesman, was president of France in 1920, having been elected for a seven year term, but resigned because of ill health. On being made a member of the Chamber of Deputies in 1885, he became known as a brilliant orator and parliamentary leader, especially as an advocate of the separation of the church from the state in France. He served as president of the Chamber from 1898 to 1902 and from 1913 to 1914, and was the author of several social and political volumes.

DE VALERA, EAMMON (1889–), born in New York of an Irish mother and Spanish father, became a professor in Ireland and from 1917 a member of Parliament. In 1917 he also became president of the Gaelic league and was called president of Ireland by his adherents, who vigorously opposed the establishment of the Irish Free State on any other ground than an absolute republic.

DEWEY, JOHN (1859–), author of works on psychology and education, received his A. B. at the University of Vermont and his Ph. D. at Johns Hopkins. He has taught at Minnesota, Michigan, University of Chicago, and since 1904 has been professor of philosophy at Columbia University. He is a member of the National Academy of Sciences and has been president of both the American Psychological and the American Philosophical Associations. Some of his important works are *Study of Ethics, How We Think, Democracy and Education, Human Nature and Conduct*.

DOHENY, EDWARD LAURENCE (1856–), after prospecting for gold and silver for twenty years, turned his attention toward the production of petroleum in 1894. Discovered new fields in California, Mexico, and other regions. President or director of several companies, including the Pan-American Petroleum and Transport Company.

DOLLIVER, JONATHAN PRENTISS (1858–1910), born in West Virginia near Kingwood, received his education there and at West Virginia University, from which he was graduated in 1875. After being admitted to the bar, he emigrated to Iowa, and represented the tenth district of that state in the U. S. Congresses from the 51st to the 56th. In August, 1900, he was appointed U. S. Senator to succeed Hon. J. H. Geer, and served till 1913. He was one of the leading orators and lecturers of his day.

DOUMERGUE, GASTON (1863–), engaged in law practice at Nimes, his birthplace, France, from 1885 to 1890, and acted as magistrate in Cochin China and Algeria, for the next three years. Then he was successively Radical-Socialist Deputy from Nimes, Minister of the Colonies, of Commerce, and of Public Education. In 1917 he represented France in the mission to Russia to persuade the Kerensky regime not to make a separate peace with Germany. On June 13, 1924 he became twelfth President of France, the first Protestant to hold that office.

DUKE, JAMES BUCHANAN (1857–1925), engaged with his family in the tobacco business at Durham, North Carolina, and then in New York organized the American Tobacco Company, and other corporations. In 1912 he became chairman of the board of directors of the British-American Tobacco Company. Mr. Duke gave large sums to charitable enterprises, the most important gifts being to various educational bodies in North Carolina, including a fund of thirty-two millions, a considerable part of which went to Trinity College at Durham, which was renamed Duke University.

EASTMAN, GEORGE (1854–), inventor, manufacturer, and philanthropist, began as an amateur photographer, perfected a system of making dry plates, and originated the Kodak. For many years at the head of the Eastman Kodak Company, Rochester, and other concerns. Being specially interested in music, he has given large sums to develop a civic opera and music center in Rochester, N. Y., and at the University of Rochester, to which he has added considerable money for general purposes. Mr. Eastman also gave millions to the Massachusetts Institute of Technology, and two millions to Hampton and Tuskegee Institutes.

EBERT, FRIEDRICH (1871–1925), first president of the German Republic, was born at Heidelberg. Rising from the people, first a maker of saddles, he early became a leader in the Social Democratic Party and editor of a party organ in Bremen. After many years he was finally elected to the Reichstag in 1912. During the World War he endeavored to unite all social elements into harmonious action, and after the war he led in uniting sentiment of Germans for a republic. Elected president first in 1919, he was voted an extension of his term to 1925, but he died on February 25, 1925, before the end of his term.

EHRLICH, PAUL (1854-1915), authority on the making of serums, was born in Silesia, received his M. D. in 1878, and in 1890 became a professor in Berlin. In 1896 he became attached to the Royal Institute of Serum Research at Steglitz, which as director he transferred to Frankfort three years later. In 1908 he received half of the Nobel prize in medicine for that year. Though he perfected ways of making and propagating serums, his greatest discovery was an arsenical preparation now called salvarsan (Ehrlich 606) and neosalvarsan (Ehrlich 614), now valuable in the treatment of blood diseases.

EINSTEIN, ALBERT (1874–), formulator of the theory of relativity, was born of Jewish parents in Germany. For years he was professor in the technical institute at Zurich, but returned to Germany about the time of the World War, and was a professor in the Kaiser Wilhelm Academy of Research. He refused to sign the manifesto of German men of science denying responsibility of Germans for the war; and afterwards he eagerly championed the cause of the Republic. His theories of relativity were first announced in 1905 and extended in 1915. Certain astronomical tests and observations of total eclipses of the sun by many are said to confirm the main essentials of his theory.

ELMAN, MISCHA (1891–), eminent violinist born in Russia, played in public at the age of five, and then studied for five years with Fiedelmann at Odessa, afterward accepting the invitation of Prof. Auer to become his pupil at St. Petersburg in 1902. At the age of 13, Elman was greeted as a finished artist in several European capitals. With the Russian Symphony Orchestra he came to the United States in 1908, and since then has toured the country six times.

FAIRBANKS, DOUGLAS (1883–), actor, was born in Denver and educated at the East Denver High School and Colorado School of Mines. Married, second, Mary Pickford in 1920. First appeared in New York in regular plays, including *Frenzied Finance, Gentleman of Leisure, Henrietta,* and *Show Shop.* Since 1916 he has starred in his own company producing motion pictures, some of which have been *His Majesty the American, The Mollycoddle, The Mark of Zorro, The Musketeers, Robin Hood, The Thief of Bagdad.*

FAISAL (1885–), King of Iraq, is the third surviving son of Hussein, King of the Hedjaz. He was educated at Mecca and at Constantinople, where his father was living at request of the Sultan of Turkey. For a number of years Faisal was interested in politics in Turkey and in 1917 assisted the Allies in their Egyptian campaigns. At the Peace Conference at Versailles he represented Syria. In 1920 he became King of Syria, but the French entered Damascus, after which Great Britain recognized Faisal as King of Iraq under British mandate.

FARRAND, LIVINGSTON (1867–), received his A. B. from Princeton in 1888 and honorary degrees from various colleges. Took an M. D. at the Columbia Medical School, New York, and later studied in Cambridge and Berlin. Instructor at psychology 1893–1901 at Columbia, and from 1901 professor of psychology and later of anthropology till 1914. President of the University of Colorado, 1914 to 1919, and then Chairman Central Committee of the Red Cross till October, 1921, when Dr. Farrand became president of Cornell University. An authority on tuberculosis.

FARRAR, GERALDINE (1882–), singer, was educated in the public schools of Melrose, Mass., where she was born, and for music in Paris and Berlin. Her first appearance in opera was in Germany in 1901 as Marguerite in *Faust.* Some of her later roles in Berlin and at the Metropolitan Opera House, New York, from 1906 to 1922 are Madame Butterfly, Manon, Mignon, Tosca, Juliet, and Violetta.

FOCH, FERDINAND (1851-1929), one of the marshals of France, became an international figure during the World War as generalissimo of all the allied armies against Germany, to which position he was appointed by the suggestion of both America and England. From 1870 to the time of the war, Foch fought against Prussia, became professor of strategy and tactics and later, 1910, commander of the war college of France. After he successfully withstood the German advance toward Calais, and won a decisive victory at Ypres, and laid some of the plans that aided Joffre at the Marne, Foch became known as a master tactician. He was placed in supreme command of all the allies on March 26, 1918, blocked the fifth German drive on July 18, and gradually forced the German Armies back toward the borders of France. After the World War Marshal Foch was placed in charge of the military preparations looking toward the enforcement of the guarantees made by Germany. On his visit to the United States in 1921 Marshal Foch was acclaimed in the principal cities.

FORAKER, JOSEPH BENSON (1846–1917), United States Senator from Ohio from 1897 to 1909, served in the Civil War, received his degree from Cornell 1869; and was an attorney and judge in Ohio from 1869 to 1882, when he resigned because of ill-health. Entering politics, after being defeated in Ohio for the governorship in 1883, he was elected in 1885 and 1887, but again lost two years later. From 1886 to his death he was prominent in most of the national Republican conventions, and helped shape the policies of the Republican Party. In both 1896 and 1900 he nominated William McKinley.

FORBES, BERTIE CHARLES (1880–), born in Scotland, was educated in the evening school of University College, Dundee. He learned shorthand at 13, acted as a printer's devil at 14, and editorial writer at 19. Going to South Africa, he assisted in founding the *Rand Daily Mail,* but since 1904 Forbes has lived in New York. He has been reporter and financial editor of the *Journal of Commerce,* and the *New York American* (1912–16), also writing numerous syndicate articles on various topics. Some of his books are *Business and the Business of Life, Keys to Success, Teamwork, The Highest Possible Wage and How to Earn It,* and *Men Who Are Making the West.* He resigned from the *American* to found his own magazine, which he has edited and published since 1916.

FORD, HENRY (1863–), creator largely of the Ford industries, received a district school education at Greenfield, Mich., his birthplace, learned the machinist's trade, and was for a time chief engineer for the Edison Illuminating Company in Detroit. In 1903 he organized The Ford Motor Company, a concern that by 1925 was turning out 3,500 cars a day and employing 75,000 persons. Mr. Ford established a system of profit sharing, increased the wages of his employees to a high level, and interested himself in editorial, charitable, and social schemes. He built the Henry Ford Hospital, costing five millions.

FOSDICK, HARRY EMERSON (1878–), clergyman and author, received degrees from Colgate, Union Theological Seminary, and Columbia, and honorary degrees from several other institutions. Ordained in the Baptist ministry, he was pastor of the first church in Montclair, N. J., from 1904 to 1915. Professor in Union Theological Seminary of practical theology since 1915, after serving as instructor in homiletics from 1908 to 1915. Dr. Fosdick attracted national attention when he retired from acting as assistant minister of a Presbyterian church in New York City, in 1924, which position, since he is a Baptist, subjected him to criticism from those who disagreed with him on points of creed and church policy. He refused to become a Presbyterian that he might continue more acceptably to the church at large in the pastorate of a church of this denomination. His books, which have been widely popular, are represented by *The Manhood of the Master,* 1913; *The Challenge of the Present Crisis,* 1917; *The Meaning of the Service,* 1920, and *Twelve Tests of Character,* 1923.

GABRILOWITSCH, OSSIP (1878–), was born in St. Petersburg and studied piano under Rubenstein and Leschetizky, taking the Rubenstein prize at the St. Petersburg Conservatory in 1894. Since 1900 he has made many concert tours in the United States, and since 1918 has conducted the Detroit Symphony Orchestra, having previously conducted in Munich from 1910 to 1914. Married Clara Clemens, daughter of "Mark Twain" in 1909.

GALLI-CURCI, AMELITA (1889–), born of Italian and Spanish parentage and educated in Milan, Italy, became a great prima donna without the help of professional teachers. She studied piano and composition at Milan and acted as professor there in the Conservatory when she was 19. She appeared first as Gilda in *Rigoletto* at Rome, toured the principal cities of Europe and South America, and came to sing in Chicago with the local Opera Association in 1916. Later she appeared in New York, and since 1921 has appeared at the Metropolitan Opera House, some of her main characters being Violetta in *La Traviata*, Madame Butterfly, Juliette, Lucia in *Lucia di Lammermoor*, Mimi in *La Boheme*, Elvira in *I Puritani*, and Leila in the *Pearl Fishers*. Her voice is remarkable for range and richness of tone.

GANDHI, MOHANDAS KARAMCHAND (MAHATMA) (1868–), was born at Probandar, India. Parents independent members of the Jainist cult, those who refuse to harm any living creature. His education was completed in England from 1888 to 1891. For several years he practiced law at the Supreme Court of Bombay, but gave this up as distasteful. From 1893 to 1914 much of his time was spent in South Africa quietly inciting the Indian immigrants to passive resistance, a plan which caused most restrictive laws to be repealed. Gandhi gave up a five thousand pound law practice and took vows of virtual poverty. In 1914 he went to England and attempted to raise an ambulance corps, but finally decided he could not assist England actively.

GARDEN, MARY (1877–), soprano and director of opera, was born in Aberdeen, Scotland. Brought by her parents to America when she was six, five years later moved to Chicago, Mary Garden studied violin and piano, and then in 1896 went to Paris, where she studied under several great masters. As substitute for an actress who was taken ill, she continued to sing in April, 1900, in Paris, for one hundred nights, and later in London and Brussels. She appeared first as Thais in America, later appeared as Melisande in Paris, and Salome in Chicago. Since 1910 she has appeared yearly in Chicago in these and other characters, including Marguerite, Sappho, and Louise. Appointed general director, Chicago Opera Association in 1921.

GARIBALDI, GIUSEPPE (1879–), the son of the great Italian patriot, was born in Australia. He began his military career early and by 1897 was a seasoned soldier, afterward entering the Greco-Turkish War and the revolution in Venezuela, when he was imprisoned by the troops of President Castro, but later escaped; then he assisted General Goethals in digging the Panama Canal, fought in Mexico under Madero, and in the World War raised fourteen thousand Italians to assist France before his country entered the conflict. Later he joined the Italian army and rose to be Brigadier General in 1918, retiring in 1919.

GIGLI, BENIAMINO (1890–), celebrated tenor, an Italian by birth, studied under Enrico Rosati at Rome, began his operatic career in Italy in October, 1915, later touring Spain and S. America. He served in the Italian army from 1909 to 1911 and in 1915. Came to the Metropolitan Opera House, New York, in 1920, and since then has appeared in many characters in operas like *Cavaleria Rusticana, Lucia, Tosca, Boheme, Iris, Lucrezia Borgia, Lohengrin, Rigoletto, Martha,* and *Compagnacci.*

GILLET, FREDERICK HUNTINGTON (1851–), senator from Massachusetts since 1924, obtained his collegiate education at Amherst and his law course at Harvard. From 1877 he practiced law in Springfield, Massachusetts, but from 1893 to 1924 was a member of the 53rd to the 68th Congresses as Representative from Massachusetts. From 1919 to 1924 he was Speaker of the House, until appointed Senator after the death of Henry Cabot Lodge.

GISH, DOROTHY (1898–), motion picture actress, born in Dayton, O., appeared early on the stage. As leading woman in motion pictures she has been seen in *Old Heidelberg, Stage Struck, The Little Yankee, That Colby Girl,* and *Hearts of the World.*

GISH, LILLIAN (1896–), sister of Dorothy, was born in Springfield, O. She appeared on the stage at the age of five, and since 1913 has acted mainly as leading lady in motion pictures, including the *Birth of a Nation, Souls Triumphant, Way Down East, The Greatest Thing in the World,* and *The White Sister,* which was filmed in Italy.

GLUCK, ALMA (1886–), soprano singer, was born in Roumania. Attended the public schools and Hunter College, New York, and Union College, Schenectady. In 1909 she made her first appearance, singing in *Werther* in New York, never having studied in Europe. Before the end of the season she sang in eleven roles, only two of which she had studied previously. On both operatic and concert stage she has been highly popular. In 1914 she married Efrem Zimbalist, the Russian violinist, who now makes his home in the United States.

GOMPERS, SAMUEL (1850–1924), was president of the American Federation of Labor from 1886 to his death in 1924, with the exception of 1895. Mr. Gompers was born in England and after his fourteenth year advocated the rights of labor with zeal and fidelity. He was one of the sponsors of the Cigarmakers International Union, representing the trade to which he belonged. For years he also edited the *American Federationist,* official organ of most of the unions of America. He was honored during the World War by being made a member of the Advisory Committee on the Council of National Defense, and president of the international commission of labor at the Peace Conference, besides being appointed by the president of the United States to several important commissions, including the *Unemployment Conference,* 1921. Mr. Gompers openly opposed some of the later radical and communistic movements here and abroad.

GORE, HOWARD MASON (1877–), identified with the farming and stock raising interests of West Virginia for many years, became assistant secretary of agriculture in 1923, and secretary on the death of Secretary Wallace, the next year, serving till March 4, 1925. Mr. Gore then assumed office as governor of West Virginia. He has been president of the West Virginia Live Stock Association and of the Hereford Breeders Association, a member of the Committee on National Defense, and of the Board of Education of West Virginia.

GRAVES, FRANK PIERREPONT, (1869–), educator, after graduating from Columbia in 1890, taught at Tufts College mainly till he became President of the University of Wyoming in 1896. Dr. Graves served as President of the University of Washington from 1898 to 1903, as dean and professor at the University of Missouri, Ohio State University, and the University of Pennsylvania till 1921, when he became President of the University of the State of New York and Commissioner of Education. From 1920 to 1924 he edited the *Educational Review.* Dr. Graves is the author of several books, including *The State University Ideal,* various histories of education in different periods, and *What Did Jesus Teach?*

GREEN, WILLIAM (1873–), now president of the American Federation of Labor, was born in Ohio. After serving in various district offices of the Mine Workers of America, Mr. Green became secretary-treasurer of the international union in 1913, and fourth vice-president of the Federation of Labor, from which position he was advanced to the Presidency on the death of Mr. Gompers. He is the author of the Ohio Workmen's Compensation Law.

GREY, ZANE (1875–), received his name from the place of his birth, Zanesville, Ohio. In 1898 he obtained his degree in dentistry at the University of Pennsylvania and practiced in New York City from 1898 to 1904, when he began to devote himself to writing stories. His works have been tremendously popular because of their life, color and realism. Of thirty books a few of the most popular are *The Last of the Plainsmen, Riders of the Purple Sage, The Light of Western Stars, Wildfire, Desert of Wheat, Tales of Fishes, The Mysterious Rider, Tales of the Lonely Trails,* and *The Call of the Canyon.*

GRIFFITH, DAVID WARK (1880–), a native of Kentucky, attended the public schools and then for two years acted on the stage. Since 1908 he has devoted himself to the production of motion pictures on a large scale. His independent screen successes include *The Birth of a Nation, Intolerance, Hearts of the World, Way Down East, Orphans of the Storm,* and *America.*

GUEST, EDGAR ALBERT (1881–), a native of Birmingham, England, has resided in the United States since 1891, and since 1895 has been a writer for the *Detroit Free Press.* His humorous and kindly prose poems have struck the right American note in thousands of sympathetic hearts. Mr. Guest is a former president of the Press Humorists Association. The verse that he has published in hundreds of columns of newspapers from one end of America to the other has been collected in volumes like *A Heap o' Livin',* 1916; *Just Folks,* 1917, *Over Here,* 1918, *Path to Home,* 1919, *When Day Is Done,* 1921, *The Passing Throng,* 1923.

HAIG, DOUGLAS (1861-1928), created first Earl Haig in 1919, was educated at Brasenose College, Oxford, and began his military career in 1885. He served in the Soudan and at Khartoum, in South Africa, and in India, receiving various citations and military honors. He was made a major general in 1904, lieutenant general in 1910, and general in 1914, and a field marshal in France in 1917, for distinguished services. He commanded the first army, 1914-15, and was commander in chief of all the English expeditionary forces from then till 1919, receiving various medals and decorations from different governments.

HAMPDEN, WALTER (1879–), stage name of Walter Hampden Dougherty, who was born in Brooklyn, and educated at Harvard and the Brooklyn Polytechnic Institute, from which he graduated in 1900. First appeared at an English theatre with the Benson Company in 1901 and later played for three years at the Adelphi in London. In 1905 Hampden succeeded the younger Irving in Hamlet, returning to New York two years later to begin an engagement with Nazimova. Later he appeared in *The Servant in the House* as Manson, in *The Yellow Jacket, Salome, Caliban, The Wayfarer,* and in 1923–24 in a revival of *Cyrano de Bergerac,* which was immensely popular in New York. In various Shakespeare tragedies Hampden is now acknowledged the peer of actors still on the stage.

HANIHARA, MASANAO (1876–), recently Japanese Ambassador to the United States, came to America first in 1902 as a member of the diplomatic corps. In 1916–17 he represented Japan in San Francisco, later attended the Conference on Limitation of Armaments in Washington, and in February of 1923 became the Japanese envoy to the United States. While the debate on the immigration bill was going on in the Senate in 1924, Hanihara wrote a letter of protest because of the provisions of the bill, and this was misinterpreted, it is said, leading to much unnecessary friction on both sides of the Pacific.

HARBORD, JAMES GUTHRIE (1866–), army officer now retired and president of the Radio Corporation of America, entered the army in 1888 and rose through the different ranks, until he was made a major general in 1919. From 1903 to 1914 he served as assistant chief of the Philippine constabulary. He was chief of staff of the A. E. F., in France, 1917–1918, commanded a Marine Brigade at Chateau-Thierry in the summer of 1918, the second division in the Soissons offensive, and was reappointed chief of staff in 1919, A. E. F., and deputy chief of staff U. S. A., 1921–1922. Awarded the D. S. M. by both army and navy and various other decorations.

HARDEN, MAXIMILIAN (1861-1927), the adopted name of Isidore Wittkovsky, for many years has been a stirring journalist in Germany. In 1892 he published a collection of essays he had previously written under the name of Apostata; and seven years later interested himself with Otto Brahm in establishing a Free Theatre in Berlin. Always an outspoken and keen critic, Harden in 1900 fell under the displeasure of the German authorities and was sentenced to prison for six months. In 1892 he founded a journal called *Die Jukunft,* which attained an enormous circulation and influenced opinion widely. When the *Lusitania* was sunk by a German submarine, Harden uttered a strong protest in the name of humanity; and during the entire War of Nations he often commended the spirit and acts of men like President Wilson and Lloyd-George. Friends of Harden afterwards urged that he be appointed ambassador to the United States.

HASSAM, CHILDE (1859–), etcher and painter, born in Boston, 1859, and was educated there in the public schools, and in art in Boston and Paris. He has been awarded many medals in exhibitions and is permanently represented in the Philadelphia Academy of Fine Arts, Carnegie Gallery, Pittsburgh, Cincinnati Museum, Boston Museum, Corcoran Art Gallery, Washington, Art Institute, Chicago, and in many other places. He is a member of the National Institute of Arts and Letters and of the American Academy of Arts and Letters.

HAYES, PATRICK JOSEPH (1867–), Roman Catholic cardinal resident in New York City, received his education at Manhattan College and the Catholic University of America. After ordination as a priest in 1892 he rose successively, holding positions as chancellor of New York, president of Cathedral College, auxiliary bishop, rector of St. Stephen's Church, and archbishop of New York, until March, 1924, when he was elevated to the rank of cardinal.

HENEY, FRANCIS JOSEPH (1859–), though born in New York, lived in San Francisco and in Arizona, after 1864. Educated at the University of California and the Hastings Law School, Mr. Heney began practice in 1885, but for a number of years after 1885 engaged in the cattle business in Arizona, resuming the practice of law at Tucson in 1889. Engaged as attorney in numerous cases involving titles of land under Mexican grants. Then became attorney general of Arizona for a year, and returned to civil practice in San Francisco in 1895. Having gained a national reputation as a fearless counsel, he was urged by the attorney general of the United States, Philander C. Knox, to represent the government in certain land fraud cases in Oregon. Several persons were indicted, and most of them were convicted. He was also attorney in the San Francisco cases involving Mayor Eugene Schmitz and Abe Ruef, serving for nearly three years without compensation. He was Progressive candidate for senator from California in 1912 and Democratic candidate for governor in 1918, but was prevented by legal technicality from having his name on the official ballot. Appointed special counsel of the U. S. Senate in 1924 for the investigation of the Internal Revenue Bureau.

HERBERT, VICTOR (1859-1924), orchestra conductor and writer of light operas, was born in Ireland and educated in Germany, where he was principal violoncello player in the Court Orchestra, Stuttgart. Came to the Metropolitan, 1886, and since then has been connected with the Thomas, Seidl, and other United States orchestras. He conducted the Pittsburgh Orchestra from 1898 to 1904, and since 1894 has been bandmaster of the 22d. Regiment Band, New York, and the Herbert New York Orchestra, since 1904. Author of several comic operas, including *The Wizard of the Nile, Cyrano de Bergerac, The Viceroy, The Fortune Teller, Babes in Toyland.*

HERRIOT, EDOUARD (1872–), premier of France from June, 1924 to April, 1925, is leading socialist and man of letters. He was a professor of rhetoric at the University of Lyons. During 1922 his visit to Russia resulted in a book describing recent conditions among the Soviets. A previous work on the Jewish-Alexandrian school of philosophy was crowned by the Academy of Political and Moral Science in France.

HERSHEY, MILTON SNAVELY (1857–), chocolate manufacturer and philanthropist, began the making of candy at Lancaster, Pennsylvania, in 1893. From this beginning an immense business was built up in the United States, with interests in Cuba. In 1918 Mr. Hershey made a provision whereby his estate will eventually become available for a boys industrial home at Hershey, Pennsylvania, involving an investment of more than sixty millions.

HIBBEN, JOHN GRIER (1861–), president of Princeton University, received his education at Princeton and the University of Berlin. For a number of years he held pastorates and from 1891 taught logic at Princeton until 1912, when he was elected president in succession to Woodrow Wilson. Among his philosophical works are *Inductive Logic, Problems of Philosophy, The Philosophy of Enlightenment, A Defense of Prejudice and other Essays,* and *The Higher Patriotism.*

HILL, DAVID JAYNE (1850–), historian and diplomatist, was educated at Bucknell University, of which he was president from 1879 to 1888. For the next eight years he was president of the University of Rochester, and then spent three years studying international affairs in Europe, after which he taught diplomacy in Washington. Dr. Hill was assistant secretary of state from 1898 to 1903, and minister to Switzerland, for two years, to the Netherlands for two years, and from 1908 to 1911, to Germany. He was a delegate to the second peace conference at the Hague in 1907. The author of many books, Dr. Hill is known for his Life of Bryant and of Irving, his works on Rhetoric, his American adaptation of Stanley Jevons' *Logic, History of Diplomacy, Americanism—What is It? The Rebuilding of Europe, Impressions of the Kaiser, American World Policies.*

HILLQUIT, MORRIS, (1869–), an attorney in New York since 1893, attracted considerable attention by his work on socialism. He was prominent in the Socialist Party and various international socialist organizations, including the Congresses at Amsterdam, 1904, Stuttgart, 1907, Copenhagen, 1910, and Hamburg, 1923. In 1917 he was the Socialist candidate for mayor in New York City. *History of Socialism in the United States,* 1903; *Socialism in Theory and Practice,* 1909; *From Marx to Lenine,* 1921, are his chief writings.

HINDENBURG, PAUL VON (1847–), elected president of Germany on April 26, 1925, was born at Posen. From 1866 he rose through all the grades of army service, seeing part of the war against Austria and the Franco-Prussian campaign. In 1911 he retired to private life, but was recalled at the beginning of the World War, to take command of the armies of the East and later on the Austrian front, becoming eventually chief of staff and leader in most of the great movements on the western front. After the war he retired once more, wrote his biography in 1920, and again emerged from comparative

seclusion to become candidate against Marx in 1925. His vote was a popular one, claimed a tribute to personal popularity and not because of any particular doctrines advocated by von Hindenburg.

HIROHITO, PRINCE (1901–), regent of Japan, in 1912, was proclaimed heir apparent when his father became Emperor of Japan. His education consisted of private lessons and a course at the Imperial Educational Institute of Tokyo. Owing to the illness of his father, in 1920 some duties of government were assigned him, and in 1921 he toured the world, after which he was proclaimed Prince Regent in November. In January, 1924, he married Princess Nagako.

HOMER, LOUISE BEATTY (about 1872–), singer, was born in Pittsburgh, married Sidney Homer, composer, in 1895. Made first appearance in Paris, 1898, went the next year to Covent Garden, London, and to New York in 1900. Of her many roles at the Metropolitan Opera, New York, some of the most famous are Amneris in *Aida*, Laura in *Gioconda*, Ortrud in *Lohengrin*, Dame Quickly in Verdi's *Falstaff*, Bragem in *Tristan and Isolde*.

HOOVER, HERBERT CLARK (1877–), mining engineer and cabinet member, perhaps is best known for his relief administration during and since the war in Europe. He was born in Iowa, was graduated from Leland Stanford in engineering, and for several years followed his profession in many lands, going to London in 1902. During the World War he acted as chairman of the American Relief Commission in England and Commission of Relief in Belgium. He was U. S. food administrator from 1917 to 1919, and chairman of American Relief, devoted mainly to Children's Relief in Europe, 1919, and Secretary of Commerce in the cabinets of Presidents Harding and Coolidge from 1919. Elected President, 1928.

HORNADAY, WILLIAM TEMPLE (1854–), since 1896 director of the New York Zoological Park, has spent almost a lifetime in advocating the protection of birds and game in the United States. Several societies have bestowed gold medals for his work, which includes the assistance in securing the game preserves in Montana and British Columbia, and various laws to prevent the use of bird plumage in millinery.

HOUDINI, HARRY (originally WEISS) (1874-1927), the son of a Wisconsin minister, very early became interested in tricks and legerdemain. Since he began as a trapeze performer in 1882, he has made a number of world tours, and has entertained countless thousands in vaudeville and other popular audiences. He popularized certain tricks by using handcuffs and other methods of arrest from which he escaped by clever manipulation. Engaged in making motion pictures and in writing for the press on exposure of ancient tricks and originating new ones. In 1910 the Aeronautic League of Australia awarded him a prize for the first successful airplane flight in that continent. Houdini has also written on the methods of spiritualistic mediums and the means used by some of them to deceive.

HOUGH, LYNN HAROLD (1877–), educator and minister, served appointments under the Methodist Episcopal Church in New Jersey, New York and Baltimore until he became a professor at Garret Biblical Institute, Evanston, Illinois in 1914. In 1919 he became president of Northwestern University and resigned in 1920, after which he entered upon the pastorate of the Central M. E. Church in Detroit. Dr. Hough is among the great preachers of his time. As an author of inspirational religious and social books, he is always widely known, some of which are *The Lure of Books, The Theology of A Preacher, The Quest for Wonder, A Living Book in a Living Age, The Eyes of Faith, The Strategy of the Devotional Life, The Inevitable Book.*

HOUGHTON, ALANSON BIGELOW (1863–), Ambassador to Germany, for many years was connected with the manufacture of glass at Corning, New York. From 1919 to 1922 he represented the 37th New York district in the House of Representatives, resigning to become minister to Germany. In March, 1925, he succeeded Ambassador Kellogg at the Court of St. James.

HOUSTON, DAVID FRANKLIN (1866–), college president and former cabinet secretary, received his educational training in North Carolina, where he was born, and at Harvard. Taught at S. C. College and the University of Texas for a number of years; president Agricultural and Mechanical College of Texas, 1902-5; University of Texas, 1905-8; Chancellor of Washington University, St. Louis, 1908-16. Secretary of Agriculture in the Cabinet of Mr. Wilson, and of the Treasury, 1913 to 1921; and then President of the Bell Telephone Securities Corporation.

HURST, FANNY (1889–), obtained her education in St. Louis, where she was graduated from Washington University in 1909, and in New York, where she studied literature at Columbia for two years. In 1915 she married Jaques S. Danielson of New York. Much of the material for her stories and plays was obtained at first hand while the author acted as shopgirl, waitress, and made a trip across the Atlantic in the steerage. Miss Hurst wrote *Every Soul Hath Its Song, Gaslight Sonatas, Humoresque,* (also in play form, 1923), *The Vertical City, Lummox,* and various plays.

HUSSEIN, IBN ALI (1856–), first King of the Hedjaz, came of an ancient family and is recognized as the senior descendant of Mohammed. From 1890 to 1908 he was virtually a prisoner in Constantinople, where his four sons were educated in modern customs and ways. After the revolution in Turkey in 1918, Hussein became Grand Sheriff of Mecca. In this position he refused the suggestions that a holy war against Christians should be proclaimed. Then he took the side of the Allies and rendered valuable service in the campaign in Arabia and Mesopotamia. Being proclaimed King of Hedjaz, a new Arab state with Mecca as the capital, on October 29, 1919, Hussein was at once recognized by all the allied powers.

JENKS, JEREMIAH WHIPPLE (1856–), economic expert, became professor of political economy at Cornell in 1891 and at New York University since 1912. Acted as expert agent of the United States Industrial Commission from 1899 to 1901; U. S. Immigration Commission from 1907 to 1910; founder and director of the Far East Bureau, 1913-1921; chairman of the board of Alexander Hamilton Institute; director American Motion Picture Corporation; and many other honors and offices of trust. Author of *Citizenship and the Schools, Great Fortunes, The Political and Social Significance of the Life and Teachings of Jesus, Life Questions of High School Boys; Business and the Government,* and many others.

JELLICOE, JOHN RUSHWORTH (1859–), created first Viscount of Scapa after the World War, was in charge of the English Grand Fleet during the first part of war, especially in the Battle of Jutland. He was made a full admiral in 1915, first sea lord of the admiralty in 1916, after which he established the anti-submarine division of the British Navy, and in May, 1917, was made Chief of the Naval Staff, and retired from active duties in December of the same year.

JOFFRE, JOSEPH JACQUES CESAIRE (1852–), marshal of France, studied military engineering at the Polytechnical School of France, 1868; left to fight in the Franco-Prussian War; and returned after the peace was signed. Lieutenant in 1872, captain in 1876, brigadier general in 1901. Served in Tongking, Dahomey, Madagascar Campaigns, and organized the defenses of Formosa in 1911. At the outbreak of the World War, he was chief of the general staff of France. On the birthday of Lafayette, he ordered the French to halt their retreat and stand to face the Germans, in consequence of which the latter were thrown back at the Somme, and Paris was saved. He was general commander of the French armies from 1915 to 1917, when he came to the United States as a member of the French high commission. Marshal Joffre gained considerable distinction in mathematics. Member of the French Academy from 1918.

JOHNSON, HIRAM WARREN (1866–), Senior Senator from California, studied two years in the University of California before entering on the study of law. From 1888 to 1902 he practiced in Sacramento, removing to San Francisco and becoming a member of the staff of prosecuting attorneys in the graft cases. Assisted in securing the conviction of Abe Ruef and others after Francis J. Heney had been shot down in court. Governor of California from 1911 to 1917 and senator since then. Nominee of Progressives for President in 1912.

JOHNSON, ROBERT UNDERWOOD (1853–), editor and author, was associate editor, and editor, of the *Century Magazine* from 1881 to 1913, succeeding the late Richard Watson Gilder. With C. C. Buel edited the *Century War Series* of memorials of the Civil War, and induced General Grant to write his *Memoirs,* part of which appeared in the *Series.* For years as secretary of the American Copyright League he worked to secure uniform copyright laws throughout the world, and for his success was awarded an A. M. by Yale. Leader in many public movements, including the Keats and Shelley memorial in Italy, the preservation of Yosemite Valley as a park, and the League to Enforce Peace, and the American Poets Ambulances in Italy, an organization that presented 112 ambulances for use during the World War. Ambassador to Italy from February, 1920, to July, 1921. Author of several volumes of poems.

JUSSERAND, JEAN JULES (1855–), French scholar and diplomatist, served as French Ambassador to the United States from 1902 to 1924, and for years was the oldest minister of a foreign nation in residence at Washington. He began his diplomatic career in 1876 as legal adviser to the French embassy in London, and from 1898 for a time represented France at Copenhagen. M. Jusserand's *History of the English in the Middle Ages,* known in English translation as *English Wayfaring Life in the Middle Ages* was crowned by the French Academy. Two other books of great interest to scholars are his *History of the English People,* in three volumes, and *The English Novel.*

KELLER, HELEN (1880–), from the age of 19 months has been both deaf and blind through illness. Miss Anne M. Sullivan (now Mrs. John A. Macy) began to train her in 1887, and since has been her companion and mentor. Miss Keller was graduated from Radcliffe College in 1904, and since then has given much of her time to services to assist the blind, and to lecturing and writing. She has contributed papers to some of the best magazines and has written a number of interesting books, some of which are *The Story of My Life, Optimism, The World I Live In, Out of the Dark.*

KEMAL PASHA, MUSTAPHA (1879–), first president of the Turkish Republic, was born in Macedonia. After a course at the Imperial Turkish Military School, he adopted the military as his life pursuit. In the World War he led in the defenses at Gallipoli, and in 1919 he went to Anatolia, reorganized the third army corps there, and in 1920 renounced all allegiance to the Turkish Constitution. As president of the assembly at Angora, he defeated Greece, extended his territory, and became first president of Turkey in 1924.

KERENSKY, ALEXANDER F. (1881–), since his graduation in law from the University of St. Petersburg, advocated the cause of the poor and oppressed. He constantly urged the people to throw off the power of the czars in Russia; though suspected of inciting a revolt in 1915, he was not arrested as others were. After the overthrow of the monarchy in 1917, he counselled a moderate course, being made minister of justice in the new government. For a time afterward he was Premier also and tried to persuade the Russians to continue in the war with the Allies. Though he was able to stem the tide of several counter revolts, notably that led by General Kornilof, he finally gave way to the Soviets and went into exile.

KING, WILLIAM LYON MACKENZIE (1874–), born at Kitchener, Ontario, was graduated from the University of Toronto in 1895, and received a Ph. D. at Harvard in 1909. For eight years after 1900 he was Deputy Minister of Labour of Canada and also edited the *Labour Gazette.* Acted as conciliator in many disputes involving capital and labor. He represented Canada on different commissions in regard to Immigration and Opium, especially during the World War, acting also as Minister of Labour in Canada. From 1914 to 1917 he investigated labor conditions for the Rockefeller Foundation which resulted in a volume called *Industry and Humanity.* For a number of years he had been prominent in the Liberal Party, and, when the Meighen ministry fell in 1921, King became Prime Minister.

KOHLSAAT, HERMAN HENRY (1853–1924), business man and editor, after education in the public schools of Galena and Chicago, entered the baking business, became a junior partner in 1880, and later extended his own lunch room business to include large wholesale bakeries and restaurants in Chicago. After 1891 he engaged in newspaper publication and was part owner or editor of the *Inter Ocean, Times-Herald,* and *Record-Herald,* and *Chicago Evening Post* at various times until 1913.

KUBELIK, JAN (1880–), Bohemian violinist, educated at the Conservatory of Prague. Gave first recitals in 1898, won great success in central Europe in 1900, and then went to England on invitation of Dr. Richter. Since 1905 has travelled in various countries giving recitals annually.

LADD, EDWIN FREMONT (1859–1925), senator and educator, was graduated from the University of Maine, was connected with the New York State Experiment Station, from 1884 to 1890, dean of the school of chemistry, N. D. Agricultural College from 1890 to 1916, and then president. Elected to the United States Senate for the term 1921–1927. He was an authority on foods.

LAGERLOF, SELMA (1858–), Swedish authoress, after an education in the Royal Women's Superior Training College, taught in a girls high school for ten years, and after 1895 devoted herself entirely to literature. In 1890 she received a prize for parts of her *Gosta Berling Saga,* and in 1909 received the Nobel prize in literature. She excels in simple, home-like stories and psychological novels. *From A Swedish Homestead, Legends of Christ, The Adventures of Nils,* a book written by request of teachers for use in the common schools of Sweden, *Emperor of Portugalia* are some of her chief works.

LAMONT, THOMAS WILLIAM (1870–), financier, after his preparatory training at Phillips Exeter Academy and Harvard, became a newspaper reporter, secretary, and treasurer and vice-president of the Bankers Trust Company, 1903-5; vice-president of the First National Bank, 1909-1911, and since then a member of the firm of J. P. Morgan and Company. At several times he has been called upon to represent the United States on commissions, especially as representative of the Treasury on the American Commission to Negotiate Peace, 1919; he is also an Overseer of Harvard University, Trustee of Smith College and of the Phillips Exeter Academy, to which he gave an infirmary.

LANDIS, KENESAW MOUNTAIN (1866–), born in Ohio, educated at Logansport, Ind., and the Union College of law, Chicago. Except for two years, when he was private secretary to J. Q. Gresham, U. S. Secretary of State, Mr. Landis practiced in Chicago from 1891 to 1905; and was U. S. Judge for Northern Ills. District, from 1905 to 1922, when he resigned to become Commissioner of the American and National Base Ball Leagues of America. Judge Landis became well known in 1907 by has handling of the Standard Oil rebate cases in Chicago. As arbitrator, in 1921, he fixed the wages of the building trades employes in Chicago.

LANSING, ROBERT (1864-1928), authority on international law and former secretary of state, received his A. B. at Amherst in 1886. For much of his life he has been an attorney, representing the United States in the Bering Sea Arbitration and in the Alaskan boundary dispute with Canada, the Chinese government, and the republic of Chili in the Tacna-Arica arbitration in 1923-4. He was solicitor in the department of state at Washington from 1914 to 1915, when he was appointed in June to the portfolio of state, which he held till Feb. 13, 1920, when he was forced to withdraw because of differences with President Wilson. As one of the commissioners to the Peace Conference in 1919, he wielded a considerable influence in events after the World War. Since his retirement he has written *The Peace Negotiations,* 1921, *The Big Four and Others at the Peace Conference,* 1921, *Notes on Sovereignty,* 1921.

LAUDER, HARRY (1870–), created a knight in 1919, for years has been a popular entertainer in song and story. His early advantages were meager, and for some years he was a mill-boy in a flax-spinning concern at Arbroath in Scotland and then a miner. He first appeared on the stage at Arbroath. Much of his own music and songs have been featured by him on the stage. He entertained thousands of soldiers in France during the World War, and wrote a book, *A Minstrel in France,* outlining his adventures. He also wrote *Harry Lauder at Home and Abroad* and *Harry Lauder's Logic.*

LAWRENCE, DAVID HERBERT (1885–), author, received his education at the Nottingham, England, High School and University. His main works include the novels *The White Peacock, The Rainbow, The Lost Girl;* short stories, *The Prussian Officer* and *The Ladybird;* dramas, *The Widowing of Mrs. Holroyd* and *Touch and Go;* and poems, *Amores, New Poems, Look! We have Come Through.*

LENIN, NIKOLAI (VLADIMIR ILYITCH ULYANOV) (1870–1924), was born at Simbrisk on the Volga. In 1890 he became prominent in the Social Democratic party. At the outbreak of the World War he was living in Switzerland, and sought, by advising sabotage and by other means, to discourage cooperation of socialists in the conflict. After the downfall of the Kerensky government in Russia in 1917, Lenin returned and became premier. He was considered less advanced in some of his views than others of the Soviets. After an illness of about two years, he died in 1924.

LEVERMORE, CHARLES HERBERT (1856-1927), educator and authority on peace, won the Bok Peace Prize of $50,000 for the plan judged to be best for maintaining peace among the nations. Mr. Levermore received his A. B. from Yale, and after a number of years engaged in teaching, was awarded a Ph. D. at Johns Hopkins. He was professor at the University of California and Massachusetts Institute of Technology, principal of Adelphi Academy and then president of Adelphi College in Brooklyn. After 1913 he gave his attention mainly to peace societies, and was secretary of the New York Peace Society from 1917. He is also author of several pamphlets on peace.

LINDBERGH, CHARLES A. (1902–), first man to fly alone across the Atlantic, was born in Detroit, graduated from high school at Little Falls, Minn., and studied at Univ. of Wisconsin. Learned to fly at Lincoln, Nebr., 1922. U. S. Air Reserve, 1923. Made first mail flight Chicago to St. Louis, 1926. Flew across Atlantic in *Spirit of St. Louis*, about 3,600 miles in less than 34 hours, May 20 and 21, 1927. Awarded scores of honors and prizes.

LLOYD-GEORGE, DAVID (1863–), rose from humble circumstances to be premier of England from 1916 to 1923. He was educated in a Welsh school, admitted to practice law in 1884, and was a member of Parliament after 1890, and president of the board of trade from 1905 to 1908. Mr. Lloyd-George helped secure the passage of an old age pension law, a workmen's insurance law, and advocated the minimum wage law which settled the great English strike of coal miners in 1912. He was chancellor of the exchequer from 1908 to 1915; minister of munitions, 1916, and secretary of state for war, after the death of Kitchener in June, 1916. On the fall of the Asquith ministry, Lloyd-George formed a coalition cabinet, which continued till after the World War. In the elections of 1918 he was returned to power by a great majority, but gave way to the partisan ministry of Stanley Baldwin, after being refused a vote of confidence in Parliament.

LOWELL, AMY (1874–1925), American poet, sister of A. Lawrence Lowell, is known for her freedom and independence in writing. Miss Lowell was a champion of the modern free verse school of poetic composition. Besides her several volumes of poetry, some of which are *Sword Blades and Poppy Seeds, Pictures of the Floating World*, she wrote some criticisms of French and English poetry. Her *Life of John Keats*, published in 1924, promises to be the definitive work on the biography and writings of that English poet.

LUDENDORF, ERICH (1865–), major German general in the World War, was born at Posen and rose gradually in the military ranks. In 1913 his bill for support of the war budget was passed, with little change, in the Reichstag, except that three extra army divisions were not approved. Early in the war on the west front, he took Liege, and then turned to the east, where he was again highly successful. In the last year of the war he organized the campaign which finally led to failure on the western front. Since the World War Ludendorf with others has been interested largely in advocating the restoration of the old regime, if not indeed the old monarchy.

McADOO, WILLIAM GIBBS (1863–), secretary of the treasury under his father-in-law, President Wilson, and candidate for the presidency on the Democratic ticket in 1924, when John W. Davis was nominated, began his law practice in Tennessee, but removed to New York in 1892. As president of the Hudson and Manhattan Railway, he constructed the first tunnel across to New Jersey under the Hudson River, opened for traffic in 1908. From March 6, 1913 to Dec. 16, 1918 he acted as head of the U. S. Treasury Department, and also as director general of railways, 1917-1919.

McCORMACK, JOHN (1884–), tenor singer, born at Athlone, Ireland, studied vocal music under Signor Sabatini in Milan. After taking the first prize in an Irish musical festival in 1904, he studied hard for two years in London and then appeared in *Cavaleria Rusticana*, 1907. From this time his success and progress rapidly followed, until he had been invited to sing in many prominent opera houses. McCormack became a naturalized citizen of the United States in 1919. Some of his chief roles are Rodolfo in *La Boheme, Faust*, Pinkerton in *Madame Butterfly* and Don Ottavio in *Don Giovanni*. Pope Benedict bestowed upon him two orders of knighthood in 1921.

McGRAW, JOHN J. (1873–), professional baseball player and manager, was born in Truxton, New York. He joined the Olean Club in 1890, the Cedar Rapids the next season, and played with Baltimore from 1891 to 1899, managing the team in the latter year. Then he joined the St. Louis League Team in 1900, managed the Baltimore American Team in 1901 and 1902, and since 1902 has had charge of the New York National League Team (called the Giants). This team won the pennant in 1904, 1905, 1911, 1912, 1913, 1917, 1921, 1922, 1923, and the World's Championship Series in 1905, 1921, and 1922, this record constituting the most brilliant series of victories in the history of national league baseball.

McKENZIE, ALEXANDER (1830–1914), American Congregational clergyman, held various positions of responsibility and was minister of the First Church, Cambridge, Mass., from 1867 to 1914. He was a college preacher at Harvard, Wellesley, and other institutions of learning, president of the Board of trustees of Wellesley College, and a trustee of several other educational foundations.

McMILLAN, DONALD BAXTER (1874–), explorer and scientist, educated at Bowdoin College, for several years taught in preparatory schools, till he joined the Peary expedition in 1908. He was also a member of the Cabot exploring party in 1910, worked as an ethnologist among the Eskimos for two years, and from 1913 to 1917 was leader of the Crocker Land expedition, and in 1920-2, commander of the Baffin Land Expedition. Besides numerous contributions to magazines and scientific reports, he wrote in 1918 *Four Years in the White North*.

McREYNOLDS, JAMES CLARK (1862–), jurist, received a B. S. from Vanderbilt University and an LL. B. from the University of Virginia. For many years he practiced in Nashville, then became assistant attorney general from 1903-7, returned to private practice, and was chosen as attorney general by President Wilson, serving from 1913 to 1917, when he became an associate justice of the Supreme Court. Mr. McReynolds handled many government cases, especially those against the trusts and other combinations.

MARCONI, GUGLIELMO (WILLIAM) (1874–), inventor of a system of wireless telegraphy, was born in Italy, his mother being an Irish lady. After successful experiments at Bologna and at places in England, he established communication across the English Channel in 1899. He first transmitted signals across the Atlantic Ocean in 1901, made of commercial use in December 1902; and soon afterwards from the United States to Cornwall, England. Many of the principal warships and commercial craft in the world are now equipped with the Marconi system. Signor Marconi received the Nobel prize in 1907 for advancement in physics and also many other awards and decorations. His wireless telegraph service to England from Cape Cod, Mass., was opened for commercial messages in 1907.

MARLOWE, JULIA (now Mrs. E. H. Sothern, q. v.) (1870–), though born in England, resided from early youth in the United States, mainly in Cincinnati, till her first appearance in her twelfth year on the stage. Before spending three years in New York for further study, she had appeared in *Pinafore*, the *Chimes of Normandy*, and other light operas, and in *Rip Van Winkle* and other popular plays in juvenile parts. As Parthenia in *Ingomar*, she made her Metropolitan debut in 1888, and then for many years acted in Shakespeare and other dramas. In 1911 she married the actor, E. H. Sothern, with whom she had appeared in many plays, achieving remarkable successes in Shakespeare by their sympathetic impersonation. Mr. and Mrs. Sothern have frequently appeared since in the old favorite characters and also in several new creations.

MARSHALL, HENRY RUTGERS (1852–1925), though a practicing architect for many years, is best known for his books on esthetic principles, and for his valuable scientific papers in various journals. *Pain, Pleasure, and Aesthetic, Instinct and Reason, Principles of Aesthetics* are his chief works.

MARX, WILLIAM (1863–), chancellor of Germany from 1922 to 1925, spent several years in earlier life as a lawyer and jurist. For twelve years he was a member of the Reichstag, being one of the leaders of the Clerical Party. During his term as chancellor he engaged in several important conferences with France and England, exerting his influence to secure the adoption of the Dawes Plan in Germany. In the elections of April, 1925, he was defeated for the presidency of Germany by von Hindenburg.

MASARYK, THOMAS GARRIGUE (1850–), president of the republic of Czecho-Slovakia, was born in Moravia, interested himself early in the education of his countrymen. At various times he taught schools and did much literary work, principally in showing that the famous documents of Koeninghof and Gruenberg were forgeries. For a time he sat in parliament, but resigned to devote himself to the moral education of the people of Bohemia, whom he tried to protect from the encroachments of Austria, as he likewise tried to shield Austria from the domination of Germany. During the World War he became an exile in Italy and finally in England, where he taught in King's College. Later he organized the national movement of his people, became their first president, and established a semblance of stability in Czecho-Slovakia. His works include treatises on history, philosophy and logic.

MASEFIELD, JOHN (1875–), English poet and novelist, is the author of *Salt Water Ballads, The Tragedy of Pompey the Great, William Shakespeare, Personal Recollections of John M. Synge, Gallipoli, Sonnets and Poems, The War of the Future*.

MASSEY, WILLIAM FERGUSON (1856-1925), statesman of New Zealand, emigrated from Ireland to that country in 1870. For many years he held various positions in the government, being a member of Parliament from 1894. In 1912 Massey was Prime Minister and later held portfolios of Finance and other departments, until 1917 when he represented his land in the Imperial War Conference, in 1919 in the Peace Conference at Versailles, and in 1921 in the British Imperial Conference.

MAYO, WILLIAM JAMES (1861–), and **MAYO, CHARLES HORACE** (1865–), celebrated surgeons, since 1883 and 1889, respectively, in charge of the Mayo clinics at Rochester, Minnesota. In 1915 they donated a million and a half to the Mayo Foundation of Medical Research, in affiliation with the University of Minnesota. Both have acted as consultant to the United States Army medical corps and have been made members of many learned medical and scientific associations.

MELLON, ANDREW WILLIAM (1854–), banker and secretary of the treasury, for many years was identified with the commercial and manufacturing life of the Pittsburgh district. He was an associate in the enterprises of the late Henry C. Frick and founded the town of Donora, Pa., where extensive mills were established. Resigning from the presidency of the Mellon National Bank, Pittsburgh, on March 1, 1921, he entered the cabinet of President Harding and continued as secretary of the treasury in the Coolidge administration.

MILLIKAN, ROBERT ANDREWS (1868–), studied and taught at Oberlin College, went to the University of Chicago in 1896, and was professor of physics there from 1910 to 1921, and then went to California where he became director of the Norman Birge Laboratory and president of the California Institute of Technology at Pasadena. He lectured at other colleges, was first exchange professor to Belgium on the C. R. B. Foundation in 1922, and vice chairman of the National Research Council from 1917. For isolating and measuring the ultimate electrical unit, the electron, Dr. Millikan was awarded the Nobel prize for physics in 1923.

MITCHELL, WILLIAM (1879–), assistant to the chief of the U. S. Air Service from 1920 to 1925, with rank of brigadier general, was born at Nice, France, of American parentage. In 1899 he was graduated from George Washington University, and with distinction, from the Army School of the Line in 1908 and from the Army Staff College in 1909. Beginning as a private in the Wisconsin Infantry, 1898, he rose through various ranks in the signal service to become a lieutenant colonel in 1917. In 1914 he went to Europe as a military observer, attached to the French army, and was the first American officer to fly over the lines. Later he participated in many important operations, commanding the air unit of the First Army and later of a group of armies in the Argonne, and then participated in American, French, and English attacks, receiving the Croix de Guerre with five palms and other honors and decorations. Author of magazine articles advocating the development of the air service.

MONTESSORI, MARIA (1872–), was the first woman graduate in medicine at the University of Rome in 1894. After making some preliminary studies in medicine and psychology, she became associated for six years with a hospital for defective children. When an association in Rome was building a series of better houses for the poor, Miss Montessori took advantage of the opportunity to instruct the tenants. Here she taught from 1907 to 1911. Out of her experiences and her theories that children should be selected with a view to their inclinations, and drawn in the direction of their main talents, grew her theories of education. She developed her ideas in several treatises, one of which, *The Montessori Method*, was translated into English in 1912, and another *Pedagogic Anthropology*, was translated in 1913.

MOORE, JOHN BASSETT (1860–), expert in international law and diplomacy, was born in Delaware and received his collegiate training at the University of Virginia. From 1885 to 1891 he was associated with the department of state in Washington, part of the time as an assistant secretary. In 1891 he became professor of international law and diplomacy at Columbia University, and he resigned from this position in 1924 to devote himself exclusively to his duties as one of the judges of the Court of International Justice at Geneva, to which he was appointed in 1921. From 1913 he was also a member of the Permanent Court at the Hague. He was also temporarily connected with the department of state in 1913–1914 as special counsel, and represented the United States and acted as president of the International Conference in 1922–23, at the Hague, to consider rules of aircraft and radio in time of war. Besides many other works on diplomacy and law, he is the compiler of a *Digest of International Law* and a *History and Digest of International Arbitrations.*

MORGAN, ARTHUR ERNEST (1878–), civil engineer and college president, after engaging in the private practice of engineering at St. Cloud, Minnesota, for five years, assumed charge for the United States in 1907 of the reclamation works in the South, planning the eight million dollar project for the St. Francis Valley, Ark. He was in charge of the plans in Ohio to prevent floods like the Dayton catastrophe and also in Pueblo, Colo., for a similar purpose, besides seventy other water control enterprises. Since 1909 Mr. Morgan has been head of his own firm, and in 1920 he accepted the presidency of Antioch College according to a new plan of education. Here students alternate work with study in certain periods of a number of weeks each, in the effort to provide both a trade and a theoretical knowledge as a qualification for success in life.

MORLEY, JOHN (1838–1923), created a viscount in 1908, was a close friend of Mr. Gladstone and supported him in efforts to secure the passing of the Home Rule Bill for Ireland. From 1867 to 1885 he gave his attention largely to editorial enterprises, including the *Fortnightly Review* and the *Pall Mall Gazette.* After 1883 he was a member of Parliament from Newcastle-on-Tyne till 1895 and after 1896 from Melrose Burgh to 1908. Lord Morley was Secretary of State from India, 1905–10 and Lord President of the Council, 1910–14. He wrote many books on literary, political, and social subjects, including volumes on Edmund Burke, Voltaire, Rousseau, Studies in Literature, Oliver Cromwell, and Recollections.

MORGENTHAU, HENRY (1856–), United States Ambassador to Turkey during the War of Nations, came to America from Germany in 1865. After an academic course at the City College of New York and a legal course at Columbia, he entered upon the practice of law, which he followed actively for ten years, before engaging in real estate and other business. While he was in Turkey from 1913 to 1916, he acted as official representative for various nations that broke off diplomatic relations before the United States entered the war. President Wilson appointed him a member of the commission to study conditions in Poland in 1919; the League of Nations designated him as chairman of the Greek Refugee Commission; and the United States designated him as vice chairman of the Near East Relief, incorporated by Congress.

MOTON, ROBERT RUSSA (1867–), distinguished educator of the Negro race, for many years after his graduation at Hampden Institute, Virginia, taught in his alma mater and in 1915 succeeded Booker T. Washington as President of Tuskegee Institute, Alabama. Trustee of various enterprises designed to assist the colored race; president of the National Negro Business League; director of the American Bible Society and of the International Y. M. C. A. Author of *Racial Good-Will*, 1916; *Finding a Way Out*, 1920, an autobiographical narrative.

MOTT, JOHN R. (1865–), Y. M. C. A. official, received his Ph. B. at Cornell in 1888 and has since been engaged in various activities connected with the Christian students of the world. He was student secretary from 1888 to 1915 and general secretary since 1915. Mr. Mott toured the world in the interests of the Y. M. C. A., 1895–7; made special trips to Europe, South America, South Africa, and Australia; and during the World War served as general secretary of the national war work council. He was a member of the Wilson commission to Mexico and of the diplomatic mission to Russia. Recent books by this leader are *The Decisive Hour in Christian Missions, The Present World Situation, Confronting Young Men With the Living Christ.*

MOULTON, RICHARD GREEN (1849–1924), for many years after his graduation from the University of London acted as extension lecturer for the University of Cambridge, and from 1892 to his retirement in 1920 was professor of literature at the University of Chicago. Prof. Moulton is best known by his *Modern Reader's Bible*, an attempt to bring the scriptures into the language of the present day, *A Short Introduction to the Literature of the Bible, The Moral System of Shakespeare, World Literature and Its Place in General Education, and the Modern Study of Literature.*

MUNDELEIN, GEORGE WILLIAM (1872–), Roman Catholic cardinal residing in Chicago, until 1915 lived in New York and Brooklyn. In 1895 he was ordained a priest, then acted as secretary to Bishop McConnel, pastor of the Lithuanian church chancellor of the diocese, and auxiliary bishop of Brooklyn from 1909 to 1915. On March 24, 1924, he was elevated to the cardinalate.

MUNSEY, FRANK ANDREW (1854-1925), newspaper and magazine publisher, began life as a clerk in a country store and then managed the Western Union Telegraph office in Augusta, Me. After he went to New

York City in 1882, he started or acquired various magazines and newspapers, including the *Golden Argosy*, for young people, *Munsey's Magazine*, *All-Story Weekly*, *New York Sun* and *Globe*, *Evening Mail*, and *Telegram*. Mr. Munsey has given to Bowdoin College and to other educational enterprises.

MURRAY, SIR JAMES AUGUSTUS HENRY (1837–1915), English philologist, was a graduate of the University of London. His great reputation as a lexicographer rests on the *Dialect of the Southern Counties of England* and the main editorship of the *New English Dictionary*, for the philological society, which was started in 1888 and is just being finished in 1925, ten years after Dr. Murray's death.

MUSSOLINI, BENITO (1883–), leader of the Italian Fascisti and Premier of Italy, for several years was journalist, teacher and traveler. For much of his life he was an adherent of a somewhat radical form of socialism, which he gradually abandoned after 1908. During the World War he was detached from the socialist party altogether and turned his attention toward the ideals of Italian nationalism. Discipline for all is the main principle of Fascism. Through the exortation of Mussolini this group, enlarged to a party in 1921, became the dominant factor suddenly in Italy, and assumed power with Mussolini as Premier or virtual dictator of Italy.

NAZIMOVA, ALLA (1879–), Russian-American actress, in private life is Mrs. Charles Bryant. Born in the Crimea, Russia, educated in Switzerland in the German and French languages, she learned to play the violin in St. Petersburg and Odessa, and then studied dramatic art in Moscow. After acting as leading woman at Kostroma and elsewhere in stock companies, she made her debut in St. Petersburg, and in New York in the Russian play, *The Chosen People*, in 1905. Later she studied the English language and appeared in many plays, including *Hedda Gabler*, *A Doll's House*, *The Comet*, *Bella Donna*, *War Brides*, and *Captain Sholes*.

NORTHCLIFFE, LORD (Alfred Charles William Harmsworth), (1865–1922), first viscount, newspaper proprietor and publicist, was born in Dublin. Harmsworth founded *Answers* in 1888 and achieved his first success in journalism. Gradually he acquired ownership or control over several other periodicals, including the *Evening News*, 1894, *Daily Mail*, 1896, and finally, his great achievement, the *London Times*, 1908. To encourage aviation he offered a fifty thousand dollar prize. In 1900 on a visit to the United States, he edited a thirty-two page paper to illustrate his theories of a good newspaper; and in 1917 he came as one of the commissioners during the World War. He strongly opposed the policies of Kitchener and supported Lloyd-George.

OBREGON, ALVARO (1880-1928), for many years was a scientific farmer and stockman in Mexico. To aid President Madero in 1912 he recruited some thousands of Indians, and later he lent important aid to Carranza, defeating Zapata, Villa, and other bandit chiefs who were warring against the stability of Mexico. In the battle of Celaya he lost an arm, 1915. Later he quarreled with Carranza and sought to replace him. Obregon became president of Mexico in 1920 and served four years, doing much to promote peace and stability in the country, in spite of counter movements.

OLMSTEAD, FREDERICK LAW (1870–), landscape architect, after taking a course under his father and an A. B. at Harvard, began practice in 1895. He was an instructor and professor of architecture at Harvard from 1901 to 1914. Since then he has given all his time to landscaping many parks, municipal improvements, private and institutional grounds in many cities. Member of the National Commission on Fine Arts, 1910–19; chairman executive committee National Conference on City Planning, 1910–1919; fellow and past president of the American Society of Landscape Architects.

ORLANDO, VITTORIO EMANUELE (1860–), Italian statesman and war premier, was minister of justice in the Salandra cabinet and minister of the interior in the Boselli ministry. When the Italian armies met disaster at the battle of Corporetto in 1917, Orlando became premier, retaining this post till the time of the Peace Conference in 1919. During his administration the power of the Austrian armies in Italy and surrounding countries was broken by resisting the great attack of the enemy in June, 1918, and launching a tremendous counter offensive late in October of the same year.

ORPEN, SIR WILLIAM (1878–), artist of Irish birth, entered the Dublin Art School when he was eleven and later studied in the Slade School in London. Irish subjects, in great variety of light and color, predominate among his best paintings. During the World War Sir William was official British painter, and in 1918 he presented some of his pictures to the nation. During the Peace Conference he made two large canvasses of the gathering at Versailles, and in 1923 he created a sensation by painting a variation of this scene to show sarcasm and regret. *Irish Volunteer, The Costermonger* (now in the Worcester, Mass., Art Gallery), *Man from Arran, Poilu and Tommy, Bombing at Night, Dead Germans in the Trenches*, portraits of Hon. Percy Wyndham, Sir Douglas Haig, and Marshal Foch are among his best paintings.

OSBORN, HENRY FAIRFIELD (1857–), from 1881 to 1910, was assistant professor and professor of zoology at Princeton and Columbia Universities, and since 1910 has given most of his time to the American Museum of Natural History, New York, of which he has been president since 1908. He has directed expeditions into many lands, including one to the desert of Gobi in Mongolia, where the dinosaur eggs were found. Explorations in the far west of the United States have also yielded abundant results of great scientific value. Prof. Osborn is a member of many learned societies, has been decorated and awarded several gold medals, and has written valuable books on anthropology and the history of the human race.

OSLER, WILLIAM (1849–1919), celebrated medical authority, received his scientific training mainly at McGill University, where he was a professor also from 1874 to 1884, after which he held successively professorships in medicine at the University of Pennsylvania, Johns Hopkins, and from 1905 to 1919 at Oxford, England. Popularly Dr. Osler is best known because of his jocose remark, at a banquet of physicians, that the average person should be chloroformed at 58 or 59,—a bit of pleasantry well advertised in the newspapers. Dr. Osler wrote authoritative books on some of the diseases of children, afflictions of the digestive apparatus, and several treatises on the general practice of medicine.

OYAMA, IWAO (1844–1916), a Japanese prince and general, rose from the rank of colonel in 1871 to that of field marshal in 1898. During the war with Russia, as chief of staff of the Japanese army, he became the active leader of all forces in the field and won the important battles of Liao-Yang, the Shako, and Mukden. In the Franco-Prussian war of 1870 he had acted as observer with the German forces. At different times he held important posts in the Nippon military organization, resigning as chief of staff in 1906.

PADEREWSKI, IGNACE JAN (1860–), pianist and composer, began playing at an early age and taught at eighteen. In 1884 he began a course of three years under Leschetizky in Vienna. In the autumn of 1889 he first visited Paris, and in 1890 appeared first in London. In 1891 he made the first of several tours in the United States. To encourage American composers of music, he offered prizes every three years beginning in 1900. During the World War he zealously espoused the cause of his native Poland, went about lecturing and recruiting soldiers, and gave much of his private fortune to help his countrymen. Premier of Poland, 1919.

PAPINI, GIOVANNI (1881–), an Italian author, edited *Lacerba*, 1913–15. In 1920 he was converted to Catholicism, and then set about writing his *Life of Christ*, from the point of view of a sincere man of letters and not as a critic or scholar. Though this has pleased multitudes of people in all christian lands, professional scholars have found various faults in its style and material. He is also author of *The Failure*, called an autobiography, which was translated into English in 1924.

PERSHING, JOHN JOSEPH (1860–), American commander-in-chief in the World War, was born in Missouri, educated at Kirksville Normal School and at West Point, where he was graduated in 1886. He served in several Indian campaigns, in the war in Cuba, in the Philippines at two different times, was military observer in the army of General Kuroki for six months in 1905 during the Russian-Japanese War. He commanded the eighth brigade at the Presidio, San Francisco, and here his wife and three daughters were burned to death Aug. 27th, 1915. On duty temporarily on the Mexican border in 1916, he was sent into Mexico in pursuit of Villa. As commander of the American forces in Europe, he placed the United States Army at the services of General Foch as allied generalissimo. In June, 1918, part of General Pershing's men began to drive back the Germans and won the offense at Chateau Thierry and Belleau Wood, followed by the victory at Soissons during the next month. In the middle of September the American troops captured the St. Mihiel salient, fought the battles of the Argonne and the Meuse in October, and by November 7 had pushed on as far as Sedan, when the preparations for the armistice commenced. On Sept. 4, 1919, the Senate confirmed

Pershing as "General of the Armies of the United States," and from July, 1921, to his retirement in 1924, he was chief of staff.

PETAIN, HENRI PHILLIPE (1856–), general of the French army in 1914, commanded the retreat from Charleroi to the Marne. In 1916 his army, however, saved Verdun. In May, 1916, as commander of the western front, he struck a heavy blow at Verdun and the Chemin des Dames and won other important victories. At the close of the war, he was created a field marshal of France.

PHELPS, WILLIAM LYON (1865–), writer on literature, has been a teacher of English at Yale since 1892, and Lampson Professor of English Literature since 1901. As a lecturer and college preacher he is well known. Besides editing many books and complete novels of Jane Austen and Samuel Richardson, he has written a score of books of criticism, some of which are *The Beginnings of the English Romantic Movement, Essays on Modern Novelists, Teaching in School and College, Browning, Reading the Bible, Human Nature in the Bible, The Twentieth Century Theatre.*

PICKFORD, MARY (Mrs. Douglas Fairbanks) (1893–), motion picture actress, whose original name was Smith, was born in Toronto. She appeared on the stage at five, her mother being a character actress, but attained first great success in the films in *Hearts Adrift,* after which she returned to the regular stage. From leading woman to star in motion pictures she rose in popularity, until she became head of the Mary Pickford Company. A few of her notable plays have been *Tess of the Storm Country, Daddy Long Legs, Pollyanna, Rebecca of Sunnybrook Farm, Little Lord Fauntleroy.*

PIUS XI (1857–), Roman Catholic pope, (Achille Ratti), came from an humble family, being educated for the church from an early age. Most of his life was spent in teaching and in directing the Ambrosine library at Milan and the Vatican library in Rome. During the World War, 1918, he became apostolic delegate to Poland, and there made notable contributions to peace and stability of that land. Then he became papal nuncio, 1919, archbishop of Lepanto, 1920, cardinal in 1921, and pope on Feb. 2, 1922, on the death of Benedict XV.

PORTER, WILLIAM SIDNEY (1867–1910), better known as O. Henry, the celebrated short story writer, was born in North Carolina, educated in the common schools, and went to Texas for his health and afterward to Central America, where he picked up much local color for his stories. After several years in journalism, including a paper of his own called *The Rolling Stone,* he came to New York, where he lived till his early death in 1910. O. Henry wrote twelve volumes of short stories, full of wit, life, and unconventional language, at times decidedly slangy. Some of his best volumes are *Cabbages and Kings, The Four Million, The Gentle Grafter, The Trimmed Lamp,* and *Whirligigs.*

POUND, ROSCOE (1870–), authority on law, was born in Nebraska and educated at the University of Nebraska and at the Harvard Law School, with honorary degrees from many other institutions. He practiced law in Lincoln, Nebraska, from 1890 to 1901 and from 1903 to 1907, taught law at the University of Nebraska, Northwestern, University of Chicago, and at Harvard since 1910, being dean since 1916. He has written several books on various phases of the law, notably *The Spirit of the Common Law, Introduction to the Philosophy of Law, Interpretation of Legal History.*

PUPIN, MICHAEL IDVORSKY (1858–), born at Idvor, Banat, Hungary, since 1889 has been connected with Columbia University, after 1901 as professor of electro-mechanics. Recognized as a world authority in electricity. Some of his inventions made possible long distance telephony and the sending of more than one message on the same telegraph wire at one time.

RACHMANINOV, SERGEI V. (1873–), composer and pianist, born in Russia, received his education at the Moscow Conservatory. He conducted the orchestra at the Private Opera, Moscow, and the Imperial Theatre. His own compositions include *The Niggardly Knight, Francesca da Rimini, Isle of Death.* Rachmaninov has appered often in America as a concert pianist.

REED, WALTER (1851–1902), bacteriologist, proved that yellow fever is propagated by a certain kind of mosquito and that typhoid is spread in military camps more by flies and personal contacts than by drinking infected water. By following his precautionary measure, medical men were able to stamp out yellow fever in Cuba after the war of 1898. Reed received his medical education at the University of Virginia and Bellevue Hospital in New York City.

REMSEN, IRA (1846-1927), university president and chemist, received his A. B. at the College of the City of New York, and his M. D. at the College of Physicians and Surgeons at Columbia University, and his Ph. D. at Gottingen, Germany. After six years as a professor of chemistry at Williams College, he became identified with Johns Hopkins in 1876, as professor and from 1901 to 1912 as president. In 1879 he founded the *American Chemical Journal* and became its editor. Besides many scientific articles and addresses, President Remsen wrote books on chemistry and allied subjects, some of which are *The Principles of Theoretical Chemistry, Elements of Chemistry,* and *Inorganic Chemistry.*

RHODES, JAMES FORD (1848-1927), historian, is the author of *History of the United States* from the Compromise of 1850 to 1877, seven volumes; *History of the Civil War, History of the United States from Hayes to McKinley,* eight volumes. For these and other volumes he was awarded several medals and prizes, including the Loubat prize, Berlin Academy of Science, a gold medal by the National Institute of Arts and Letters, and the Pulitzer Prize at Columbia for a work of distinction in history. A later work, published in 1922, entitled *The McKinley and Roosevelt Administrations,* brings Dr. Rhodes' histories down to the last decade.

RICKENBACKER, EDWARD VERNON (Eddie) (1890–),for several years was widely known as an auto-racer, winning many trophies. At the time America entered the World War, he accompanied General Pershing to France as a member of the motor car staff, but in August, 1917, was transferred to the air service. After acting as training officer, he commanded the American 94th Aero Pursuit Squadron (which won 69 victories, 26 of which were credited to Rickenbacker), and conducted his own squadron into Coblenz, as first American officer to enter. At the close of the war he was awarded the Distinguished Service Cross with 9 palms and the Croix de Guerre (French) with 4 palms. Retired from service with the rank of major.

RINEHART, MARY ROBERTS (1876–), was educated in the schools of Pittsburgh and the Pittsburgh Training School for Nurses. She is the author of many plays, novels, and short stories, besides writing much for magazines and syndicates. During the war she served at the front in France as a nurse and wrote a series of articles treating of experiences at the front. A few of her books are *The Man in Lower Ten, Amazing Adventures of Letitia Carberry, "K," The Amazing Interlude, Twenty-three and One-Half Hours' Leave,* and plays, *Seven Days* (farce), *Bab, The Breaking Point,* and *The Bat* (with Avery Hopwood).

RIVERA, FERDINAND PRIMO DE (1871–), Spanish General and dictator, resigned as Minister of War in 1917 because of differences as to civilian control of the army in Spain. He assisted in forming a national committee of defense to end the war in Morocco; then acted as military governor of Barcelona; and in September, 1923, assumed virtual control of the Spanish government as dictator and prime minister.

ROBERT, HENRY MARTYN (1837–1923), authority on parliamentary law and brigadier general, U. S. Engineers, was born at Robertsville in South Carolina and was graduated from the U. S. Military Academy in 1857. General Robert planned many coast, fort, and light-house defenses for the army, including the operations at Galveston which make the district safe from invasions of the sea. In civil life he is widely known as the author of three books on parliamentary law that are standard,—*Robert's Rules of Order,* 1876 (Revised, 1915), *Parliamentary Practice,* 1919, and *Parliamentary Law,* his magnum opus, 1922.

ROBINSON, EDWIN ARLINGTON (1869–), American poet, was educated at Gardiner, Maine, and Harvard. Twice the Pulitzer award for the best book of poems has fallen to him, in 1921 and 1924. Some of his volumes are *The Children of the Night, The Man Against the Sky, The Man Who Died Twice.*

ROBINSON, JOSEPH TAYLOR (1872–), minority leader in the United States Senate, practiced law in Arkansas from 1895. For ten years he was a member of the House from the 6th Arkansas district. Elected governor of his state in 1912, he resigned from the House on January 14, 1913, but on March 10 of the same year relinquished his office to become Senator, being re-elected in 1918 and 1924, after which he acted as Democratic leader on the floor.

ROENTGEN, WILHELM CONRAD (1845–1923), the discoverer of the rays called "X" by him, but which are now often called Roentgen rays, was a distinguished German professor of physics and authority on the effect of passing electricity through various media, such as

steam and gases. Much of his training was received under Professor Kundt of Strassburg, whose assistant he became in 1873. He also taught at several other German universities, notably at Wurzburg and Munich. Among many other bestowed honors, Professor Roentgen received the Nobel prize for physics in 1901.

ROGERS, HENRY WADE (1853-1927), judge, legal authority, and college administrator, received his training at the University of Michigan, where he taught law from 1883 to 1890, after which he was president of Northwestern University for ten years. From 1900 to 1916 he was connected with Yale University as lecturer, professor, and from 1903 as dean. Since 1913 U. S. Circuit Judge, second district. Judge Rogers has held many positions of trust, committee chairmanships, and other offices in college, church, and nation, including the M. E. Church, several legal associations, peace societies, and civic federations author of *Illinois Citations, Expert Testimony, Introduction to Constitutional History as Seen in American Law,* and many articles in cyclopedias and legal journals.

ROLLAND, ROMAIN (1866–), French author, born at Clamecy and educated at the Ecole Normale Superieure, was for a number of years professor of the history of art there, till called to the Sorbonne. His doctorial thesis, *Origin of The Modern Lyric Theatre,* was crowned by the French Academy in 1895. He wrote plays, including *The Triumph of Reason* and *The 14th of July;* various works on art and lives of Beethoven, Michelangelo, and Toistoi; and a very long novel *Jean Christophe,* full of philosophy. This received one-fourth of the Nobel prize in literature for 1915.

ROOSEVELT, THEODORE, JR., (1887–), assistant secretary of the navy from 1921 to 1924, received an A. B. from Harvard in 1908 and an honorary A. M. in 1919. After being in business for eleven years, he resigned directorships of several corporations on being elected a member of the New York Assembly in 1919. Commissioned as a major in the 26th. Infantry, U. S. A., he reached France in June, 1917, and rose to the rank of lieutenant colonel in September of the next year, after having taken part in the battles of Cantigny, Soissons, Argonne-Meuse, St. Mihiel, and receiving the D. S. C. and the Croix de Guerre. One of the organizers of the American Legion. Governor Alfred E. Smith defeated him for the governorship of New York in 1924.

RUOFF, HENRY WOLDMAR (1867–), editor and author, born in Germantown, Pa., graduated from Indiana University 1890. Studied at Harvard and Columbian (now George Washington University), and later in several foreign universities. Traveled extensively in Europe, Asia, Africa. For a time he was instructor in Psychology and Philosophy at Pennsylvania State College. Acted as editor of *Ridgway's American Spectator* and *Nashville Tennessean* 1904-7. Member of American Academy of political and social science, National Geographic Society. Through his efforts the single volume reference work has become a valuable adjunct to the school. He is either the main author or editor of *Home and State, Women in the Middle Ages, Century Book of Facts, Capitals of the World, Universal Cyclopedia Handbook, The Standard Dictionary of Facts, Masters of Achievement, The Volume Library,* and *The Circle of Knowledge.*

RUTH, GEORGE HERMAN (Babe), (1894–), professional baseball player, was born in Baltimore and in 1914 first attracted wide attention while playing with the Baltimore International League team. In 1915 the manager of the Boston Club, American League, engaged the services of Ruth, and in 1920 he was sold to the New York American League Club, this time for $150,000, the largest sum ever paid for a ball player. In 1921 Ruth set the world's record for home runs in one season, making 59 altogether; in 1923 he was voted the most valuable all-round player in the American League.

RYKOV, ALEXIS IVANOVITCH (1881–), premier of Russia since the death of Lenin, received his early education in economics mainly. In 1903 he met Lenin at Geneva, and became his warm adherent. From 1921 to the death of Lenine, during the illness of the latter, Rykov acted as premier, and shortly after the death of Lenin in 1923, became premier in his own name. One of his first acts was the coining of silver pieces that the peasants might use them in making change.

SCHURMAN, JACOB GOULD (1854–), was born on Prince Edward Island, Canada, and won the Canadian Gilchrist scholarship to the University of London, from which he was graduated in 1877, with further studies in Germany and Italy. He was professor of philosophy at Acadia College, and Dalhousie College, Nova Scotia, for six years and then went to Cornell, where he was Sage Professor of Philosophy from 1886 to 1892, and president from 1892 to 1920. Dr. Schurman spent much of 1899 in the Philippines as president of the U. S. Commission; from 1912 to 1913, he was minister to Greece and Montenegro; and from 1921 Envoy to China. In 1925 he was appointed ambassador to Germany.

SERVICE, ROBERT W. (1876–), was born in Preston, England, but came to Canada in 1905. After spending a number of years in the Canadian Northwest, he began to write popular verses, of which several volumes have been published. Some of them are *Songs of a Sourdough, Rhymes of a Cheechako, Rhymes of the Trail, Rhymes of a Red Cross Man.* During the Balkan and World Wars he acted as a war correspondent, and during the latter drove an ambulance for two years. Service now resides in Paris.

SIMS, WILLIAM SOWDEN (1858–), appointed from Pennsylvania to the Naval Academy and was graduated in 1880. He rose through the different grades to that of rear admiral in 1917, but during the period of the World War was in charge of some of the major naval operations of the United States in European waters, with the rank of vice-admiral. Though decorated by many foreign nations, for reasons of his own, Admiral Sims begged to decline the D. S. M. offered him by Congress. From 1897 to 1915 he spent considerable of his time as a naval observer and in command of several battleships on many cruises. From early in 1917 until assigned to active duty abroad, Admiral Sims was in charge of the Naval War College at Newport, to which he again returned as president in 1919, serving till his retirement because of age in 1922.

SKEAT, WILLIAM WALTER (1835–1912), English philologist was graduated from Christ's Church College, Cambridge University, and became a fellow and then professor of Anglo-Saxon there. His field was Old and Middle English, and he contributed more than any other scholar of his age to our knowledge of the history of English words. Prof. Skeat's major works are the *Etymological Dictionary, Principles of English Etymology,* and his great edition of Chaucer in six volumes.

SMITH, ALFRED EMANUEL (1873–), received his education in the parochial schools of New York City, where he has lived most of his life. From 1895 to 1903 he served in the office of the commissioner of jurors; from 1903 to 1915, in the New York Assembly, acting as Democratic leader in 1911 and Speaker in 1913. Then he became sheriff of New York County from 1915 to 1917; President of the Board of Aldermen in 1917; and then Governor of New York for three terms, beginning in 1919, 1923, and 1925.

SMUTS, JAN CHRISTIAN (1870–), South African statesman, though an enemy of England during the Boar War, became an ardent ally in the fight against the power of Germany in Africa. In 1916 he broke the hold of Germany on East Africa, and Lloyd-George summoned him to England, where he became the only colonial member of the Imperial War Cabinet. In 1919 Smuts was elected premier of the Union of South Africa, but was defeated again in 1920, though he became premier when the South African Party was joined by the Unionists. Smuts continued as Premier till a new alignment of parties forced his cabinet out in 1924.

SOTHERN, EDWARD HUGH (1859–), son of the late E. A. Sothern, prominent English actor, was educated in England. He first appeared in a minor part at the Park Theatre, New York, in 1879, and first at the Royalty, London, two years later. As Jack Hammerton in *The Highest Bidder,* he attracted wide notice at the Lyceum, New York, in 1887, where he appeared from 1885 to 1898 continually. In lighter roles he appeared to best advantage in plays like *Lord Chumley, The Prisoner of Zenda, Under the Red Robe, The Sunken Bell, When Knighthood was in Flower, Richard Lovelace, If I Were King.* Later he revived with some success his old part Lord Dundrery in which his father had attained preeminence. With Julia Marlowe (whom he married in 1911) he won additional laurels in *Romeo and Juliet* and *Hamlet* among notable Shakespearean revivals.

STAGG, AMOS ALONZO (1862–), teacher of physical education, was graduated from Yale in 1888 and from the Y. M. C. A. College in Springfield, Mass., in 1892. He joined the staff of the department of physical training in the University of Chicago in 1892 and became director of athletics in 1900. In 1904 he became a member of the football rules committee and a member of the American committee on the Olympic Games held in Athens, 1906, London, 1908, Stockholm, 1912, and Brussels, 1916. In 1914 the athletic field of the University of Chicago was named in his honor.

STEELE, WILBUR DANIEL (1886–), after graduating from the University of Denver in 1907, spent three years in the study of art in Boston, Paris, and New York. Since 1914 he has become widely known as the author of short stories and two or three novels. His best works are found in the current magazines like the *Atlantic, Century, Harper's,* and *Scribner's.* The O. Henry prize, second class, went to him in 1919 for his short story entitled *For They Know Not What They Do,* and in 1921 he received a special award for maintaining the highest level for three years in the short narrative in America.

STEFANSSON, VILHJALMUR (1879–), was born in Manitoba, educated at the State Universities of North Dakota and Iowa, and at the Harvard Divinity and Graduate Schools. Leader of several expeditions into the frozen north,—to Iceland, 1904; to mouth of the Mackenzie River and Northern Alaska, 1906-7, to the Arctic, 1908-12; to Banks Island, 1914; to Prince Patrick Island and to land he discovered, 1915 and again in 1916; on moving ice across the polar seas at different times. Stefansson interviewed several tribes of Eskimos who claimed they never had seen a white man. He has written scientific papers, a number of books on the arctic regions, including *My Life with the Eskimo, The Friendly Arctic, Hunters of the Great North,* and has lectured frequently before clubs and popular audiences.

STEINMETZ, CHARLES PROTEUS (1865–1923), electrical expert and inventor, for many years was connected with the General Electric Company at Schenectady, N. Y., and with Union College as professor of physics. Many problems were worked out under his direction, the results being published in valuable monographs and books.

STILL, ANDREW TAYLOR (1828–1917), was successively farmer, soldier in the Civil War, country doctor, prospector, and discoverer of the principles of osteopathy. For many years he closely studied human anatomy, but the death of four children in 1864 of cerebro-spinal meningitis turned his attention to the spinal cord as the center of the human mechanism. Out of his studies came the ideas of osteopathy, or adjustments of bones and other parts of the body which cause disease.

STIMSON, FREDERICK JESUP (1855–), lawyer, author, and ambassador to the Argentine 1914-21, and special envoy to Brazil, 1919, was professor of comparative legislation at Harvard from 1903 to 1914, and general counsel of the Industrial Commission of the United States from 1898 to 1902. His legal texts include *Stimson's Law Glossary, Government by Injunction, and American Constitution as it Protects Private Rights.* Mr. Stimson also wrote many poems, novels, and short stories, the earliest of them under the pen-name of J. S. of Dale. These include *Guerndale, The Sentimental Calendar, Mrs. Knollys* and *other Stories,* and the *King of Provence* (poem play).

STINNES, HUGO (1870–1924), German financial baron, from a business in which only a few thousands were invested a generation ago, by the end of the World War, secured control of much of the industrial life of Rhenish-Westphalia and had arteries of commerce extending into various parts of the world. After the War he and his companions made much from the continual fall of the value of German money.

STONE, HARLAN FISKE (1872–), was called from Columbia University, where he was dean of the School of Law, to succeed Harry F. Daugherty as attorney general of the United States in April, 1924. He was made a justice of the Supreme Court in 1925. He was a member of various bar associations and a director in several corporations.

STONE, WARREN SANFORD (1860–1925), labor chief and banker, for years was fireman and engine-man on the Rock Island lines. In 1903 became chief of the International Brotherhood of Locomotive Engineers, with headquarters in Cleveland, Ohio. He organized the co-operative national bank of the Brotherhood of Locomotive Engineers, which was the first of its kind in the world.

STRAUS, OSCAR SOLOMON (1850-1926), merchant and diplomatist, member of the importing firm of L. Straus and Sons, pottery and glassware, 1881-1906. U. S. Minister to Turkey, 1887-9, 1898-1901, 1909-11; Secretary of Commerce and Labor in Cabinet of President Roosevelt, 1906-9; Chairman of Public Service Commission, first district, New York, 1915-18; member of the Court of Arbitration at the Hague, 1902, and reappointed by Presidents Taft and Wilson; member of commissions and boards affecting labor and civic affairs. Author of *Reform in the Consular Service, United States Doctrine of Citizenship, Our Diplomacy with Reference to our Foreign Service, The American Spirit, Under Four Administrations.*

TAGORE, RABINDRANATH (1861–), Hindu poet and nationalist, at seventeen was taken from his native Calcutta to England to complete his education. In his native Bangali language he has wielded a strong influence over the language, education, and philosophy of his countrymen. In his English poems and translations of his own prose works, he has become known as a spiritual philosopher and mystic. In 1900 he founded a school in Bangal, where he has spent much of his time since, teaching and talking with his disciples. Tagore was awarded the Nobel prize for literature in 1913, shortly after he had visited England and had translated his chief works. Of the works now available in English translation, *The Gardener, The Crescent Moon, The Post Office* (play), *Fruit-Gathering, Nationalism, Glimpses of Bengal,* and *Gora,* a novel, are important.

TAKAHIRA, KOGORO (1854–), one of the "elder statesmen" of Japan, Baron, and diplomatist, entered the Foreign Office, as a translator in 1877; became connected with the Japanese Embassy at Washington in 1879; was minister there 1901-05, 1908-9. With Baron Komura he signed the Russian Peace Treaty at Portsmouth, N. H. in 1905. Also was minister of Japan in Italy, Austria, and Switzerland at different times.

TAUSSIG, FRANK WILLIAM (1859–), political economist, received his A. B., A. M., L. L. B., and Ph. D. at Harvard, where he became professor of political economy in 1892, having served as instructor and assistant professor from 1882. Being a recognized authority on the tariff, he was appointed Chairman of the U. S. Tariff Commission in 1917 and served till 1919. He is the editor of the *Quarterly Journal of Economics.* Some of his publications are *Tariff History of the United States, Wages and Capital, Some Phases of the Tariff Question, Free Trade, The Tariff and Reciprocity.*

TETRAZZINI, LOUISA (1874–), operatic prima donna, born in Florence, as a child learned several operas by hearing an elder sister (later the wife of Campanini) practice them. She made her first formal stage appearance as Inez in *L'Africaine* in 1895, and soon she became known as "the second Patti." At Covent Garden, London, her success was tremendous. Oscar Hammerstein brought her to the Metropolitan Opera House, New York, in 1908, where she has appeared many times.

THOMSON, ELIHU (1853–), inventor, taught chemistry and mechanics in the Central High School, Philadelphia, from which he was graduated in 1870, and since 1880 has been connected with the Thomson-Houston Electric Company and the General Electric Laboratories at Lynn, Mass. Over 500 of his inventions have been patented, including the method of electric welding that bears his name. He was awarded the Grand Prize at Paris in 1899 and 1900 for his inventions, the Rumford medal, 1902; the first Edison medal, 1910, the Elliott Cresson medal, John Fritz medal and Hughes medal of the Royal Society, London, 1916. Dr. Thomson is a trustee of several institutions, including Massachusetts Institute of Technology, of which he was acting president from 1920 to 1922.

TROTSKY, LEON (Leon Braunstein), (1877–), was born in South Russia and educated at the University of Odessa. In 1898 he was deported to Siberia but soon escaped. After being refused an asylum in several European countries, he came to the United States in 1917 and assisted in editing *Novy Mir,* the Russian progressive daily newspaper in New York. He had been active in international socialistic congresses. On his return to Russia in 1917, he was elected President of the Soviets, organized a red army, and finally became war secretary, a position he held till 1924 when he was superseded.

VAN DYKE, JOHN CHARLES (1856–), authority on art, has been librarian of Rutgers College since 1878 and professor of the history of art since 1888. Studied art extensively in European galleries. Author of *How to Judge of a Picture, Art for Art's Sake,* a discussion of the province of painting, *The Desert* and *The Opal Sea,* descriptions of the beauties of nature, *The Grand Canyon of the Colorado, Rembrant and his School,* a discussion partly of the genuineness of certain pictures attributed to Rembrant, *History of Painting.*

VAN LOON, HENRICK WILLEM (1882–), historian, was born in Rotterdam and educated at Cornell University, Harvard, and Munich. From 1911 to 1914 he lectured on history at Cornell and other places. During 1914 he acted as a reporter in Belgium, being expelled finally by the Germans. Lectured on modern European history at Cornell, 1915-6, and later was professor of history at Antioch College, after which he became associated with the *Baltimore Sun.* Besides histories of Holland, Van Loon wrote widely-read books like the *Story of Mankind,* 1921, and *Story of the Bible,* 1924.

VAN SWERINGEN, ORIS PAXTON (1879–), financier and president of corporations, was educated in the public schools of Ohio, having been born in Wooster. Chairman of the Board of the Nickel Plate, C. and O. Railway, and the Hocking Valley Ry., and president of the Nickel Plate Securities Corporation. Planned and developed Shaker Heights, Cleveland suburb, largest undertaking of its kind previous to 1921. With his brother M. J. Van Sweringen interested in forming a group of railways into a unified system from New York to the west.

VENIZELOS, ELEUTHERIOS (1864–), Greek statesman born in Crete, led in the movement uniting Crete and Greece. About 1910 he moved to Athens and formed the league which made war on Turkey in 1912. During the World War, as premier of Greece, he used every method in his power to bring Greece into union with the allies against Germany, but the king of Greece, for family reasons, prevented, and Venizelos resigned in 1915. Following the first abdication of Constantine, he returned to Greece as premier in 1917, and Greece joined the allies. During the Peace Conference he was one of the most enlightened delegates, wielding a large influence. Afterward he returned to be premier for a brief time, but was forced by ill-health and other reasons to withdraw actively from politics.

VILLA, FRANCISCO (Pancho) (1868–1923), revolutionary leader of Mexican peons, in 1910 was captured by Huerta, but escaped. He then raised 35,000 men to assist Carranza against Huerta, but he quarreled with his chief and joined Zapata in one of the insurrections against Carranza. Villa fled into the United States, shot up the town of Columbus, N. M., killing 17 Americans and wounding 7 others. He was pursued into the fastnesses of Mexico by American troops. Later he was persuaded to settle on a large estate with his men about him, but in 1923 he was assassinated, presumably by friends of those whom he had killed in his banditry.

VINOGRADOFF, PAUL (1854-1925), professor of jurisprudence at Oxford since 1903. For many years he taught in Russia, where he was born, but came into conflict with bureaucratic management because of his advanced ideas of education. Lectured at many universities, including Harvard in 1907, the University of Leyden, 1921, Columbia, Johns Hopkins, Michigan, and California in 1923. Director of Publications of the British Academy and editor of Russian Section of social and economic history of the War (1914-17) for the Carnegie Foundation of New York. He has edited many series of books and has written several on English social and economic life and history, the article on *Russia* in the 12th edition of Britannica, and *Outlines of Historical Jurisprudence.* Knighted in 1917.

WALES, PRINCE OF, EDWARD ALBERT (1894–), in 1909 entered the Royal Naval College at Dartmouth, England, on his sixteenth birthday was proclaimed Prince of Wales, and in 1911 was presented to the Welsh people at Carnavon Castle. His course at Magdalen College, Oxford, which he began in 1912, was interrupted by the World War, in which he served in various capacities, with Sir John French in France, with the English forces in Egypt, in Italy, and last with the Canadian corps in France. In 1919, 1923, and 1924, he visited Canada, having a ranch in Alberta; in 1920 he visited New Zealand and Australia; and in 1925, South Africa.

WALSH, THOMAS JAMES (1859–), senator from Montana since 1913, received a law degree from the University of Wisconsin in 1884, was principal of a high school, and then began the practice of law at Redfield, South Dakota. Since 1890 he has resided in Helena, Montana. From 1908 he has been a member of the Democratic national conventions, being on the committee on platform. In 1924 he rose to national prominence by his energetic prosecution of the cases involving the sale or lease of public lands to private companies.

WELLS, HERBERT GEORGE (1866–), English man of letters, received his education at the Royal College of Science, where he took honors in zoology. His many volumes of writings cover a great range of subjects. The ones most frequently mentioned are *The Stolen Bacillus and Other Stories, The Lost World, The Future in America, New Worlds for Old,* (an account of socialism), *Tony Bungay,* a novel of contemporary life, *Floor Games for Children, Mr. Britling Sees it Through,* a novel, *In the Fourth Year* (an account of the League of Nations), *The Undying Fire, Outline of History, The Salvaging of Civilization, Washington and the Hope of Peace.*

WHEELER, BURTON KENDALL (1882–), junior senator from Montana, since 1923, received his law education at the University of Michigan, and since 1906 has practiced at Butte, Montana. Member of the Montana House of Representatives from 1911 to 1913, U. S. district attorney in Montana, 1913-1918, when he resigned; Senator for the term beginning in 1923. Candidate with Senator LaFollette for vice-president in 1924.

WHITE, WILLIAM ALLEN (1868–), newspaper man and author, since 1895 has been editor and proprietor of the *Emporia Gazette.* From his editorial *What's the Matter of Kansas* he became widely known in 1896 at the time of the free silver discussion. Two other editorials have brought him the Pulitzer prize of the School of Journalism of Columbia University for the best current editorial. He was independent anti-Klan candidate for governor of Kansas in 1924, and was a member of the Progressive National Committee from 1912 to 1916. *The Court of Boyville* contains some fine stories of youth in a small town; *A Certain Rich Man* is a celebrated novel of American modern life; and *The Martial Adventures of Henry and Me* details his experiences in France with Henry J. Allen, afterwards governor of Kansas.

WHITLOCK, BRAND (1869–), author and diplomatist, was born at Urbana, Ohio. From 1887 to 1893 he was engaged in newspaper work; from 1893 to 1897 was connected with the office of the secretary of state of Illinois; and from 1897 to 1905 practiced law in Toledo, Ohio. Then as an independent he was elected mayor against four others in the field, and was re-elected in 1907, 1909, and 1911, declining to run for a fifth term. During the World War he was minister of the United States to Belgium and from 1919 to Feb. 1922, was ambassador there. He was thanked by the Belgian parliament in special session for his services during the War and a boulevard was named for him in Brussels. Many more honors were also awarded him by Belgium and other nations. Some of his writings include *The Happy Average, The Turn of the Balance,* fictions, *Abraham Lincoln* (trans. into French by the author in 1918), *Forty Years of It,* 1914, *Memories of Belgium under the German Occupation,* 1918, which was translated into French, Danish, and other tongues.

WILSON, HENRY BRAID (1861–), naval officer, after graduating from the U. S. Naval Academy in 1881 became an ensign and rose to the rank of rear admiral in 1917, vice admiral in 1918, and admiral in 1919. During the Spanish-American War, he was on the Bancroft; on duty in the Bureau of Navigation from 1904 to 1908; commanded the Chester, 1908-10; assistant in charge of Bureau of Navigation, 1910-11; commanded the North Dakota, 1911-13, the Pennsylvania, 1916-17, commander of the Patrol Force of the Atlantic Fleet, 1917-1918; commander of the U. S. Naval Forces in France, 1918 and of the Atlantic Fleet, 1919. Admiral Wilson was Superintendent of the Naval Academy, Annapolis, from July 5th, 1921 to his retirement from active duty in February, 1925.

WISE, STEPHEN SAMUEL (1872–), rabbi and Zionist, received at Columbia an A. B. in 1892 and a Ph. D. in 1901. He was in charge of a Synagogue on Madison Avenue in New York for seven years and then for six of one in Portland, Oregon, returning to New York to found the Free Synagogue in 1907. Rabbi Wise has interested himself in many public movements, including peace societies, Woodrow Wilson Foundation, Near East Relief, American Jewish Congress, Council of National Defense during the World War, and the general Zionist movement.

WRIGHT, HAROLD BELL (1872–), novelist and clergyman, was born in Rome, New York, and for five years was a painter and decorator, and next from 1892 to 1897 a landscape artist; and then for eleven years pastor of Disciples churches in Missouri, Kansas, and California. He wrote books that were extremely popular, including *That Printer of Udell's, The Winning of Barbara Worth, The Eyes of the World, When a Man's a Man.* All of his books have a strong social and economic tendency, but also contain wholesome romances.

ZIMBALIST, EFREM (1889–), violinist, until he was twenty-two lived mainly in Russia, where he was born at Rostow-on-Don. His musical education was received from his father, the Imperial School of St. Petersburg, and from Leopold Auer. In 1911 he came to the United States and in 1914, married Alma Gluck, the eminent singer. Since he first appeared in St. Petersburg when he was seventeen, he has toured the main musical centers of Europe and America. He has composed numerous pieces for the violin, orchestra, and piano.

FINE ARTS

HISTORY
ARCHITECTURE
PAINTING
MASTERPIECES OF ART
MUSIC
FAMOUS HYMNS
ART AND MUSICAL TERMS
ORATORIOS
GREAT OPERAS
NEWSPAPERS, LIBRARIES AND MUSEUMS
CHRISTIANITY
PHILOSOPHY
FRATERNAL ORGANIZATIONS
CIVIC ORGANIZATIONS
RELIGIOUS AND PHILOSOPHICAL TERMS
COLLEGES AND UNIVERSITIES

Photo supplied by Episcopal Diocese, N. Y. C.

CATHEDRAL OF ST. JOHN THE DIVINE, New York City

(as it will appear when completed).

BOOK XV.

FINE ARTS.

THE ARTS.
Mural Decoration in the Congressional Library, Washington.
BY KENYON COX.

HISTORY OF DEVELOPMENT: ANCIENT, MODERN. ARCHITECTURE: ANCIENT, MODERN. (ILLUSTRATED BY DESCRIPTIONS OF FAMOUS BUILDINGS). SCHOOLS OF PAINTING. MASTERPIECES OF THE WORLD IN ART. MUSIC: SCHOOLS OF MUSIC. NEWSPAPERS AND PERIODICALS. LIBRARIES. MUSEUMS. CHRISTIANITY. SCHOOLS OF PHILOSOPHY. COLLEGES AND UNIVERSITIES. RELIGIOUS AND PHILOSOPHICAL TERMS. FRATERNAL ORGANIZATIONS. CIVIC ORGANIZATIONS.

BABYLONIAN ART AND ARCHITECTURE.

Investigations by archæologists during the last ten years have done much to make it almost certain that the earliest forms of architecture were the Babylonian. Previous to this recent information it was thought that the Egyptian was the oldest. The characteristics of Babylonian architecture are a construction almost wholly of bricks, sun-dried and kiln-baked, owing to the absence of stone and forests of wood; very thick walls and narrow vaulted interiors, owing to the small size of the bricks used; the consequent invention of the arch and vault; a massive and lofty stage or foundation upon which the building was to rest, because of the low, level nature of the land, and the lack of elevations to make the buildings loom large on the horizon; the entire absence of pillars, columns, piers or carving; the prevalence of decorations of faïence, fresco, and hangings; and artistic decoration of buildings by reliefs, glyptics, or cuttings of precious stones.

There are four well-defined periods, viz.:—

1. The pre-Sargonic era, from the earliest times to 3800 B. C.
2. The golden age of Sargon, from 3800 to 2800 B. C.
3. The age of Hammurabbi, from 2200 to 1700 B. C., the silver age.
4. The Kassite age, from 1700 to 1000 B. C.
5. The Renaissance under Nebuchadnezzar, from 600 to 500 B. C.

The royal palace unearthed by the French at Tel-l[illegible] or Shirpurla dates back to 5000 B. C., though it was restored by King Gudea. Its platform was 12 meters high, 200 meters long, and 50 meters wide. This is by no means the largest or finest of the royal palaces of Babylonia. The excavations by the Peters expedition or the University of Pennsylvania expedition, in which Professor Hilprecht has figured so prominently, have done much to increase our knowledge of Babylonian architecture. The Hanging Gardens of Babylon, which remained for so many years one of the seven wonders of the world, may well be included among the architectural wonders of Babylon. They were built by Nebuchadnezzar to please his queen Amytis; and consisted of great terraces one above the other upon which earth deep enough to support the growth of the largest trees was placed. Grass, trees, flowers, and walks made it appear as a mountain of vegetation within the city. The walls of the city, in the form of a square, are said to have been 56 miles around, and broad enough on the top for a four-horse chariot to be safely driven between the buildings and towers which occupied its inner edge. The hundred brazen gates, the wide and deep surrounding moat filled with water, and the beauty and adornment of the palaces, temples, and gardens within the gates, made the city one of the most famous of ancient times.

Tower of Babel.—The Tower of Babel is inseparably connected with Babylonian architecture. According to the account in Genesis xi. it was the result of the knowledge that the people gained who went down into the valley of Shinar and there learned the art of making buildings of clay cemented with bitumen. Much surmise is indulged in as to its exact location. Among the buildings which seem to have the greatest claim to this distinction is the great temple to Marduk in the city of Babylon, which was seven stages high and was known to the people as the house of the foundation-

stone of heaven and earth. This was the building which Nebuchadnezzar restored. Another seven stage tower opposite Babylon in Borsippa, sacred to Nebo, has claims to this distinction. Many believe that the tower of Zikkurat in the city of Babylon may have been the building the writers had in mind.

EGYPTIAN ART AND ARCHITECTURE.

The history of Egyptian art may be broadly divided into three main periods—the Ancient or Pagan, the Christian or Coptic, and the Mohammedan.

The Ancient or Pagan Period extends from the First Dynasty (about 4500 B. C.) to the time of the Roman Empire. The monuments of the first six dynasties were marvelous feats of engineering, but with a simplicity and grandeur of their own. This was an era of gigantic pyramids and mastabas. Over 100 of these ponderous tombs were erected, establishing the existence of the use of metals and a knowledge of mathematics and mechanics of no mean order, 40 centuries before Christ. The pyramids were the royal tombs of the earlier dynasties; the mastabas, built in rectangular form, were designed for persons not of royal birth. No decoration had as yet been attempted, but during the Middle Empire (from 3000 to 2100 B. C.) a great change spread over Egyptian architecture; non-sepulchral temples of a grand and imposing type first appear, and the mastabas give place to rock-cut tombs rich in design and ornamentation. Of these rock-cut sepulchers the most celebrated group is at Beni-Hassan on the Nile. The creation of a distinct order of temple architecture is most noteworthy, as not only was a model set for succeeding generations in Egypt, but likewise for the Greeks. The lintel, and not the vault, became the basis of design; quarried blocks were carefully dressed and laid; columns supporting architraves were lavishly used; while color and relief sculpture embellished the whole. The period that followed, known as the New Empire (1700 to 1100 B. C.), was the golden age of Egyptian art and architecture. The land was covered with temples and palaces of a size and grandeur never before attempted. Some of the most impressive monuments of the New Empire were the Amenopheum; the temple of Rameses III. at Medinet Abu; the mausoleum of Queen Hatsu at Deir-el-Bahari and the Ramesseum close by; the temples of Abydos, Medinet Abu, and Gurneh; the little temple of Khonsu at Karnak; and the gigantic temples of Karnak and Luxor. The colossal temple of Karnak was begun during the Middle Empire, succeeding dynasties carrying on the work till its completion in the time of Euergetes, the third of the Ptolemies. Except in matters of scale and ornament, all these monuments conformed to the same general type. The splendid achievements of the reigns of Thothmes, Amenophis, Seti, and Rameses were followed by an era of decline; and not till the time of the Macedonian conquest did architecture revive. The temples of the Ptolemaic and Roman period maintained the best traditions of Egyptian art. The majestic group of temples on the island of Philæ near the second cataract rival the splendor of the new Empire. The temples of Denderah and Edfu are still well preserved, while others of less importance may be seen at Esneh, Dakkeh, Kalabshé, and Kardassy. Of secular and military architecture there are few remains of importance. The fortresses of Semneh, Thebes, and Memphis; the fortified walls of Sān, Saïs, and Thebes; besides scattered remains of forts, granaries, and domestic buildings, bear witness to the activity of this period.

The Coptic Period.—From the third to the seventh century Egyptian art fell into decay, and did not revive till the Moslem conquest in 638. The Coptic Christians covered the land with their churches and monasteries, built in a cosmopolitan style which ignored both Egyptian tradition and Byzantine practice. Few traces of Coptic architecture remain, being swept away by the Arab invaders.

The Copts were the first to introduce into architecture the systematic employment of the pointed arch. The later Coptic churches were basilican in design, and lacking in architectural beauty.

The Mohammedan Period.—For several centuries the Moslems in Egypt followed the Coptic type. The pointed arch was used; the ceilings were of wood and richly decorated. Some of these mosques were very large. About the middle of the tenth century the vault and dome first appeared in Moslem structures in Egypt, designed by Coptic architects from Byzantine or Persian models. The dome was long confined to sepulchral edifices. The minaret also came into use about the same time, and became a feature of great elegance in Moslem architecture. The most important monuments of the Mohammedan period are in Cairo, the tomb-mosque of Kaid Bey in the Karafah (1470-1480) being one of the finest examples of this era. The mosque of Ghouri, the last of the Mamelukes, is one of the last of the strictly Arab structures. When Egypt in 1517 became a Turkish province, a Turkish style, based on Byzantine models, was adopted. The spacious mosque of Mohammed Ali in the citadel (1815-1821) is a typical example of this later style.

Sculpture.—Unlike architecture, sculptural works of importance were produced in Egypt at an earlier date than in Babylonia. The aim of the early sculptor was to make a figure as life-like as possible, so that its *ba* (spirit) and *ka* (soul) might easily recognize it after death. These sculptures were mostly deposited in tombs, and in the inner chamber of each tomb were placed several statues illustrating different periods of the individual's life, as well as several scenes in low relief vividly colored. Under the New Empire sculpture became even more pictorial, and two new forms came into use—the outline relief (*stiacciato*) and the sunken relief (*cavo-rilievo*). Wooden statues, usually of acacia and sycamore, were very popular during the earlier dynasties. Color was an essential feature of Egyptian sculpture. Colored stones, such as basalt, red granite, and diorite, were invariably used, or, when softer stones were employed, the colored effect was produced by stucco and paint. Sculpture conformed to a rigid conventionality, without regard to perspective or realism. In reliefs, the head was in profile, with the eye in front view; the shoulders full front; the trunk three quarters; the arms and hands, also the legs and feet, in profile. It seems to have been the idea of the artist to present as much as possible to the view, hence these flattened-out representations. As a makeshift for perspective

design, the Egyptians placed one row of figures above another to represent different planes. But, though lacking in this essential of art, they were lavish in details and decoration. Conventional Egyptian ornament was mainly based on flower-forms such as the lotus, as well as on the papyrus.

Side by side with the traditional sculpture peculiar to tombs and temples there grew up a secular kind, freer and bolder in design and of more varied types. Such is the famous statue of King Khafra, sitting in the conventional attitude with hands on knees. A familiar type is the seated figures of husband and wife. The celebrated Sphinx of Gizeh stands apart from any class. The Egyptian deities were usually represented in a composite form, it being customary to set an animal's head on a human body, or else the god in human form was accompanied by his particular emblem, such for instance as a cat, jackal, ibis, ram, hawk, lion, or crocodile. In its political representation Egyptian art is still more interesting. One of the commonest scenes is that of a gigantic king with cowering captives at his feet; another is that of a triumphant monarch in his chariot overwhelming his foes. These scenes throw great light on the customs and industrial arts of those early periods. Under the Ptolemies, sculpture came under the influence of Greek art.

Egyptian painting cannot be considered as a distinct art; it was chiefly an auxiliary to sculpture and architecture. The minor arts developed very early. Gold and enamel jewelry of delicate workmanship can be traced back even to the Ancient Empire. The traditional designs were applied also to furniture, ornaments, and utensils—wood, ivory, and metals being fashioned with equal skill. The distribution of these articles by Phœnician and Greek traders considerably affected the growth of European design.

Pyramids.—Colossal pyramidal tombs or cairns are a striking feature of Egyptian architecture. They are built of solid masses of stone, or of brick; and each pyramid has one or more chambers with concealed passages leading to them, while in the larger pyramids false passages were made to render desecration more difficult. The sarcophagus, or mummy case, was placed in the chamber before the superstructure was erected. The pyramids of Gizeh are nine in number, but the six small ones sink into insignificance by the side of the three great pyramids of Khufu (or Cheops), Schefren (or Khafra), and Menkaura (or Mycerinus), which were constructed from 3969 to 3784 B. C. They are accurately oriented, and that of Khufu and of Schefren are "so proportioned that the perimeter of the base closely approximates the circumference of a circle having the altitude of the pyramid for its radius." The Great Pyramid had a base of 764 feet and was 482 feet high (it is now 450). It has an unfinished subterranean chamber, from which an upward sloping passage leads to two other rooms, the larger one (the "King's") being ventilated by two air flues about nine inches square which lead off to the north and south sides of the pyramid. The King's Chamber is 19 feet 1 inch high, and 34 feet 3 inches by 17 feet 1 inch in area; the Queen's Chamber is 20 feet 3 inches high, and its area is 17 feet by 18 feet 9 inches. The pyramid of Schefren was 454 feet high on a base of 717 feet; that of Menkaura is steeper, and was 213 feet in height and 253 feet square. Each of these pyramids was originally faced with polished granite. Pyramidal sepulchers are not confined to Egypt; the tomb of Caius Cestius in Rome is in this form.

Sphinx (from the Greek *σφίγξ*, the "strangler").—In Egypt the Sphinx is generally represented as a wingless lion with a human (male) head; the Greek Sphinx on the other hand was a winged lion with a woman's head and breast. One of the earliest and most famous of these monuments is the Great Sphinx at Gizeh. It is partly cut from the solid rock and partly constructed of masonry, with a shrine built at its base. It is 172½ feet long and 66 feet in height. The name by which it is known is Horemkhu (or Hu), a word derived from Horus. The face of the Great Sphinx was orignally colored red, though few traces of the coloring now remain.

Karnak and Luxor.—Of the group of temples at Karnak, near the site of ancient Thebes, the most important was the temple of Ammon founded during the Twelfth Dynasty. It stood in an inclosure about 1,500 feet square, and an avenue of ram-headed sphinxes led from the river to the main gateway—a colossal pylon, 370 feet in breadth by 142 feet in height. Within the great court and in a line with the gateway were twelve enormous columns, six on either side; six of these are well preserved. A second pylon gate leads into a magnificent hypostyle hall, 171 feet long by 338 feet broad, its roof supported by 134 columns in 16 rows. This hall is one of the finest works of Egyptian architecture. At the upper end of the great hall is another pylon gate, now in ruins, leading to an open court, in the center of which is an obelisk 76 feet high. Beyond this again is another court in which stands the tallest obelisk in existence. There are a succession of smaller courts, corridors, pylon gates and halls. To the southwest of Karnak and on the site of Thebes stands Luxor with its famous ruins of palaces and of the temple dedicated to Ammon, Mut, and Chons, the Theban triad. Near the main gateway of the great temple stood two obelisks erected by Rameses II.; one is still there, and the other is now in the Place de la Concorde, Paris. In the great court stood six huge statues of Rameses II., three of which are still in position.

Colossus of Memnon.—On the Theban plain stand two colossal portal statues of King Amenhotep III. of the Eighteenth Dynasty. One of them, the famous "Vocal Memnon," was said to emit a sound when struck by the rays of the rising sun. This phenomenon, first mentioned by Strabo (about 20 B. C.), was probably due to the sudden expansion of the sandstone conglomerate. Greek and Roman visitors innumerable have carved their names on the sides of the statue. Hadrian and his wife, Sabina, visited it in 130 A. D. The sounds ceased in the time of the emperor Severus.

Obelisk (from the Greek *ὀβελίσκος*, diminutive of *ὀβελός*, a spit; pointed pillar).—An obelisk is a tall and tapering four-sided pillar terminating in a pyramidion, and is generally a monolith. The pyramidion was invariably capped with metal, usually gilded bronze. These monuments originated in Egypt, and were placed at the entrance of the temples and palaces, both for decorative effect and as a record of royal deeds and victories. Their sides were generally covered with hieroglyphic inscriptions deeply cut into the granite. One of the tallest obelisks is that of Queen Hat-shepsut at Karnak, which rises to 97½ feet, its diameter at the base being 8½ feet; its mass is estimated at 4,873 cubic feet and its weight at 367 tons. An obelisk of red granite, 66 feet high, still stands on the Nile, the solitary monument of the fallen city of Heliopolis. This is the oldest obelisk existing, and is said to have been erected by Usertesen I., the second king of the Twelfth Dynasty. The famous

"needles of Cleopatra" were erected originally at Heliopolis by Thothmes III. During the rule

EGYPTIAN OBELISK IN CENTRAL PARK, NEW YORK.

of the Ptolemies they were transferred to Alexandria. In 1879 one was taken to London and placed on the Thames Embankment; the other was brought to New York, in 1880, at the expense of William H. Vanderbilt, and erected in Central Park, February 22, 1881.

GREEK ART AND ARCHITECTURE.

The Greeks carried architectural art to a high degree of excellence. They made no use of the principles of the arch in their important buildings, but confined themselves to the columnar form; yet their architecture combined Egyptian massiveness with a chasteness and symmetry of design unrivaled by any other nation. As native architecture is generally influenced by available building materials, Grecian temples were originally made of wood, which largely accounts for the variety of forms found in their more permanent architecture. Stone was gradually introduced, but the traditional forms remained; the architrave represented the girder resting on the columns, and which supported the principal rafters; the triglyphs were the beam ends; the small circular ornaments in low relief, called guttæ, were the nail heads; the metope slabs filled the former intervals between the beams; the pediment was occasioned by the gable formed by the sloping roof.

The three distinct orders of architecture developed by the Greeks were the Doric, Ionic, and Corinthian. The distinctive character of the orders is chiefly shown in the column and the entablature. The Romans adopted the Grecian styles, modifying them and adding two others, viz., the Tuscan and the Composite.

The Doric Order.—This is the earliest of the Greek orders, and the one generally used in their temples. The Doric column tapered toward the top and had a strong entasis or curved profile. It had no base, but rested directly upon the *stylobate* or upper step. It had generally 20 flutings, and in height ranged from four to six times its lower diameter. The capital was plain, and consisted of (1) the annuleted necking, (2) the echinus or ovolo, whose peculiar curve is supposed to have been taken from the sea egg, and (3) the abacus, which was a square flat stone without moldings of any kind. The entablature was divided into (1) the architrave, which was either quite plain or composed of three projecting horizontal fillets; (2) the frieze, which was divided horizontally into triglyphs—vertical blocks reminiscent of the outer ends of the ceiling beams; (3) metopes, or the spaces between the triglyphs, decorated with painted ornament or relief sculptures; and (4) the cornice, which projected its own height. The Doric style was used in the greater number of Greek temples known to us, of which the Parthenon at Athens is the finest example.

The Ionic Order.—The more graceful Ionic shaft tapered less, and was longer than the Doric, being from eight and a half to ten diameters in height. It had a slighter entasis, and was ornamented by 24 elliptical flutings. The column had a base consisting of a series of hollow moldings divided by narrow fillets, below which was a larger cove between two fillets, and below this again a convex molding called a torus. The so-called Attic base was composed of an upper and lower torus between which was a scotia and two narrow fillets, and was in height one third of the thickness of the column. The capital consisted of (*a*) an ornamented neck, (*b*) two parallel scrolls or volutes occupying opposite sides and supporting (*c*) an abacus. The volutes form the distinctive feature of the Ionic capital, and a side view gives the appearance of a scroll of parchment with the rolls hanging downward on each side. The Ionic entablature consisted of (*a*) an architrave, divided vertically into three parallel and horizontal bands; (*b*) a frieze, which was continuous or unbroken (having neither triglyphs nor metopes) and ornamented by a band of painted or relief ornament; and (*c*) a molded cornice. Unlike the Dorians, who preferred moldings of simple lines decorated with severe ornament, the Ionians introduced a more refined profile and more delicate decoration. The best examples of the Ionic style were the famous Erechtheum at Athens, and the temples of Ilissus and Minerva Polias, all three of which are in ruins.

The Corinthian Order.—This order was developed later, and there are only two remaining specimens in Greece dating from pre-Roman times, viz., the choragic monument of Lysicrates at Athens, and the Tholos, or circular building, of Epidaurus in the Morea. No traces of the order are to be found in the remains of Corinth. The Corinthian was the lightest and most ornamented of the Greek orders, its most important change from the Ionic being in the different capital. The base, an elaborated copy of the Ionic, was two fifths diameters in height. The column was 10 diameters high, with flutings like the Ionic. The capital resembled an inverted bell with two rows of acanthus leaves clustered round it, above which were eight pairs of small

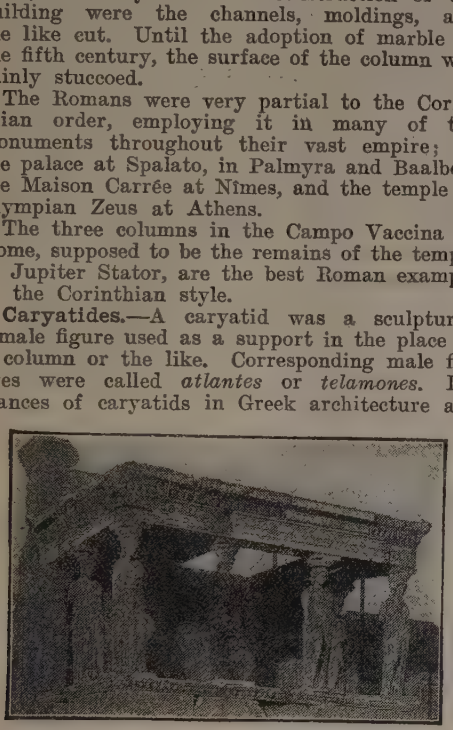
volutes, surrounded by a molded abacus with concave sides. The entablature was more elaborate than the Ionic, the architrave being divided into three horizontal fillets separated by a narrow molding from the frieze, which latter was decorated with bas-reliefs; while the cornice was both richer and more varied with the addition of volute-like mutules and modillions.

It is interesting to note that the Greeks usually blocked out their columns before erecting them, and only after the construction of the building were the channels, moldings, and the like cut. Until the adoption of marble in the fifth century, the surface of the column was thinly stuccoed.

The Romans were very partial to the Corinthian order, employing it in many of the monuments throughout their vast empire; in the palace at Spalato, in Palmyra and Baalbek, the Maison Carrée at Nîmes, and the temple of Olympian Zeus at Athens.

The three columns in the Campo Vaccina at Rome, supposed to be the remains of the temple of Jupiter Stator, are the best Roman example of the Corinthian style.

Caryatides.—A caryatid was a sculptured female figure used as a support in the place of a column or the like. Corresponding male figures were called *atlantes* or *telamones*. Instances of caryatids in Greek architecture are



CARYATID PORCH OF THE TEMPLE OF ERECHTHEUS AT ATHENS.

rare, the most important remains being the portico called Pandrosium, forming part of the Erechtheum at Athens. In this example the figures take the place of columns, and support the entablature.

What we know of Greek architecture is derived from the remains of ancient temples. Unlike the Egyptians, the Greeks sacrificed the interior in order to secure a fine exterior, relying for beauty and stateliness on the columns surrounding their structures. Their temples were generally of moderate size, being shrines rather than places of worship. The sunlight streaming through the main doorway was enough for the purpose, and windows were unnecessary. Flat roofed buildings, such as the Telesterion at Eleusis, may have been lighted from the roof, but the ordinary gable-roofed temple had no such device. The Greeks, after having fixed upon the types of their architecture, never departed from them, but generation after generation went on refining and perfecting their lines; and no matter whether the temple was great or small, the change of scale did not affect the harmony or simplicity of the composition. The life and requirements of the Greeks did not call for large buildings. Even in their largest temples the chamber or cella barely exceeded 40 feet in width. Buildings for the shelter of the public were called *stoas*, long galleries or colonnades facing the street or public square, and in these also the column was the chief architectural feature.

Sculpture.—As a concrete art, sculpture attained supreme perfection at the hands of the Greeks, who developed it from the stereotyped archaism of the Egyptians to the fullest expression of human beauty. Greek art culminated during the Attic period from about 480 B. C. to 323 B. C. The influence of the palæstra and the Olympic games were considerable. An appreciation of living beauty, combined with the ease of obtaining the finest models, gave an unbounded stimulus to sculpture. Added to this was a great demand for statues of the victorious athletes. Calamis, Pythagoras of Rhegium, and Myron adorned this period of transition; but with Phidias we enter at once into the full glory of Greek art. It was an age of giant minds and giant builders. The artist sought to embody some high ideal, and uniting consummate skill with nobleness of conception, he created masterpieces for all time. Sharing with Phidias the splendor of this golden era were Polyclitus of Argos; Agoracritus of Paros; Alcamenes, the creator of the celebrated *Aphrodite in the Gardens;* Cresilas of Cydonia; and Pæonios of Mende, the sculptor of the famous flying *Niké* (Victory) at Olympia. During the succeeding age of Praxiteles and Scopas, the sculptor gave emphasis to individual traits; and portraiture, which the two great schools of Athens and Argos had idealized, became more and more realistic. Even the conception of the gods followed the general tendency, and, instead of embodying the loftiest aspirations of popular religion, the statues of the gods expressed but the varying moods of men. Scopas was the foremost among the depictors of realism, while the *Hermes* of his great contemporary, Praxiteles, shows the mastery over technique possessed by the great artists of this era.

The conquests of Alexander had let in a flood of Eastern thought and tradition, and Athens no longer maintained its old supremacy. During the Hellenistic period from 323-146 B. C., the chief centers of art were Alexandria, Pergamus, and Rhodes. The increase of wealth stimulated the patronage of art, and the taste of the purchaser determined the subject of the artist. Genre groups, and the so-called "Hellenistic reliefs," reveal a new tendency in which the human figure is no longer of first importance in the composition. In spite of this, portraiture reached a high level of excellence in technical mastery combined with elegance in conception. No artist of this period can compare with Lysippus of Sicyon, who exercised a remarkable influence over Hellenistic art. A copy of his famous bronze *Apoxyomenos* is in the Vatican.

In Alexandria, art was mainly decorative, but at Pergamus the victories of Attalus I. (241-197 B. C.) were immortalized in a series of statues of which the *Dying Gaul* is one of the best examples. The celebrated frieze, *The Battle of the Gods and Giants*, which adorns the altar at Pergamus, shows the vigor and boldness of Pergamese art. The proclivities of this school

found new expression at Rhodes and culminated in the famous Laocoön group.

The Roman period of Greek art, from 136 B. C. to 330 A. D., was one of imitation rather than of striking originality. The works of the great sculptors were freely imitated, and it is to this age we owe so many of our copies of earlier masterpieces. The school of Pasiteles was particularly noted for these reproductions.

Painting.—This art did not reach the same development in Greece as did the sister arts of sculpture and architecture. This was partly owing to a limited knowledge of pigments. Few specimens of ancient painting exist, though from the Greek vases we can follow the progress of drawing. The earliest efforts were in monochrome; then, as in Egypt, came the employment of a varied palette, but with no pretensions to perspective or to light and shade. The first creative genius who advanced the art was Polygnotus of Thasos, whose works adorned the walls of public buildings, such as the *Painted Portico* at Athens. His contemporaries, Micon and Panænus, brother of Phidias, were also famous, and lent their art to architectural decoration. Polygnotus is reputed to have produced a variety of shades from a simple palette containing only black, white, red, and yellow. He won great fame by his composition and correctness of line. The scene painter, Agatharchus of Samos (about 480 B. C.), rendered the greatest service to painting when he discovered the methods of shading and perspective; and soon afterwards there arose what is known as the Asiatic or Ionic school, whose leading exponents were the rivals Zeuxis of Heraclea and Parrhasius of Ephesus, whom tradition credits with most realistic skill. With such meager remains it is difficult to appraise the work of the ancient artists. The Etruscans were undoubtedly inspired by Greek models, and examples of their work, such as the tempera painting on the Corneto sarcophagus now in Florence, give us some indication of the beauty and power of the original. Many specimens have come down to us from the later period of Hellenistic art; the greatest number of these are from the buried cities of Pompeii and Herculaneum.

Delphi, Temple at.—The original building, said to have been designed by the architects Trophonius and Agamedes, having been destroyed, a new one dedicated to Apollo was undertaken about 548 B. C. This is supposed to have been of the Doric order without and the Ionic within. The front was of Parian marble, and the walls were richly sculptured with mythological scenes. Bronze and marble statues adorned the interior, while golden shields and kindred trophies gleamed from the architraves. In 88 B. C. the temple was plundered by the Roman general Sulla; and Nero is said to have carried away about 500 of its statues. Worship was finally abolished by the emperor Theodosius (379-395).

Parthenon.—The famous Doric temple of the goddess Athene Parthenos on the Acropolis at Athens. Its architects were Ictinus and Callicrates, and the entire work was done under the supervision of the celebrated sculptor Phidias, during the reign of Pericles (465-439 B. C.). It is 227 feet in length, 101 in breadth, and 65 in height, and was built wholly of Pentelic marble except the roof, which was of Parian marble. In the eastern end of the temple stood the colossal ivory and gold statue of Athene by Phidias. It was 39 feet high, and the value of the gold alone is estimated at about $465,000. The edifice was surrounded by columns 34 feet 3 inches in height. The sculpture on the pediments represented the birth of Athene, and the dispute between her and Poseidon for the possession of Attica; the metopes depicted the battles of the Centaurs and the Lapithae; while the great frieze showed the procession of the Panathenaea. A number of the slabs of this frieze, with 15 metopes and other sculptures, were removed by Lord Elgin in 1801 and are now in the British Museum. The artistic effect of the sculptures and architecture was heightened by the use of color and metal to throw up the details. The Parthenon was transformed into a Christian church about the beginning of the sixth century, and was dedicated first to St. Sophia and later to the Virgin. After the conquest by the Turks (1458) it became a mosque, and a minaret was constructed in the southwest corner. During the siege of Athens (1687) by the Venetians it was used as a powder magazine, and on September 26, a shell crashed through the roof and destroyed the inner portion of the temple.

Mausoleum at Halicarnassus.—This tomb—one of the seven wonders of the ancient world—was erected in 353 B. C. by Queen Artemisia in honor of her husband, Mausolus. It was the work of the sculptors Scopas, Bryaxis, Leochares, and Timotheus. It was built of white marble with Ionic columns. Its total height was 140 feet. The Knights of St. John pillaged it in 1622 to build the citadel of Budrum, and specimens of these "Budrum Marbles" were sent to the British Museum by Sir Stratford Canning (1846) and by Newton (1857).

Colossus of Rhodes.—The famous statue of Apollo at Rhodes was one of the seven wonders of the old world. It stood at the entrance of the harbor, though not bestriding it, as is often said. It is said to have been made of bronze, cast in sections, and occupied the artist 12 years. It was over 100 feet in height and was erected about 280 B. C., but was overthrown by an earthquake in 224 B. C. It remained lying till 672, when Moawyia, general of the caliph Othman IV., sold it to a Jew, who loaded its material on 900 camels.

ROMAN ART AND ARCHITECTURE.

The practical and warlike Romans adopted the art of the vanquished Etruscans and afterwards that of the conquered Greeks. From the Etruscans they acquired the principles of the arch and the vault. At first the Romans preserved the inviolability of the classic orders, retaining the ancient form of the temple with its purity and simplicity of style. But with the growth of Roman power came the necessity for more varied monuments, and architectural traditions were no longer found adequate to growing secular needs. The temple, which in Greece had been the glory of a nation's art, sank into comparative insignificance, and gave place to civic buildings in national importance and splendor of design. At the beginning of the Christian era the introduction of circular-formed structures with majestic domes enabled the Romans to erect buildings of imposing grandeur throughout their vast empire. The arch, lending itself to any scale and supporting any burden, was made the constructive basis of civic architecture. Disdaining convention, the Romans combined the arch and the order, and subordinated chasteness of design to grandeur of conception and effect. They have been blamed for this innovation, as well as for not designing an architecture of their own to harmonize with the arch. But their genius lay in successfully combining these various styles, evolving harmony out of complexity, and giving a dignity to interiors such as had never been known before. The spaciousness of their edifices was made possible by the use of concrete, which became general in the time of Augustus. The Tabularium on the Capitoline is one of the earliest examples of this combination; the Colosseum, the Basilica, and the theater of Marcellus are on a similar plan, and in all of these the Greek

orders serve as an ornamental addition to the Roman arch and vault. The Romans also employed the segments of circles in place of the Greek moldings, and carried decoration to a point of unrivaled magnificence. Such were their temples at Baalbek and Palmyra, and those of Castor and of Faustina in Rome. The richer Corinthian and Composite orders were used instead of the Doric and Ionic.

The Pantheon is the noblest work in Roman architecture, but where the Romans excelled was in their theaters and amphitheaters, their fora and basilicas, their colossal baths and sumptuous palaces. Their triumphal arches set the model for all later generations. Monuments of the Golden Age bear eloquent testimony to the splendor and might of Rome. The ruined Roman cities of Asia Minor and Africa; impressive remains in France and Rhenish Germany; world-famed ruins in Italy, such as those of Pompeii and Herculaneum, the amphitheaters at Casinum, Capua, Puteoli, and Verona, Hadrian's villa at Tivoli, the arch of Trajan at Benevento, the triumphal arches of Titus, Septimius Severus, and Constantine, the Colosseum, the Roman and Trajan Fora, the imperial baths of Titus, Trajan, Caracalla, and Diocletian, the sculptured columns of Trajan and Marcus Aurelius, the imperial palaces on the Palatine, the Tabularium, the Senate House, and the Admiralty (Neptunium), these are the chief among countless remains of a great historic past.

Tuscan Order.—This order resembles the Doric, but has fewer and bolder moldings, no triglyphs, and no ornamental details. The shaft has a simple base decorated with one torus, and is seven diameters in height. The order was derived from the Etruscans, but owing to its primitive nature it was never much favored by the Romans except for domestic buildings. In a superimposition of orders the Tuscan was used for the basement.

Composite Order.—This is mostly an ornate and elaborated copy of the Corinthian. The column is not so high; and the capital, consisting of volutes and ovolo between them, is a combination of Corinthian and Ionic styles. The entablature has a small architrave, divided into three projecting fillets; the frieze is plain, but the cornice is adorned with a number of carved moldings.

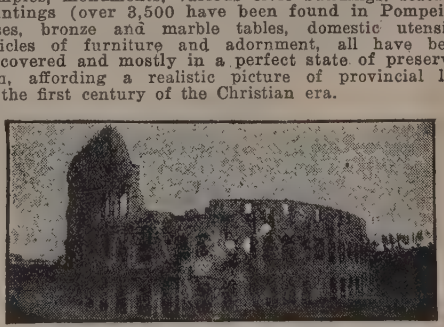
Sculpture.—In sculpture as in architecture the Romans were the inheritors of Etruscan art and Greek tradition. But the Greek incentive—the decoration of temples—was lacking, and sculpture was for a long time represented by portrait statues of Roman citizens. These statues adorned the bridges, basilicas, baths, theaters, and other edifices of Imperial Rome; while the worship of ancestors called for many statues to set up in the houses and to carry around in funeral processions. The only development which the Romans gave to the art was in the sculptured reliefs that adorned their architecture. Rome was filled with the art treasures of conquered Greece. Pasiteles, Stephanus, Menelaus, Arcesilaus, and other Greek artists flocked to the Imperial city, and found ready patronage among a luxurious people. The ideal in art rapidly disappeared from Græco-Roman sculpture, and popular taste demanded the bold, the sensual, and realistic instead. In reliefs this tendency is likewise apparent, as in the arch of Titus and the columns of Trajan and Marcus Aurelius. With the wane of Paganism Græco-Roman art declined; technique suffered too in the general dearth of creative talent. With the barbarian conquest of Italy, classical art came to an end.

Painting.—Roman painting developed on similar lines to sculpture; it was chiefly decorative and characterized by little originality. Greek models were slavishly copied both in method and technique. Mural decorations are the only extant examples of Roman painting; but we know from literature that frescoes adorned the temples, and that pictures of Roman victories were carried in triumphal processions. The general tendency toward realism is shown in the surviving mural paintings; in such, for instance, as the celebrated *Aldobrandini Marriage* and the garden scenes in Livia's *Villa ad Gallinas*.

Pantheon.—The first Pantheon ("temple to all the gods") was erected by Valerius of Ostia for M. Vipsanius Agrippa in 27 B. C. Becoming damaged or destroyed, Hadrian replaced it in 123 by the present circular edifice, which is still well preserved. The walls are of immense thickness. The rotunda is 142½ feet in internal diameter and supports a cupola which rises to a height of 142 feet. The only window is an oculus 27 feet in diameter. Since 608 the Pantheon has been a Christian church, and is known as the Church of Santa Maria Rotonda. The term Pantheon has been applied to a number of domical structures, chief of which is the Church of Sainte Geneviève at Paris, erected from 1764-1781.

Arch of Titus.—A triumphal arch on the Sacred Way in Rome, erected by Domitian (81) in commemoration of the conquest of Jerusalem. Its reliefs, representing the victory of Titus, show the Roman soldiers carrying the spoils of the temple, including the seven-branched candlestick, the table for the shewbread, and the golden trumpets. The arch was taken down and rebuilt in 1822 to insure its safety.

Pompeii and Herculaneum.—The two ruined cities of Italy which were overwhelmed by the eruptions of Vesuvius in 63 and 79. The ruins of Herculaneum were accidentally discovered about 1710, and excavations have been carried on, more or less intermittently, since 1737. As modern villages are built on the site of the ancient city, excavations can be made only by tunneling. The work of excavation at Pompeii was begun by King Charles III. of Naples in 1748, but not until 1860 was the work carried on systematically. The discoveries have thro a flood of light on Roman art and customs. Temples, monuments, various civic buildings, statues, paintings (over 3,500 have been found in Pompeii), vases, bronze and marble tables, domestic utensils, articles of furniture and adornment, all have been discovered and mostly in a perfect state of preservation, affording a realistic picture of provincial life in the first century of the Christian era.



THE COLOSSEUM AT ROME.

Colosseum, The.—The amphitheater was designed by the Romans for exhibiting gladiatorial combats, wild beast fights, and other spectacles. The Colosseum is the largest Roman amphitheater known, and stands on the site of Nero's palace in Rome. It was begun by Vespasian in 72 and finished by

Domitian in 86. A fourth story was added by Severus Alexander (died 235) and Gordianus (died 238). It covers five acres of ground and its seating capacity is variously estimated at from 50,000 to 87,000, besides standing room for about 20,000 more. Externally the Colosseum has four stories, the three lower with arcades,—the lowest, Etruscan; the second, Ionic; the third and fourth, Corinthian—according to the general Roman usage. Its height is 157 feet. The seats were of marble, the exterior walls and the chief corridors of travertine stone, the inner walls of tufa and concrete. There were four tiers of seats, corresponding to the four stories. The arena measured 280 by 176 feet, and underneath were dens for wild beasts with appliances for hoisting them to the arena. Early Christians were frequently thrown to the wild beasts in this same amphitheater; one of the first of such martyrs being St. Ignatius, who was torn to pieces by lions. The Colosseum was chiefly destroyed in the fifteenth century, when it was being used as a quarry for marble and other building material. An end was put to the spoliation by Pope Benedict XIV. (1740-1758), who consecrated it as a monument to the Christian martyrs who had been persecuted within its walls.

Palace of the Caesars.—The term is given to the buildings on the Palatine Hill at Rome, where Augustus first erected his palace on the site of the houses of Cicero and Catiline, succeeding emperors making alterations and additions. The ruins cover an area of 1,500 feet in length and 1,300 feet in breadth. The "Golden House," added by Nero, was of imposing grandeur. It was surrounded by a triple portico a mile in extent, and supported by a thousand columns; and within this was a picturesque lake bordered with stately buildings, each representing a miniature city. A statue of Nero, 120 feet high, stood in the main vestibule.

Trajan's Column.—A famous column at Rome erected in 114 in honor of the emperor Trajan. This noble masterpiece was constructed by the architect, Apollodorus. The pedestal is covered with warlike designs in bas-relief, while a similar decoration representing the victories of Trajan form a spiral around the shaft. These are all well preserved and form a valuable record of ancient costumes. In the interior of the column a spiral staircase leads to the summit, which was originally crowned by a statue of Trajan, but this has been incongruously replaced by one of St. Peter. The height of the column is 132 feet.

Mausoleum of Hadrian.—This great structure, on the right bank of the Tiber, in Rome, was erected in 136 in memory of the emperor Hadrian. Upon a base 247 feet square was built a circular mass of masonry 230 feet in diameter. The tomb was adorned with marble statues and surrounded by a bronze railing ornamented with gilded peacocks, two of which are now in the Vatican. The reconstructed remains of the mausoleum are now known as the Castel Sant' Angelo.

Arch of Septimius Severus.—A triumphal arch in Rome at the northwest end of the Forum, erected in 203 to commemorate the conquest of the East by Septimius Severus and his sons, Caracalla and Geta. It has three direct arches and one transverse arch.

The Arch of Constantine.—A triumphal arch near the Colosseum in Rome, erected in 312 by Constantine the Great to commemorate the victory over Maxentius. There are three arches and an attic, all supported on each face by four Corinthian columns, and partly adorned by sculptures taken from earlier monuments. It was restored in 1731.

Maison Carrée.—A Roman Corinthian temple at Nîmes in southern France, and the most important Roman temple now remaining. It probably dates from the time of the Antonines. The building measures 45 by 85 feet, and stands on a platform approached by 15 steps, and is surrounded by 30 columns. It is now used as a museum.

Column of Marcus Aurelius.—A Roman-Doric marble column on a square pedestal. It is now surmounted by a statue of St. Paul which Pope Sixtus V. placed there. The original column, 123 feet high, was erected to commemorate the victories of Marcus Aurelius over the Marcomanni.

EARLY CHRISTIAN AND BYZANTINE ART AND ARCHITECTURE.

The earliest churches of which we have any record were built in the time of Constantine, who, in 313, was the first to sanction Christian buildings, and so give an impulse to Christian architecture. Unlike the pagan worship, which was chiefly in the open air, the new religion necessitated large interiors to accommodate large assemblies; hence was evolved the style known as basilican, adapted from the architecture of the Romans. This was the distinctive style of the earlier Western or Latin church, and passed from Italy northward with the spread of Christianity. After the eighth century it was gradually superseded by the Romanesque, and then by the Gothic. The basilican church consisted of three, and occasionally five, aisles, divided by columns. The middle aisle, or nave, and the side aisles were for the clergy. In large churches there was generally a transept between the nave and the apse. The upper part of the nave, called the clerestory, rose high above the side aisles. The roofs were usually flat. The interior was lighted by arched windows in the clerestory and in the walls of the aisles. Three enormous churches of this type were erected in Rome by Constantine or shortly after his death, namely, those of St. John Lateran, St. Peter, and St. Paul Without the Walls. The last named is a surviving monument, while in the desert cities of Syria and North Africa are preserved some interesting remains of this style of architecture.

In the East, Christian architecture developed into the Byzantine style, which differed from all earlier forms in its exclusive adoption of vaulted roofs, its rejection of timber, and its substitution of brick for the concrete of the Romans. The erection of the dome on pendentives was a revolution in architectural design, the rest of the structure being subordinated to this one dominant feature. The Oriental love of color was a characteristic of this style, and the interiors were resplendent with rich mosaics and ornate decorations. The most magnificent example of Byzantine architecture is the church of San Marco at Venice, which combines an Eastern grandeur with an idealism suggestive of Greek art at its noblest. The first church in which this order was perfected was St. Sophia's at Byzantium, the old name of Constantinople. It still is the distinctive style of the Eastern church, and is prevalent in Russia, the Balkan States, and Asia Minor; from there it spread to Italy dominating Venice, Ravenna, and the South. Though a number of ecclesiastical monuments still remain, few secular examples are in existence; of these the oldest Venetian palaces are thoroughly representative of Byzantine art. The iconoclasm that characterized the sixth, seventh, and eighth centuries of the Christian era had a calamitous effect on Byzantine art, especially sculpture and painting; hence few remains have come down to us.

The most notable examples of Byzantine figured sculpture are the colossal bronze statue (now in Naples) of the Eastern emperor, from Barletta, the Madonna in the cathedral at Ravenna, the reliefs of Christ at the Eski-Diuma mosque in Constantinople, and certain reliefs at the Mount Athos monasteries.

Byzantine fresco paintings were famous and exercised an influence over Christian art till the time of the Renaissance. The finest examples of these paintings in the East were swept away as a result of Christian iconoclasm or Mohammedan vandalism. The West, however, furnished numerous specimens, especially of the iconographic era. When fresco painting was revived in the thirteenth century it was the Byzantines who taught the artists of Italy. But the fourteenth century saw the emancipation of Western art as well as the decline of Eastern painting.

Mosaic, particularly glass mosaic, was a Byzantine art, and was much used for the ornamentation of churches. Other arts successfully cultivated were enameling, ivory carving, and miniature painting.

Alhambra.—The great fortress and palace of the Moorish kings of Granada. It is built upon a hill overlooking Granada, Spain. Within massive walls, surmounted by square towers, are the citadel and palace surrounded by beautiful gardens. It is the finest existing example of Moorish art; built of marble and alabaster, and ornamented with fretwork and delicate arabesques. The ceilings are of cedar, inlaid with mother-of-pearl, silver, and ivory. The Hall of the Lions is so named from the 12 marble lions which support the fountain. The Hall of the Abencerrages is also noted.

Catacombs.—The group of subterranean vaults and labyrinths on the Via Appia near Rome are practically the only Christian remains of the first three centuries. It is believed these underground chambers were the meeting places of the early Christians in times of persecution, as well as their burial place. The Roman catacombs consist of long, narrow galleries and chambers cut out of the soft tufa. Some are near the surface, but beneath these are other stories to a depth of seventy feet. Though the superficial area of these catacombs is little over 600 acres, it is estimated that if the galleries could be arranged in a continuous line they would stretch a distance of 545 miles. Niches or ledges were cut out of the rocky sides to form a resting place for a corpse, each niche being closed with a marble or terra-cotta slab on which was inscribed the name of the deceased. The catacombs at Naples are similar to those at Rome, and are covered with Christian symbols as well as relics of pagan art. Many of the frescoes at Naples are distinctly classical in design, while, in the catacomb of St. Praetextatus, Hermes is represented as the conductor of the dead. The frescoes are for the most part devoted to Scriptural subjects. Similar catacombs have been discovered at Palermo, Syracuse, and Chiusi, as well as in Greece, Asia Minor, Syria, Egypt, Peru, and elsewhere.

Church of St. Sophia.—The original church of St. Sophia was built at Constantinople in the days of Constantine, and dedicated to *Sancta Sophia* or "Divine Wisdom." It was twice destroyed and the present edifice, which marks the zenith of Byzantine architecture, was begun by the emperor Justinian in 532, and dedicated 537. The interior of the church forms a Greek cross, and in the center rises a spacious dome to a height of 175 feet. The dome on pendentives, that is, supported on four arches bounding a squared space, was the masterly conception of the architect Anthemius, who wished to combine in one edifice the Roman basilica with its nave and side aisles, and the rotunda as illustrated in the church of St. Sergius in Constantinople. The world was ransacked for materials, and pagan temples were robbed of their marble and porphyry that the new church might lack nothing in intrinsic costliness. Rich mosaics and columns gave an appearance of unprecedented magnificence. The building is approached by a double porch, about 100 feet in depth. On the capture of the city by the Turks in 1453, the church was transformed into a mosque. It was renovated in 1847-1849.

Cordova Cathedral.—One of the finest existing specimens of Moorish architecture; begun in 785 by Abd-er-Rahman I. After the capture of Cordova (1236) it became a Christian church. The roof is supported by 1,000 columns of porphyry, jasper, and vari-colored marbles. The interior is enriched with arabesques and bas-reliefs, and was once lighted by 800 silver lamps.

St. Mark's at Venice.—The church of San Marco, modeled on its prototype, St. Sophia, is the most magnificent example of polychromatic architecture in the world. It was built in 830 to receive the relics of the apostle Mark, the patron saint of Venice, and rebuilt in 976 after a conflagration. From the eleventh to the fifteenth centuries a number of alterations were made till it assumed its present form. The church is cruciform with five massive domes on pendentives and several smaller domes in subordinate positions. The four famous bronze horses set above the central porch originally came from Constantinople. The interior of the church, with its soft dim light, its richness and harmony of detail, its idealistic designs and the consummate blending of various styles, is one of the most impressive in Europe. The description of St. Mark's in *The Stones of Venice* by Ruskin will be remembered by all lovers of art.

SAINT MARK'S AT VENICE.

ROMANESQUE ART AND ARCHITECTURE.

A term generally applied to art and architecture in Europe from about 800 to 1200, before the division into nations was completed. Several schools are distinguished, such as the Lombard in northern Italy, the Rhenish in Germany, the Saxon and Norman in England, and the Provençal and Norman in France. In architecture these schools may all be divided into two groups: the unvaulted and the vaulted. The vaulted style came into use about 1000 and prepared the way for the Gothic. The more noticeable features of the Romanesque are the use of heavy walls to support the vaults, which took the place of the wooden ceiling and roof; decoration of doors and windows with moldings, carving, and sculptures; a higher and narrower nave; and the use of heavy piers in place of columns. The ground plan was in the form of a Latin cross. The substitution of vaulted roofs gave architects a problem which was not solved until the introduction of the Gothic. The bell tower was one of the most marked innovations of the Romanesque. The chief examples of Romanesque architecture are to be seen in the cathedrals of Treves and Worms in Germany; in parts of Winchester cathedral, and in the vaulted roof of Durham cathedral in England; in the cathedrals of Angoulême, Angers, and Poitiers, and of St. Front at Périgueux in France; but the most noted example of all is the cathedral of Pisa (built between 1063 and 1118), with its baptistery and leaning tower.

Romanesque sculpture mostly followed the models of the early Christian and Byzantine period, and was extensively introduced into the scheme of architectural decoration. At St. Mark's in Venice the sculptures of the main doorway and the angels under the dome are Romanesque in style. Mural painting received its chief encouragement from the churches, more especially in Germany; while contemporary pictorial art in Italy found its expression chiefly in mosaics.

Baptistery, Cathedral, and Leaning Tower of Pisa.

Leaning Tower of Pisa.—A campanile, or bell-tower, begun in 1174. It is a round tower, 180 feet high, and 50 feet in diameter. It leans 13 feet from the perpendicular, owing to the sinking of the foundation on one side. It consists of eight stories and is ascended by 330 steps. There are seven bells in the tower.

GOTHIC ART AND ARCHITECTURE.

It is said that the term Gothic was first applied to this style of architecture by Raphael in a report to Leo X. concerning some projected building in Rome. It was meant to convey the idea of barbarous as opposed to Roman. The name is misleading, for the style did not originate in Germany, as the name Gothic implies, but in France. Some have tried to substitute "Pointed Architecture," but that is insufficient, for the use of the pointed window is only an incident and not a fundamental characteristic. Others have used the term "French Art," but to convey the exact idea one must add "of the last third of the Middle Ages," which makes an unwieldy name. It seems therefore that the error must be perpetuated. The strongest impressions which a Gothic building conveys are those of height and lightness. Such a building seems to be made up of windows, rose-windows, pinnacles, and lace-like traceries of stone. Vertical lines and pointed arches abound. The flying buttress is peculiar to Gothic architecture. The added height of the walls, and the additional weakening of them by the use of many and large windows, required that they be reinforced from the outside by means of stone arches supported by buttresses designed to carry the lateral thrust of the lofty interior vaults.

In England Gothic architecture developed on distinct lines, while retaining some of the features of the traditional Norman style. The early English or Lancet style, so named from the shape of the windows, was marked by simplicity and sparing use of buttresses. The choir of Canterbury cathedral, and the cathedrals of Salisbury, Lincoln, Lichfield, and Wells are notable examples of this style. This period was followed by the Decorative (1280-1400), which is distinguished by profuse ornamentation and lighter construction, as illustrated by the cathedrals of Winchester, Exeter, York, and Carlisle. The Perpendicular style extended to the middle of the sixteenth century, when it became known as the Tudor. Its main features were the vertical character of the buildings, and an elaborate system of vaulting, particularly fan-shaped vaulting. Many of the college buildings at Oxford and Cambridge are representative of this style; so also are St. George's chapel, Windsor, and the chapel of Henry VII. in Westminster Abbey. Towers and spires were always characteristic of English architecture, and attained their greatest perfection in the fifteenth century.

Sculpture was more and more introduced into the decorations of Gothic structures, the use of statuary reaching its climax in the thirteenth century. In France exteriors were lavishly ornamented, and to still further accommodate such ornamentation portals were developed into porches. The English Gothic did not lend itself so well to this exterior decoration. Mural painting was in less demand on account of the smaller wall spaces of Gothic buildings, and glass painting began to be developed instead. In France and Italy during the pre-Renaissance period considerable attention was given to miniature painting.

Amiens Cathedral.—The largest ecclesiastical edifice in France, and one of the finest specimens of Gothic architecture in Europe. It was begun in 1220 and finished in 1288. While many additions have since been made, the two side towers of the western façade are still unfinished. It is 470 feet long, the transept is 213 feet long, and the nave is 144 feet wide. The very slender central spire over the transept is 360 feet high.

Cathedral and Campanile, Florence, Italy.

Beauvais, Cathedral of.—It is a fragment, consisting of only the choir and the transepts. It was begun in 1225 with the aspiration of

making it the finest of churches, but too strict economy in the building of the foundations made them too weak to support the projected superstructure. The vaulting and tracery of the choir are of the finest of the thirteenth century, and the glass, of the same time, is exquisite. The choir is 104 feet long and 157 feet high from pavement to vaulting.

Campanile.—A famous bell-tower in Florence, erected by Giotto, who began it in 1334. It is a square tower 292 feet high, divided into five stories. The Campanile of St. Mark's at Venice was begun in the ninth century and finished in the sixteenth. It fell suddenly in 1902, but is now being restored.

Canterbury Cathedral.—Founded in the eleventh century. The choir was built in 1174, and is the first example of the Gothic style in England. This is raised several feet above the nave and separated from it by a fifteenth century screen. The building is long and narrow; the interior is light and impressive; it is 514 feet long and 71 feet wide. The vaulting of the nave is 80 feet high, and the great central tower, dating from the fifteenth century, is 235 feet high. Some of the glass in the choir dates from the thirteenth century.

Chartres, Cathedral of.—One of the great churches of the world, built in the twelfth and thirteenth centuries. Noted for its great beauty and solidity. The great triple sculptured portals are matchless. The thirteenth century glass in over 160 of the windows cannot be surpassed.

Cologne Cathedral.—One of the great buildings of the world; begun in 1248, completed in 1880, after being neglected from the fifteenth century until 1823. It was suggested by the cathedral at Amiens. The building has double aisles, with two

COLOGNE CATHEDRAL.

enormous towers and spires at the west end. The vast cathedral loses a great deal of its immensity by the dominating size of the towers. It is 468 feet long and covers 91,464 square feet. The spires are 512 feet high and are surpassed only by those of Ulm.

Dryburgh Abbey.—A famous Scottish ruin, about four miles from Melrose. It dates from the twelfth and fourteenth centuries. The chapter house, the refectory, cloisters, domestic buildings, and parts of the church are standing. Sir Walter Scott and his son-in-law, John Gibson Lockhart, are buried in the church.

Jedburgh Abbey.—Situated 41 miles from Edinburgh, Scotland; founded in 1118 by David I. The nave and central part of the church are nearly perfect except for the loss of some of the vaulting and parts of the side walls. The choir is Norman; the nave, Early English; and the doorway, Romanesque.

LICHFIELD CATHEDRAL, ENGLAND.

Lichfield Cathedral.—A large and impressive church dating from the thirteenth century, and one of the most beautiful ecclesiastical buildings in England. Its proportions are exquisite and its ornamentation is of great beauty. It has three lofty spires, the central one 260 feet in height.

Lincoln Cathedral.—This grand building was founded in the eleventh century and rebuilt in the end of the twelfth and the beginning of the thirteenth centuries. It is an example of the thoroughly English Gothic style, showing no trace of the French influence so noticeable in Westminster Abbey. It has three square towers, that in the center being 262

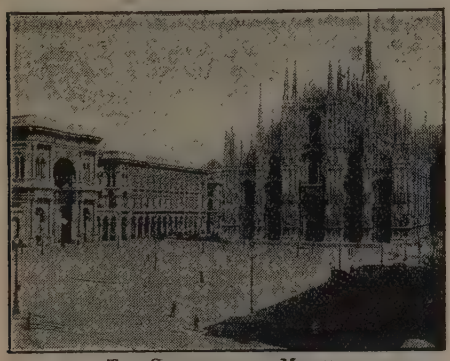
LINCOLN CATHEDRAL, ENGLAND.

feet high, and each of the two on the west front, 200 feet high. The choir, with its decorated screen, is Early English, except the five bays, known as the Angel Choir from its decorations. The building is 430 feet by 80 feet, and the height of the vaulting is 82 feet.

Melrose Abbey.—This famous ruin on the Tweed, 29 miles from Edinburgh, dates from the fifteenth century. It is regarded as the finest

ruin of Scotland. The choir is noted for its rich capitals. The large traceried windows are notable. A few of the bays retain their vaulting.

Milan, Cathedral of.—This famous building is of Gothic architecture, but the façade is marred by classic doors and windows, and the



THE CATHEDRAL OF MILAN.

altars within are in the same style. The edifice is nearly 500 feet long, and 250 feet wide through the transepts, and the height of the nave is about 150 feet. The central spire is more than 350 feet high. The throng of statues (some 4,500 in all) and the many pinnacles are marked features of the exterior.

Notre Dame Cathedral.—The famous cathedral church of Paris, situated on the site of a Roman temple on the Ile de la Cité. Though begun in 1163 it dates from the early thirteenth century. It is one of two or three of the finest examples of early Gothic architecture. It measures 156 by

NOTRE DAME AT PARIS, WEST FRONT.

420 feet and 110 feet high. The two western towers are 224 feet high. The spire, erected in 1845 by Viollet-le-Duc, is 385 feet high. This cathedral became the "Temple of Reason" during the Revolution, and not till Hugo's *Notre Dame de Paris* had drawn attention to the venerable edifice was it restored (1844-1845).

Rheims, Cathedral of.—Begun in 1212, is noted for its vast interior (466 feet long and 124 feet high) of perfect symmetry and imposing majesty. Its gorgeous rose-window is filled with exquisite amber-colored glass of the thirteenth century. Six hundred statues adorn the triple portal of the western front. Rheims was the coronation place of the kings of France from earliest times down to 1830. The façade of the church is the finest produced in the Middle Ages. There were originally seven lofty spires, but these were destroyed in the fire of 1480.

Rouen, Cathedral of.—One of the most impressive in existence. It is 447 feet long, the nave is 92 feet high, and a tower, built to replace an old one struck by lightning, is of iron, 500 feet high. The front varies in date from Romanesque to the Flamboyant. The fine rose-windows and the sculpture about their rich gabled portals are remarkable. The whole building is noted for its lightness.

Salisbury Cathedral.—Probably the most beautiful of English ecclesiastical structures, begun in 1220 and finished in 1260. The superb central tower with its spire is 406 feet high. The building is 473 by 99 feet, and the height of the vaulting is 81 feet. It is a consistent example of early Gothic.

Strassburg Cathedral.—An interesting monument begun in the eleventh century, and finished in the fifteenth. It is famous for the spire,—468 feet high,—the west front, very delicately and richly decorated with traceried windows and arcading, fine sculptured portals, and magnificent rose-window. The openwork tower is also remarkable. The nave is thirteenth century and 100 feet high. The east end is massive Romanesque. The glass is extremely gorgeous in color. The huge astronomical clock, conceived in the early part of the sixteenth century and rebuilt in 1842, is one of the great curiosities. A perpetual calendar, forming a ring around a dial 30 feet in circumference, occupies the central part of the lower division of the clock. At midnight, December 31st, the clock regulates itself (for the new year) for 365 or 366 days, as the case may be—even the omission of the bissextile day every 400 years being provided for. The disc within the calendar shows the eclipses of the sun and moon, calculated for all time to come. On one side Apollo points with an arrow to the date and name of the saint for the day. On the opposite side stands Diana, the goddess of night. Above the calendar is a niche in which, on each day, the mythological deity of the day appears—Apollo on Sunday, Diana on Monday, Mars on Tuesday, Mercury on Wednesday, Jupiter on Thursday, Venus on Friday, and Saturn on Saturday. Above this is a dial marking the mean time in hours and quarters, with two genii, one on each side, the one striking the first stroke of every quarter, the other turning over the hourglass at the last stroke of the last quarter. Then follows an orrery, showing the revolution of the seven visible planets around the sun, and, above, a globe giving the phases of the moon. Still above this, in a niche, four figures revolve around the skeleton image of Death, in the center. Childhood strikes the first quarter, Youth the second, Manhood the third, and Old Age the last—Death strikes the hour. In a higher niche stands the image of our Saviour. At 12 o'clock the Twelve Apostles pass before Him in line, and He raises His hands to bless them. St. Peter closes the procession, and, as he passes, the mechanical cock on top of the case flaps his wings and crows three times. The left turret of this wonderful clock contains the weights and machinery, and has in its lower part the portrait of Schwilgue, above this the figure of Copernicus, and yet above, the muse Urania. At the foot of the case is a celestial globe, calculated for observation at the latitude of Strassburg. The clock is wound every eight days.

Ulm, Cathedral of.—A fine example of late Gothic in Germany; is the largest church edifice in Germany excepting the cathedral at Cologne. It was begun in 1377 and finished in the sixteenth century. The splendid triple portal at the west end, the tower terminating in an octagonal form, and the spire, which is 529 feet high and the tallest church spire in the world, are the chief points of interest. The building is 420 by 165 feet and the height of the nave to the vaulting is 141 feet.

Westminster Abbey.—Founded on the site of an earlier church by Edward the Confessor, and rebuilt in the thirteenth century by Henry III. and Edward I. Early in the sixteenth century the chapel of Henry VII. was added. Including the chapel the building is 513 feet long and 75 feet wide; the transepts are 200 feet long; the height to the vaulting is 102 feet. The three portals, graceful arcade, and

large wheel on the north transept façade are very fine. The square west towers are rather incongruous and were designed by Sir Christopher Wren. The Abbey is world-famous as the burial place of Great Britain's distinguished dead. The famous Poets' Corner is in the south transept. Here are found memorials to most of the great names honored in English literature, including a bust of Longfellow. The famous metal tomb of Henry VII. by Torrigiano is the most notable of the many which the building contains.

RENAISSANCE ART AND ARCHITECTURE.

The division known as the Renaissance in architecture is subdivided into three periods: the Early or Free Renaissance (1420-1500), the High or Classical Renaissance (1500-1575), and the Declining Renaissance or Baroque (1575-1780). The style was a result of the study of classical models of antiquity and the effort to adapt the old styles to meet the new conditions. It was personal rather than national, decorative rather than constructive, and depended more than any other style of architecture upon the individuality of the architect. It began in Florence, and its founder may be said to be Brunellesco, or Brunelleschi, and among its great names are those of Bramante and Michelangelo. The churches of San Spirito and San Lorenzo at Florence were the first of Brunelleschi's works, and the revival of the Roman art is to be seen in the moldings and other details of classic architecture.

The Renaissance made its appearance in England in the time of Elizabeth, and left its impress on English architecture, chiefly in the form of classic detail. Some fine country seats were built in what became known as the Elizabethan style; of these the houses of Longleat in Wiltshire and Bramshill in Surrey are typical examples.

Renaissance sculpture found its purest expression in the works of Donatello and of that titanic figure which was at once the embodiment of mediæval Christianity and the herald of modern sculpture—Michelangelo.

Pictorial art was preëminently stimulated by the great intellectual revival, and, unlike the sister arts which drew their models from the past, Renaissance painting was characterized by great originality. Conventionalism gave way to a closer following of nature and a higher poetic truth. Florence was the chief center of the arts, and gave birth to numerous schools of painting in Italy. Oil painting began to rapidly take the place of tempera, and the art was no longer considered the exclusive handmaid of religion. This was the age that gave birth to the great masters, Raphael, Leonardo da Vinci, Titian, Giorgione, Tintoretto, Veronese, Bellini, and Correggio in Italy; the Van Eycks, Teniers, Vandyck, and Rubens in Flanders; Hals and Rembrandt in Holland; Holbein and Dürer in Germany; Velâsquez and Murillo in Spain; and Claude Lorrain, Boucher, Watteau, Lancret, and Chardin in France. With the greater wall spaces afforded by Renaissance architecture, mural paintings received new impetus, and truthfully reflect the ideals of the period.

Campo Santo.—The cemetery of Pisa, Italy; a beautiful oblong court, 490 by 170 feet, surrounded by a cloister of white marble 60 feet high and beautifully adorned with reliefs and sculptures. The earth within it is said to have been brought from Palestine by Crusaders. The art treasures of the cloister are famous.

Certosa of Pavia.—A former Carthusian monastery, one of the largest and most splendid in existence. The church was founded in 1396 and contains the tomb of Visconti.

Chihuahua, the Parish Church of.—This the most important building in the city, was erected between the years 1717 and 1789 by revenues derived from a tax on the silver output of the mine of Santa Eulalia, amounting, it is believed, to $800,000. The most noticeable characteristics of the building are the sense of lightness and grace not usually found in Spanish architectural designs. This effect is secured largely by the unusual height in proportion to the width, not only of the main building but of the towers. The façade is richly adorned by statues of San Francisco and the twelve Apostles.

Doge's Palace.—Though begun in 1354 only the south and west façades are of the Venetian Pointed or Gothic style. The grand entrance, the Porta della Carta, the court, and the Giants' Staircase are splendid examples of the Renaissance. The walls of the interior are covered with masterpieces of the great masters.

Escorial.—A celebrated monastery and palace, about 27 miles from Madrid. It was built in fulfillment of a vow made by Philip II. of

THE ESCORIAL NEAR MADRID, SPAIN.

Spain to Saint Laurence, upon whose day (August 10, 1557) the victory of St. Quentin was won. It was erected in the fanciful form of a huge gridiron to commemorate the martyrdom of Saint Laurence. The great interior courts form the intervals between the bars, and a group of buildings on the east forms the handle. The mass of buildings is 786 by 623 feet, and tall towers on the angles represent the legs of the gridiron.

Farnese Palace at Rome.—One of the finest pieces of architecture in the city. Built of stones from the Colosseum and the Theater of Marcellus; finished by Michelangelo and adorned with frescoes by Carracci and his pupils. On the extinction of the Farnese family in 1731 the palace went to the Infante of Spain and, later, to the King of Naples. The latter removed some of its famous art treasures to the museum at Naples.

Heidelberg, Castle of.—The most noteworthy example of German Renaissance; was founded in the thirteenth century by the elector palatine, Rudolph I., and enlarged by his successors. It has suffered much from war and lightning, and its ruins are the most imposing in Germany. Its walls and towers are broken and clad with ivy, but the glories of the inner court remain.

Hotel des Invalides.—An establishment in Paris founded by Louis XIV. in 1670 for the accommodation of the wounded soldiers of the French army. Its dome was built by Mansart and is regarded as one of the most imposing structures in Paris. In its crypt is the tomb of Napoleon, a large monolithic sarcophagus of red granite. The crypt is 20 feet deep and 36 feet in diameter.

Louvre.—The chief royal palace of the kings of France in Paris down to the time of Louis XIV., when Versailles was built. The Louvre was begun in 1541 by Francis I., and large additions

and alterations have been made at various times. The imposing east front with its colonnade, 570 feet long, with 28 pairs of Corinthian columns, is celebrated. The oldest parts of the existing palace are the western side

General View of the Louvre at Paris.

south of the Tour d'Orloge, the Pavilion du Roi (now remodeled), and the western half of the south side (now remodeled). These were built by Pierre Lescot (1510-1578), a famous architect of the Renaissance in France and architect to the Louvre from 1546 till his death. The west side of the court ranks as the finest existing example of early French Renaissance. A large part of the interior has been used since 1793 as a museum of art, which is world-famous.

Cathedral of the City of Mexico.—Built of a gray stone, ornamented by basso-rilievos, statues, friezes, bases, and capitals of white marble. There are two towers, each 203 feet 6 inches high, Doric in the lower divisions and Ionic in the upper; and the crown of each is a bell-shaped dome capped by spheres and crosses of stone. The walls are very thick; but the inside measurements of the edifice are 387 feet from north to south, 177 feet from east to west, and 179 feet interior height. The cornices on the façade are adorned by vases, statues of the doctors of the Church, of the patriarchs of the monastic orders, and of the theological virtues and their attributes. The corner stone was laid in 1573 near the site of an ancient Aztec temple; the foundations and part of the walls were completed in 1615, and the roof of the sacristy erected in 1623; the first service was held in 1626, the first dedication occurred on February 2, 1656, and the final dedication on December 22, 1667. The towers were completed in 1791. The total cost was over $2,000,000, of which $190,000 was for bells. The great bell cost $10,000 and is 19 feet high.

Palazzo Pitti.—A palace in Florence designed by Brunelleschi, begun in 1435. It is both a royal palace and the repository of a world-famous collection of paintings. It is built of quarry-faced ashlars and has a series of columns composed of blocks of stone alternately large and small.

Ponte di Rialto, Venice.

St. Paul's, in London.—Though architecturally inferior to many church buildings, it is yet of great historical interest. It is built in the form of a cross, 514 feet long and 287 feet wide. The cost of the whole building, which is of Portland stone, was nearly $4,000,000, being the proceeds of a tax on the coal brought into the port of London during its erection. The edifice was built under the direction of Sir Christopher Wren, was 35 years in course of erection, and was commenced and finished under the same bishop, the same architect, and the same mason. The great bell of this cathedral is tolled only on the occasion of a death in the royal family.

St. Peter's, at Rome.—Commenced about the year 1503 by Julius II. under the direction of Bramante, but the present form of the basilica is due almost entirely to Michelangelo. The interior is 613 feet in length, the height of the nave 152½ feet; the length of the transepts is 446½ feet; the interior diameter of the dome is 139 feet, the exterior 195½ feet. The colonnades around the piazza inclose a space 787 feet in diameter, and are connected with the façade by two galleries 296 feet in length. The façade is 379 feet long and 148½ feet high, and contains five doors, that admit to the grand entrance, which occupies the whole width of the church, 468 feet long, 66 feet high, and 50 feet wide. The height from the pavement to the top of the cross is 476 feet.

San Lorenzo at Florence, Church of.—Begun in 1425 by Brunelleschi and decorated in part by Michelangelo. It is one of the earliest Renaissance churches.

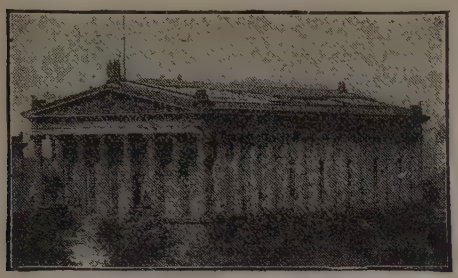
Church of Santa Maria della Salute at Venice.

Santa Maria del Fiore, Cathedral of.—Begun in 1298. When in 1420 the building was ready for the dome, it was believed that the aperture of 138½ feet was too great to be covered by a dome; but Brunelleschi undertook the task, and in 1446 completed the work, which was the first great triumph of the Renaissance. The dome is octagonal, slightly pointed, and surmounted by a lantern which is 387 feet from the ground. The building is 500 feet long and 128 feet across the nave and aisles. At the side of the cathedral is Giotto's famous campanile. The dome is second in magnitude only to that of St. Peter's.

Whitehall Palace.—Originally built by Hubert de Burgh in the reign of Henry III. James I. undertook to rebuild it after its destruction by fire in 1615. Inigo Jones designed the banqueting hall, which is the only part of the old palace remaining. This is 111 feet long, 55½ feet wide by 55½ feet high. Its ceiling is covered with paintings by Rubens representing the apotheosis of James I., events in the life of Charles I., and numerous allegories. Whitehall was the scene of Wolsey's disgrace, and the deaths of Henry VIII., Cromwell, and Charles II., while on a scaffold erected in the shadow of its walls Charles I. met his doom. The banqueting hall was transformed into a chapel by George I. and is known now as the "Chapel Royal of Whitehall."

MODERN ART AND ARCHITECTURE.

The first period of Modern Architecture was a protest against the excesses and extravagances of the Baroque period of the Renaissance. It was marked by a more rigid return than ever to the classic forms and a stricter adherence to



National Gallery at Berlin.

the principles of Roman architecture. The contrast was so great that many have termed the results lifeless and cold. As most of the monuments of this style and period date from the time of Napoleon it is often styled the Empire. This is seen in such models as the Arc de Triomphe and the church of the Madeleine. Even in the time of Louis XV. the work was begun on these lines, as may be seen in the Pantheon by Soufflot. The products of this period in Great Britain are the works of Inigo Jones and Sir Christopher Wren (St. Paul's Cathedral, London), many mansions by the brothers Adam, whose severe classical style preceded the change from that of Louis XVI. to the Empire later on, the British Museum, the Edinburgh High School, and St. George's Hall in Liverpool. In Germany the best examples of this style are seen in the Old Museum in Berlin, the Walhalla near Ratisbon, the Glyptothek at Munich, and, in Austria, in the Parliament House at Vienna. It was found, however, that this too strict adherence to classic models was not well suited to the demands of modern life. Then followed the reaction in the Gothic revival. Pugin and others in England initiated the movement, and between 1850 and 1870 the style was known as the Victorian Gothic. Its most important monuments are the Houses of Parliament and the Natural History Museum in London. In our own times the tendency in England has been to revert to Renaissance forms, as in the Imperial Institute and the Albert Hall, London, and the imposing Catholic Cathedral at Westminster.

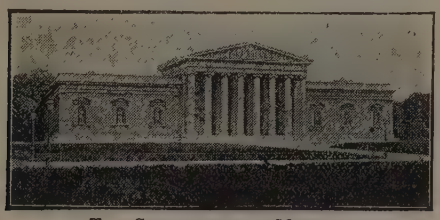
Sculpture.—The seventeenth century was a period of decadence, and Bernini was the only sculptor of eminence it produced. In the north a rigid Puritanism saw in statuary something to condemn, and the Church was no longer the universal mother of the arts. The pseudo-classical revival in the eighteenth and early part of the nineteenth centuries produced Flaxman and Chantrey in England, and Rauch, Rietschel, Tieck, and Schwanthaler in Germany. In France the conventions of the age of Louis Quatorze were broken away from by Puget and Houdon, and a freer and a nobler style was introduced. Sculpture was but little affected by the far-spreading wave of Romanticism, but sought its inspiration from ancient models, until the genius of such men as Rude, Carpeaux, and Barye (the great sculptor of animals) supplied newer models for their contemporaries. Barye has been called "the Michelangelo of wild beasts." Upon the old models of the Greeks, French sculptors, for the most part, have grafted a newer realism; while such masters as Rodin and Meunier, the Belgian, have added an intense naturalism, and their works have brought about a new awakening of sculpture in France. One of the finest sculptors of modern times was the Englishman, Alfred Stevens (1818-1875), whose Wellington memorial in St. Paul's is a fine conception. Other eminent sculptors produced by England in recent years are Ford, Thornycroft, Foley, Drury, Brock, Frampton, Colton, Leighton, and Gilbert. At the present day there is a tendency to revive the colored statuary of classic and mediæval days, though polychromy has never really been abandoned in devotional imagery. The leader of this movement was the French artist Gérôme. Barras in France and Klinger in Germany are his most successful imitators.

Painting.—After the French Revolution there was a return to classical models; but no sooner had Romanticism swept through Europe than tradition was cast to the winds, and painting entered upon a new stage of development—naturalistic, emotional, and revolutionary. French art gained the supremacy and its influence spread throughout Europe and America. Each broad phase of the Romantic movement in France found its own group of interpreters. For example, there were the Barbizon painters—Corot, Millet, Rousseau, Diaz, Daubigny, and Troyon,—who gave expression to the emotional side; the Realists, led by Courbet; the Semi-Classicists, among whom were Bouguereau, Cabanel, and Lefebre, who tried to combine the meritorious features of the past and the present; and, finally, the school of Impressionists aiming at a better representation of life and motion. Among other eminent painters produced by modern France were Manet, Degas, Monet, Bonnat, Carolus Duran, Meissonier, Laurens, the idealist Moreau, and Brascassat and Rosa Bonheur, the gifted animal painters.

Modern English painting may be said to have begun with Hogarth (1697-1764), the close of the eighteenth century producing the celebrated group consisting of Reynolds, Gainsborough, Romney, Wilson, and Morland. Genre painting was successfully developed by such men as Wilkie; but the school of English landscape achieved the greatest originality, and was rendered famous by the works of Constable and Turner. The latter was largely instrumental in bringing the art of water-color painting to perfection. Other noted water-colorists were Cox, Prout, Müller, De Wint, and Varley. The pre-Raphaelite movement led by Rossetti, Hunt, and Millais was largely brought about by the teachings of Ruskin. British art came under the influence of France and Holland, and various schools of painting began to flourish. Among distinguished modern painters are the portraitists, Ramsay, Holl, Herkomer, Reid, Shannon, and Peacock; the landscapists, Forbes, Parsons, Fildes, and Lawson; the subject painters, Chalmers, Phillips, Pettie, Stone, and Orchardson;

the decorative painters, Watts, Leighton, and Burne-Jones.

In other European countries French influence has been dominant, though here and there a painter of originality has arisen who has developed some national trait. Such were Fortuny of Spain, Segantini of Italy, Menzel and Liebermann of Germany, Verestchagin and Repin of Russia, Boulanger and De Groux of Belgium, Matejko and Siemiradzki of Poland, Johansen of Denmark, and Israëls of Holland.



THE GLYPTOTHEK AT MUNICH.

Albert Memorial.—A monument on the south side of Kensington Gardens in London, erected (1862-1863) to the memory of Albert, Prince Consort of Queen Victoria. A colossal bronze-gilt statue of Prince Albert, seated, is supported under a Gothic canopy upon a basement raised on a spacious platform ascended by granite steps. There are 169 marble reliefs adorning the basement; projecting pedestals support the angles and are adorned by marble groups representing Agriculture, Manufacturing, Commerce, and Engineering; and at the lower angles are groups representing Europe, Asia, Africa, and America. Sir George Gilbert Scott was the designer.

Alexander Column.—A column to honor Emperor Alexander I. erected in 1832 in St. Petersburg. It is of polished red granite, 84 feet high and 14 feet in diameter at the base. The shaft supports a Roman-Doric capital of bronze, which bears the figure of an angel with the cross. It is the largest monolith of modern times. The total height is 155 feet.

Arc de Triomphe de l'Etoile.—The largest existing triumphal arch, at the head of the Champs Elysées in Paris, erected by Napoleon in commemoration of his victories, but not completed until 1836. It is 146 feet wide, 160 feet high, and 72 feet deep. One of the many noteworthy sculptures upon it is the vigorous group. "The Marseillaise," by Rude, which has in it a touch of the sublime. The name means "the triumphal arch of the star." It is so named because it is located at the point whence 12 avenues radiate in the form of a star.

BRANDENBURG GATE, BERLIN.

British Museum.—While the interest in this building centers in the magnificent collections which it contains, it must not be forgotten that in its present aspect it is one of the best examples to be found in England of the Classic Revival and protest against the Baroque. It reached its present stage in 1847 and is the result of many additions made to the original Montague House, which was acquired early in 1700. It is now a hollow square of Ionic architectural design, with an imposing façade of 370 feet fronting on Great Russell Street and flanked by the residences of the highest officials. The reading room is circular and surmounted by a dome 106 feet high and 140 feet in diameter. Several acres of land have been recently acquired to provide for the unceasing extension necessary to keep pace with the frequent additions and steady growth of the collections.

Column of July.—A monument in Paris, erected upon the site of the Bastille in 1840. It is a Corinthian column of bronze on a marble base and surmounted by a gilded statue of Liberty. The total height is 154 feet.

Madeleine, Church of the.—Begun in Paris under Louis XV. but not completed until 1842. Work upon it was delayed by the Revolution but was resumed with increased vigor under the Empire. It is a huge Roman-Corinthian temple, 141 by 354 feet and 100 feet high. The building is without windows and is lighted wholly from above. Reinach says: "Parisians and visitors to Paris, having seen the Madeleine, have some general idea of the form of a Greek temple."

Houses of Parliament in London or **The New Palace of Westminster.**—The rebuilding of this edifice, which began in 1836 according to plans by Sir Charles Barry, was a result of the efforts of Scott and Ruskin to influence the popular mind in the revival of the Gothic. The buildings cover eight acres and contain upward of 500 apartments clustered around 11 open quadrangles or courts. They are of gray limestone, of a rich but not ornate Gothic style, with square towers of support at certain points. This is one of the noblest structures of the last century and a most successful attempt to apply the truly northern style of architecture to secular buildings. The architect, who was a classical student, was compelled to work out his design in the Gothic style, which he did most loyally, helped by W. Pugin, to whom he intrusted the whole of the decorative features. Neither would have produced such a perfect work single handed.

Cathedral of St. Isaac's at St. Petersburg.—Finished about 1850. It is built in the form of a Greek cross, surmounted by a dome 336 feet high, upon which is a lantern. Each of its four grand entrances has a Corinthian portico supported by monolithic columns of polished granite, 60 feet high, surmounted by bronze capitals. The dome, supported by 30 granite columns, is of gilded copper. The interior is rich in fine marbles and columns of lapis lazuli and malachite.

Column of Vendome.—A Roman-Doric column of stone, covered with bronze plates in relief to commemorate Napoleon's victories over the Austrians and Russians in 1805. It is in the Place Vendôme, Paris. During the Commune (1871) Courbet, in an effort to distract the raging mob from the Louvre, directed them against this column. Courbet restored it at his own expense in 1875.

Winter Palace.—The imperial palace at St. Petersburg, Russia. One of the largest palaces in the world; 455 feet long, 350 feet wide, and provides accommodations for the complete household of over 6,000 persons. It is of the Renaissance style, with three stories. Magnificent tables, vases, and doors of malachite; the richest statuary, pictures, and gems; a magnificent series of Russian historical paintings and portraits are among its wonders. It is connected with the Hermitage, the famous art gallery which contains many of the world's masterpieces. It was burned in 1837 and rebuilt in 1839.

ART AND ARCHITECTURE IN THE UNITED STATES.

Down to about 1876 the architecture in the United States was, as a general thing, English in its origin. We must exclude from this general statement the architecture of those regions which were essentially Spanish in their settlement and development. This includes the cathedral of St. Augustine and the fort now called Marion in Florida, and the buildings of the

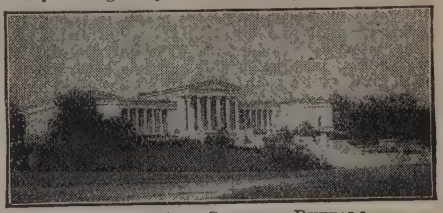
Catholic Missions, to each of which, in California and the Southwest, a church is attached. In New Orleans there are to be seen some traces of French influence, especially in the Ursuline Convent, now known as the Archbishop's Palace. The cathedral there is unmistakably Spanish in its influence. The Dutch and the Swedes on the Hudson and the Delaware respectively followed their own national characteristics as far as possible. Among these are the Van Cortlandt manor on the Hudson, built in 1681, the Slip house on Bergen Heights, New Jersey, built in 1666, a part of the Philipse manor, now the City Hall of Yonkers, built in 1682 by Frederic Philipse, the wealthiest merchant of his day, and the church at Sleepy Hollow, built in 1699 by Philipse. There are also the "Old Swedes Church" at Wilmington, built in 1699, and that in Philadelphia, in 1700.

During the early republican period many monumental buildings were erected, such, for example, as the Capitol at Washington, the State House at Boston, and the University of Virginia; but towards the middle of the century architecture declined, and most of the buildings constructed from 1850 to 1876 reflect the deterioration of public taste. Church architecture alone showed signs of vigor. In the last quarter of the nineteenth century, architecture revived, and, as the result of foreign study, architects like Hunt and H. H. Richardson produced some excellent work, and greatly stimulated the art in the United States. The present tendency is towards the style of the French Renaissance, especially for more pretentious residences and hotels. Gothic and Romanesque still remain popular for churches, though there are not wanting signs of a return to classical forms. Strictly speaking, there seems to be no aspiration towards a distinctly national architecture. Only in the colossal elevator buildings of the great cities, especially of New York and Chicago, has a new American type been evolved at once characteristic, serviceable, and imposing. The towering "skyscraper" would be more fittingly described under engineering, for it is but a steel skeleton incased in a shell of masonry. And yet these tall buildings are assuming more architectural pretensions. While the first efforts were void of all distinction and beauty, the more recent structures possess an elegance of line and a dignity of appearance eminently suitable to their surroundings. To relieve the plainness of such buildings as the "Flatiron" in New York, recourse was had to a triple division analogous to that of a classic column. The lower two or three stories constitute the base, and a similar number correspond to the capital, while the intermediate stories represent the simplicity of the shaft. But a more effective skyline is now aimed at, hence the tower is being adapted to the newer architecture. The Metropolitan building in Madison Square, New York, is an illustration of this later type.

Painting.—The first Americans to win distinction as painters were Copley (1737-1815) and Benjamin West (1738-1820). American art was under British influence till long after the Revolution, and United States artists of the early period spent the greater part of their lives in England. About 1825 American painting assumed a more national tone, under the influence of Thomas Cole, founder of the so-called Hudson River School, and of the painters of Rocky Mountain scenes—Bierstadt, Hill, Hubbard, and Moran. With the Centennial Exposition at Philadelphia in 1876 began a great revival in American art, and an awakening to the achievements of foreign artists. French influence in particular became dominant, and artists from the United States sped forthwith to Paris. But, in the main, American artists, while drawing vigor and inspiration from European art, have developed originality in subjects and motives. Two of the greatest American names are Whistler and Sargent, who hold high rank among their contemporaries. Other well-known figures of the older generation are Winslow Homer, Eastman Johnson, John La Farge, and Edwin A. Abbey. American landscape has been successfully developed, and has become the most distinctly national feature of United States art. The foremost exponent of this school is George Inness. Other well-known representatives are A. H. Wyant and Homer Martin. Of artists who have established their reputation in our own day may be mentioned Chase, Blum, Dewing, Thayer, Brush, Benson, Beckwith, Blashfield, Henry, Bunce, Tarbell, Alexander, Vedder, Pearce, Kenyon Cox, Walker, Melchers, and Low.

Sculpture.—Hiram Powers (1805-1873) was the first American sculptor worthy of the name. His contemporary, Thomas Crawford (1813-1857), produced the figure of Liberty on the dome of the Capitol at Washington. T. Ball, H. K. Brown, L. G. Mead, Launt Thompson, W. Rimmer, and Olin Warner are sculptors of the same period. With the brilliant creations of Augustus Saint-Gaudens (1848-1907) America entered the lists of European sculpture. Among the more distinguished United States sculptors are J. Q. A. Ward, D. C. French, F. MacMonnies, S. H. Borglum, Edward Kemeys, P. W. Bartlett, and a group of decorative sculptors including Isidore Konti, Philip Martiny, J. M. Rhind, Karl Bitter, Charles Grafly, and F. W. Ruckstuhl.

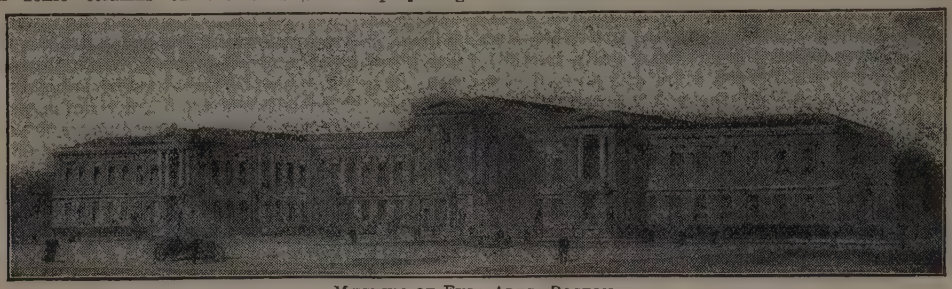
The State Capitol at Albany.—As originally designed, was an immense rectangular Renaissance block, in which an order was given to each story, much after the style practised at Venice by Sansovino and San Micheli, and was crowned by a domical tower of grand proportions. The design was improved by Richardson, and the upper portions of the edifice were completed according to it. There is great beauty in the newer portion, but it cannot be said that there is congruity. The towers are Romanesque, while the cornice of the order below is changed to Gothic. Parts of the interior, as the Hall of Assembly, the work of Eidlitz, are Gothic of the most beautiful kind. Seriously damaged by fire in March, 1911.



ALBRIGHT ART GALLERY, BUFFALO.

Albright Art Gallery at Buffalo.—This building stands in a park. It is a magnificent white marble structure, and was designed by Green and Wicks. Among its valuable collections are some notable etchings by Seymour Haden and others.

Museum of Fine Arts, Boston.—This building, located on Huntington Avenue and the Fenway, has a frontage of 501 feet and occupies an area of 12 acres. The main building, 320 by 120 feet, consists of two stories, and is pierced by two courts, 48 feet square, with advancing wings, inclosing a forecourt 232 by 110 feet. It is built of Maine granite of a warm gray tone. The style is simple, with Ionic columns on the ends of the projecting wings, and is in pleasing harmony with the surroundings. The design and arrangement embody three chief purposes: unity of the entire plan; each department is a complete museum; each collection is divided into an exhibition and a study series.



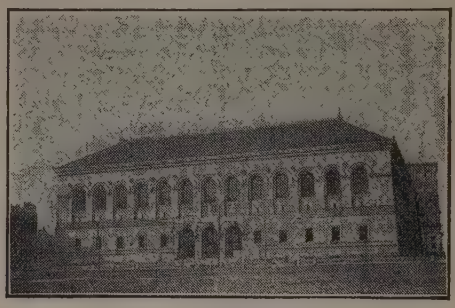
Museum of Fine Arts, Boston.

Public Library of Boston.—The style of this magnificent building is the Italian Renaissance. The walls are of Milford granite of a delicate pink tint and the roof is of brown Spanish tiles. A noticeable feature is the long, unbroken, heavy cornice of 225 feet. The walls of the vestibule are of Tennessee marble and from this three large portals admit to the entrance hall. The steps of the grand staircase are of Echaillon marble and the sides are of Siena marble. The mural decorations are by Puvis de Chavannes, Saint-Gaudens, Edwin A. Abbey, and John S. Sargent.

National Capitol at Washington.

The Capitol at Washington.—The inception of this belongs to the eighteenth century, and it is one of the most imposing and striking pieces of architecture in the United States. Notwithstanding its conventionally classic style, it is an edifice of which a great nation may be proud, majestic both within and without, and gaining in effect from its position on a commanding site. The corner stone of the Capitol was laid in 1793. The structure is of the Renaissance, and consists of two stories rising from an appropriate base The ground plan is a central pavilion with north and south wings. The principal façade is on the east side, where a portico of Corinthian columns 30 feet in height fronts the pavilion, while pilasters of the same order are continued along the wings. The eight middle columns project so as to admit of another inner row, and these 16 columns support a noble pediment adorned with a bas-relief. The subject is allegorical, Liberty attended by Hope and Justice, and is said to have been designed by John Quincy Adams. The approach to this imposing portico is by a flight of broad marble steps. The central portion of the edifice is, for the most part, occupied by a circular apartment, measuring 96 feet in diameter and 180 feet in height, known as the Rotunda. It is ornamented with paintings and bas-reliefs illustrative of our national history. The paintings are separated from one another by gilded pilasters, which rise to the dome, forming the roof. The dome compares well with those that are famous in the world, and, taken as a whole, the Capitol is more stately than the Houses of Parliament, and is open to as little criticism as the buildings of its class in other lands.

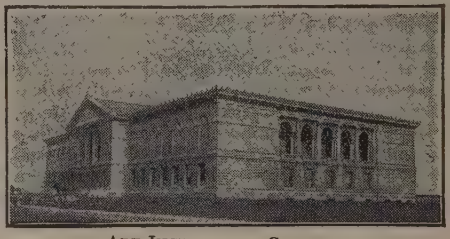
The Art Museum at Cincinnati.—In the Romanesque style, has two ranges of rectangular twin windows, and the plain walls of the uppermost story are unrelieved save by blind arches. The central hall is the most striking feature of the interior.



Public Library, Boston.

The walls are of local blue limestone, with cornices and arches of Missouri granite; the roof is of red Akron pantiles. The eastern wing has a fine polygonal apse with nine pairs of windows and a tall tower on the line of the entrance front.

Girard College at Philadelphia.—Of white marble, and modeled, as to the exterior, after the Parthenon,—that is, so far as possible, while employing a different order of architecture. It is considered the Greek building par excellence of America, as the Madeleine is of France, and is a Corinthian peristyle resting upon a Grecian stylobate.



Art Institute of Chicago.

Art Institute of Chicago.—On Michigan Avenue and north from the Auditorium stands this imposing building. It is in a semi-classical style, erected between 1892 and 1893 from designs by Charles A. Coolidge. In addition to its large and valuable collections of art objects, it supports one of the largest and most comprehensive art schools in America, numbering over 2,000 students annually.

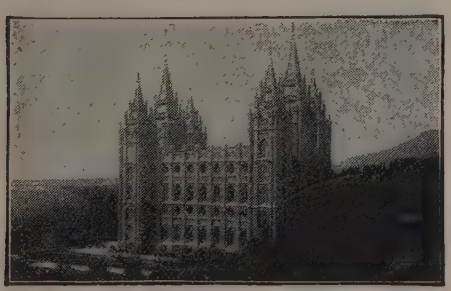
The Capitol at Hartford, Connecticut.—This is far from being an ordinary structure, and may be reckoned one of the finest public buildings in the United States. The style is Gothic, and the regular façade is broken into a center, curtains, and wings. The center has two low towers in every way subordinate to the tall tambour and dome which rise behind them. This cupola crown tower is decidedly Gothic in the sentiment of its details.

GRANT'S TOMB, NEW YORK CITY.

Grant's Tomb, New York.—A huge and solid mausoleum of white granite erected near the north end of Riverside Drive, between the years 1891 and 1897 from designs by J. H. Duncan, and at a cost of $600,000. The lower story, 90 feet square, is in the Doric style; while the cupola, borne on Ionic columns, attains a total height of 150 feet. The interior is arranged similarly to the tomb of Napoleon at the Hotel des Invalides in Paris. In an open crypt below the center of the dome the bodies of General Grant and his wife rest side by side in sarcophagi of red porphyry. Bas-reliefs on the pendentives of the dome are emblematic of events in Grant's life and were made by J. Massey Rhind.

Liberty Enlightening the World.—A colossal statue in New York Harbor on Bedloe's Island, erected in 1886 and executed by Frederic August Bartholdi. It is the figure of a woman clad in a Greek tunic and mantle, bearing aloft a torch in her right hand. The statue, 151 feet high, stands upon a pedestal 155 feet high. It was a gift from the people of France to the people of the United States.

Memorial Hall of Harvard University.—Built of brick banded in the Lombard style with buff tiles bearing geometric designs in blue. The central tower rises above the Memorial Hall, while smaller towers, all of the English Gothic, flank its walls.



MORMON TEMPLE, SALT LAKE CITY.

Mormon Temple at Salt Lake City.—This large and handsome granite building was erected between 1853 and 1893 at a cost of over $4,000,000. It is 186 feet long and 99 feet wide, surmounted at each end by three pointed towers. The tallest of these towers is on the east or principal façade and attains a height of 210 feet. Upon it is a colossal gilded figure of an angel by C. E. Dallin, which measures 12½ feet in height. The interior is elaborately designed and artistically adorned.

Metropolitan Museum of Art, New York.—On the east side of Central Park and opposite 82d street. This institution has been developing since 1879, the various wings being designed by different architects. The façade of gray Indiana limestone in Renaissance style was put up in 1902. This is from designs by the late Richard M. Hunt. The more recent extensions, two galleries on the north side and a library on the south, are after designs by Messrs. McKim, Meade & White. The original building was erected between the years 1879 and 1898. The value of the collection of art works which the building houses is over $20,000,000.

METROPOLITAN MUSEUM OF ART, NEW YORK CITY.

Custom House, New York.—This magnificent building occupies an entire block adjoining Battery Park, with a maximum length of 288 feet, and depth of 191 feet. It consists of seven stories above and two below the sidewalk, and is built of Penobscot granite. The architecture is rich and imposing, in the style of the modern French Renaissance. Large granite columns crowned with composite capitals extend around the entire building, which is ornamented by sculptures of a high order, among them the seventh story cartouche representing the arms of the United States, by Karl Bitter, and four large marble groups on pedestals at the street level, representing America, Europe, Asia, and Africa, by D. C. French.

CUSTOM HOUSE, NEW YORK CITY.

The City Hall, Philadelphia.—Is among the largest of modern buildings, slightly exceeding the Capitol at Washington in area. Seldom has a better opportunity been afforded for architectural display than is given by its position at the junction of two of the principal streets of the city. It occupies what was once Penn Square and thus stands free all around. This immense structure is conceived in the style of the Louvre at Paris with central and angle pavilions, the whole surmounted by a mansard roof of great height. Each front is a symmetrical whole, and, with the exception of the slight difference in length, the fronts are alike. The central feature is a gigantic tower which rises upward of 537 feet above the pavement. This tower was designed to be the loftiest in the world, but in this respect has already been surpassed by the Washington Monument at the National Capital. The magnificence of this edifice consists in its imposing dimensions, the rich array of marble and polished granite, and the beautiful sculpture which adorns its façades and entrance halls.

Episcopal Cathedral of Saint John the Divine.—In process of erection at the corner of Morningside Avenue and 112th Street, New York City, from designs by Heins and La Farge. The corner stone was laid in 1892, but little progress has been made upon the work. An arch of the crossing and the granite columns of the choir (more than 50 feet high) have been erected; the crypt, with the Tiffany Chapel of mosaic glass, having an altar composed of 150,000 separate pieces of glass, and the Belmont or St. Saviour's Chapel are completed.

CATHEDRAL ST. JOHN THE DIVINE, NEW YORK CITY.

Old State House of Pennsylvania or Independence Hall.—Built in Philadelphia (1731-1735), from designs furnished by Andrew Hamilton. It is noted for its free use of cut stone. It was the seat of the Provincial Government. The second Continental Congress convened within its halls in 1776 and adopted the Declaration of Independence. Upon its walls are portraits of many of the signers, and the building contains many interesting relics.

New York Public Library.—This fine structure in the classic Greek style, built of white marble, was completed in 1908. It stands on the site of the old reservoir at Fifth Avenue and Forty-second Street. There are three stories with a frontage of 366 feet on Fifth Avenue, and a depth of 246 feet. The height from ground to top of cornice is 68 feet on the east front and 98 on the west front. The wings are built around two courts 80 feet square, open from the ground upward, insuring excellent interior light, and other courts have glass roofs. The bookstacks have a capacity of 1,700,000 volumes, the third largest in the world; the library opened with about 1,000,000 volumes.

NEW YORK PUBLIC LIBRARY.

Temple Emanu-El in New York City.—A most ornate and symmetrical exterior, with two towers and an arcade in the center, and although the effect is pretty and fanciful rather than grand, it ranks among the finest of the religious edifices of that city.

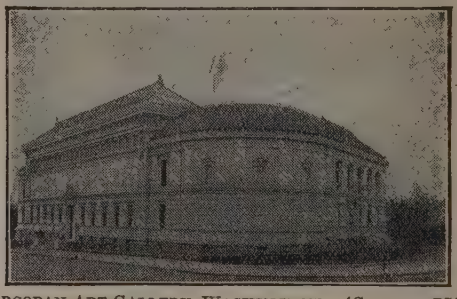
Trinity Church in New York.—A fine example of Perpendicular Gothic in brownstone, erected in 1846. Its tower and spire to the height of 284 feet are extremely effective, and the reredos and bronze doors are very noteworthy.

Saint Patrick's Cathedral in New York.—A most magnificent edifice of white marble in the decorated Gothic. It has two richly carved marble spires, 70 stained-glass windows from Chartres, and several costly altars of marble and gems. It was built between the years 1858 and 1879 at a cost of

SAINT PATRICK'S CATHEDRAL, NEW YORK CITY.

over $2,000,000. It is the best example of European fourteenth century Gothic. Some have applied to it the name of Geometric or Decorated Gothic.

Tabernacle at Salt Lake City.—This is one of the most extraordinary structures in America. It was built between 1864 and 1867, in the shape of an oval 250 feet long, 150 feet wide, and 70 feet high. Its roof is covered with iron shingles and closely resembles the hull of a ship inverted. It is supported by 44 sandstone pillars and by an interior arch which is said to be one of the largest unsupported arches in the world. The building seats 8,000 people and will hold over 12,000. It is imposing and striking in its immensity.



CORCORAN ART GALLERY, WASHINGTON. (See page 755.)

The University of Pennsylvania.—A group of Gothic structures built of green serpentine, with dressings of Ohio stone. There is little ornament, but the grouping is effective and the general effect satisfactory. Buildings of a very pleasing style, which admirably express their purpose, have recently been added.

Trinity Church at Boston.—Completed in 1877 from designs of Henry H. Richardson. The central tower is splendidly adapted from that of the cathedral at Salamanca. It is 211 feet high. The style is the simple, massive, rudimentary Romanesque of the south of France. Not only is this building in excellent architectural taste and congruity and noteworthy for its fine color effects, but it was at once a

TRINITY CHURCH, BOSTON.

great popular success. Its interior is enriched with masterly frescoes and stained-glass windows.

Tyler-Davidson Fountain.—This adorns Fountain Square, an expansion of Fifth Street, Cincinnati, and is one of the most successful works of art in the United States. The fountain was

TYLER-DAVIDSON FOUNTAIN, CINCINNATI.

erected in 1871 from designs made by August von Kreling. It was cast in bronze in the Royal Bronze Foundry at Munich.

Smithsonian Institution.—A red sandstone building in the late Norman style, which was erected between 1847 and 1856 at a cost of over $450,000. It has nine towers, the loftiest of which is 145 feet high. The statue of Prof. Joseph Henry (1799-1878), the first secretary of the institution, stands in front of the building and was erected by Story.

Washington Monument.—A white marble obelisk erected on the Mall in Washington, D. C., in honor of Washington. The base is 55 feet square and the total height of the monument is 555 feet. Though the corner stone was laid in 1848, the work was not completed until 1884. The states of the Union and many foreign governments contributed blocks of stone, appropriately inscribed, which were placed conspicuously on the inner wall.

SMITHSONIAN INSTITUTION, WASHINGTON.

Washington Arch.—A triumphal arch in New York City at the Fifth Avenue entrance to Washington Square, designed by Stanford White. It was erected in 1889 to commemorate the centennial anniversary of Washington's inauguration as president of the United States. It is 77 feet high, 62 feet wide, and pierced by a single arch of 30 feet span and 47 feet height. The arch is of white marble.

SOLDIERS' AND SAILORS' MONUMENT, INDIANAPOLIS.

Stone Hall, Wellesley College.—A fine structure and of what may be called Free Classic, but in its stepped gables and in the lines of its

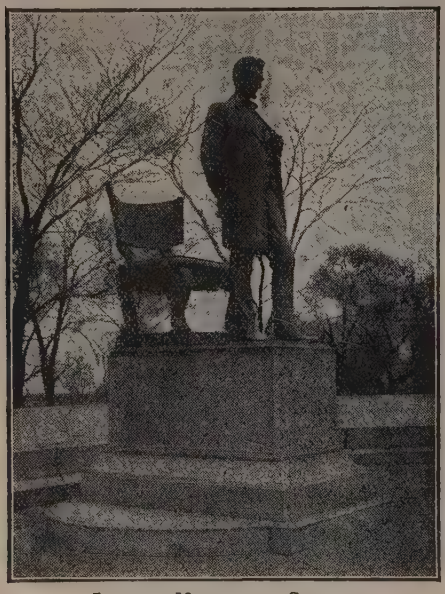
central pavilion approaches Flemish Renaissance. The entrance is well accentuated, contrasting admirably with the curtain-walls which intervene between it and the tower-like blocks which mark the intersection of the center with its wings.

American Museum of Natural History.—The museum is located in Manhattan Square on the west side of Central Park, between 77th

American Museum of Natural History, New York City.

and 81st streets, and was incorporated in 1869. It consists of two adjoining blocks, the one to the north being of red brick with granite trimmings (erected 1874-1877); and the one to the south having a façade of red granite (completed 1891). The entrance is on the south side of the structure. The ground and building belong to the City of New York, while the expenses of maintenance are defrayed by the city, the trustees, and by private subscriptions. The collections are valued at $3,000,000.

Soldiers' and Sailors' Monument, Indianapolis.—This is, perhaps, the most remarkable structure in the city, and was erected from the design of Bruno Schmitz of Berlin to commemorate the part borne by Indiana in the Civil War. About the base are to be seen allegorical figures representing peace and war, and near the monument are smaller bronze statues of Gen. George Rogers Clark, Gen. William Henry Harrison, Oliver Perry Morton, and Governor James Whitcomb. The corner stone was laid on August 22, 1889, in the presence of President Harrison. The monument is about 265 feet high and cost over $222,000.



Lincoln Monument, Chicago.

Lincoln Monument, Chicago.—This monument, one of the finest works of Augustus Saint-Gaudens, stands in Lincoln Park, facing the main entrance. The statue cost $50,000, was the gift of Eli Bates in 1887, and is considered a perfect likeness of the famous president. The cut of Lincoln, used on the two-cent stamps issued (1909) to commemorate his birth, was taken from this statue.

Grant Monument, Chicago.—This colossal memorial to the great general and president is situated at the entrance of Lincoln Park overlooking Lake Michigan, and is the work of Rebisso of Cincinnati. It has been the object of much criticism, especially the masonry foundation, which would be more appropriate for a viaduct than for a statue. The

Grant Monument, Chicago.

modeling on the whole is crude, the best part being that portion of General Grant's figure which is above the saddle. The statue was a gift to the park trustees by several citizens of Chicago. In clear weather it can be seen from the water for many miles.

Chicago Public Library.—This magnificent structure was built in 1893-1897 at a cost of

Chicago Public Library.

about $2,125,000. The architecture is of the classic type, and the interior is embellished with beautiful frescoes, mottoes. Siena and Carrara marble, and

about 10,000 square feet of glass mosaic. The library was made to accommodate 2,000,000 volumes; the present number, however, is considerably under this. Two notable features of the building are its large

LINCOLN MONUMENT, SPRINGFIELD, ILLINOIS.

G. A. R. Memorial Hall, and an immense delivery room, measuring 139 by 49 feet.

Metropolitan Building.—The tower is greater in all dimensions than that of the Singer Build-

METROPOLITAN BUILDING, NEW YORK CITY.

ing. On each of its marble-sheathed sides are the conspicuous faces of an enormous clock, each 25½ feet in diameter. At night the quarter hours are signaled by colored lights; in the day by "Cambridge" chimes rung on four colossal bells cast at Troy, N. Y. The tower is 50 stories high, 46 stories rising 700 feet above the sidewalk. The floor area of the whole building available for the company's business or for rental is about 25 acres. There is a lookout platform 660 feet above the sidewalk, which may be reached by elevator or by walking up 1,057 steps.

Lincoln Monument, Springfield, Illinois.—A granite structure of imposing dimensions in the Oak Ridge Cemetery, where it marks the resting place of Abraham Lincoln. It cost about $200,000, and was erected in 1874. One hundred and twenty feet from the ground is a bronze statue of the martyr president.

Singer Building, New York.—The main building is 14 stories high, with 40 offices on each floor. The tower, of modern French architecture and designed by Ernest Flagg, is 612 feet high, or 47 stories, its 42 office floors each having 16 offices. The entire building affords for rental about nine and one half acres of floor space. The walls are of brick and limestone, copper sheathing being used conspic-

SINGER BUILDING, NEW YORK CITY.

uously, especially in the tower. There are 16 electric elevators, 546¾ feet being the length of the highest shaft. The interior is illuminated by 14,500 electric lights, while for the exterior there are 1,800 incandescent lights, and 25 search lights each of 13,000,000 candle power, making the tower visible 40 miles away at night.

Corcoran Gallery of Art.—This building stands near the State, War, and Navy building in Washington, D. C. It was erected between 1894 and 1897 from endowment funds donated by W. W. Corcoran. It is a handsome white marble structure in a Neo-Grecian style from designs by Ernest Flagg. The semicircular part of the building is the School of Art, with over 300 pupils. The colossal bronze lions which flank the steps at the main entrance are modeled on those by Canova on the tomb of Pope Clement XIII. (See page 752.)

Custom House and Post Office at Chicago.—This is often called the new Federal Building. It occupies an entire block on Jackson Boulevard. The building is in the Corinthian style with a large dome in the center, 200 feet in height.

New Capitol of Pennsylvania.—Dedicated October 4, 1906, is 520 feet long, breadth at the center 254 feet, and through each of the wings 212 feet. It covers 86,178 square feet, or a little more than 2,000 square feet than does St. Paul's, London. The height from the ground to the top of the statue is 272 feet. The walls are of granite from Vermont, and the stone, despite a bluish-gray speckle, is of remarkable whiteness in general effect. The architect was Mr. Joseph M. Huston of Philadelphia. The dome is modeled upon that of St. Peter's at Rome. The general style of the structure is the Renaissance use of the Greek classic, with Corinthian columns on the façade. The walls are decorated with paintings by Messrs. E. A. Abbey, John W. Alexander, and W. B. Van Ingen.

Auditorium, Chicago.—Erected 1887-1889 at a cost of about $3,500,000. The longest front, toward Congress street, is 360 feet. The main

Auditorium Building, Chicago.

building is 10 stories high, and includes a large hotel, and one of the handsomest theaters in the world. The tower, 270 feet high, is occupied as a United States signal service station.

White House.—The official residence of the President of the United States at Washington. A two-storied mansion of English Renaissance with a portico of eight Ionic columns in front and a colonnade of six Ionic columns in the rear. Begun in 1792, it was first occupied by John Adams in 1800; burned by the British in 1814; rebuilt and again occupied in 1818. The grounds include 75 acres.

Fuller Building, New York.—The Fuller Building, or, as it is popularly known, the "Flatiron Building," occupies a prominent position at the intersection of Broadway, Fifth Avenue, and

Fuller or "Flatiron" Building, New York City.

Twenty-third street. It was completed in 1903 from designs made by Frederick Burnham. Its odd triangular shape, great height, and small base solved many problems in "sky-scraper" architecture. It is 20 stories in height, making a total of 286 feet from the pavement.

Times Building.—This conspicuous office building at Broadway and Forty-second street, New York, has given the name of "Times

Times Building, New York City.

Square" to the locality. It rises 375 feet above the pavement, while below are five underground stories, affording connection with the subway by a station.

The Art School at Yale.—A species of Gothic, but of heavy outline, and its tower is without sufficient prominence. Most of the newer Yale buildings are in this style, including the Peabody Museum, which is the best.

New Plaza Hotel, New York.—This great structure stands 18 stories high. Its architect was Mr. H. J. Hardenbergh. The building is of steel frame construction, with hollow tile floors, the stairways and the elevator shafts all inclosed with wire glass and all woodwork fire-proofed. About

Plaza Hotel, New York City.

17,000 incandescent lights illumine the building. There are 10 passenger cars, three sidewalk lifts, and 13 electric dumb waiters; also a very complete pneumatic equipment for distributing documentary matter. There were 400 tons of galvanized sheet metal used in the construction of the ventilating system, which includes 14 Sturtevant ventilating fans, electrically operated.

Soldiers' and Sailors' Monument at Riverside Drive, New York.—In 1902 this monument was dedicated to the memory of the soldiers and sailors who fought in defense of the Union. It is in the form of a small, circular Greek temple, 100

SOLDIERS' AND SAILORS' MONUMENT. New York.

feet high, of white Dorset marble on a base of pink granite, resembling the Choragic Monument of Lysicrates. A peristyle of 12 Corinthian columns, 35 feet high, resting on a high circular base, supports an entablature, surmounted by a conical roof. There is a bronze door in the base, at the south, admitting to a high vaulted chamber containing niches for battle flags. The circular base on which the monument stands is 100 feet in diameter, paved with brick panels, surrounded by a marble balustrade.

Canadian Architecture.—This is a blend of early French and English styles; the French with solid stone houses, high steep roofs, gable ends, molded springer stones, and small dormers, and the English following the more stolid, but excellently designed utilitarianism of existing edifices in England prior to 1750. After 1840 is Greco-Roman; the City Hall of Toronto, the Library and Physics Buildings of McGill at Montreal, are prominent specimens of Romanesque; the Houses of Legislature at Victoria, Laval University, recent buildings of McGill, and the Houses of Legislature at Quebec are in Renaissance, and the Chateau Frontenac at Quebec is a clever adaptation of the famed chateau architecture of the Loire Valley, in France. Lately a phase of Scotch-Baronial has been

TORONTO UNIVERSITY. Canada. (Main Building.)

effectively introduced in the Royal Victoria Hospital at Montreal.

Houses of Parliament at Ottawa, Canada.—These imposing buildings are on Barrack Hill, 186 feet above the Ottawa river, and were built (1859-1865) for the use of the Parliament and Civil Service of Canada, which was then represented by the two provinces known as Ontario and Quebec. The material is cream colored Canadian and New York sandstone, with red sandstone facings; the entire

CANADIAN HOUSES OF PARLIAMENT. Ottawa.

these began to be agreeably merged into what may prove a composite Canadian type. After the confederation of Canada the distinct provincial features disappeared in favor of the accepted modernized forms of Gothic, Colonial, Romanesque, or Renaissance of the older world, and of the United States. The Montreal Court House edifice is ornamental and substantial, as should be all government buildings, combining the structural grace and simplicity of adapted Gothic. The foundations were commenced in 1859, the foundation stone being laid by King Edward VII. (when Prince of Wales) in 1860, the buildings being completed and occupied in 1865 at a cost of $4,000,000. The arrangement is a three-sided square, the three stories merging into the massive tower reaching 220 feet, the ground

area being four acres. The towers and pinnacles are adorned with iron trellis-work. The main or central building is 500 feet long, containing the House of Commons and the Senate; the interior decorations are very rich and effective, with columns and arches of marble. Detached wings extend on either side constituting the various departmental offices of the government service. Directly opposite the front tower on the north side of the quadrangle is the beautiful

McGILL UNIVERSITY. Montreal, Canada.

octagonal Library of Parliament; the dome supported by the flying buttresses peculiar to the true Gothic structure, adding strength to the height and lightness consequent upon the windows, pinnacles, and traceries; the buttresses being designed to carry the lateral thrust of the lofty walls. The interior paneling of the Library is of Canadian pine, carrying some excel-

LAVAL UNIVERSITY (Montreal Branch). Canada.

lent carvings; the cases contain over 250,000 books under constant addition.

Toronto University, Canada.—The architecture is the grandly impressive Norman Gothic; the tower is 120 feet high, and the main building has a frontage of 300 feet. It was erected in 1857-1858, and is justly regarded as the flower of Toronto's structural types. A few years ago fire injured the buildings but fortunately spared the wonderful sculptured doorway. It was once said by an enthusiastic admirer that "Toronto University is one of the few pieces of collegiate architecture on the continent of America worthy of standing in the streets of Oxford." Included in Toronto University is the historic Trinity College, which is a Church of England institution, founded by Bishop Strachan when old King's College of Upper Canada was secularized and became the University of Toronto; it was founded in 1852, has a frontage of 250 feet, with deep projecting wings, standing in a park of about 20 acres. Prior to 1892 Trinity was empowered by Royal Charter to confer degrees in divinity, art, law, medicine, etc.; it was then affiliated with Toronto University.

McGill University at Montreal, Canada.—This is essentially a modern, up-to-date institution, founded by the Hon. Alexander James McGill, who was a Canadian fur trader prior to the American War of Independence (1770-1783). Later he became a leading merchant of Montreal, and did a grand and lasting work in planning, organizing, and carrying to fruition the great and varied schools of learning that now comprise McGill University. The buildings are of differing types, Gothic, Renaissance, etc., but all are imposing, clear in outline, of white stone, with well-shaped, lofty rooms, having good windows, open on all sides, and an abundance of the very necessary "north light" where it is desired, as in the decorative arts, painting, sculpture, etc. McGill is a university of high utilitarian trend, as well as of the older classic ideals.

Laval University at Quebec, Canada.—Was named after the French bishop, François Xavier de Laval-Montmorency, who established the famed Seminary of Quebec (1663). It is one of

CHATEAU FRONTENAC. Quebec, Canada.

the most conspicuous buildings in Quebec, towering to a height of five stories. From the roof is seen one of the most imposing panoramas of the New World. The university consists of three well-balanced buildings of cut stone, the main edifice being 286 feet long, costing $240,000. It is in Renaissance, pure in outline, with harmonious utility, light, and space breathing from every line. A fit monument to one of the greatest men of his times. In 1878 a branch of Laval University was founded in Montreal to accommodate the French speaking citizens.

SCHOOLS OF PAINTING.

Painters who are controlled by the same ideals, methods, or principles in their work are classed together into a school or group, without regard to the times in which they live. There is one use of the word wherein it signifies all the painters of one country, distinguished from all painters of other countries. Also one master may influence several painters, and his followers are grouped into a school. Sometimes a narrower sense is implied by the application of the term to the painters of a city. So we may speak of the "Italian School," the "School of Raphael," or the "Florentine School."

BOLOGNESE SCHOOL. At Bologna, in Italy, in the fifteenth, sixteenth, and seventeenth centuries. Leaders were Francesco Francia, Lorenzo Costa; the three Carracci—Lodovico, Agostino, and Annibale, Guido, Domenichino, and Guercino.

FLORENTINE SCHOOL. At Florence, in Italy, in the thirteenth, fourteenth, fifteenth, and sixteenth centuries. Leaders were Cimabue, Giotto, Leonardo da Vinci, Fra Bartolommeo, Michelangelo, Fra Angelico, Andrea del Sarto, Filippo Lippi, Filippino Lippi, Masaccio, Botticelli, and Domenico Ghirlandajo.

MILANESE SCHOOL. At Milan, in Italy, in the fifteenth and sixteenth centuries. Leaders were Vincenzo Foppa, Ambrogio Borgognone, Bernardino Luini, Cesare da Sesto, Beltraffio, Marco d'Oggiono, Andrea Solari, and Guadenzio Ferrari.

MODENA AND PARMA SCHOOLS. At Modena and Parma, in Italy, in the sixteenth century. Leaders were Correggio and Tommaso.

NEAPOLITAN SCHOOL. At Naples, in Italy, in the sixteenth and seventeenth centuries. Leaders were Caravaggio, Ribera, Salvator Rosa, and Giordano.

PADUAN SCHOOL. At Padua, in Italy, in the sixteenth century. The leader was Andrea Mantegna.

ROMAN SCHOOL. At Rome, in Italy, in the sixteenth and seventeenth centuries. The leaders were Raphael, Francesco Penni, Innocenzo da Imola, Giulio Romano, Perino del Vaga, and Sassoferrato.

UMBRIAN SCHOOL. In the province of Umbria, in Italy, in the fourteenth, fifteenth, and sixteenth centuries. Leaders were Gentile da Fabriano, Piero della Francesca, Fiorenzo di Lorenzo, Perugino, Pinturicchio, Raphael, Lo Spagna, and Timoteo della Viti.

VENETIAN SCHOOL. At Venice, in Italy, in the fifteenth and sixteenth centuries. Leaders were Gentile Bellini, Giovanni Bellini, Vittore Carpaccio, Palma Vecchio, Giorgione, Titian, Lorenzo Lotto, Paris Bordone, Tintoretto, and Paolo Veronese.

BRITISH SCHOOL. In Great Britain in the eighteenth and nineteenth centuries. Leaders were Hogarth, Sir Joshua Reynolds, Gainsborough, Richard Wilson, Sir Thomas Lawrence, Turner, Constable, Sir David Wilkie, and Sir Edwin Landseer.

DUTCH SCHOOL. In Holland. Leaders were Rembrandt, Ruysdael, the Teniers, Brouwer, Ostade, Jan Steen, Cuyp, Hobbema, Wouvermans, and Hals.

FLEMISH SCHOOL. In Flanders in the fifteenth, sixteenth, and seventeenth centuries. Leaders were the Van Eycks, Memling, the Massys, Van der Heyden, Mabuse, Rubens, Van Dyck, Jordaens, and Snyders.

FRENCH SCHOOL. In France after the fifteenth century. Leaders were Nicolas Poussin, Claude Lorrain, Watteau, Boucher, Greuze, Claude Vernet, Fragonard, David, Prud'hon, Ingres, Horace Vernet, Géricault, Delaroche, Delacroix, Rousseau, Scheffer, Millet, Meissonier, Corot, Regnault, and Decamps.

GERMAN SCHOOL. In Germany after the fourteenth century. Leaders were Wilhelm of Cologne (1358-1372), Martin Schöngauer, Albert Dürer, Lucas Cranach (2), Hans Holbein (2), Cornelius, Overbeck, Kaulbach, Schadow, and Lessing.

SPANISH SCHOOL. In Spain after the fifteenth century. Leaders were Francisco de Ribalta, Francisco Zurbaran, Velasquez, Murillo, Goya, and Fortuny.

SCHOOLS OF SCULPTURE.

AEGINETAN SCHOOL. In the island of Aegina after 480 B. C. Leaders were Smilis, Callow, Anaxagoras, Glaucias, Onatas, and Calliteles.

ATTIC SCHOOL. At Athens after the fifth century B. C. Leaders were Critias, Hegesias, Calamis, Phidias, Alcamenes, Myron, Lycias, Scopas, and Praxiteles.

CHIAN SCHOOL. In the island of Chios in the sixth century B. C. Leaders: Bupalus and Anthermus.

PERGAMENE SCHOOL. At Pergamum, near Troy, in Asia Minor. Leaders were Isogonus, Phyromachus, Stratonicus, and Antigonus.

RHODIAN SCHOOL. At Rhodes after 290 B. C. Leaders were Chares, Agesander, Athenodorus, Polydorus, Apollonius, and Tauriscus.

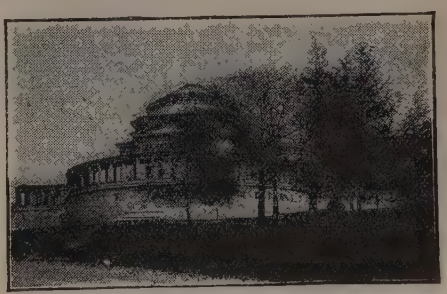
SAMIAN SCHOOL. In the island of Samos about 500 B. C. Leaders: Rhoecus, Theodorus, and Telecles.

SICYONIAN SCHOOL. At Sicyon, in the Peloponnesus, about 560 B. C. Leaders were Canachus, Euphranor, Lysippus, and Eutychides.

THE HALL OF FAME.

March 5, 1900, the Council of New York University accepted a gift of $100,000 (subsequently raised to $250,000) from a donor, whose name was withheld, for the erection and completion on University Heights, New York City, of a building to be called "The Hall of Fame for Great Americans." A structure was accordingly built in the form of a semicircle, 506 feet long, 15 feet wide, and 170 feet high, connecting the University Hall of Philosophy with the Hall of Languages. Within the colonnade 150 panels, each 2 by 8 feet, were placed, to bear the names of Americans deemed the greatest in their respective fields. An additional hall, having 30 panels, for names of foreign-born Americans, and a Hall of Fame for women are planned.

Only persons born on United States territory and who shall have been dead 10 or more years are eligible, to be chosen from 15 classes of citizens: Authors and editors, business men, educators, inventors, missionaries and explorers, philanthropists and reformers, preachers and theologians, scientists, engineers and architects, lawyers and judges, musicians, painters and sculptors, physicians and surgeons, rulers and statesmen, soldiers and sailors, distinguished men and women outside the above classes. Fifty names were to be inscribed on the tablets at the beginning, and five additional names every fifth year thereafter, until the year 2000, when the 150 inscriptions will be completed. Through a failure to select the entire 50 names at the beginning, the vacancies were to be filled in a following year.



HALL OF FAME.

In 1900, the University Senate received the ballots of 100 judges selected, 97 voting. Of 252 names submitted, each judge returned a vote for 50. No name receiving less than 51 votes could be accepted. But 29 candidates received the required number, as follows: George Washington, Abraham Lincoln, Daniel Webster, Benjamin Franklin, U. S. Grant, John Marshall, Thomas Jefferson, R. W. Emerson, H. W. Longfellow, Robert Fulton, Washington Irving, Jonathan Edwards, S. F. B. Morse, D. G. Farragut, Henry Clay, Nathaniel Hawthorne, George Peabody, R. E. Lee, Peter Cooper, Eli Whitney, J. J. Audubon, Horace Mann, H. W. Beecher, James Kent, Joseph Story, John Adams, W. E. Channing, Gilbert Stuart, Asa Gray.

Eight names were added in 1905, as follows: John Quincy Adams, James Russell Lowell, William Tecumseh Sherman, James Madison, John G. Whittier, Mary Lyon, Emma Willard, Maria Mitchell; 10 names in 1910: Harriet Beecher Stowe, Oliver Wendell Holmes, Edgar Allan Poe, James F. Cooper, Phillips Brooks, W. C. Bryant, Frances E. Willard, Andrew Jackson, George Bancroft, John L. Motley; 9 names in 1915: Alexander Hamilton, Louis Agassiz, Mark Hopkins, Francis Parkman, Elias Howe, Joseph Henry, Rufus Choate, Daniel Boone, Charlotte Cushman.

The total number of names admitted in the four quinquennial elections, 1900, 1905, 1910, 1915, is fifty men and six women.

FAMOUS MASTERPIECES OF ART.

ABRAHAM, SACRIFICE OF. Painted by Rembrandt; now in the Hermitage Gallery at St. Petersburg. It portrays the scene as depicted in Genesis xxii. Murillo, Raphael, Andrea del Sarto, and Teniers have also treated this subject.

ACHILLES, EDUCATION OF. Painted by Henri Regnault; now in the Louvre. Chiron, the centaur, is teaching the young Achilles to shoot with the bow.

ADAMS MEMORIAL. By Saint-Gaudens; in Rock Creek Cemetery at Washington. It is frequently called "Grief," "Death," or "The Peace of God." A memorial to a woman who lived and died. Nothing else is known about her. A mysterious bronze figure of a woman leaning against a slab of polished granite.

ADORATION OF THE LAMB. Painted by Jan and Hubert van Eyck; formerly an altarpiece in the cathedral at Ghent. The central part is still there; the other parts are in the Berlin Museum. The greatest example of the Flemish school and one of the most wonderful works of art in the world.

ADORATION OF THE MAGI. VERONESE. Vienna Gallery.

ADORATION OF THE MAGI. Homage paid to the infant Jesus by the wise men from the East (Matthew ii. 1-12). A favorite subject of painters. The most famous are by Botticelli, in the Uffizi, Florence; Albrecht Dürer, in the Uffizi, Florence; Gentile da Fabriano, in the Florence Academy; Raphael, in the Berlin Museum; Rembrandt, at Buckingham Palace; Rubens, in the Antwerp Museum, Brussels Museum, the Hermitage, and the Louvre; Titian, in the Madrid Museum; Velasquez, at Madrid; Veronese, at the Brera of Milan, Dresden Museum, National Gallery of London, and Vienna Museum; and Leonardo da Vinci, at the Uffizi, Florence.

AEGINETAN MARBLES. Sculptures found in the temple of Athena in the island of Aegina; found in 1811 and restored by Thorwaldsen; supposed to have been executed about 475 B. C.; now in the Glyptothek at Munich.

AGE OF INNOCENCE. Painted by Sir Joshua Reynolds; now in the National Gallery at London. It represents a little girl seated under trees upon the grass.

THE DOCTORS. Detail from the Anatomy Lecture. REMBRANDT. Royal Museum, The Hague.

ALEXANDER, HISTORY OF. A series of five paintings by Charles Le Brun; now in the Louvre. The subjects are The Passage of the Granicus, Battle of Arbela, Tent of Darius, Alexander and Porus, and Alexander Entering Babylon.

THE ANGELUS. MILLET. Paris.

ALMA MATER. A statue by French; in the approach to the Library of Columbia University in New York. A colossal figure seated in a curule chair, with elbows resting upon the arms, her head crowned by a wreath, and bearing a mace upright in her right hand.

AMAZONS, BATTLE OF THE. Painted by Rubens; now in the Munich Gallery. It represents the conquest of the Amazons by Theseus. He is shown upon a prancing horse and about to hurl his javelin at the Amazons, many of whom are falling from the bridge or struggling in the water.

AMBROSE AND THEODOSIUS. Painted by Rubens; now in the Vienna Museum. It is the scene of the refusal of Archbishop Ambrose of Milan to admit the emperor Theodosius into the cathedral until he shall do penance for his massacre of the people of Thessalonica (390).

AMOR CARITAS. By Saint-Gaudens; in the Luxembourg Gallery in Paris. One of the most admirable angel forms known to modern art.

ANATOMY LECTURE. A masterly composition by Rembrandt, now in the Royal Museum, The Hague. This painting shows the marvelous handling of light and shadow and the clear portrayal of character on every face, the whole being bathed in the luminous atmosphere so characteristic of Rembrandt's genius.

ANGEL OF DEATH AND THE YOUNG SCULPTOR. A relief by Daniel French; in Forest Hills Cemetery, near Boston. The Angel of Death is staying the hand of a young sculptor just as his work nears completion. It is a memorial to Martin Milmore.

ANGELUS. A celebrated painting by the French genre and landscape painter Millet (Paris, 1859). A peasant youth and maid pause from their outdoor work at the sound of the angelus, and stand in an attitude of silent prayer. This picture was purchased by the American Art Association in 1889 for 580,650 francs and resold in 1890 to M. Chauchard for $150,000.

THE ANNUNCIATION. TINTORETTO. Berlin Gallery

ANNUNCIATION, THE. The announcement by the angel Gabriel to the Virgin Mary of the coming birth of

Christ. A favorite subject of painters. Among the most famous are those by Fra Angelico, in the Madrid Museum; Fra Bartolommeo, in the Louvre; Ludovico Carracci, in the Louvre; Murillo, in the Madrid and the Seville museums; Andrea del Sarto, in the Pitti Palace, Florence; and Titian, in the Scuola di San Rocco at Venice. One of a series of paintings from the life of Christ by Tintoretto (1518-1594), and now in the Berlin Gallery. It was painted for the Guild of San Rocco, Venice, by whom he was engaged to paint three pictures a year at a salary of 100 ducats.

ANTINOUS. The illustration shows the marble bust of Antinoüs in the Vatican Museum, Rome. This is only one of several busts and statues of Hadrian's favorite, who lost his life in saving his master from drowning in the Nile. Antinoüs was a popular figure with Roman sculptors, and they made of him a new Apollo.

ANTINOUS. Vatican Museum, Rome.

ANTIOPE. Painted by Correggio; now in the Louvre. Antiope sleeps upon a blue drapery at the foot of a tree, while Cupid lies sleeping upon a lion's skin near her. A satyr stands near her head.

APOLLO BELVEDERE. A famous statue in the museum of the Vatican. It is a copy of a bronze statue executed soon after the death of Alexander. The original is attributed to Leochares, one of the artists engaged upon the Mausoleum under the direction of Scopas. The god has just hurled a dart and his expression is one of divine anger, not unmingled with contempt.

APOLLO CITHAROEDUS or **APOLLO MUSAGAETES.** A copy of a statue by Scopas, placed in the Palatine Temple by Augustus; now in the Vatican. Apollo is dressed in a tunic and crowned with a laurel wreath. He is playing the cithara or lyre.

APOLLO SAUROCTONUS or **APOLLO THE LIZARD SLAYER.** A copy of a work in bronze by Praxiteles. One is in the Vatican; a second, in the Louvre; and a third, in bronze, in the Villa Albani. Apollo is represented as a beautiful youth standing by a tree trunk and about to pierce a lizard with a dart.

ARAB SCOUT. Painted by Adolf Schreyer, the animal painter. This work was sold at the Morgan sale in New York, in 1886, for $3,500.

ARES or **MARS, STATUE OF.** In the Villa Ludovisi at Rome. The god holds his sword in his hand; one knee is raised; his shield is beside him; while at his feet Cupid or Eros, his son, plays.

ASHMOLEAN MUSEUM. At Oxford University; built (1679-1683) to receive the natural and antiquarian curiosity collections donated by Elias Ashmole. The Arundelian Marbles and other antiquities are contained in it.

APOLLO BELVEDERE. Vatican Museum, Rome.

ASSUMPTION, THE. The ascent to heaven of the Virgin Mary after death. The most famous paintings of this event are by Titian, in the Venice Academy and the Cathedral of Verona; Rubens, in the Antwerp Cathedral; and Andrea del Sarto, in the Pitti Palace at Florence.

AUGUSTUS CÆSAR. Vatican Museum, Rome.

AUGUSTUS CAESAR. This fine statue, now in the Vatican Museum, was found near Velletri (Veliterae), the birthplace of the conqueror of Actium. It is a lifelike figure of Augustus proudly haranguing the people.

AURORA. A fresco painting by Guido Reni on a ceiling of the Rospigliosi Palace at Rome. The goddess flies before the car of Phoebus (Apollo), scattering

roses. Graceful figures representing the hours attend the god. Guercino executed a similar, but inferior, fresco on a ceiling of the Villa Ludovisi at Rome.

AVENUE AT MIDDELHARNIS. One of the earlier works of Hobbema, the Dutch landscape painter. It is noted for its truth of atmospheric effect and for tone and brilliancy of color. It is in the National Gallery at London.

BACCHANTE. Statue by Macmonnies; in the Metropolitan Museum in New York. A remarkably realistic and idealistic conception.

BACCHUS AND ARIADNE. Painted by Titian; in the National Gallery at London. Ariadne is fleeing from Bacchus, who is leaping from his leopard-drawn car to pursue her, after she has been deserted by Theseus on the shore of Naxos.

BATTLE OF ISSUS. A mosaic picture, 17 feet by 8, found in Pompeii; now in the Naples Museum. Alexander is charging towards Darius, who is standing in a chariot attended by his horsemen and soldiers.

BEAR-TAMER, BOHEMIAN. Executed by Paul Wayland Bartlett while in Paris and exhibited at the Salon. Two years' work was expended upon it. The plaster cast of his first effort is in the Art Institute in Chicago, the bronze is in New York.

BEATRICE CENCI (*ba-ah-tre'chay chen'che*). Painted (it is said) by Guido; now in the Barberini Palace at Rome; but much doubt is cast upon both the subject and the artist.

BEATRICE CENCI. A statue by Harriet Hosmer; in the Mercantile Library at St. Louis. As a prisoner she sleeps on her hard pallet; the left hand has fallen to the floor and holds a rosary.

BEECHER, STATUE OF. By J. Q. A. Ward; in front of the Court House in Brooklyn. It presents the great orator, clad in overcoat with cape, his hat in hand, standing solidly upon both feet in an attitude which he so often assumed while addressing the people.

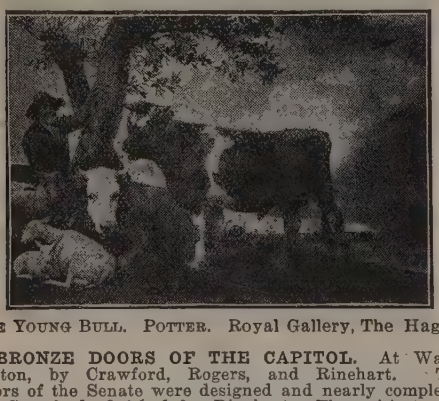
BEETHOVEN. Bronze statue by Crawford; stood for years in Music Hall in Boston, Mass.; now in the new Symphony Hall, Back Bay.

BELSHAZZAR'S FEAST. Painted by Washington Allston; now in the Museum of Fine Arts at Boston, Mass. Daniel is interpreting the handwriting on the wall. The picture was begun in 1818, but was never completed.

BELVEDERE. A part of the Vatican at Rome; noted for its collection of art treasures, which include the Apollo Belvedere and the Laocoön.

BLUE BOY, THE. Painted by Gainsborough; now in Grosvenor House, the residence of the duke of Westminster. Sir Joshua Reynolds had said that cold colors (blue being the chief) cannot be effectively used in painting portraits. This work was done in that color to disprove his theory.

BRERA (*bra'rah*). Originally a Jesuit church called Santa Maria; now the Palace of Science and Art in Milan, Italy; noted for its picture gallery, library, observatory, etc.



THE YOUNG BULL. POTTER. Royal Gallery, The Hague.

BRONZE DOORS OF THE CAPITOL. At Washington, by Crawford, Rogers, and Rinehart. The doors of the Senate were designed and nearly completed by Crawford, finished by Rinehart. The subjects are "War and its Terrors," "Peace and its Blessings," and include "Bunker Hill and the Death of Warren," "Battle of Monmouth and Rebuke of Lee," "Yorktown and Hamilton," "A Hessian Soldier Attacking a House," "Washington's Reception at Trenton," "Inauguration of Washington," and "Laying of the Corner-stone of the Capitol." Bronze doors in the rotunda of the Capitol at Washington by Rogers. The scenes are from the life of Columbus. They are remarkable for grace and dramatic power.

BRUTUS. Painted by Jacques Louis David in 1789; now in the Louvre. Brutus holds in his hand the written evidence of the guilt of his sons in attempting the restoration of the Tarquins. The bodies of his sons, who have just been executed by their father's orders as consul, are carried away by the lictors amid the shrieks of their mother and sisters.

BULL, THE YOUNG. Painted by Paul Potter in 1647; now in the Royal Gallery at The Hague. The bull is standing under a tree; a ewe is resting by a cow under the tree; while a herdsman is standing on the other side of the fence. All are life size, and the execution and color make the work a masterpiece.

CAESAR, DEATH OF. A favorite subject with painters. The most notable are by Vincenzo Camuccini, in the Royal Palace at Naples; Gérôme, owned by J. J. Astor; and Karl von Piloty, in the Munich Gallery.

CASTOR AND POLLUX. Painted by Rubens; now in the Munich Gallery. The twins are carrying off Hilaira and Phoebe, daughters of Leucippus and priestesses of Athene and Artemis. The maidens were betrothed to Idas and Lynceus. This led to the war in which Castor was slain by Idas.

CECILIA, SAINT. Painted by Raphael; now in the Bologna Gallery. The saint is standing between Saints Paul and John on one side and Saint Augustine and Mary Magdalen on the other. Domenichino, Rubens, and Reynolds have also treated this subject.

CHANCELLOR JOHN WATTS. Statue by Bissell; in Trinity churchyard in New York. The best work this sculptor did.

CHAPEAU DE PAILLE. Painted by Rubens; now in the National Gallery in London. A half-length portrait of a young lady in a black velvet bodice with crimson sleeves and wearing a black hat with black and white feathers.

CHAPIN, STATUE OF DEACON. By Saint-Gaudens; in Springfield, Mass. The old Puritan, on his way to, or from, the meeting house, "grasping," as Kenyon Cox says, "his Bible as Moses clasped the tables of the law and holding his peaceful walking stick with as firm a grip as the handle of a sword."

CHARLES I. Painted by Van Dyck about 1635; now in the Louvre. The king is dressed in white satin jacket, red hose, buff boots, and has just dismounted from his horse.

CHARLES V. AT MUHLBERG. Painted by Titian in 1548; now in the Madrid Museum. The emperor is mounted and carries a spear upon the field of Mühlberg, where he defeated the elector of Saxony in 1547.

CHILDREN OF CHARLES I. Painted by Van Dyck in 1638; now in Windsor Castle. Prince Charles is standing, with his hand upon the head of a very large dog; Princess Elizabeth and Princess Mary are on his right; while Princess Anne holds James, Duke of York, upon her knee. A later picture by Van Dyck is also at Windsor, and an earlier one is in the Turin Gallery.

CHRIST BEFORE PILATE. Painted by Munkácsy in 1881.

CHRIST CROWNED WITH THORNS. Painted by Titian in 1553; now in the Louvre. Another by Caravaggio is in the Hermitage; one by Ludovico Carracci is in Bologna; one by Van Dyck is in the Berlin Museum; one by Guercino is at Munich; and a second by Titian is also in Munich.

CHRIST HEALING THE SICK. Painted by West in 1826; now in the National Gallery in London.

CHRIST ON CALVARY. Painted by Munkácsy in 1883 and 1884. A vivid representation of the crucifixion. The picture was exhibited in America.

CLEOPATRA. A marble statue by Story (1862); in the Metropolitan Museum at New York. An impressive work. Hawthorne took an interest in the conception and execution of the statue.

CLYTIE. A life-size nude marble statue by Rinehart (1872); in a special gallery in the Peabody Institute. A plaster cast is in the Corcoran Art Gallery. The modest grace and tenderness of the figure are delightful.

COMMUNION OF ST. JEROME. Painted by Domenichino in 1614; now in the Vatican. One of the world's most celebrated paintings. St. Jerome is near unto death and is lying before the altar. He attempts to receive the Host from St. Ephraim of Syria. His faithful lion is near him; and, above, is a group of angels.

CONSPIRACY OF CATILINE. Painted by Salvator Rosa; now in the Pitti Palace in Florence. It represents the conspirators taking an oath of fidelity.

CORIOLANUS. A statue of Forrest as Coriolanus executed by Thomas Ball in 1867; now in the Actors' Home near Philadelphia. An excellent piece of work.

CROMWELL AND CHARLES I. Painted by Paul Delaroche; exhibited in Paris in 1831; now in the Nîmes Museum. Cromwell stands beside the coffin of Charles I. and gazes solemnly upon the face.

CRUCHE CASSE or **THE BROKEN PITCHER.** Painted by Greuze; now in the Louvre. A young girl bears a broken or cracked pitcher on her arm. She stands beside a fountain. She is dressed in white, wears a violet ribbon, and carries flowers in her apron.

CRUCIFIXION. Almost all of the great masters have painted this subject. Among the most famous are the pictures by Lucas Cranach, in the Stadtkirche at Weimar; Van Dyck, in Mechlin Cathedral; Andrea Mantegna, in the Louvre; Murillo, in the Hermitage; Rubens, in the Antwerp Museum; Tintoretto, in Venice; Titian, in Ancona; and Christ on Calvary by Munkácsy.

DANTE'S DREAM. Painted by Dante Gabriel Rossetti in 1870; now in the Liverpool Gallery. It represents Dante's dream of seeing Beatrice on the day of her death, as told in his *Vita Nuova*.

DAVID. MICHELANGELO.

DAVID. This statue, now at Florence, is one of the early masterpieces of Michelangelo. The anatomy is so perfect that some even regard the *David* as an offense against taste.

DAVID AND GOLIATH. Painted by Guido; now in the Hermitage at St. Petersburg. David stands holding the bleeding head of the giant. His sling is in his left hand and the giant's sword is at his feet.

DEATH AND THE WOODCUTTER. Painted by Millet in 1859; now owned privately in Paris. An old woodcutter, staggering under a load of fagots and oppressed by the poverty of his lot, calls upon Death to relieve him of the burden of life, but trembles with fear on his approach.

DEATH OF WOLFE. Painted by West in 1771; now in Grosvenor House, London. In the scene of the death of Wolfe on the Plains of Abraham at Quebec in the moment of victory over the French in 1759, West departed from the custom among artists of painting modern figures in classical costumes and presented his characters in modern dress.

DEATH ON THE PALE HORSE. Painted by West in 1817; now in the Pennsylvania Academy. It is 25 feet long and 15 feet high. It is an interpretation of the sixth chapter of Revelations.

DESCENT FROM THE CROSS. A favorite subject with the great masters. Among the most famous are the paintings by Rubens, in the Antwerp Cathedral; Daniele da Volterra, in Rome; Rembrandt, in the Munich Gallery; Andrea del Sarto, in the Pitti Palace at Florence; and Titian, in the Venice Academy.

DIADUMENUS. A statue by Polyclitus. A Roman copy of this is in the British Museum. It represents an athlete binding his brow with a fillet.

DIANA AND ACTAEON. Painted by Titian in 1559; now in Bridgewater House, London, owned by the earl of Ellesmere. With "Diana and Callisto" it forms the pair painted for Philip II. of Spain.

DIANA OF VERSAILLES. A Greek statue found in the ruins of Hadrian's villa at Tivoli; now in the Louvre. It is the most famous statue of the goddess. The goddess is advancing with one hand upon the head of a stag and the other drawing an arrow from a quiver.

DIANA OR CHRIST. Painted by Edwin Long in 1881 and exhibited at the Royal Academy in London. A Christian maiden in the stadium at Ephesus, surrounded by soldiers, executioner, and Roman rulers, elects the service of Christ and the death penalty in preference to that of Diana and life.

DIANA'S HUNTING PARTY. Painted by Hans Makart in 1882 and presented by James H. Banker to the Metropolitan Art Museum in New York. It measures 29 by 13 feet. Diana is about to hurl her spear at a stag in the water protected by nymphs, who beg its life from the goddess.

DIGNITY AND IMPUDENCE. Painted by Landseer; now in the National Gallery at London. A sedate old bloodhound and a saucy Scotch terrier are side by side looking from the door of a kennel.

DORYPHORUS. A statue by Polyclitus; now in the Naples Museum. It was long the standard of human proportion and was known as "The Canon." Artists have visited it from all parts for study. It represents a young man holding a spear in the left hand.

DUCHESS OF DEVONSHIRE. Painted by Gainsborough in 1783.

THE DYING GAUL. Capitoline Museum, Rome.

DYING GAUL. This famous statue in the Capitoline Museum, Rome, represents the passing away of a vanquished barbarian, at once a realistic and pathetic figure. This is a marble copy of a bronze statue executed in the time of King Attalus of Pergamus, about 240 B. C., and is sometimes erroneously called the "Dying Gladiator."

ECCE ANCILLA DOMINI (BEHOLD THE HANDMAIDEN OF THE LORD). The Annunciation painted by Dante Gabriel Rossetti in 1850; now in the National Gallery at London. The Virgin is a portrait of the artist's sister, Christina.

ECCE HOMO (BEHOLD THE MAN). The presentation in art of the passion and capacity for suffering of Christ; a favorite theme of painters. The most notable examples are by Correggio, in the National Gallery at London; Guido, in Dresden Gallery; Murillo, in Madrid and Cadiz galleries; and Titian, in Madrid and Vienna museums.

EGYPT AWAKING. A statue by Elwell; in Paris. A typical Egyptian female figure, seated, with arms uplifted and stretching as one who has just awakened.

ELEVATION OF THE CROSS. Raising the cross after Christ had been fastened upon it; a favorite subject. The best are by Rubens, in the Antwerp Cathedral, and by Van Dyck, in Notre Dame at Courtrai, Belgium.

ELGIN MARBLES. Taken from Athens in 1803 by Lord Elgin and sold for £35,000 ($170,000) to the British government; now in the British Museum. Among them are parts of the frieze of the Parthenon. Considered the finest examples of ancient art. Probably the work of Phidias about 440 B. C.

EMANCIPATION GROUP. Lincoln and a kneeling slave, by Thomas Ball in 1875; in Washington and a replica in Boston (1877). The conception of Lincoln is a lofty one; and the great theme is treated with a high degree of artistic emotion.

THE ENTOMBMENT. TITIAN. Prado Museum, Madrid.

ENTOMBMENT. Bearing the body of Christ to the tomb. Among the most celebrated is that by Titian, in the Louvre, painted in 1523; owned by Charles I., and on his execution passed to Louis XIV. It is one of the most famous pictures in the world. Among the best known are those by Caravaggio, in the Vatican at Rome; Garofalo, in the Borghese Palace at Rome; Raphael, in the Borghese Palace at Rome, and Titian, in the Madrid Museum.

ETHAN ALLEN, STATUE OF. By Larkin G. Mead; in the National Hall of Statuary in the Capitol at Washington; the contribution by Vermont. It is remarkably well done and full of life.

FARNESE BULL. A marble group credited to Apollonius and Tauriscus of the third century B. C.; found in the ruins of the Baths of Caracalla in 1546 and placed in the Farnese Palace at Rome; now in Naples Museum. Zethus and Amphion, sons of Antiope, are tying Dirce to the horns of a bull to punish her for ill-treating their mother.

FARNESE FLORA. A colossal statue of the goddess found in 1546 in the ruins of the Baths of Caracalla; placed in the Farnese Palace; now in the Naples Museum. The figure is 11½ feet high; one of the most beautiful of the ancient colossal statues.

FARNESE HERCULES. Credited to Glycon of Athens in the first century B. C.; perhaps a copy of the Hercules of Lysippus. Hercules stands leaning upon his club with his right hand behind him; found in the Baths of Caracalla in 1540; placed in the Farnese Palace; now in the Naples Museum.

FARNESE JUNO or HERA. Supposed to be a copy of the gold and ivory statue, by Polyclitus, erected near Mycenae about 420 B. C.; formerly in the Farnese Palace; now in the Naples Museum.

FARRAGUT, STATUE OF. By Saint-Gaudens; in Madison Square, New York. One of America's most perfect public memorials.

FAUN OF PRAXITELES. Statue of a faun or satyr leaning upon a tree stump; by Praxiteles. The finest copy is in the Capitoline Museum at Rome.

FEAST IN THE HOUSE OF LEVI. Painted by Paolo Veronese in 1573; now in the Venice Academy. It is 19 feet 8 inches by 46 feet. The theme is taken from Luke v. 29.

FEAST OF THE ROSE GARLANDS. Painted by Albrecht Dürer in 1506; now in the Prague Museum. The Virgin and Child are enthroned under a canopy; angels hold a diadem over the Virgin's head; she crowns the emperor and the Child crowns the pope; both recipients kneel before the Virgin and Child.

FIDES. Painted in 1877 by Edward Burne-Jones, the great English exponent of the romantic school. His work is characterized by idealism and abstract beauty.

FLIGHT INTO EGYPT. Mary and Joseph fleeing into Egypt with the infant Jesus, to escape the jealous fear of Herod. Among the most famous are those by Claude Lorrain, in the Dresden Museum; Murillo, in collection of the duchesse de Galliera in Paris; Rubens, in the Louvre; and Tintoretto, in Venice.

FRIEDLAND or 1807. Painted by Meissonier in 1878; now in the Metropolitan Art Museum in New York. A review of the victorious French army after the battle of Friedland (1807), which made Napoleon dictator of Europe. The Twelfth Cuirassiers gallop through the trampled grain and salute Napoleon.

GALLAUDET GROUP. By French; in the Columbian Institution for Deaf Mutes in Washington. Dr. Gallaudet is represented seated in a chair with a little girl standing beside him. The deaf-mute is learning to talk. This is undoubtedly an exquisite work.

GANYMEDE AND THE EAGLE. A marble group in the Vatican, supposed to be a copy of the bronze done by Leochares in Athens, representing Ganymede being carried to heaven by Zeus in the form of an eagle.

GARFIELD. A bronze statue by Niehaus in Cincinnati; also a marble statue by the same at Washington.

GAUL AND HIS WIFE, THE. A famous group from Asia Minor, probably in the third century B. C.; now in the Villa Ludovisi at Rome. The Gaul is killing himself after having killed his wife; one of the most pathetic studies of antiquity.

GIRLHOOD OF SAINT GENEVIEVE. Painted by Puvis de Chavannes; now in the Panthéon at Paris. St. Germain hangs a medal, marked with a cross, around the neck of St. Geneviève, the patron saint of Paris, and dedicates her to the service of God.

GIORNO, IL, or THE DAY. Painted by Correggio in 1523; now in the Parma Gallery. The Virgin, holding Jesus, is seated with Magdalen on her right and St. Jerome, with lion, on the left.

GRACES, THE THREE. Painted by Raphael in 1504; now in the Chantilly Gallery in France. Though only seven inches long and five inches high, it was bought in 1885 by the duc d'Aumale for £25,000.

GREEK SLAVE, THE. A marble statue by Hiram Powers in 1847; now in the Corcoran Art Gallery at Washington. A nude figure of a woman, chained and exposed for sale in the slave market. Its marvelous popularity in its day far exceeded its artistic merits. Many copies were made by Powers. It is one of the first nude sculptures produced by an American.

FARNESE HERCULES. Naples Museum.

HALE, NATHAN. A statue by Macmonnies; in City Hall Park, New York City. It represents the last moments of the patriot's life as he stands, bound, and utters his defiant words, "I only regret that I have but one life to lose for my country."

HARVARD, JOHN, STATUE OF. By French (1882); at Cambridge. A very effective and truly artistic work.

HAY WAIN. One of the finest paintings of Constable, now in the National Gallery, London. It is a simple English landscape painted in the realistic style of this great innovator.

THE HAY WAIN. CONSTABLE. National Gallery, London.

HEMICYCLE, LE, or **THE SEMICIRCLE.** Painted by Paul Delaroche upon the amphitheater wall of the Palais des Beaux-Arts in Paris in 1837 and 1841. It represents art and contains 75 colossal figures of the world's great artists.

HENRY IV. AND THE SPANISH AMBASSADOR. Painted by Dominique Ingres in 1817; owned by Baron Rothschild. The proud ambassador, admitted to an audience with the king, is horrified to find the king upon all fours romping with his children, one of whom is riding upon his back.

HERCULES, DEATH OF. Painted by Guido; now in the Louvre. Hercules, desperate through the agony of the poisoned tunic, lies upon a funeral pyre on Mount Oeta.

HERCULES STRANGLING THE SERPENTS. Painted by Sir Joshua Reynolds in 1788 for Catherine II.; now in the Hermitage in St. Petersburg. The picture is allegorical of the early struggles of Russian national life.

HERMES OF PRAXITELES. Statue by Praxiteles; found in 1877 in the excavation of the Temple of Hera at Olympia. The god is holding the infant Dionysus on his arm; now in the Olympia Museum.

HIERONYMUS HOLZSCHUHER. DÜRER. National Gallery, Berlin.

HIERONYMUS HOLZSCHUHER. A portrait in the Berlin Museum, painted by Albert Dürer of Nuremberg. It is a strong and masterly work, but evidently inspired by the Van Eycks.

HILANDERAS, LAS, or **THE TAPESTRY WEAVERS.** Painted by Velasquez about 1656; now in the Madrid Museum. This masterpiece represents women at work in the royal tapestry manufactory of Santa Isabel at Madrid.

HILLE BOBBE. Painted by Frans Hals about 1650; now in the Berlin Museum. The witch of Haarlem is seated at a table, an open beer stein before her on the table, and an owl perched on her left shoulder. There is a similar picture in the Metropolitan Art Museum in New York.

HOLY FAMILY, THE. A favorite subject with the great painters. The most famous are by Fra Bartolommeo, at Panshanger House, England, and in the Pitti Palace at Florence; Michelangelo, in the Uffizi Gallery at Florence; Domenichino, in the Louvre; Bernardino Luini, in the Louvre; Murillo, in Madrid, at the Hermitage, in the Louvre, in the Metropolitan Art Museum at New York, and in the National Gallery in London; Sebastiano del Piombo, in the Baring Collection in London; Raphael, in the Louvre and at Munich; Rembrandt, in the Hermitage; Rubens, in the Hermitage, the Pitti Palace, Vienna Museum, and Windsor Castle; Andrea del Sarto, the Pitti Palace, Louvre, and National Gallery; Titian, in the Louvre; and Paolo Veronese, in the Uffizi in Florence.

HOLY NIGHT. CORREGGIO. Royal Gallery, Dresden.

HOLY NIGHT. One of the great altarpieces painted by Correggio in 1529, and now in the Royal Gallery, Dresden. It is the birth of Christ, with the surrounding darkness made more intense by contrast with the light which radiates from the newborn babe and which illumines the Madonna and the faces of those around.

HORSE FAIR, THE. Painted by Rosa Bonheur in 1853; now in the Metropolitan Art Museum in New York. It is 8 feet high and 15 feet long.

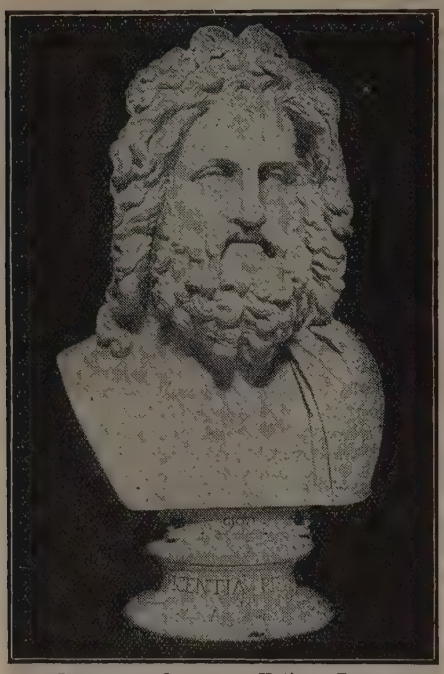
HORSE TAMERS. Group by Macmonnies; at the entrance to Prospect Park in Brooklyn. A young trainer upon the back of one plunging horse seeks to tame another.

HUGUENOT, A. Painted by Sir John Everett Millais in 1852; owned by Mrs. Miller of Preston, England. A Catholic woman seeks to save her Huguenot lover by binding a white scarf around his arm on the morning of the massacre of St. Bartholomew (August 24, 1572). The lover gravely declines the badge.

I FEEL TWO NATURES STRUGGLING WITHIN ME. A group by George Grey Barnard (1894); in the Metropolitan Museum in New York. A victor bending over a prostrate vanquished foe. Remarkable for its vigor and impressiveness.

IMMACULATE CONCEPTION, THE. Painted by Murillo in 1678; now in the Louvre; carried from Spain by Marshal Soult; sold in Paris, in 1852, to the French government for 615,000 francs, the largest sum paid up to that time for any picture.

ISLE OF THE BLESSED. Sometimes called the Island of Death. A striking example of the artistic conceptions of Arnold Böcklin. These works were much ridiculed when first exhibited.



JUPITER OF OTRICOLI. Vatican, Rome.

JACKSON MONUMENT. The first equestrian statue of the United States, executed by Clark Mills in 1853; in Lafayette Square in Washington, opposite the White House.

JOAN OF ARC. Painted by Jules Bastien-Lepage in 1880; now in the Metropolitan Art Museum in New York. Dressed as a peasant girl, she stands under the trees looking at the spectral figures of angels and knights in the clouds.

JOAN OF ARC IN PRISON. Painted by Paul Delaroche in 1824; owned by the duke of Padua. Joan in her cell and bound in chains is being interrogated by the bishop of Winchester, while a clerk records her answers in a book.

JOHN THE BAPTIST, ST. Painted by Leonardo da Vinci; now in the Louvre. He is clad in a lamb-skin; holds a cross in his left hand, and points upward with his right. Francis I. of France owned it; Louis XIII. gave it to Charles I. of England; and upon his death it went to Louis XIV. Other famous pictures on this subject are by Guercino, in the Capitoline Museum; Murillo, at Madrid and Seville; and Andrea del Sarto, in the Pitti Palace, in Florence.

JOHN THE EVANGELIST, ST. Painted by Murillo; now in the Leigh Court Collection in England. The saint is recording the revelation in a book as he is seated on a rock.

JOSEPH AND THE INFANT CHRIST. Painted by Murillo. Two are in the Hermitage, one in Seville, and others in private collections.

JOSEPHINE, CORONATION OF. Painted by Louis David in 1808; now in the Versailles Museum. It is 20 feet by 33 feet. It depicts the coronation at Notre Dame in Paris, December 6, 1804.

JUDGMENT OF PARIS. Painted by Rubens; now in Dresden Museum. A second, by the same, is in the National Gallery at London. Paris, advised by Mercury, holds the golden apple and is deciding upon the relative beauty of Juno, Minerva, and Venus.

JUDITH AND HOLOFERNES. Judith, aided by her servant, is cutting off the head of Holofernes. By some artists she is represented as carrying it. The most famous pictures are by Michelangelo, in the Sistine Chapel; Tintoretto, three pictures in Madrid; Horace Vernet, in the Louvre; Artemisia Gentileschi; in the Pitti Palace; Cristofano Allori, in the Pitti Palace; Philip van Dyck, in The Hague Museum; Andrea Mantegna, in Berlin Museum; and Paolo Veronese, in the Vienna Museum.

JUPITER OF OTRICOLI. The bust of Jupiter found at the Umbrian village of Otricoli, and now in the Vatican Museum at Rome, is believed to have been copied from the historic Olympian statue, the famous masterpiece of Phidias, which was reckoned among the seven wonders of the ancient world.

KNIGHT'S VISION. Painted by Raphael in 1504; now in the National Gallery in London. A young knight sleeps on his shield at the base of a laurel tree. Two maidens, representing fame and pleasure, appear in his dream.

LADY JANE GREY, EXECUTION OF. Painted by Paul Delaroche in 1834. She is kneeling by the block on the scaffold in the Tower of London (February 12, 1554). A priest whispers consolation to her; the executioner stands ready with his ax; and on the left two women stand weeping.

LANZAS, LAS, or THE LANCES. Painted by Velasquez in 1647; now in the Madrid Museum. It represents the surrender of Breda in 1625. Justin of Nassau surrenders the keys of the city to the marquis de Spinola, the Spanish commander, in the presence of the Spanish and Flemish armies. It is one of the greatest of historical paintings.

LAOCOON. A celebrated group in the Vatican, the work of three Rhodian sculptors, about 50 B. C. A Trojan priest, gripped in the deadly coils of the serpents, sees the life of his two sons being crushed

LAOCOON. Vatican, Rome.

out beside him, while he, tortured alike by his pain and powerlessness, utters a last cry of exquisite anguish. This pathetic group inspired the *Laokoon* of Lessing.

LAST JUDGMENT. Painted by Michelangelo in 1534-1541; now in the Sistine Chapel of the Vatican. It is a fresco on the end of the chapel wall opposite to the door and measures 44 feet wide and 54 feet high. It contains 314 figures. Other artists who have treated the same subject are Fra Angelico, Fra Bartolommeo, Rubens, Luca Signorelli, and Roger van der Weyden. Tintoretto's great work in Santa Maria dell' Orto in Venice is 30 feet wide and 60 feet high.

LAST SUPPER, THE. Painted by Leonardo da Vinci in 1498 on the wall of the refectory in the convent of Santa Maria delle Grazie at Milan. It is in oil and measures 15 feet hign and 28 feet long. The refectory was used as a stable for dragoons in 1796. This, with dampness and repainting, has nearly

destroyed it. Fra Angelico, Philippe de Champaigne, Murillo, Raphael, Holbein, Tintoretto, Titian, and Rubens have treated the same theme.

LAST TOKEN, THE. Painted by Gabriel Max in 1874; now in the Metropolitan Art Museum in New York. A Christian maiden martyr in the Colosseum at Rome looks anxiously up to see what sympathizing spectator has cast a rose at her feet, at the moment when two lions and a tiger have issued from their cages.

LATONA AND HER CHILDREN. A marble group by Rinehart in 1874; in the Metropolitan Museum in New York. The queen mother bends tenderly over her sleeping children. Noted for its "serene poetic charm."

LAZARUS, RAISING OF. Painted by Sebastiano del Piombo in 1519; now in the National Gallery in London. It measures 12½ feet by 9 feet 5 inches. Lazarus, in obedience to Christ's command, has risen from the grave and is putting off his grave clothes, while Mary kneels at the feet of Christ. This is one of the world's most highly esteemed paintings. It was painted with the hope of rivaling the Transfiguration of Raphael.

LEO X., POPE, PORTRAIT OF. A famous portrait by Raphael in the Pitti Palace in Florence, Italy. Dressed in a loose white robe, with fur trimmed sleeves, red velvet collar and cap, the Pope sits at a table with a book before him, holding an eyeglass in one hand. Behind him stand his two nephews, Cardinal Giulio de' Medici (Clement VII.) at the right, and Cardinal Luigi de' Rossi, his secretary, at the left. One of the most celebrated portraits in the world. It was carried to Paris in 1797, returned in 1815.

LIBERTY or FREEDOM. The figure on the dome of the Capitol at Washington, by Crawford. The original plaster cast is in the National Museum. The details do not bear out the impressive effect which the statue on the dome gives. Cast by Clark Mills and erected in 1863.

LIGHT OF THE WORLD. Painted by William Holman Hunt in 1854; now in Keble College at Oxford. Christ stands before a closed door, bearing a lantern in his hand.

LION HUNT. Painted by Rubens; now in the Munich Gallery. It measures 8 1-3 feet by 12 1-3 feet. A contest between lions and mounted hunters.

LION OF LUCERNE. Carved by Thorwaldsen on the face of a cliff at Lucerne, in Switzerland. It is of colossal dimensions and represents a crouching lion pierced by a spear and dying; to commemorate those of the Swiss Guards who died defending Louis XVI. in the Tuileries during the Revolution (August 10, 1792).

MADONNA. CARLO DOLCI.

LION'S BRIDE, THE. Painted by Gabriel Max to illustrate Uhland's poem. The daughter of the keeper of a menagerie enters the lion's cage the day before her wedding day to take farewell of the lion. She is killed by the beast, which crouches over the form of the girl and glares at her lover, who is seen through the bars of the cage with a pistol in his hand.

LOGAN, STATUE OF GENERAL. An equestrian monument by Simmons (1901); in Iowa Circle at Washington. An elaborate bronze memorial; remarkably successful.

LOVE AND DEATH. Painted by George Frederick Watts in 1877. Death, clad in white, pushes Love against the roses as he forces his way into a house.

LOVE AND LIFE. Painted by George Frederick Watts in 1885. Love, a winged youth, leads Life, a young girl, up a steep hill, while flowers spring into life in his footsteps.

LYCURGUS. Statue by George Edwin Bissell; on the Appellate Court Building in New York.

MADONNA. A favorite theme of painters. The most famous are:—

Madonna. A typical painting of the Florentine Carlo Dolci, and one that has been frequently copied. These Madonnas of Dolci are frequently seen in European galleries, though the Louvre has not so far honored the painter.

MADONNA OF THE GOLDFINCH. RAPHAEL. Uffizi Gallery, Florence.

Madonna Aldobrandini, by Raphael in 1510 and 1511; now in the National Gallery in London; formerly in the Aldobrandini collection at Rome. Sometimes called the "Garvagh Madonna," from its former owner, Lord Garvagh.

Madonna degli Ansidei or the *Blenheim Madonna,* painted by Raphael in 1506 for the Ansidei family of Perugia; now in the National Gallery of London. It was bought from Blenheim Palace in 1884 for £70,000. The finest Raphael in England.

Madonna del Baldacchino or *Madonna of the Canopy,* by Raphael in 1508; now in the Pitti Palace at Florence. So called because the Virgin is seated under a canopy holding the infant Jesus in her lap.

Madonna del Campanello or Madonna of the Bell, by Bartolommeo Schidone; now in the Pitti Palace at Florence. The infant Jesus is reaching out for a bell which the Virgin holds in her hand.

Madonna del Candelabri or *Borghese Madonna,* by Raphael in 1516; now in the Butler-Johnstone collection in London. A burning candelabrum or torch is held by angels on both sides of the Mother and Child. It was formerly in the Borghese Palace at Rome.

Madonna del Cardellino or *Madonna of the Goldfinch,* by Raphael in 1506; now in the Uffizi at Florence.. St. John offers a goldfinch to the Child.

Madonna della Casa d'Alba or *Madonna of the Alva Family,* by Raphael in 1508 and 1509; now in the Hermitage at St. Petersburg. The Mother leans back against a tree trunk, while St. John hands the Child a cross.

Madonna della Cesta or *Madonna of the Basket*, by Correggio in 1520; now in the National Gallery in London. A basket of linen stands near the Virgin.

Madonna del Coniglio or *Madonna of the Rabbit*, by Titian in 1530; now in the Louvre. St. Catherine, with Jesus in her arms, stoops to look at a rabbit which the Virgin holds in her hand.

Madonna, Connestabile or *Staffa*, by Raphael about 1502 or 1503; now in the Hermitage. The Connestabile-Staffa family of Perugia sold it to the emperor of Russia in 1871, for 330,000 francs.

Madonna di Foligno, by Raphael in 1511; now in the Vatican at Rome. The Mother and Child look down from the clouds upon St. Jerome, St. Francis, and St. John the Baptist. Formerly in the Convent of St. Anna at Foligno.

MADONNA, LA BELLE JARDINIERE. RAPHAEL.
Louvre, Paris.

Madonna, "La Belle Jardinière." One of the beautiful Madonnas painted by Raphael between 1504 and 1508; now in the Louvre. This is one of the most perfect of his creations, and represents the Virgin with the infants, Jesus and John, in the midst of a beautiful landscape.

Madonna, Orleans, by Raphael about 1506; now in the Château de Chantilly in France. The duc d'Orleans owned it in 1701. The duc d'Aumale paid 150,000 francs for it in 1869.

Madonna del Pesce or *Madonna of the Fish*, by Raphael about 1514; now in the Madrid Museum. On the left of the enthroned Mother and Child the archangel Raphael presents Tobias holding the miraculous fish.

Madonna of the Rocks, by Leonardo da Vinci; now in the National Gallery in London. The Child is seated upon the ground and blesses the infant St. John. In the background there are a grotto and high rocks. This is a replica, with some modifications, of the one in the Louvre.

Madonna della Rosa, by Parmigianino; now in the Dresden Gallery. The Child holds a rose in his hand. Raphael, in the Madrid Museum, and Sassoferrato, in the Turin Gallery, have the same idea.

Madonna del Rosario, by Domenichino in the Bologna Gallery; by Murillo in the Dulwich Gallery, in the Pitti Palace, and at Madrid; by Caravaggio in Vienna; by Van Dyck in Palermo; and by Sassoferrato in S. Sabina at Rome. Jesus scatters roses from the clouds upon groups invoking the Virgin's aid through the rosary.

Madonna del Sacco or *Madonna of the Sack*, by Andrea del Sarto in 1525; now in SS. Annunziata de' Servi at Florence. At the left of the Mother and Child St. Joseph leans upon a sack reading.

Madonna della Scodella or *Madonna of the Cup*, by Correggio in 1527 and 1528; now in the Parma Gallery. The Virgin holds a cup or plate in her hand.

Madonna della Sedia or *Madonna of the Chair*, by Raphael in 1516 and 1517; now in the Pitti Palace at Florence. The Virgin, seated in a chair, clasps the infant Jesus in her arms, with the infant St. John on the right in adoration.

MADONNA OF THE CHAIR. RAPHAEL.
Pitti Palace, Florence.

Madonna de la Servilleta or *Madonna of the Napkin*, by Murillo in 1676; now in the Seville Museum. Said to be painted upon a dinner napkin.

Madonna di San Sisto, or the *Sistine Madonna*, or the *Madonna of St. Sixtus*, by Raphael in 1518; now in the Dresden Gallery. The Virgin, holding Jesus in her arms, stands upon clouds, surrounded by a glory of cherubim, between green curtains. On the left St. Sixtus (Pope Sixtus II.) kneels; St. Barbara on the right; and two angels lean upon a balustrade below.

Madonna with Santa Anna, by Leonardo da Vinci; now in the Louvre. The Virgin, seated upon the knee of Santa Anna, leans forward to take the Child, who caresses a lamb.

Madonna della Tenda or *Madonna of the Curtain*, by Raphael in 1516; now in the Munich Gallery. There is a green curtain in the background.

MAGDALEN or **THE READING MAGDALEN.** Painted by Correggio about 1533; now in the Dresden Gallery. It is only 12 inches high and 15 inches wide. It was for years carefully preserved in the Castle of Modena. The Magdalen reclines upon the ground supporting her head upon her right hand and holds a book in her left.

MAIDEN RUNNER, THE. A marble statue, supposed to date from the fifth century B. C.; now in the Vatican. The runner is just starting, with the body bent forward and the right foot raised.

MAN WITH THE GLOVE or **L'HOMME AU GANT.** A noted portrait painted by Vecelli Tiziano, or Titian, as he is more popularly called. It is in the Louvre, Paris. It is an interesting specimen of the work of this greatest painter of the Venetian school.

MAN WITH THE HOE. Painted by Jean François Millet in 1862. It represents a weary peasant leaning upon a clumsy hoe. It suggested Edwin Markham's well-known poem written in 1899.

MARCH OF ATTILA. A fresco painted by Raphael in 1510; in the Vatican. Attila, on his way to Rome, sees Saints Peter and Paul, guardians of the city, in the clouds, with swords in their hands. He submits to Pope Leo I., who is on the left with a retinue.

MARGARET, ST. Painted by Raphael about 1518; in the Louvre. The saint, a symbol of innocence, bears a palm in her right hand, presses one foot upon a huge dragon, the devil, who came to tempt her and whom she overcame.

MARRIAGE A LA MODE. A series of six well-known pictures by Hogarth, painted about 1750; now in the National Gallery in London.

MARRIAGE FEAST AT CANA. Painted by Paolo Veronese in 1563; in the Louvre. Based upon John ii. 1-12. One of the largest easel canvases ever painted —21 feet wide and 31 feet high. There are in it over 130 figures, portraits of contemporaries, in Venetian costume.

MARTYR, THE CHRISTIAN. Painted by Paul Delaroche in 1855; now in a private collection in Paris. The body of a young girl, with her hands bound, is floating down the river, the aureole about her face reflected in the dark waters. The prow of a galley and two figures on the bank complete the background.

MARTYRDOM OF ST. GEORGE. Painted by Paolo Veronese about 1568 in the church of San Giorgio Maggiore in Verona. St. George kneels with his eyes raised to heaven, ignoring a priest of Apollo; while beside him are the executioners and above him the Virgin and Child with attendants.

MARTYRDOM OF ST. LAWRENCE. Painted by Rubens; now in the Old Pinakothek at Munich. Tortured to death upon a gridiron because, as archdeacon under Pope Sixtus II. at Rome, St. Lawrence refused to give to the Roman prefect the treasures of the church. Titian, in the church of Gesuiti at Venice, and also in the Escorial, treated the same subject.

MARTYRS, CHRISTIAN. Painted by Gérôme; now in the Walters Collection at Baltimore. In the center of the arena of the Circus Maximus at Rome a number of Christian prisoners are either bound to crosses to be devoured by wild beasts, or, smeared with pitch, are to be burned alive. A number of wild beasts come stealthily and fearfully from their dens. Gustave Doré treated the same subject in 1874.

MASSACRE OF SCIO. Painted by Delacroix in 1824; now in the Louvre. The canvas—13 feet 10 inches by 11 feet 6 inches—depicts many Greek families upon the shore, after the massacre, awaiting their fate. A Turk is dragging a young girl fastened to his horse, while the city is burning in the distance.

MASSACRE OF THE INNOCENTS. Painted by Rubens in the Old Pinakothek at Munich; by Guido Reni, Garofalo, Tintoretto, and others.

MATER DOLOROSA or **THE SORROWING MOTHER.** Painted by Titian in 1554; now in the Madrid Museum. A bust picture of the Virgin in a violet tunic, with a blue mantle drawn over her white cap; her hands raised toward heaven as she laments the death of her Son.

MEDUSA, RAFT OF THE. Painted by Jean Louis Géricault (1791-1824) in 1819. The *Méduse* was wrecked (July 2, 1816) on her way to Senegal. The passengers sought safety on a raft. Of 149, only 15 survived the privations of 12 days. The canvas measures 23½ feet by 16 feet. It is in the Louvre.

MELEAGER AND ATALANTA. Painted by Rubens; now in the Munich Gallery. Meleager is presenting the head of the Calydonian boar to Atalanta. Similar works by Rubens are in Dresden, Madrid, Vienna, and the Hermitage.

MERCY'S DREAM. Painted by Daniel Huntington in 1850; now in the Corcoran Gallery at Washington. It is a scene from *Pilgrim's Progress*, where Mercy dreams that, despite her fears of not gaining admission to the Celestial City, an angel comes and dresses her in silver and gold and places a crown upon her head.

MERLIN, THE BEGUILING OF. Painted by Burne-Jones; now in a private collection in England. To illustrate Tennyson's *Vivien*. Vivien, in the foreground, is repeating the magic words Merlin has taught her and, in the background, Merlin is changing under the spell.

MICHELANGELO. Statue by Bartlett in bronze; in the Congressional Library at Washington. An extraordinary work, full of dignity and lofty personality.

MICHAEL, ST. Painted by Raphael in 1518; now in the Louvre. St. Michael, descended from heaven, stands with his right foot upon Satan, who lies prostrate upon the ground, looking upward. The saint grasps his spear with both hands about to strike. The "Little St. Michael" by Raphael is also in the Louvre.

MINUTE MAN. Statue by French (1873); in Concord. This was the great sculptor's first work, with almost no tuition. A wonderfully clever first effort.

MIRACLE OF ST. MARK. Painted by Tintoretto about 1548; in the Venice Academy. St. Mark flies down from heaven and prevents some Turks from torturing a Christian prisoner stretched upon the ground and surrounded by executioners and others. Regarded as the artist's greatest work.

MIRROR OF VENUS. Painted by Burne-Jones in 1877. A group of maidens looking at their reflections from a pool of clear water.

MISERS, THE. Painted by Quentin Massys; now in Windsor Castle. A man and his wife count up their wealth of coins and jewels, which lie upon a table along with an inkstand, purse, and other articles. A parrot is on a perch behind them.

MONA LISA. Painted by Leonardo da Vinci in 1500-1504; now in the Louvre. It is the portrait of Mona or Madonna or Madame Lisa Gherardini, third

MONA LISA. DA VINCI. Louvre, Paris.

wife of Francesco del Giocondo; hence she is known as La Gioconda. Her face bears a remarkable, mysterious smile. Stolen Aug. 1911; recovered in Florence, Dec. 1912.

MONARCH OF THE GLEN. Painted by Landseer in 1851; in the Eaton Collection in London. It represents a stag in the Highlands of Scotland proudly breathing defiance to his rivals. It sold in 1884 for £6,510.

MOSES. MICHELANGELO.
Church of San Pietro in Vincoli, Rome.

MOSES. A statue by Michelangelo, originally sculptured for the tomb of Pope Julius II., but now in the Church of San Pietro in Vincoli in Rome. It is a marvelous creation, full of repressed wrath and passion.

MUSES, DANCE OF THE. Painted by Giulio Romano (1492-1546), a pupil of Raphael; in the Pitti Palace at Florence. Apollo dances in a circle with the nine muses, holding each other's hands.

MUSIDORA. Painted by Thomas Gainsborough; in the National Gallery at London. Musidora, from Thomson's *Seasons*, is seated upon the bank of a shaded stream. She has one foot in the water and is loosening the sandal from the other.

NAPOLEON CROSSING THE ALPS. (1) Painted by Louis David in 1805; now in the Versailles Museum. Napoleon, upon a rearing horse, points upward. (2) Painted by Paul Delaroche; owned by Lord Onslow in England. This is regarded as a more faithful and less imaginary picture than the former.

NAPOLEON IN 1814. Painted by Meissonier in 1862; in a private collection in Paris. Napoleon, clad in gray overcoat and mounted upon a white Arabian horse, looks across a battlefield. Two mounted officers await orders. It is only 12 inches by 9 inches. Ruskin paid 1,000 guineas for it in 1868; it brought 5,800 guineas in London in 1882; and 128,000 francs in Paris in 1886.

NAPOLEON IN THE RETREAT FROM RUSSIA. Painted by Meissonier in 1865; now in the Wallace Collection in London. Napoleon and his staff retreat along an icy road, while the army crowds along in a parallel line. It is sometimes called the "Retreat from Moscow."

NAPOLEON, STATUE OF. By Launt Thompson; in the Metropolitan Museum. A thoughtful and highly finished work.

NATIVITY, THE. A favorite subject with painters. Among the best are pictures by Annibale and Ludovico Carracci, in the Louvre; Correggio (Holy Night), in Dresden Museum; Domenico Ghirlandajo, in Dresden Museum; Giulio Romano, in the Louvre; Filippo Lippi, in Florence Academy; and Rembrandt, in Munich Gallery.

NAUSICAA AND HER MAIDENS. Painted by Sir Edward J. Poynter for the earl of Wharncliffe at Wortley Hall, England. Nausicaa and her maidens are playing ball on a grass plot near the sea.

NIOBE. Uffizi Gallery, Florence.

NIAGARA. Painted by Frederick Edwin Church in 1857; now in the Corcoran Art Gallery at Washington. A view of the falls from the Canadian side. It won a second class medal at the Paris Exposition in 1867.

NIGHT AND MORNING. Marble bas-reliefs by Thorwaldsen; in the Thorwaldsen Museum at Copenhagen. Night sweeps through the air clasping sleeping children in her arms, while Morning scatters flowers.

NIKE or **VICTORY.** Statue of the goddess of victory by Paeonius about 436 B. C.; found in the German excavation at Olympia of 1875. The head and arms are wanting. The goddess has just alighted with her garments floating behind.

NIOBE. A statue of Niobe with her youngest daughter, in the Uffizi Gallery, Florence. This is a copy of a classic group executed by the school of Scopas. It represents the devoted Niobe shielding her child, who has been struck down by the arrows of Apollo and Artemis.

NOLI ME TANGERE or **TOUCH ME NOT.** The interview between Christ and Mary Magdalen after the resurrection. The most noted examples are by Correggio, in the Madrid Museum, and Titian, in the Madrid Museum and in the National Gallery at London.

NYDIA. Marble statue by Rogers; in the Art Institute at Chicago. It represents a blind girl, with left hand to the ear to aid her listening, her right hand grasping a staff. A very beautiful and popular work.

OATH OF THE HORATII. Painted by Louis David in 1785; now in the Louvre. The Horatii receive the swords from their father and swear to conquer the Curiatii or die.

ONE MORE SHOT or **WOUNDED TO THE REAR.** A group by Rogers. A wounded soldier is binding his leg. His companion, with his left arm in a sling, endeavors to load his rifle once more before retreating. One of the many popular works of this artist.

O'REILLY MONUMENT. Memorial to John Boyle O'Reilly by Daniel French; in Boston, in the Back Bay Fens. Erin sits in sad pride twining a wreath of laurel, while Patriotism and Poesy attend her.

ORPHEUS AND CERBERUS. A marble statue by Thomas Crawford in 1839; now in the Boston Museum. Orpheus shades his eyes as he peers eagerly and intently into the gloom of Hades in his search for Eurydice.

PARADISE. Painted by Tintoretto in 1588; in the Doge's Palace at Venice. The largest canvas oil painting in the world—74 feet long and 30 feet high. There are more than 400 figures in it. Christ and the Virgin are surrounded by archangels, angels, and saints.

PARNASSUS. Painted by Raphael in 1511; a fresco in the Vatican at Rome. Apollo, with the Muses about him, sits playing a lyre on the summit of a mountain. Many illustrious poets are grouped in the foreground.

PAST AND PRESENT OF AMERICA. A pedimental group, the chief decoration of the Senate wing of the Capitol at Washington, by Crawford. America in the center offers a laurel wreath to those of her citizens who merit it. The rising sun is emblematical of her youth and the eagle of her strength. The pioneer, hunter, Indian, army and navy, mechanic, merchant, student, and teacher are represented.

PAUL, CONVERSION OF ST. Painted by Rubens; now in a private collection in England. It illustrates Acts ix. 3-19.

PETER, CHRIST'S CHARGE TO ST. Painted by Pietro Perugino in 1486; in the Sistine Chapel of the Vatican. Christ is giving the keys to St. Peter, who kneels to receive them. It has been treated by other artists, including Rubens, whose work is in Hertford House, London.

PETER, DELIVERANCE OF ST. Painted by Raphael in 1514; a fresco in the Vatican at Rome. It is in three divisions. In the middle, the angel awakens Peter; in the right, Peter and the angel step lightly over two sleeping guards; in the left, the keepers are dismayed at the escape of their prisoner.

PETER, MARTYRDOM OF ST. Painted by Guido; in the Vatican at Rome. St. Peter is being fastened to the cross, head downwards, by two executioners. Other artists who have treated this subject are Caravaggio, in the Hermitage; Anthony van Dyck, in Brussels Museum; Guercino, in Modena Gallery; and Rubens, in St. Pierre, Cologne.

PIETA. The lamentations of the Virgin and the women over the body of Christ after it was taken down from the cross. Among the most famous are those by Correggio, in the Parma Gallery; Van Dyck, in Munich; Quentin Massys, in Antwerp; Murillo, in Seville; Perugino, in Florence Academy; Rubens, in Brussels; Andrea del Sarto, in Vienna; and Titian, in Venice Academy.

PILGRIMS, EMBARKATION OF THE. Painted by Robert Walter Weir in 1845; in the rotunda of the Capitol at Washington. The Pilgrims are boarding the *Speedwell* at Delft Haven, in Holland, on July 22, 1620, on their way to take the *Mayflower* at Southampton. This picture is reproduced upon the backs of $50 United States national bank notes.

POCAHONTAS, BAPTISM OF. Painted by John G. Chapman; in the rotunda of the Capitol at Washington. Pocahontas is being baptized just before her marriage

to John Rolfe at Jamestown, Va., in 1613. The picture is reproduced upon the backs of $20 United States national bank notes.

PRESENTATION IN THE TEMPLE. The presentation of Jesus in the Temple (Luke ii. 22). Among the most notable are those by Fra Bartolommeo, Vienna Museum; Andrea Mantegna, Berlin Museum; Guido Reni, Vienna Museum; Rembrandt, The Hague Museum; and Titian, Venice Academy.

PRINCES IN THE TOWER. (1) Painted by Paul Delaroche in 1830; now in the Louvre. Edward V. and Richard, Duke of York, sons of Edward IV., imprisoned in the Tower and murdered by order of their uncle, Richard, Duke of Gloucester (afterward Richard III.), in 1483. (2) Another by Sir John Everett Millais; in Holloway Institute, near London.

PRODIGAL SON, RETURN OF THE. Painted by Murillo in 1670-1674; in Stafford House, London. Among others are those by Rembrandt, Teniers, Guercino, Salvator Rosa, James Tissot, Alphonse Legros, and Dubufe.

PRODIGAL SON, THE. A group by Mozier; in the Pennsylvania Academy of Fine Arts.

PSYCHE, STORY OF. Painted by Raphael and his pupils in 1512-1519; a fresco in the Farnesina Palace at Rome. There are, in all, 12 pictures—two on the ceiling and ten in the arches.

QUEEN LOUISE. Painted by Gustav Karl Ludwig Richter, the history and portrait painter. He was one of the most successful of modern portrait painters. This work was painted in 1879 and is now in the Cologne Museum.

RABBIT ON THE WALL. Painted by Sir David Wilkie in 1815; owned by Sir William Armstrong. A mother holds a baby up to see the shadow of a rabbit made upon the wall by the father with his hands; a girl holds a lighted candle while two boys look on.

RAKE'S PROGRESS, THE. Eight pictures painted by Hogarth in 1735; now in the Soane Museum. They represent the life of a profligate young man who ends his days in madness and poverty.

RAPE OF THE SABINES. Romans seizing Sabine women for wives on the founding of Rome. The most notable examples are paintings by Luca Giordano, in Dresden Museum; Nicolas Poussin, in the Louvre; Rubens, in the National Gallery at London; and Jacques Louis David, in the Louvre.

RAPHAEL LEAVING TOBIAS. Painted by Rembrandt in 1637; in the Louvre. Raphael flies to heaven, leaving Tobias and his father, Tobit; Sarah, wife of Tobias, and Anna, her mother.

READING FROM HOMER. A striking example of the work of Alma-Tadema, who is noted for his archaeological zeal and paintings.

READING THE WILL. Painted by Sir David Wilkie in 1820; in the New Pinakothek at Munich. A lawyer, seated at a table, is reading a will to a large number of interested persons.

REPUBLICAN COURT, THE. Painted by Daniel Huntington in 1876; now in the Metropolitan Art Museum at New York. A reception at the executive mansion during Washington's second administration. There are portraits of Mrs. Washington, Nelly Custis, Mrs. Robert Morris, Alexander Hamilton, John Adams, John Jay, Harriet Chew, Jonathan Trumbull, Oliver Ellsworth, Thomas Jefferson, Duke of Kent, Mrs. George Clinton, Mrs. Ralph Izard, Mrs. John Jay, and others.

RESCUE, THE. A marble group by Greenough in 1851; on the main staircase of the Capitol in Washington. A pioneer is grasping an Indian and saving the life of a woman and child. This and the Washington were the first colossal marble sculpture carved by an American.

RESURRECTION, THE. The most noted examples are by Annibale Carracci, in the Louvre; Filippino Lippi, Munich Gallery; Murillo, Madrid; Perugino, the Vatican; Raphael, the Vatican; Rembrandt, Munich Gallery; and Tintoretto, Pitti Palace.

RING OF ST. MARK. Painted by Paris Bordone (1500-1571) of the Venetian school; now in the Venice Academy. A fisherman presents the ring of St. Mark to the Doge as a proof that the saint had saved Venice from destruction by a flood in 1340.

RUBENS' SONS. Painted by Rubens; in the Liechtenstein Gallery at Vienna. Albert has his arm about Nicolas the younger, who holds a flying bird by a string.

SACRED AND PROFANE LOVE. Painted by Titian about 1503; in the Borghese Palace at Rome. Two women, seated at a fountain in a garden, represent the subject.

SAINT GEORGE. A marble statue by Donatello in the National Museum, Florence; a lifelike image

SAINT GEORGE. DONATELLO. National Museum, Florence.

of the legendary warrior, revealing the vivid naturalism for which Donatello is famous.

SALOME. The niece of Herod the Tetrarch and daughter of Herodias. As a reward for her dancing before her uncle he gave her whatever she might ask. She wished for the head of John the Baptist (Matthew xiv.). Among the most notable paintings of this subject are those by Carlo Dolci, in Dresden; Guercino, in the Louvre; Bernardino Luini, in the Louvre and the Uffizi; Titian, in Madrid; and Henri Regnault.

SAMARITAN, THE GOOD. The scene described in Luke x. 30-37 has been painted by many of the masters. Among them are those by Rembrandt, in the Louvre; Caravaggio, in the Brera at Milan; Paolo Veronese, in Vienna; and Eugene Delacroix, privately owned in Paris.

SAMSON AND DELILAH. The scene described in Judges xvi. Among the best examples of this are those by Anthony van Dyck, in Vienna; Rembrandt, in Cassel Gallery; and Rubens, in the Munich Gallery.

SATYR AND PEASANT. Painted by Jacob Jordaens; in the Old Pinakothek at Munich. A satyr entertains a traveler benumbed by the cold. When they are seated the traveler blows his fingers to warm them and his porridge to cool it. The satyr refuses to entertain any one who can blow both hot and cold.

SCAEVOLA, MUCIUS. Painted by Charles Lebrun about 1643. Scaevola is thrusting his hand into a brazier to burn it off as an indication to King Porsena that his threats cannot frighten him. The king pardoned his attempt upon his life and made a treaty of peace with the Romans.

SCHOOL OF ATHENS. Painted by Raphael in 1511; in the Vatican. It shows a vast portico, having the niches filled with statues of Plato, Aristotle, Diogenes, Alcibiades, Xenophon, Pythagoras, Democritus, Epicurus, Pyrrho, Arcesilaus, Archimedes, Ptolemy, Zoroaster, Raphael, and Perugino.

SEBASTIAN, ST. Painted by Annibale Carracci, in the Louvre; Anthony van Dyck, in the Louvre and at Munich; Guercino, in the Pitti Palace; Guido, in the Pitti Palace, the Louvre, and Bologna Gallery; Mantegna, in Vienna; Rubens, in Berlin; Titian, in the Hermitage, Harrach Gallery at Vienna, and the Vatican; Eugene Delacroix, in the church of Nantua in France; and Camille Corot, in the Walters Collection at Baltimore. The saint, commander of a company of praetorian guards, was bound to a stake and shot to death with arrows, by order of the emperor Diocletian, for becoming a Christian.

SHADOW OF DEATH. Painted by William Holman Hunt in 1873; in the Manchester (England) Art Gallery. Christ working as a carpenter in Joseph's

shop. He wearily stretches his arms, and his shadow thrown on the wall forms a cross. The Virgin, at his feet, is alarmed at the omen of death.

SHAW MEMORIAL. By Saint-Gaudens; in Boston. A large relief in bronze in commemoration of Colonel Robert Gould Shaw, who led the first regiment of colored troops organized in Massachusetts. A wonderfully great work.

SHEPHERD, THE LITTLE. Painted by Murillo; owned privately in Paris. The youthful Saviour walks with a crook in his left hand and a sheep on his right. Queen Isabella of Spain gave the picture to Guizot; and it sold in 1874 for 120,000 francs.

SHEPHERDS, ADORATION OF THE. Among the most notable of the many pictures on this subject are those by Raphael Mengs in Madrid; Murillo, in Madrid, Seville, and the Hermitage; Rembrandt, in the National Gallery at London; Velasquez, in the National Gallery at London; Nicolas Poussin, in the Munich Gallery; and Titian, at Milan.

SHERMAN, STATUE OF. By Saint-Gaudens; in Central Park in New York. Remarkable for the artistic conception of the attendant figure of "Victory."

SIBYLS, THE. (1) Painted by Michelangelo; a fresco on the ceiling of the Sistine Chapel of the Vatican. (2) Painted by Raphael in 1514; a fresco in the church of Santa Maria della Pace at Rome.

SIDDONS AS THE TRAGIC MUSE. Painted by Sir Joshua Reynolds in 1784; in Grosvenor House in London. Sarah Siddons sits enthroned upon the clouds and is attended by two tragic figures.

SILENUS AND INFANT BACCHUS. Vatican Museum, Rome.

SILENUS AND INFANT BACCHUS. This group, in the Vatican Museum, shows great beauty of form and expression. It was discovered in the sixteenth century in the gardens of Sallustius near the Quirinal.

SIMPLICITY. Painted by Sir Joshua Reynolds; owned privately in England. A half-length portrait of Offy Gwatkin, Sir Joshua's niece.

SLAVE SHIP, THE. Painted by Turner; owned privately in Boston, Mass. A slave ship, storm-driven, goes ashore; many of the slaves are thrown overboard and are seen manacled and struggling in the waves. Ruskin owned it for a long time; John Taylor Johnston of New York bought it from him; and at Johnston's sale in 1876 it brought $10,000.

SLEEPING ARIADNE. A Roman copy of a fine Greek statue; in the Vatican since 1510. Ariadne, asleep upon the shore of Naxos, abandoned by Theseus. A similar statue is in the Madrid Museum.

SOCRATES, DEATH OF. Painted by Louis David; owned privately in Paris. Socrates, in the midst of his sorrowing disciples, is about to take the cup of poison from the executioner, who turns away his head.

SOLOMON, JUDGMENT OF. The scene in I. Kings iii. 16-28, where Solomon decides who is the mother of a child. He orders it to be cut in two. Raphael's fresco in the Vatican, Paolo Veronese's picture in Bridgewater House in London, and one in the Louvre by Nicolas Poussin are the most celebrated pictures on this subject.

SORTIE OF THE BANNING COCK COMPANY. Painted by Rembrandt in 1642; now in the Amsterdam Museum. The Civic Guard of Amsterdam, under command of Captain Banning Cock, assemble for drill at the call of the drum.

SOWER, THE. Painted by Jean François Millet in 1850; in the Vanderbilt Collection in New York. A peasant, with a bag of grain, is sowing seed on a hillside. A pair of oxen and driver are seen at the end of the furrow.

SPASIMO DI SICILIA or **SICILIAN SPASM.** Painted by Raphael in 1516-1518; now in the Madrid Museum. It was painted for the church of Santa Maria dello Spasimo at Palermo in Sicily. It represents Christ sinking under the weight of the cross on his way to Calvary. The spasm alludes to the fainting of the Virgin on this occasion.

STEPHEN, ST., MARTYRDOM OF. Stoned to death by the Jews (Acts vii.). The most notable paintings of this subject are by Pietro da Cortona, in the Hermitage; Annibale Carracci, in the Louvre; Rubens, at Valenciennes; Domenichino, in the National Gallery at London; Guercino, in Dresden; Eugène Delacroix, in the Arras Museum; and Charles Lebrun, in the Louvre.

STONE AGE, THE. A group by Boyle; in Fairmount Park at Philadelphia. An Indian woman, armed with a stone ax, has successfully defended her young children from a bear cub.

STRAFFORD GOING TO EXECUTION. Painted by Delaroche in 1835; in Stafford House in London. The earl stops at the prison windows to receive the blessings of Archbishop Laud, a prisoner.

STRAWBERRY GIRL. Painted by Sir Joshua Reynolds in 1773; in the Wallace Collection at London. A little girl with a turban headdress holds a strawberry basket.

SUNSET. ROUSSEAU. Louvre, Paris.

SUNSET. A painting by the French landscape painter, Theodore Rousseau, now in the Louvre. It is a sunset scene at Fontainebleau, and like most of his best works (many of which are in America) is characterized by great breadth and harmony of color.

SUPPER AT EMMAUS. Among the many notable pictures of this scene (Luke xxiv. 30) are those by Rembrandt, in the Louvre; Rubens, at Madrid; Titian, in the Louvre; and Paolo Veronese, in Dresden, the Louvre, and Stafford House at London.

SURRENDER OF BURGOYNE. Painted by John Trumbull in 1817-1824; in the rotunda of the Capitol at Washington. General Gates stands in front of a tent surrounded by his officers. He declines the sword of General Burgoyne (Saratoga October 17, 1777). The original sketch of this is at Yale University.

SYNDICS OF THE ARQUEBUSIERS. Painted by Bartholomeus van der Helst in 1657; in the Amsterdam Museum. The four syndics or officers of the archery guild of St. Sebastian are seated at a table examining the prizes.

SYNDICS OF THE CLOTHMAKERS' GUILD. Painted by Rembrandt in 1661; in the Amsterdam Museum. Five syndics or managers of the Cloth Hall (Staalhof) are gathered around a table; one of the number is standing; all are dressed in black.

TEMERAIRE, THE FIGHTING. Painted by Turner in 1839; in the National Gallery in London. This ship was captured in 1798 from the French; she took part in the battle of Trafalgar in 1805. She was condemned in 1838. The picture shows her being towed to Rotherhithe to be broken up.

TEMPTATION OF ST. ANTHONY. The attempt of Satan to conquer St. Anthony, whom he hated for his purity of life. Among the many notable paintings of this subject are those by Pieter Brueghel the Younger, in Dresden; Lucas van Leyden, in Dresden; David Teniers the Younger, in the Louvre, Berlin, Amsterdam, Dresden, Vienna, Madrid, and elsewhere; and Tintoretto, in Venice.

THESEUS. CANOVA. Vatican Museum, Rome.

THESEUS. A heroic figure sculptured by Canova (1782), which represents Theseus gazing at arm's length on the severed head of the Minotaur. This statue, now in the Vatican Museum, marked an epoch in modern sculpture as a return to classic art.

THOMAS, ST., INCREDULITY OF. The scene described in John xx. 25-28. The most famous are by Cima da Conegliano, in Venice; Guercino, in the Vatican; Rembrandt, in the Hermitage; Salviati, in the Louvre; Anthony van Dyck, in the Hermitage; and Rubens, in Antwerp.

TITANIA AND BOTTOM. Painted by Sir Edwin Landseer in 1851; owned privately in England. A scene from *The Midsummer Night's Dream*, where Titania is fondling the ass's head of Bottom crowned with flowers. Mustardseed, Peaseblossom, Cobweb, Moth, and other fairies are near. Sold in 1884 for £7,000.

TOBIAS AND THE ANGEL. Painted by Salvator Rosa; in the Louvre. The archangel Raphael commands Tobias to seize a fish from the water. The same is painted by Murillo, Pollajuolo, Andrea del Sarto, and Titian.

TRANSFIGURATION, THE. Christ's appearance in glory to the disciples. The most famous is by Raphael in the Vatican. This is one of the very great pictures of the world. Begun in 1519, Raphael completed only the upper part before his death in 1520. Giulio Romano finished it from Raphael's designs. The picture was hung over Raphael's body at his funeral and carried in the procession to the Pantheon.

TRIBUTE MONEY. The scene in Matthew xxii. 19 and Luke xx. 24. Painted by Titian; in Dresden Gallery. The inquiring Pharisee holds the coin in his hand while Christ is speaking to him.

TRIUMPH OF CAESAR. Painted by Andrea Mantegna in 1485-1492; in Hampton Court Palace in England. Nine pictures, each nine feet square, depict a grand triumphal procession of Roman soldiers, captives, and slaves preceding Caesar drawn in a chariot.

TRIUMPH OF DEATH. Painted (some think) by Andrea Orcagna or (according to others) by a representative of the Sienese school, about 1377. Three kings on horseback halt before three coffins containing the bodies of dead kings, while the Angel of Death descends with his scythe upon happy groups. Death and his victims are in the center. In the clouds are the souls of the blessed and devils with the damned.

TRIUMPH OF FLORA. Painted by Nicolas Poussin about 1630; in the Louvre. Flora drawn in triumphal procession in a chariot by two cupids and accompanied by singing and dancing men and women. She is being crowned by flowers while a warrior offers her flowers upon his shield.

TRIUMPH OF GALATEA. Painted by Raphael in 1514; in the Farnesina Palace at Rome. A fresco showing the escape of Galatea from Polyphemus after the death of Acis. Galatea is drawn in a shell by dolphins and attended by tritons and sea nymphs.

TRIUMPH OF RELIGION IN THE ARTS. Painted by Overbeck in 1831-1840; in the Städel Gallery at Frankfort in Germany. The Virgin and the Child are enthroned in the clouds, while on the earth are sculptors, artists, and architects to the number of about 60.

TRIUMPH OF SILENUS. Two pictures by Rubens; one in the Berlin Museum and the other in the National Gallery at London. In both Silenus walks in a procession of attending satyrs, fauns, nymphs, and children bearing grapes. The former was in Blenheim Palace until 1885 and the latter was owned by Cardinal Richelieu (1640-1642).

UGOLINO. Painted by Sir Joshua Reynolds in 1773; owned by the earl of Amherst. Ugolino, Count of Gherardesca, betrayed the Pisans to the Genoese. In 1288 he, with his two sons and two grandsons, was imprisoned in the Gualandi Tower at Pisa and starved to death.

URSULA, HISTORY OF SAINT. Painted by Carpaccio in 1490-1495; in the Venice Academy. There are nine pictures. (2) Hans Memling, about 1486, painted the history on the shrine of St. Ursula in the Hospital of St. John at Bruges.

VENICE ENTHRONED. Painted by Paolo Veronese; in the Doge's Palace in Venice.

VENICE, THE GRAND CANAL AT. Painted by Turner; in the Dudley Gallery; sold for 8,000 guineas.

VENICE, TRIUMPH OF. Painted by Tintoretto; in the Doge's Palace at Venice. Venice, a figure of a young woman draped in blue, flies over the Doge and the senators, who are receiving the homage of the conquered.

VENUS ANADYOMENE or VENUS OF THE SHELL. Painted by Titian in 1523; in Bridgewater House in London. The goddess is standing knee-deep in the sea and is combing her tresses. A shell floats beside her upon the water.

VENUS AND ADONIS. Among the many pictures upon this subject are those by Guercino, in Dresden; Rubens, in Blenheim Palace, the Hermitage, and Uffizi; Titian, in Alnwick Castle and Madrid Museum; Paolo Veronese, in Madrid and Edinburgh; and Antony van Dyck, in the Hermitage.

VENUS, BIRTH OF. Painted by Sandro Botticelli; in the Uffizi at Florence. The goddess stands upon a floating shell which is being wafted to the shore by two flying figures representing the winds.

VENUS DE MILO. A world-famed statue of the goddess Aphrodite, and the most priceless treasure of the Louvre. This masterpiece of the school of Phidias was accidentally discovered in 1820 in the island of Melos. Both arms are lost but the beauty and serenity of the form express the highest ideal of art. The attitude of the goddess and the date of the statue are still much debated.

VENUS OF ARLES. A Roman copy of a fine Greek statue found in the ruins of a Roman theater in Arles, in France, in 1651. It was treasured in the Palace at Versailles and given to the Louvre by Louis XIV.

VENUS OF CAPUA. A Roman copy of a Greek statue found in the ruins of an amphitheater at Capua about 1750; now in the Naples Museum. It is very similar to the Venus of Melos.

VENUS OF MEDICI. A marble statue found in the ruins of the Portico of Octavia in Rome; placed in the Villa Medici at Rome; removed to the Tribune of the Uffizi in Florence. It is an undraped figure, the hands in front and the head turned to the left. A

dolphin is beside her to indicate that she has just risen from the sea.

VENUS DE MILO. Louvre, Paris.

VENUS OF THE CAPITOL. A Greek statue; in the Capitoline Museum at Rome. The goddess is ready for the bath, her arms in the position of those of the Venus of Medici. Her garments hang upon an exquisite vase.

VENUS, TOWNLEY. A marble statue found in Ostia in 1776; in the Townley Collection in the British Museum. Very similar to the Venus of Arles.

VILLAGE BRIDE, THE. Painted by Greuze in 1761; in the Louvre. The bride's father is handing a purse, containing the bride's dowry, to the bridegroom; the mother is clasping the hand of the bride, while a younger sister leans upon the bride's shoulder; a notary is seated at the table.

VILLAGE POLITICIANS. Painted by Sir David Wilkie; owned by the earl of Mansfield. A number of villagers seated around a kitchen table are engaged in a heated discussion; others are grouped near a fire; a woman is entering the door and another is seated at the left.

VIRGIN, BIRTH OF THE. Painted by Murillo in 1655; in the Louvre. Four women prepare to bathe the child; St. Anna and St. Joachim are in the background. The picture was painted for the church at Seville; Marshal Soult carried it to France; the government bought it in 1858 for 150,000 francs.

VIRGIN, CORONATION OF THE. Painted by Velasquez, in the Madrid Museum; Raphael, in the Vatican; Fra Angelico, in the Louvre and Uffizi; Guido, in Bologna and London; and Rubens, in Brussels.

VIRGIN, DEATH OF THE. Painted by Caravaggio; in the Louvre. The Virgin, on her deathbed, is attended by the apostles and the disciples. Once owned by Charles I. of England.

VISITATION, THE. The visit of the Virgin to Elizabeth as described in Luke i. 39-40. Painted by Albertinelli, in the Uffizi; Ghirlandajo, in the Louvre; Sebastian del Piombo, in the Louvre; Raphael, in the Madrid Museum; Rembrandt, in Grosvenor House in London; and Rubens, in Antwerp Cathedral.

VULCAN, FORGE OF. Painted by Velasquez in 1629-1631; in the Madrid Museum. Vulcan and four Cyclops stop work to listen to Apollo, who stands at the left; a wreath, illuminated, crowns his head.

WASHINGTON, APOTHEOSIS OF. Painted by Brumidi on the canopy of the rotunda of the Capitol at Washington. The first frescoes done in the United States. Washington sits in the center; the goddess of Liberty on his right and Victory on his left. The 13 original states are represented by female figures encircling the group. The Fall of Tyranny, Agriculture, Mechanics, Commerce, Marine, and Arts and Sciences are grouped in the border.

WASHINGTON, RESIGNATION OF. Painted by John Trumbull in 1827; in the rotunda of the Capitol at Washington. Washington is resigning his position as commander in chief of the Continental army at Annapolis (December 23, 1783). Yale University has the original study of this work.

WHITE CAPTIVE, THE. A marble statue by Erastus D. Palmer in 1858; now in the Metropolitan Art Museum at New York. In refinement, delicacy, and grace it is by far the best work of America up to that time.

WINGED VICTORY OF SAMOTHRACE. Louvre, Paris.

WINGED VICTORY (NIKE) OF SAMOTHRACE. This statue, now in the Louvre, is a superb example of the Attic school of the end of the fourth century. It is remarkable for its perfect modeling of classic drapery, and for the advantage taken of the play of light and shadow.

THE WRESTLERS. Uffizi Gallery, Florence.

WRESTLERS, THE. This famous group, now in the Uffizi Gallery, Florence, is supposed to have been sculptured by Cephissodotus. It gives a most accurate representation of a human body in motion; the tension of the muscles, the swelling of the veins, the perfect anatomy, and the realistic expression are all unexcelled.

ZENOBIA. A statue by Harriet Hosmer; in the Metropolitan Museum of Art, New York City. It represents Zenobia, queen of Palmyra, led captive through the streets of Rome in chains. Her haughty mien and native pride are well brought out.

MUSIC.

Musical expression may be broadly distinguished as rhythmic and melodic. These two principles are essentially distinct, and in the early stages of music are often independent of each other. The difference of principle, however, between the rhythmic and the melodic quality is apparent even in the most advanced stages of the art, in the symphony as in the polka.

Among primitive races, music is merely the accompaniment to dancing, hence rhythm alone is more usually encountered, while melody and harmony are reduced to their simplest forms.

The earliest system of which we have any exact record was devised by the Greeks. The Phœnicians, Egyptians, and Hebrews do not seem to have evolved any distinctive national style. The Greeks were the first to conceive of music as an independent art, and they formulated a scale system based on a knowledge of acoustic laws. The Greek system was the parent of Roman music and the precursor of that of the early Christians, while the Greek play was the prototype of the modern opera. The ritual of the Christian Church was originally rendered in the Ambrosian and Gregorian forms ("Plain Song"), which, though allied to pagan melody, were reminiscent of the liturgy of the Temple at Jerusalem.

The next phase (twelfth to sixteenth centuries) was the contrapuntal unaccompanied choruses founded on the Gregorian key and melodic system. It is noteworthy that not until the definite appearance of Christian church music was any advance made in the direction of harmony. The first steps at improving melodic music were made by singing melodies simultaneously at different pitches. Towards the end of the sixteenth century, as secular life grew more independent of ecclesiastical influences, harmony became the basis of musical design, and, ultimately, the means of the sublimest and most perfect expression of which the art is capable. Music began to develop into manifold types; instrumental music assumed a different aspect from choral music, and secular from sacred vocal music. Then, as the present system of scales became understood, the old devices were adapted to the newer method. The Reformation wrought a change in music no less than in religion, and its impulse and vigor are reflected in the masterpieces of Bach and Handel.

With these great masters the polyphonic period culminated. Secular influences began to predominate; no longer was choral effect the prime motive of the art; instrumental music for its own sake was cultivated; counterpoint and vocal parts were relegated to the background, and melodic progressions became the first consideration. The science of orchestration came into being, for in the time of Bach orchestration in the modern sense did not exist, neither was there any uniform standard by which to regulate the number or grouping of orchestral instruments. The constant blending and interchange of timbres, characteristic of a modern orchestra, was entirely unknown. The instrumentation would frequently remain unaltered during an entire number, while it was not unusual for the players to exceed the number of voices. The works of the old composers have therefore had to be rescored to meet the requirements of modern orchestras. The first attempts to compose purely orchestral music were for the symphonies or overtures of operas. These were primarily written for stringed instruments, with occasionally trumpet solos. One of the most noteworthy names in the early history of orchestration is that of the Bohemian violinist, Stamitz, whose orchestra at the German court of Mannheim became, under his leadership, the finest in Europe. Meanwhile the Italians developed the resources of the violin and the style of music best suited to it. Other groups of musicians in Germany, France, England, and Italy made similar progress with the harpsichord.

Though the art had blossomed forth in numerous forms, their characteristics were not clearly defined; opera and symphony, sonata and church music, were fashioned on like principles, indistinct in style, indefinite and conventional in construction. When greater resources were at the disposal of the composer, each form gained in distinctness and vitality. Still the differentiation of forms continued, each requiring different treatment. The opera expanded into the grand, the comic, the buffa, the seria, and various other types. Pianoforte music came to comprise lyrics of all kinds—sonatas, fugues, capriccios, scherzos, nocturnes, dances, and other distinctive and national varieties.

A revolution in the musical world was created as a result of the visit of an Italian opera company to Paris in 1752. This struck a blow at the French grand opera, and the way was cleared for the reforms of Gluck (1714-1787). The opéra comique was a sign of the times—the shattering of conventions and the demand for naturalness.

The first great name connected with the development of the sonata form was that of Haydn (1732-1809), who raised the symphony from weakness to strength and dignity. The greatness of Mozart (1756-1791) was most apparent in the symphony and its allied forms. He is regarded as the most perfect exponent of the classic idea in music. With the towering figure of Beethoven (1770-1827) classical music reached its zenith. He marks the transition from the eighteenth to the nineteenth century, and the dawn of the romantic era. The advance in the art of orchestration is apparent upon comparing the scores of Beethoven's larger symphonies with those of Mozart; although Beethoven never allows his sense of color to dwarf his greatness as a designer. The next important movement is the rise of a German school of opera. In spite, however, of the impetus given by Weber and Spohr, Teutonic opera was not a truly national product till the triumph of the works of Wagner. Schubert (1797-1828) stands unrivaled as a writer of *lieder*. His was essentially a lyric genius.

We pass now to more modern times, and to composers whose names we have barely space to mention, though their works live on in our lives and memories: Mendelssohn, the writer of æsthetic melodies; Chopin, the most famous composer for the piano; Berlioz, the greatest composer of France and the founder of the program school of music; Schumann, with whom the romantic ideal attained self-consciousness; Liszt, one of the most prolific composers of modern times; Brahms, the greatest symphonist since Beethoven; Grieg, one of the best loved of mod-

ern composers; and Dvorak, a master of orchestration. The central figure in German music to-day is Richard Strauss (1864), whose symphonic poems almost exhaust the powers of musical symbolism. Verdi (1813-1901) is the greatest composer that Italy has produced, and was the one opera composer whose brilliancy was not dimmed by Wagner's splendor.

In England and America musical culture was never more vigorous than it is to-day. The names of Sullivan, Stanford, Cowen, Parry, and Elgar are conspicuous among those of the English composers of our own times. In artistic music the United States has contributed works rich in promise. Paine, Buck, Parker, MacDowell, Chadwick, Foote, Whiting, and others are names sufficient to inspire confidence, though no truly representative composer has yet arisen.

SCHOOLS OF MUSIC.

OLD FRENCH SCHOOL (about 1100-1350). This school is noted for the invention of the *Fauxbourdon* (a progression of voices in sixths and thirds) and the *Discant* (contrary motion of voices). Chief musicians: De Garlande, Léonin, Franko of Paris, De Machault, De Muris, Pérotin, and De Vitry.

SCHOOL OF THE NETHERLANDS (about 1450-1600). This covers four distinct periods: (*a*) that led by Okeghem and his successors, Compère, Brumel, Hobrecht, Jannequin, and Tinctor, all of whose writings were characterized by artificiality; (*b*) the period of Josquin Deprès, Agricola, and Mouton, whose works show greater symmetry of form, but are none the less artificial; (*c*) a period of reaction in favor of a more natural style of composition. The most prominent masters are Arcadelt, Gombert, Goudimel, Willaert, and Van Rore; (*d*) a period famous for the rise of instrumental music. The school of the Netherlands culminated in Orlando di Lasso; the other masters of the period are De Monte and Pevernage.

OLD ENGLISH SCHOOL (about 1220-1600). To this school is credited the earliest specimen of polyphonic composition, viz., the celebrated canon, *Sumer is icumen in* (1226). The earlier composers are Johnson, Merbecke, Redford, and Tye. During the later period many important choral works and madrigals were written by Byrd, Farrant, Gibbons, and Tallis.

SCHOOL OF VENICE (1527-1612). Founded by Willaert. This school was the first to produce vocal works with instrumental accompaniment. Chief composers: Willaert, A. Gabrieli, G. Gabrieli, Merulo, Van Rore, and Zarlino.

SCHOOL OF ROME (1535-1674). Founded by Goudimel about 1535. The Roman school gave greater latitude to individual voices, and originated the oratorio. Chief musicians: Goudimel, Anerio, Allegri, Animuccia, Frescobaldi, Carissimi, Festa, Nanini, and Palestrina.

SCHOOL OF NAPLES (1675-1757). The Neapolitans cultivated the overture, and introduced the aria, besides choruses, duets, etc. Chief musicians: Durante, Leo, A. Scarlatti, D. Scarlatti, Stradella, and Logroscino.

SCHOOL OF GERMAN SINGSPIEL (about 1630-1800). The *Singspiel* was established by Hiller on the basis of the folk song, and eventually developed into a national German opera. The musicians of this school were Keiser, Handel, Kusser, Dittersdorf, Winter, Weigl, Schenck, Strungk, Mattheson, and Telemann. Other German composers favored the Italian opera, notably Doles, Hasse, Naumann, and Graun.

CLASSIC MASTERS (about 1700-1827). In J. S. Bach the *passion* and the *instrumental fugue* reached their highest perfection. His works also mark the beginning of the homophonic-harmonic period. With Handel the *oratorio* and the *vocal fugue* attained their greatest development, and he became the founder of the new English school. Gluck reformed the opera and developed orchestration. Haydn perfected the sonata and became "the father of modern instrumental music." Mozart created no new forms, but impressed his genius on every style he handled. Beethoven introduced the *scherzo* in place of the *minuet* of the symphony. Schubert followed in the steps of Beethoven in the domain of instrumental music. He was the creator of the *Kunstlied* (art-song).

FRENCH GRAND OPERA (1774-1864). The distinguishing features are the absence of spoken dialogue, the prevalence of tragic themes, excessive orchestration, elaborate finales, and the introduction of a ballet. Chief composers: Berton, Gluck, Gossec, Cherubini, Lesueur, Halévy, Meyerbeer, Rossini, and Spontini.

FRENCH OPERA COMIQUE (about 1760-1870). Its composition is generally unconventional, more truthful, and aims less at mere musical effect. Principal masters: Auber, Cherubini, Grétry, Halévy, Herold, Isouard, Bizet, Delibes, Boieldieu, Méhul, Monsigny, Philidor, and A. Thomas.

SCHOOL OF BEL CANTO (1813-1868). The charm of melody and the display of vocal art are the characteristics of this school. The three greatest exponents are Rossini, Bellini, and Donizetti, while of lesser rank are Pacini, Generali, and Mercadante.

GERMAN ROMANTIC SCHOOL (1818-1868). Orchestral tone-coloring was greatly developed and a preference was shown for dissonances, while music generally became more emotional and intense. Among dramatic composers are Spohr, Weber, Marschner, Lortzing, Kretschmer, Götz, Nessler, and Brüll; while among the great writers of choral and instrumental works are Schumann, Spohr, and Mendelssohn.

WAGNER AND LISZT (1843-1897). Wagner effected great reforms in dramatic composition; he maintained that the function of music was to illustrate and intensify the text. By applying Wagner's idea of descriptive music to instrumental music Liszt became an exponent of "program music." He originated the symphony poem and largely developed pianoforte technique. With Berlioz and Wagner he established a new school of interpretative conducting.

NEO-GERMAN SCHOOL (1847-). At first the influence of Liszt predominated, but in time Wagner's titanic genius gave rise to a host of imitators, none of whom, however, could rival the master's skill. Possibly the only great composer among them is Richard Strauss.

MODERN ITALIAN SCHOOL (1851-). The greatest figure in the history of modern Italian music is Verdi, who raised the Italian opera to its highest level. Among the operatic composers of this school are Ponchielli, Boito, Faccio, Marchetti, Coronaro, Smareglia, Mascagni, and Puccini. Chief choral instrumental composers; Pinelli, Sgambati, Cesi, Grazzini, Mancinelli, Martucci, Franchetti, and Perosi.

MODERN FRENCH SCHOOL (1830-). The influence of German music combined with the originality of the French composers themselves has produced a French school of great vigor and excellence. Instrumental composers: Chaminade, Chausson, Bizet, Delibes, David, Franck, Godard, D'Indy, Lalo, Halm, and Saint-Saëns. Dramatic composers: Gounod, Bizet, Saint-Saëns, Chabrier, Massé, Bruneau, and Massenet.

POLISH SCHOOL (1830-). Its history is bound up with the writings of Chopin, who was one of the creators of a new school of pianoforte playing. Other Polish musicians are Dobrzynski, Kurpinski, Moszkowski, and X. and Ph. Scharwenka.

RUSSIAN SCHOOL (1836-). The distinguishing features are strength and variety of rhythm. Chief masters: Glinka, Rubinstein, Bortnianski, Verstowski, Dargomyszki, Seroff, Borodin, Cui, Balakirev, Mussorgski, Rimski-Korsakow, Arenski, Glasunoff, and Tschaikowsky.

SCANDINAVIAN SCHOOL (1840-). The main features are an emphasis of rhythm and employment of dissonances. Principal composers: (Norway) Grieg, Kjerulf, Nordraak, Sinding, and Svendsen; (Denmark) Berggren, Hartmann, Gade, and Enna; (Sweden) Hallstroem, Hallén, Sjörgren, and Södermann.

MODERN ENGLISH SCHOOL (1830-). In light opera the works of Sullivan are noteworthy as having placed this form of composition upon a secure basis. In grand opera no prominent work has yet been produced. The best efforts of this school have been made in choral music. No distinctive national style has been developed, but the compositions are marked by skillful technique and mastery of form. Leading composers: Balfe, Barnett, Bishop, Benedict, Stanford, Sullivan, and Wallace in dramatic music; Barnby, Stainer, Bennett, Parry, Cowen, Coleridge-Taylor, Costa, Mackenzie, and Elgar in instrumental and choral music.

AMERICAN SCHOOL (1880-). Strictly speaking there is no American school which possesses any national or distinctive trait. In the works of the chief composers the influence of foreign and particularly German music is apparent. Works of high attainment have been produced by Paine, Bird, Gilchrist, Foote, Chadwick, Klein, MacDowell, Van der Stucken, Horatio William Parker, Damrosch, and Mrs. H. H. A. Beach.

SOME FAMOUS HYMNS AND THEIR TUNES.

ABIDE WITH ME. Written by Rev. Henry Francis Lyte (1793-1847) and handed in manuscript with the music to his congregation at Lower Brixham, Devonshire, on the occasion of his last service there. Henry Ward Beecher introduced it to American Congregationalists in 1855. The tune now most used was written by Dr. William Henry Monk in 1861.

ALL GLORY, LAUD, AND HONOR. Composed in 820 by Theodulph, Bishop of Orleans, while imprisoned in the cloister of Anjou by Louis le Debonnaire, son of Charlemagne. Used as a processional in both Catholic and Protestant churches. Translated by Rev. J. M. Neale (1818-1866). The most popular tune was composed by Melchior Teschner, a Prussian composer who lived about 1613.

ALL HAIL THE POWER OF JESUS' NAME. Written by Rev. Edward Perronet (1721-1792), a close friend of John Wesley. Dr. Rippon added the last stanza. The tune "Old Coronation" was composed by Oliver Holden, a carpenter of Shirley, Mass. (1765-1844). The little pipe organ upon which he struck the first notes is in the historical rooms of the Old State House in Boston.

ALL PRAISE TO THEE, ETERNAL LORD. Variously credited to Gregory the Great (sixth century) and to an unknown writer of the ninth century. The German form—Gelobet seist du Jesu Christ—has been credited in part to Luther. The tune "Weimar" is by Karl Philip Emanuel Bach, son of Sebastian (1714-1788).

A MIGHTY FORTRESS IS OUR GOD or **EIN FESTE BURG IST UNSER GOTT.** Written in German by Luther (1483-1546); translated into English by Rev. Frederick Henry Hedge (1805-1890), formerly of the Unitarian Church of Bangor, Me. The tune was composed by Luther; that of the English version is by Sebastian Bach.

DOXOLOGIES. (1) "Be Thou, O God, Exalted High" is attributed to Nahum Tate (1652-1715), who collaborated with Rev. Nicholas Brady (1659-1726) in the preparation of a psalter in which it appeared. (2) "Praise God from Whom All Blessings Flow," by Rev. Thomas Ken (1637-1711). (3) "To God the Father, God the Son" was composed probably by Dr. Edwin F. Hatfield (1807-1883). The tune of these is "Old Hundred," said to have been composed by Luther; others say Louis Bourgeois; but the weight of evidence favors Guillaume le Franc, William Franck, or William the Frenchman of Geneva (1541), who died in 1570.

ETERNAL FATHER, STRONG TO SAVE. Written in 1860 by William Whiting; a translation of a Latin hymn. Whiting (1825-1878) was master of Winchester College choir. The tune "Melita" was composed in 1861 by Rev. John B. Dykes. A favorite hymn "for those at sea."

FOREVER WITH THE LORD. Written by James Montgomery (1771-1854). The tunes "Mornington," by Garrett Colley Wellesley, Earl of Mornington (1735-1781), and "Forever with the Lord," by I. B. Woodbury, are the best known of the many to which this hymn has been sung.

FROM GREENLAND'S ICY MOUNTAINS. Written in 1819 by Reginald Heber for a missionary meeting. The tune is by Lowell Mason.

GLORY TO THEE, MY GOD, THIS NIGHT, or **TALLIS' EVENING HYMN.** Bishop Ken's evening hymn prayer, from a *Prayer Manual* published for the use of students in Winchester College. The tune was composed by Thomas Tallis, organist to Queen Elizabeth (1520-1585).

HARK! HARK! MY SOUL. Written by Frederick William Faber. The tunes were composed by John B. Dykes and Henry Smart.

HOLY, HOLY, HOLY, LORD GOD ALMIGHTY. Written by the Right Reverend Reginald Heber, Bishop of Calcutta (1783-1826). The tune was composed by Rev. John Bacchus Dykes (1823-1876).

JERUSALEM THE GOLDEN. A translation by Dr. John Mason Neale of a part of Bernard of Cluny's "De Contemptu Mundi," which was written about 1100. The music was written by Alexander Ewing, a paymaster in the English army (1830-1895).

JESUS, LOVER OF MY SOUL. The best known and best loved of Charles Wesley's hymns. The tune "Refuge" was composed by Joseph P. Holbrook, and "Whitman" by Lowell Mason.

LEAD, KINDLY LIGHT. Written by John Henry Newman (1801-1890), afterwards Cardinal Newman. The tune "Lux Benigna" was composed by Rev. Dr. John B. Dykes in 1865.

MAGNIFICAT. Appears in ritual form in the liturgies of the fourth and fifth centuries. A favorite subject with composers of all nations and ages; but the "Magnificat" of Handel is the greatest (1685-1759); though that by Smart is highly esteemed.

MAJESTIC SWEETNESS SITS ENTHRONED. Written by Rev. Samuel Bennett, an English Baptist minister (1727-1795). The tune "Ortonville" was composed by Thomas Hastings (in 1830), author of "Toplady."

NEARER, MY GOD, TO THEE. Written by Mrs. Sarah Flower Adams (1805-1848) in 1840. The author was a Unitarian and the hymn is regarded as an Old Testament psalm. The tune "Horbury" was composed by Rev. John B. Dykes, "St. Edmund" by Sir Arthur Sullivan, and "Bethany" by Lowell Mason.

O COME, ALL YE FAITHFUL, or **ADESTE FIDELES.** By some believed to have been written by St. Bonaventura, Bishop of Albano (born 1221). The English version is by Rev. Frederick Oakely (1808-1880), and another by Rev. Edward Caswall (1814-1878). The tune is the "Portuguese Hymn," by Simao Portogallo of Lisbon (1763-1830).

O LITTLE TOWN OF BETHLEHEM. Written by Phillips Brooks, Bishop of Massachusetts (1835-1893), in 1868. The tune "Bethlehem" was composed by J. Barnby; the first tune, "St. Louis," was by Mr. Redner, organist of Holy Trinity in Philadelphia.

ONWARD, CHRISTIAN SOLDIERS. Written by Rev. Sabine Baring-Gould (1834-1906). The tune was composed by Sir Arthur Seymour Sullivan (1842-1900).

O WORSHIP THE KING ALL GLORIOUS ABOVE. Written by Sir Robert Grant (1785-1838), afterward governor of Bombay. The tune to which the hymn is most frequently sung is Haydn's "Lyons."

ROCK OF AGES, CLEFT FOR ME. Written by Augustus Montagu Toplady (1740-1778); an almost universal hymn. The tune was composed by Dr. Thomas Hastings (1784-1872) in 1830.

SUN OF MY SOUL, MY SAVIOUR DEAR. Written by Rev. John Keble (1792-1866). The tune "Hursley" was arranged by William Henry Monk (born 1823) from a German choral by Peter Ritter (1760-1846).

TE DEUM LAUDAMUS. Composed by Ambrose, Bishop of Milan, in 387. First sung in English by Bishop Ridley at Hearne Church. The standard anthem of Christian praise. One of the best modern choral renderings of the anthem is the tune by the English composer, Henry Smart (1813-1879).

THE GOD OF ABRAHAM PRAISE. Written by Thomas Olivers (1725-1799), a Welshman converted by Whitefield at Bristol. The tune "Leoni" was heard, it is said, by Olivers as it was sung by Meyer Lyon, the noted Jewish musician, and he adapted the hymn to the tune.

THE LORD DESCENDED FROM ABOVE. Composed by Thomas Sternhold, Groom of the Robes to Henry VIII. and Edward VI., author of a psalter published in 1562, 13 years after his death (1549). The tune "Nottingham," or "St. Magnus," was composed by Jeremiah Clark of London (1670-1707).

Famous Oratorios.

Armes, P.	Hezekiah (1877); St. John the Evangelist (1881); St. Barnabas (1891).
Arne, Abe	Abel (1755); Judith (1764).
Arnold, S.	Abimelech (1768); Prodigal Son (1767).
Atterbury, L.	Goliath (1773).
Bach	Christmas Oratorio (1764); St. Matthew Passion (1729); St. John Passion (1720).
Barnby	Rebekah (1870).
Barnett, J. F.	The Raising of Lazarus (1876).
Beethoven	Christus am Oelberg (1799).
Benedict	St. Cecilia (1866); St. Peter (1870).
Bennett	The Woman of Samaria (1867).
Berlioz	L' Enfance de Christ (1854).
Brahms	The German Requiem (1868).
Carissimi, G. (*c.* 1604-1674).	Jephte; Baltazar; Jonas.
Cavaliere	La Rappresentazione dell' Anima ed il Corpo (1600, first oratorio).
Cimarosa, D.	Il Sacrificio d' Abramo (1786); L' Olimpiade (1787).
Costa	Eli (1855); Naaman (1864).
Cowen, F. H.	The Deluge (1878); Ruth (1887).
Crotch	Palestine (1812); The Captivity of Judah (1834).
Cusins	Gideon (1871).
David, F. C.	Moïse au Sinai (1846).
Dvorák	St. Ludmilla (1886).
Elgar, E.	The Light of Life (1896); The Dream of Gerontius (1900).
Goldschmidt, O.	Ruth (1867).
Gounod	La Redemption (1882); Mors et Vita (1885).
Graun	Der Tod Jesu (1755).
Handel	Israel in Egypt (1738); Il Trionfo del Tempo (1707); Esther (1720); Saul (1738); The Messiah (1741); Samson (1742); Joseph (1743); Judas Maccabaeus (1746); Occasional (1746); Theodora (1749).
Haydn	The Creation (1796-1798).
Hiller, F.	Die Zerstörung Jerusalems (1840); Saul (1858).
Horsley, C. E.	Gideon (1860); David; Joseph.
Jenkins, D.	The Legend of St. David (1894).
Kiel, F.	Christmas (1874).
Klein, B.	Jephthah (1828); David (1830); Hiob (1820).
Leslie, H. D.	Immanuel (1853); Judith (1858).
Liszt	Die Legende von der heiligen Elisabeth (1864); Christus (1866).
Loewe	Die Festzeiten (1829); Die Zerstörung Jerusalems (1829).
Loreto, V.	St. Ignatius Loyola (1622).
Macfarren	St. John the Baptist (1873).
Mackenzie	The Rose of Sharon (1884).
Marx, A. B.	Moses (1850).
Massenet	Marie-Madeleine (1873); Eve (1875); La Vierge (1880).
Mendelssohn	St. Paul (1836); Elijah (1838-1846); Christus (1844-1847).
Meyerbeer	Gott und die Natur (1811).
Molique, B.	Abraham (1860).
Neukomm	Mount Sinai (1830); David (1834).
Ouseley	The Martyrdom of St. Polycarp (1855); Hagar (1873).
Paine	St. Peter (1873).
Parry, C. H.	Judith (1888); Job (1892); King Saul (1894).
Parry, Jos.	Saul of Tarsus (1892); Emmanuel (1880).
Pergolesi	San Guglielmo d' Aquitania (1731).
Pierson	Jersusalem (1852).
Porpora (1686-*c.* 1766).	La Martiria di Santa Eugenia.
Rheinthalen	Jephta (1856).
Rossini	Stabat Mater (1832-1841).
Rubinstein	Der Thurm zu Babel (1870); Das verlorene Paradies (1876); Moses (1887); Christus (1895).
Saint-Saëns	Noël (1858).
Scarlatti, A. (1659-1725).	Dolori di Maria; Sacrifizio d' Abramo.
Schubert	Lazarus (1828).
Schumann	Paradise and the Peri (1843).
Schütz, H. (1585-1672).	Resurrection; Passion.
Spohr	Last Judgment (1812); Calvary (1833); Fall of Babylon (1840).
Stainer, J.	St. Mary Magdalen (1883); The Crucifixion (1887).
Stanford	The Resurrection (1875); The Three Holy Children (1885).
Sullivan	The Prodigal Son (1869); The Light of the World (1873).
Verdi	Manzoni Requiem (1874).
Winter	Pilgrimage to Calvary (1792).
Zingarelli, N.	The Passion (1787); The Flight into Egypt (1837).

Famous Operas.

Adam	Cagliostro (1844).
Auber	La Barcarolle (1845); L'Enfant prodigue (1850).
Barnett	Fair Rosamond (1837).
Beethoven	Fidelio (1805).
Bellini	I Puritani (1835).
Boieldieu	Le Calife de Bagdad (1800).
Boito	Mefistofele (1868).
Buononcini	Griselda (1722).
Charpentier	Louise (1900).
Cherubini	Elisa (1794); Anacréon (1803); Ali Babr (1833).
Cornelius, P.	Der Barbier von Bagdad (1858).
Dalayrac	Camille (1791).
Dargomyzhsky	Esmeralda (1847).
Debussy	Pelléas et Melisande (1902).
Donizetti	Belisario (1836); Don Pasquale (1843).
Flotow	Rob Roy (1837).
Freschi	Berenice (1680).
Gluck	Iphigénie en Aulide (1774); Armida (1777); Echo et Narcisse (1779).
Goldmark	Queen of Sheba (1875); Merlin (1886) Götz von Berlichingen (1902).
Godard	Vivandière, La (1895).
Gounod	Philémon et Baucis (1860).
Grétry	Amphitryon (1780).
Hallén	Harald der Wiking (1881).
Handel	Rinaldo (1711); Riccardo (1727); Belshazzar (1745).
Hoffmann, E. T.	Undine (1816).
Hofmann, H.	Cartouche (1869).
Humperdinck, E.	Hänsel und Gretel (1893).
Jackson, W.	Lord of the Manor (1780).
Jommelli	Merope (1742).
Keiser	Ismene (1692); Circe (1734).
Lachner	Lorelei (1846).
Lecocq	L'Egyptienne (1890).
Leoncavallo	Pagliacci (1892).
Linley	Duenna (1776).
Litolff	Les Templiers (1886).
Lortzing	Czar und Zimmermann (1837); Hans Sachs (1840).
Lully	Bellérophon (1679); Proserpine (1680).
Macfarren	Robin Hood (1860).
Mackenzie	The Troubadour (1886).
Marschner	Der Vampyr (1828); Hans Heiling (1833); Adolph von Nassau (1843).
Mascagni	Cavalleria Rusticana (1890).
Massenet	Werther (1892).
Mehúl	Gabrielle d' Estrées (1806); Les Amazones (1811).
Meyerbeer	Robert le Diable (1831); Les Huguenots (1836); L'Etoile du nord (1854).
Mozart	Idomeneo, Re di Creta (1781); Le Nozze di Figaro (1786); Don Juan (1787); Cosi fan tutte (1790).
Nessler	Piper of Hameln.
Offenbach	Barbe-Bleue (1866); Bagatelle (1874).
Pepusch	Beggar's Opera (1728).
Pergolesi	Sallustia (1731).
Peri	Dafne (1597); Euridice (1600).
Piccini	Zenobia (1756).
Planquette	Chimes of Normandy.
Ponchielli	La Gioconda (1876).
Porpora	Ariadne (1733).
Puccini	Tosca (1900); Madame Butterfly (1904).
Purcell	Fairy Queen (1692).
Rameau	Castor et Pollux (1737).
Rossini	Il Barbiere di Siviglia (1816); Otello (1816).
Saint-Saëns	Etienne Marcel (1879).
Scarlatti, A.	La Principessa fedele (1707).
Schubert	Die Zwillingsbruder (1820); Rosamunde (1823).
Spohr	Der Berggeist (1825); Der Alchymist (1830).
Stradella	La Forza dell' Amor paterno (1678).
Strauss, Richard	Salome (1905).
Sullivan	Mikado, The (1885); Pinafore, H. M. S. (1878); Patience (1881).
Tschaikowsky	Mazeppa (1882); Iolanthe (1893).
Verdi	I Lombardi (1843); Ernani (1844); Rigoletto (1851); Il Trovatore (1853); La Traviata (1853); Aïda (1871); Otello (1887); Falstaff (1893).
Wagner	Der fliegende Holländer (1843); Tannhäuser (1845); Lohengrin (1850); Der Ring des Nibelungen; Meistersinger von Nürnberg (1868).
Weber	Abu Hassan (1811); Euryanthe (1823); Der Freischutz.

(See also Stories and Detailed Plots of the World's Greatest and most Popular Operas.)

GREAT OPERAS.

AIDA. Giuseppe Verdi. Cairo, 1872.
At Memphis and Thebes, in the reign of the Pharaohs.

Act I.—Aida, taken captive by the Egyptians, is given to Amneris as a slave. Radames, her lover, also loved by Amneris, is chosen to lead the Egyptians against the Ethiopians under Amonasro, Aida's father. Act. II.—Amneris discovers Aida's secret by pretending that Radames has been killed. He returns triumphant with many captives, including Amonasro, disguised as a soldier. Offered whatever boon he desires, Radames asks for the freedom of his captives, which was granted to all but Amonasro. The king bestows upon Radames, his daughter, Amneris. Act III.—Accompanied by Ramphis, the high priest, Amneris goes to the Temple of Isis to pray for Radames's love, and there overhears Aida, her father, and Radames plan to flee from the court. She denounces Radames. Act IV.—Before his trial, Amneris pleads with Radames to explain, but he refuses, is tried and condemned to be buried alive in the stone vaults beneath the altar of the God of War. While Radames awaits his fate in the vault, and as the great stone which seals his tomb is swung into place, Aida is discovered within and the lovers are united in death; Amneris dies of grief above the altar stone.

BARBER OF SEVILLE. Gioacchino Rossini. Rome, 1816. *Seville, Spain.*

Act I.—In love with Rosina, who is so jealously watched by her guardian, Dr. Bartolo, that his attempts to see her are fruitless, Count Almaviva, having made the acquaintance of Figaro, the barber, is advised by him to enter the doctor's house in the guise of a soldier. Rosina recognizes him and sends him a note, which is found by the doctor, who has Almaviva arrested. Act II.—Again the Count gains admission in the guise of a music master, and all is going well when Basilio, the real music master, appears, but is bribed to depart. Bartolo discovers the trick and sends at once for the notary to draw up the marriage contract between Rosina and himself. Basilio returns with the notary, is again bribed and with Figaro witnesses the signing of the marriage contract between the lovers. Bartolo is pacified with Rosina's dowry.

CARMEN. Georges Bizet. Paris, 1875.
Seville, Spain, beginning of nineteenth century.

Act I.—The Spanish gypsy, Carmen, lives only for sensuality. After she has loved many, she is attracted by the sergeant, Don Jose, who is in command of a troop of soldiers assembled in the village where is located the cigarette factory in which she has wounded one of her mates. She is imprisoned and placed under the guardianship of Don Jose, whom she bewitches, and secures release, for which he is put under guard. Act II.—Carmen returns to her tribe, who appear before the inn of Lillias Pastia to dance. Among them is Escamillo, the toreador, who fascinates her. Don Jose, released from prison, deserts his company for her and is persuaded to join the smugglers, who capture Zuniga, the captain, and carry him off. Act III.—Weary of Don Jose, Carmen entices Escamillo to the smugglers' cave, where the rivals combat. Michaela appears with a message for Don Jose from his mother, who is dying; he tries to prevent Carmen from accepting Escamillo's invitation to the bull fight. Act IV.—On returning, he finds her in the arena with Escamillo, to whom she has promised her love if he is the victor. Don Jose tries to reawaken her love but she repulses him and flings his ring at his feet. As the trumpets announce Escamillo's victory, Don Jose stabs her through the heart.

CAVALLERIA RUSTICANA. Pietro Mascagni. Rome, 1890. *A Sicilian village.*

Act I.—Turiddu, a peasant, before entering military service, had wooed Lola, whom he finds married to Alfio when he returns to the village; he tries to console himself with Santuzza, who loves him ardently, and they are engaged. Lola, who cannot endure to have him marry Santuzza, flirts with him until he has forgotten his betrothed, who in turn becomes very jealous and sad. Santuzza pleads with his mother, who tries to help her. On Easter morning, when people are on their way to church, Santuzza meets Turiddu and reproaches him; he flings her from him. Angered by his treatment, she tells Alfio that his wife is false to him. The two men meet at Lucia's inn and challenge each other. Turiddu repents, but meets Alfio in combat and is killed; Santuzza dies in a swoon.

ELEKTRA. Richard Strauss. Dresden, 1909.
King's palace at Mycene, shortly after Trojan War.

Act I.—Clytemnestra, with the aid of her lover, Aegisthus, murdered her husband, Agamemnon, and now fears discovery by her children, Elektra, Chrysothmes, and Orestes. Elektra, who is filled with a desire for vengeance, tries to get her sister's aid in killing the guilty pair. Orestes, her brother, who was said to be dead, had been banished, and appears to Elektra, who tells him the truth about their father, and together they plan revenge. He goes within the palace and accomplishes his purpose. Elektra, overjoyed at his success, dies in a delirious dance.

FAUST. Charles Gounod. Paris, 1859. *German village.*

Act I.—Faust, a student, dissatisfied with his success in scientific research, and his advancing age, calls upon Mephistopheles, who shows him a vision of Marguerite, whereupon he sells his soul to Satan and is transformed into a handsome youth. Act II.—Marguerite, a pure-minded girl, is left in the care of Siebel by her brother Valentine when he goes to war. At a festival before the city gates, she refuses to dance with Faust. Act III.—Siebel binds a bouquet for Marguerite in her garden, the flowers fade, but are revived after being dipped in holy water. Faust and Mephistopheles witness this and the latter leaves a casket of jewels at her door, which she discovers, and adorns herself with; when Faust appears she surrenders herself to him. Act IV.—Valentine, returning from the wars and learning of his sister's misfortune, challenges Faust, but through the aid of Mephistopheles is overcome and dies cursing Marguerite. Act V.—Marguerite, in want and misery, remorseful of her wrong, kills her child, for which she is imprisoned. Faust, desiring to save her, gains access to her prison and begs her to flee; she refuses and, praying for forgiveness, dies; the angels bear her to heaven.

FLYING DUTCHMAN, THE. Richard Wagner. Dresden, 1843. *Coast of Norway.*

Act I.—A Norwegian sea captain, Daland, was driven ashore by a storm. While he and all his crew are asleep, a ghostly ship dashes against his vessel, and is held fast. A pale man with black beard, dressed in black, steps ashore. He tells his story: that having broken his troth, he is compelled to roam the seas without rest; at the end of every seven years he is cast ashore to find a wife who will be true to him forever, which will end his voyaging. When he hears that Daland has a daughter, he asks for her as his wife. Tempted by gold, Daland consents and both ships set sail. Act II.—Senta, the daughter, is much impressed by the picture of the Flying Dutchman, and declares she would save him by her fidelity. Erik, the huntsman, in love with Senta, hears her declaration and tells her his dream of her father's return with a stranger, who carried her off to sea. She listens with delight and Erik leaves in despair. Daland returns with the stranger, who is introduced as her betrothed. Act III.—Later in the evening Erik returns and reproaches Senta for her broken vows to him, which the stranger overhears. Overwhelmed with despair, he calls his crew, tells Senta of the curse, and reveals that he is the Flying Dutchman. Hardly has he departed when Senta flings herself into the sea. Her faithfulness to him is his salvation. The spectral ship disappears and Senta and the Flying Dutchman are seen ascending into heaven.

FRA DIAVOLO. Daniel F. E. Auber. Paris, 1830.
Village of Terracina, Italy, nineteenth century.

Act I.—The Roman governor has offered a reward and sent dragoons to capture Fra Diavolo, a celebrated bandit chief. Lorenzo, the officer in command, is in love with Zerlina, daughter of Matteo, the innkeeper. While the dragoons are at the inn, Lord Cockburn, an Englishman, and his wife, Pamela, arrive, and declare that they have been robbed. Lorenzo and his men set out to capture the thief. Cockburn is jealous of the attentions paid his wife by their traveling companion, Marquis of San Marco (Fra Diavolo), who listens to Zerlina's story of the famous brigand. He pays court to Pamela, and secures from her a costly medallion set with jewels. Lorenzo returns with the stolen property, wins his reward, and hopes to win Zerlina. Act II.—The English couple are conducted to their rooms next to Zerlina's chamber. Fra Diavolo plans further robbery and conceals himself in Zerlina's closet. He gives a prearranged signal to his comrades in the courtyard below and they enter her room and again rob the English couple. A noise outside awakens them, Zerlina appears, and the robbers escape, aided by Fra Diavolo, whose presence arouses the jealousy of Cockburn and Lorenzo, the latter challenges him to a duel. Act III.—Diavolo, in bandit dress, awaits Lorenzo in the forest, as Zerlina and the rich farmer, Francisco, approach with their wedding procession, in which are Diavolo's accomplices, who are arrested and compelled to aid in capturing Diavolo, who is shot.

GIRL OF THE GOLDEN WEST. Giacomo Puccini. New York, 1910.
Gold Fever Era, 1849-1850. California, near Cloudy Mountains.

Act I.—It is dusk in "The Polka," a miners' saloon and dance hall, where Jack Rance, the sheriff, sits smoking, and Nick, the bartender, lights the lamps. Miners troop in, calling for food and drink; they sing, dance, and play cards. Excitement runs high, when Minnie, the only girl in camp, enters, takes down a Bible, and the miners gather about her, questioning and answering in turn. Minnie rejects Rance's attentions and presently he becomes jealous of Dick Johnson, who dances with her. Left alone with Dick, they avow their mutual love and she confides to him that she keeps the miners' gold. Act II.—Minnie returns to her lonely cabin, orders her table set for two, and arrays herself in all the finery in her possession. Johnson arrives shortly, amid a heavy snowstorm, which so increases in fury that he is obliged to remain. Soon a call is heard from the miners, who have come to warn her of Ramerrez, and she hides Johnson behind the bed curtains. They tell her Johnson is Ramerrez, and she affirms that he is not there and they depart. Contemptuously she orders Dick to come out and he confesses, but

implores her pity. She sends him away, and immediately a pistol shot is heard. Opening the door, she finds Dick wounded; she puts him into the loft just as Rance appears to arrest him; again she denies his presence, but a drop of blood falling upon Rance's hand reveals the culprit. Rance proposes a game of poker, but Dick is unable to play and Minnie takes his place, the stakes to be her freedom and Johnson's against marriage with Rance and Johnson's surrender, from the two best games out of three. She pretends to faint and while Rance hunts for whiskey she stacks the cards from her stocking and wins. Act III.—Seated by a fire in a clearing in the forest, Rance awaits the return of the troops with Johnson, while preparations are made for the hanging. Soon they appear, and Johnson is bound and stood in the center of his accusers, who charge him with the intention of stealing their gold, but taking Minnie instead. The noose is ready, when Minnie rides into camp, dismounts and throws herself before Johnson, protecting him. Rance demands her removal and Johnson's life, but Minnie pleads so effectively, reminding them of her care of them and their gold, that they forgive her and release Johnson.

HANSEL AND GRETEL. Engelbert Humperdinck. Munich, 1893. *A German forest.*

Act I.—At home in a poverty-stricken room we find Hansel and Gretel making brooms and knitting stockings, while their parents are away seeking food. The children tease each other and play. Their mother, returning, finds little work done, and, in her rage, upsets a pitcher of milk, their supper. Further enraged, she sends them into the forest to pick strawberries, bidding them stay until they have filled the basket. Their father soon returns with food, and is greatly disturbed because they have been sent into the forest, where lives a witch who lures children with magic cakes, puts them into her oven, and when they are baked into German cakes devours them. Both parents hastily leave the house to find the children. Act II.—While Hansel hunts for berries, Gretel makes wreaths. They are afraid, they see specters and hear the echo as they call in vain for their parents. The Sandman appears, sprinkles sand in their eyes and they fall asleep praying, while angels surround them in accordance with their prayer. Act III.—When they awaken they discover the crunch witch's hut with a bake oven at one side and a cage connected with the house by a hedge of gingerbread men. Attracted by the smell, they begin to break off pieces of the hut and eat. Hansel is captured by the witch and thrust into the cage, while Gretel is sent into the house. On her return, Hansel warns her to be careful; when the witch asks Gretel to look into the oven, she asks how it is done. As the witch bends over, the children shove her into it and she is consumed. All the gingerbread figures become children and are released. Their parents find them and the witch is taken out of the oven as a huge piece of gingerbread.

THE HUGUENOTS. Giacomo Meyerbeer. Paris, 1836.

Paris and Touraine. The night of St. Bartholomew, 1572.

Act I.—Marguerite de Valois, betrothed to Henry IV., anxious to reconcile the Catholics and Huguenots of France by a marriage between Raoul de Nangis, a Protestant nobleman, and Valentine, daughter of Count St. Bris, a Catholic noble, invites Raoul to visit her in her palace. He is found with Count de Nevers, who is entertaining a party of Catholic friends. Each guest is requested to name his adored one, Raoul first. He declares that he loves an unknown one whom he once rescued. A veiled lady appears just at this moment and Raoul recognizes his unknown heroine. She has come to ask De Nevers to release her from her promise to him and he does so. The note to Raoul is brought. Act II.—Marguerite receives Raoul and unfolds her plan of union with Valentine, as a sign of peace. When St. Bris introduces his daughter, Raoul refuses the alliance, believing that Valentine is the mistress of De Nevers. Act III.—Commanded by St. Bris, the troth is renewed between Valentine and De Nevers, who is plotting vengeance against Raoul, when he receives a challenge from him. Valentine, who has been in the chapel near by, overhears the scheme, and plans to save Raoul. Act IV.—The marriage has taken place but Valentine loves only Raoul, who, coming to say farewell, overhears that all the Huguenots are to be murdered that night; De Nevers refuses to take part in the plot, and is removed by St. Bris. Raoul tries to warn his friends, but is detained by Valentine, until he hears the signal for attack. Act V.—The leaders of the Huguenots are assembled when Raoul enters to tell them of the terrors of St. Bartholomew's night, and report the death of the leader; they arm themselves. De Nevers is dead; Valentine accepts Raoul's faith and they are married. Then the Huguenot women concealed in the church are murdered; a terrible scene of carnage follows in which Raoul becomes separated from Valentine, and they are not united until she finds him mortally wounded on the quay of Paris.

JEWELS OF THE MADONNA. Ermanno Wolf-Ferrari.

Modern Naples, the present.

Act I.—Maliella, a beautiful and willful girl, was a parentless waif adopted by Carmela (in accordance with a vow made to the Virgin) when her son, Gennaro, lay at the point of death. Maliella was reared to think of Gennaro as her brother, but she chafes under the many restrictions placed upon her conduct by her foster mother and Gennaro. It is the festival of the Madonna, and Gennaro has made a wonderful wrought-iron candelabrum to be his votive offering to her. His prayers are interrupted by Maliella, who rushes into the garden followed by his mother, angry at some new phase of her willfulness. He chides the girl, who accuses him of jealousy, and to add to his discomfort pins on a paper hat, bursts into song, and invites the assembled youth, who join in her dance, to kiss her; they pursue her, pelting her with flowers. Soon they return, led by Biaso, who has been roughly treated by one of the Camorrists. Rafaele, a member of the band, follows Maliella, attempts to kiss her, and is jabbed with a long pin; he offers her a flower, which she spurns. In the fervor of his love-making, he even offers to procure the jewels which adorn the statue of the Madonna, and makes a movement towards the procession. She screams, and Gennaro asks the fellow's name, but she resents his interference. Rafaele drops the rejected flower and she picks it up. Act II.—That evening in the garden Gennaro tries to reason with her, but she grows defiant and tells him of Rafaele's daring offer. She threatens to leave and finally goes to her room, gathers her belongings, and returns to say farewell to Gennaro, who asks for a kiss and she offers her cheek. He reveals his love for her, which she repels. A frightful temptation overcomes Gennaro in his love, and, gathering up his keys and files, he sneaks out. Rafaele and his companions serenade Maliella, and, while Carmela tries to drive them away, Gennaro returns, looking like a ghost, to find Maliella standing by his empty tool box. Horror-stricken at his deed, he shows the jewels taken from the Madonna, and all run away except Maliella, who finally puts them on. Act III.—The Camorrists are asleep in their lair when Rafaele enters and sings of Maliella. She comes to show him the jewels and he spurns her; she hears Gennaro's voice outside and flings the jewels at him. Terrified, they all flee but Gennaro, who, seeing a statue of the Madonna, crawls to it and stabs himself. The crowd return to seek him, but, finding him at the feet of the image, are awed into silence.

JONGLEUR DE NOTRE DAME (The Juggler of Our Lady). Jules Massenet. Paris, 1903.

Cluny, the fourteenth century.

Act I.—In the market place Jean, the juggler, wanders hungry and miserable, but happy in his freedom, although unsuccessful in gaining audiences. He resorts to a parody upon the mass; a prior appears and he is about to be excommunicated, when he confesses his guilt and is received among the monks, relinquishing his freedom, tempted by the rich food of the abbey. Act II.—All the inmates of the abbey work for the feast of the Holy Mother, but Jean has no part, for he knows no Latin; he resolves to serve her in his own way. Act III.—Jean goes to the chapel, puts off his monastic garb, and, donning the juggler's dress, offers his songs and dances, his only gift, to the statue. So enrapt was he that the approach of the monks was unnoticed. The prior is about to stop him when a miracle occurs, the image raises its hands and places them in benediction upon Jean's head. The monks acclaim a saint: Jean, overcome with joy, dies.

KOENIGSKINDER (Children of the King). Engelbert Humperdinck. New York, 1910.

Legendary days, Hellabrun forest.

Act I.—It is summer in the forest near Hellabrun, where lives a famous Witch and her granddaughter, a Goose-Girl, who is sitting outside weaving a wreath, when the Witch calls her into the house to make bread, into which the Witch puts a poisonous powder. Left alone, the Goose-Girl tries to be happy, and, while looking into the water at her reflection, is surprised by a youth, who, impressed with her beauty, confesses he is the King's Son, and would take her with him. He offers a golden crown, but she refuses to wear it; he puts her wreath inside his tunic, they attempt to run into the woods, but are prevented by the magic all about. Then he goes alone, leaving the crown, which the Girl puts on the neck of the old gray goose. She is so excited when the Witch returns that she is suspected of neglect and finally confesses she has seen a man, which angers the Witch, who sends her into the house as the Fiddler and two friends appear. They have been sent by the councilors to find a real king. She tells them that the first person who enters the town gate after the clock has struck noon will be the king. The Fiddler, who has seen the Goose-Girl at the window, drags her out and she relates the story of her visit from the King's Son. Taking the crown from the goose's neck, she puts it on, declares she is free, and runs off with the Fiddler, followed by the geese. Act II.—The King's Son comes to the town gate, and is about to leave, when he sees a crowd of people approaching to see the King. The Senior Councilor begins a long speech, but is rudely interrupted by the Woodcutter, who relates his adventures in the magic wood. Speculations are rife as to the King's looks and his manner. At the eleventh stroke of the hour, the gates are opened and the Goose-Girl enters, followed by the Fiddler and her geese. She sees the King's Son and he calls her his Queen. The people crowd around and, mocking, drive them through the gates. Act III.—It is

winter in the forest and the Fiddler is weary with hunting for the King's Children. The Woodcutter and his children, who live in the Witch's hut, are surprised to see the King's Son come, bearing the Goose-Girl in his arms, exhausted in their search for food. He wants to sell the crown, but she objects, and he exchanges it with the Woodcutter for a cake, which proves to be one of the poisoned ones belonging to the Witch. They wander off again, and when the Fiddler recognizes the crown, guided by the little gray dove, he hurries into the woods and finds the children dead. The Woodcutter's children construct a rude bier and place the King's Children upon it, covering them with a cloak, on which the Fiddler lays the golden crown.

LA BOHEME. Giacomo Puccini. Turin, 1896.

Paris, about 1830.

Act I.—Marcel, a painter, and Rudolf, a dramatist, are in dire straits, when their Bohemian friends come, bringing food, wine, and cigars. While they are feasting, the landlord asks for the rent, but they make him drunk, and put him out of the room; then they take the rent money for a carousal in the Quartier Latin, leaving Rudolf to his work. Mimi seeks him and they finally go out to supper. Act II.—While in a cafe, Musette, who formerly loved Rudolf, arrives with her rich admirer, Alcindor. Under pretense of suffering from a tight shoe, Musette sends Alcindor to the shoemaker's and joins her Bohemian friends at supper, for which they have no fund; she charges it to Alcindor, who returns with the shoe and is presented the bill. Act III.—Mimi, whom Rudolf has abandoned, seeks Marcel to tell him of her ill treatment, when Rudolf appears, and Mimi conceals herself; her coughing reveals her presence to the men, who have been discussing her health. Act IV.—Marcel and Rudolf are again at work in their garret when the Bohemians come for dinner, among them Musette, assisting the dying Mimi, whom they presently leave with Rudolf. The lovers are reconciled, and Mimi dies.

LA GIOCONDA. Amilcare Ponchielli. Milan, 1876.

Venice, seventeenth century.

Act I.—A festival is being held in the grand court of the ducal palace in Venice. Barnaba, a spy of the Inquisition, is scheming the ruin of Gioconda, a ballad singer. She appears with her blind mother as Barnaba declares that Zuane, the defeated boatman, is a victim of the witchcraft of the blind woman, and the people rush to kill her. Laura, wife of the inquisitor, enters, masked, and saves the blind woman, who gives her a rosary in gratitude. Laura discovers that Enzo, her former lover, is betrothed to Gioconda; Barnaba detects Enzo's love for Laura and proposes a meeting of the lovers on board his ship while Alvise, her husband, is away. Barnaba then sends a letter to Alvise telling of the elopement. Gioconda overhears and is heartbroken. Act II.—Gioconda hides herself on the ship and witnesses the meeting of the lovers. As Laura prays before retiring, Gioconda tells her of her husband's pursuit, and tries to stab her, but Laura holds up the rosary, which Gioconda recognizes, and, resolving to save Laura, places her in her own boat. Enzo, finding Laura has fled, sets fire to the ship. Act III.—Alvise determines Laura shall die by poison and, when she appears dressed for a ball, denounces her, shows her a funeral bier, and presents a bottle of poison. Gioconda substitutes a narcotic for the poison and Laura drinks it. Alvise's guests arrive, he greets them ceremoniously, but La Cieca tells them of Laura's death. Act IV.—Gioconda, alone in a deserted house on the canal, where two men have brought the lifeless Laura, asks their aid in finding her mother. Enzo arrives and is about to kill her when Laura calls to him. Gioconda helps them to escape, and returns to kill herself, as Barnaba comes to claim her. Barnaba in his rage tells of having strangled her mother, but Gioconda is dead.

LAKME. Leon Delibes. Paris, 1883.

An English possession in India, the present.

Act I.—Two young English officers, Gerald and Frederick, accompanied by the daughters of the Viceroy, enter a Hindu temple, and, while the others wander about in the sacred grove, Gerald remains to sketch. Lakme, who with her slave has been gathering flowers, returns to decorate the altar and there finds Gerald, with whom she falls in love. They are interrupted by Nilakantha, a Brahmin, who has a fanatical hatred for foreigners, and Gerald is driven away. Act II.—At the command of her father, who is in the crowd assembled in the market place, disguised as a beggar, Lakme sings accompanied by bells. Gerald approaches, and is stabbed by a priest and left for dead, but Lakme, finding signs of life, has him cared for by her servant, Hadji. Act III.—Lakme nurses Gerald in a hut in the jungle, and one day while she is searching for water he hears the voices of the soldiers and the music of the band; Frederick comes and reminds him of his duty as a soldier. Lakme discerns his wishes, and, as they leave, poisons herself.

LA TOSCA. Giacomo Puccini. Rome, 1900.

Rome, about 1800.

Act I.—Angellotti, an escaped political offender, seeks refuge in the church of Sant' Andrea, where his sister, while praying, has unconsciously served as a model to the painter, Mario Cavaradossi, for his picture of the Magdalen. He secretes himself until the painter is alone, then they converse until interrupted by Tosca, a singer whom Mario loves. She jealously imagines that it is an intrigue with a woman when she sees the picture. Angellotti plans his escape in woman's dress, and flees, warned by a cannon shot. Scarpia, the chief of police, in search of the prisoner, finds Marchesa's fan and the empty basket as Tosca returns; he arouses her jealousy with them. Act II.—Scarpia awaits Tosca in the Farnese palace, whence his agent brings the artist, whom he questions and sends to the torture chamber. When Tosca arrives, her lover's sufferings are described and, harrowed by his groans, she reveals Angellotti's hiding place. Mario is released but denounces Tosca for her treachery. Drums announce Scarpia's defeat and Mario rejoices, for which he is imprisoned. Tosca attempts to follow, but is held back by Scarpia, who demands her virtue as the price of her lover's freedom. She struggles with him and finally, pretending to love him, secures a promise of Mario's release and safe conduct out of the country. After Scarpia has written the order, Tosca stabs him. Act III.—Mario in prison, awaiting execution, writes Tosca a farewell letter; she enters to tell him the news and the need of a mock execution, to which he agrees. The execution is real, however, and, as the soldiers denounce her as a murderess, realizing the truth, she leaps from the parapet of the castle and is dashed to pieces.

LA TRAVIATA. Giuseppe Verdi. Venice. 1853.

Paris and Nantes, about 1700.

Act I.—Violetta Valery forms the acquaintance of Alfred Germont and they live an idyllic life in the country until his father tells her that Alfred's and his sisters' futures have been ruined by her. Act II.—Deeply affected by this, Violetta leaves Alfred and plunges into wildest dissipation. Act III.—Alfred follows her and insults her, for which he is challenged, which makes Violetta ill. Act IV.—Alfred's father realizes that her love is sincere; Alfred, learning what she has sacrificed for him, begs her forgiveness and she dies in his arms.

LES CONTES D'HOFFMANN (Tales of Hoffmann). Jacques Offenbach. Paris, 1880.

The rich Lindorf loves the singer, Stella, who formerly had a love affair with the poet Hoffmann at Milan. Lindorf plans to make Hoffman drunk and then show him to Stella to disgust her. Hoffmann is with his friends at the inn of Luther, which is in the same building with the theater where Stella is singing. Between the acts of the opera, Lindorf succeeds in his scheme, and Hoffmann relates to his friends the story of his three love adventures with Olympia, Giuletta, and Antonie, each adventure requiring one act. The final scene shows the inn to which Lindorf has taken Stella to witness Hoffmann's degradation and so win her for himself. Act I.—Hoffmann falls in love with Olympia. Spalanzani, a mechanical genius, with the help of Coppelius, Olympia's lover, has constructed an automaton, which he exhibits to an astounded public as his daughter. Hoffmann becomes enraptured with the statue, writes an impassioned letter, appointing a meeting, which Olympia attends, but seems unresponsive to his love-making. Coppelius, having discovered the trick, revenges himself by telling Hoffmann the truth. Act II.—Giuletta entertains her many admirers, among them Schlemihl, who casts no shadow, and Hoffmann, who is madly in love with her. His enemy, Dapertutto, who owns Schlemihl's shadow, with the help of Giuletta acquires Hoffmann's. She beguiles the poet, and he barters his shadow for her love, but she breaks her word and leaves him to his enemies. Act III.—Antonie, daughter of Krespiel, inherited from her mother talent for singing, but her father forbids her to sing. When Hoffmann becomes her lover, the father disapproves because of his fondness for music. Dr. Mirakel, who had caused the death of Antonie's mother, obtains entrance to Krespiel's house, and a quarrel ensues. The doctor by some black art causes an apparition of the mother to appear and ask Antonie to sing. She does so and falls dead. Hoffmann lost his bride and Dr. Mirakel triumphed. Coppelius, Dapertutto, and Dr. Mirakel each represents Hoffmann's enemy, who take away from him in turn his love. They are represented by one male and the maidens by one female singer, Hoffman's character being the same throughout.

LOHENGRIN. Richard Wagner. Weimar, 1850.

On the Scheld, the tenth century.

Act I.—King Henry I. of Germany, living in Brabant, assembles the German tribes to expel the Hungarians from his dominions. Elsa has been accused of the murder of her brother, Gottfried, who has mysteriously disappeared. Elsa appears with her attendants and declares her innocence, willing to submit to the judgment of God and the ordeal of combat, choosing as her champion a knight of her dreams. Telramund, who made the accusation, incited by his wife, Ortrud, accepts the challenge for the king. At first the unknown knight is called in vain, but at the second attempt he appears on the river in a boat drawn by a swan, and clad in shining armor, lands, greets the king, and offers himself to Elsa as

her champion on one condition, never to ask his name or origin. She agrees and in the combat following the knight is victorious. He declares her innocence and asks her hand in marriage. Act II.—Telramund and Ortrud were banished, but return in rags on the night before the wedding. Ortrud, who has magical power, schemes to induce Elsa to ask the forbidden questions. In the morning Lohengrin has been proclaimed "Guardian of Brabant." As the bridal party is about to enter the church, Ortrud accuses Lohengrin of being a magician, while Telramund claims that he was beaten by fraud, being ignorant of the name of his opponent. Lohengrin refuses to reveal his identity to any but Elsa, who assures him of her confidence. Act III.—In their bridal chamber Elsa, despite Lohengrin's warning, asks the fatal question. Telramund rushes in to kill, but is killed by Lohengrin, who sorrowfully turns to Elsa and asks her to follow him to the king, to whom he will reveal the mystery. He does so as the troops appear and Telramund's corpse is brought in. Lohengrin is the knight of the Holy Grail. The time for his return has arrived, the swan reappears, and he says farewell; the swan dives into the river, coming up in the form of Gottfried. A dove descends from heaven, and leads Lohengrin back to the castle of the Holy Grail.

LOUISE. Gustave Charpentier. Paris, 1900.
Paris, the present.

Act I.—Louise, a sewing girl, is in love with Julian, an artist, but her mother objects to the match; they plan to get her father's consent, for which Julian writes a letter. Louise presents the letter at supper, her parents quarrel, and Louise finally promises to forget him. Act II.—It is early morning; men and women are on their way to labor, when Julian and some Bohemian companions arrive to run away with Louise when she comes to work escorted by her mother. Julian seeks Louise, and tells her his plans, but she will not consent. Later, in the workroom, Louise is jeered by the other girls for being so silent; Julian is heard singing in the street, begging Louise to come to him, and she cannot resist. Act III.—They go to a tiny house outside the city; at night the other Bohemians join them and dancing follows, Louise being crowned queen of them all. In the midst of this gayety, Louise's mother appears, full of sorrow, and the Bohemians depart. Louise is much frightened, for her mother announces the severe illness of the father, whom only the return of his daughter can cure. Julian relinquishes her on condition of her return. Act IV.—Her father's health is broken, and he reminds her constantly of her ingratitude. Growing defiant, Louise is ordered to bed. As she kisses her father good night, he takes her upon his knee and pleads with her to give up her life with Julian, and finally threatens her. She screams for Julian and her father bids her to go; he calls for her, but listens in vain.

LUCIA DI LAMMERMOOR. Gaetano Donizetti. Naples, 1335. *Scotland, 1700.*

Act I.—Lord Henry Ashton of Lammermoor has discovered that his sister Lucia is in love with Edgar of Ravenswood, his enemy. To prevent their marriage, he sends to Lucia a forged letter to prove Edgar's unfaithfulness, and informs her that only by a marriage with Lord Arthur Bucklaw can their ruin be averted. Act II.—Lucia's teacher, Raymond, persuades her to give up Edgar and the marriage preparations go on. Edgar tries to stop them and curses Lucia for her faithlessness. Act III.—Ashton and Edgar arrange a duel. The marriage takes place, but Lucia, frenzied by Edgar's charges and her own grief, slays Arthur in their chamber. Edgar awaits his enemy in the graveyard. He has heard of the murder and Lucia's insanity. Dying, she asks only for him. The bell tolls for the dead, and Edgar stabs himself.

MADAM BUTTERFLY. Giacomo Puccini. Milan, 1904. *Nagasaki, Japan, the present.*

Act I.—Cho-Cho-San (Madam Butterfly) and Lieut. Pinkerton, U.S.N., are about to enter into a Japanese marriage which has been arranged by a marriage broker, Goro. Sharpless, the American consul, has begged Pinkerton to give up the plan, as the girl believes the marriage is binding, and has renounced her ancestral faith, which forbids her return to her people. An uncle, a religious fanatic, induces her relatives to abandon her and curses her, but Pinkerton consoles her and they are married. Act II.—Three years have passed, in which time Pinkerton returned to America, promising to return, but Suzuki, the servant, suspects his perfidy. Sharpless has been commissioned to tell of Pinkerton's American marriage, a difficult task, because of the wife's faith. To settle all doubt she shows her fair-haired child, whom her husband cannot forget. As the consul departs, the guns announce the arrival of Pinkerton's ship, and preparations are made for his reception, Butterfly passing a sleepless night in watching. At dawn, still watching, she falls asleep. The men come later and tell Suzuki the truth, who, violently angry at first, finally listens to the plan to give up the child. Butterfly appears, is confronted by the wife of Pinkerton, whom she calmly congratulates, when she learns the truth, and promises the child in a half hour's time. At the appointed time they find Cho-Cho-San dead by her own hand.

THE MAGIC FLUTE. Wolfgang Amadeus Mozart. Vienna, 1791.

Act I.—Sarastro, the wise priest of Isis, has taken Pamina to the temple to release her from the influence of her mother, the Queen of the Night, who induces the young Prince Tamino to search for her daughter and free her from the power of Sarastro. Tamino is pursued by a serpent in the forest and rescued by the attendants of the queen, although Papageno, a strange creature arrayed in the plumage of birds, claims the honor. Tamino is given a magic flute and Papageno a chime of bells with which to overcome all danger. Pamina is being persecuted by the Moor, Monastatos, in the palace of Sarastro, when Tamino arrives to rescue her, and the Moor takes to flight. The prince goes on to the temple, where he is refused entrance twice. Papageno, Pamina, and Tamino are about to escape, but the Moor prevents them as Sarastro appears. Pamina explains that she was trying to escape from the Moor, who is severely punished. Act II.—Tamino is led to the Temple of Ordeal, where, in order to possess Pamina, he must undergo the ordeal. The first test requires that the men shall remain silent under temptation. Three ladies tempt them to speak, but they are silent. While Pamina is asleep the Moor approaches and the Queen of Night gives him a dagger with which to kill Sarastro. Again they are tempted and Papageno speaks, but Tamino remains silent, making Pamina believe that he no longer loves her. Papageno wishes for a wife. Finally Tamino and Pamina pass through the ordeal of fire and water unscathed, with the help of the magic flute, and are united by Sarastro.

MANON LESCAUT. Giacomo Puccini. Milan, 1893.
Amiens, Paris, Havre, New Orleans, eighteenth century.

Act I.—A crowd of men are gathered before an inn, while groups of students await the girls as they come from their work. Des Grieux does not join the others, for which he is teased. As Manon and Lescaut descend from the coach, all the students are enchanted, among them Des Grieux, who approaches her when her brother goes into the inn. On his return Geronte accompanies him and falls in love with Manon and plans to carry her off while her brother plays cards, but Edmund, a student, overhears the scheme and suggests that Des Grieux carry her off himself, which he does. Act II.—Manon deserts Des Grieux when his money is gone and goes to Geronte, whom she despises. Des Grieux appears suddenly and they renew their vows, but Geronte locks the doors, preventing their escape, and Manon is dragged off without Des Grieux. Act III.—Manon is cast into prison, and is to be deported to America; Lescaut and Des Grieux try to help her escape, but she is led to the ship followed by Des Grieux, who persuades the captain to take him aboard. Act IV.—Arriving in New Orleans Manon is ill, and he leaves her to find some water. Fearing he has deserted her, when he returns she is beyond aid and dies in his arms.

MIGNON. Charles Louis Ambroise Thomas. Paris, 1866. *A small city; a castle in Italy; eighteenth century.*

Act I.—Just as the gypsy, Jarno, is about to force Mignon to dance by means of a whip in the courtyard of an inn, Wilhelm Meister appears and protects the girl, after having purchased her from the gypsies; she accompanies him dressed as a boy. They meet Laertes, the actor, with the coquettish Philine, and he warns Meister of her inconstancy, but he follows her nevertheless. Act II.—Accompanied by Mignon, Meister visits Philine in the castle of her uncle, and is compelled to bear her ridicule of the "boy." Mignon, when alone, dons Philine's clothes, but is discovered by Meister, who leaves her in distress. She continues in the park until she meets Lothario, the insane old singer, who calls down wrath upon the house, sets fire to the castle, from which Mignon is rescued by Meister. Act III.—Lothario is found to be Mignon's father, who, as a strolling singer, has been looking for his daughter stolen long before by the gypsies. Mignon finds love and happiness in her father and Meister.

PAGLIACCI (The Clown). Ruggiero Leoncavallo. Milan, 1892.
Near Montalto in Calabria, August 15, 1865.

Act I.—The primitive theater of the village comedians has been erected and the actors parade in fantastic costumes, amid the good-natured raillery of the villagers. Canio declares that as a clown he will take part in any joke, but will resent any insult to his honor as a husband. Nedda, his wife, who is untrue to him, fears his threat. Tonio, having offended her, receives a blow from her whip, which angers him. Silvio and Nedda plan to elope, and Tonio, overhearing them, calls Canio, who pursues Silvio, but he escapes. Returning, Canio demands of Nedda her lover's name. Tonio whispers that the lover will attend the performance and can be detected. Act II.—The comedy begins and Nedda, collecting the money, warns Silvio. Canio, still jealous, demands the name of her lover, but she replies lightly and tries to escape; he seizes a knife and stabs her as Silvio comes to her aid and is recognized by Canio, who stabs him also.

PARSIFAL. Richard Wagner. Bayreuth, 1882.
Country and castle of Montsalvat and Klingsor's magic palace.

Act I.—Kept in ignorance of the world by his mother, Parsifal grows up "a guileless fool." His love of adventure is aroused by seeing a company of knights, and his mother

finally allows him to go into the world. Amfortas, keeper of the Holy Grail, has succumbed to the arts of Kundry, contrary to his vow to refrain from the love of woman, and has been wounded by the enchanter Klingsor with his own lance, which fell from his hand and was grasped by Klingsor. It is the one which pierced the side of Christ on the cross, and was saved by Joseph together with the Grail, the vessel which caught the Redeemer's blood. Amfortas suffers agony but cannot be healed or die, until a "guileless fool, by compassion wise," brings back the lance and touches the wound. Kundry, the woman who scorned Christ on the cross, is condemned by Klingsor to wander the earth forever; she brings a healing potion to Gurnemanz, who tells of the magic garden created by Klingsor and peopled with beautiful maidens to seduce the knights. Parsifal, brought before Gurnemanz for wounding a swan within the precincts of the castle, is recognized as the "guileless fool" who can heal Amfortas. The miracle of the Grail is displayed, but Parsifal is so astounded that he forgets to ask the question which would release Amfortas, so is ejected from the castle. Act II.—Parsifal, confined in a dungeon beneath the turret, where Klingsor keeps his magic implements, is fully aroused by the combats in which he has conquered, when Klingsor causes the turret to vanish and a wonderful garden to appear, peopled with beautiful girls who surround him. He resists all but Kundry, who touches him by mentioning the death of his mother, and he kisses her; this excites the "guileless fool," and he understands what can be done for Amfortas. Horrified by Kundry's tale of her sin, he spurns her, and Klingsor tries to kill him with the holy lance, which remains suspended above his head; it is seized by Parsifal, who makes the sign of the cross, and Klingsor and his magic forces disappear. Act III.—After wandering for many years, Parsifal has gained wisdom and journeys once again to the castle of the Grail. Kundry has become the servant of Gurnemanz, who sees Parsifal's lance, and recognizes him. It is Good Friday. Amfortas, about to die, has assembled the knights and is ready to exhibit again the Holy Grail, when Parsifal enters and touches the wound with his lance, healing the king. Reverently holding aloft the Grail, he proclaims himself the king, to whom all bow in loud homage.

PELLEAS AND MELISANDE. Claude Debussy. Paris, 1902.

Act I.—Golaud, a mighty hunter, is lost in a forest. He hears a sound of weeping and discovers Melisande, for whom he seeks shelter. Act II.—A letter from Golaud, announces his marriage to Melisande and asks for her acceptance at the castle, a light in the window to be the sign of their favor. The old king, Arkel, sanctions the marriage and the couple come to the castle, where Melisande meets Pelleas, Golaud's brother. Seated near the fountain with Pelleas, Melisande takes off her wedding ring and accidentally drops it into the water, where it is lost. She is terribly frightened about what to say to Golaud, but Pelleas advises her to tell the truth. Golaud is injured by a fall from his horse; taking Melisande's hand as she ministers to him, he discovers the loss, and she tells him that she dropped it in a cave by the sea trying to escape the tide. He bids her go at once and find it, taking Pelleas with her. Act III.—Pelleas is going away and seeks Melisande to say farewell; overcome by emotion he kisses her passionately, Golaud finds them, and upbraids them for their folly. Act IV.—Pelleas advised by his grandfather to leave the castle at once. Golaud, whose jealousy has been aroused by Melisande's sorrowful mood, seizes and almost chokes her with her hair. Arkel interferes and Golaud departs angrily. Breathless from her encounter, Melisande seeks Pelleas to say good-bye, and they declare their love for each other. Golaud witnesses their embraces and kills Pelleas. Act V.—Melisande, dying, grants forgiveness to the penitent Golaud, and avows her love for Pelleas.

RIGOLETTO. Giuseppe Verdi. Venice, 1851.

Mantua and vicinity, the sixteenth century.

Act I.—The prince of Mantua has seen an unknown beauty in church and desires to possess her, although paying court to the Countess Ceprano. His jester, Rigoletto, mocks the ladies of the court and suggests their removal. The noblemen vow vengeance upon Rigoletto, and Count Monterone curses both the prince and jester. Act II.—Thinking of the curse, Rigoletto returns home to his daughter, Gilda, who is forbidden to appear except at church. She does not know her father's occupation. In the guise of a student the prince appears after Rigoletto departs, and is seen there by the noblemen, who finally abduct Gilda. They tell Rigoletto that they have abducted the Countess Ceprano and secure his assistance; he realizes his deception and remembers the curse. Act III.—The prince hears of the abduction from the noblemen, who say Gilda is Rigoletto's mistress and that she is in the castle. Rigoletto, taunted by the noblemen, finally acknowledges that she is his daughter, and is taken to her. She admits her love for the prince, and Rigoletto vows vengeance against his master. Act IV.—Gilda and Rigoletto go to the house of the bandit, and find the prince amusing himself with Maddalena, his daughter, and the jester bargains with the bandit to kill the prince. Gilda is forced by her father to don male attire and go to Verona, but fearing an attack on the prince returns to overhear the bandit promise his daughter, who begs for the life of the prince, that if by midnight another can be found to take the prince's place, he will spare his life. The prince is kept in the house by a severe storm. When Rigoletto arrives with the money, he receives a bag containing a corpse; he is about to cast the bag into the river when he hears the prince's voice. On opening the wrappings he finds the body of his daughter. The curse had been fulfilled.

THE RING OF THE NIBELUNG. Richard Wagner. Munich, 1869.

Introduction—**THE RHEINGOLD.** Three Rhine daughters, Woglinde, Wellgunde, and Flosshilde, are swimming about at the bottom of the river when the dwarf, Alberich, tries to catch them. The brilliant sun reveals the Rheingold, guarded by the daughters, and despite their father's warning they tell Alberich that "he who can fashion a ring from it and possess it will own the world and all its mighty power," but that the person must care nothing for love, else he cannot fashion the ring. Alberich laughingly snatches the Rheingold and disappears. He makes a ring, whose fame reaches the home of the gods, Walhalla and Wotan. The giants have built Walhalla and their reward is to be the goddess of youth, Freya, the sister of Fricka, Wotan's wife. Wotan plans to kill the dwarf and secure the ring, which he will give the giants instead of Freya. Alberich, with the aid of the ring, has brought all Nibelungs under his power and drives them to slavish tasks. His brother Mime has made him a magic helmet, which renders him invisible besides changing his form to anything he desires. Wotan and Loge, god of fire, visit the dwarf and obtain the secret of the helmet, whose power they doubt. Alberich, to show proof of it, changes himself into a dragon and then into a toad, which Wotan crushes under foot as Loge grasps the helmet, and they carry Alberich to the upper world, where they compel him to give up the treasure also; he curses them and declares it will bring death to whomsoever wears the ring. The giants return and receive the gold and helmet, but Wotan refuses to surrender the ring until frightened by the warnings of Erda, goddess of the earth. Then Freya is freed. The giants quarrel over the ring and one is killed. Wotan leads the gods to Walhalla upon the rainbow and resolves to obtain the secret of the Gotterdammerung. The first day—**THE WALKURE.** Wotan has learned from Erda that the gods will perish if Alberich again obtains the ring. The Walkure are the offspring of the love of Wotan and Erda; they are the shield maidens who lead the heroes to Walhalla to battle for the future of the world. To secure the ring Wotan, as he cannot take it from the giants, descends to earth and founds the Walsungs, from whom the hero will be produced. Siegmund, son of Wotan, weaponless rushes into the hut of Hunding, and is there tended by the latter's wife. Sieglinde. On her husband's return he recognizes his enemy but cannot touch him in his own house. When Hunding retires, Sieglinde gives him a sleeping potion, and shows Siegmund the sword sticking in the tree, which was left there by Wotan at her wedding feast, and tells him it will belong to the man who succeeds in withdrawing it. Siegmund draws the sword and she recognizes him as her twin brother. They flee into the forest. Brunhilde, Wotan's favorite shield maiden, is commanded to protect the Walsung in the fight between Siegmund and Hunding, but Fricka commands that the victory shall be Hunding's to punish Siegmund for taking his sister away. Brunhilde does not obey, but Wotan aids Hunding and the sword is broken in two; Siegmund is slain, but Brunhilde is pursued by Wotan, who kills Hunding. Brunhilde joins the other Walkure, and awaits Wotan, who causes her to fall into a magic sleep, and decrees that she shall belong to him who shall awake her with a kiss. He causes flames to surround the peak so only the most fearless knight could penetrate. Second day—**SIEGFRIED.** The son of Sieglinde, born in the forest. At her death she gave him and the two pieces of his father's sword into the keeping of Mime, the smith. He tried in vain to join the pieces of the sword, hoping that Siegfried, who has great strength, may slay the fierce dragon, Fafner, guarding the treasure received from Wotan. Siegfried questions about his origin and Mime refuses to answer until almost strangled, then tells him of his parentage and shows him the broken sword. Wotan appears in disguise and wagers with Mime that he can answer three questions satisfactorily, the stake to be Mime's head, and also requires an answer to three questions or forfeit his own head. Mime answers two, but cannot tell who will mend the sword. Wotan says that one who has never known fear can accomplish it. Siegfried returns, joins the parts, and produces a powerful sword; then Mime sends him to kill Fafner. Alberich is waiting near the cave to kill the slayer of Fafner, when Siegfried appears with Mime and kills the dragon, whose blood upon his fingers gives him magic power, and he takes the magic helmet and ring. He is enabled to read Mime's mind and slays him. A bird sings to him of the maiden on Valkyr's rock, and, led by it, he proceeds to rescue Brunhilde. He is met by Wotan, whose spear he splinters with his sword, and springs through flames to the rock, where he awakens Brunhilde with a kiss. Third day—**GOTTERDAMMERUNG.** Wotan seated in Walhalla, awaiting the end he has predicted, orders a spear to be constructed to displace the one Siegfried destroyed. Loge is to set fire to Walhalla when God and the

world have been freed from the curse of the ring and the Rheingold has been returned to the Rhine maidens. Siegfried comes from the forest with Brunhilde, who has instructed him in the wisdom of the gods; he gives her the ring as a love token, and she presents him with her steed, Grane, that he may go forth into the world to perform deeds of valor. Hagen, son of Alberich, is the avenger who is to slay Siegfried and obtain the ring. When Siegfried arrives at Hagen's home he is hospitably entertained and given a potion which causes him to forget Brunhilde; he wooes Gutrune and, drinking blood brotherhood, joins Gunther, her brother, in the adventure to win Brunhilde. Siegfried, in the guise of Gunther, approaches Brunhilde, takes the ring from her hand, and leads her away to Gunther, where she sees Siegfried united to Gutrune and the ring upon his finger. She has been united to Gunther, and filled with a frenzy of jealousy, joins Hagen to murder Siegfried. The latter is besieged by the Rhine maidens for the ring, and they predict his death. He drinks wine at Hagen's banquet, his memory immediately returns, and he relates his rescue of Brunhilde, and their love. Hagen stabs him in the back and he dies; his body is carried to Gutrune. Hagen demands the ring from Gunther, who refuses to give it up. Siegfried's body is placed upon the funeral pyre and Brunhilde applies the torch, after taking the ring from his finger, when she mounts her horse and ascends the flames which the Rhine rises above; the maidens grasp the ring, and Hagen is dragged to the depths. A great light appearing in the distance denotes the destruction of Walhalla, "the twilight of the gods."

SALOME. Richard Strauss. Dresden, 1905.

Palace of Herod, A.D. 30.

Salome lives at the sensual and cruel court of Herod, her stepfather. Still a maiden, she has conceived a strong passion for the Prophet Yochanaan, who has been thrown into a cistern near the palace by Herod. Salome orders the prophet to be brought to her by the young Syrian commander, Narraboth, who is so insanely infatuated with her that he obeys her commands against the orders of the king. When he discovers Salome's ardor for the prophet, he kills himself before her, which she scarcely notices. Yochanaan repulses her and returns to prison; she becomes half crazed with passion. Herod wishes to see her dance and she takes advantage of this to extort from him the promise of reward, which he gives without any conditions. Scantily clad, she dances alluringly before him and then demands the head of the prophet. Herod, afraid to slay this prophet of God lest the people revolt, offers half his kingdom if she will withdraw. She refuses, and demands the head of the Baptist, until Herod orders his execution. His head is brought to her in proof of his death, and as she kisses the pallid lips again and again, Herod in disgust orders her death, the infuriated soldiers crushing her with their shields.

SAMSON AND DELILAH. Camille Saint-Saens. Weimar, 1877. *Gaza in Palestine,* 1150 *B.C.*

Act I.—The Israelites are in revolt against the oppression of the Philistines and pray for relief. Samson, their leader, is filled with the hope of victory, although scoffed at by Abimelech, the satrap, who in attempting to repress them is killed by Samson, whom the Philistines fear to arrest. The Israelites, taking courage, drive the Philistines away. Delilah and her maids greet Samson, the leader, and he is unable to withstand her charms. Act II.—The high priest has commanded Delilah to deliver the hero to the Philistines and she awaits Samson in her home, with vengeance in her heart, as he has deserted her once. When he appears she so bewitches him that he tells her his secret of strength is in his hair. She lulls him to sleep, cuts off his hair, and calls in the Philistines, who overpower him, as his strength has gone. Act III.—Weak, blind, and imprisoned, he is filled with remorse as he hears the reproaches of his people. He is dragged out to be shown as a captive in the triumphal procession, taken to the temple, and ordered to sing in praise of Delilah, but he prays to the Lord to give him strength and vision, as the enemy mock him and the tumult increases. He continues praying and, grasping the two marble pillars of the temple, bends them and with his enemies finds death among the ruins.

THE SECRET OF SUZANNE. Ermanno Wolf-Ferrari. Munich, 1909. *The present.*

Count Gil and Countess Suzanne have recently been married, but the youthful bride has not dared to tell her husband that she smokes cigarettes, lest he disapprove and scold her, so she is obliged to smoke whenever a good opportunity is offered. He observes the odor of smoke about the house and his jealousy is aroused. Not dreaming that she is the culprit, he fears that she has a lover whom she is hiding. His accusations drive her to all sorts of absurd excuses, which seem to confirm his suspicions. At last Count Gil feels that he must know the truth. He follows the supposed lover from room to room, sniffing the tobacco smoke as he goes. When he finally believes he has trapped the lover, he finds his pretty little wife smoking. She looks so charming when engaged in her pet vice, he is so relieved to find he is the only lover, that he forgives her and peace is restored.

TANNHAUSER. Richard Wagner. Dresden, 1845.

Thuringia and the Wartburg, the thirteenth century.

Act I.—The goddess Venus has won the dreaming Tannhauser by her fascinations, but he soon longs for freedom, though she tries to hold him. At the mention of Mary, the mother of God, the spell is broken, Venus and her attendants disappear, and he finds himself in the Wartburg just below, where a young shepherd sits playing. As the pilgrims pass, Tannhauser, sobbing, sinks to his knees. The landgrave and his companions Wolfram, Walter, Biterolf, Reimar, and Heinrich find him and are rejoiced, for they have missed him. He had fled because unsuccessful in the prize singing. When the huntsmen tell him that he has gained Elizabeth's heart with his singing, he joins them. Act II.—Another contest is to be held in the hall of the Wartburg. Elizabeth has been in retirement since Tannhauser's disappearance, but promises to be present if he returns; she is there to greet him when he comes. The subject of the day is "Love's Awakening." Elizabeth is to grant a wish to the victor, whatever it may be. Wolfram begins, declaring love is a pure stream which should never be troubled. Tannhauser replies to all in turn and finally sings a song of love to Venus, shocks the ladies and the knights draw their swords upon him. Elizabeth protects him and he is allowed to join a band of pilgrims to Rome to seek forgiveness. Act III.—The pilgrims return with no news of Tannhauser for Elizabeth, who returns broken-hearted to the Wartburg. Wolfram has a vision, in which a tottering pilgrim is seeking the path to Venus; it is Tannhauser who is unforgiven by the pope. Calling for Venus, who appears and beckons him to her cavern, his attention is drawn to a procession chanting and carrying a bier, on which is Elizabeth's body. He kneels beside it and prays. The withered stick put forth young leaves, a sign of the forgiveness of God.

THAIS. Jules Massenet. Paris, 1894.

Thebes and the Theban desert, Egypt, during Greek occupation.

Act I.—Athanael, a monk of the Cenobite Order, has been in Alexandria to denounce the luxury and license of the Greeks, but returns to report that the city is under the rule of Thais, a beautiful courtesan. In his dreams that night he sees her half clad posing before the people as Aphrodite, and he awakens, condemning her aloud. Again he departs upon his mission and on reaching the city goes to see Nicias, whom he finds infatuated with Thais, though she has ruined him. The monk is invited to remain for a banquet, at which Thais will be present. Slaves array the monk in gorgeous apparel. Thais soon appears, surrounded by an adoring crowd, and presently discovers Athanael and asks his name and business. He tries to explain his mission, but she only exerts her charms the more; he denounces her and finally goes away horror-stricken. Act II.—Accompanied by her friends, Thais returns home dispirited and tired. Athanael watches her as she gazes into her mirror with delight, and prepares some incense as she sings to Venus. He tells her that he loves her with the love of the spirit, and commands her to follow him but she hears the voice of Nicias, and turns from the monk, who tells her he will wait until day and lies down outside on the pavement. Alone she falls into a reverie then slowly appears, bearing a lamp, and tells Athanael that she is ready to go with him. Nicias and friends appear and call for dances, but Thais, clad in a simple robe of white, follows the monk, bearing the flaming torch. Her slaves follow, as flames devour the house behind them. Act III.—Thais and Athanael have almost reached the convent in the desert when her strength gives out and he helps her to the abbess, when they say farewell. Athanael returns to his dwelling, where he confides to Palemon his love for the beautiful woman. A vision of Thais dying so overcomes him that he rushes into the desert, where a storm is fiercely raging. Act IV.—In the garden of the convent Thais lies dying as the nuns kneel about her, when Athanael enters and asks for her. Left alone, he tells her of his love, but, rising, she points to the sky, where she sees angels approaching to bear her away. She calls on God and falls dead at his feet. Overcome with anguish, he sinks to the ground beside her.

TRISTAN AND ISOLDE. Richard Wagner. Munich, 1865. *On board ship, in Cornwall and in Brittany.*

Act I.—Tristan has been sent by King Mark to bring his intended bride, Isolde, from Ireland to Cornwall. She has recognized in him the wounded knight she once nursed but who slew her betrothed in combat. She resolves to kill him and orders her servant to prepare a poisoned potion for him. By mistake she is given a love potion, which they both drink and finally sink into each other's arms in an ecstasy of love. Act II.—When they reach King Mark's castle, they plan to meet in secret, but she is warned by her servant against the jealous Melot. Tristan is also warned, but it is too late, for he is closely watched by Melot, the king, and attendants. The king, however, despises Melot for his treachery; Tristan is injured in the combat which follows. Act III.—Taken to his own home, Tristan grows rapidly worse and his servant sends for Isolde to heal him. When she comes, Tristan rushes to her and dies in her arms. The king has also come to unite the lovers, but Kurwenal thinks he has evil intent and kills Melot. Isolde dies of grief beside Tristan and the king remains in prayer beside them.

ART AND MUSICAL TERMS.

ACANTHUS. A plant, having ornamental foliage, the conventionalized form of which is largely employed for architectural decoration, especially on the Corinthian capital. There are two principal species, *acanthus mollis* and *acanthus spinosa*, the latter somewhat resembling a thistle.

ACCOMPANIMENT. A secondary part added to the principal for the improvement of the general effect.

ACROPOLIS. A fortified city, or the fortified part of a city, on the summit of a hill.

ADAGIO. A slow movement.

AD LIBITUM. Implies that the time of the movement is left to the discretion of the performer.

ALLEGRETTO. With cheerful quickness.

AMPHIPROSTYLE. A Greek temple, having a portico in front and one in the rear projecting beyond the side walls.

AMPHITHEATER. A building for gladiatorial and other shows, generally elliptical in form.

AMPHORA. A tall earthenware jar with two handles.

ANDANTE. Somewhat sedate; slowly.

ANGELS. In medieval art divided into nine degrees: Seraphim, Domination, Princedom, Cherubim, Virtues, Archangels, Thrones, Powers, Angels. The Cupid-like angels were only introduced in the time of the Renaissance.

ANIMATO, ANIMOSO, or CON ANIMA. Animated; with spirit.

ANNULUS or ANNULET. Ring of molding above the lower part of the echinus of Doric capitals.

ANTAE. Rectangular pilasters forming the ends of the walls of the cella of a Greek temple, and supporting the extremities of the architrave. A temple of this form was called a temple "in antis."

ANTEFIXA. Terra cotta ornaments placed above the cornice and on the ridge of the roof of Greek temples.

APSE. The extremity of a church, generally semicircular in form and surmounted by a semi-dome.

AQUATINT. A process of engraving by acid laid on in even washes with a brush, upon a broken surface formed by a crackled film of resin on the copper.

ARABESQUE. An ornament composed of stems, foliage, leafage of plants, scrolls, and fantastic animals. Not, as its name implies, an Arab invention, but found in Greek and Roman architecture.

ARCADE. A series of arches.

ARCH. A curved structure, generally a segment or segments of the circle. Semicircular arches were used by the Romans; horseshoe arches by the Byzantines and Moors; pointed arches formed of two intersecting segments of circles by the Gothic builders.

ARCHAIC. The early period of art when forms were stiff, conventional, and symbolic.

ARCHITRAVE. The horizontal part of a structure resting immediately on the capital of column or pilaster.

ASSAI. Very; used as an adverb with another word.

ASTRAGAL. A small semicircular molding at the top of a column beneath the capital, also used to divide the architrave horizontally into parts. Named from its supposed resemblance to a row of knuckle bones.

A TEMPO. In regular time.

ATLANTES. Human male figures, employed instead of columns to support the architrave.

ATRIUM. A covered court in a Roman house, with an opening in the center (compluvium) and roof sloping inwards.

BALDACHIN. A canopy over seats and other places of honor.

BAROQUE. Rococo.

BARREL VAULT. A vault of semi-cylindrical form.

BASE. The lower division of a column on which the shaft is placed; absent in the Doric order.

BASILICA. A rectangular hall divided by rows of columns into three naves, and used by the Romans as a court of justice. Adopted as the typical form of early Christian churches.

BAS-RELIEF or BASSO-RILIEVO. Figures sculptured on panel projecting less than half their proportions from the surface.

BASTION. A projecting polygonal buttress on a fortification.

BATTLEMENT. A parapet of a fortification, consisting of alternate raised portions and spaces, the latter called crenels or embrasures.

BAY. A portion of a structure marked off by the division of the vaulting, the arches, or the buttresses.

BEAT. An indication of a certain duration of time.

BEN. Implying well, as *ben marcato*.

BODY COLOR. In water-color painting, color made opaque by intermixture with white.

BOSS. An architectural ornament of ceilings, placed generally where the ribs of the vault meet.

BUTTRESS. A piece of wall built at right angles to the wall of a building to strengthen the structure, either immediately against the wall or connected by an arch called a flying buttress.

BYZANTINE. The style of architecture and painting in use at Constantinople from the sixth to the twelfth century.

CALANDO. A gradual diminution in speed and tone.

CADUCEUS. A wand of laurel or olive on which two snakes are intertwined; the emblem of Hermes.

CAPITAL. The, usually ornamented, member which crowns the top of a column or pillar, and by the form of which the different orders are characterized.

CARYATIDES. Female figures, employed instead of columns to support the architrave.

CELLA. The internal part inclosed by the walls of a Greek temple.

CHEVET. A form of apse inclosed by an arcade with a series of chapels round it, common in Romanesque and Gothic churches in France.

CHEVRON. A zigzag molding used in Romanesque architecture.

CHIAROSCURO. The distribution of light and shade.

CHROMATIC. Proceeding or formed by semi-tones.

CINQUEFOIL. An ornamental foliation, consisting of five projecting cusps.

CLEARSTORY. The row of windows forming the third or upper division of the nave wall of a church, rising above the roof of the outer portion of the structure.

CLOISTER. A quadrangular covered walk, forming a portion of a monastic building.

CLUSTERED COLUMN. A pier formed by a number of shafts clustered together, either united or separate.

COLUMN. A column consists of three principal parts: base, shaft, and capital.

COMPOSITE. The last of the five Roman architectural orders, formed by the combination of the Ionic volute with the foliage capital of the Corinthian.

CON. With; as *con espressione*.

CORINTHIAN. The third order in the Roman classification, of Greek origin. Shaft slender and smooth; capital richly decorated with acanthus leaf ornaments.

CORNICE. The horizontal molded projection terminating a building.

CORONA. A molding forming part of a cornice with lower part grooved to form a dripstone.

CRESCENDO. A gradual increase in tone.

CRYPT. A subterranean chapel beneath a church.

CUPOLA. A small dome or square structure rising above the roof of a building.

CUSP. Pointed foliations in architectural tracery.

CYMA. An undulated molding, formed of a concave and convex arc. When the upper arc is convex it is called cyma reversa; when the upper is hollow, it is called cyma recta.

DA. By.

DALES or DAL. In a soft, quiet manner.

DAMASCENING. Metal ornamented by inlaying another metal.

DECORATED. The second of the pointed or Gothic styles of architecture in England.

DELICATO. With delicacy.

DENTILS. Ornaments in the form of small cubes or teeth.

DIAPER. A mode of decoration by a repeated pattern.

DOLOROSO. In a melancholy, sad style.

DORIC. The oldest and simplest of the Greek orders of architecture.

DORMER. A gable window in the sloping side of a roof.

DRY-POINT. Direct engraving upon copper with the etching needle.

ECHINUS. The ovolo molding of a capital.

ELEVATION. The vertical plan of a building.

ENTABLATURE. The horizontal superstructure which lies upon the columns in classic architecture.

ENTASIS. The swelling of the shaft of a column.

EPINAOS. The portico situated at the back of a temple.

ESPRESSIVO or CON ESPRESSIONE. With expression.

ETCHING. Engraving by the action of acid on a copperplate covered with a wax ground on which lines have been scratched by the etching needle.

FACADE. The face or front of a building.
FAN TRACERY. Elaborate carved work spread over an arched surface.
FILLET. A plain band used in architecture to separate ornaments and moldings.
FINE. The end.
FINIAL. An ornament of carved work representing foliage on a pinnacle or spire.
FLAMBOYANT. A florid style of French pointed architecture peculiar to the fifteenth century, contemporary with perpendicular in England.
FLUTES. Small semicircular grooves or channels cut in the shafts of columns or pilasters.
FORTE. Strong, loud.
FRESCO. Painting executed on a freshly laid ground of stucco.
FRET. An angular, interlaced architectural ornament.
FRIEZE. (1) The middle division of an entablature which lies between the architrave and cornice. (2) Any horizontal sculptured band.
FURIOSO. With great animation.

GABLE. The triangular end of a house from the eaves to the top.
GENRE. Scenes from domestic life.
GIUSTO. In perfect time.
GRAVE. Slow in movement; low in pitch.
GRISAILLE. A style of painting in gray by which solid bodies are represented as if in relief.
GROIN. The angular curve formed at the intersections of a vaulted roof.
GUSTOSO or **CON GUSTO.** With style; taste.
GYMNASIUM. A large building used by the Greeks in which gymnastics were taught and practised.

HELIX. A small volute like the tendril of a vine placed under the Corinthian abacus.
HYPOSTYLE. A roof supported by columns.

IL. The.
IMPASTO. The thickness of the body of pigment laid on to a painting.
IMPETUOSO. Impetuously.
IN. In; as *in tempo.*
INTAGLIO. A stone in which the design is sunk beneath the surface, and gives impression of a bas-relief.
INTRADO or **INTRODUZIONE.** An introduction to a piece of music.
IONIC. The second order in Greek architecture distinguished by the voluted ornaments of its capital.

JAMB. The side of any opening in a wall.

KEYSTONE. The top stone of an arch.
KLAFT. A royal Egyptian headdress forming a kind of hood and terminating in two flaps, which fall over the breast.

LANCET. A pointed arch, obtuse at the point, resembling a surgeon's lancet.
LANTERN. A small turret above the roof of a building having windows all round it.
LARGO. A slow and solemn degree of time.
LEGATO. In a smooth, even manner.
LEGGIANDO. Lightly.
LINTEL. The stone or beam placed across the top of a door or window.
LOGGIA. The gallery or corridor of a palace, having a colonnade on one or more sides, open to the air.
LOTUS. A water lily. In Egypt and India held sacred.

MANSARD. A roof with two sets of rafters of which the upper part is less steep than the lower. Named after a French architect.
MARCATO. In a marked manner.
MARQUETRY. Inlaid work of ornamental woods and stones of various colors. Often written Parquetry.
MAUSOLEUM. (1) The tomb of Mausolus, king of Caria. (2) Any tomb of imposing size and magnificence.
MEDALLION. A circular or oval tablet on the face of a building.
MEME. The same.
METOPE. A square slab, sculptured or plain, between the triglyphs in the Doric frieze.
MEZZO. In a medium degree; as *mezzo forte.*
MEZZO-RILIEVO. Sculpture in relief in which half of the figure projects.
MEZZOTINTO. A method of engraving by smoothing away the lights from a ground mechanically roughened.
MODERATO. Moderately.
MOLTO. Very; as *molto forte.*
MONOLITH. An object formed of a single block of stone.
MOSAIC. An imitation of painting by joining together minute pieces of hard substances of different colors.
MOVIMENTO. Movement; time.
MULLIONS. The slender pieces which separate a window into compartments.
MUTULE. An architectural ornament of the Doric order, consisting of a square block placed at equal intervals in a Doric cornice.

NAOS. The interior apartment of a Greek temple.
NAVE. The middle part or body of a church from the choir to principal entrance between the aisles.
NIMBUS. A halo or circular disk around the head of sacred personages. After the eighth century, living persons were in Italy distinguished by a square nimbus, which sometimes assumes the form of a scroll partly unrolled. The heads of statues of gods and of Roman emperors were decorated with a crown of rays. The same is found in the Oriental representation of Buddha.

OBBLIGATO. An essential portion of a composition.
OGEE. An arch described with four centers so as to be concave in lower and convex in upper part.
OGIVE. A pointed arch.
ORDER. An order in architecture consists of two parts: the one, vertical, consisting of a column and its base and capital; the other, a horizontal entablature, consisting of architrave, frieze, and cornice. The word is only used when the order is one of the five whose dimensions and details were fixed and defined by Palladio and other architects of the sixteenth century; these are the Doric, Ionic, Corinthian, Tuscan (supposed to be a simpler form of Doric), and Composite (a Roman modification of Corinthian).
ORIEL. A projecting angular window, generally triangular or pentagonal in shape.
OTTAVA or **8VA.** An octave.
OVOLO. A convex molding much used in classical architecture.

PAGODA. A sacred tower in the countries of the far East.
PALESTRA. A place for wrestling, formerly part of the gymnasium.
PEDALE or **PED.** Signifies that performer must press down pedal.
PEDIMENT. A triangular crowning of a portico usually supported by a row of columns.
PEN. A little.
PENDENTIVE. The part of a vault between two arches supporting a dome.
PERIPTERAL. A name given to a temple which had a portico of six columns on each front and a detached colonnade of 11 on each side of the cella.
PERISTYLE. A building, the interior of which is surrounded with columns.
PERSPECTIVE. The art of representing on a flat surface the appearance of objects from one given point of view.
PIANISSIMO or **PP.** Very soft.
PIANO or **P.** Soft.
PIER. Perpendicular supports from which arches spring.
PILASTER. Square pillar on a wall partly imbedded in it, less than one fourth of its thickness projecting.
PINNACLE. A small spire.
PISCINA. A stone basin usually placed in a niche in the wall of the chancel at which the priest might wash his hands.
PLINTH. The lower projecting base of a column.
PLUS. More.
POCO A POCO. Gradually; by a regular gradation.
POMPOSO. Stately, dignified.
PRECIPITATO. Very quickly; hurriedly.
PREMIERE. First, as *première fois,* first time.
PRESTO. Very quick.
PRIMO. First, as *violino primo,* first violin.
PRONAOS. The portico situated in front of a temple.
PROPYLAEA. Gateway or entrance to an Egyptian temple.

QUASI. In the manner of; like.
QUATREFOIL. An ornament in pointed architecture, consisting of four foils.

QUIETO. With repose, quietly.

RAPIDO. Rapidly.
RINFORZANDO, RINF., or RF. With increase.
RITENENTE or RITENUTO. Decreasing in speed.
ROCOCO. A style of decoration distinguished by a superfluity of confused and discordant detail.
ROMANESQUE. The debased style of architecture and ornament adopted in the later Roman empire, and the styles founded upon it.
ROSE WINDOW. A large, circular window divided into compartments by curved mullions.
RUSTICATION. Hewn stone masonry, the joints of which are rendered conspicuous by grooves or channels.

SARCOPHAGUS. A stone coffin.
SCUMBLING. The process of going over a painting with a brush, nearly dry, to soften and blend the tints.
SEGNO. Sign, as *al segno*, go back to sign.
SEMPRE. Always, as *sempre piano*.
SERIOSO. Seriously.
SHAFT. The body of a column.
SOLO or SOLA. Alone. A composition rendered by one person.
SOSTENUTO or SOST. Prolonged, sustained in tone.
SPHINX. A figure with a human head on a lion's body, typifying the union of intellectual and physical power. An Egyptian emblem, signifying the religious mystery.
SPIRITO. With spirit.
STACCATO. Each note to be distinctly marked.
STESSO. Extended, diffused, slow.
STYLOBATE. The common base of a row of columns.
SYNCOPATE. See SYNCOPATION.
SYNCOPATION. Connecting an unaccented note with an accented note following others in the same or in different bars, thus forming one prolonged note with a duration equal to the two.

TAENIA. A band which separates the Doric frieze from the architrave.
TANTO or TAN. So much.
TARDO. Slowly.
TEMPERA. Painting with pigments mixed with chalk or clay, and diluted with size.
TEMPO COMMODO. In moderate or easy time.
THALAMUS. The nuptial chamber in a Roman house.
TORSO. The trunk of the statue of a human figure.
TRACERY. Geometrical ornament.
TRANQUILLO. Tranquilly.
TRANSEPT. A transverse nave, passing in front of the choir, and crossing the longitudinal nave of a church.
TRANSOM. The horizontal crossbar in a window.
TREFOIL. An ornament of three foils.
TREMANDO or TREMOLO. The rapid striking of a note so as to produce a tremulous effect.
TREMENDI. With terrific expression.
TRIFORIUM. The second or middle story of the nave wall of a Gothic church, consisting of a gallery over the ceiling of the side aisle and below its roof.
TRIGLYPH. An ornament, consisting of three flutings or upright groupings, separating the metopes in a Doric frieze.
TRILLE or TRILLO. A trill or shake.
TRIPLET. A group of three notes equal in duration of time to two notes of the same value.
TRIPTYCH. A form of pictures in three panels.
TYMPANUM. The triangular space between the horizontal and sloping cornices. The name is also given to the space included between the lintel of a door and the arch over it.

UN. A, as *un poco*, a little.

VAULT. An arched ceiling or roof of stone.
VELOCE. Rapidly.
VELOCISSIMO. With great rapidity.
VIGOROSO. With vigor.
VIVACE or VIVACEMENTE. Briskly and quickly.
VOLTI SUBITO. Turn over quickly.
VOLUTE. A spiral scroll.
VOUSSOIRS. The wedge-shaped stones used in constructing an arch.

ZOOPHORUS or ZOPHORUS (lit., bearing animals). A continuous frieze, decorated with figures of animals, conventional and real.

LANDMARKS IN THE HISTORY OF MUSIC.

333 St. Ambrose born.
384 The Ambrosian chant arranged for Milan cathedral.
590 Accession of Pope Gregory, who arranged the Gregorian chant.
814 Chant of Metz, Germany, began to be introduced in all Catholic churches at matins.
895-900 Beginning of modern harmony. Hucbald's "Organum."
(*c.*) 1025 Improvements in musical notation and introduction of solmization by Guido of Arezzo.
1100 Beginning of the earliest French school of contrapuntists. Jean Perotin introduces "imitations."
1200 Franco of Cologne regulates measure in music and formulates some of the fundamental laws of modern harmony.
1217 Walter Odington, an English disciple of the French school, writes a learned treatise on music.
1380 Introduction of secular tunes in masses.
1425-1430 John Okeghem, first master of the great Netherlands school, born. Canon carried by him to its utmost perfection.
1453 Fall of Constantinople and flight of scholars to Italy.
1475 The Meistersingers flourished in Germany.
1480 Adrian Willaert, father of the madrigal, born. Introduction of double choruses in antiphonal form.
1514 Palestrina born.
1520 Orlando di Lasso, last of the Netherlands school, born.
1524 The first Lutheran hymn book published.
1544 Cyprian di Rore's "Chromatic Madrigals" published.
1555 Palestrina's first masses published.
1563-1570 Lasso's celebrated penitential psalms composed.
1594 Performance of Jacopo Peri's "Daphne," the first opera at the Palazzo Corsi, Florence.
1600 Cavaliere's oratorio, "L'Anima è Corpo," produced.
1600 Production of Peri's "Euridice" at the marriage of Henry IV. and Maria de Medici in Florence.
1607 Monteverde's "Orfeo" produced at Mantua.
1608 Production of Monteverde's "Arianna."
1627 Opera introduced in Germany by Schütz.
1637 Opening in Venice of the Teatra San Cassiano, the first opera-house, with Manelli's "Andromeda."
1659 Alessandro Scarlatti, founder of the Neapolitan school, born.
1672 Sebastiani's passion music published.
1685 Johann Sebastian Bach and Händel born.
1710 The pianoforte invented by Cristofori.
1714 Gluck born.
1718 Händel makes England his home.
1724 Bach's "St. John's Passion" produced.
1731 Händel's first English oratorio, "Esther," produced.
1732 Joseph Haydn, father of the symphony, born.
1742 April 18, at Dublin, "The Messiah" first performed.
1749 March 23, "The Messiah" produced in London.
1756 Wolfgang Amadeus Mozart born.
1770 Beethoven born. Mozart's "Mithridate" produced.
1786 Weber born.
1791 Cherubini's "Lodoiska" produced.
1791 Meyerbeer born.
1792 Rossini born.
1795 Beethoven's Opus I. published.
1797 Schubert born.
1798 Donizetti born.
1799 Haydn's "Creation" produced at Vienna.
1802 Bellini born.
1803 Berlioz born.
1809 Mendelssohn and Chopin born.
1810 Schumann born.
1811 Liszt born.
1813 Rossini's "Tancred" produced.
1813 Richard Wagner born.
1813 Giuseppe Verdi born.
1818 Gounod born.
1821 Schubert's "Erl-King" first sung in public.
1829 Rossini's "William Tell" produced.
1831 Bellini's "La Sonnambula" produced.
1842 Wagner's "Rienzi" produced.
1845 Wagner's "Tannhäuser" produced.
1846 Mendelssohn's "Elijah" produced at the Birmingham Festival.
1849 Schumann's "Faust" produced.
1850 Wagner's "Lohengrin" produced.
1851 Verdi's "Rigoletto" produced.
1859 Gounod's "Faust" produced.
1864 Richard Strauss born.
1868 Wagner's "Die Meistersinger" produced.
1876 Wagner's "Der Ring des Nibelungen" produced.
1887 Verdi's "Otello" produced.
1900 Elgar's "Dream of Gerontius" produced.

Newspapers and Periodicals.—There is little doubt that in the field of educational extension outside of organized institutions the first place must be given to the newspaper. Dr. W. T. Harris in an address said: "Far surpassing our libraries in educative influences are our own daily newspapers and magazines. Our people are more freely supplied with newspapers than are the people of any other nation. We are governed by public opinion, as ascertained and expressed in the newspapers to such an extent that our civilization is justly to be called a newspaper civilization." The newspaper, like all our great social and institutional growths, began in colonial times. It is older than the public library but younger than the public school. The first regularly printed newspaper appeared in England in 1622, the first daily paper in 1702. In the United States the first newspaper was issued at Boston in 1690. It was of quarto size, comprising four pages, one of which was blank, and the only copy known to be in existence is in the state paper office in London. The Boston *News Letter*, edited by the postmaster, John Campbell, appeared on the 24th of April, 1704. It was printed on a half sheet 8 inches by 12 inches and was issued weekly until 1776. In 1719, the Boston *Gazette* and the *American Weekly Mercury* of Philadelphia were issued. The *New England Courant* (1721), the *Weekly Rehearsal*, the *Weekly Post Boy* (1734), and the *Independent Advertiser* (1748) were all printed in Boston. Benjamin Franklin bought the *Pennsylvania Gazette* in 1729 and published it for 30 years. The *Rhode Island Gazette* was started in Newport in 1732, the *Maryland Gazette* at Annapolis in 1728, and the *South Carolina Gazette* at Charleston in 1731. These were all weekly papers, the first daily being the *Pennsylvania Packet*, afterward called the *Daily Advertiser*, established in Philadelphia in 1784.

The earlier papers were ordinarily printed on a half sheet, folded either once or twice, though with no uniformity in this respect. When there was a press of news, a whole sheet was used. Although advertisements were inserted they were not frequent. One appeared in the first issue of the *News Letter* and two in the second.

While throughout the United States in 1750 there were only thirteen newspapers published, and nearly all of them in Massachusetts, there were, in 1910, 22,730 newspapers, of which New York published 1,988; Illinois, 1,792; Pennsylvania, 1,402; Ohio, 1,145; while Delaware published only 34; Alaska has 27, the fewest in the country.

Magazines.—The first successful magazine published in America was the *American Magazine and Historical Chronicle* at Boston in 1743, which lasted more than three years and appeared monthly, its first number containing 50 pages. It was followed in 1758 by the *New England Magazine of Knowledge and of Pleasure* containing 60 pages, which lasted only four months.

Between 1750 and 1775, six attempts to found a magazine failed in Philadelphia; but Robert Aiken in 1775 secured contributions from Thomas Paine to the *Pennsylvania Magazine* and was able to secure a foothold, but even with so popular and able a contributor was unable to carry the enterprise through the stormy days of the Revolution. The number of magazines published before the Revolution was sixteen. Between 1783 and 1800, forty others appeared. The first magazine to appear in the nineteenth century was the *Portfolio*, published by Dennie in Philadelphia between the years 1804 and 1825.

In the year 1815 was issued at Boston what is to the present generation the first substantial contribution to magazine publication, *The North American Review*, which appeared as a quarterly. It was removed to New York, where it appeared as a monthly, after 1819. It was founded by Tudor, and among its brilliant editors are the names of Channing, Dana, Everett, Sparks, A. H. Everett, Palfrey, Bowen, Peabody, Lowell, Norton, Henry Adams, and A. T. Rice.

The *Atlantic Monthly*, issued at Boston in 1857, was first edited by James Russell Lowell. James T. Fields, William D. Howells, Thomas Bailey Aldrich, and Bliss Perry were his successors. Such men as Longfellow, Holmes, Emerson, Whittier, and nearly every man of prominence have contributed to the high standard of literary excellence which it has since maintained.

Harper's Mgazine was established in 1850 and is noted as being the first of such publications to make illustrations a feature of its regular issues. *Scribner's Magazine* appeared in 1871, and upon the death of its first editor, Dr. J. G. Holland, in 1881, its name was changed to that of the *Century*, by which it is still known.

It is impossible to follow even by the mere mention of names the magazines which have since appeared in this country.

The field which the magazine occupies as an educational force is, probably, second only to that of the newspaper, for, apart from those whose table of contents presents nearly every feature in the field of culture, there is a great number of purely technical magazines which strive to keep pace with the application of science and scientific methods in the great field of commerce and economics. One of the oldest of these is the *American Journal of Science*, first issued in 1818 at New Haven, Conn. Later publications were the *Scientific American*, a weekly first published in 1846, the *American Naturalist* (1867), *Appleton's Popular Science Monthly* (1872) and *Science* (1883).

Learned Societies and Associations.—Generally speaking, learned societies and associations are voluntary in organization and administration, with the single possible exception in the United States of the National Academy of Science, established by act of Congress in 1865 with its home in Washington. It acts, to a certain degree, as a scientific advisory council of Congress. These organizations may be classified into six groups:—

First; General scientific societies, which include such as the American Academy of Arts and Sciences at Boston (1780), Connecticut Academy of Arts and Sciences (1799), the New York Academy of Sciences (1817), Brooklyn Academy of Arts and Sciences (1823), the Albany Institute (1824), the Maryland Academy of Science (1826), the Delaware County Institute of Science (1833), the Essex Institute at Salem (1848), and the American Association for the Advancement of Science, which is the largest and most influential society of this class in the United States.

Second: The historical societies, of which the Massachusetts Historical Association is the oldest and the forerunner of a list of about 50 similar institutions throughout the country, whose object is the preservation of historical records and the promotion of historical research in their respective localities. Notable amongst them is the Historical Society of New York (1804) and the American Jewish Historical Society (1902). One society in this class, the American Historical Association, which originated as late as 1884, the only national historical society in the country, has its headquarters at Washington. Allied to these are the American Antiquarian Society of Worcester, Mass. (1812), the American Geographical Society of New York (1852), and the National Geographic Society of Washington, D. C.

Third: Societies concerned with special branches of science, biology, and natural history, the oldest of which is the Academy of Natural Science of Philadelphia (1812).

Fourth: Learned societies which have for their object the study of a single special subject. These are numerous, and in addition to those following individual scientific subjects, include a great part of literary societies.

Fifth: Societies and associations relating to professions, such as medicine dentistry, law, engineering, fine arts, and architecture.

Sixth: Teachers' associations. The foremost among these is the great national society of teachers, the National Education Association, which begun under another name in 1857 and was organized in Philadelphia, but took its present name in 1870 at Cleveland. In its earlier days all matters relating to education in all of its departments were discussed at meetings of the entire association; but upon its organization under its new name it was divided into several departments, which now number 18, and subjects pertaining to these were discussed simultaneously in each department. It is composed of annual members, who pay a fee of $2 each; of life members, $20; of life directors, $100; and perpetual directorships, with privileges enjoyed by boards of education on payment of $100. Its meetings are held annually and its constitution is splendidly adapted to the administration of so large an organization comprising so many different interests.

One of the most notable features regarding this society was the appointment at Saratoga in 1892 of the special Committee of Ten to consider and to pass upon the course of study in secondary schools. It appointed nine subcommittees of experts, each of ten members, the same being one subcommittee for each branch of study in the secondary school. Their voluminous report of 250 pages upon the subject has proved a valuable contribution to the organization of secondary schools.

A Committee of Fifteen was appointed in 1893 to consider elementary education, and its work was equally valuable. In 1895 a Committee of Twelve on Rural Schools, a Committee on College Entrance Requirements, and a Committee on Normal Schools were appointed, and in 1898 a Committee on the Relations of Public Libraries to Public Schools; these committees contributed reports at the Los Angeles meeting of 1899, which reflect the expert opinion of the foremost educators of the country upon these subjects. Copies of these reports were widely circulated.

The meetings of the association are attended by over 50,000 educators, and its report upon educational matters is considered to be the best record of educational progress and of the science and art of pedagogy.

Similar work, though in a smaller field, is being done in the southern states by the Southern Educational Association, organized in 1890.

LIBRARIES.

The free public library, supported by taxation and used by the people, contributes largely to both culture and scholarship among the masses. The great value lies in its power to continue the education of those who for economic reasons cannot long enjoy school advantages.

Collections of books, called libraries, and accessible to only a few, have existed in nearly all countries from a very early date, either as private property or as part of a college or university. The institution known as a free circulating library is a product of the last half of the nineteenth century. The claim is made and with evident justice, that the first free public library in the United States, if not in the world, was that of Peterborough, New Hampshire, for the support of which the town in 1833 voted the proceeds from the general taxation of banks. This money was used to purchase books to be circulated free among the people of that town. Libraries were established for the use of the people in connection with district schools in New York state in 1835; but these were not successful on account of the small-sized units for which they were provided. But the idea led to the passing of laws to establish free public libraries in towns. The first law of this kind was passed by New Hampshire in 1849. Similar permissive laws have been passed in nearly all of the states; and many special grants of money have furthered the purpose. In consequence of this attitude many libraries have been established in towns and their efficiency has been greatly promoted. There is a public library in all but one of the towns in Massachusetts. By arrangement with an adjoining large town books are received each week, for which the small town makes an appropriation.

One of the greatest advances in library extension has been the establishment of open shelves accessible to all patrons. The difficulty of getting books to the people has been largely overcome by the establishment of traveling libraries, branch libraries, delivery stations, and deposit stations. Much has been done for library extension by the gifts from private citizens. Chief among American benefactors is Mr. Andrew Carnegie, whose great work may be summed up in the statement that he has by his gifts endowed over 2,100 libraries with more than $54,000,000.

The library of Harvard College was without doubt the first in our land to be used by more than a single family. Franklin in his autobiography tells of the origin of the American Philosophical Society and its library in 1732. Notable among the others privately established was the Redwood Library of Newport, Rhode Island, founded in 1747. The promoters of these subscription libraries evidently considered that the books were to be hoarded rather than used, so strict were the regulations enforced.

Ancient Libraries.—While the ancient Egyptians are known to have made collections of their writings, no remains of their libraries have been found, though carved inscriptions persist in abundance. In ancient Babylonia libraries consisting of clay tablets inscribed with cuneiform characters were commonly preserved in their temples; and some of these, such as the recently discovered collection in the Temple of Bel, in Nippur, which was destroyed in 1782 B. C., have persisted to the present day. The ancient Greeks maintained private collections of writings, and, according to Pliny, the first Roman public library was established in 39; but the Ulpian library established by Trajan surpassed all others. The most famous of all ancient collections was the Alexandrine library, which was founded about 300 B. C. by Ptolemy Soter, and which contained about 700,000 manuscript rolls at the time of Cæsar's visit (43 B. C.).

EARLY CHRISTIAN LIBRARIES were founded by Alexander, the Bishop, about 250, and by St. Jerome, St. Augustine, and St. Pamphilus. Constantine founded a library at Constantinople in 336, which became large and famous. The Crusaders caused its partial destruction, which was made complete by the Moslem conquest.

MEDIAEVAL LIBRARIES.—Throughout the Middle Ages, collections of books were preserved in monasteries, particularly those of the Benedictines. Many noted libraries had their origin in these collections. England is indebted to the Benedictines for her first library at Canterbury, which dates from 596, also for St. Peter's at York, St. Cuthbert's at Durham, those at Bury St. Edmunds, St. Albans, and others.

RENAISSANCE LIBRARIES.—The revival of learning following the dispersion of Greek scholars throughout Europe after the fall of Constantinople, and the invention of printing, created a new era in the history of libraries. While noted libraries such as Palencia, Spain (1212), Salamanca (1220), the University of Oxford (about 1230), the University of Prague (1348), and Heidelberg (1386), were founded previous to 1500, the great libraries of modern times have been established and developed since that date.

MODERN LIBRARIES.—Although libraries have steadily increased since the dissemination of printed books, their greatest development has taken place during the last century. The National Library, Paris, now the most extensive in the world, contained only 250,000 volumes in 1800. The British Museum Library ranks second, yet as late as 1837 its collections numbered only 250,000 printed books. The Imperial Library, St. Petersburg, which stands third, dates its great growth from 1795. The Library of Congress, ranking fourth, founded in 1800, was reduced by fire to only 20,000 volumes in 1851.

Great libraries have been developed in connection with leading universities,—notably those of Oxford and Cambridge in England, Paris, Vienna, Strassburg, Leipzig, Göttingen, Munich, Tübingen, and Heidelberg on the continent, and Harvard, Yale, Chicago, and Columbia in the United States, each of which contains more than 400,000 volumes. Among city libraries that of Boston (1852) has been one of the most noted and successful, ranking among the first ten libraries of the world, and, since 1895, the new Public Library of New York, formed by the consolidation of older libraries, has risen to foremost rank.

LEADING FOREIGN LIBRARIES

Founded	City and Country	Library	Volumes (Minerva 1913)
1902	Aarhuus, Denmark	City	200,000
1754	Amsterdam, Netherlands	University	600,000
1837	Athens, Greece	University	314,000
1537	Augsburg, Bavaria	City	200,000
1611	Bamberg, Bavaria	Royal Public	350,000
1460	Basel, Switzerland	Public	300,000
1661	Berlin, Prussia	Royal	1,450,000
1861	Birmingham, England	Birmingham Free	445,675
1712	Bologna, Italy	Royal University	255,000
1818	Bonn, Prussia	University	385,750
1738	Bordeaux, France	Public	402,767
1702	Breslau, Prussia	Royal University	416,870
1837	Brussels, Belgium	Royal	700,000
1802	Budapest, Hungary	Magyar Nemzeti Museum	491,831
1635	Budapest, Hungary	University	400,000
1229	Cambridge, England	Cambridge Univ.	860,000
1811	Christiania, Norway	Royal University	495,000
1665	Copenhagen, Denmark	Royal	800,000
1482	Copenhagen, Denmark	University	400,000
1364	Cracow, Galicia	University	429,154
1817	Darmstadt, Hesse	Royal Grand Ducal	568,850
1802	Dorpat, Russia	Imperial Univ.	247,261
1580	Dresden, Saxony	Royal Public	570,000
1601	Dublin, Ireland	Trinity College	338,884
1682	Edinburgh, Scotland	Advocates'	632,000
1583	Edinburgh, Scotland	University	275,000
1743	Erlangen, Bavaria	Royal University	254,083
1671	Fermo, Italy	Public	212,397
1714	Florence, Italy	Royal Central Nat'l	595,592
1484	Frankfort, Prussia	City	365,529
1457	Freiburg, Baden	Grand Ducal Baden University	300,000
1816	Ghent, Belgium	University	450,000
1450	Glasgow, Scotland	University	430,000
1737	Göttingen, Prussia	University	595,867
1798	Hague, The, Netherlands	Royal	600,000
1696	Halle, Prussia	University	278,000
1529	Hamburg, Germany	City	425,756
1650	Hanover, Prussia	Royal	211,200
1386	Heidelberg, Baden	Grand Ducal Univ.	500,000
1558	Jena, Saxe-Weimar	Grand Ducal Univ.	289,388
1804	Kasan, Russia	Imperial Univ.	309,936
1665	Kiel, Prussia	Royal University	309,118
1534	Königsberg, Prussia	Royal University	318,000
1536	Lausanne, Switzerland	Cantonale	300,000
1870	Leeds, England	Central Public Free	313,196
1409	Leipzig, Saxony	University	570,000
1796	Lisbon, Portugal	National	400,000
1850	Liverpool, England	Public	338,450
1753	London, England	British Museum	3,000,000
1840	London, England	London	260,000
1794	Lucca, Italy	Government	217,658
1711	Madrid, Spain	National	756,000
1508	Madrid, Spain	University	267,000
1804	Mainz, Hesse	City	230,000
1852	Manchester, England	Public Free	434,485
1770	Milan, Italy	National	259,650
1828	Moscow, Russia	Public	1,000,000
1756	Moscow, Russia	Imperial Univ.	394,845
1550	Munich, Bavaria	Royal	1,170,000
1472	Munich, Bavaria	University	690,000
1734	Naples, Italy	Royal National	395,439
1865	Odessa, Russia	Imperial Univ.	280,144
1815	Ottawa, Canada	Parliament	400,000
1602	Oxford, England	Bodleian	800,000
1760	Palermo, Italy	Public	192,942
1367	Paris, France	National	4,050,000
1762	Paris, France	University	600,000
1781	Paris, France	Arsenal	624,904
1624	Paris, France	St. Genevieve	400,000
1643	Paris, France	Mazarin	250,000
1769	Parma, Italy	Royal	313,823
1714	Petrograd, Russia	Imperial Public	2,043,822
1728	Petrograd, Russia	Imperial Academy	500,000
1819	Petrograd, Russia	Imperial Univ.	453,772
1773	Petrograd, Russia	Gornyj Institute	250,000
1348	Prague, Bohemia	Royal University	415,948
1889	Prague, Bohemia	Museum	264,260
1807	Rio de Janeiro, Brazil	National	330,000
1875	Rome, Italy	National Central	450,000
1450	Rome, Italy	Vatican Apostolic	400,000
1419	Rostock, Mecklenburg	University	294,000
17—	Schwerin, Mecklenburg	Grand Ducal	250,000
1585	Stockholm, Sweden	Royal	400,000
1870	Strassburg, Alsace	University	1,023,000
1765	Stuttgart, Württemberg	Royal	606,186
1872	Tokio, Japan	Imperial Univ.	491,082
1868	Tokio, Japan	Imperial	294,972
1880	Tomsk, Siberia	University	226,174
1477	Tübingen, Württemberg	Royal University	555,283
1720	Turin, Italy	National	350,000
1620	Upsala, Sweden	Royal University	400,000
1582	Utrecht, Netherlands	Rijks University	397,000
1468	Venice, Italy	National Marciana	462,810
1440	Vienna, Austria	Imperial	883,394
1775	Vienna, Austria	University	707,188
....	Vilna, Russia	Public	220,000
1817	Warsaw, Russia	Imperial Univ.	576,387
1650	Weimar, Saxe-Weimar	Grand Ducal	300,000
1568	Wolfenbüttel, Brunswick	Ducal	320,000
1402	Würzburg, Bavaria	Royal University	390,000

LARGEST LIBRARIES OF THE UNITED STATES.

When Founded.	CITY.	LIBRARY.	Number of Volumes.
1818	Albany	New York State Library	335,000
1886	Allegheny	Carnegie Free Library	57,340
1821	Amherst	College Library	100,000
1826	Annapolis	Maryland State Library	90,000
1841	Ann Arbor	University of Michigan General Library	322,040
1820	Augusta	Maine State Library	102,000
1882	Baltimore	Enoch Pratt Free Library	307,540
1876	Baltimore	Johns Hopkins University Library	173,000
1857	Baltimore	Library of the Peabody Institute	178,098
1887	Baltimore	New Mercantile Library	82,000
1883	Bangor	Public Library	20,000
1873	Berkeley	Univ. of Cal. Library	300,000
1820	Bloomington	Indiana Univ. Library	92,000
1807	Boston	Boston Athenæum	257,128
1853	Boston	Congregational Library	61,180
1861	Boston	Mass. Institute of Technology Library	95,528
1852	Boston	Public Library	1,167,000
1826	Boston	State Library of Mass.	168,000
1857	Brookline	Public Library	79,007
1887	Brooklyn	Free Library of Pratt Institute	200,000
1896	Brooklyn	Public Library	764,000
1794	Brunswick	Bowdoin College Library	105,389
1885	Bryn Mawr	Bryn Mawr College Library	67,000
1836	Buffalo	Public Library	316,909
1791	Burlington	University of Vermont and State Agr. College	80,500
1807	Cambridge	Andover Theological Seminary	110,000
1857	Cambridge	Cambridge Public Library	228,049
1638	Cambridge	Harvard Univ. Library	1,565,000
1825	Charlottesville	Univ. of Virginia Library	70,000
1894	Chicago	The John Crerar Library	322,049
1887	Chicago	Newberry Library	352,044
1872	Chicago	Public Library	549,577
1857	Chicago	University of Chicago	532,000
1855	Cincinnati	Public Library	537,820
1819	Cincinnati	Univ. of Cincinnati Lib.	72,500
1835	Cincinnati	Young Men's Mercantile Library	80,000
1826	Cleveland	Adelbert College Library	75,000
1881	Cleveland	Case School of Applied Science	80,000
1869	Cleveland	Public Library	487,398
1826	Cleveland	Western Reserve University Library	96,868
1812	Clinton	Hamilton College Library	56,000
1839	Columbia	University of Missouri	140,000
1817	Columbus	Ohio State Library	195,000
1870	Columbus	Ohio State Univ. Library	114,000
1820	Concord	New Hamp. State Library	146,000
1860	Dayton, Ohio	Dayton Public Library and Museum	70,000
1844	Delaware	Ohio Wesleyan University Library	64,000
1886	Denver	Public Library of the City of Denver	187,594
1838	Des Moines	Iowa State Library	140,802
1865	Detroit	Public Library	289,384
1851	Evanston	Northwestern Univ. Lib.	126,051
1861	Fall River	Public Library	92,496
1821	Frankfort	State Library of Kentucky	10,500
1819	Hamilton	Colgate Univ. Library	57,000
1779	Hanover	Dartmouth College	108,000
1790	Harrisburg	State Library of Pennsylvania	140,000
1834	Hartford	Case Memorial Library	99,349
1839	Hartford	Public Library	112,000
1823	Hartford	Trinity College Library	68,000
1858	Hartford	Watkinson Library of Reference	78,300
1873	Indianapolis	Public Library	173,959
1847	Iowa City	State Univ. of Iowa Lib.	195,000
1865	Ithaca	Cornell University Library	423,570
1838	Jackson, Miss.	Mississippi State Library	90,000
1889	Jersey City	Free Public Library	144,969
1828	Lansing	Michigan State Library	175,000
1864	Lawrence	Univ. of Kansas Library	80,000
1869	Lincoln	Univ. of Neb. Library	106,000
1846	Little Rock	Arkansas State Library	25,000
1872	Los Angeles	Public Library	218,604
1844	Lowell	City Library	92,249
1862	Lynn	Free Public Library	92,249
1849	Madison	Univ. of Wis. Library	195,000
1852	Medford	Tufts College Library	70,000
1831	Middletown	Wesleyan Univ. Library	93,000
1878	Milwaukee	Public Library	273,444
1889	Minneapolis	Public Library	260,000
1851	Minneapolis	Univ. of Minn. Library	150,000
1888	Newark	Free Public Library	203,230
1852	New Bedford	Free Public Library	150,000
1766	New Brunsw'k	Rutgers College Library	67,000
1701	New Haven	Yale University Library	1,000,000
1889	New Orleans	Howard Memorial Library	55,000
1896	New Orleans	Public Library	117,273
1754	New York City	Columbia Univ. Library	520,000
1820	New York City	Free Library	115,700
1828	New York City	Library of the New York Law Institute	77,391
1820	New York City	Mercantile Library	235,947
1754	New York City	N. Y. Society Library	100,000
1895	New York City	Public Library	2,253,309
1836	New York City	Union Theological Seminary Library	109,000
1831	New York City	University Library	100,000
1852	New York City	Y. M. C. A. Library	54,000
1894	Northampton	Forbes Library	119,703
1872	Notre Dame	Lemonnier Library	75,000
1833	Oberlin	Oberlin College Library	125,000
1872	Omaha	Public Library	104,538
1891	Palo Alto	Leland Stanford, Jr., University Library	217,000
1880	Peoria	Public Library	114,395
1894	Philadelphia	Free Library	443,120
1731	Philadelphia	Library Company	240,205
1821	Philadelphia	Mercantile Library	207,064
1740	Philadelphia	Univ. of Penn. Library	370,657
1895	Pittsburg	Carnegie Library	400,142
1867	Portland, Me.	Public Library	67,918
1864	Portland, Ore.	Library Asso. of Portland	159,824
1861	Poughkeepsie	Vassar College Library	86,000
1746	Princeton	Princeton Univ. Library	309,268
1767	Providence	Brown University Library	190,000
1753	Providence	Library of the Providence Athenaeum	79,000
1874	Providence	Public Library	165,222
1823	Richmond	Virginia State Library	93,000
1884	Rochester	Reynolds Library	73,187
1850	Sacramento	California State Library	180,203
1865	St. Louis	Public Library	374,997
1846	St. Louis	St. Louis Mercantile Library Association	143,014
1853	St. Louis	Washington Univ. Library	192,716
1848	Salem	Essex Institute Library	111,474
1879	San Francisco	Sutro Library	115,000
1877	So. Bethlehem	Library of Lehigh Univ.	90,554
1818	Springfield, Ill.	Illinois State Library	57,000
1857	Springf'ld, Ms.	City Library Association	193,989
1872	Syracuse	Syracuse Univ. Library	84,226
1796	Trenton	New Jersey State Library	87,477
1889	Washington	Cath. Univ. of Am. Lib.	70,000
1800	Washington	Library of Congress	2,253,309
1789	Washington	Library of the Department of State	72,000
1789	Washington	Georgetown Univ. Library	104,785
1789	Washington	Library of House of Representatives	125,000
1865	Washington	Library of the Surgeon General's Office	162,207
1898	Washington	Public Library of the District of Columbia	156,263
1789	Washington	Riggs Memorial Library	104,785
1836	Washington	Scientific Library of Patent Office	95,162
1846	Washington	Smithsonian Inst. Library	281,000
1868	Washington	U. S. Bureau of Education Library	145,000
1882	Washington	U. S. Geological Survey Library	97,000
1869	Washington	U. S. Senate Library	200,000
1870	Waterbury	Silas Bronson Library	88,692
1875	Wellesley	Wellesley College Library	75,631
1802	West Point	Library United States Military Academy	90,000
1793	Williamstown	Williams College Library	70,700
1894	Wilmington	Wilmington Inst. Free Lib.	77,671
1869	Woodst'k, Md.	Woodst'k College Library	75,000
1812	Worcester	American Antiquarian Society Library	130,000
1887	Worcester	Clark University Library	65,000
1859	Worcester	Free Public Library	192,627

MUSEUMS.

History.—A museum was originally a place sacred to the Muses, but later the name was used to designate institutions for the study of art or philosophy, the earliest being the celebrated museum of Ptolemy Soter at Alexandria. The use of the name to denote institutions preserving and exhibiting works of art and specimens of natural history is modern as are the institutions themselves. Some maintain that the modern museum has been evolved from the ancient custom of placing votive offerings in temples, and from the mediæval method of preserving sacred and historical objects in monasteries and churches. In this connection it is interesting to note that the ancient navigator Hanno, upon returning from a long voyage, presented skins of animals now supposed to have been gorillas to the Temple of Astarte in Carthage where they remained until the Romans destroyed the city.

Museums were first formed by rulers and by the rich, usually without system or purpose, chiefly to gratify curiosity. At a much later period scientific men began to form collections for study, and from combinations of these have arisen most of the great modern museums.

Art Museums date from the fourteenth century in Italy, where the collections of Cosimo de' Medici in later years grew into the celebrated treasures of the Uffizi Gallery, the Pitti Palace, and the National Museum at Florence. The vast art wealth of the Vatican in Rome had its beginnings in the collections made by Pope Julius II. (1503-1513). Between 1553 and 1586 collections were established in the Zwinger at Dresden, resulting later in the foundation of the Dresden Museum (1711-1722).

The transformation of the old feudal castle of the Louvre at Paris into a modern palace began in 1546, and its slowly completed galleries became repositories of the royal treasures of art, which, in 1710, contained over 2,400 paintings. In 1793 the National Museum was opened at Louvre, composed very largely of these royal collections, and in 1818 the National Museum of the Luxembourg, whose foundation dates from 1750, was reorganized and devoted to contemporary art. The Hermitage Gallery in the Winter Palace at St. Petersburg was built during the reign of Catherine II. (1765-1796). The National Gallery in London, which had its beginnings in collections made about 1820, was opened in 1838. Other noted museums were established at this time. At Munich the Glyptothek was founded in 1830 and the Pinacothek was completed in 1836. At Berlin the Royal Museum was organized in 1830, and the City Museum of Leipzig dates from the same year.

In the United States, the Philadelphia Academy of Fine Arts, founded in 1805, was the first institution to maintain a gallery and a school of instruction—all of the large museums of art being established during the last three decades of the nineteenth century: Boston and New York in 1870, Chicago in 1879, Cincinnati in 1881, the Corcoran Gallery in Washington in 1894, and the Carnegie Museum in Pittsburg in 1896.

Natural History Museums are, on the whole, a much later development, though some cabinets of natural objects were of early foundation; those of the Zwinger in Dresden, dating from 1553 to 1582, became organized about 1720 as the Dresden Museum, which is now one of the finest in Europe. The famous Jardin des Plantes in Paris, founded in 1626, early contained zoölogical collections which have since been developed into the most noteworthy natural science museum in France. In 1667 Elias Ashmole began the collections which in time became the Ashmolean Museum at Oxford, while the British Museum was founded in 1753 upon the collections of Sir Hans Sloane. For a full century these grew slowly, being little known to the public, and comparatively few others were established. However, during the last 60 years since museums have become inspirational in function, in addition to their primitive use for investigation and instruction, general interest in them has increased amazingly, and in England and America in particular, great national expositions or world's fairs have been factors of notable importance in establishing new ones. The Victoria and Albert Museum at South Kensington, London, was the direct outcome of the World's Fair of 1851, and a similar result followed the Glasgow Exposition.

In the United States, the earliest noteworthy endeavor to found a general museum was that of C. W. Peale, who opened the Philadelphia Museum in 1785, followed by similar attempts in other cities, none of which was permanent. In 1808 Silliman procured a cabinet of minerals for Yale College, an acquisition unique in its time and the forerunner of the magnificent collections now in possession of the great universities. The State Cabinet of specimens illustrating geology, botany, and entomology at Albany dates from 1836. The Smithsonian Institution became the repository of government collections in 1846. The now world-famous Museum of Comparative Zoölogy at Cambridge was established in 1859, largely through the efforts of Louis Agassiz. The American Museum of Natural History, New York, was organized in 1869, and as a result of the interest aroused by the Centennial Exhibition, the National Museum was founded at Washington in 1876. The Field Columbian Museum of Chicago, established in 1893, owes its origin to the World's Columbian Exposition of that year, and at the close of the "Midwinter Exposition" in 1894, a similar institution was organized in Golden Gate Park, San Francisco. The Carnegie Institution at Pittsburg, containing a museum, was completed in 1895. Since 1870 many states, cities, universities, colleges, and natural history societies have founded museums, and, while not so numerous as libraries, they are considered necessary adjuncts of every well equipped college or university, and every section of the country now possesses museums of more or less importance.

Number of Museums.—In Germany, which possesses nearly 500 museums, about 150 are devoted to natural history. In France the natural history museums number about 300, and in England there are 250. Of the list of some 250 natural history museums, as compared to about 8,000 libraries in the United States, 175 belong to schools and universities, 30 are maintained by learned societies, 30 are state museums, and 15 are supported by municipal and privately contributed funds. New York leads, with over 30 natural history museums; Pennsylvania follows, with about 20; Massachusetts has 17; Illinois, 15; Ohio, 14; and California, 10.

Character and Educational Value.—The scope of modern museums has been expanded far beyond the restricted groups of art and natural history objects of the early cabinets. Museums of art, besides painting and sculpture, now include antiquities, ceramics, glasses, porcelains, gems, fabrics, metal work, and numerous other collections. The modern natural history museums embrace a vast range of systematized material—palaeontological, geological, mineralogical, archaeological, ethnological, and anthropological, in addition to the zoölogical and botanical collections of the early museums. Besides there are also historical, military, clerical, technological, commercial, and educational museums. While the natural science and other collections of colleges, universities, and learned societies are chiefly utilized by students for instruction and investigation, and are made use of only to a limited degree in public education, museums in some of the larger cities have contributed extensively to public instruction, notably through popular lectures, traveling and loan exhibits, journals, bulletins, and in various other ways. The National Museum at Washington gives instructive special exhibits of remains of prehistoric culture, aboriginal modes of life, and the arts, industries, and occupations of various native and foreign races, and also loans duplicate collections for exhibition elsewhere. At the American Museum of Natural History of New York City much emphasis is laid upon educational extension, which is promoted by free public lectures on travel, natural science, and geography, and special Saturday lectures are given for the benefit of teachers, who are also granted the use of large series of lantern slides and other materials for use in giving lectures to their own students. Prepared sets of birds, insects, and other animals are loaned to schools, and lecture materials are distributed through the Department of Public Instruction. The Field Columbian Museum gives a series of popular lectures each year and publishes many scientific contributions. These, and similar forms of educational extension, are being everywhere rapidly developed, and are factors of increasing importance in public instruction. Technological museums display raw materials of use in the industrial arts and the several stages during manufacture. Commercial museums advance the interests of trade by exhibits of products, raw and finished, and supply data on prices, costs, and the needs of other countries.

CHRISTIANITY.

The Christian religion shares with all religions the recognition of man's dependence upon God. The essential point of distinction between it and all other religions is its provision for salvation through a Saviour sent direct from God, in the person of Jesus Christ. Upon this it bases its conception that it is the only true religion. It regards Judaism as of divine ordination but only preparatory to the coming of Christ, and hence imperfect. It holds that heathenism is debased, and that if any heathen be saved it must come about through the conscious or accidental adoption of means which God has prescribed, and by the complete atonement by Christ. Without this, and faith, and the essential elements of the Gospel, Christianity holds that there can be no salvation.

The history of the growth of the Christian Church is largely a history of its external organization, by which the visible and the invisible Church were connected. The sacerdotal institution was adopted from Judaism, consolidated by Saint Augustine, and culminated in the Papacy; so that membership in the Church and an acknowledgment of the hierarchy became essentials to salvation,—a view which many of the Anglican community recognize. But other Protestant denominations have insisted that the invisible Church is to be emphasized, and have done so to such an extent that almost any form of Church government or organization is recognized by them as being efficient.

The Ancient Church.—The period between the day of Pentecost, in the year 30, to the end of 800 is recognized as the period of the ancient church. It is remarkable for:—

(1) The rapid growth of the early church,
(2) The production of the literature of the New Testament,
(3) The organization of extensive missionary work, and
(4) The increasing opposition of the Jews.

To these are to be added the opposition of the Roman emperors, especially Nero, Domitian, Trajan, Hadrian, Antoninus Pius, and Marcus Aurelius. Grave heresies arose prior to the third century and the establishment of the canon of the New Testament and the writings of the early fathers met these conditions. In the third century, also, missionaries carried the Christian religion to western Europe and eastward to Armenia, Persia, and India. Roman emperors gave the Christians scant acknowledgment during the reigns of Septimius Severus, Caracalla, Heliogabalus, and Alexander Severus; while active persecution occurred in the reigns of Decius (250) and Diocletian (284-305). There was little tolerance or safety until the Edict of Galerius (311) and the Edict of Milan by Constantine (313). When, in 323, Constantine conquered Licinius, the Christian religion was the strongest in the world and became the religion of the Roman Empire.

During the fourth and fifth centuries there were numerous controversies, notably the Arian, demolished at Constantinople (381); the Origenistic (394-407;) the Apollinarian, ended in 381; the Nestorian, rejected at Ephesus in 431; the Eutychian (451); the Monophysite (553); the Monothelitic (680); and the long struggle between Augustine and Pelagius. Within the organization of the Church the most noticeable events were those which set the clergy apart from the laity and clearly marked the difference. For a time in the East, the rise and predominance of Mohammedanism retarded the growth of the Church there. So strongly organized had the Church become in the West that Charlemagne in 800 assumed the crown of the Holy Roman Empire as a vassal of the Bishop of Rome.

The Mediaeval Church.—The breach between the Eastern and Western branches of the Church, which had been growing for many years, culminated in 1054. Many monastic orders with common vows of chastity, poverty, and obedience, arose after the close of the tenth century; and nearly all were founded upon the plan of the Brotherhood of St. Benedict formed five centuries earlier. About the end of the eleventh century the Crusades began. Scholasticism, which sought to reduce the whole religious system to the basis of logic; and mysticism, which investigated and developed doctrines without too close reasoning, played great parts in the development of the Church at this time. Heretical and schismatic movements began among the Paulitians, Cathari, Albigenses, Waldensians, and others, which some historians regard as the first stirring of individual liberty. These were followed by the outbreak of Wiclif in England, and of Huss in Bohemia; and so general did these and similar movements become that the harshest measures for their repression were adopted.

The Modern Church (1500 to the present day).—Many and widely different influences had for some years been preparing the way for the Reformation, as Protestants universally designate their secession from the Roman Catholic Church. It is hard to specify when and where the movement began, or which of the heretical movements previously mentioned contributed most to its advance. But the German movement assumed such a conspicuous and eventful character that it is customary to say that the Reformation began upon the day when Luther fastened to the church door at Wittenberg his 95 objections or theses (All Saints' Eve, October 31, 1517). Calvin urged on the movement in Switzerland and Knox in Scotland. It may be said in general terms that the reformation movement was shared in by the Teutonic races while the Latin peoples retained their allegiance to the Church.

Within the Church there followed a period, known as the counter-reformation, during which the abuses to which she herself had drawn attention were corrected and her continuity with the ancient order was declared unimpaired by the Council of Trent (1545-1563). The Protestant body very soon developed two strongly divergent forces, the Lutheran, or adherents to Luther; and the Reformed, or followers of Calvin. This division increased, and subdivisions into a multiplicity of sects occurred as a logical sequence of the avowal of the authority of Scriptures and of justification by faith. From this division has resulted a renewal of the missionary spirit, which is one of the most marked characteristics of the Modern Church period. This aggressive missionary work has been followed up by Christians of all denominations, and has given to the

world, on the one hand, the self-denying Loyola, Xavier, and others, and, on the other hand, the great pioneer missionary force working throughout the nineteenth century in all lands among the heathen.

The period of the present day in the Christian world is marked by a movement called by some the rationalistic, which seeks to conduct a searching examination into traditions and assumptions, with the aid of the recent archæological and other knowledge along scientific lines. There is in no sense what was at one time within recent years feared by many—a conflict between science and religion. For the Church regards science as the handmaiden of all branches of knowledge, and calmly and confidently awaits the outcome of the most rigid investigations, ready to receive her contributions to the eternal truth.

Roman Pontiffs.

Peter	d. 67?
Linus	67-79?
Anacletus	79-90?
Clement I	90-99?
Evaristus	99-107?
Alexander	107-116?
Xystus (Sixtus)	116-125?
Telesphorus	126-136?
Hyginus	136-140?
Pius I	140 154?
Anicetus	154-165
Soter	165-174
Eleutherus	174-189
Victor I	189-198
Zephyrinus	198-217
Callistus	217-222
Urbanus	222-230
Pontianus	230-235
Anterus	235-236
Fabianus	236-250
Cornelius	251-253
Lucius I	253-254
Stephen I	254-257
Xystus II	257-258
Dionysius	259-268
Felix I	269-274
Eutychianus	275-283
Caius	283-296
Marcellinus	296-304
Marcellus	308-309
Eusebius	309 (310)
Miltiades	311-314
Sylvester I	314-335
Marcus	-336
Julius I	337-352
Liberius	352-366
Damasus I	366-384
Siricius	384-399
Anastasius I	399-401
Innocent I	401-417
Zosimus	417-418
Boniface I	418-422
Celestine I	422 432
Xystus III	432-440
Leo I	440-461
Hilarius	461-468
Simplicius	468-483
Felix II	483-492
Gelasius I	492-496
Anastasius II	496-498
Symmachus	498-514
Hormisdas	514-523
John I	523-526
Felix III	526-530
Boniface II	530-532
John II	533-535
Agapetus I	535-536
Silverius	536-537
Vigilius	537-555
Pelagius I	556-561
John III	561-574
Benedict I	575-579
Pelagius II	579-590
Gregory I	590-604
Sabinianus	604-606
Boniface III	-607
Boniface IV	608-615
Deusdedit	615-618
Boniface V	619-625
Honorius I	625-638
Severinus	-640
John IV	640-642
Theodore I	642-649
Martin I	649-653
Eugenius I	654-657
Vitalian	657-672
Adeodatus	672-676
Donus	676-678
Agatho	678-681
Leo II	682-683
Benedict II	684-685
John V	685-686
Conon	686-687
Sergius	687-701
John VI	701-705
John VII	705-707
Sisinnius	-708
Constantine	708-715
Gregory II	715-731
Gregory III	731-741
Zacharias	741-752
Stephen II	752-757
Paul I	757-767
Stephen III	768-772
Adrian I	772-795
Leo III	795-816
Stephen IV	816-817
Paschal I	817-824
Eugenius II	824-827
Valentine	-827
Gregory IV	827-844
Sergius II	844-847
Leo IV	847-855
Benedict III	855-858
Nicholas I	858-867
Adrian II	867-872
John VIII	872-882
Marinus I	882-884
Adrian III	884-885
Stephen V	885-891
Formosus	891-896
Boniface VI	-896
Stephen VI	896-897
Romanus	-897
Theodore II	-897
John IX	898-900
Benedict IV	900-903
Leo V	-903
Christopher	903-904
Sergius III	904-911
Anastasius III	911-913
Lando	913-914
John X	914-928
Leo VI	-928
Stephen VII	928-931
John XI	931-935
Leo VII	936-939
Stephen VIII	939-942
Marinus II	942-946
Agapetus II	946-955
John XII	955-963
Leo VIII	963-965
Benedict V	-964
John XIII	965-972
Benedict VI	973-974
Benedict VII	974-983
John XIV	983-984
Boniface VII	984-985
John XV	985-996
Gregory V	996-999
Sylvester II	999-1003
John XVII	-1003
John XVIII	1003-1009
Sergius IV	1009-1012
Benedict VIII	1012-1024
John XIX	1024-1032
Benedict IX	1032-1044
Gregory VI	1045-1046
Clement II	1046-1047
Damasus II	-1048
Leo IX	1049-1054
Victor II	1055-1057
Stephen IX	1057-1058
Benedict X	-1058
Nicholas II	1058-1061
Alexander II	1061-1073
Gregory VII	1073-1085
Victor III	-1087
Urban II	1088-1099
Paschal II	1099-1118
Gelasius II	1118-1119
Calixtus II	1119-1124
Honorius II	1124-1130
Innocent II	1130-1143
Celestine II	1143-1144
Lucius II	1144-1145
Eugenius III	1145-1153
Anastasius IV	1153-1154
Adrian IV	1154-1159
Alexander III	1159-1181
Lucius III	1181-1185
Urban III	1185-1187
Gregory VIII	-1187
Clement III	1187-1191
Celestine III	1191-1198
Innocent III	1198-1216
Honorius III	1216-1227
Gregory IX	1227-1241
Celestine IV	-1241
Innocent IV	1243-1254
Alexander IV	1254-1261
Urban IV	1261-1264
Clement IV	1265-1268
Gregory X	1271-1276
Innocent V	-1276
Adrian V	-1276
John XXI	1276-1277
Nicholas III	1277-1280
Martin IV	1281-1285
Honorius IV	1285-1287
Nicholas IV	1288-1292
Celestine V	-1294
Boniface VIII	1294-1303
Benedict XI	1303-1304
Clement V	1305-1314
John XXII	1316-1334
Benedict XII	1334-1342
Clement VI	1342-1352
Innocent VI	1352-1362
Urban V	1362-1370
Gregory XI	1370-1378
Urban VI	1378-1389
Boniface IX	1389-1404
Innocent VII	1404-1406
Gregory XII	1406-1409
Alexander V	1409-1410
John XXIII	1410-1415
Martin V	1417-1431
Eugenius IV	1431-1447
Nicholas V	1447-1455
Calixtus III	1455-1458
Pius II	1458-1464
Paul II	1464-1471
Sixtus IV	1471-1484
Innocent VIII	1484-1492
Alexander VI	1492-1503
Pius III	-1503
Julius II	1503-1513
Leo X	1513-1521
Adrian VI	1522-1523
Clement VII	1523-1534
Paul III	1534-1549
Julius III	1550-1555
Marcellus II	-1555
Paul IV	1555-1559
Pius IV	1559-1565
Pius V	1566-1572
Gregory XIII	1572-1585
Sixtus V	1585-1590
Urban VII	-1590
Gregory XIV	1590-1591
Innocent IX	-1591
Clement VIII	1592-1605
Leo XI	-1605
Paul V	1605-1621
Gregory XV	1621-1623
Urban VIII	1623-1644
Innocent X	1644 1655
Alexander VII	1655-1667
Clement IX	1667-1669
Clement X	1670-1676
Innocent XI	1676-1689
Alexander VIII	1689-1691
Innocent XII	1691-1700
Clement XI	1700-1721
Innocent XIII	1721-1724
Benedict XIII	1724-1730
Clement XII	1730-1740
Benedict XIV	1740-1758
Clement XIII	1758-1769
Clement XIV	1769-1774
Pius VI	1775-1799
Pius VII	1800-1823
Leo XII	1823-1829
Pius VIII	1829-1830
Gregory XVI	1831-1846
Pius IX	1846-1878
Leo XIII	1878-1903
Pius X	1903-1914
Benedict XV	1914–1922
Pius XI	1922–

The title of pope, formerly given to all bishops, was first adopted by Hyginus in 139. At the time of the councils of Nicæa (325) and Antioch (341) the Bishop of Rome was regarded as metropolitan, and before the end of the seventh century the supremacy of Rome was acknowledged throughout the West. The Church of Rome meanwhile continued to increase its temporal dominion, the power of the papacy reaching its zenith in the time of Innocent III. (1198-1216). During the "Babylonian Captivity" (1309-1376) the popes lived at Avignon, and with England and Germany alienated, their power began to wane. The Great Schism still further discredited the papacy. The temporal power of the popes came to an end in 1870 with the occupation of Rome by Victor Emmanuel.

A pope is ordinarily elected by *scrutiny*. Each cardinal in conclave writes on a ticket both his own name and that of another cardinal. These tickets, folded and sealed, are placed in a chalice, from which they are taken by scrutators nominated *ad hoc* from the electing body. A cardinal who receives two thirds of the entire votes is declared elected.

The Roman Pontiff has for advisors and coadjutors the Sacred College of Cardinals, consisting, when complete, of 70 members, viz.: 6 cardinal bishops, 50 cardinal priests, and 14 cardinal deacons. It rarely, however, comprises the full number. In April, 1909, it consisted of 6 cardinal bishops, 42 cardinal priests, and 5 cardinal deacons. Though primarily drawn from the vicinity of Rome, the cardinals are now Princes of the Church at large, and are selected from every Christian nation. The cardinals constitute the papal senate or council and the various Sacred Congregations; they govern the Church while the papal see is vacant, and elect the new pope. They received the distinction of the red hat under Innocent IV., and the title of Eminence from Urban VIII. in 1630.

ADVENTISTS. Those who believe that Christ will, on his second coming, establish a personal reign upon the earth. The Adventists in the United States were founded by William Miller (1782-1849), who began lecturing on the millennium in 1831, and fixed the date at various times from 1843 to 1861. His followers were known as Millerites. The largest group of Adventists are the Seventh-Day Adventists, who observe the seventh day as Sabbath and believe in the fulfillment of Bible prophecies; the Advent Christians believe, as do the Seventh-Day Adventists, in the annihilation of the wicked; the Evangelical Adventists reject the annihilation doctrine. Other smaller groups are the Church of God, Life and Advent Union, and Churches of God in Jesus Christ.

ALBIGENSES. In the twelfth and thirteenth centuries several heretical sects of anti-sacerdotal Christians existed in the south of France. They were very numerous at Albi, in Languedoc, where they were most vigorously persecuted in a series of wars of extermination, the bloodiest in history. Pope Innocent III., in 1208, directed against them a crusade led by Arnold of Citeaux and Simon de Montfort. By the end of the thirteenth century they had lost their identity as sects.

ANTIBURGHERS. A division of the Scotch Secession church (1747), who refused to regard the burgesses' oath as compatible with their religion. Reunited with the Burghers in 1820.

BAPTISTS. A Christian denomination which holds that baptism must be preceded by a personal confession of faith, and, hence, rejects the principle of infant baptism. Baptists are generally, but not always, believers in baptism by immersion. While in some form this belief is of great age, as a separate denomination, the Baptists date from the time of the Reformation; their opponents have given them the name of Anabaptists. Roger Williams (1600-1684), originally a minister of the Church of England, founded (1639) the first Baptist church in America. Baptists are sometimes called Calvinist Baptists; Freewill Baptists practise open communionism; German Baptists are popularly known as Dunkers; Old-School, Anti-Mission, or Hard-Shell Baptists are extreme Calvinists; Seventh-Day Baptists keep the seventh instead of the first day as Sabbath; Disciples of Christ or Christians; Six-Principle Baptists, and Christians or the Christian Connection are other divisions. Those who hold that baptism by immersion is necessary for communion are called close-communionists as opposed to the open-communionists.

BROTHERHOOD OF ST. ANDREW. A men's society within the Protestant Episcopal Church whose members are united for the purpose of spreading the kingdom of Christ, among young men especially. It was founded in Chicago in 1883, and in 1909 numbers 15,000 members, or 1,300 active chapters, in the United States, while Canada has 400 chapters of 3,800 members. It is a world-wide movement, with societies wherever its missionaries have been established in many remote places.

CHRISTIAN ENDEAVOR, YOUNG PEOPLE'S SOCIETY OF. A religious society organized in Williston Church, Portland, Me., by Rev. Francis E. Clark, D.D., LL.D., in 1881. Dr. Clark has been continuously associated with the movement since its inception. Each society is a part of some local church, and exists to make the young people loyal and efficient members of the churches of all of the great evangelical denominations. There are (1909) 69,256 societies, numbering 3,462,800 members, chiefly in the United States and Canada, but also extending to other and to missionary countries.

CHRISTIAN SCIENCE. A religious system formulated by Mrs. Mary Baker G. Eddy (1822-1910), who began to teach its principles at Lynn, Mass., in 1867; founded the First Church of Christ Scientist in Boston, Mass., 1879, which was enlarged to accommodate 8,000 people and rededicated in June, 1906; ordained pastor (1881); founded the Massachusetts Metaphysical College (chartered 1881). The principles of the system are elaborated in her works: *Science and Health, with Key to the Scriptures* (1875), which is the Christian Science text-book; *Unity of Good, Retrospection and Introspection*, and *Manual of the Mother Church*. The fundamental belief consists in acknowledgment and adoration of one Supreme God; in the inspiration of the Scriptures; in the divinity of Christ; in the supremacy of God as a spirit; in prayer without ceasing; in all the essentials of Christian belief; and the claim that the chief work of Christian Science is to destroy all evil, which will eventually pass away, and to reform mankind. Christian Science is regarded by its members as the triumph of Truth over all error, sin, sickness, and death.

CONGREGATIONALISTS. A denomination of Christians who hold that church government is to be vested in the associated brotherhood of each local church as an independent body, and acknowledge the evangelical or orthodox doctrines, infant baptism, and baptism by sprinkling. The Congregationalists are identical with the Independents of England. The origin of the body dates to the reign of Elizabeth, and its principles found an ardent advocate in Robert Browne in 1580. Congregationalism exerted a peculiar influence upon the development of the New England colonies, which were founded by members of this church.

DISCIPLES OF CHRIST or CHRISTIANS. A religious body working towards a return in faith and life to the Christianity of the New Testament. It is distinctively American in its origin, and it was evolved by teachers among religious denominations simultaneously pleading for the Bible alone, without additions of creed or formulas, and for the union of all Christians upon the basis of the Apostles' teaching. It is steadily increasing in numbers and importance.

DUTCH REFORMED CHURCH. This body arose out of a union of the Dutch churches in America, begun in 1770 and completed in 1812. Elders and deacons, chosen for two years, form a controlling consistory in which the elders work with the pastor, while the deacons control the alms. The Great Consistory is composed of former elders and deacons, and its office is advisory. In theological belief the church is Calvinistic; in worship the service is liturgical. The True Reformed Dutch Church was constituted in 1822 by secession from the Dutch Reformed Church in America.

EPISCOPAL CHURCH, PROTESTANT. The Church of England as transplanted in the United States follows the doctrines of apostolic creeds and principles of the primitive church. From 1607 until the War of Independence the Episcopal clergy in America were under the control of the Bishop of London. Rev. Samuel Seabury (1729-1796) was consecrated in Scotland the Bishop of Connecticut and was the first Protestant Episcopal bishop in America (1784). The General Convention is the national association of all the Protestant Episcopal churches in America and meets triennially.

EPWORTH LEAGUE. A society in connection with the Methodist Episcopal Church, organized at Cleveland, Ohio, in 1889, and named after the birthplace of John Wesley. Its object is to bind the young people closely to the church. It is probably the largest denominational society of young people in the world. The League of the Methodist Episcopal Church, South, was organized early in 1891.

FRIENDS or QUAKERS. A society of Christians which originated in England in the middle of the seventeenth century through the teachings of George Fox (1624-1691). They rely on the immediate teaching and guidance of the Holy Spirit; have no paid ministry; reject the outward observance of such church rites as baptism and the Lord's Supper, which they believe is partaken of spiritually; have no liturgy, and often conduct their meetings in silence. The well-known peculiarities of speech and dress are rapidly disappearing, though their hatred of war and objection to oath-taking are as strong as ever. In 1827, by a division in the Society of Friends, an order was founded by Elias Hicks (1748-1830) and known

as the Hicksites. These observe the usages of the Friends, but in doctrinal points more nearly approach the Unitarians.

GERMAN REFORMED CHURCH. A body erected among the German colonies in America. Its first synod was formed in 1747. Church government is Presbyterian in form; theology is moderately Calvinistic; and the service is optionally liturgical.

GREEK CHURCH. A body which follows the foundation of Christianity to the end of the seventh general council of the church in 787, known as the second Nicene Council. There the members refused to recognize the authority of Rome, and separated in 1054. Its rise was contemporaneous with and dependent upon the eminence which the Byzantine empire attained. Its title is "the Holy Orthodox Catholic and Apostolic Oriental Church," and comprises the church in the Ottoman empire, governed from Constantinople; the church in Greece; and the Russo-Greek Church. It is known also as the Eastern Church. The church is governed by the patriarchs of Constantinople, Alexandria, Antioch, and Jerusalem, and by the Russian Holy Governing Synod.

LUTHERANS. The Lutheran Church, the State Church of Germany and three Scandinavian countries, was established by Martin Luther in the sixteenth century. He called it the Evangelical Church; the term Lutheran was originally one of reproach. The nine dogmas of the church are contained in the Apostle's Creed, Nicene Creed, Athanasian Creed, Augsburg Confession (1530), Apology for the Augsburg Confession (1530), the Schmalkald Articles (1537), Catechisms of Luther (1529), and the formula of Concord (1577).

LUTHER LEAGUE OF AMERICA. A Lutheran organization of 100,000 members united for the promotion of activity in and loyalty towards the church. The first national convention was held at Pittsburg, Pa., in 1895. The first local organization occurred at New York City in 1888.

METHODISTS. The most important divisions are the Wesleyans of England and the Methodist Episcopal Church of the United States. They are evangelical and Arminian; have, generally, no liturgy; each church is organized into classes under class-leaders; churches are grouped in circuits under a district superintendent; in American churches bishops have general supervision of the whole church. The denomination was founded by John Wesley (1703-1791), and the name Methodist was first given to Wesley and his associates by fellow students at Oxford.

MORAVIANS. This Christian denomination, known also as the United Brethren, claims its descent from John Huss (1369-1415). They suffered much persecution and expulsion in early times, but are now established in the three home provinces of Great Britain, Germany, and America. Each of these are governed by a synod; and a general synod of the three meets every ten years at Herrnhut, Saxony. They are especially noted for their zealous missionary work.

MORMONS, THE, or CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS. A religious sect organized at Fayette, N. Y., in 1830, by Joseph Smith, who maintained he had received a divine revelation for the upbuilding of the Kingdom of God, and that an angel had delivered to him an ancient record engraved on plates of gold, which he translated and published as the Book of Mormon. This volume is regarded as equal in authority with the Jewish and Christian Scriptures but not superseding or supplanting them. A temple was built at Kirtland, O., in 1831, and other branches were established, but owing to opposition a general westward movement took place in 1838. Most of the people located in Illinois, where in 1839 they began the erection of the temple at Nauvoo. Increasing opposition culminated in the assassination of Joseph and Hyrum Smith by a mob in 1844. Brigham Young then became the head of the church and in 1846 led the memorable westward exodus across the plains. The pioneers reached the valley of Great Salt Lake in 1847, and established what has now become a prosperous commonwealth. The practice of plural marriage, which led to much persecution, was never general and has been formally discontinued. The total membership now exceeds 300,000.

PRESBYTERIANS. A body of Christians governed by elders or presbyteries. Among the leading divisions of this body are: (1) the Established Church of Scotland, founded in 1560 by John Knox (1505-1572); (2) the Presbyterian Church in the United States, founded in 1705, split into the New School and the Old School on theology and antislavery (1838), reunited (1870); (3) the Presbyterian Church of the United States (Southern), which separated from the Old School in 1861 when the Confederacy was established; (4) the Free Church of Scotland, which, in 1843, went out from the Established Church of Scotland; in 1900 the major part of its members united with the United Presbyterian Church to form the United Free Church of Scotland. The Covenanters, in 1638 and 1643, bound themselves by a solemn covenant to resist the prelacy and papacy and to support the Presbyterian Church in doctrine and polity; the name was afterwards applied to the Cameronians or Reformed Presbyterians who followed Richard Cameron (died 1680) in the refusal to accept the indulgence granted to Presbyterians by Charles II.; in 1876 the greater number of them were merged in the Free Church.

REFORMED EPISCOPAL CHURCH. A body organized in 1873 by former clergy and members of the Protestant Episcopal Church. Episcopal government is retained as a matter of policy without belief in its divine imposition; the Book of Common Prayer in revised form is in use; the doctrines of regeneration by baptism, real presence, oblation, and apostolic succession are rejected.

SAINT VINCENT DE PAUL. The greatest Roman Catholic organization was founded in 1835, in Paris, France, where the head office is now located; it has branches in every part of the world. Its principal mission is the care of the poor in their homes, to keep the family life intact; it conducts many other charities, as boys' clubs, hospital and prison visiting committees, summer homes, and distributes books and papers.

SWEDENBORGIANS. Followers of the teachings and religious doctrines of Emanuel Swedenborg (1688-1772), founder of the New Church. The church was organized in London in 1778 under the name of the "Society of the New Church signified by the New Jerusalem." The doctrine of correspondencies between material things and spiritual principles of good and evil is the foundation of Swedenborg's system. He never contemplated the erection of a separate church, but hoped for the working of the dispensation, which he foresaw dating from 1757, a year of regeneration, regardless of creed.

UNITARIANS. A religious body which affirms the unipersonality of the Deity, and denies the doctrine of the Trinity. The movement in the United States developed in New England under the teaching of Dr. William Ellery Channing (1780-1842). The ranks were joined by many Congregationalist churches, and the American Unitarian Association was formed in 1825.

UNIVERSALISTS. A body of Christians who believe that all mankind will eventually be redeemed from sin and suffering and be united in holiness with God. Outside of this fundamental belief there is wide diversity of views among the members. John Murray (1741-1815), an American Universalist clergyman, is known as the "father of American Universalism"; and Hosea Ballou (1771-1852), pastor of the Second Universalist Society in Boston, Mass. (1817-1852), was one of the founders of American Universalism.

WOMEN'S CHRISTIAN TEMPERANCE UNION. A great national movement organized in Cleveland, Ohio, in 1874. There are 40 working departments in the United States, within which are 10,000 local unions having a total membership of half a million. The society has greatly influenced legislation, making for purity and temperance. The World's W. C. T. U., organized in 1883 by Frances E. Willard (1839-1898), has auxiliaries in 50 countries. The emblem of the society is a white ribbon.

YOUNG MEN'S CHRISTIAN ASSOCIATION. This religious organization originated in England, where a society was founded in 1844 by Sir George Williams (1821-1905). As originally planned, its object was the holding of religious services in business houses in London; since then great additions of a cultural and social value have been made. In America the first institutions were founded in 1851; the first international convention was held at Buffalo in 1854. Of the 8,472 associations in the world, 2,118 are in North America. The American membership is 536,037; buildings owned by the associations 712, valued at $55,583,150.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION. A society for women planned similarly to the Y. M. C. A. Organized in London in 1855; in the United States in 1866; and in colleges in 1873. The World's Association was formed in 1894. The membership in the local associations subordinate to the American Committee (formed in 1886) is 228,590.

SCHOOLS OF PHILOSOPHY.

ORIENTAL SCHOOL.—The earliest recorded ventures in speculative thought are to be found in the Vedas, which set forth the Brahministic system of philosophy in the Hindu sacred literature (2000-1500 B. C.). When, in 1400 B. C., Vyasa founded the Vedanta or Uttaramimansa School of Hindu philosophy, the Mimansa School had long been established. The logical school, surprisingly similar to the later teachings of Aristotle, followed; the Kanade or Vaisheshika School dealt with the theory of atoms; the Kapila or Sankhya School was atheistic, and repudiated the idea that matter may proceed from or originate in spirit; and the Patanjali (about 140 B. C.) or Yoga system, founded on theism.

Other schools of philosophy formulated by orientals are Buddhism, Confucianism, and Zoroastrianism (which see).

EARLY GREEK SCHOOLS.—The germ of European philosophy is found in the teaching of **Thales**, born in Miletus in Asia Minor, about 640 B. C. With his followers he is classed in the Milesian school. He was philosopher, astronomer, and geometer; one of the seven wise men of Greece, and the earliest of the Ionian natural philosophers. He is reputed to have foretold an eclipse of the sun May 28, 585 B. C. Water was the principle of all things in his system.

The ELEATIC SCHOOL was founded by **Xenophanes** (570-480 B. C.). Born in Colophon, Asia Minor; settled at Elea in Greece (536 B. C.). He was the first Greek theologian and was more of a religious reformer than a philosopher, and was fanatically opposed to the polytheism of Greece.

Zeno of the Eleatics (fifth century B. C.) lived in Athens during the early days of Socrates; especially noted for his arguments setting forth the inconceivability of motion, the inventor of dialectics.

The PYTHAGOREAN SCHOOL was founded by **Pythagoras** (582-500 B. C.). Born in Samos, Greece; went to Crotona, in Magna Graecia, in 529, and there founded his philosophic school, which was a secret organization, into the mysteries of which candidates were formally initiated. Pythagoras traveled in Egypt and is credited with introducing the 47th problem of Euclid. He taught transmigration of souls, did not teach the existence of God, and based everything upon number.

Anaxagoras (500-428 B. C.). Born at Clazomenae in Ionia; taught at Athens and had as pupils, Pericles, Thucydides, and Euripides. He was the first of the philosophers to teach intelligence or reason as a metaphysical principle. Banished on a charge of impiety.

Heraclitus (535-475 B. C.). Born at Ephesus; was known as "the obscure" and as "the weeping philosopher." He taught that all knowledge is acquired through the senses, and foreshadowed the doctrine of predestination.

Democritus (460-357 B. C.). "The Abderite" and "the laughing philosopher," was born at Abdera. Traveled extensively; taught the atomic system, and that reflection makes complete knowledge. Said to have destroyed his sight that he might pursue his studies without distraction.

Empedocles (490-430 B. C.). Born at Agrigentum, Sicily; followed the teachings of Pythagoras and Parmenides. Said to have thrown himself into the crater of Etna in order to impress his followers with his divine nature. Earth, air, fire, and water were in his system the four elements.

The SOPHISTS attained great power in ancient Greece by their acceptable doctrines. Right was a matter of convention, and was that conduct which conferred the greatest good upon the greatest number; whatever society regarded as right was so. Conscience was a matter of education. Good conduct was duty and interest combined. In their day no clear distinction was made between logic and grammar on the one hand and skill in reasoning and in disputation on the other. They soon attached great importance to quibbles and their doctrines and methods were treated with contempt—hence our word sophistry. **Protagoras** of Abdera (481-411 B. C.) was the earliest of the Sophists.

The SOCRATIC SCHOOL was founded by **Socrates** (470-399 B. C.), the noblest exponent of the ethical life of the Greeks. His method of confounding the Sophists in argument is known as "the Socratic method." His teachings are set forth in the "Dialogues" of Plato and the "Memorabilia" of Xenophon. Plato, Xenophon, and Alcibiades were his most celebrated pupils. Accused of impiety and of corrupting the youth, he was condemned to suicide, and drank hemlock in prison in the presence of his disciples.

The ACADEMIC SCHOOL was founded by **Plato** (429 or 427-347 B. C.). He was a pupil of **Socrates** and the teacher of **Aristotle**. His philosophy is still the greatest exposition of idealism, and though based on the teachings of Socrates, goes far beyond them in speculation. He taught in the quiet of a grove or garden, "Akademia," near Athens, and Plato's school came to be called the Academic school and his followers Academicians.

The CYNICS was a Greek school founded by **Antisthenes** (444-371? B. C.), who taught in the Cynosarges, a gymnasium near Athens, hence the name Cynics. They taught virtue, self-control, and contempt of riches, art, science, and amusements. **Diogenes** of Sinope (412-323 B. C.) was the most famous of the Cynics, and noted for his eccentricities.

The CYRENAIC SCHOOL was founded by **Aristippus** (lived about 380 B. C.). Born in Cyrene, Africa. He was a pupil of Socrates, whose principles and methods were largely discarded by this founder of a hedonistic school.

The MEGARIC SCHOOL was founded by **Euclid** of Megara, not the Euclid of mathematical fame but a pupil of Socrates, born in the middle of the fifth century B. C.

The PERIPATETIC SCHOOL was founded by **Aristotle**, the Stagyrite, the most famous and influential of Greek philosophers (384-322 B. C.). He taught in the walks of the Lyceum at Athens, hence the name, Peripatetic. Greek philosophy culminated in Aristotle, and until the discovery of modern science and scientific methods his books were text-books in the colleges, and his opinions were authoritative on all matters philosophical.

The EPICUREAN SCHOOL was founded by **Epicurus** (342-270 B. C.). Born in Samos. His school was opened at Athens in 306. The germ of his system was that pleasure is the only end of rational action, and that freedom is the ultimate pleasure.

The STOICS were founded by **Zeno** (340-265 B. C.), who taught from the Painted Porch in the Agora at Athens. The sternness and severity of the doctrines, and the effects of them upon some of the noblest men of antiquity have become proverbial. Indifference to pain is the most marked of the effects of the system.

The SKEPTICS were founded by **Pyrrho** (360-170 B. C.). Born in Elis. While the founder professed to doubt everything, the name Skeptic means a looking through or into all things.

The ALEXANDRIAN SCHOOLS.—The decadence of philosophy at Athens after the brilliant period of Aristotle sent the philosophers elsewhere. Rome displayed slight appreciation for all systems except the Stoic, which appealed to them. In Alexandria, rapidly becoming a center of science and learning, a fertile soil was found, and there arose the strange mixture of philosophical teaching, part mystic, part skeptic, which is known as neo-Platonism. The earliest of the Alexandrian philosophers was Philo Judaeus or Philo the Jew (about 20 B. C.-40? A. D.), whose great object was to harmonize the philosophy of religion and whose work resulted in a sort of pantheism permeated with Oriental doctrines. Ammonius Saccas (170-243?) was the founder of the neo-Platonic school and the teacher of Plotinus, Longinus, and Origen. Plotinus (205-270) is regarded by many as the greatest of the neo-Platonists, though he is equally a neo-Aristotelian and a neo-philosopher, as he took into account the teachings of all of his great predecessors. Apollonius Tyanaeus (4? B. C.-97? A. D.) was a Pythagorean and a reputed worker of miracles. Porphyry (233-305) taught philosophy at Rome and wrote vigorously against the Christians. Hypatia (end of fourth and beginning of fifth centuries) was a neo-Platonic philosopher, famed for her beauty and for her tragic death described by Kingsley in his novel. She was the daughter of Theon, mathematician and astronomer, whose reputation she eclipsed. The Gnostics arose within the Christian Church in the first century, flourished in the second century, and disappeared towards the close of the sixth. They relied for salvation more upon knowledge than upon faith, did not interpret the Scriptures literally, and drew upon the older philosophies for their guidance.

ARABIAN PHILOSOPHY.—The Arabians excelled in science, but the repressing influence of the teachings of the Koran prevented an equal success in metaphysics. Averroes of Cordova (1126 or 1120-1198) was probably the most noted of the Arabians, famed as a philosopher, physician, and commentator of Aristotle. Many of his works were translated into Hebrew and Latin. In his doctrine three main elements meet: the philosophy of Aristotle, neo-Platonism, and the influences of the religion of Islam.

Al Gazel or Gazali (1058 or 1059-1111) the skeptic of the Arabians, taught at Bagdad as a professor of theology.

SCHOLASTICISM.—The Scholastics or Schoolmen were Christian Aristotelians who taught in the schools of Europe from the eleventh century until the Reformation. Their work was characterized by the authority of the Church, the influence of Aristotle, and the Arabian commentators, and by a stiff, formal, and pedantic mode of discussion. The greatest of the Schoolmen were Abelard (1079-1142), Aquinas (1225 or 1227-1274), Duns Scotus (1265?-1308?), the founder of Scotism, and his pupil William of Occam (1270-1347), the reviver of nominalism.

Giordano Bruno (about 1548-1600). An Italian philosopher; taught that there is an all-life (God) animating the whole universe, "which is thus one living being with life in all its members." This pantheistic doctrine led to a poetic personification of nature, and a humanistic view of the universe supplanting the factor of religious experience so prominent in medieval thought. Spinoza, Descartes, Schelling, and other later thinkers were influenced by Bruno.

BACONIAN PHILOSOPHY.—Inductive Philosophy was founded by Francis (Lord) Bacon, whose biography appears elsewhere. He was the first to formulate the method and to insist upon careful verification by observation and experiment of all facts that are employed in generalizations. It is as a methodologist who taught men of science the need and value of experiment that Bacon appears in the highest light.

MODERN PHILOSOPHERS.—Cartesian Philosophy is named after René Descartes (1596-1650), a French philosopher, who is famous for the oft-repeated formula, "*Cogito, ergo sum*" (I think, therefore I am). His method is based on mathematics, in which science Descartes was eminent. He describes four methods of procedure in philosophical investigation: (1) Do not accept anything until it is proved to be true. (2) All questions are to be subjected to the most careful analysis. (3) Proceed from simpler to more difficult matters. (4) See that no factors are overlooked or forgotten in the investigation in hand.

Thomas Hobbes (1588-1679), a celebrated English philosopher, who is regarded as the father of materialism. He was a pronounced nominalist, an antagonist of scholasticism, suggested the association of ideas, and was an advance worker in the field of modern rationalism. While thoroughly devout, he insisted upon the separation of religion or theology from philosophy.

John Locke (1632-1704), the founder of the modern English and French schools of "sensation" philosophy and psychology. His work was formulated in his *Essay on the Human Understanding*. He contributed greatly to the advance of philosophy by directing men's minds to the study of the knowable, and to giving up useless speculation on the unknowable.

Baruch or **Benedict Spinoza** (1632-1677), a Dutch philosopher of Jewish descent, the greatest expounder of the modern system of pantheism. The starting point of his philosophy is the Cartesian, of which he was a profound student. He saw God in all things, and conceived of no existence apart from God.

Gottfried Wilhelm von Leibnitz (1646-1716), a noted German philosopher and mathematician, was greatly influenced by the teachings of Descartes but differed from him in method and in some fundamental tenets. In his *Monadology* he presented a revision of Descartes's theory of substance,—teaching that the universe consists of a system of monads or units rising from the lowest to the highest grades of perfection in a "preëstablished harmony."

Christian von Wolff (1679-1754), a disciple of Leibnitz and father of the philosophy that prevailed in Germany before the time of Kant, the term Dogmatism being specifically applied to his system. He claimed for philosophy the entire field of knowledge, and emphasized method in philosophical speculation.

George Berkeley (1685-1753), an Irish prelate, famous for his theory of vision, which is the foundation of the psycho-physiological study of that subject. His idealism startled the philosophic minds of Europe. He started with Locke's system and developed it.

David Hume (1711-1776), the Scottish philosopher and historian, noted for his subtlety of metaphysical reasonings and for original work in political economy. His writings did away with the contemptuous criticism of the skeptic, who now demanded an answer instead of a laugh.

Etienne Bonnot de Condillac (1715-1780), a famous French philosopher, one of the foremost advocates of sensualism, or the founder of the French Sensational School. He took up Locke's system and carried it to the extent of saying that all knowledge is pure sensation.

Immanuel Kant (1724-1804), founder of the critical philosophy. The rock of the Kantian metaphysics is his *Criticism of the Pure Reason* or the *Critique of Pure Reason*, and its influence spread all over Europe. Kant has the reputation of being one of the deepest thinkers of any age.

Friedrich Heinrich Jacobi (1743-1819), a German philosopher, who was the chief exponent of "faith-philosophy" (Glaubensphilosophie). He opposed the witness of faith to the pantheistic view of the world advocated by Spinoza, and to the phenomenalistic view maintained by Kant.

Johann Gottlieb Fichte (1762-1814) was the greatest of Kant's pupils, though repudiated by the master. He has been called the soldier of philosophy. His system went far beyond that of Kant, and transformed all knowledge into pure idealism.

Friedrich Wilhelm Joseph Schelling (1775-1854), a noted German philosopher; was at first only an expounder of the philosophy of Fichte, but, later, framed his theory that the true sources of knowledge are not experience or reflection, but intellectual intuition. He was one of the most prolific of the metaphysical writers of Europe.

George Wilhelm Friedrich Hegel (1770-1831), the founder of Hegelianism, a system which, during the second quarter of the nineteenth century, was the leading system of metaphysical thought in Germany. He held that the source of all knowledge is the union of assertion and negation and the harmonizing of every proposition with its negation. Hegelianism is radically opposed to natural science and to the Newtonian philosophy. Its influence has produced the socialism of to-day.

Arthur Schopenhauer (1788-1860), a German philosopher; opposed the teachings of Fichte, Schelling, and Hegel, maintaining that the will, not thought or reason, is the absolute, and from this developed his theories of pessimism and voluntarism.

Ralph Waldo Emerson (1803-1882), an American philosopher who called himself a Transcendentalist. He left no system and developed no methods, but embodied his thoughts in disconnected essays. His reputation is probably greater abroad than at home. He was an optimist, and, above all, an individualist.

Isidore Auguste Marie Francois Xavier Comte (1798-1857), a celebrated French philosopher, the founder of positivism, which deals with the real, the known, the tangible or sensible in nature. He regarded all of the sciences as but branches of Positive Philosophy, and proposed to unite, coö dinate, and correlate them under that head. He arranges his sciences in this order: astronomy, physics, chemistry, organic chemistry, biology, and sociology, in the order of the clearness of possible predictions; and mathematics was regarded as the basis of all scientific work.

John Stuart Mill (1806-1873), an English economist and philosopher, and the most prominent of the English school of utilitarians,—which also included his father, James Mills (1773-1836), and Jeremy Bentham (1748-1832),—advocated the ethical theory called by him utilitarianism, which considers adaptation to an end the test of moral worth,—the end being interpreted as the general happiness.

Herbert Spencer (1820-1903), an English philosopher of great distinction. His early training developed a strong liking for mechanics, and in 1837 he became chief engineer of the London and Birmingham railway, continuing in this work for 10 years. From 1848 to 1852 he was sub-editor of *The Economist*, and wrote *Social Statics*. In the eight years following he published *Psychology*, which he expanded into *Synthetic Philosophy*. He conceived a system of philosophy to include the general principles of all existing knowledge, and completed it. It consists of "First Principles," "Principles of Biology," "Principles of Psychology," "Principles of Sociology," and "Principles of Ethics." In the system he applies the idea of evolution to the universe, but especially to organic life and its forms as well as to political and social institutions. He conceived evolution as the history of events rather than the history of the causes that make change, by which conception he has rendered inestimable service to human knowledge. His other writings include three volumes of *Essays, Scientific, Political, and Speculative*, his *Autobiography*, and *Education*, a book widely used in training schools for teachers.

Karl Robert Eduard von Hartmann (1842-1906) founded a new school of philosophy which professes to be a synthesis of that of Hegel and that of Schopenhauer, reconciling the results obtained from both the philosophic and the scientific methods. His fame rests upon his work entitled *The Philosophy of the Unconscious*, in which he defines the unconscious as the "absolute principle, active in all things, the force which is operative in the inorganic, the organic, and the mental alike, yet not revealed in consciousness."

UNIVERSITIES, COLLEGES, AND MOST TECHNICAL SCHOOLS IN THE UNITED STATES.

Junior colleges, now numbering nearly 300, normal schools of collegiate ranking, and a few minor colleges are not included. Colleges for women are marked by a star (*); for men by two stars (**); coeducational colleges are unmarked; a few men's universities and many men's colleges admit women as graduate students. All colleges not otherwise designated are non-denominational.

Opening.	Institutions.	Size of Faculty.	Students.
Alabama.			
1830	**Spring Hill Coll., Spring Hill (R. C.),	15	90
1831	Univ. of Alabama, Tuscaloosa (State),	139	2,535
1839	*Judson Coll., Marion (Baptist),	26	230
1841	**Howard Coll., Birmingham (Bapt.),	32	480
1843	Athens Coll., Athens (M. E. So.),	20	156
1872	Alabama Poly. Inst., Auburn (State),	115	1,435
1909	**Alabama Women's Coll., (M. E. So.)	41	450
Arizona.			
1891	Univ. of Arizona, Tucson (State),	112	1,322
Arkansas.			
1872	Arkansas, Batesville (Pres.),	20	216
1872	Univ. of Arkansas, Fayetteville (St.),	119	1,500
1884	Hendrix, Conway (M. E. So.),	19	365
1886	Ouachita, Arkadelphia (Bapt.),	25	300
1890	Henderson-Brown, Arkadel. (M.E.So.),	25	275
1891	Coll. of the Ozarks, Clarksville (Pres.),	20	250
1908	**Little Rock Coll., Little Rock (R. C.),	15	150
California.			
1851	Coll. of the Pacific, Stockton (M. E.),	50	400
1855	**St. Ignatius, San Francisco (R. C.),	30	250
1868	**St. Mary's, Oakland (R. C.),	36	211
1868	Univ. of Cal., Berkeley (State),	883	14,461
1865	*Mills Coll., Oakland	74	546
1880	Univ. of S. Cal., Los Angeles (M.E.),	358	6,530
1887	Occidental Coll., Los Angeles (Pres.),	54	534
1888	Pomona, Claremont (Cong.),	98	850
1891	Cal. Inst. Technology, Pasadena,	49	559
1891	*Dominican Coll., San Rafael (R. C.),	23	125
1891	Leland Stanford, Jr., Stanford Univ.	315	3,030
1901	Whittier Coll., Whittier (Friends),	25	200
1909	Pacific Union Coll., La Jota (Advent),	29	250
Colorado.			
1864	Univ. of Denver, Denver (M. E.),	178	3,602
1874	Colorado Coll., Colo. Springs	60	700
1874	**State School of Mines, Golden	39	493
1876	Univ. of Colo., Boulder (State),	270	2,707
1877	Colo. Agri. Coll., Ft. Collins (State),	71	1,717
1888	**Regis Coll., Denver (R. C.),	25	90
1918	*Loretto Heights Coll., Loretto (R. C.),	20	238
Connecticut.			
1701	**Yale, New Haven	490	4,131
1824	**Trinity, Hartford	30	265
1831	**Wesleyan, Middletown	55	560
1881	Conn. Agricultural, Storrs (State),	42	440
1915	*Conn. Coll for Women	49	438
Delaware.			
1834	Univ. of Delaware, Newark (State),	60	538
1914	*U. of D. Woman's Coll., Newark (St.),	31	205
District of Columbia.			
1789	**Georgetown Univ. (R. C.),	261	2,811
1821	George Washington	315	5,248
1864	Gallaudet (Nat. for Deaf),	26	165
1867	Howard College (Nat. for Negroes)	185	1,973
1889	**Cath. Univ. of America (R. C.),	107	3,581
1891	American Univ. (M. E.),	40	150
1897	*Trinity (R. C.),	47	265
1904	Washington Missionary Coll. (Advent),	25	150
1911	*Catholic Sisters Coll. (R. C.),	21	110
Florida.			
1884	**Univ. of Florida, Gainesville (State),	71	1,221
1885	Rollins College, Winter Park	30	202
1887	John B. Stetson Univ., Deland (Bapt.),	35	407
1905	*Florida State, Tallahassee (State).	61	781
1907	Southern Coll., Lakeland (M. E.),	18	232
Georgia.			
1801	Univ. of Georgia, Athens (State),	95	1,500
1831	*LaGrange Coll., LaGrange (M. E. So.),	8	122
1833	**Mercer Coll., Macon (Bapt.),	53	822
1836	**Emory Coll., Atlanta (M. E. So.),	178	1,047
1836	*Wesleyan Coll., Macon (M. E. So.),	44	441
1843	*Cox Coll., College Park	20	732
1849	*Bessie Tift Coll., Forsyth (Bapt.),	25	267
1869	Atlanta Univ., Atlanta	12	129
1872	N. Ga. Agri. Coll., Dahlonega (St.),	16	158
1877	*Shorter Coll., Rome (Bapt.),	22	194
1878	*Brenau, Gainesville (Private),	41	400
1888	**Georgia Sch. of Tech., Atlanta (St.),	131	1,821
1890	*Agnes Scott, Decatur	46	503
1897	Piedmont, Demorest	33	156
1916	Oglethorp, Oglethorp (Pres.),	16	325
Hawaii.			
1907	Univ. of Hawaii, Honolulu (Territorial),	49	366
Idaho.			
1889	Univ. of Idaho, Moscow (State),	135	1,407
1891	Coll. of Idaho, Caldwell	20	360
1916	N. W. Nazarene Coll., Nampa (Naz),	5	185
1917	Gooding, Gooding (M. E.),	14	90
Illinois.			
1827	Shurtleff, Upper Alton (Bapt.),	17	217
1828	McKendree, Lebanon (M. E.),	22	221
1829	Illinois Coll., Jacksonville (Pres.),	27	501
1836	Knox Coll., Galesburg	52	634
1846	*Illinois Woman's Coll., Jacksonville	34	295
1847	*Rockford, Rockford	45	365
1850	Illinois Wesleyan, Bloomington	58	710
1851	Northwestern Univ. Evanston (M. E.),	639	5,580
1852	Lombard, Galesburg	22	300
1855	Eureka, Eureka (Christian)	30	250
1856	Monmouth, Monmouth (Unit. Pres.),	36	408
1857	Lake Forest, Lake Forest (Pres.)	22	240
1860	Augustana, Rock Island (Luth.),	67	1,099
1860	Wheaton, Wheaton	29	294
1861	North-Western, Naperville (Evan. Ch.),	40	520
1865	Lincoln, Lincoln (Pres.),	95	370
1868	**St. Viator's Coll., Bourbonnais (R. C.),	10	130
1868	Univ. of Illinois, Urbana (State)	1170	11,083
1869	**Loyola Univ., Chicago (R. C.),	216	3,085
1870	Carthage Coll., Carthage (Luth.),	30	320
1892	Univ. of Chicago, Chicago (Bapt.),	401	13,357
1892	Greenville Coll., Greenville (Fr. Meth.),	27	185
1893	Aurora Coll., Aurora (Advent),	13	87
1893	**Armour Inst. of Tech., Chicago	71	783
1896	Lewis Inst., Chicago	50	1,000
1897	Bradley Polytechnic Inst., Peoria	48	586
1898	**DePaul, Chicago (R. C.),	97	2,356
1903	James Millikin, Decatur (Pres.),	44	652
Indiana.			
1820	Indiana Univ. Bloomington (State),	217	5,016
1827	Hanover, Hanover (Pres.),	21	502
1832	**Wabash, Crawfordsville	27	475
1834	Franklin, Franklin (Bapt.),	23	398
1837	DePauw, Greencastle (M. E.),	68	1,760
1840	*St. Mary of the Woods, St. Mary (R.C.),	35	204
1842	**U. of Notre Dame, Notre Dame (R.C.),	105	2,050
1846	Taylor Univ., Upland (M. E.),	24	300
1847	Earlham Coll., Earlham (Friends),	33	476
1855	Butler Univ., Indianapolis (Christ),	51	1,285
1873	Valparaiso Univ., Valparaiso	66	580
1874	Purdue Univ., Lafayette (State),	315	2,889
1883	**Rose Polytechnic, Terre Haute	20	253
1891	Oakland Cy. Coll., Oakland Cy., (Bapt.),	37	1,018
1919	Evansville Coll., Evansville (M. E.),	33	448
Iowa.			
1842	Iowa Wesleyan, Mt. Pleasant (M. E.),	30	403
1843	*Mt. St. Joseph Coll., (R. C.),	22	160
1847	State Univ., Iowa City (State),	501	7,423
1847	Grinnell Coll., Grinnell	78	800
1852	Univ. of Dubuque, Dubuque	28	160
1853	Central Coll., Pella (Dutch Ref.),	14	149
1853	Cornell Coll., Mt. Vernon	49	702
1857	Upper Iowa, Fayette (M. E.),	23	354
1861	Luther Coll., Decorah (Luth.),	24	280
1868	**Wartburg Coll., Clinton (Luth.),	11	110
1869	Iowa State of Agri., Ames (State),	581	7,766
1873	Penn Coll., Oskaloosa (Friends),	25	256
1875	Parsons, Fairfield (Friends),	20	305
1881	Coe Coll., Cedar Rapids (Pres.),	60	1,080

Opening.	Institutions.	Size of Faculty.	Students.
1881	Drake Univ., Des Moines (Discip.),	94	1,400
1891	Buena Vista Coll., Storm Lake (Pres.),	15	206
1894	Morningside Coll., Sioux City (M. E.),	32	703
1900	Western Union Coll., Le Mars (Evan.),	14	97
1905	Cent. Holiness U., U. Park (Holiness)	25	212
Kansas.			
1848	**St. Mary's Coll., St. Mary's (R. C.),	30	464
1858	Baker Univ., Baldwin (M. E.),	36	601
1858	**St. Benedict's, Atchinson (R. C.),	35	325
1863	Kansas Agri. Coll., Manhattan (St.),	257	3,623
1865	Ottawa Univ., Ottawa (Bapt.),	24	490
1865	Washburn Coll., Topeka (Cong.),	70	891
1866	Univ. of Kansas, Lawrence (State),	303	3,873
1881	Bethany, Lindsborg (Luth.),	42	474
1883	Coll. of Emporia, Emporia (Pres.),	32	442
1885	Southwestern Coll., Winfield (M. E.),	47	718
1886	Kansas Wesleyan U., Salina (M. E.),	36	562
1887	Sterling Coll., Sterling (U. P.),	18	211
1889	McPherson Coll., McPherson (Breth.),	20	325
1895	Fairmount Coll., Witchita (Cong.),	20	500
1896	Kansas City U., Kas. Cy. (M.P. & U.B.),	19	332
1898	Friends Univ., Witchita (Friends),	25	350
1908	Tabor Coll., Hillsboro (Menon.),	12	229
Kentucky.			
1798	Transylvania, Lexington	21	295
1819	**Center Coll., Danville (Pres.),	18	314
1821	**St. Mary's, St. Mary (R. C.),	9	115
1829	Georgetown Coll., Georgetown (Bapt.),	25	344
1837	Univ. of Louisville, Louisville (City),	200	1,138
1855	Berea Coll., Berea	20	330
1865	Univ. of Kentucky, Lexington (State)	154	1,965
1866	Ky. Wesleyan, Winchester (M. E. So.),	14	230
1890	Asbury, Wilmore	35	700
Louisiana.			
1825	Cen'y. of La., Shreveport (M. E. S.),	24	345
1834	Tulane Univ., New Orleans	364	2,490
1860	La. State Coll. of Agri., Baton Rouge,	91	1,130
1861	**Jefferson Coll., Convent (R. C.),	17	125
1886	*Sophie Newcomb Coll., New Orleans	59	646
1904	Lyola, New Orleans (R. C.),	86	1,303
1906	Louisiana Coll., Pineville (Bapt.),	24	426
Maine.			
1794	**Bowdoin Coll., New Brunswick,	34	500
1813	Colby, Waterville (Bapt.),	30	556
1863	Bates, Lewiston,	29	622
1865	Univ. of Maine, Orono (State),	131	1,219
Maryland.			
1696	**St. John's Coll., Annapolis,	17	148
1783	Washington Coll., Chestertown,	14	120
1808	**Mt. St. Mary's, Emmitsburg (R. C.),	39	493
1812	Univ. of Maryland, Coll. Park (State),	410	2,835
1845	U. S. Naval Acad., Annapolis (Nat.),	272	2,500
1852	**Lyola Univ., Baltimore (R. C.),	17	125
1853	Mary. Coll. for Women, Lutherville,	20	125
1866	W. Md. Coll., Westminster (Meth. P.),	31	333
1876	Johns Hopkins, Baltimore,	389	1,599
1885	*Goucher, Baltimore,	86	1,031
1893	*Hood College, Frederick (Ref.),	44	451
1897	*College of Notre Dame of Maryland, Baltimore (R. C.),	19	90
1899	Blue Ridge Coll., New Windsor (Breth.),	20	218
Massachusetts.			
1636	**Harvard Univ., Cambridge,	1,054	6,812
1793	**Williams, Williamstown,	65	694
1821	**Amherst, Amherst,	55	550
1834	*Wheaton, Norton,	32	402
1837	*Mt. Holyoke, S. Hadley,	113	958
1843	**Coll. of Holy Cross, Worcester (R. C.),	60	930
1852	Tufts Coll., Medford, Mass.	368	2,094
1863	**Boston Coll., Chestnut Hill (R. C.),	47	934
1865	Mass. Inst. of Technology, Cambridge,	382	2,949
1865	**Worcester Polytech. Inst.,	63	521
1867	Mass. Agri. Coll., Amherst (State),	88	537
1869	Boston Univ., Boston,	370	5,114
1875	*Smith Coll., Northampton	208	2,157
1875	*Wellesley Coll., Wellesley,	145	1,543
1879	*Radcliffe Coll., Cambridge,	150	561
1885	**Internat. Y. M. C. A. Coll., Springfield,	29	430
1889	Clark Univ., Worcester,	31	234
1898	**Northeastern College, Boston (Y. M. C. A.),	151	3,502
1899	*Simmons, Boston,	120	1,040
1910	*Jackson, Medford, (part of Tufts)		
1919	*Emmanuel Coll., Boston (R. C.),	25	185
Michigan.			
1833	Kalamazoo Coll., Kalamazoo (Bapt.),	28	372
1837	Univ. of Mich., Ann Arbor (State),	775	10,000
1843	Albion Coll., Albion (M. E.),	40	727
1844	Olivet Coll., Olivet (Cong.),	26	374
1857	Mich. Argi. Coll., E. Lansing (State),	159	1,680
1859	Adrian Coll., Adrian (Meth. Prot.),	20	160
1866	Hope Coll., Holland (Ref.),	24	423
1867	Calvin Coll., Grand Rapids (Ch. Ref.),	21	252
1877	Univ. of Detroit, Detroit (R. C.),	169	901
1886	**Mich. Coll. of Mines, Houghton (State),	27	289
1887	Alma Coll., Alma (Pres.),	23	294
Minnesota.			
1854	Hamline Univ., St. Paul (M. E.),	40	581
1857	**St. John's Coll., Collegeville (R. C.),	70	377
1862	Gustavus Adolphus Coll., St. Peter's (Luth.),	22	330
1866	Carleton Coll., Northfield,	70	858
1869	Univ. of Minn., Minneapolis,	650	11,810
1869	Augsburg Sem., Minneapolis (Luth.),	26	206
1874	St. Olaf Coll., Northfield (Luth.),	62	914
1885	Macalester Coll., St. Paul (Pres.),	32	510
1885	**Coll. of St. Thomas, St. Paul (R. C.),	50	150
1891	Concordia Coll., Moorhead (Luth.),	24	218
1904	*Coll. of St. Catherine, St. Paul (R. C.),	50	350
1911	*Coll. of St. Theresa, Winona (R. C.),	40	451
Mississippi.			
1826	**Mississippi Coll., Clinton (Bapt.),	19	416
1844	Univ. of Miss., Oxford (State),	43	850
1873	*Blue Mt. Coll., Blue Mountain (Bapt.),	20	200
1878	**Miss. Agri. and Mech., Arts Coll. (State),	94	1,200
1885	*Miss. State Coll. for Women, Columbus,	73	1,192
1892	Millsaps Coll., Jackson (M. E. So.),	17	329
1894	*Belhaven, Jackson (Pres.),	18	216
1912	*Miss. Women's Coll., Hattiesburg (Bapt.),	28	500
Missouri.			
1818	**St. Louis Univ., St. Louis (R. C.),	277	3,318
1827	*Lindenwood Coll., St. Charles (Pres.),	45	390
1839	Univ. of Missouri, Columbia (State),	270	6,552
1849	William Jewell Coll., Liberty (Bapt.),	16	404
1849	**Westminster Coll., Fulton (Pres.),	13	237
1853	Washington Univ., St. Louis,	394	2,331
1853	Culver-Stockton, Canton (Christ.),	14	145
1857	Central Coll., Fayette (M. E. So.),	22	442
1864	Cent. Wesleyan Coll., Warrenton (M. E.),	25	350
1871	State School of Mines, Rollo (State),	55	585
1873	Drury Coll., Springfield,	26	411
1875	Park Coll., Parkville (Pres.),	22	355
1883	Tarkio Coll., Tarkio (U. P.),	21	163
1883	Mo. Wesleyan Coll., Cameron (M. E.),	21	337
1889	Mo. Valley Coll., Marshall (Pres.),	12	287
1916	*Loretto Coll., Webster Groves (R. C.),	28	253
Montana.			
1889	Mont. Wesleyan Coll., Helena (M. E.),	17	211
1893	Mont. Coll. Agri. and Mech. Arts, Bozeman,	149	1,203
1895	Mont. State Univ., Missoula (State),	84	1,519
1900	Mont. State Sch. of Mines, Butte (State),	11	108
Nebraska.			
1869	Univ. of Neb., Lincoln (State),	370	8,654
1872	Doane Coll., Crete (Cong.),	20	188
1877	Midland Coll., Freemont (Luth.),	27	206
1878	Creighton Univ., Omaha (R. C.),	224	1,445
1882	Hastings, Hastings (Pres.),	30	417
1887	Neb. Wesleyan U., Univ. Place (M. E.),	55	650
1890	York Coll., York (U. B.),	23	519
1891	Union Coll., College View (7 Day Adv.),	28	309
1892	Grand Island Coll., Grand Island (Bapt.),	13	100
1899	Dana Coll., Blair (Dan. Luth.),	14	175
Nevada.			
1873	Univ. of Nevada, Reno (State),	64	855
1915	State Sch. of Mines, Tonopah (State),	1	25
New Hampshire.			
1769	**Dartmouth Coll., Hanover,	180	2,000
1869	Univ. of N. H., Durham (State),	95	1,188
1889	**St. Anselm's Coll., Manchester (R. C.),	48	288

Opening.	Institutions.	Size of Faculty.	Students.
New Jersey.			
1746	**Princeton Univ., Princeton,	279	2,448
1766	*Rutgers Coll., New Brunswick,	132	1,200
1856	**Seton Hall Coll., S. Orange (R. C.),	23	602
1870	**Stevens Inst. of Tech., Hoboken,	55	489
1872	**St. Peter's Coll., Jersey City (R. C.),	28	612
1893	Upsala Coll., Kenilworth (Luth.),	15	111
1899	*Coll. of St. Eliz., Convent Sta. (R. C.),	35	229
1918	*N. J. Coll. for Women, New Brunswick (State),	40	347
1919	**Newark Coll. of Tech., Newark (State),	14	100
New Mexico.			
1890	Coll of Agri. and Mech. Arts, St. Coll.,	34	184
1891	Univ. of N. M., Albuquerque (State),	23	457
1895	N. M. Sch. of Mines, Socorro (State),	8	100
New York.			
1754	Columbia Univ., New York,	1,242	32,769
1795	**Union Univ., Schenectady,	57	728
1802	**U. S. Mil. Acad., West Point (Nat.),	163	1,091
1812	**Hamilton Coll., Clinton,	32	350
1819	**Colgate Univ., Hamilton,	56	730
1822	**Hobart Coll., Geneva,	32	341
1824	**Rensselaer Polytech. Inst., Troy,	95	1,147
1831	New York Univ., New York,	786	15,827
1836	Alfred Univ., Alfred,	29	336
1841	**Fordham Univ., New York (R. C.),	191	5,352
1846	Univ. of Buffalo, Buffalo,	251	1,718
1849	**Coll. City of New York (City),	200	4,972
1850	Univ. of Rochester, Rochester,	74	784
1853	*Elmira Coll., Elmira,	44	500
1853	**Manhattan Coll., New York (R. C.),	40	816
1854	**Polytech. Inst. of Brooklyn,	50	450
1856	**Niagara Univ., Niagara Falls (R. C.),	20	250
1858	St. Lawrence Univ., Canton,	25	512
1859	**St. Bonaventure Coll., St. Bon. (R. C.),	44	250
1859	**St. Francis Coll., Brooklyn,	16	600
1860	**St. Stephens, Annandale (Epis.),	15	120
1865	*Vassar Coll., Poughkeepsie,	128	1,149
1865	Cornell Univ., Ithaca,	977	5,502
1868	*Wells Coll., Aurora,	36	230
1870	**Canisius Coll., Buffalo (R. C.),	18	500
1870	*Hunter Coll., New York (City),	339	8,529
1871	Syracuse Univ., Syracuse,	500	5,000
1888	Teachers Coll., New York,	300	4,773
1889	*Barnard Coll., New York,	93	905
1896	Clarkson Sch. of Tech., Potsdam,	18	250
1896	Adelphi Coll., Brooklyn,	30	408
1904	Coll. of New Rochelle (R. C.),	45	525
1904	*William Smith Coll., Geneva,	30	141
1907	*Marymount Coll., Tarrytown (R. C.),	20	100
1908	*D'Youville Coll., Buffalo (R. C.),	16	170
1911	*Coll. of Mt. St. Vincent, New York (R. C.),	30	325
1916	*St. Joseph's Coll., Brooklyn (R. C.),	19	95
1916	*Russell Sage, Troy,	32	300
1917	*Coll. of Sacred Heart, New York (R. C.),	18	124
1921	Keuka Coll., Keuka Park (Bapt.),	21	109
North Carolina.			
1772	*Salem Coll., Winston-Salem (Mor.),	38	272
1795	Univ. of N. C., Chapel Hill (State),	165	2,125
1834	**Wake Forest Coll.,Wake For. (Bapt.),	34	647
1837	Guilford Coll., Guilford C. (Friends),	22	252
1837	**Davidson Coll., Davidson (Pres.),	31	610
1846	*Greensboro Coll., Greensboro (M.E.So.),	25	289
1848	*Chowan Coll., Murfreesboro (Bapt.),	16	100
1851	Catawba Coll., Newton (Ref.),	6	168
1857	*Queen's Coll., Charlotte,	23	274
1859	Duke Univ., Durham (M. E. So.), (Formerly Trinity Coll.)	103	1,058
1865	Shaw Univ., Raleigh (Bapt.),	37	364
1878	**Belmont-Abbey Coll., Belmont (R. C.),	17	124
1889	**N. C. Coll. Agri., Raleigh (State),	86	1,203
1890	Elon Coll., Elon (Christ.),	30	350
1891	Lenoir Coll., Hickory (Luth.),	18	258
1891	*Meredith Coll., Raleigh (Bapt.),	34	465
1892	*N. C. Coll. for Women, Greensbg. (State),	171	1,476
1896	*Flora McDonald, Red Springs (Pres.),	28	204
1902	Atlantic Christian Coll., Wilson (Christ.),	12	115
1909	*St. Genevieve Coll., Ashville (R. C.),	18	50
North Dakota.			
1883	Univ. of N. D., Grand Forks (State),	110	1,448
1883	Jamestown Coll., Jamestown (Pres.),	19	263
1890	N. Dakota Agri. Coll., Fargo (State),	36	566
1892	Wesley Coll., Grand Forks (M. E.),	15	382

Opening.	Institutions.	Size of Faculty.	Students.
Ohio.			
1804	Ohio Univ., Athens (State),	110	1,078
1824	Miami Coll., Oxford (State),	93	1,460
1824	**Kenyon Coll., Gambier,	22	250
1826	**Western Reserve, Cleveland,	450	2,738
1830	*Oxford Coll., Oxford,	23	175
1831	Denison Univ., Granville (Bapt.),	70	960
1831	**St. Xavier's Coll., Cincinnati (R. C.),	21	280
1833	Oberlin Coll., Oberlin,	184	1,773
1835	Marietta Coll., Marietta,	20	311
1837	Muskingum Coll., New Concord (U. P.),	43	717
1842	O. Wesleyan Univ., Delaware (M. E.),	115	1,797
1845	Wittenberg Coll., Springfield (Luth.),	64	801
1845	Baldwin-Wallace Coll., Berea (Ger. M. E.),	23	320
1846	Mt. Union Coll., Alliance (M. E.),	35	706
1847	Otterbein Coll., Westerville (U. B.),	30	450
1850	Capital Univ., Columbus (Luth.),	40	475
1850	Heidelberg Univ., Tiffin (Ref.),	32	337
1850	**Univ. of Dayton, Dayton (R. C.),	42	342
1853	Antioch Coll., Yellow Springs,	48	465
1855	*Western College, Oxford,	35	329
1856	Wilberforce Univ., Wilberforce (A. M. E.),	62	920
1859	*Lake Erie Coll., Painesville,	24	164
1868	Coll. of Wooster, Wooster (Pres.),	48	808
1870	Wilmington Coll.,Wilmington (Friends),	27	425
1871	Ohio Northern Univ., Ada (M. E.),	48	817
1872	Ohio State Univ., Columbus (State),	673	8,583
1872	Univ. of Akron (City),	54	923
1874	Univ. of Cincinnati (City),	353	2,424
1876	Rio Grande Coll., Rio G. (Free Bapt.),	14	90
1878	Ashland Coll., Ashland (Breth.),	14	233
1880	**Case Sch. of App. Sci., Cleveland,	64	637
1882	Findlay Coll., Findlay (Ch. of God),	21	546
1884	Toledo Univ., Toledo (City),	61	1,152
1886	**St. Ignatius Coll., Cleveland (R. C.),	12	225
1888	*W. Reserve Coll. for Women, Cleveland,	53	646
1894	Cedarville Coll., Cedarville (U. P.),	17	166
1898	**St. John's Univ., Toledo (R. C.),	36	103
1900	Bluffton Coll., Bluffton (Menon.),	24	194
1902	Defiance Coll., Defiance (Christ.),	27	286
1915	*Coll. of Sacred Heart, Cinci. (R. C.),	21	135
Oklahoma.			
1890	Univ. of Okla., Norman (State),	183	6,412
1891	Okla. Agri. and Mech. Coll., Stillwater,	106	1,776
1894	Univ. of Tulsa, Tulsa (Pres.),	25	287
1907	Phillips Univ., Enid,	38	864
1908	**Okla. Sch. of Mines, Wilburton (State),	9	160
1909	*Okla. Coll. for Women, Chickasha (State),	43	575
1912	Okla. Bapt. Univ., Shawnee (Bapt.),	15	379
1915	**Cath. Univ. of Okla., Shawnee (R. C.),	12	116
1919	Okla. City Coll., Okla City (M. E.),	33	700
Oregon.			
1844	Willamette Univ., Salem (M. E.),	46	590
1849	Pacific Univ., Forest Grove,	22	175
1857	Linfield Coll., McMinnville (Bapt.),	20	270
1866	Albany Coll., Albany (Pres.),	16	71
1870	Oregon State Coll., Carvallis (State),	280	3,199
1876	Univ. of Oregon, Eugene (State),	171	2,656
1885	Pacific Coll., Newberg (Friends),	17	154
1911	Reed College, Portland	29	300
Pennsylvania.			
1740	Univ. of Penn., Philadelphia,	950	7,435
1742	*Moravian Coll. for Women, Bethlehem,	25	167
1783	Dickinson Coll., Carlisle (M. E.),	26	500
1787	**Franklin & Marshall Coll., Lancaster (Ref.),	27	531
1787	Univ. of Pittsburgh,	492	6,882
1802	**Washington and Jefferson Coll., Wash.,	33	498
1807	**Moravian Coll., Bethlehem (Morav.),	9	86
1815	Allegheny Coll., Meadville (M. E.),	35	560
1832	**Lafayette Coll., Easton (Pres.),	80	990
1832	Gettysburg Coll., Gettysburg (Luth.),	48	570
1833	Haverford Coll., Haverford (Friends),	25	225
1842	Villanova Coll., Villanova (R. C.),	35	441
1845	**St. Francis Coll., Loretto (R. C.),	10	120
1846	Bucknell Univ., Lewisburg (Bapt.),	52	960
1846	**St. Vincent, Beatty (R. C.),	52	570
1848	Geneva Coll., Beaver Falls (Ref. Pres.),	50	600
1850	Waynesburg Coll., Waynesburg (Pres.),	16	178
1852	Westminster Coll., New Wilmington (U. P.),	25	240

Opening.	Institutions.	Size of Faculty.	Students.
1852	**St. Joseph's Coll., Phila. (R. C.),	17	140
1853	*Beaver Coll., Beaver (M. E.),	22	103
1855	Penn. State College, St. Coll. (State),	339	3,320
1856	*Irving Coll., Mechanicsburg (Luth.),	18	100
1858	Susquehanna Coll., Selinsgove (Luth.),	29	280
1862	Penn. Mil. Coll., Chester,	25	150
1866	**Lehigh Univ., Bethlehem,	200	1,125
1866	Lebanon Valley Coll., Annville (U. B.),	22	290
1866	*Cedar Crest Coll., Allentown (Ref.),	20	128
1867	**LaSalle Coll., Philadelphia (R. C.),	18	300
1867	Muhlenberg Coll., Allentown (Luth.),	20	377
1869	Swarthmore Coll., Swarthmore,	50	500
1870	*Penn. Coll. for Women, Pittsburgh,	28	264
1870	Thiel Coll., Greenville (Luth.),	22	247
1870	Ursinus Coll., Collegeville,	22	276
1870	*Wilson Coll., Chambersburg (Pres.),	38	380
1876	Juniata Coll., Huntingdon (Breth.),	20	240
1878	Duquesne Univ., Pittsburgh,	98	1,000
1879	Grove City Coll., Grove City,	31	525
1883	*Seton Hill Coll., Greensburg (R. C.),	34	146
1884	Temple Univ., Philadelphia,	458	8,796
1885	*Bryn Mawr Coll., Bryn Mawr,	66	489
1891	Drexel Inst., Philadelphia,	55	391
1894	Albright Coll., Myerstown (Evan.),	17	204
1899	Elizabethtown Coll., Elizabethtown (Breth.),	20	306
1900	*Villa Maria Coll., Immaculata (R. C.),	17	86
1905	Carnegie Inst. of Tech., Pittsburgh,	267	1,955
1907	Dropsie Graduate Coll., Phila. (Hebrew),	5	25
1915	*Marywood Coll., Scranton (R. C.),	39	400
Philippine Islands.			
1908	Univ. of Philippines, Manila (Govt.),	386	4,839
Porto Rico.			
	Univ. of Porto Rico, San Juan (Govt.),	63	1,209
Rhode Island.			
1765	Brown Univ., Providence,	120	1,777
1890	R. I. State Coll., Kingston (State),	42	459
1891	*Woman's Coll., Brown Univ., Providence,	40	430
1917	**Providence Coll., Providence (R. C.),	19	410
South Carolina.			
1785	Coll. of Charleston (City),	13	194
1805	Univ. of So. Car., Columbia (State),	45	746
1839	Erskine Coll., Due West (A. R. P.),	11	150
1842	The Citidel (Mil.), Charleston (State),	20	312
1848	*Limestone Coll., Gaffney (Bapt.),	21	212
1852	**Furman Univ., Greenville (Bapt.),	24	416
1853	*Greenville Woman's Coll., Greenville (Bapt.),	38	268
1854	*Columbia Coll., Columbia (M. E. So.),	34	319
1854	**Wofford Coll., Spartanburg (M. E. So.),	20	466
1856	Newberry Coll., Newberry (Luth.),	22	306
1859	*Woman's Coll. of Due West (Pres.),	18	165
1872	*Lender Coll., Greenwood (M. E. So.),	32	208
1880	**Pres. Coll. of S. C., Clinton (Pres.)	13	200
1889	**Clemson Agri. Coll., Clem. Col. (State),	71	1,008
1890	*Converse Coll., Spartanburg	38	371
1893	*Chicora Coll., Columbia (Pres.),	24	169
1895	*Winthrop Coll., Rock Hill (State),	130	1,415
1908	*Coker Coll., Hartsville (Bapt.),	19	190
1912	*Anderson Coll., Anderson (Bapt.),	26	257
South Dakota.			
1860	Augustana Coll., Sioux Falls (Luth.),	13	281
1881	Yankton Coll., Yankton,	27	203
1882	Univ. of S. Dak., Vermillion (State),	85	990
1883	Huron Coll., Huron (Pres.),	27	240
1884	S. Dak. State Coll., Brookings,	107	1,336
1885	State Sch. of Mines, Rapid City (State),	15	202
1885	Dak. Wesleyan Univ., Mitchell (M. E.),	30	302
Tennessee.			
1794	Tusculum Coll., Greenville,	16	134
1794	Univ. of Tennessee, Knoxville (State),	271	1,900
1819	Maryville Coll., Maryville (Pres.),	46	626
1842	Cumberland Univ., Lebanon (Pres.),	35	622
1842	Union Univ., Jackson (Bapt.),	40	800
1847	Bethel Coll., McKenzie (Pres.),	6	60
1857	Carson & Newman Coll., Jefferson Cy. (Bapt.),	24	410
1867	Univ. of Chattanooga (M. E.),	19	366
1867	**King Coll., Bristol,	9	107
1868	**Univ. of the South, Sewanee (P. E.),	27	258
1875	Vanderbilt Univ., Nashville,	250	1,416
1875	S. W. Presbyterian, Clarksville (Pres.),	13	175
1897	Lincoln Memorial Univ., Harrogate,	20	175
1907	*Tennessee Coll., Murfreesboro (Bapt.),	17	131
1919	Bryson Coll., Fayetteville (A. R. Pres.),	12	105
Texas.			
1845	Baylor Univ., Waco (Bapt.),	66	1,221
1845	*Baylor Coll., Belton (Bapt.),	75	1,664
1849	Austin Coll., Sherman (Pres.),	18	313
1869	Trinity Univ., Waxahachie (Pres.),	26	493
1873	Southwestern Univ., Georgetown (M. E. So.),	30	555
1873	Tex. Christ. Univ., Ft. Worth (Christ.),	79	871
1876	Agri. & Mech. Arts Coll., Coll. Sta. (State),	157	2,175
1883	Univ. of Texas, Austin (State),	358	5,262
1888	Daniel Baker Coll., Brownwood (Pres.),	18	205
1891	Simmons Coll., Abilene (Bapt.),	36	1,061
1896	*Our Lady of the Lake, San Antonio (R. C.),	48	591
1900	*Incarnate Word Coll., San Antonio (R. C.),	19	310
1902	*Texas Presby. Coll., Milford (Pres.),	28	137
1903	*Coll. of Indus. Arts, Denton (State),	110	1,476
1905	Abilene Coll., Abilene (Christ.),	34	315
1911	So. Meth. Univ., Dallas (M. E. So.),	90	1,469
1914	*Texas Woman's Coll., Ft. Worth (M. E. So.),	34	445
Utah.			
1850	Univ. of Utah, Salt Lake City (State),	168	2,113
1875	Brigham Young Univ., Provo (L. D. S.),	86	1,009
1888	Agri. Coll. of Utah, Logan (State),	88	1,225
Vermont.			
1791	Univ. of Vermont, Burlington (State),	150	1,100
1800	Middlebury Coll., Middlebury,	50	538
1819	**Norwich Univ., Northfield (State),	30	380
1903	St. Michael's Coll., Winooski Pk. (R. C.),	16	82
Virginia.			
1693	Coll of Wm. & Mary, Wmsburg. (St.),	54	904
1749	**Washington and Lee Univ., Lexington,	51	833
1776	**Hampden-Sidney Coll., Hamp.-Sid., (Pres.),	12	217
1819	Univ. of Virginia, Univ. (State),	142	1,853
1830	**Randolph-Macon Coll., Ashland (M. E. So.),	13	211
1832	Univ. of Richmond, Richmond (Bapt.),	45	770
1838	Emory and Henry Coll., Emory (M. E. So.),	15	246
1839	**Virginia Mil. Inst., Lexington (State),	46	594
1842	*Hollins Coll., Hollins,	35	326
1853	**Roanoke Coll., Salem (Luth.),	19	232
1872	Va. Polytech. Inst., Blacksburg (St.),	122	1,484
1880	Bridgewater Coll., Bridgew'r (Breth.),	20	159
1893	*Randolph-Woman's Coll., Lynchburg (M. E. So.),	53	772
1900	*Eastern Coll., Manassas	18	125
1903	Lynchburg Coll., Lynchburg (Disc.),	22	200
1906	*Sweet Briar, Sweet Briar,	34	360
1914	*Westhampton Coll., Richmond (Bapt.),	47	276
Washington.			
1861	Univ. of Washington, Seattle (State),	265	6,130
1866	Whitman Coll., Walla Walla,	40	515
1887	**Gonzaga Univ., Spokane (R. C.),	32	350
1890	Whitworth Coll., Spokane (Pres.),	16	147
1892	State Coll., Pullman (State),	170	2,396
1892	Walla Walla Coll., College Place (7 D. Adv.),	25	200
1903	Coll. of Puget Sound, Tacoma (M. E.),	20	350
1910	Seattle Pacific Coll., Seattle (Free Meth.),	21	340
1913	Spokane Univ., Spokane (Christ.),	20	187
West Virginia.			
1837	Marshall Coll., Huntington (State),	44	731
1841	Bethany Coll., Bethany (Disc.),	26	310
1868	W. Va. Univ., Morgantown (State),	178	2,227
1888	Salem Coll., Salem (Bapt.),	18	358
1890	W. Va. Wesleyan Coll., Buckhannon (M. E.),	30	394
1894	Davis and Elkins, Elkins (Pres.),	24	175

Opening.	Institutions.	Size of Faculty.	Students.
Wisconsin.			
1846	Carroll Coll., Waukesha (Pres.),	27	343
1847	Beloit Coll., Beloit,	47	500
1847	Lawrence Coll., Appleton (M. E.),	69	873
1847	Univ. of Wisconsin, Madison (State),	534	8,076
1851	Ripon Coll., Ripon,	33	425
1851	*Milwaukee-Downer Coll., Milwaukee,	40	320
1862	**Mission House, Plymouth (Ref.),	11	114
1864	Northwestern Coll., Watertown (Luth.),	16	252
1867	Milton Coll., Milton (Bapt.),	17	156
1872	*St. Mary's Coll., Prairie du Chien (R. C.),	16	130
1880	**Campion Coll., Prairie du Chien (R. C.),	16	105
1881	**Marquette Univ., Milwaukee (R. C.)	275	3,500
1892	Northland Coll., Ashland (Cong.),	17	85
Wyoming.			
1887	Univ. of Wyoming, Laramie (State),	81	825

COLLEGES REPORTING ENDOWMENTS OF TWO MILLIONS OR MORE IN 1924.

Amherst	$6,500,000
Barnard	5,500,000
Boston University	2,300,000
Bowdoin	3,500,000
Brown	8,200,000
Bryn Mawr	5,800,000
Buffalo University	5,111,000
California Institute of Technology	5,500,000
University of California	7,500,000
Carnegie Institute of Technology	13,800,000
Case School	2,900,000
Catholic University of America	2,900,000
University of Chicago	31,900,000
University of Cincinnati	4,900,000
Clark University	4,200,000
Colgate	2,900,000
Columbia University	50,000,000
Cornell University	19,700,000
Creighton University	2,200,000
Dartmouth	7,000,000
Denison University	3,000,000
DePauw University	3,800,000
Drexel Institute	2,000,000
Emory University	2,200,000
Hamilton College	3,400,000
Harvard University	64,000,000
Haverford College	3,600,000
Iowa State University	3,600,000
Johns Hopkins	19,700,000
Lafayette College	2,100,000
Lehigh University	4,000,000
Leland Stanford, Jr.	28,000,000
Massachusetts Institute of Technology	17,000,000
MacDonald College, Quebec	4,000,000
McCormick Theological Seminary	2,300,000
McGill University, Montreal	17,000,000
Middlebury College	2,600,000
Minnesota, University of	2,100,000
Mt. Holyoke College	2,900,000
Newcomb College	2,200,000
New York University	2,900,000
Northwestern University	5,000,000
Oberlin College	2,900,000
Pennsylvania, University of	10,200,000
Princeton University	14,000,000
Rensselaer Polytechnic	2,600,000
Rice Institute	10,000,000
University of Rochester	14,900,000
Simmons, Boston	2,600,000
Smith College	6,000,000
Swarthmore College	3,300,000
Syracuse University	2,750,000
University of Texas	11,000,000
Trinity, N. C.	3,000,000
Trinity, Conn.	2,100,000
Tufts College	3,500,000
Tulane University	6,300,000
Union College, N. Y.	3,000,000
Vanderbilt University	5,000,000
Vassar College	6,000,000
Virginia, University of	3,500,000
Wake Forest College	2,500,000
Washington University	11,600,000
Washington, University of	7,350,000
Wellesley College	3,400,000
Wesleyan, Conn.	4,700,000
Williams College	5,000,000
Wisconsin, University of	5,600,000
Wooster, College of	2,100,000
Worcester Polytechnic	2,500,000
Yale University	39,700,000

Negro Education.—The teaching of negroes in the South before the Civil War was forbidden by law whether the negroes were slaves or free, and serious penalties might be inflicted upon both teacher and pupil in cases of infraction. While no prohibitive laws were enforced in the North, there were no separate schools or special provision made for them, and when they were excluded from schools by public sentiment they enjoyed no educational advantages even there. The few negroes who were able to read and write had acquired their learning in the so-called clandestine schools or through the kindness of some member of their master's family. Yet it is hardly too broad a statement to make that before the Civil War in America the negroes were uneducated. Upon their emancipation social and economic considerations required that they should enjoy educational advantages. The first important steps in this direction were taken by the Freedman's Bureau which Congress established in 1865. The first commissioner of this Bureau, General O. O. Howard, began an educational work of great magnitude, and so successful were these efforts that at the end of the five years' life of the Bureau 4,239 schools for colored people in the South had been established and had an enrollment of 247,333 pupils.

Since the Civil War it is estimated that the South has expended upon negro education fully $200,000,000 and has conducted its work through separate schools. The teachers in most of these schools are colored, and provision has been made for the teachers' instruction in several normal schools, the best known of which is the Hampton Normal and Industrial Institute at Hampton, Va. Another, and an offspring from the Hampton Institute, is that at Tuskegee, Ala., which through its president, Booker T. Washington, has attained considerable fame. It opened in 1881 with one teacher and 30 students. At the present time its faculty of 185 colored instructors and student enrollment of 1,700 testify to a most remarkable educational advance. It is said in this connection that Booker T. Washington has done more for negro education than has any other man of his race. Higher education is supplied to the negro race by a very great number of colleges and universities distributed throughout the South. It is not unusual to find colored students in the best universities of the South taking equal rank with white students in the several courses. Harvard, Yale, Cornell, Columbia, Pennsylvania, and other institutions of rank in the North and East have all graduated colored students with honors, and some of these have been elected to Phi Betta Kappa.

RELIGIOUS AND PHILOSOPHICAL TERMS.

ANABAPTISTS. The most extreme sect of the period of the Reformation. The sacrament of infant baptism was rejected by them on the ground that personal profession sealed by baptism alone suffices for salvation. Their development tended to overthrow the existing social order and to introduce a Christian theocracy of a socialistic nature. The most influential names in the development were Thomas Münzer (1521); Nikolaus Storch, the prophet of Wittenberg; John of Leyden or Johann Bockhold, put to death in 1536. The followers were active in the "Peasants' War" in Thuringia in 1525. Menno Simmons continued some of the teachings of the sect and founded the order of Mennonites.

ANNUNCIATION. The announcement to the Virgin Mary by the angel Gabriel of the beginning of the incarnation. The feast day is now observed on March 25, though the Council of Toledo (656) set it at December 18, and the Milan Church at the fourth Sunday in Advent. The present date was set by Sixtus IV. in 1480.

ANTINOMIANISM. The forcible separation of the "gospel" and the "law," or of faith and works. The controversy began with Paul and continues to the present day. During the Reformation the struggle was most acute and the most extreme partisan was Arnsdorf.

APOCALYPSE. The name given to the last book of the New Testament, usually called The Revelation of St. John. It was written about the year 96, while John was on the isle of Patmos, whither he had been banished by the emperor Domitian.

APOCHRYPHA means hidden, secret, and is applied to a collection of 14 books claiming to be sacred, sometimes appended to the Old Testament, but not admitted into the Biblical Canon. They form no part of the Hebrew Bible. In the Anglican Church they may be read "for example of life and instruction of manners," but not to establish any doctrine. Some of them exist only in Greek.

APOSTLE. "One sent"; a specially chosen messenger or delegate sent out on some important mission; specifically applied to the twelve disciples sent forth by Jesus to preach his gospel and heal the sick. The name is also applied to others in the New Testament, e. g., Paul, "the apostle to the Gentiles." He "had seen the Lord," and that was an important qualification. In more modern times the name is sometimes applied to those who have been sent on important missions, and have become most intimately connected with them; for example, John Eliot, "the apostle to the Indians." In the Mormon Church there is an official (one of 12) named an apostle, whose duty is to be a special witness of the name of Jesus. In the modern Greek Church service the lesson from the epistle is called "the apostle."

ARIANISM. Founded on the apparently contradictory statements of such Alexandrian theologians as Origen upon the relations between the Father and the Son. The conflict is perceived between the theory of the eternity of Christ and of his "essence," which conveys the idea of his inferiority to the Father. Arius (256-336) accepted the latter idea. The Nicene Creed expresses the idea of the coequality of Father and Son. The controversy waged between the years 318 and 381. It was renewed in England by Samuel Clarke in 1720 and in New England by Jonathan Mayhew in 1747.

ARIANS. The followers of the special doctrines of Arius, a deacon of Alexandria, in the fourth century. He held that Jesus, the son, having been begotten of the Father, could not be co-eternal with him, and that his nature could not be identical with that of the Father, but only similar to it. His doctrines were condemned by the Council of Nice, 325, which declared that "Christ is God of God; begotten, not made; of one substance with God." No Arians now exist.

ARMINIANISM. The reaction against the extreme interpretation of the Calvinistic dogma of predestination. Jacobus Arminius of Leyden (1560-1609) originated the movement. The Arminian view is held to-day by the Wesleyan or Methodist Episcopal Church.

ARTICLES, THE THIRTY-NINE. The body of Articles of the faith and discipline of the Church of England, based on an earlier group of 42, prepared by Archbishop Cranmer and Bishop Ridley; submitted to Parliament and Convocation in 1562, and adopted as the criterion of the faith of its members on the subjects to which they relate.

ASSUMPTION. Direct reception into heaven, and regarded as one of the "privileges of the Virgin." The feast of the Assumption is celebrated on August 15.

ATHANASIAN CREED. Supposed to date from the fifth century. It is remarkable for the damnatory clauses which it contains; and arose from the controversy which raged during the time of Arius. This creed is rejected by the Eastern or Greek Church, by the American Episcopal Church, and has been questioned by the Church of England. It was not written by Athanasius (296-373).

AUGSBURG CONFESSION. The most authoritative of the Lutheran creeds. Prepared by Melanchthon in 1530 with the approval of Luther and at the request of Emperor Charles V.

AVATAR. The name which signifies in Hindu mythology each of the ten incarnations of Vishnu.

BACONIAN METHOD. Investigation advocated by Francis Bacon (1561-1629) requires (1) a collection of particular instances as exhaustive as possible; (2) from these collected instances are excluded by comparison all elements which do not accompany the phenomenon investigated; (3) by this exclusion and comparison a result is arrived at which proves the general proposition. The method is known as the Inductive Method, whereby from a number of particular cases a general result is reached.

BELGIC CONFESSION. The doctrinal standard of the Dutch and Belgian Reformed Churches and of the Dutch Reformed Church in America. It was drawn up by Guido de Brès and others in 1561; adopted by several synods between 1566 and 1581; and modified by the Synod of Dort in 1619.

CANONIZATION. The ceremony by which eminent deceased believers in the Roman Catholic Church are raised to the rank of saints. The honor of public veneration is conferred upon the person. No one can be canonized until a generation after death.

CARDINAL is derived from Latin *cardo*, a hinge, and was first applied to the priests and deacons permanently attached to a church, thus forming a hinge round which the work of the church turned. It now designates a member of the Sacred College at Rome, who is a counselor of the pope, is nominated by him, and is next in rank to him. Three classes were established in the fifteenth century by Paul II.: cardinal bishops (6), cardinal priests (50), and cardinal deacons (14). In 1570 the number was fixed at 70, after the 70 elders of Moses. The official dress includes a red cassock, a short, purple mantle, and a low-crowned, broad-brimmed, red hat with a hanging cord (with 15 tassels) at each side.

CARDINAL VIRTUES. These are prudence, temperance, fortitude, and justice.

CARMELITES. A monastic order founded by Berthold on Mount Carmel in the twelfth century. It was formally recognized by the church in 1224. It is credited with the invention of the scapulary. A dispute with the Jesuits brought its power to a close in 1698.

CELIBACY. The state of unmarried persons; especially the voluntary abstention from marriage as among the clergy of the Roman Catholic Church, and one of the vows of the "orders" of that and similar churches. Celibacy was demanded by Buddha of his monkish order, the Sangha. This has been relaxed among some of the Buddhist sects of Japan; for example, the Jodo sect.

CHALDEANS, THE, or **AKKADIANS,** are a non-Semitic race, who came originally from the mountain country of Elam, and were formerly the dominant people of Babylonia. One of the four great cities of Shinar was Accad. The Babylonians were indebted to the Sumero-Akkadians for their cuneiform writing, religion, and mythology.

CISTERCIAN. A monastic order founded by St. Bernard at Citeaux, in Burgundy, in 1113. It is important in the records of Scholasticism and Mysticism, and with the founding of Port Royal.

COLLECTIVISM. Public ownership of land and capital and the public control of industries. Often used synonymously with Socialism, Communism, and Social Democracy.

COMMUNISM. Extreme Socialism which advocates village communities under the principles advocated by

Marx and Engels. The Communistic Manifesto was promulgated in 1847 and was an important factor in the Revolution of 1848.

CREED. An orderly statement or declaration of one's beliefs, especially in regard to Christian doctrine; but one may have a "political" or other "creed." The Christian creeds are numerous. The "Apostles' Creed," and the "Nicene Creed," both of the fourth century, are the creeds of the Protestant churches. To this the Church of England adds the "Athanasian Creed" (which see).

DEISM. The form of religion which separates God from the world so far as denying that the idea of God includes either in whole or in part the idea of the world.

DEUS EX MACHINA. Divine power or agency regarded as separate from nature and changing or interfering with it at times. A tenet of Deism.

DING AN SICH. A phrase invented by Kant to indicate "a thing in itself" considered apart from the phenomenon by which it is attended or manifested.

DOMINICANS. The order of the brethren of St. Dominic, founded in 1216. The members took vows of mendicancy, chastity, poverty, and obedience. Albertus Magnus and Thomas Aquinas were among its members. Tauler, Suso, Eckhart, and Savonarola were members at a later period.

DONATISTS. A sect of the Christian Church in Roman Africa in the fourth century. It was submerged by the Saracenic invasion in the seventh century.

DRUSES. Agnostic theists of Syria.

ECLECTICISM. A philosophic system which endeavors to incorporate the best of all systems. The Alexandrian Neo-Platonic School is known as the Eclectic School.

EDWARDEANS. American theologians who followed the teachings of Jonathan Edwards regarding Calvinism. It is also known as New England Theology and Berkshire Divinity.

EMPIRICISM. The doctrine that truth is to be sought in experience as derived from immediate sense impressions. Opposed to Rationalism.

EPICUREANISM. The ethical doctrine of Epicurus that pleasure is the only thing worth having on its own account and that each man's pleasure is his own chief good. The teachings of Epicurus form more a code of laws for the conduct of life than a system of philosophy.

EPIPHANY. The festival of the manifestation of God to mankind through Christ. In the Christian Church the festival is celebrated on January 6. The Western Church regards the event as dating from the manifestation of Christ to the Wise Men of the East.

ESCHATOLOGY. That part of systematic theological teaching which deals with the "last" things—death, the end of the world, and the future life.

EUCHARIST. The sacrament of the Lord's Supper. The views held concerning the sacrament are very divergent and include (1) the doctrine of the Real Presence, which holds that the whole substance of the bread is changed into the body and the whole substance of the wine is changed into the blood of Christ; (2) the doctrine of the Virtual Presence, which holds that the Eucharist is the only means by which the benefits of his atonement are conferred; and (3) the doctrine of the Figurative Presence, which regards the elements and the rite as only memorials of Christ's death.

EXEGESIS. That branch of dogmatic theology which deals with the interpretation of authoritative sacred books. It comprises rabbinical, patristic, mediæval, and modern exegesis.

FALK LAWS, THE (1873), were so called from Dr. Falk, who insisted on the compulsory education of the clergy of Prussia. The laws are four in number: (1) The first was directed against the abuse of ecclesiastical discipline for political purposes, such as "boycotting," excommunication, and anathemas; (2) the next regulated the effect of secession from the church on the obligation to meet certain taxes; (3) the third law was directed at the evasions by Roman Catholics of state education incumbent on all Germans; and (4) abolished the legality of papal tribunals, recognizing the judgments of the German ecclesiastical courts as the only authority on church matters. In 1874 these four laws were supplemented by others, to insure more perfect obedience. Dr. Adalbert Falk was appointed by Prince Bismarck "Minister of Public Worship," January 22, 1872. In 1872 Prince Bismarck carried through the Prussian Houses a bill to transfer the control of primary education from the church to the state authorities.

FRANCISCANS. The brethren of the Order of St. Francis, founded 1210-1223. After the growth of the first century its adherents numbered over 200,000. Among its prominent members were Bonaventura, Alexander of Hales, William of Occam, and Roger Bacon.

HAGIOGRAPHA. The Canon of the Old Testament is divided into: the Law, the Prophets, and the Hagiographa or sacred writings. This last includes the Psalms, Proverbs, Job, Song of Songs, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra, Nehemiah, and Chronicles.

HAGIOLOGY. That part of ecclesiastical history which deals with the lives, deeds, and the canonization of saints.

HALACHA AND HAGGADA. The divisions of the Midrash or the exegesis, exposition, and commentaries of the law of Moses. Halacha deals with the interpretation of the sense of the Hebrew scriptures; Haggada comprises the stories, legends, and parables which explain the Law.

HERESY. Opposition to the fundamental dogmas of the church when the opponents are of the members of the church. Heterodoxy is a lesser degree of opposition or of dissent.

HERMENEUTICS. That part of theological exegesis which deals with the science or theory of interpretation.

HUGUENOTS. Protestants, first called so in France, from a German word signifying "allied by oath" (1560); massacre of them at Paris (August 24, 1572).

IDEALISM. A theory in metaphysics which holds that the universe is the work or the embodiment of reason or of mind.

IMMACULATE CONCEPTION. The dogma which holds that the Virgin Mary became by the grace of God the subject of a peculiar reception of the merits of Christ by which she escaped all influence of original sin. This dogma was promulgated by Pope Pius IX. in 1854.

INCARNATION. -The assumption by Deity of mortal, generally human, form. The Christian conception of the incarnation teaches the union of the divine and the human nature in the person of Christ.

INFALLIBILITY. When applied to the church, the doctrine teaches that the church as a whole, by the influence of the Divine Spirit, cannot err in matters of faith and morals. When applied to the pope, the teaching is that the pope, by the assistance of St. Peter, cannot err when speaking *ex cathedrâ* on matters of faith and morals. That latter doctrine was authoritatively enunciated by the Vatican Council in 1870.

INTELLECTUALISM. In psychology, the theory which holds that the intellect is more fundamental than are the affections. In philosophy, it is held that the ultimate principle of the universe is some form of thought or reason, or is capable of explanation in terms of the intellect.

INTERCESSION. The doctrine that Christ on his ascension to heaven took upon himself the office of perpetual mediation with the Father on behalf of mankind, whom he had redeemed by his crucifixion and death.

INTERMEDIATE STATE. The condition of human souls in the interval between the death of the body and the last judgment.

KNIGHTS TEMPLARS. A religious order instituted 1119; flourished in England during the reign of Henry II.; all of them in France arrested in one day. They were charged with great crime and great riches. Fifty-nine of them were burned alive at Paris (1307); their order destroyed by Pope Clement V. in 1312.

LATITUDINARIANISM. Holding a breadth of view and of tolerance almost approaching indifference. In the seventeenth century the term was applied to the views of those churchmen who sought to effect a union between the Dissenters and the members of the Church of England by emphasizing only common grounds of belief.

LIBERALISM. The disposition on the part of an individual to free and untrammeled thought and action. It is opposed to conservatism. When urged to extremes liberalism becomes radicalism.

LOGOS. The Son of God in whom God's wisdom and power are made manifest and who was incarnate in the person of Jesus Christ.

MACROCOSM AND MICROCOSM. Macrocosm is the great world or universe in contrast to man, the microcosm or small world

MANICHAEISM. The two principles of good and evil, light and darkness, are in eternal conflict in the world and in man's nature, where the struggle is between the flesh and the spirit. Evil influence is to be overcome only by vigorous discipline. For a time St. Augustine was influenced by this teaching.

MATERIALISM. The view that all of the facts of the universe are capable of explanation upon the basis of body or matter indefinitely extended. The ultimate fact of the universe is matter in motion. The greatest modern development of materialism was effected by the Encyclopaedists in the eighteenth century.

MELIORISM. A term invented by George Eliot to express a view midway between optimism and pessimism. It is a belief that it is possible to improve the world by human effort and that such improvement is an inevitable result of evolution.

METEMPSYCHOSIS. The transmigration of souls from one form to another, either human or animal. It is a tenet of Orphic, Pythagorean, Egyptian, Indian, Jewish, and Swedenborgian philosophy.

MONKERY began in Egypt and Persia; tolerably well established about 330. In Egypt alone there were 96,000 monks. St. Anthony, the first example of a monastic life (305), established the first monastery on Mt. Colzim, near the Red Sea. Athanasius introduced monastic life into Rome in 341.

MYSTICISM. Forms of religious and speculative thought which claim to hold direct communication with, or obtain immediate knowledge of, the divine essence.

NATIVITY. The birth of Christ. This occurred probably four years before the date fixed by current chronology.

PAGANISM, finally overthrown in the Roman Empire in the reign of Theodosius between 388 and 395.

PERSECUTION, by the Jews, the first in 33; first general of the Christians under Nero (64); second under Domitian (93); third under Trajan (107); fourth under Marcus-Aurelius (166-177); fifth under Severus (202); sixth under Maximinus (235); seventh under Decius (250); eighth under Valerian (257); ninth under Aurelian (275); tenth under Diocletian (302); by the Arians under Constantius (337); under Julian the Apostate (361); Luther's followers persecuted in Franconia (1525); the Protestants persecuted in England (1556); in France (1723).

POPE, Title of, formerly given to all ecclesiastics; then it became a special title of bishops, and still later was confined to the supreme pontiff; but Boniface III. (606) influenced the emperor Phocas to confine it to the bishops of Rome. Hygenus was the first bishop of Rome that took the title. Supremacy of pope over the Christian Church first enforced by Boniface III. (607); John XIX., a layman, made pope (1024). The first pope that kept an army was Leo IX. (1048). Pope Gregory obliged Henry IV., Emperor of Germany, to stand three days, in the depth of winter, barefooted, at his castle gate, to implore his pardon (1077); the pope's authority first introduced into England (1079); abrogated by Parliament (1534); the word pope struck out of all English books (1541).

PROTESTANTS, NAME OF, began from the Diet of Spires, when several of the German states protested against a decree of the Diet to support the doctrine of the Church of Rome (1529).

SAINTS, TUTELAR, St. George of England, St. Andrew of Scotland, St. Patrick of Ireland, St. David of Wales, St. Denis of France, St. James of Spain.

FRATERNAL ORGANIZATIONS.

These are societies formed for the mutual advantage of the members, socially and beneficially. The highest moral precepts are taught, and their ethical value cannot be overestimated. Secrecy as to the symbols and ceremonials is required. The membership is estimated at more than 12 millions. The following are among the largest:—

Columbus, Knights of.—This is a fraternal organization with insured and associate or non-insured members also, incorporated in 1882. No person who is engaged in the manufacture or sale of intoxicating liquors as a beverage is eligible.

Elks, Benevolent and Protective Order of.—An order whose purposes are chiefly social and philanthropic, including insurance; organized in New York City in 1868. Its membership is restricted to white male citizens 21 years of age.

Foresters, Ancient Order of.—One of the largest beneficiary societies in existence, established in Yorkshire, Eng., in 1745, and in America in 1832; it has courts in 36 countries. The ladies' auxiliary society is called a court. The **Independent Order of Foresters** was founded at Newark, N. J., in 1874; it is general in the United States and Canada. **The Foresters of America** were a part of the Ancient Order till 1889; in 1895 they assumed the new name.

Hibernians, Ancient Order of.—An Irish Catholic organization whose main object is "the advancement of the principles of Irish nationality"; the year 1642 and 1651 are both given as the date of institution; Rory Og O'More was the founder; at first called "The Defenders," they reorganized under the present name as a benefit order in the United States in 1836. The **Ladies' Auxiliary** is an important division.

Maccabees, Knights of the.—A beneficial order organized September 1, 1883, embracing life, accident, sick, and disability benefits. The Supreme Tent, or chief office of the order, is at Port Huron, Mich. The **Ladies of Maccabees,** also a beneficiary society, and its governing body, the Great Hive, were established in 1886.

Malta, Knights of.—A fraternal, military, religious, and beneficial order, the oldest knightly organization in the world, founded in Jerusalem in 1048. The Supreme Grand Commandery of America was chartered in 1889 by the Scottish branch of which it is a part and to which it pays an annual tax. The twelve degrees of the order are founded upon the Holy Bible.

Masons, Free.—According to legend, the beginnings of masonry can be traced back to the date of the building of the Temple of Jerusalem, with King Solomon as the first grand master. Its definite history is known to have begun in the sixteenth century, when it became the successor of the guilds of masons and architects, who were bound together by the secret signs and passwords of their trade. In 1717, a grand lodge was established in England, and a branch of this was founded in America in 1730. After the Revolution the American lodges separated from the English and organized grand lodges in each state. There are now ten Masonic rites in use, but the York or English rite of thirteen and the Scottish of thirty-three degrees are universal. The chapter of **Royal Arch Masons** and the commandery of **Knights Templars** belong to the former. **The Order of the Eastern Star** is the only society allied to masonry that receives women into membership.

Odd Fellows, Independent Order of.—A benevolent order founded in England in 1813, evolved from workingmen's beneficial societies. It was introduced into the United States in 1819, separated from the English order in 1843, and in 1879 instituted the Sovereign Grand Lodge, which controls the order throughout the world.

The Encampment, the Patriarchs Militant, and Rebekahs, the last a branch for women members, are important departments.

Patrons of Husbandry.—An organization originally instituted for those persons "directly interested in the cultivation of the soil." It is to-day a social, educational, and elevating influence for all classes of people, especially for those n the rural districts. It is non-partisan and nonsectarian. Its constitution provides for local, district, state, and national granges, in which seven degrees are conferred; women are admitted equally with men and are eligible to all offices. It was originated by Oliver H. Kelley in 1867.

Pythias, Knights of.—A fraternal organization which has insurance and endowment benefits, founded in 1864 at Washington. It has a supreme lodge which has full control; three degrees are conferred, page, esquire, and knight.

Red Men, Improved Order of.—A beneficial society, claiming unbroken succession from the Sons of Liberty and other Revolutionary societies, reorganized in 1835. Its government is modeled after that of the United States; the Great Council of the United States is the supreme governing body. Its three degrees are adoption, warrior, and chief; its officers are prophet, sachem, senior sagamore, junior sagamore, chief of records, and keeper of wampum. The **Degree of Pocahontas** is for the benefit of the female relatives of the Red Men.

Royal Arcanum, The.—A beneficial society originated by Dr. Darius Wilson and John A. Cummings at Boston in 1877; nine members form the Supreme Council, the governing body. There is a benefit certificate of one, two, and three thousand dollars, payable at deaths of members.

United Workmen, Ancient Order of.—A benevolent society organized at Meadville, Pa., in 1868. The constitution provided that when the first 1,000 were enrolled, an insurance feature should be added, guaranteeing $500 on the death of the insured member; this was later increased to $2,000.

BENEFICIAL ORGANIZATIONS.

There are many other societies, religious, patriotic, and social, all with a purpose for the betterment of mankind.

Salvation Army, The.—A religious and philanthropic organization which developed from a mission in East London conducted by William Booth, in 1865; in 1878 it assumed the present title; its object was to influence the masses of people outside the churches, thus open air meetings and services in prisons and saloons were held. Military titles for the officers were adopted, uniforms assumed, and barracks built. Total abstinence is the condition of membership. It was introduced into America in 1880. In 1896, Commander Ballington Booth with several other officers withdrew from the Army and organized the **Volunteers of America**, whose work is of the same kind.

Grand Army of the Republic, The—A patriotic society organized in Decatur, Ill., April 6, 1866. Its purpose is to foster the fraternal feeling among those who participated in the Rebellion, to perpetuate the memory of their dead, and to aid the members and their families. Any United States soldier, sailor, or marine who served from April 12, 1861, to April 9, 1865, is eligible, if honorably discharged. It is made up of departments representing the states and territories and local societies. In 1879, the **Sons of Veterans**, consisting of male descendants of Grand Army members, and in 1883, the **Women's Relief Corps** were organized.

Spanish War Veterans.—This society, incorporated in 1899, admits to membership any soldier or sailor of the regular or volunteer army and navy and marine corps of the United States who served honorably during the Spanish or Philippine wars; its auxiliary is composed of women who rendered special service

Red Cross, The.—An international society whose original purpose was to mitigate the horrors of war by alleviating suffering on the battlefield. In 1859, M. Henri Dunant, a Swiss philanthropist, witnessed the dreadful condition of the wounded soldiers at Magenta and Solferino. He wrote a book in which he proposed that societies be formed in every country to train nurses and collect supplies in times of peace; through his efforts an international conference was held at Geneva in 1863, at which fourteen European nations were represented; no delegates were present from any Asiatic, African, or American nation. The United States Sanitary Commission was doing this sort of work at the time. The universal insignia of a white flag and armband bearing a red cross was adopted. In 1881, the **American Association of the Red Cross** was incorporated in Washington, D. C., and Clara Barton was its first president. In 1905, by Act of Congress, this organization was dissolved and a new national incorporation of the **American National Red Cross** formed. In addition to the original work planned, it is engaged in the relief of sufferers during great calamities, as fires, famines, earthquakes, floods, and pestilences. At the Hague Peace Conference in 1899, relief was extended to naval warfare.

Boy Scouts of America, The.—In 1900, Ernest Thompson Seton formed a brotherhood among some boys called the "Woodcraft Indians"; in 1904, he went to England and secured the coöperation of General R. S. S. Baden-Powell, the chief advocate of scouting in the British army, in making the movement popular; in 1908, the Boy Scout movement was organized. The organization consists of the Chief Scout, Scout Councils, Local Committees, Troops, Patrols, and Scouts; the latter are of three kinds, first class, second class and tenderfeet. The object is to direct the boys' enthusiasm into proper channels. The boys are taught to appreciate the things about them, and trained in endurance, self-reliance, self-control, and helpfulness.

CIVIC ORGANIZATIONS.

During the last two decades many groups of business men have banded together to promote the best interests of their home communities. Several organizations have reached international proportions and are constantly adding new chapters in cities and large towns. Among these that are well known are Rotary, Kiwanis, and the Lions International clubs.

The oldest of these, the Rotary, was established in Chicago in mid-winter of 1905. Several business men, led by Paul P. Harris, had

been meeting at various places; and from the fact of rotation of gatherings the name Rotary was suggested as a permanent mark of distinction. Three years later a second club was organized in San Francisco. The organization became international with the founding of the group in Winnipeg, Canada, in 1910, since which time the principles of the Rotarians have been carried into forty countries of four continents. During the first twenty years the membership increased to the hundred thousand mark, and the number is still consistently growing, with almost two thousand different local clubs stretching from Illinois to India and Australia.

From the start Rotary has emphasized a high stand of business ethics, realizing that service is the basis of all good business. "He profits most who serves best" has become a characteristic motto. In choosing members only the highest community standards are considered. For membership a man must belong to a firm recognized for importance; he must be of known integrity and recognized force in business, and must be socially acceptable in his town or city. Only a single representative is elected from each business or occupation or profession. Each member may propose a man from his own business who becomes an associate member but without voting powers.

Prominent among the eleven rules of ethics of Rotary is a belief in the dignity of one's business or occupation; efficiency; honesty; fairness in all business dealings; interest in building up one's community; the making of friends; and the universality of the Golden Rule.

Kiwanis, established in 1915, during the first ten years spread to nearly eighteen thousand centers on the North American continent. From each of the professions and lines of business ordinarily two members are chosen for a local club. Like the Rotarians a hundred thousand men gather weekly for lunch and the discussion of business and community relations. The main objectives of Kiwanis are summed up in the official creed, which emphasizes the spiritual rather than the material in life; counsels the adoption of higher standards in business and private affairs; encourages worthy civic movements everywhere; and hopes to increase friendliness among all men.

To carry out this code of ethics, certain definite activities are fostered from time to time. Kiwanis has given valuable aid to the endeavor for Americanization, to the securing of a fairer chance for the under-privileged child, to promoting a more friendly attitude between those of the farm and of the town, and to the establishment of various civic movements in local communities.

The International Association of Lions Clubs, between 1917 and 1925 increased from a few members in one unit to more than forty thousand members in nine hundred units. Various small, independent clubs fused into this one larger organization, the ultimate aim of which now is to establish a club in every sizable town and city of the United States and Canada. Lionism has Loyalty, Integrity, Oneness, Nobleness, Initiative, Service and Merit as the main corner stones.

The slogan is "Liberty, Intelligence, Our Nation's Safety." Full and effective cooperation is pledged to all similar organizations, chambers of commerce, business and religious groups that foster the good of town and country. Its special aim is the elimination of class distinctions, political and sectarian differences, such as keep men from uniting in the highest spirit of brotherhood. The Lions have also specially aided in movements for the physical betterment of towns and cities.

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